City Mr. Eric Scarbrough, President APR Construction, Inc. 3916 Murray Hill Road La Mesa, CA 91941 -P: (619) 247-7327 F: (619) 464-3835

CONTRACTOR'S NAME: ADDRESS:

TELEPHONE NO.:

CITY CONTACT: Damian Singleton, CONTRACT SPECIALIST, Email: DSingleton@sandiego.gov Phone No. (619) 533-3482, Fax No. (619) 533-3633 J.Sleiman/NB/egz

COPY

CONTRACT DOCUMENTS



FOR

LA JOLLA COVE LIFEGUARD STATION

VOLUME 1 OF 2

BID NO.:	K-14-5708-DBB-3	
SAP NO. (WBS/IO/CC):	S-00792	
CLIENT DEPARTMENT:	1912	
COUNCIL DISTRICT:	2	
PROJECT TYPE:	BB	·····

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

> THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.

BID DUE DATE:

2:00 PM AUGUST 22, 2013 **CITY OF SAN DIEGO PUBLIC WORKS DEPARTMENT** 1010 SECOND AVENUE, SUITE 1400, MS 614C SAN DIEGO, CA 92101

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:

ARCA RALPH J. ROESLING NO. C 10987 Reserve Esc. MM Seal: C 1) Registered Architect Date Scal 2) For City Engineer Date

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CITY OF SAN DIEGO, CALIFORNIA

NOTICE INVITING BIDS

- 1. **RECEIPT AND OPENING OF BIDS:** Bids will be received at the Public Works Contracting Group at the location, time, and date shown on the cover of these specifications for performing work on La Jolla Cove Lifeguard Station (Project).
- 2. **DESCRIPTION OF WORK:** The Work involves furnishing all labor, materials, equipment, services, and other incidental works and appurtenances for the construction of the Project as described below:

The scope of work will include but it is not limited to the construction of a lifeguard station with a new steel-framed structure, wood observation tower on a cast-in-place concrete cantilevered based and a new secondary observation and storage facility with a public view deck above. The Lifeguard station will also include a locker room, kitchenette and an ADA ramps from the street level to the mid landing. A pump station/force main, various site improvements and other miscellaneous items as described and shown in the contract documents.

- **2.1** The Work shall be performed in accordance with:
 - 2.1.1 This Notice Inviting Bids and Plans numbered 32674-01-D through 32674-67-D, inclusive.

3. EQUAL OPPORTUNITY

3.1 To The WHITEBOOK, Chapter 10, Sections D and E, DELETE in their entirety and SUBSTITUTE with the following:

D. CITY'S EQUAL OPPORTUNITY COMMITMENT.

1. Nondiscrimination in Contracting Ordinance.

1. The Contractor, Subcontractors and Suppliers shall comply with requirements of the City's Nondiscrimination in Contracting Ordinance, San Diego Municipal Code §§22.3501 through 22.3517.

The Contractor shall not discriminate on the basis of race, gender, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, or suppliers. The Contractor shall provide equal opportunity for subcontractors to participate in subcontracting opportunities. The Contractor understands and agrees that violation of this clause shall be considered a material breach of the contract and may result in contract termination, debarment, or other sanctions.

The Contractor shall include the foregoing clause in all contracts between the Contractor and Subcontractors and Suppliers.

2. Disclosure of Discrimination Complaints. As part of its Bid or Proposal, the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors, or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

- 3. Upon the City's request, the Contractor agrees to provide to the City, within 60 days, a truthful and complete list of the names of all Subcontractors and Suppliers that the Contractor has used in the past 5 years on any of its contracts that were undertaken within San Diego County, including the total dollar amount paid by the Contractor for each subcontract or supply contract.
- 4. The Contractor further agrees to fully cooperate in any investigation conducted by the City pursuant to the City's Nondiscrimination in Contracting Ordinance, Municipal Code §§22.3501 through 22.3517. The Contractor understands and agrees that violation of this clause shall be considered a material breach of the Contract and may result in remedies being ordered against the Contractor up to and including contract termination, debarment and other sanctions for violation of the provisions of the Nondiscrimination in Contracting Ordinance. The Contractor further understands and agrees that the procedures, remedies and sanctions provided for in the Nondiscrimination in Contracting Ordinance.

E. EQUAL EMPLOYMENT OPPORTUNITY OUTREACH PROGRAM.

1. The Contractor, Subcontractors and Suppliers shall comply with the City's Equal Employment Opportunity Outreach Program, San Diego Municipal Code §§22.2701 through 22.2707.

The Contractor shall not discriminate against any employee or applicant for employment on any basis prohibited by law. Contractor shall provide equal opportunity in all employment practices. Prime Contractor shall ensure their subcontractors comply with this program. Nothing in this section shall be interpreted to hold a prime contractor liable for any discriminatory practice of its subcontractors.

The Contractor shall include the foregoing clause in all contracts between the Contractor and Subcontractors and Suppliers.

- 2. If the Contract is competitively solicited, the selected Bidder shall submit a Work Force Report (Form BB05), within 10 Working Days after receipt by the Bidder of Contract forms to the City for approval as specified in the Notice of Intent to Award letter from the City.
- 3. If a Work Force Report is submitted, and the City determines there are under-representations when compared to County Labor Force Availability data, the selected Bidder shall submit an Equal Employment Opportunity Plan.
- 4. If the selected Bidder submits an Equal Employment Opportunity Plan, it shall include the following assurances:

- 1. The Contractor shall maintain a working environment free of discrimination, harassment, intimidation and coercion at all sites and in all facilities at which the Contractor's employees are assigned to work.
- 2. The Contractor reviews its EEO Policy, at least annually, with all onsite supervisors involved in employment decisions.
- 3. The Contractor disseminates and reviews its EEO Policy with all employees at least once a year, posts the policy statement and EEO posters on all company bulletin boards and job sites, and documents every dissemination, review and posting with a written record to identify the time, place, employees present, subject matter, and disposition of meetings.
- 4. The Contractor reviews, at least annually, all supervisors' adherence to and performance under the EEO Policy and maintains written documentation of these reviews.
- 5. The Contractor discusses its EEO Policy Statement with subcontractors with whom it anticipates doing business, includes the EEO Policy Statement in its subcontracts, and provides such documentation to the City upon request.
- 6. The Contractor documents and maintains a record of all bid solicitations and outreach efforts to and from subcontractors, contractor associations and other business associations.
- 7. The Contractor disseminates its EEO Policy externally through various media, including the media of people of color and women, in advertisements to recruit, maintains files documenting these efforts, and provides copies of these advertisements to the City upon request.
- 8. The Contractor disseminates its EEO Policy to union and community organizations.
- 9. The Contractor provides immediate written notification to the City when any union referral process has impeded the Contractor's efforts to maintain its EEO Policy.
- 10. The Contractor maintains a current list of recruitment sources, including those outreaching to people of color and women, and provides written notification of employment opportunities to these recruitment sources with a record of the organizations' responses.
- 11. The Contractor maintains a current file of names, addresses and phone numbers of each walk-in applicant, including people of color and women, and referrals from unions, recruitment sources, or community organizations with a description of the employment action taken.
- 12. The Contractor encourages all present employees, including people of color and women employees, to recruit others.

- 13. The Contractor maintains all employment selection process information with records of all tests and other selection criteria.
- 14. The Contractor develops and maintains documentation for on-the-job training opportunities, participates in training programs, or both for all of its employees, including people of color and women, and establishes apprenticeship, trainee, and upgrade programs relevant to the Contractor's employment needs.
- 15. The Contractor conducts, at least annually, an inventory and evaluation of all employees for promotional opportunities and encourages all employees to seek and prepare appropriately for such opportunities.
- 16. The Contractor ensures the company's working environment and activities are non-segregated except for providing separate or single-user toilets and necessary changing facilities to assure privacy between the sexes.

4. SUBCONTRACTING PARTICIPATION PERCENTAGES.

4.1. The City has incorporated **mandatory** SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

1.	SLBE participation	3.3 %

2.	ELBE participation	8.2 %

- 3. Total mandatory participation 11.5 %
- **4.2.** The Bidders are **strongly encouraged** to attend the Pre-Bid Meeting to better understand the Good Faith Effort requirements of this contract. See the City's document titled "SLBE Program, Instructions For Bidders Completing The Good Faith Effort Submittal" available at: <u>http://www.sandiego.gov/eoc/</u>
- **4.3.** The Bid will be declared non-responsive if the Bidder fails the following mandatory conditions:
 - **4.3.1.** Bidder's inclusion of SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; OR.
 - **4.3.2.** Bidder's submission of Good Faith Effort documentation demonstrating the Bidder made a good faith effort to outreach to and include SLBE-ELBE Subcontractors required in this document within 3 Working Day of the Bid opening if the overall mandatory participation percentage is not met.

5. **PRE-BID MEETING:**

- **5.1.** There will be a Pre-Bid Meeting to discuss the scope of the Project, bidding requirements, pre-qualification process, and Equal Opportunity Contracting Program requirements and reporting procedures in the Public Works Contracting Group, Conference Room at 1010 Second Avenue, Suite 1400, San Diego, CA 92101 at 10:00 AM, on JULY 31, 2013.
- **5.2.** All potential bidders are encouraged to attend.
- **5.3.** To request a copy of the agenda on an alternative format, or to request a sign language or oral interpreter for this meeting, call the Public Works Contracting Group at (619) 533-3450 at least 5 Working Days prior to the Pre-Bid Meeting to ensure availability.

6. CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM:

6.1. <u>Prior</u> to the Award of the Contract or each Task Order, you and your Subcontractors and Suppliers **must** register with Prism®, the City's web-based contract compliance portal at:

https://pro.prismcompliance.com/default.aspx.

- **6.2.** The City may not award the contract until registration of all subcontractors and suppliers is complete. In the event this requirement is not met within the time frame specified in the Notice of Intent to Award letter, the City reserves the right to rescind the Notice of Award / Intent to Award and to make the award to the next responsive and responsible bidder / proposer.
- 7. **PRE-BID SITE VISIT:** The prospective Bidders are encouraged to visit the Work Site with the Engineer. The purpose of the Site visit is to acquaint Bidders with the Site conditions. To request a sign language or oral interpreter for this visit, call the Public Works Contracting Group at (619) 533-3450 at least 5 Working Days prior to the meeting to ensure availability. A Pre-Bid Site Visit is offered when the details are provided as follows:

Time:	10:00 AM
Date:	AUGUST 1, 2013
Location:	1160 Coast Blvd., La Jolla, CA 92037

- 8. CONSTRUCTION COST: The City's estimated construction cost for this contract is \$1,180,000.
- 9. LOCATION OF WORK: The location of the Work is as follows:

1160 Coast Blvd., La Jolla, CA 92037

- 10. CONTRACT TIME: The Contract Time for completion of the Work shall be 185 Working Days.
- 11. CONTRACTOR'S LICENSE CLASSIFICATION: In accordance with the provisions of California Law, the Contractor shall possess valid appropriate license(s) at the time that the Bid is submitted. Failure to possess the specified license(s) shall render the Bid as **non-responsive** and shall act as a bar to award of the Contract to any Bidder not possessing required license(s) at the time of Bid.

11.1. The City has determined the following licensing classification(s) for this contract:

CLASS B

- 12. JOINT VENTURE CONTRACTORS. Provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receiving the Contract forms. See 2-1.1.2, "Joint Venture Contractors" in The WHITEBOOK for details.
- 13. WAGE RATES: Prevailing wages are not applicable to this contract.

14. INSURANCE REQUIREMENTS:

- **14.1.** All certificates of insurance and endorsements required by the contract are to be provided upon issuance of the City's Notice of Intent to Award letter.
- **14.2.** Refer to sections 7-3, "LIABILITY INSURANCE", and 7-4, "WORKERS' COMPENSATION INSURANCE" of the Supplementary Special Provisions (SSP) for the insurance requirements which must be met.

15. PREQUALIFICATION OF CONTRACTORS:

15.1. Contractors submitting Bid must be pre-qualified for the total amount proposed, inclusive of all alternate items prior to the date of submittal. Bids from contractors who have not been pre-qualified as applicable and Bids that exceed the maximum dollar amount at which contractors are pre-qualified will be deemed **non-responsive** and ineligible for award. Complete information and prequalification questionnaires are available at:

http://www.sandiego.gov/cip/bidopps/prequalification.shtml

- **15.2.** The completed questionnaire, financial statement, and bond letter or a copy of the contractor's SLBE-ELBE certification and bond letter, must be submitted no later than 2 weeks prior to the bid opening to the Public Works Department Engineering & Capital Project, Prequalification Program, 1010 Second Avenue, Suite 1400, San Diego, CA 92101. For additional information or the answer to questions about the prequalification program, contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.
- **16. REFERENCE STANDARDS:** Except as otherwise noted or specified, the Work shall be completed in accordance with the following standards:

Title	Edition	Document Number
Standard Specifications for Public Works Construction ("The GREENBOOK")	2012	PITS070112-01
City of San Diego Standard Specifications for Public Works Construction ("The WHITEBOOK")*	2012	PITS070112-02
City of San Diego Standard Drawings*	2012	PITS070112-03
Caltrans Standard Specifications	2010	PITS070112-04
Caltrans Standard Plans	2010	PITS070112-05
California MUTCD	2012	PITS070112-06

Title	Edition	Document Number
City Standard Drawings – Standard Drawings Updates Approved For Use *	Varies	Varies
Standard Federal Equal Employment Opportunity Construction Contract Specifications and the Equal Opportunity Clause Dated 09-11-84	1984	769023
NOTE: *Available online under Engineering Documents and References at http://www.sandiego.gov/publicworks/edocref/index.shtml		

- 17. CITY'S RESPONSES AND ADDENDA: The City at its option, may respond to any or all questions submitted in writing, via letter, or FAX in the form of an addendum. No oral comment shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addendum are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda on the form provided for this purpose in the Bid.
- **18. CITY'S RIGHTS RESERVED:** The City reserves the right to cancel the Notice Inviting Bids at any time, and further reserves the right to reject submitted Bids, without giving any reason for such action, at its sole discretion and without liability. Costs incurred by the Bidder(s) as a result of preparing Bids under the Notice Inviting Bids shall be the sole responsibility of each bidder. The Notice Inviting Bids creates or imposes no obligation upon the City to enter a contract.
- **19. CONTRACT PRICING FORMAT:** This solicitation is for a Lump Sum and Unit Price contract as set forth in the Bid Proposal Form(s), Volume 2.
- **20. SUBMITTAL OF "OR EQUAL" ITEMS:** See Section 4-1.6, "Trade Names or Equals" in The WHITEBOOK and as amended in the SSP.

21. AWARD PROCESS:

- **21.1.** The Award of this contract is contingent upon the Contractor's compliance with all conditions precedent to Award.
- **21.2.** Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening and award the Contract approximately within 7 days of receipt of properly executed Contract, bonds, and insurance documents.
- **21.3.** This contract will be deemed executed, and effective, only upon the signing of the Contract by the Mayor or designee of the City.
- 22. SUBCONTRACT LIMITATIONS: The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" in The WHITEBOOK and as amended in the SSP which requires the Contractor to self perform the amount therein stipulated. Failure to comply with these requirements may render the Bid non-responsive and ineligible for award.

23. AVAILABILITY OF PLANS AND SPECIFICATIONS: Contract Documents may be obtained by visiting the City's website: <u>http://www.sandiego.gov/cip/</u>. Plans and Specifications for this contract are also available for review in the office of the City Clerk or Public Works Contracting Group.

24. **QUESTIONS:**

- **24.1.** The Director (or designee), of the Public Works Department is the officer responsible for opening, examining, and evaluating the competitive Bids submitted to the City for the acquisition, construction and completion of any public improvement except when otherwise set forth in these documents. All questions related to this procurement action shall be addressed to the Public Works Contracting Group, Attention Contract Specialist, 1010 Second Avenue, Suite 1400, San Diego, California, 92101, and Telephone No. (619) 533-3450.
- **24.2.** Questions received less than 14 days prior to the date for opening of Bids may not be answered.
- **24.3.** Interpretations or clarifications considered necessary by the City in response to such questions will be issued by Addenda which will be uploaded to the City's online bidding service.
- **24.4.** Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. It is the Bidder's responsibility to become informed of any Addenda that have been issued and to include all such information in its Bid.
- **25. ELIGIBLE BIDDERS:** No person, firm, or corporation shall be allowed to make, file, or be interested in **more** than one (1) Bid for the same work unless alternate Bids are called for. A person, firm or corporation who has submitted a sub-proposal to a Bidder, or who has quoted prices on materials to a Bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or from submitting a Bid in its own behalf. Any Bidder who submits more than one bid will result in the rejection of all bids submitted.
- 26. SAN DIEGO BUSINESS TAX CERTIFICATE: The Contractor and Subcontractors, not already having a City of San Diego Business Tax Certificate for the work contemplated shall secure the appropriate certificate from the City Treasurer, Civic Center Plaza, first floor and submit to the Contract Specialist upon request or as specified in the Contract Documents. Tax Identification numbers for both the Bidder and the listed Subcontractors must be submitted on the City provided forms with the Notice Inviting Bids and Contract forms.
- 27. **PROPOSAL FORMS:** Bid shall be made only upon the Bidding Documents i.e., Proposal form attached to and forming a part of the specifications. The signature of each person signing shall be in longhand.
 - **27.1.** Bidder shall complete and submit all pages in the "Bidding Document" Section (see Volume 2) as their Bid per the schedule given under "Required Documents Schedule," (see Volume 1). Bidder is requested to retain for their reference other portions of the Contract Documents that are not required to be submitted with the Bid. The entire specifications for the bid package do not need to be submitted with the bid.

- **27.2.** The City may require any Bidder to furnish a statement of experience, financial responsibility, technical ability, equipment, and references.
- **27.3.** Bids and certain other forms and documents as specified in the Volume 2 of 2 of the Contract Documents shall be enclosed in a sealed envelope and shall bear the title of the work and name of the Bidder and the appropriate State Contractors License designation which the Bidder holds.
- **27.4.** Bids may be withdrawn by the Bidder prior to, but not after, the time fixed for opening of Bids.

28. BIDDERS' GUARANTEE OF GOOD FAITH (BID SECURITY):

- **28.1.** With the exception of the contracts valued \$5,000 or less, JOC and Design-Build contracts, and contracts subject to the Small and Local Business Program of \$250,000 or less e.g., ELBE contracts, each Bidder shall accompany its Bid with either a cashier's check upon some responsible bank, or a check upon such bank properly certified or an approved corporate surety bond payable to the City of San Diego, for an amount of not less than 10% of the aggregate sum of the Bid, which check or bond, and the monies represented thereby shall be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into such contract and furnish the required final bonds.
- **28.2.** The Bidder agrees that in case of Bidder's refusal or failure to execute this contract and give required final bonds, the money represented by a cashier's or certified check shall remain the property of the City, and if the Bidder shall fail to execute this contract, the Surety agrees that it will pay to the City damages which the City may suffer by reason of such failure, not exceeding the sum of 10% of the amount of the Bid.
- **28.3.** A Bid received without the specified bid security will be rejected as being **non-responsive**.

29. AWARD OF CONTRACT OR REJECTION OF BIDS:

- **29.1.** This contract may be awarded to the lowest responsible and reliable Bidder.
- **29.2.** Bidders shall complete the entire Bid schedule (also referred to as "schedule of prices" or Proposal form). Incomplete price schedules will be rejected as being non-responsive.
- **29.3.** The City reserves the right to reject any or all Bids, and to waive any informality or technicality in Bids received and any requirements of these specifications as to bidding procedure.
- **29.4.** Bidders will not be released on account of their errors of judgment. Bidders may be released only upon receipt by the City from the Bidder within 3 Working Days, excluding Saturdays, Sundays, and state holidays, after the opening of Bids, of written notice which includes proof of honest, credible, clerical error of material nature, free from fraud or fraudulent intent, and of evidence that reasonable care was observed in the preparation of the Bid.

- **29.5.** A non-selected Bidder may protest award of the Contract to the selected Bidder by submitting a written "Notice of Intent to Protest" including supporting documentation which shall be received by Public Works Contracting Group no later than 10 days after the City's announcement of the selected Bidder or no later than 10 days from the date that the City issues notice of designation of a Bidder as non-responsible in accordance with San Diego Municipal Code Chapter 2, § 22.3029, "Protests of Contract Award."
- **29.6.** The City of San Diego will not discriminate with regard to race, religious creed, color, national origin, ancestry, physical handicap, marital status, sex or age, in the award of contracts.
- **29.7.** Each Bid package properly executed as required by these specifications shall constitute a firm offer, which may be accepted by the City within the time specified in the Proposal.
- **29.8.** The City reserves the right to evaluate all Bids and determine the lowest Bidder on the basis of any proposed alternates, additive items or options, at its discretion that will be disclosed in the Volume 2 of 2.

30. BID RESULTS:

- **30.1.** The Bid opening by the City shall constitute the public announcement of the Apparent Low Bidder. In the event that the Apparent Low Bidder is subsequently deemed non-responsive or non-responsible, a public announcement will be posted in the City's web page: <u>http://www.sandiego.gov/cip/index.shtml</u>, with the name of the newly designated Apparent Low Bidder.
- **30.2.** To obtain Bid results, either attend Bid opening, review the results on the City's web site, or provide a self-addressed, stamped envelope, referencing Bid number, and Bid tabulation will be mailed to you upon verification of extensions. Bid results cannot be given over the telephone.

31. THE CONTRACT:

- **31.1.** The Bidder to whom award is made shall execute a written contract with the City of San Diego and furnish good and approved bonds and insurance certificates specified by the City within 14 days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.
- **31.2.** If the Bidder takes longer than 14 days to fulfill these requirements, then the additional time taken shall be added to the Bid guarantee. The Contract shall be made in the form adopted by the City, which includes the provision that no claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
- **31.3.** If the Bidder to whom the award is made fails to enter into the contract as herein provided, the award may be annulled and the Bidder's Guarantee of Good Faith will be subject to forfeiture. An award may be made to the next lowest responsible and reliable Bidder who shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made.

- **31.4.** Pursuant to the San Diego City Charter section 94, the City may only award a public works contract to the lowest responsible and reliable Bidder. The City will require the Apparent Low Bidder to (i) submit information to determine the Bidder's responsibility and reliability, (ii) execute the Contract in form provided by the City, and (iii) furnish good and approved bonds and insurance certificates specified by the City within 14 Days, unless otherwise approved by the City, in writing after the Bidder receives notification from the City, designating the Bidder as the Apparent Low Bidder and formally requesting the above mentioned items.
- **31.5.** The award of the Contract is contingent upon the satisfactory completion of the above mentioned items and becomes effective upon the signing of the Contract by the Mayor or designee. If the Apparent Low Bidder does not execute the Contract or submit required documents and information, the City may award the Contract to the next lowest responsible and reliable Bidder who shall fulfill every condition precedent to award. A corporation designated as the Apparent Low Bidder shall furnish evidence of its corporate existence and evidence that the officer signing the Contract and bond for the corporation is duly authorized to do so.
- **32. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK:** The Bidder shall examine carefully the Project Site, the Plans and Specifications, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents). The submission of a Bid shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of Work, the quantities of materials to be furnished, and as to the requirements of the Bidding Documents Proposal, Plans, and Specifications.
 - **33. CITY STANDARD PROVISIONS.** This contract is subject to the following standard provisions. See The WHITEBOOK for details.
 - **33.1.** The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.
 - **33.2.** The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.
 - **33.3.** The City of San Diego Municipal Code §22.3004 for Pledge of Compliance.
 - **33.4.** The City of San Diego's Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.
 - **33.5.** Sections 1777.5, 1777.6, and 1777.7 of the State of California Labor Code concerning the employment of apprentices by contractors and subcontractors performing public works contracts.
 - **33.6.** The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).
 - **33.7.** The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.

34. PRE-AWARD ACTIVITIES:

- **34.1.** The selected contractor by the City to execute a contract for this Work shall provide the information required within the time specified in "Required Documents," of this bid package. Failure to provide the information within the time specified may result in the Bid being rejected as **non-responsive.**
- **34.2.** If the Bid is rejected as non-responsive, the selected contractor by the City to execute a contract for this Work shall forfeit the required Bid. The decision that the selected contractor by the City to execute a contract for this Work is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

35. REQUIRED DOCUMENT SCHEDULE:

- **35.1.** The Bidder's attention is directed to the City's Municipal Code §22.0807(e), (3)-(5) for important information regarding grounds for debarment for failure to submit required documentation.
- **35.2.** The specified Equal Opportunity Contracting Program (EOCP) forms are available for download from the City's web site at:

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
1.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Bid
2.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Bid Bond
3.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Non-collusion Affidavit to be Executed By Bidder and Submitted with Bid under 23 USC 112 and PCC 7106
4.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Contractors Certification of Pending Actions
5.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Equal Benefits Ordinance Certification of Compliance
6.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA35 - List of Subcontractors
7.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA40 - Named Equipment/Material Supplier List
8.	WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION	ALL BIDDERS	SLBE Good Faith Efforts Documentation

http://www.sandiego.gov/eoc/forms/index.shtml

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
9.	WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION	ALL BIDDERS	Form AA60 – List of Work Made Available
10.	WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION	ALL BIDDERS	Proof of Valid DBE-MBE-WBE- DVBE Certification Status e.g., Certs.
11.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Names of the principal individual owners of the Apparent Low Bidder
12.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	If the Contractor is a Joint Venture: • Joint Venture Agreement • Joint Venture License
13.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Form BB05 - Work Force Report
14.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Agreement
15.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Payment and Performance Bond
16.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Certificates of Insurance and Endorsements
17.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - Drug-Free Workplace
18.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - American with Disabilities Act
19.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractors Standards - Pledge of Compliance

CONTRACT FORMS

AGREEMENT

CONTRACT FORMS AGREEMENT

CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and <u>APR CONSTRUCTION</u>, herein called "Contractor" for construction of <u>La Jolla Cove Lifeguard Station</u>; Bid No.<u>K-14-5708-DBB-3</u>; in the amount of <u>EIGHT HUNDRED SIX THOUSAND SIX HUNDRED</u> <u>DOLLARS AND 00/100 (\$806,600.00)</u>, which is comprised of the Base Bid alone.

IN CONSIDERATION of the payments to be made hereunder and the mutual undertakings of the parties hereto, City and Contractor agree as follows:

- 1. The following are incorporated into this contract as though fully set forth herein:
 - (a) The attached Faithful Performance and Payment Bonds.
 - (b) The attached Proposal included in the Bid documents by the Contractor.
 - (c) Reference Standards listed in the Notice Inviting Bids and the Supplementary Special Provisions (SSP).
 - (d) That certain documents entitled <u>La Jolla Cove Lifeguard Station</u>, on file in the office of the Public Works Department as Document No. <u>S-00792</u>, as well as all matters referenced therein.
- 2. The Contractor shall perform and be bound by all the terms and conditions of this contract and in strict conformity therewith shall perform and complete in a good and workmanlike manner <u>La</u> <u>Jolla Cove Lifeguard Station</u>; Bid Number <u>K-14-5708-DBB-3</u>, San Diego, California.
- 3. For such performances, the City shall pay to Contractor the amounts set forth at the times and in the manner and with such additions or deductions as are provided for in this contract, and the Contractor shall accept such payment in full satisfaction of all claims incident to such performances.
- 4. No claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
- 5. This contract is effective as of the date that the Mayor or designee signs the agreement.

CONTRACT FORMS (continued)

AGREEMENT

IN WITNESS WHEREOF, this Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to Municipal Code §22.3102 authorizing such execution.

THE CITY OF SAN DIEGO

Bv: ar

Stephen Samara Senior Contract Specialist Public Works Contracting Group

APPROVED AS TO FORM AND LEGALITY

Jan I. Goldsmith, City Attorney

M. Mercer Print Name: Deputy City Attorney

Date: 12

Date: 12/17

CONTRACTOR By Eric

President

Print Name:

Title:

11513Date:

City of San Diego License No .:_

State Contractor's License No.: 940651

Contract Forms (Rev. July 2012) La Jolla Cove Lifeguard Station

CONTRACT/AGREEMENT

ATTACHMENTS

Contract Attachments (Rev. July 2012) La Jolla Cove Lifeguard Station

.

20 | Page



FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

APR CONSTRUCTION ______, a corporation, as principal, and Indemnity Company of California _______, a corporation authorized to do business in the State of California, as Surety, hereby obligate themselves, their successors and assigns, jointly and severally, to The City of San Diego a municipal corporation in the sum of EIGHT HUNDRED SIX THOUSAND SIX HUNDRED DOLLARS AND 00/100 (\$806,600.00) for the faithful performance of the annexed contract, and in the sum of <u>EIGHT HUNDRED SIX HUNDRED DOLLARS AND 00/100 (\$806,600.00)</u> for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract <u>La Jolla Cove Lifeguard Station</u>; Bid Number <u>K-14-5708-DBB-3</u>. San Diego, California then the obligation herein with respect to a faithful performance shall be void; otherwise it shall remain in full force.

If the Principal shall promptly pay all persons, firms and corporations furnishing materials for or performing labor in the execution of this contract, and shall pay all amounts due under the California Unemployment Insurance Act then the obligation herein with respect to laborers and materialmen shall be void; otherwise it shall remain in full force.

The obligation herein with respect to laborers and materialmen shall inure to the benefit of all persons, firms and corporations entitled to file claims under the provisions of Chapter 3 of Division 5 of Title I of the Government Code of the State of California or under the provisions of Section 3082 et seq. of the Civil Code of the State of California.

Changes in the terms of the annexed contract or specifications accompanying same or referred to therein shall not affect the Surety's obligation on this bond, and the Surety hereby waives notice of same.

CONTRACT ATTACHMENT (continued) PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

The Surety shall pay reasonable attorney's fees should suit be brought to enforce the provisions of this bond.

Dated November 14, 2013

Approved as to Form and Legality

APR Construction, Inc. Principal By Chi Confing Eric Scourbrough

Printed Name of Person Signing for Principal

Jan I. Goldsmith, City Attorney By Deputy City Attorney

Indemnity Company of California

Surety

RV

Elisabete Salazar- Atomey-In-Tact

9750 Third Ave. N.E. Suite 305 Local Address of Surety

Seattle, WA 98115 Local Address (City, State) of Surety

206-470-2300

Premium \$_16,132.00

Local Telephone No. of Surety

Premium Based on Final Contract Price

Bond No. 505008P

Approved By:

Stephen Samara Senior Contract Specialist Public Works Contracting Group

State of California	
County of Los Angeles	∫
On <u>November 4, 2013</u> before me,	M. S. Rodriguez, Notary Public Here Insert Name and Title of the Officer
personally appearedELISABET	E SALAZAR
	Name(s) of Signer(s)
	who proved to me on the basis of satisfactory evide
	be the person(\$) whose name(\$) is/are subscribed
	within instrument and acknowledged to me
	he/she/they executed the same in his/her/their aut
	capacity(ies), and that by his/her/their signature(s)
	instrument the person(s), or the entity upon be
	which the person() acted, executed the instrumer
	I certify under PENALTY OF PERJURY under th
M.C. DODDICUTZ	of the State of California that the foregoing parag
M. S. RODRIGUEZ NOTARY PUBLIC CALIFORNIA	true and correct.
LOS ANGELES COUNTY COMMISSION # 1872651	975.
MY COMM. EXPIRES JAN. 2, 2014	WITNESS my hand and official seal.
	m J. Jadiigues
Place Notary Seal Above	Signature
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POWER OF ATTORNEY FOR DEVELOPERS SURETY AND INDEMNITY COMPANY INDEMNITY COMPANY OF CALIFORNIA PO Box 19725..IRVINE, CA 92623 (949) 263-3300

KNOW ALL BY THESE PRESENTS that except as expressly limited, DEVELOPERS SURETY AND INDEMNITY COMPANY and INDEMNITY COMPANY OF CALIFORNIA, do each hereby make, constitute and appoint:

Patricia Zenizo, Margaret S. Rodriguez, Pletro Micciche, Elisabete Salazar, jointly or severally

as their true and lawful Attorney(s)-in-Fact, to make, execute, deliver and acknowledge, for and on behalf of said corporations, as sureties, bonds, undertakings and contracts of suretyship giving and granting unto said Attorney(s)-in-Fact full power and authority to do and to perform every act necessary, requisite or proper to be done in connection therewith as each of said corporations could do, but reserving to each of said corporations full power of substitution and revocation, and all of the acts of said Attorney(s)-in-Fact, pursuant to these presents, are hereby ratified and confirmed.

This Power of Attorney is granted and is signed by facsimile under and by authority of the following resolutions adopted by the respective Boards of Directors of DEVELOPERS SURETY AND INDEMNITY COMPANY OF CALIFORNIA, effective as of January 1st, 2008.

RESOLVED, that a combination of any two of the Chairman of the Board, the President, Executive Vice-President, Senior Vice-President or any Vice President of the corporations be, and that each of them hereby is, authorized to execute this Power of Attorney, qualifying the attorney(s) named in the Power of Attorney to execute, on behalf of the corporations, bonds, undertakings and contracts of suretyship; and that the Secretary or any Assistant Secretary of either of the corporations be, and each of them hereby is, authorized to attest the execution of any such Power of Attorney;

RESOLVED, FURTHER, that the signatures of such officers may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures shall be valid and binding upon the corporations when so affixed and in the future with respect to any bond, undertaking or contract of suretyship to which it is attached.

IN WITNESS WHEREOF, DEVELOPERS SURETY AND INDEMNITY COMPANY and INDEMNITY COMPANY OF CALIFORNIA have severally caused these presents to be signed by their respective officers and attested by their respective Secretary or Assistant Secretary this May 23, 2013.

By: Daniel Young, Senior Vice-President ÖR OCT. OCT. 5 Bv: 1967 1936 Gread /ice-President State of California County of Orange May 23, 2013 Gina L. Garner, Notary Public before me, Here Insert Name and Title of the Officer Date Daniel Young and Gregg N. Okura personally appeared Name(s) of Signer(s) who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of GINA L. GARNER which the person(s) acted, executed the instrument. COMM. # 2021213 DTARY PUBLIC CALIFORNIA I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is ORANGE COUNTY true and correct. My comm. expires May 18, 201 à L Carner WITNESS my hand and official seal. Place Notary Seal Above Signature Gina L. Garner, Notary Public CERTIFICATE

The undersigned, as Secretary or Assistant Secretary of DEVELOPERS SURETY AND INDEMNITY COMPANY or INDEMNITY COMPANY OF CALIFORNIA, does hereby certify that the foregoing Power of Attorney remains in full force and has not been revoked and, furthermore, that the provisions of the resolutions of the respective Boards of Directors of said corporations set forth in the Power of Attorney are in force as of the date of this Certificate.

This Certificate is executed in the City of Irvine, California, this 4 au h day of ${
m November}$, 2013

Mark J. Lansdon, Assistant Secretary

ID-1380(Rev.05/13)

Βv

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

PROJECT TITLE: La Jolla Cove Lifeguard Station

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-17 regarding Drug-Free Workplace as outlined in the WHITEBOOK, Section 7-13.3, "Drug-Free Workplace", of the project specifications, and that;

APR Construction Inc. (Name under which business is conducted)

has in place a drug-free workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of subdivisions a) through c) of the policy as outlined.

Signed
Printed Name Eric Scarbrough
Title President

CONTRACTOR CERTIFICATION

AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

PROJECT TITLE:

La Jolla Cove Lifeguard Station

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the American With Disabilities Act (ADA) outlined in the WHITEBOOK, Section 7-13.2, "American With Disabilities Act", of the project specifications, and that;

oustruction

(Name under which business is conducted)

has in place a workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of the policy as outlined.

Signed	à Salp	
Printed Name	Eric Scarbrough	
Title	President	

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

PROJECT TITLE: La Jolla Cove Lifeguard Station

I declare under penalty of perjury that I am authorized to make this certification on behalf of <u>APR</u> <u>Construction Tvc.</u>, as Contractor, that I am familiar with the requirements of City of San Diego Municipal Code § 22.3224 regarding Contractor Standards as outlined in the WHITEBOOK, Section 7-13.4, ("Contractor Standards"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors whose subcontracts are greater than \$50,000 in value has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3224.

Dated this Day of	11+4, 2013
Sig	gned
	inted Name Eric Scarbrough
Titl	le President

AFFIDAVIT OF DISPOSAL

WHEREAS, on the _____ DAY OF _____, the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

La Jolla Cove Lifeguard Station

(Name of Project)

as particularly described in said contract and identified as Bid No. K-14-5708-DBB-3; SAP No. (WBS/IO/CC) S-00792; and WHEREAS, the specification of said contract requires the Contractor to affirm that "all brush, trash, debris, and surplus materials resulting from this project have been disposed of in a legal manner"; and WHEREAS, said contract has been completed and all surplus materials disposed of:

NOW, THEREFORE, in consideration of the final payment by the City of San Diego to said Contractor under the terms of said contract, the undersigned Contractor, does hereby affirm that all surplus materials as described in said contract have been disposed of at the following location(s)

and that they have been disposed of according to all applicable laws and regulations.

Dated this	DAY OF		,
		Contractor	

by

ATTEST:

State of _____ County of

On this _____ DAY OF _____, 2____, before the undersigned, a Notary Public in and for said County and State, duly commissioned and sworn, personally appeared known to me to be the

Contractor named in the foregoing Release, and whose name is subscribed thereto, and acknowledged to me that said Contractor executed the said Release.

Notary Public in and for said County and State

SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

SUPPLEMENTARY SPECIAL PROVISIONS

The following Supplementary Special Provisions (SSP) modifies the following documents:

- 1) Standard Specifications for Public Works Construction (The GREENBOOK) currently in effect.
- 2) The City of San Diego Standard Specifications for Public Works Construction (The WHITEBOOK).

SECTION 1 – TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

1-2 TERMS AND DEFINITIONS.

Normal Working Hours. To the City Supplements, ADD the following:

The Normal Working Hours are 7:30 AM to 4:00 PM.

SECTION 2 - SCOPE AND CONTROL OF WORK

- **2-3.2 Self Performance.** DELETE in its entirety and SUBSTITUTE with the following:
 - 1. You must perform, with your own organization, Contract work amounting to at least 50% of the base bid alone or base bid and any additive or deductive alternate(s) that together when added or deducted form the basis of award.
 - 2. The self performance percentage requirement will be waived for contracts when a "B" License is required or allowed.
- **2-6 Work To Be Done.** ADD the following:

The contractor shall provide structural caissons per the contract documents. For caisson lengths that exceed the dimensions shown on the Plans due to unforeseen field conditions, the contractor shall provide during the bidding process a per-vertical foot (VF) unit cost that will be used as the base figure for calculating a related field order.

2-7 SUBSURFACE DATA. ADD the following:

- 1. In preparation of the Contract Documents, the designer has relied upon the following reports of explorations and tests of subsurface conditions at the Work Site:
 - 1. Report of Geotechnical Evaluation dated July 18, 2003and updated on August 4, 2011, and revised on October 6, 2011 by Ninyo & Moore and Associates.

2. The report(s) listed above is(are) available for review by contacting the City Project Manager or visiting:

ftp://ftp.sannet.gov/OUT/ECP/2-7%20SUBSURFACE%20DATA/

2-9.2 Survey Service. DELETE in its entirety and SUBSTITUTE the following:

The Contractor shall be responsible for all surveying services or as may be specified in these special provisions.

The payment for survey services shall be included in the various Bid items unless a Bid item for Survey Service has been provided.

2-14.2 Integration of the Work with Separate Contractors. To the City Supplements, ADD the following:

The list of Separate Contractors includes:

- 1. Xerox Data Processing, Inc.
- 2. Standard Electronics, Access Controls Public Announcing Systems.
- **2-14.3 Coordination.** To the City Supplements, ADD the following:

Other adjacent City project(s) is (are) scheduled for construction for the same time period in the vicinity of La Jolla Cove and Coast Boulevard. See Appendix J for approximate location. Coordinate the Work with the adjacent project listed below:

Sewer and Water Group 820, Michael Ninh, 619-533-7443.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.4 Inspection Paid For By the Contractor. To the City Supplements, ADD the following:

See technical specs in the contract appendix.

4-1.6 Trade Names or Equals. ADD the following:

You must submit your list of proposed substitutions for "an equal" ("or equal") item(s) **no later than 5 Working Days after the determination of the Apparent Low Bidder** and on a City form when provided by the City.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-2.1 Moratoriums. To the City Supplements, ADD the following:

Do not work in the areas where there is currently a moratorium issued by the City. The areas subject to moratorium are listed here:

Starting Memorial Day through Labor Day.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-3 LIABILITY INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

The insurance provisions herein must not be construed to limit your indemnity obligations contained in the Contract.

7-3.1 Policies and Procedures.

- 1. You must procure the insurance described below, at its sole cost and expense, to provide coverage against claims for loss including injuries to persons or damage to property, which may arise out of or in connection with the performance of the Work by you, your agents, representatives, officers, employees or Subcontractors.
- 2. Insurance coverage for property damage resulting from your operations is on a replacement cost valuation. The market value will not be accepted.
- 3. You must maintain this insurance for the duration of this contract and at all times thereafter when you are correcting, removing, or replacing Work in accordance with this contract. Your liabilities under the Contract, e.g., your indemnity obligations, is not deemed limited to the insurance coverage required by this contract.
- 4. Payment for insurance is included in the various items of Work as bid by you, and except as specifically agreed to by the City in writing, you are not entitled to any additional payment. Do not begin any work under this contract until you have provided and the City has approved all required insurance.
- 5. Policies of insurance must provide that the City is entitled to 30 days (10 days for cancellation due to non-payment of premium) prior written notice of cancellation or non-renewal of the policy. Maintenance of specified insurance coverage is a material element of the Contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

7-3.2 Types of Insurance.

7-3.2.1 Commercial General Liability Insurance.

- 1. Commercial General Liability Insurance must be written on the current version of the ISO Occurrence form CG 00 01 07 98 or an equivalent form providing coverage at least as broad.
- 2. The policy must cover liability arising from premises and operations, XCU (explosions, underground, and collapse), independent contractors, products/completed operations, personal injury and advertising injury, bodily injury, property damage, and liability assumed under an insured's contract (including the tort liability of another assumed in a business contract).

- 3. There must be no endorsement or modification limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. You must maintain the same or equivalent insurance for at least 10 years following completion of the Work.
- 4. All costs of defense must be outside the policy limits. Policy coverage must be in liability limits of not less than the following:

General Annual Aggregate Limit	Limits of Liability	
Other than Products/Completed Operations	\$2,000,000	
Products/Completed Operations Aggregate Limit	\$2,000,000	
Personal Injury Limit	\$1,000,000	
Each Occurrence	\$1,000,000	

7-3.2.2 Commercial Automobile Liability Insurance.

- 1. You must provide a policy or policies of Commercial Automobile Liability Insurance written on the current version of the ISO form CA 00 01 12 90 or later version or equivalent form providing coverage at least as broad in the amount of \$1,000,000 combined single limit per accident, covering bodily injury and property damage for owned, non-owned, and hired automobiles ("Any Auto").
- 2. All costs of defense must be outside the limits of the policy.

7-3.2.3 Contractors Pollution Liability Insurance.

- 1. You must procure and maintain at your expense or require Subcontractor, as described below to procure and maintain, the Contractors Pollution Liability Insurance including contractual liability coverage to cover liability arising out of cleanup, removal, storage, or handling of hazardous or toxic chemicals, materials, substances, or any other pollutants by you or any Subcontractor in an amount not less than \$2,000,000 limit for bodily injury and property damage.
- 2. All costs of defense must be outside the limits of the policy. Any such insurance provided by Subcontractor instead of you must be approved separately in writing by the City.
- 3. For approval of a substitution of Subcontractor's insurance, you must certify that all activities for which the Contractors Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance. The deductible must not exceed \$25,000 per claim.
- 4. Contractual liability must include coverage of tort liability of another party to pay for bodily injury or property damage to a third person or organization. There must be no endorsement or modification of the coverage limiting the scope of coverage for either "insured vs. insured" claims or contractual liability.

- 5. Occurrence based policies must be procured before the Work commences and must be maintained for the Contract Time. Claims Made policies must be procured before the Work commences, must be maintained for the Contract Time, and must include a 12 month extended Claims Discovery Period applicable to this contract or the existing policy or policies must continue to be maintained for 12 months after the completion of the Work without advancing the retroactive date.
- 6. Except as provided for under California law, the policy or policies must provide that the City is entitled to 30 days prior written notice (10 days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

7-3.2.5 Contractors Builders Risk Property Insurance.

- 1. You must provide at its expense, and maintain until Final Acceptance of the Work, a Special Form Builders Risk Policy or Policies. This insurance must be in an amount equal to the replacement cost of the completed Work (without deduction for depreciation) including the cost of excavations, grading, and filling. The policy or policies limits must be 100% of this contract value of the Work plus15% to cover administrative costs, design costs, and the costs of inspections and construction management.
- 2. Insured property must include material or portions of the Work located away from the Site but intended for use at the Site, and must cover material or portions of the Work in transit. The policy or policies must include as insured property scaffolding, falsework, and temporary buildings located at the Site. The policy or policies must cover the cost of removing debris, including demolition.
- 3. The policy or policies must provide that all proceeds thereunder must be payable to the City as Trustee for the insured, and must name the City, the Contractor, Subcontractors, and Suppliers of all tiers as named insured. We as Trustee will collect, adjust, and receive all monies which may become due and payable under the policy or policies, may compromise any and all claims thereunder, and will apply the proceeds of such insurance to the repair, reconstruction, or replacement of the Work.
- 4. Any deductible applicable to the insurance must be identified in the policy or policies documents and responsibility for paying the part of any loss not covered because of the application of such deductibles must be apportioned among the parties except for the City as follows: if there is more than one claimant for a single occurrence, then each claimant must pay a pro-rata share of the per occurrence deductible based upon the percentage of their paid claim to the total paid for insured. The City must be entitled to 100% of its loss. The Contractor must pay the City any portion of that loss not covered because of a deductible, at the same time the proceeds of the insurance are paid to the City as trustee.

- 5. Any insured, other than the City, making claim to which a deductible applies must be responsible for 100% of the loss not insured because of the deductible. Except as provided for under California law, the policy or policies must provide that the City is entitled to 30 days prior written notice (10 days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.
- **7-3.3 Rating Requirements.** Except for the State Compensation Insurance Fund, all insurance required by this contract as described herein must be carried only by responsible insurance companies with a rating of, or equivalent to, at least "A-, VI" by A.M. Best Company, that are authorized by the California Insurance Commissioner to do business in the State, and that have been approved by the City.
- **7-3.3.1 Non-Admitted Carriers.** The City will accept insurance provided by non-admitted, "surplus lines" carriers only if the carrier is authorized to do business in the State and is included on the List of Approved Surplus Lines Insurers (LASLI list).

All policies of insurance carried by non-admitted carriers must be subject to all of the requirements for policies of insurance provided by admitted carriers described herein.

- **7-3.4 Evidence of Insurance.** Furnish to the City documents e.g., certificates of insurance and endorsements evidencing the insurance required herein, and furnish renewal documentation prior to expiration of this insurance. Each required document must be signed by the insurer or a person authorized by the insurer to bind coverage on its behalf. We reserve the right to require complete, certified copies of all insurance policies required herein.
- 7-3.5 Policy Endorsements.

7-3.5.1 Commercial General Liability Insurance.

7-3.5.1.1 Additional Insured.

- a) You must provide at your expense policy endorsement written on the current version of the ISO Occurrence form CG 20 10 11 85 or an equivalent form providing coverage at least as broad.
- b) To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured.
- c) The additional insured coverage for projects for which the Engineer's Estimate is \$1,000,000 or more must include liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) your products, (c) your work, e.g., your completed operations performed by you or on your behalf, or (d) premises owned, leased, controlled, or used by you.
- d) The additional insured coverage for projects for which the Engineer's Estimate is less than \$1,000,000 must include liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) your products, or (c) premises owned, leased, controlled, or used by you.

- **7-3.5.1.2 Primary and Non-Contributory Coverage.** The policy must be endorsed to provide that the coverage with respect to operations, including the completed operations, if appropriate, of the Named Insured is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives. Further, it must provide that any insurance maintained by the City and its elected officials, officers, employees, agents must be in excess of your insurance and must not contribute to it.
- **7-3.5.1.3 Project General Aggregate Limit.** The policy or policies must be endorsed to provide a Designated Construction Project General Aggregate Limit that will apply only to the Work. Only claims payments which arise from the Work must reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit must be in addition to the aggregate limit provided for the products-completed operations hazard.

7-3.5.2 Commercial Automobile Liability Insurance.

7-3.5.2.1 Additional Insured. Unless the policy or policies of Commercial Auto Liability Insurance are written on an ISO form CA 00 01 12 90 or a later version of this form or equivalent form providing coverage at least as broad, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured, with respect to liability arising out of automobiles owned, leased, hired or borrowed by you or on your behalf. This endorsement is limited to the obligations permitted by California Insurance Code §11580.04.

7-3.5.3 Contractors Pollution Liability Insurance Endorsements.

7-3.5.3.1 Additional Insured.

- a) The policy or policies must be endorsed to include as an Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) your products, (c) your work, e.g., your completed operations performed by you or on your behalf, or (d) premises owned, leased, controlled, or used by you; except that in connection with, collateral to, or affecting any construction contract to which the provisions of subdivision (b) of § 2782 of the California Civil Code apply, this endorsement must not provide any duty of indemnity coverage for the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives in any case where an agreement to indemnify the City and its respective elected officials, officers, employees, agents, and representatives would be invalid under subdivision (b) of §2782 of the California Civil Code.
- b) In any case where a claim or loss encompasses the negligence of the Insured and the active negligence of the City and its respective elected officials, officers, employees, agents, and representatives that is not covered because of California Insurance Code §11580.04, the insurer's obligation to the City and its respective elected officials, officers, employees, agents, and representatives must be limited to obligations permitted by California Insurance Code §11580.04.

- **7-3.5.3.2 Primary and Non-Contributory Coverage.** The policy or policies must be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives must be in excess of your insurance and must not contribute to it.
- **7-3.5.3.3** Severability of Interest. For Contractors Pollution Liability Insurance, the policy or policies must provide that your insurance must apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability and must provide cross-liability coverage.

7-3.5.5 Builders Risk Endorsements.

- **7-3.5.5.1 Waiver of Subrogation.** The policy or policies must be endorsed to provide that the insurer will waive all rights of subrogation against the City, and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from work performed by the Named Insured for the City.
- **7-3.5.5.2 Builders Risk Partial Utilization.** If the City desire to occupy or use a portion or portions of the Work prior to Acceptance in accordance with this contract, the City will notify you and you must immediately notify your Builder's Risk insurer and obtain an endorsement that the policy or policies must not be cancelled or lapse on account of any such partial use or occupancy. You must obtain the endorsement prior to our occupation and use.
- **7-3.6** Deductibles and Self-Insured Retentions. You must pay for all deductibles and self-insured retentions. You must disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.
- **7-3.7 Reservation of Rights.** The City reserves the right, from time to time, to review your insurance coverage, limits, deductibles and self-insured retentions to determine if they are acceptable to the City. The City will reimburse you, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the Engineer but not required by this contract.
- **7-3.8** Notice of Changes to Insurance. You must notify the City 30 days prior to any material change to the policies of insurance provided under this contract.
- **7-3.9 Excess Insurance.** Policies providing excess coverage must follow the form of the primary policy or policies e.g., all endorsements.

7-4 WORKERS' COMPENSATION INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

7-4.1 Workers' Compensation Insurance and Employers Liability Insurance.

- 1. In accordance with the provisions of §3700 of the California Labor Code, you must provide at your expense Workers' Compensation Insurance and Employers Liability Insurance to protect you against all claims under applicable state workers compensation laws. The City, its elected officials, and employees will not be responsible for any claims in law or equity occasioned by your failure to comply with the requirements of this section.
- 2. Limits for this insurance must be not less than the following:

Workers' Compensation	Statutory Employers Liability
Bodily Injury by Accident	\$1,000,000 each accident
Bodily Injury by Disease	\$1,000,000 each employee
Bodily Injury by Disease	\$1,000,000 policy limit

- 3. By signing and returning the Contract you certify that you are aware of the provisions of §3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code and you must comply with such provisions before commencing the Work as required by §1861 of the California Labor Code.
- **7-4.1.1 Waiver of Subrogation.** The policy or policies must be endorsed to provide that the insurer will waive all rights of subrogation against the City, and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from work performed by the Named Insured for the City.
- 7-5 **PERMITS, FEES, AND NOTICES.** To the City Supplements, ADD the following:

The Contractor is responsible for obtaining all required permits.

7-8.6 Water Pollution Control. ADD the following:

Based on a preliminary assessment by the City, the Contract is subject to WPCP.

7-15 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT. To the City Supplements, fourth paragraph, last sentence, DELETE in its entirety and SUBSTITUTE with the following:

Your duty to indemnify and hold harmless does not include any claims or liability arising from the established active or sole negligence, or willful misconduct of the City, its officers, or employees.

7-16.2.2 Weekly Updates Recipients. Submit a weekly correspondence with updates, traffic control issues and locations, lane closures, and any other pertinent information (with additional contact names given during award process) to the following recipients:

Elif Cetin, Senior Engineer, <u>ECetin@sandiego.gov</u>

Jihad Sleiman, Project Engineer, JSleiman@sandiego.gov

Resident Engineer, TBA, XXX@sandiego.gov

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

8-2 FIELD OFFICE FACILITIES. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Temporary facilities will be required to accommodate the locker room functions at the site. The City has a portable, modular building which the Contractor shall bring to the site and connect to power, water and sewer. The Contractor shall also construct ADA-complaint ramp to provide access to the temporary facility. Once these have been set up, the Contractor can begin work.

SECTION 9 - MEASUREMENT AND PAYMENT

- **9-3.1 General.** ADD the following:
 - 4. Payment for the Bid item "Caisson lengths that exceed the depth shown on the Plans due to unforseen field conditions" shall include additional trenching, shoring, rebars, concrete work and all other associated work to construct the caissons complete in place.
- **9-3.2.5** Withholding of Payment. To the City Supplements, item i), DELETE in its entirety and SUBSTITUTE with the following:
 - i) Your failure to comply with 7-2.3, "PAYROLL RECORDS" and 2-16, "CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM."

SECTION 306 – UNDERGROUND CONDUIT CONSTRUCTION

306-1 OPEN TRENCH OPERATIONS. To the City Supplements, CORRECT certain section numbering as follows:

OLD SECTION NUMBER	TITLE	NEW SECTION NUMBER
306-1.8	House Connection Sewer (Laterals) and Cleanouts	306-1.9
306-1.7.1	Payment	306-1.9.1
306-1.7.2	Sewer Lateral with Private Replumbing	306-1.9.2
306-1.7.2.1	location	306-1.9.2-1
306-1.7.2.2	Permits	306-1.9.2-2
306-1.7.2.3	Submittals	306-1.9.2-3
306-1.7.2.4	Trenchless Construction	306-1.9.2-4
306-1.7.2.5	Payment	306-1.9.2-5
306-1.7.3.6	Private Pump Installation	306-1.9.2-6
306-1.7.3.7	Payment	306-1.9.2-7

306-1.6 Basis of Payment for Open Trench Installations. ADD the following:

Payment for imported backfill when the Contractor elects to import material from a source outside the project limits and when authorized by the Engineer shall be included in the Bid unit price for Imported Backfill. The price shall include the removal and disposal of unsuitable materials.

SECTION 705 – WATER DISCHARGES

- **705-2.6.3** Community Health and Safety Plan. To the City Supplements, DELETE in its entirety and SUBSTITUTE with the following:
- **705-2.6.3** Community Health and Safety Plan. See 703-2, "Community Health and Safety Plan."
- **705-2.6.1** General. Paragraph (3), CORRECT reference to Section 803 to read "Section 703."

SECTION 707 – RESOURCE DISCOVERIES

ADD:

707-1.1 Environmental Document. The City of San Diego Environmental Analysis Section (EAS) of the Development Services Department has prepared a Notice of Exemption, Project No. 25499 and has issued a Coastal Development Permit #67575 and a Site Development Permit #67676 for La Jolla Cove Lifeguard Station, as referenced in the Contract Appendix. You must comply with all requirements of the Coastal Development Permit and the Site Development Permit as set forth in the Contract Appendix.

Compliance with the City's environmental document is included in the various Bid items, unless a bid item has been provided.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

SUPPLEMENTARY SPECIAL PROVISIONS

APPENDICES

APPENDIX A

Notice of Exemption

NOTICE OF EXEMPTION

(Check one or both)

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TO:

RECORDER/COUNTY CLERK P.O. BOX 1750, MS A-33 1600 PACIFIC HWY, ROOM 260 SAN DIEGO, CA 92101-2422

OFFICE OF PLANNING AND RESEARCH 1400 TENTH STREET, ROOM 121 SACRAMENTO, CA 95814

FROM: CITY OF SAN DIEGO DEVELOPMENT SERVICES DEPARTMENT 1222 FIRST AVENUE, MS 501 SAN DIEGO, CA 92101

PROJECT NO.: 25499

PROJECT TITLE: La Jolla Cove Lifeguard Station

<u>PROJECT LOCATION-SPECIFIC:</u> The project is located northeast of the intersection of Girard Avenue and Coast Boulevard within Ellen Scripps Browning Park. The project site is within the La Jolla Community Plan area.

PROJECT LOCATION-CITY/COUNTY: San Diego/San Diego

<u>DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT</u>: The project would consist of the demolition of a 50 square-foot lifeguard station and a 180 square-foot auxiliary building and the construction of a new cast in place cantilevered 80 square-foot steel framed observation tower and a new 400 square-foot secondary observation facility. The secondary observation facility would include storage areas, a locker room and a kitchenette. The roof of the secondary observation facility would serve as public view deck.

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of San Diego

<u>NAME OF PERSON OR AGENCY CARRYING OUT PROJECT:</u> City of San Diego, Engineering and Capital Projects 600 B St, Ste 800 MS 908A, San Diego CA, 92101. 619-533-4615

EXEMPT STATUS: (CHECK ONE)

- () MINISTERIAL (SEC. 21080(b)(1); 15268);
- () DECLARED EMERGENCY (SEC. 21080(b)(3); 15269(a));
- () EMERGENCY PROJECT (SEC. 21080(b)(4); 15269 (b)(c)
- (X) CATEGORICAL EXEMPTIONS: 15301 (EXISTING FACILITIES) AND REPLACEMENT: 15302
- () STATUTORY EXEMPTION:

<u>REASONS WHY PROJECT IS EXEMPT</u>: The City of San Diego conducted an Initial Study which determined that the project would qualify to be categorically exempt from CEQA pursuant to Sections 15301 (Existing Facilities) and 15303 (New Construction). CEQA section 15301 allows for the demolition of individual small structures and 15303 allows for the construction of new structures. The new lifeguard station would be located in the general location as the existing structure, which lacks sensitive environmental resources. The cantilevered observation tower was specifically designed to minimize impacts to resources. The observation tower is generally sited in the footprint of the existing station and views to the beach and coast would not be impacted. Minimal excavation would be required for the construction of the project and since the new lifeguard station is located within the developed foot-print of the existing lifeguard station no impacts to biological or historical resources would occur. Furthermore, no environmental impacts would occur as a result of the project. Therefore the project qualifies to be categorically exempt from CEQA and the exceptions listed in CEQA Section 15300.2 would not apply.

LEAD AGENCY CONTACT PERSON: JEFF SZYMANSKI

TELEPHONE: (619) 446-5324

IF FILED BY APPLICANT:

- 1. ATTACH CERTIFIED DOCUMENT OF EXEMPTION FINDING.
- 2. HAS A NOTICE OF EXEMPTION BEEN FILED BY THE PUBLIC AGENCY APPROVING THE PROJECT?
- () YES / () NO

IT THEREBY CERTIFIED THAT THE CITY OF SAN DIEGONAS DETERMINED THE ABOVE ACTIVITY TO BE EXEMPT FROM CEQA January 23, 2012 SIGNATHRE/TITLE

SIGNATURE/TITLE CHECK ONE: (X) SIGNED BY LEAD AGENCY

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:

() SIGNED BY APPLICANT Appendix A - Notice of Exemption La Jolla Cove Lifeguard Station

Ernest J Dronenburg, Jr., Recorder County Clerk

MAR 16 2012

BY

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H. Ayuyao

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APPENDIX B

Fire Hydrant Meter Program

CITY OF SAN DIEGO CALIFORNIA	NUMBER	DEPARTMENT
DEPARTMENT INSTRUCTIONS	DI 55.27	Water Department
SUBJECT	PAGE 1 OF 10	EFFECTIVE DATE
FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)		October 15, 2002
	SUPERSEDES	DATED
	DI 55.27	April 21, 2000

1. **PURPOSE**

1.1 To establish a Departmental policy and procedure for issuance, proper usage and charges for fire hydrant meters.

2. <u>AUTHORITY</u>

- 2.1 All authorities and references shall be current versions and revisions.
- 2.2 San Diego Municipal Code (NC) Chapter VI, Article 7, Sections 67.14 and 67.15
- 2.3 Code of Federal Regulations, Safe Drinking Water Act of 1986
- 2.4 California Code of Regulations, Titles 17 and 22
- 2.5 California State Penal Code, Section 498B.0
- 2.6 State of California Water Code, Section 110, 500-6, and 520-23
- 2.7 Water Department Director

Reference

- 2.8 State of California Guidance Manual for Cross Connection Programs
- 2.9 American Water Works Association Manual M-14, Recommended Practice for Backflow Prevention
- 2.10 American Water Works Association Standards for Water Meters
- 2.11 U.S.C. Foundation for Cross Connection Control and Hydraulic Research Manual

3. **DEFINITIONS**

3.1 **Fire Hydrant Meter:** A portable water meter which is connected to a fire hydrant for the purpose of temporary use. (These meters are sometimes referred to as Construction Meters.)

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- 3.2 **Temporary Water Use:** Water provided to the customer for no longer than twelve (12) months.
- 3.3 **Backflow Preventor:** A Reduced Pressure Principal Assembly connected to the outlet side of a Fire Hydrant Meter.

4. **<u>POLICY</u>**

- 4.1 The Water Department shall collect a deposit from every customer requiring a fire hydrant meter and appurtenances prior to providing the meter and appurtenances (see Section 7.1 regarding the Fees and Deposit Schedule). The deposit is refundable upon the termination of use and return of equipment and appurtenances in good working condition.
- 4.2 Fire hydrant meters will have a 2 ¹/₂" swivel connection between the meter and fire hydrant. The meter shall not be connected to the 4" port on the hydrant. All Fire Hydrant Meters issued shall have a Reduced Pressure Principle Assembly (RP) as part of the installation. Spanner wrenches are the only tool allowed to turn on water at the fire hydrant.
- 4.3 The use of private hydrant meters on City hydrants is prohibited, with exceptions as noted below. All private fire hydrant meters are to be phased out of the City of San Diego. All customers who wish to continue to use their own fire hydrant meters must adhere to the following conditions:
 - a. Meters shall meet all City specifications and American Water Works Association (AWWA) standards.
 - b. Customers currently using private fire hydrant meters in the City of San Diego water system will be allowed to continue using the meter under the following conditions:
 - 1. The customer must submit a current certificate of accuracy and calibration results for private meters and private backflows annually to the City of San Diego, Water Department, Meter Shop.

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- 2. The meter must be properly identifiable with a clearly labeled serial number on the body of the fire hydrant meter. The serial number shall be plainly stamped on the register lid and the main casing. Serial numbers shall be visible from the top of the meter casing and the numbers shall be stamped on the top of the inlet casing flange.
- 3. All meters shall be locked to the fire hydrant by the Water Department, Meter Section (see Section 4.7).
- 4. All meters shall be read by the Water Department, Meter Section (see Section 4.7).
- 5. All meters shall be relocated by the Water Department, Meter Section (see Section 4.7).
- 6. These meters shall be tested on the anniversary of the original test date and proof of testing will be submitted to the Water Department, Meter Shop, on a yearly basis. If not tested, the meter will not be allowed for use in the City of San Diego.
- 7. All private fire hydrant meters shall have backflow devices attached when installed.
- 8. The customer must maintain and repair their own private meters and private backflows.
- 9. The customer must provide current test and calibration results to the Water Department, Meter Shop after any repairs.
- 10. When private meters are damaged beyond repair, these private meters will be replaced by City owned fire hydrant meters.

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- 11. When a private meter malfunctions, the customer will be notified and the meter will be removed by the City and returned to the customer for repairs. Testing and calibration results shall be given to the City prior to any reinstallation.
- 12. The register shall be hermetically sealed straight reading and shall be readable from the inlet side. Registration shall be in hundred cubic feet.
- 13. The outlet shall have a 2 ½ "National Standards Tested (NST) fire hydrant male coupling.
- 14. Private fire hydrant meters shall not be transferable from one contracting company to another (i.e. if a company goes out of business or is bought out by another company).
- 4.4 All fire hydrant meters and appurtenances shall be installed, relocated and removed by the City of San Diego, Water Department. All City owned fire hydrant meters and appurtenances shall be maintained by the City of San Diego, Water Department, Meter Services.
- 4.5 If any fire hydrant meter is used in violation of this Department Instruction, the violation will be reported to the Code Compliance Section for investigation and appropriate action. Any customer using a fire hydrant meter in violation of the requirements set forth above is subject to fines or penalties pursuant to the Municipal Code, Section 67.15 and Section 67.37.

4.6 **Conditions and Processes for Issuance of a Fire Hydrant Meter**

Process for Issuance

- a. Fire hydrant meters shall only be used for the following purposes:
 - 1. Temporary irrigation purposes not to exceed one year.

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- 2. Construction and maintenance related activities (see Tab 2).
- b. No customer inside or outside the boundaries of the City of San Diego Water Department shall resell any portion of the water delivered through a fire hydrant by the City of San Diego Water Department.
- c. The City of San Diego allows for the issuance of a temporary fire hydrant meter for a period not to exceed 12 months (365 days). An extension can only be granted in writing from the Water Department Director for up to 90 additional days. A written request for an extension by the consumer must be submitted at least 30 days prior to the 12 month period ending. No extension shall be granted to any customer with a delinquent account with the Water Department. No further extensions shall be granted.
- d. Any customer requesting the issuance of a fire hydrant meter shall file an application with the Meter Section. The customer must complete a "Fire Hydrant Meter Application" (Tab 1) which includes the name of the company, the party responsible for payment, Social Security number and/or California ID, requested location of the meter (a detailed map signifying an exact location), local contact person, local phone number, a contractor's license (or a business license), description of specific water use, duration of use at the site and full name and address of the person responsible for payment.
- e. At the time of the application the customer will pay their fees according to the schedule set forth in the Rate Book of Fees and Charges, located in the City Clerk's Office. All fees must be paid by check, money order or cashiers check, made payable to the City Treasurer. Cash will not be accepted.
- f. No fire hydrant meters shall be furnished or relocated for any customer with a delinquent account with the Water Department.
- g. After the fees have been paid and an account has been created, the

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meter shall be installed within 48 hours (by the second business day). For an additional fee, at overtime rates, meters can be installed within 24 hours (within one business day).

4.7 **Relocation of Existing Fire Hydrant Meters**

- a. The customer shall call the Fire Hydrant Meter Hotline (herein referred to as "Hotline"), a minimum of 24 hours in advance, to request the relocation of a meter. A fee will be charged to the existing account, which must be current before a work order is generated for the meter's relocation.
- b. The customer will supply in writing the address where the meter is to be relocated (map page, cross street, etc). The customer must update the original Fire Hydrant Meter Application with any changes as it applies to the new location.
- c. Fire hydrant meters shall be read on a monthly basis. While fire hydrant meters and backflow devices are in service, commodity, base fee and damage charges, if applicable, will be billed to the customer on a monthly basis. If the account becomes delinquent, the meter will be removed.

4.8 **Disconnection of Fire Hydrant Meter**

- a. After ten (10) months a "Notice of Discontinuation of Service" (Tab 3) will be issued to the site and the address of record to notify the customer of the date of discontinuance of service. An extension can only be granted in writing from the Water Department Director for up to 90 additional days (as stated in Section 4.6C) and a copy of the extension has not been approved, the meter will be removed after twelve (12) months of use.
- b. Upon completion of the project the customer will notify the Meter Services office via the Hotline to request the removal of the fire hydrant meter and appurtenances. A work order will be generated

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for removal of the meter.

- c. Meter Section staff will remove the meter and backflow prevention assembly and return it to the Meter Shop. Once returned to the Meter Shop the meter and backflow will be tested for accuracy and functionality.
- d. Meter Section Staff will contact and notify Customer Services of the final read and any charges resulting from damages to the meter and backflow or its appurtenance. These charges will be added on the customer's final bill and will be sent to the address of record. Any customer who has an outstanding balance will not receive additional meters.
- e. Outstanding balances due may be deducted from deposits and any balances refunded to the customer. Any outstanding balances will be turned over to the City Treasurer for collection. Outstanding balances may also be transferred to any other existing accounts.

5. **EXCEPTIONS**

5.1 Any request for exceptions to this policy shall be presented, in writing, to the Customer Support Deputy Director, or his/her designee for consideration.

6. **MOBILE METER**

- 6.1 Mobile meters will be allowed on a case by case basis. All mobile meters will be protected by an approved backflow assembly and the minimum requirement will be a Reduced Pressure Principal Assembly. The two types of Mobile Meters are vehicle mounted and floating meters. Each style of meters has separate guidelines that shall be followed for the customer to retain service and are described below:
 - a) Vehicle Mounted Meters: Customer applies for and receives a City owned Fire Hydrant Meter from the Meter Shop. The customer mounts the meter on the vehicle and brings it to the Meter Shop for

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PROGRAM)		
	SUPERSEDES	DATED
	DI 55.27	April 21, 2000

inspection. After installation is approved by the Meter Shop the vehicle and meter shall be brought to the Meter Shop on a monthly basis for meter reading and on a quarterly basis for testing of the backflow assembly. Meters mounted at the owner's expense shall have the one year contract expiration waived and shall have meter or backflow changed if either fails.

- b) Floating Meters: Floating Meters are meters that are not mounted to a vehicle. (Note: All floating meters shall have an approved backflow assembly attached.) The customer shall submit an application and a letter explaining the need for a floating meter to the Meter Shop. The Fire Hydrant Meter Administrator, after a thorough review of the needs of the customer, (i.e. number of jobsites per day, City contract work, lack of mounting area on work vehicle, etc.), may issue a floating meter. At the time of issue, it will be necessary for the customer to complete and sign the "Floating Fire Hydrant Meter Agreement" which states the following:
 - 1) The meter will be brought to the Meter Shop at 2797 Caminito Chollas, San Diego on the third week of each month for the monthly read by Meter Shop personnel.
 - 2) Every other month the meter will be read and the backflow will be tested. This date will be determined by the start date of the agreement.

If any of the conditions stated above are not met the Meter Shop has the right to cancel the contract for floating meter use and close the account associated with the meter. The Meter Shop will also exercise the right to refuse the issuance of another floating meter to the company in question.

Any Fire Hydrant Meter using reclaimed water shall not be allowed use again with any potable water supply. The customer shall incur the cost of replacing the meter and backflow device in this instance.

CITY OF SAN DIEGO CALIFORNIA	NUMBER	DEPARTMENT
DEPARTMENT INSTRUCTIONS	DI 55.27	Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER	PAGE 90F 10	EFFECTIVE DATE October 15, 2002
PROGRAM)		
	SUPERSEDES	DATED
	DI 55.27	April 21, 2000

7. <u>FEE AND DEPOSIT SCHEDULES</u>

7.1 **Fees and Deposit Schedules:** The fees and deposits, as listed in the Rate Book of Fees and Charges, on file with the Office of the City Clerk, are based on actual reimbursement of costs of services performed, equipment and materials. Theses deposits and fees will be amended, as needed, based on actual costs. Deposits, will be refunded at the end of the use of the fire hydrant meter, upon return of equipment in good working condition and all outstanding balances on account are paid. Deposits can also be used to cover outstanding balances.

All fees for equipment, installation, testing, relocation and other costs related to this program are subject to change without prior notification. The Mayor and Council will be notified of any future changes.

8. <u>UNAUTHORIZED USE OF WATER FROM A HYDRANT</u>

- 8.1 Use of water from any fire hydrant without a properly issued and installed fire hydrant meter is theft of City property. Customers who use water for unauthorized purposes or without a City of San Diego issued meter will be prosecuted.
- 8.2 If any unauthorized connection, disconnection or relocation of a fire hydrant meter, or other connection device is made by anyone other than authorized Water Department personnel, the person making the connection will be prosecuted for a violation of San Diego Municipal Code, Section 67.15. In the case of a second offense, the customer's fire hydrant meter shall be confiscated and/or the deposit will be forfeited.
- 8.3 Unauthorized water use shall be billed to the responsible party. Water use charges shall be based on meter readings, or estimates when meter readings are not available.
- 8.4 In case of unauthorized water use, the customer shall be billed for all applicable charges as if proper authorization for the water use had been obtained, including but not limited to bi-monthly service charges, installation charges and removal charges.

CITY OF SAN DIEGO CALIFORNIA	NUMBER	DEPARTMENT
DEPARTMENT INSTRUCTIONS	DI 55.27	Water Department
SUBJECT		EFFECTIVE DATE
	PAGE 10 OF 10	
FIRE HYDRANT METER PROGRAM		October 15, 2002
(FORMERLY: CONSTRUCTION METER		
PROGRAM)		
	SUPERSEDES	DATED
	DI 55.27	April 21, 2000

8.5 If damage occurs to Water Department property (i.e. fire hydrant meter, backflow, various appurtenances), the cost of repairs or replacements will be charged to the customer of record (applicant).

Larry Gardner Water Department Director

- Tabs:1.Fire Hydrant Meter Application
 - 2. Construction & Maintenance Related Activities With No Return To Sewer
 - 3. Notice of Discontinuation of Service

APPENDIX

Administering Division:	Customer Support Division
Subject Index:	Construction Meters Fire Hydrant Fire Hydrant Meter Program Meters, Floating or Vehicle Mounted Mobile Meter Program, Fire Hydrant Meter

Distribution: DI Manual Holders

PUBLIC UTLITIES Hydrant Meter (For Office Use Only) Image: Stress of the st		Application for	or Fire			
Meter Information Meter Information Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) I.B. G.B. (CITY USE) Specific Use of Water: Zip: I.B. G.B. (CITY USE) Any Return to Sewer or Storm Drain, if so , explain: Estimated Duration of Meter Use: Check Box if Reclaimed Water Company Information Check Box if Reclaimed Water Company Name: Check Box if Reclaimed Water Mailing Address: Cip: Phone: () '*Business license# *Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Name and Title of Billing Agent: Phone: () Phone: () Site Contact Name and Title: Phone: () Phone: () Responsible Party Name: Title: Cal ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures dat at met proper use of Fire Hydrant Meter	City of San Diogo		((півіт А)	(For Office Use	Only)
METER SHOP (619) 527-7449 Application Date Requested Install Date: Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) I.B. Specific Use of Water: Any Return to Sewer or Storm Drain, If so , explain: Estimated Duration of Meter Use: Company Information Company Name: Mailing Address: City: City: State: Zip: Phone: Name and Title of Billing Agent: Pince: Name and Title: Phone: Site Contract Name and Title: Phone: Cal ID# Signature: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the aroper use of Fire Hydrant Meter	Water & Wastewater	iyarant wet	er	NS REQ	F	AC#
Application Date Requested Install Date: Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) I.B. G.B. (CTTY USE) Specific Use of Water: Any Return to Sewer or Storm Drain, If'so , explain: Estimated Duration of Meter Use: Check Box if Reclaimed Water Company Name: Check Box if Reclaimed Water Check Box if Reclaimed Water Company Name: Check Box if Reclaimed Water Mailing Address: City: State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () Phone: () Responsible Party Name: Title: Call ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	N			DATE	B	Υ
Meter Information Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) I.B. G.B. (CITY USE) Specific Use of Water: III. G.B. (CITY USE) Any Return to Sewer or Storm Drain, If so , explain: III. Check Box if Reclaimed Water Company Name: Check Box if Reclaimed Water Check Box if Reclaimed Water Company Information Company Name: IIII. Check Box if Reclaimed Water Company Name: Mailing Address: Vision State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () Site Contact Name and Title: Phone: () Phone: () Phone: () Responsible Party Name: Title: Cal ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter Vision Mater		METER SHOP	(619) 527-7449	Application Date	e Requ	lested Install Date:
Specific Use of Water: Any Return to Sewer or Storm Drain, if so , explain: Estimated Duration of Meter Use: Check Box if Reclaimed Water Company Information Check Box if Reclaimed Water Company Name: Check Box if Reclaimed Water Mailing Address: City: State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () Phone: () Site Contact Name and Title: Phone: () Phone: () Responsible Party Name: Title: Cal ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Meter Information				4	
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Estimated Duration of Meter Use: Check Box if Reclaimed Water Company Information Company Name: Mailing Address: Mailing Address: City: State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () (PERSON IN ACCOUNTS PAYABLE) Phone: () Site Contact Name and Title: Phone: () Responsible Party Name: Title: Cal ID# Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Specific Use of Water:					
Company Information Company Name: Mailing Address: City: State: Zip: Phone:() *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone:() Site Contact Name and Title: Phone:() Responsible Party Name: Cal ID# Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Any Return to Sewer or Storm Drai	n, lf so , explain:				
Company Name: Mailing Address: City: State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () (PERSON IN ACCOUNTS PAYABLE) Phone: () Site Contact Name and Title: Phone: () Responsible Party Name: Title: Cal ID# Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Estimated Duration of Meter Use:				Chec	k Box if Reclaimed Water
Mailing Address: City: State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () (PERSON IN ACCOUNTS PAYABLE) Site Contact Name and Title: Phone: () Responsible Party Name: Title: Cal ID# Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Company Information	na na sina na s	2 Den 1926 i de gran en anne den en del tra de la reger			
Mailing Address: City: State: Zip: Phone: () *Business license# *Contractor license# A Copy of the Contractor's license OR Business License is required at the time of meter issuance. Name and Title of Billing Agent: Phone: () (PERSON IN ACCOUNTS PAYABLE) Site Contact Name and Title: Phone: () Responsible Party Name: Title: Cal ID# Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Company Name:		te data a su a			
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(PERSON IN ACCOUNTS PAYABLE) Phone: () Site Contact Name and Title: Phone: () Responsible Party Name: Title: Cal ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter		· · · · · · · · · · · · · · · · · · ·	License is requ	ired at the time	e of meter issu	lance.
Responsible Party Name: Title: Cal ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter		ng Agent:			Phone: ()
Cal ID# Phone: () Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Site Contact Name and	Title:			Phone: ()
Signature: Date: Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Responsible Party Nam	າe:			Title:	
Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter	Cal ID#				Phone: ()
	Signature:		C	ate:		
	Guarantees Payment of all Charges Res	ulting from the use of this Me	ter. Insures that emplo	<u>yees of this Organization (Manager 1997)</u>	on understand the pr	oper use of Fire Hydrant Meter
			5 a.			
	Fire Hydrant Meter	Removal Requ				
Requested Removal Date:		nemovarnequ		Requested	Removal Date:	
Provide Current Meter Location if Different from Above:	Provide Current Meter Location if D)ifferent from Above:	anna a chuir an		999 - 491 - 191 - 1914 - 19 - 19 19	
Signature: Title: Date:	Signature:	<u></u> ,		Title:		Date:
Phone: () Pager: ()	Phone: ()		Pager:	()	·	· · · · ·
City Meter Private Meter	City Meter	Private Meter				
Contract Acct #: Deposit Amount: \$936.00 Fees Amount: \$62.00	Contract Acet #:	1	Deposit Amoun	t: \$ 936.00	Fees Amount	\$ 62.00

Contract Acct #:					
Meter Serial #	Meter Size: 05	Meter Make and Style: 6-7			
Backflow #	Backflow Size:	Backflow Make and Style:			
Name:	Signature:	Date:			
Appendix B - Fire Hydrant Meter Program		54 Page			
La Jalla Cava Lifequard Station					

La Jolla Cove Lifeguard Station

WATER USES WITHOUT ANTICIPATED CHARGES FOR RETURN TO SEWER

Auto Detailing Backfilling Combination Cleaners (Vactors) Compaction Concrete Cutters Construction Trailers **Cross Connection Testing** Dust Control Flushing Water Mains Hydro Blasting Hydro Seeing Irrigation (for establishing irrigation only; not continuing irrigation) Mixing Concrete Mobile Car Washing Special Events Street Sweeping Water Tanks Water Trucks Window Washing

Note:

1. If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charges.

Date

Name of Responsible Party Company Name and Address Account Number:

Subject: Discontinuation of Fire Hydrant Meter Service

Dear Water Department Customer:

The authorization for use of Fire Hydrant Meter #_____, located at *(Meter Location Address)* ends in 60 days and will be removed on or after *(Date Authorization Expires)*. Extension requests for an additional 90 days must be submitted in writing for consideration 30 days prior to the discontinuation date. If you require an extension, please contact the Water Department, or mail your request for an extension to:

City of San Diego Water Department Attention: Meter Services 2797 Caminito Chollas San Diego, CA 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant Hotline at (619)_____-

Sincerely,

.

Water Department

APPENDIX C

Materials Typically Accepted by Certificate of Compliance

Materials Typically Accepted by Certificate of Compliance

- 1. Soil amendment
- 2. Fiber mulch
- 3. PVC or PE pipe up to 16 inch diameter
- 4. Stabilizing emulsion
- 5. Lime
- 6. Preformed elastomeric joint seal
- 7. Plain and fabric reinforced elastomeric bearing pads
- 8. Steel reinforced elastomeric bearing pads
- 9. Waterstops (Special Condition)
- 10. Epoxy coated bar reinforcement
- 11. Plain and reinforcing steel
- 12. Structural steel
- 13. Structural timber and lumber
- 14. Treated timber and lumber
- 15. Lumber and timber
- 16. Aluminum pipe and aluminum pipe arch
- 17. Corrugated steel pipe and corrugated steel pipe arch
- 18. Structural metal plate pipe arches and pipe arches
- 19. Perforated steel pipe
- 20. Aluminum underdrain pipe
- 21. Aluminum or steel entrance tapers, pipe downdrains, reducers, coupling bands and slip joints
- 22. Metal target plates
- 23. Paint (traffic striping)
- 24. Conductors
- 25. Painting of electrical equipment
- 26. Electrical components
- 27. Engineering fabric
- 28. Portland Cement
- 29. PCC admixtures
- 30. Minor concrete, asphalt
- 31. Asphalt (oil)
- 32. Liquid asphalt emulsion
- 33. Epoxy

APPENDIX D

Sample City Invoice

City of	San Diego, Field Engineering Div	., 9485 Aero	Drive, S	SD CA 92123		Contract	or's Name:				
Project Name:				Contractor's Address:							
SAP No	o. (WBS/IO/CC)										
City Pu	urchase Order No.					Contract	or's Phone	#:		Invoice No.	
	nt Engineer (RE):				Contractor's Fax #: Invoice Date:						
RE Pho	one#:	RE Fax#:				Contact N	Name:		Billing Pe	eriod:	
T . 11			Contract Authorization		Previous	Estimate	This E	stimate			
Item #	Item Description	Unit	Qty	Price	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount
1	2 Parallel 4" PVC C900	LF	1,380	\$34.00	\$46,920.00						
2	48" Primary Steel Casing	LF	500	\$1,000.00	\$500,000.00						
3	2 Parallel 12" Secondary Steel	LF	1,120	\$53.00	\$59,360.00						
4	Construction and Rehab of PS 49	LS	1	\$150,000.00	\$150,000.00						
5	Demo	LS	1	\$14,000.00	\$14,000.00						
6	Install 6' High Chain Link Fence	LS	1	\$5,600.00	\$5,600.00						
7	General Site Restoration	LS	1	\$3,700.00	\$3,700.00	1					
8	10" Gravity Sewer	LF	10	\$292.00	\$2,920.00						
9	4" Blow Off Valves	EA	2	\$9,800.00	\$19,600.00						
10	Bonds	LS	1	\$16,000.00	\$16,000.00	İ					
11	Field Orders	AL	1	80,000	\$80,000.00						
11.1	Field Order 1	LS	5,500	\$1.00	\$5,500.00						
11.2	Field Order 2	LS	7,500	\$1.00	\$7,500.00						
11.2	Field Order 3	LS	10,000	\$1.00	\$10,000.00						
11.5	Field Order 4	LS	6,500	\$1.00	\$6,500.00						
	Certified Payroll	LS	0,500	\$1,400.00	\$1,400.00						
12	CHANGE ORDERS	1.5	1	\$1,400.00	\$1,400.00						
Change		4 000									
	e Order 1	4,890			611 350 00						
Items 1	-4 Deduct Bid Item 3	LF	120	-\$53.00	\$11,250.00						
		LF 160,480	120	-\$53.00	(\$6,360.00)						
Items 1	e Order 2	100,480			\$95,000.00						
	-5 Deduct Bid Item 1	LF	380	-\$340.00	(\$12,920.00)						
	Encrease bid Item 9	LF	300	\$9,800.00	(\$12,920.00) \$78.400.00						
	e Order 3 (Close Out)	-121,500	0	\$7,000.00	\$70,400.00						
	Deduct Bid Item 3	-121,500	53	-500.00	(\$26,500.00)						
	Deduct Bid Item 4	LS	-1	45,000.00	(\$45,000.00)						
Items 3			1	-50,500.00	(\$50,500.00)	1		1	1		
			-		()	1		Total			
	SUMMARY							This	\$ -	Total Billed	\$0.00
A. Original Contract Amount						Ret	ention an	d/or Escro	w Payment Schee	lule	
B. App	roved Change Order 1 Thru 3					Total Retention Required as of this billing					
	al Authorized Amount (A+B)					Previous Retention Withheld in PO or in Escrow					
	al Billed to Date					Add'I Amt to Withhold in PO/Transfer in Escrow:					
	Total Retention (5% of D)	1				Amt to Release to Contractor from PO/Escrow:					
	Total Previous Payments										
	ment Due Less Retention					Contractor Signature and Date:					
	naining Authorized Amount										
II. KUI	anning Authorized Alloulit	1					1	1			

APPENDIX E

Hazardous Labels/Forms

INCIDENT/RELEASE ASSESSMENT FORM ¹

If you have an emergency, Call 911

Handlers of hazardous materials are required to report releases. The following is a tool to be used for assessing if a release is reportable. Additionally, a non-reportable release incident form is provided to document why a release is not reported (see back).

<u>Que</u>	stions for Incident Assessment:	YES	NO
1.	Was anyone killed or injured, or did they require medical care or admitted to a hospital for observation?		
2.	Did anyone, other than employees in the immediate area of the release, evacuate?		
3.	Did the release cause off-site damage to public or private property?		
4.	Is the release greater than or equal to a reportable quantity (RQ)?		
5.	Was there an uncontrolled or unpermitted release to the air?		
6.	Did an uncontrolled or unpermitted release escape secondary containment, or extend into any sewers, storm water conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or off site?		
7.	Will control, containment, decontamination, and/or clean up require the assistance of federal, state, county, or municipal response elements?		
8.	Was the release or threatened release involving an unknown material or contains an unknown hazardous constituent?		
9.	Is the incident a threatened release (a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment)?		
10.	Is there an increased potential for secondary effects including fire, explosion, line rupture, equipment failure, or other outcomes that may endanger or cause exposure to employees, the general public, or the environment?		

If the answer is YES to any of the above questions – report the release to the California Office of Emerge ncy Services at 800-852-7550 and the local CUPA day time: (619) 338-2284, after hours: (858) 565-5255. Note: ot her state and federal agencies may require notification depending on the circumstances.

Call 911 in an emergency

If all answers are NO, complete a Non Reportable Release Incident Form (page 2 of 2) and keep read ily available. Documenting why a "no" response was made to each question will serve useful in the event questions are asked in the future, and to justify not reporting to an outside regulatory agency.

If in doubt, report the release.

¹ This document is a guide for accessing when hazardous materials release reporting is required by Chapter 6.95 of the California Health and Safe ty Code. It does not replace go od judgment, Chapter 6.95, or other state or federal release reporting requirements.

NON REPORTABLE RELEASE INCIDENT FORM

1. RELEASE AND RESPONSE DESCRIPTION		Incident #
Date/Time Discovered	Date/Time Discharge	Discharge Stopped 🗌 Yes 🗌 No
Incident Date / Time:	Dute, Thile Disenarge	
Incident Business / Site Name:		
Incident Address:		
Other Locators (Bldg, Room, Oil Field, L	ease, Well #, GIS)	
Please describe the incident and indicate s		otos Attached?: 🛛 Yes 🗌 No
Indicate actions to be taken to prevent sim	nilar releases from occurring in the fu	ture.

2. ADMINISTRATIVE INFORMATION

Supervisor in charge at time of incident:	Phone:
Contact Person:	Phone:

3. CHEMICAL INFORMATION

Chemical	Quantity	GAL	LBS	□ _{FT³}
Chemical	Quantity	GAL	LBS	□ _{FT³}
Chemical	Quantity	GAL	LBS	□ _{FT³}
Clean-Up Procedures & Timeline:				
Completed Day	Dhanai			
Completed By:	Phone:			
Print Name:	Title:			

EMERGENCY RELEASE FOLLOW - UP NOTICE REPORTING FORM

/		BUSINESS NAME FACILITY EMERGENCY CONTACT & PHONE NUMBER
E		INCIDENT MO DAY YR TIME OES DATE NOTIFIED (use 24 hr time) CONTROL NO.
(INCIDENT ADDRESS LOCATION CITY/COMMUNITY COUNTY ZIP
Γ		CHEMICAL OR TRADE NAME (print or type) CAS Number
		CHECK IF CHEMICAL IS LISTED IN 40 CFR 355, APPENDIX A
		PHYSICAL STATE CONTAINED PHYSICAL STATE RELEASED QUANTITY RELEASED SOLID LIQUID GAS SOLID LIQUID GAS
		ENVIRONMENTAL CONTAMINATION TIME OF RELEASE DURATION OF RELEASE AIR WATER GROUND OTHER DURATION
		ACTIONS TAKEN
E		
		KNOWN OR ANTICIPATED HEALTH EFFECTS (Use the comments section for addition information) ACUTE OR IMMEDIATE (explain)
F		CHRONIC OR DELAYED (explain)
		NOTKNOWN (explain)
		ADVICE REGARDING MEDICAL ATTENTION NECESSARY FOR EXPOSED INDIVIDUALS
	3	
		COMMENTS (INDICATE SECTION (A - G) AND ITEM WITH COMMENTS OR ADDITIONAL INFORMATION)
ł		
Γ		CERTIFICATION: I certify under penalty of law that I have personally examined and I am familiar with the information
1		submitted and believe the submitted information is true, accurate, and complete. REPORTING FACILITY REPRESENTATIVE (print or type)
		SIGNATURE OF REPORTING FACILITY REPRESENTATIVE DATE:

EMERGENCY RELEASE FOLLOW-UP NOTICE REPORTING FORM INSTRUCTIONS

GENERAL INFORMATION:

Chapter 6.95 of Division 20 of the California Health and Safety Code requires that written emergency release follow-up notices prepared pursuant to 42 U.S.C. § 11004, be submitted using this reporting form. Non-permitted releases of reportable quantities of Extremely Hazardous Substances (listed in 40 CFR 355, appendix A) or of chemicals that require release reporting under section 103(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [42 U.S.C. § 9603(a)] must be reported on the form, as soon as practicable, but no later than 30 days, following a release. The written follow-up report is required in addition to the verbal notification.

BASIC INSTRUCTIONS:

- The form, when filled out, reports follow-up information required by 42 U.S.C § 11004. Ensure that all information requested by the form is provided as completely as possible.
- If the incident involves reportable releases of more than one chemical, prepare one report form for each chemical released.
- If the incident involves a series of separate releases of chemical(s) at different times, the releases should be reported on separate reporting forms.

SPECIFIC INSTRUCTIONS:

Block A: Enter the name of the business and the name and phone number of a contact person who can provide detailed facility information concerning the release.

Block B: Enter the date of the incident and the time that verbal notification was made to OES. The OES control number is provided to the caller by OES at the time verbal notification is made. Enter this control number in the space provided.

Block C: Provide information pertaining to the location where the release occurred. Include the street address, the city or community, the county and the zip code.

Block D: Provide information concerning the specific chemical that was released. Include the chemical or trade name and the Chemical Abstract Service (CAS) number. Check all categories that apply. Provide best available information on quantity, time and duration of the release.

Block E: Indicate all actions taken to respond to and contain the release as specified in 42 U.S.C. § 11004(c).

Block F: Check the categories that apply to the health effects that occurred or could result from the release. Provide an explanation or description of the effects in the space provided. Use Block H for additional comments/information if necessary to meet requirements specified in 42 U.S.C. § 11004(c).

Block G: Include information on the type of medical attention required for exposure to the chemical released. Indicate when and how this information was made available to individuals exposed and to medical personnel, if appropriate for the incident, as specified in 42 U.S.C. § 11004(c).

Block H: List any additional pertinent information.

Block I: Print or type the name of the facility representative submitting the report. Include the official signature and the date that the form was prepared.

MAIL THE COMPLETED REPORT TO:

State Emergency Response Commission (SERC) Attn: Section 304 Reports Hazardous Materials Unit 3650 Schriever Avenue Mather, CA 95655

NOTE: Authority cited: Sections 25503, 25503.1 and 25507.1, Health and Safety Code. Reference: Sections 25503(b)(4), 25503.1, 25507.1, 25518 and 25520, Health and Safety Code.

APPENDIX F

Site and Coastal Development Permits

THE ORIGINAL OF THIS DOCUMENT WAS RECORDED ON APR 18, 2012 DOCUMENT NUMBER 2012-0226850 Ernest J. Dronenburg, Jr., COUNTY RECORDER SAN DIEGO COUNTY RECORDER'S OFFICE TIME: 10:03 AM

RECORDING REQUESTED BY CITY OF SAN DIEGO DEVELOPMENT SERVICES PERMIT INTAKE, MAIL STATION 501

WHEN RECORDED MAIL TO PROJECT MANAGEMENT PERMIT CLERK MAIL STATION 501

SPACE ABOVE THIS LINE FOR RECORDER'S USE INTERNAL ORDER NUMBER; WBS No. S-00792.02.06

COASTAL DEVELOPMENT PERMIT NO. 67574 and SITE DEVELOPMENT PERMIT NO. 67576 LA JOLLA COVE LIFEGUARD STATION PROJECT NO. 25499 HEARING OFFICER

This Coastal Development Permit No. 67574 and Site Development Permit No. 67576 is granted by the Hearing Officer of the City of San Diego to CITY OF SAN DIEGO, a Municipal Corporation, Owner/Permittee, pursuant to San Diego Municipal Code [SDMC] section 126.0504 and 126.0708. The 0.05 acre project site is located at 1130 Coast Boulevard in the RS-1-7 Zone, Coastal Overlay Zone, Sensitive Coastal Overlay Zone, Coastal Height Limitation Overlay Zone, Coastal Impact and Beach Impact Overlay Zones and Residential Tandem Parking Overlay Zone within the La Jolla Community Planning area. The project site is legally described as: Block 58, La Jolla Park, Map thereof No. 352, filed March 22, 1887.

Subject to the terms and conditions set forth in this Permit, permission is granted to Owner/Permittee to demolish an existing wood-framed lifeguard tower, concrete auxiliary building and wooden staircase to the beach at La Jolla Cove and construct a one-story lifeguard observation tower, a secondary lifeguard observation room with locker room and kitchenette with a public viewing deck above and a storage facility below, an ADA compliant pedestrian ramp from the street level to the mid-level landing and new concrete stairs from the mid-level landing to the lower observation room described and identified by size, dimension, quantity, type, and location on the approved exhibits [Exhibit "A"] dated March 14, 2012, on file in the Development Services Department.

The project shall include:

a. Demolition of an existing wood-framed lifeguard tower, concrete auxiliary building and wooden staircase to the beach at La Jolla Cove and construction of a one-story lifeguard observation tower, a secondary lifeguard observation room with locker room and kitchenette with a public viewing deck above and a storage facility below, an ADA

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Appendix F - Site and Coastal Development Permits La Jolla Cove Lifeguard Station compliant pedestrian ramp-from the street level to the mid-level landing and new concrete stairs from the mid-level landing to the lower observation room.

- b. Landscaping (planting, irrigation and landscape related improvements); and
- c. Public and private accessory improvements determined by the Development Services Department to be consistent with the land use and development standards for this site in accordance with the adopted community plan, the California Environmental Quality Act [CEQA] and the CEQA Guidelines, the City Engineer's requirements, zoning regulations, conditions of this Permit, and any other applicable regulations of the SDMC.

STANDARD REQUIREMENTS:

1. This permit must be utilized within thirty-six (36) months after the date on which all rights of appeal have expired. This permit expires on April 9, 2015. If this permit is not utilized in accordance with Chapter 12, Article 6, Division 1 of the SDMC within the 36 month period, this permit shall be void unless an Extension of Time has been granted. Any such Extension of Time must meet all SDMC requirements and applicable guidelines in effect at the time the extension is considered by the appropriate decision maker.

2. This Coastal Development Permit shall become effective on the eleventh working day following receipt by the California Coastal Commission of the Notice of Final Action, or following all appeals.

3. No permit for the construction, occupancy, or operation of any facility or improvement described herein shall be granted, nor shall any activity authorized by this Permit be conducted on the premises until:

a. The Owner/Permittee signs and returns the Permit to the Development Services Department; and

b. The Permit is recorded in the Office of the San Diego County Recorder.

4. While this Permit is in effect, the subject property shall be used only for the purposes and under the terms and conditions set forth in this Permit unless otherwise authorized by the appropriate City decision maker.

5. This Permit is a covenant running with the subject property and all of the requirements and conditions of this Permit and related documents shall be binding upon the Owner/Permittee and any successor(s) in interest.

6. The continued use of this Permit shall be subject to the regulations of this and any other applicable governmental agency.

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7. Issuance of this Permit by the City of San Diego does not authorize the Owner/Permittee for this Permit to violate any Federal, State or City laws, ordinances, regulations or policies including, but not limited to, the Endangered Species Act of 1973 [ESA] and any amendments thereto (16 U.S.C. § 1531 et seq.).

8. The Owner/Permittee shall secure all necessary building permits. The Owner/Permittee is informed that to secure these permits, substantial building modifications and site improvements may be required to comply with applicable building, fire, mechanical, and plumbing codes, and State and Federal disability access laws.

9. Construction plans shall be in substantial conformity to Exhibit "A." Changes, modifications, or alterations to the construction plans are prohibited unless appropriate application(s) or amendment(s) to this Permit have been granted.

10. This Permit may be developed in phases.

GEOLOGY REQUIREMENTS:

11. The Owner/Permittee shall submit a geotechnical investigation report that specifically addresses the proposed construction plans. The geotechnical investigation report shall be reviewed for adequacy by the Geology Section of Development Services prior to the issuance of any construction permit.

LANDSCAPE REQUIREMENTS:

12. No change, modification or alteration shall be made to the project unless appropriate application or amendment of this Permit shall have been granted by the City.

13. If any required landscape (including existing or new plantings, hardscape, landscape features, etc.) indicated on the approved construction document plans is damaged or removed during demolition or construction, it shall be repaired and/or replaced in kind and equivalent size per the approved documents, to the satisfaction of the Director of Development Services Department within 30 days and prior to final inspection.

14. Prior to issuance of any construction permits for structures, complete landscape construction documents consistent with the Landscape Standards (no irrigation plans required) shall be submitted to the Director of Development Services Department for approval. The construction documents shall be in substantial conformance with Exhibit "A," on file in the Office of Development Services.

15. All required landscape shall be maintained in a disease, weed and litter free condition at all times.

16. Prior to final inspection or occupancy it shall be the responsibility of the Owner/Permittee to install all required landscape and obtain all required landscape inspections.

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Appendix F - Site and Coastal Development Permits La Jolla Cove Lifeguard Station

PLANNING/DESIGN-REQUIREMENTS:

17. A topographical survey conforming to the provisions of the SDMC may be required if it is determined, during construction, that there may be a conflict between the building(s) under construction and a condition of this Permit or a regulation of the underlying zone. The cost of any such survey shall be borne by the Owner/Permittee.

18. Environmentally sensitive lands outside of the allowable development area shall be left in a natural state.

19. All drainage from the improvements on the premises shall be directed away from any coastal bluff and either into an existing or improved public storm drain system or onto a street developed with a storm drain system or public right-of-way designated to carry surface drainage run-off. All drainage from unimproved areas shall be appropriately collected and discharge in order to reduce, control, or mitigate erosion of the coastal bluff.

20. Prior to the issuance of building permits, the Owner/Permittee shall submit a construction schedule for review and acceptance by the Director of Development Services Department. The schedule shall detail the construction methods to be used, equipment to be used, routes of access, and any activity necessary for the construction of the approved projects. Operations should be planned and conducted to minimize adverse impacts to other shoreline uses and resources, properties and the surrounding area to the greatest extent possible. Any changes to the approved schedule shall also be approved by the Director of Development Services Department.

21. All construction materials shall be managed so as to prevent any materials from entering the Pacific Ocean.

22. Any temporary storage of equipment or materials and activities on the beach would require review by the State of California Coastal Commission.

23. This permit shall serve to satisfy the requirement to process an after-the-fact coastal development permit for the emergency coastal development permit that allowed for the construction of the temporary lifeguard tower.

24. All existing parking within the public right-of-way shall be preserved and no net loss to on-street parking shall result during construction or after completion of the project.

25. All signs associated with this development shall be consistent with sign criteria established by either the City-wide sign regulations.

26. All private outdoor lighting shall be shaded and adjusted to fall on the same premises where such lights are located and in accordance with the applicable regulations in the SDMC.

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TRANSPORTATION REQUIREMENTS:

27. This project shall coordinate all work within the public right-of-way with the approved plans and the approved EIR for the "La Jolla Cove Wall Replacement project" (SCH # 97101071, PTS # 4779).

28. The two accessible parking spaces and two designated lifeguard parking spaces shall be maintained as shown on the site plan, dated 03/01/2011.

WATER REQUIREMENTS:

29. Prior to the final inspection of the site, public water facilities necessary to serve the development, including services, shall be complete and operational in a manner satisfactory to the Public Utilities Director and the City Engineer.

30. The Owner/Permittee agrees to design and construct all proposed public water facilities in accordance with established criteria in the most current edition of the City of San Diego Water Facility Design Guidelines and City regulations, standards and practices pertaining thereto.

INFORMATION ONLY:

- The issuance of this discretionary use permit alone does not allow the immediate commencement or continued operation of the proposed use on site. The operation allowed by this discretionary use permit may only begin or recommence after all conditions listed on this permit are fully completed and all required ministerial permits have been issued and received final inspection.
- Any party on whom fees, dedications, reservations, or other exactions have been imposed as conditions of approval of this Permit, may protest the imposition within ninety days of the approval of this development permit by filing a written protest with the City Clerk pursuant to California Government Code-section 66020.
- This development may be subject to impact fees at the time of construction permit issuance.

APPROVED by the Hearing Officer of the City of San Diego on March 14, 2012 by Resolution No. HO-6500.

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Permit Type/PTS Approval No.: Coastal Development Permit No. 67574 and Site Development Permit No. 67576 Date of Approval: March 14, 2012

AUTHENTICATED BY THE CITY OF SAN DIEGO DEVELOPMENT SERVICES DEPARTMENT

John S. Fisher Development Project Manager

NOTE: Notary acknowledgment must be attached per Civil Code section 1189 et seq.

The undersigned Owner/Permittee, by execution hereof, agrees to each and every condition of this Permit and promises to perform each and every obligation of Owner/Permittee hereunder.

CITY OF SAN DIEGO,

a Municipal Corporation Owner/Permittee

By

Jihad Sleiman Project Manager

NOTE: Notary acknowledgments must be attached per Civil Code section 1189 et seq.

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Appendix F - Site and Coastal Development Permits La Jolla Cove Lifeguard Station

APPENDIX G TECHNICAL SPECIFICATIONS

FOR

LA JOLLA COVE LIFEGUARD STATION

LA JOLLA, CALIFORNIA

TECHNICAL SPECIFICATIONS FOR LA JOLLA COVE LIFEGUARD STATION LA JOLLA, CALIFORNIA

DIVISION 1 - GENERAL REQUIREMENTS

- 01100 SUMMARY
- 01250 CONTRACT MODIFICATION PROCEDURES
- 01310 PROJECT MANAGEMENT AND COORDINATION
- 01330 SUBMITTAL PROCEDURES
- 01400 QUALITY REQUIREMENTS
- 01420 REFERENCES
- 01500 TEMPORARY FACILITIES AND CONTROLS
- 01600 PRODUCT REQUIREMENTS
- 01635 SUBSTITUTION PROCEDURES
- 01700 EXECUTION REQUIREMENTS
- 01820 DEMONSTRATION AND TRAINING

DIVISION 2 - SITE CONSTRUCTION

- 02010 SELECTIVE SITE DEMOLITION
- 02140 DEWATERING
- 02200 EARTHWORK FOR STRUCTURE AND PAVEMENTS
- 02221 STRUCTURE DEMOLITION
- 02225 EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES
- 02231 TREE PROTECTION AND TRIMMING
- 02233 GRADED CRUSHED AGGREGATE BASE COURSE FOR PAVEMENT
- 02450 DRILLED CONCRETE PIERS AND SHAFTS
- 02513 ASPHALT CONCRETE PAVEMENTS
- 02620 CONCRETE CURBS, GUTTERS AND WALKS
- 02660 EXTERIOR WATER DISTRIBUTION SYSTEM
- 02720 STORM DRAINAGE SYSTEM
- 02730 EXTERIOR SANITARY SEWER SYSTEM
- 02900 LANDSCAPE PLANTING

DIVISION 3 - CONCRETE

03300 CAST-IN-PLACE CONCRETE

DIVISION 4 - MASONRY

NOT USED

DIVISION 5 - METALS

- 05120 STRUCTURAL STEEL FRAMING
- 05500 METAL FABRICATIONS
- 05730 DECORATIVE METAL RAILINGS

DIVISION 6 - WOOD AND PLASTICS

06100	ROUGH CARPENTRY
06150	WOOD DECKING
06160	SHEATHING
06201	EXTERIOR FINISH CARPENTRY
06402	INTERIOR ARCHITECTURAL WOODWORK

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

- 07132 SELF-ADHERING SHEET WATERPROOFING
- 07190 WATER REPELLENTS
- 07250 WEATHER BARRIERS
- 07542 POLYVINYL-CHLORIDE (PVC) ROOFING
- 07620 SHEET METAL FLASHING AND TRIM
- 07920 JOINT SEALANTS

DIVISION 8 - DOORS AND WINDOWS

- 08211 FLUSH WOOD DOORS
- 08255 FRP SANDSTONE TEXTURE FLUSH DOOR
- 08411 ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
- 08520 ALUMINUM WINDOWS
- 08710 FINISH HARDWARE
- 08800 GLAZING
- 08912 STRUCTURAL-SEALANT-GLAZED CURTAIN WALLS

DIVISION 9 - FINISHES

- 09250 GYPSUM BOARD
- 09310 CERAMIC TILE
- 09860 ANTI-GRAFFITI COATINGS
- 09912 INTERIOR PAINTING
- 09931 WOOD STAINS AND TRANSPARENT FINISHES
- 09960 HIGH-PERFORMANCE COATINGS

DIVISION 10 - SPECIALTIES

- 10200 LOUVERS AND VENTS
- 10431 FLAGPOLES
- 10431 SIGNAGE
- 10436 POST AND PANEL/PYLON SIGNAGE
- 10507 SOLID PLASTIC LOCKERS
- 10522 FIRE EXTINGUISHER CABINETS
- 10523 FIRE EXTINGUISHERS
- 10700 ROLLING SHUTTERS
- 10801 TOILET, BATH, AND LAUNDRY ACCESSORIES

DIVISIONS 11-14

NOT USED

DIVISION 15 - MECHANICAL

- 15100 HEATING, VENTILATING AND AIR CONDITIONING
- 15150 PIPING AND ACCESSORIES
- 11520 PLUMBING

DIVISION 16 - ELECTRICAL

16100 ELECTRICAL

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. The Contract Documents as defined in Section 1-2, Definitions, of the Standard Specification for Public Works Construction (Greenbook), apply to the Work of this Section. Additional requirements and information necessary to complete the Work of this Section may be found in other documents.
- C. Standard Specifications for Public Works Construction, Latest Edition, including Regional and City of San Diego Supplement Amendments. (Greenbook).
- D. California Department of Transportation, Manual of Traffic Controls for Construction and Maintenance Work Zones, Latest Edition.
- E. City of San Diego Standard Drawings including all Regional Standard Drawings, Latest Edition.

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Work by Owner.
 - 4. Work under separate contracts.
 - 5. Owner-furnished products.
 - 6. Coastal Development Permit Restrictions.
 - 7. Height Restrictions.
 - 8. Community Liaison and Principal Investigator.
 - 9. Access to site.
 - 10. Coordination with occupants.
 - 11. Work restrictions.
 - 12. Specification and drawing conventions.
- B. Related Requirements:
 - 1. Division 1 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: La Jolla Cove Lifeguard Station.
 - 1. Project Location: 1160 Coast Blvd., La Jolla, California 92037.
- B. Owner: City of San Diego.

SUMMARY

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- 1. Owner's Representative: Jihad Sleiman, Project Manager Engineering and Capital Projects Department 600 B Street, Suite 800, MS #908A San Diego, CA 92101
- C. Architect: Roesling Nakamura Terada Architects, Inc. 363 fifth Avenue, Suite 202 San Diego, CA 92101

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. Demolition of an existing lifeguard station structures and associated site work.
 - 2. Construction of a replacement lifeguard station with a free-standing observation tower, observation gallery and public view deck and new site access ramps and stairs.
 - 3. Associated site work, landscaping: Planting, irrigation, and landscape related improvements.

1.5 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.
- B. Concurrent Work: Owner will perform the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.
 - 1. Keyless pad.
 - 2. Security, Intrusion System.
- C. Subsequent Work: Owner will perform the following additional work prior to demolition of the existing station.
 - 1. Hazardous material abatement and removal. This process is anticipated to take one day.
 - 2. Furniture and Equipment as required by Owner.

1.6 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts. Cooperate with the concurrent project contractor and provide schedule for work, incorporating works under this and concurrent project for Owner's approval.
- B. No overnight storage of equipment or materials shall occur on sandy beach or public parking spaces.
- C. Public access corridors shall be located in a manner that has the least impact on public access from the public right of way to and along the shoreline.
- D. No work shall occur on the beach on weekends or holidays between Memorial Day weekend and Labor Day of any year.

- E. All staging/storage sites shall be removed and restored to original condition immediately following completion of the development.
- F. See Amendment to (Project No. **25499**) CDP No. 67574 and SDP No. 67576 for additional requirements on this project.

1.7 HEIGHT RESTRICTIONS

A. 30 Foot Height Limit: At the completion of the Work, the Contractor shall certify, by means of licensed surveyor, that no portion of the new lifeguard station building or its equipment exceeds 30 feet when measured from the highest adjacent grade within 5 feet of the building.

1.8 COMMUNITY LIAISON AND PRINCIPAL INVESTIGATOR

- A. Community Liaison: The Contractor shall retain a community liaison representative throughout the contract period. The representative shall closely coordinate all work with the businesses, institutions and residents impacted by the project. Duties shall include, but not limited to, notification to the businesses, institutions, and residents of the commencement of construction activities as soon in advance as possible and not less than five (5) working days, coordination of access for vehicular and pedestrian traffic to businesses, institutions and residences impacted by the project, response to community questions/complaints related to the contractor's activities, reporting of liaison activities at all project progress meetings scheduled by the Owner, attendance to the project pre-construction meeting, and attendance at three (3) community meetings. The Contractor shall present their community liaison representative to the City, in writing, within fifteen (15) calendar days of the award of the contract. All costs for the community liaison shall be included in the bid price for various items of work.
- B. Principal Investigator: The Contractor shall retain a principal investigator with the approval of the Mitigation and Monitoring Coordination (MMC) as required by the Coastal Development Permit Restrictives.

1.9 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to area proposed by the Contractor and approved by the Owner.
 - 2. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.10 COORDINATION WITH OCCUPANTS

- A. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, and other adjacent occupied or used facilities. Do not close or obstruct walkways, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
 - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
 - 1. Architect, under direction of the Resident Engineer (RE), will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
 - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
 - 3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
 - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.11 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to hours of 7:30 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated. No work is allowed between Memorial Day and Labor Day.
 - 1. Weekend Hours: Not allowed.
 - 2. Hours for Utility Shutdowns: Contractor shall coordinate with RE for shutdown per Paragraph 1.11.
 - 3. Hours for work by heavy and noisy equipment: 9:00 am to 4:00 pm.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than two days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.

SUMMARY

- E. Nonsmoking Building and Site: Smoking is not permitted within the building or on site.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.
- G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.12 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 1 General Requirements: Requirements of Sections in Division 1 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Division 1 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. The Owner will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by the Owner are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail." or forms acceptable to the Owner.

CONTRACT MODIFICATION PROCEDURES

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to the Owner.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Division 1 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail." or form acceptable to Architect.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Division 1 Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Changes Proposal Request, City will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01250

CONTRACT MODIFICATION PROCEDURES

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SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. Requests for Information (RFIs).
 - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
 - 1. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 2. Division 1 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: At the Preconstruction Meeting, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule, including coordination of schedule of concurrent work under separate contract.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

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- a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
- b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
- c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
- d. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- e. Indicate required installation sequences.
- f. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
 - 1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, and electrical Work. Supplement plan drawings with section drawings where required to adequately represent the Work.
 - 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 - 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
 - 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 - 5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 - 6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - 7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, and emergency battery pack.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 - 8. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make changes as directed and resubmit.
 - 9. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Division 1 Section "Submittal Procedures.

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 - 1. Project name.
 - 2. Project number.
 - 3. Date.
 - 4. Name of Contractor.
 - 5. Name of Architect.
 - 6. RFI number, numbered sequentially.
 - 7. RFI subject.
 - 8. Specification Section number and title and related paragraphs, as appropriate.
 - 9. Drawing number and detail references, as appropriate.
 - 10. Field dimensions and conditions, as appropriate.
 - 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 - 12. Contractor's signature.
 - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716 or Software-generated form with substantially the same content as indicated above, acceptable to Architect.
 - 1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. On Monday through Thursday and after 9:00 a.m. on Friday will be considered as received the following working day.
 - 1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 - 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.

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- 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly. Use CSI Log Form 13.2B. Include the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three days if Contractor disagrees with response.
 - 1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: RE shall schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 - 1. Conduct the conference to review responsibilities and personnel assignments.
 - 2. Attendees: Authorized representatives of Owner, Principal Investigator (PI) for the mitigation monitoring and reporting program; Architect, and their consultants; Contractor and its superintendent; grading contractor; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Mitigation Monitoring and Reporting Program requirements and procedures.
 - b. Tentative construction schedule.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.

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- f. Procedures for processing field decisions and Change Orders.
- g. Procedures for RFIs.
- h. Procedures for testing and inspecting.
- i. Procedures for processing Applications for Payment.
- j. Distribution of the Contract Documents.
- k. Submittal procedures.
- 1. Preparation of record documents.
- m. Use of the premises.
- n. Work restrictions.
- o. Working hours.
- p. Owner's occupancy requirements.
- q. Responsibility for temporary facilities and controls.
- r. Procedures for moisture and mold control.
- s. Procedures for disruptions and shutdowns.
- t. Construction waste management and recycling.
- u. Parking availability.
- v. Office, work, and storage areas.
- w. Equipment deliveries and priorities.
- x. First aid.
- y. Security.
- z. Progress cleaning.
- 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Owner of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility requirements.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written instructions.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.

- x. Protection of adjacent work.
- y. Protection of construction and personnel.
- 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
- 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
- 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.
 - 1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 - 2. Attendees: Authorized representatives of Owner, PI, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Draft Monitoring Report.
 - e. Requirements for preparing operations and maintenance data.
 - f. Requirements for delivery of material samples, attic stock, and spare parts.
 - g. Requirements for demonstration and training.
 - h. Preparation of Contractor's punch list.
 - i. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - j. Submittal procedures.
 - k. Coordination of separate contracts.
 - 1. Owner's partial occupancy requirements.
 - m. Installation of Owner's furniture, fixtures, and equipment.
 - n. Responsibility for removing temporary facilities and controls.
 - 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at weekly intervals.
 - 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner, PI, if required, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be

expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- Review schedule for next period, including schedule of the concurrent project. 1)
- Review present and future needs of each entity present, including the following: b.
 - 1) Interface requirements.
 - Sequence of operations. 2)
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - Temporary facilities and controls. 8)
 - Progress cleaning. 9)
 - Quality and work standards. 10)
 - Status of correction of deficient items. 11)
 - Field observations. 12)
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - Pending changes. 15)
 - Status of Change Orders. 16)
 - Pending claims and disputes. 17)
 - 18) Documentation of information for payment requests.
- 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - Schedule Updating: Revise Contractor's construction schedule after each progress meeting a. where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

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SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, The Standard Specifications for Public Work Construction and Amendments, and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 3. Division 1 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 4. Division 1 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 5. Division 1 Section "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 - 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 - 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 - 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
 - 4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 - 5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return without review submittals received from sources other than Contractor.
 - a. Transmittal Form for Paper Submittals: Use AIA Document G810 or CSI Form 12.1A.

- b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:
 - 1) Project name.
 - 2) Date.
 - 3) Destination (To:).
 - 4) Source (From:).
 - 5) Name and address of Architect.
 - 6) Name of Contractor.
 - 7) Name of firm or entity that prepared submittal.
 - 8) Names of subcontractor, manufacturer, and supplier.
 - 9) Category and type of submittal.
 - 10) Submittal purpose and description.
 - 11) Specification Section number and title.
 - 12) Specification paragraph number or drawing designation and generic name for each of multiple items.
 - 13) Drawing number and detail references, as appropriate.
 - 14) Indication of full or partial submittal.
 - 15) Transmittal number, numbered consecutively.
 - 16) Submittal and transmittal distribution record.
 - 17) Remarks.
 - 18) Signature of transmitter.
- E. Options: Identify options requiring selection by Architect.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Action Submittals: Submit five paper copies of each submittal unless otherwise indicated. Architect will return two copies.

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- 2. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
- 3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before or concurrent with Samples.
 - 6. Submit Product Data in the following format:
 - a. Five paper copies of Product Data unless otherwise indicated. Architect will return two copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.

- 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
- 3. Submit Shop Drawings in the following format:
 - a. Five opaque copies of each submittal. Architect will retain three copies; remainder will be returned.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 - 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 - 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 - 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.

- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 - 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 - 2. Manufacturer and product name, and model number if applicable.
 - 3. Number and name of room or space.
 - 4. Location within room or space.
 - 5. Submit product schedule in the following format:
 - a. Five paper copies of product schedule or list unless otherwise indicated. Architect will return two copies.
- F. Coordination Drawing Submittals: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- G. Contractor's Construction Schedule: Comply with requirements specified in the Standard Specifications. Include schedule of concurrent project and how it relates to schedule of this project.
- H. Application for Payment and Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- I. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 1 Section "Quality Requirements."
- J. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 1 Section "Closeout Procedures."
- K. Maintenance Data: Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- L. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- M. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- N. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- O. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- P. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

- Q. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- R. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- S. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- T. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- W. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- X. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Division 1 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 01330

SECTION 01400 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. The Standard Specification for developing a schedule of required tests and inspections.
 - 2. Division 1 Section "Allowances" for testing and inspecting allowances.
 - 3. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
 - 4. Divisions 2 through 16 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades-people of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

- 1. Specification Section number and title.
- 2. Description of test and inspection.
- 3. Identification of applicable standards.
- 4. Identification of test and inspection methods.
- 5. Number of tests and inspections required.
- 6. Time schedule or time span for tests and inspections.
- 7. Entity responsible for performing tests and inspections.
- 8. Requirements for obtaining samples.
- 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and re-inspecting.
 - 14. Test Reports shall be signed by a Registered Civil Engineer licensed in the state of California.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the state of California and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

- F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow seven days for initial review and each re-review of each mockup.
 - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

6. Demolish and remove mockups when directed, unless otherwise indicated.

1.7 PAYMENTS

- A. Costs of initial testing and inspection, except as specifically modified herein, or specified otherwise in technical sections, will be paid for by the Contractor. Initial tests and inspections are defined as the first tests and inspections as herein specified.
- B. In the event a test of inspection indicates failure of a material or procedure to meet requirements of Contract Documents, costs for retesting and reinspection will be paid by the Owner and back-charged to the Contractor.
- C. Additional tests and inspections not herein specified but requested by Owner or Architect, will be paid for by Owner, unless results of such tests and inspections are found to be not in compliance with Contract Documents, in which case the Owner will pay all costs for initial testing as well as retesting and reinspection, and back-charge the Contractor.
- D. Costs for additional tests or inspections required because of change in materials being provided or change of source or supply will be paid for by the Contractor.
- E. Costs for test or inspections which are required to correct deficiencies will be paid by the Contractor.
- F. Cost of testing which is required solely for the convenience of Contractor in his scheduling and performance of work will be paid by the Contractor.
- G. Overtime costs for testing and inspections performed outside the regular workday hours, including weekends and holidays, will be paid for by the Owner and back-charged to the Contractor. Such costs include overtime costs for the Owner's Representative.
- H. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the completed work, the Contractor shall, on request, promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, he shall be responsible for all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, additional cost of labor and material necessarily involved in the examination and replacement shall be reimbursed to the Contractor.

1.8 QUALITY CONTROL

- A. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Testing agency shall be approved by Owner.
 - 2. Unless otherwise specified, Contractor shall notify Testing Laboratory a minimum of 10 working days in advance of all required tests, and a minimum of 2 working days in advance of all required inspections. Extra laboratory expenses resulting from a failure to notify the Laboratory will be paid by the Contractor.

- 3. Contractor shall give sufficient advance notice to Testing Laboratory in the event of cancellation or time extension of a scheduled test or inspection. Charges due to insufficient advance notice cancellations or time extension will be paid for by the Contractor.
- 4. Contractor shall notify the Testing Agency a minimum of 3 working days in advance of the manufacture or material to be supplied by him under the Contract Documents, which must by terms of the Contract be tested, in order that the Agency may arrange for the testing of such material at the source of supply.
 - a. Material shipped by the Contractor from the source of supply before having satisfactorily passed such testing and inspection or before the receipt of notice from the Owner's Representative that such testing and inspection will not be required, shall not be incorporated in the Project.
- 5. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
- 6. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
- 7. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- B. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- C. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report of each test, inspection, and similar quality-control service to Owner, to Architect, with copy to Contractor and to authority having jurisdiction.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.
 - 7. Reporting test failures: Immediately upon Testing Laboratory determination of a test failure, the Laboratory will telephone the results of test to Architect. On the same day, Laboratory will send written test results to those named on the above distribution list.
- E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar qualitycontrol services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.

- 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
- 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- G. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.
 - 1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Contractor will engage and pay for a qualified testing agency and special inspector with approval of Owner and Agency having jurisdiction to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
 - 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 - 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 - 4. Submitting a final report of special tests and inspections at Substantial Completion, which include a list of unresolved deficiencies.
 - 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 6. Retesting and reinspection of the corrected work.
- PART 2 PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
 - 2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400

SECTION 01420 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

REFERENCES

- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(703) 358-2960
AAADM	American Association of Automatic Door Manufacturers www.aaadm.com	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABAA	Air Barrier Association of America www.airbarrier.org	(866) 956-5888
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700

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La Jolla Cove Lifeguard Station	

AGA	American Gas Association www.aga.org	(202) 824-7000
AGC	Associated General Contractors of America (The) www.agc.org	(703) 548-3118
АНА	American Hardboard Association (Now part of CPA)	
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AI	Asphalt Institute www.asphaltinstitute.org	(859) 288-4960
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)	
ALSC	American Lumber Standard Committee, Incorporated www.alsc.org	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems (See APA - The Engineered Wood Association)	
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800

REFERENCES	01420 - 3
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ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers	(800) 527-4723
	www.ashrae.org	(404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
AWCI	Association of the Wall and Ceiling Industry www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (Now WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)	(616) 285-3963

REFERENCES	01420 - 4
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	www.bifma.com	
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
BWF	Badminton World Federation (Formerly: IBF - International Badminton Federation) www.internationalbadminton.org	6-03-9283 7155
CCC	Carpet Cushion Council www.carpetcushion.org	(610) 527-3880
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CFFA	Chemical Fabrics & Film Association, Inc. www.chemicalfabricsandfilm.com	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
СРА	Composite Panel Association www.pbmdf.com	(301) 670-0604
СРРА	Corrugated Polyethylene Pipe Association www.cppa-info.org	(800) 510-2772 (202) 462-9607
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	Canadian Standards Association	(800) 463-6727 (416) 747-4000

REFERENCES	01420 - 5
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CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Cast Stone Institute www.caststone.org	(717) 272-3744
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJCDC	Engineers Joint Contract Documents Committee www.ejdc.org	(703) 295-5000
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association) www.esda.org	(315) 339-6937
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA) www.intertek.com	(800) 967-5352
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000

REFERENCES	01420 - 6
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FMRC	Factory Mutual Research (Now FM Global)	
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridaroof.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GRI	(Part of GSI)	
GS	Green Seal www.greenseal.org	(202) 872-6400
GSI	Geosynthetic Institute www.geosynthetic-institute.org	(610) 522-8440
HI	Hydraulic Institute www.pumps.org	(973) 267-9700
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
НММА	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAS	International Approval Services (Now CSA International)	
IBF	International Badminton Federation (Now BWF)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
UUDDDIADA		01400

REFERENCES	01420 - 7
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IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America www.iesna.org	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology www.iest.org	(847) 255-1561
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
	Available from ANSI www.ansi.org	(202) 293-8020
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (702) 567-8150
ITS	Intertek Testing Service NA (Now ETL SEMCO)	
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
КСМА	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association, Inc. www.maplefloor.org	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MH	Material Handling (Now MHIA)	
MHIA	Material Handling Industry of America	(800) 345-1815

REFERENCES	01420 - 8
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	www.mhia.org	(704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6623 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls and Women in Sport	(800) 213-7193, ext. 453
	www.aahperd.org/nagws/	U AL 755
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(262) 248-9094
NCTA	National Cable & Telecommunications Association www.ncta.com	(202) 775-2300
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200

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NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NGA	National Glass Association www.glass.org	(866) 342-5642 (703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.com	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(888) 846-7622 (301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)	
NWWDA	National Wood Window and Door Association (Now WDMA)	
OPL	Omega Point Laboratories, Inc. (Now ITS)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300

REFERENCES

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PDCA	Painting & Decorating Contractors of America www.pdca.com	(800) 332-7322 (314) 514-7322
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PGI	PVC Geomembrane Institute http://pgi-tp.ce.uiuc.edu	(217) 333-3929
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America) www.landcarenetwork.org	(800) 395-2522 (703) 736-9666
PTI	Post-Tensioning Institute www.post-tensioning.org	(602) 870-7540
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(301) 340-8580
RIS	Redwood Inspection Service www.redwoodinspection.com	(888) 225-7339 (415) 382-0662
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SIA	Security Industry Association www.siaonline.org	(866) 817-8888 (703) 683-2075
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)	
SЛ	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991

REFERENCES	01420 - 11
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SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing, & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. (Now TCNA)	
TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance www.tiaonline.org	(703) 907-7700
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tileroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc.	(877) 854-3577

REFERENCES	01420 - 12
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	www.ul.com	(847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association) www.windowcoverings.org	(800) 506-4636 (212) 297-2109
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WIC	Woodwork Institute of California (Now WI)	
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930
C Code Age	ncies. Where abbreviations and acronyms are used in Specification	s or other Contra

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

IAPMO	International Association of Plumbing and Mechanical Officials	(909) 472-4100
	www.iapmo.org	
100		
ICC	International Code Council	(888) 422-7233

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ICC-ES	ICC Evaluation Service, Inc.
	www.icc-es.org

Uniform Building Code

(See ICC)

UBC

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://.dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FCC	Federal Communications Commission www.fcc.gov	(888) 225-5322
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
NCHRI	 National Cooperative Highway Research Program (See TRB) 	1
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration	(800) 321-6742
REFEREN	01420	

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(800) 423-6587 (562) 699-0543

	www.osha.gov	(202) 693-1999
PBS	Public Buildings Service (See GSA)	
PHS	Office of Public Health and Science www.osophs.dhhs.gov/ophs	(202) 690-7694
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the E. following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board www.access-board.gov	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
	Available from Defense Standardization Program www.dps.dla.mil	
	Available from General Services Administration	(202) 619-8925
REFERENCES		01420 - 15
1		100 Dama

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	wv	vw.gsa.gov			
		vailable from National Institute of Building Sciences ww.wbdg.org/ccb	(202) 289-7800		
FTMS		deral Test Method Standard ee FS)			
MIL	(Se	ee MILSPEC)			
MIL-ST	D (Se	ee MILSPEC)			
MILSPE	Av	ilitary Specification and Standards /ailable from Department of Defense Single Stock Point p://dodssp.daps.dla.mil	(215) 697-2664		
UFAS	Av	niform Federal Accessibility Standards vailable from Access Board ww.access-board.gov	(800) 872-2253 (202) 272-0080		
F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.					
CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation www.dca.ca.gov/bhfti		(800) 952-5210		
			(916) 574-2041		
CCR		ia Code of Regulations lregs.com	(916) 323-6815		
CPUC		aia Public Utilities Commission puc.ca.gov	(415) 703-2782		
TFS	Forest R	orest Service Resource Development forestservice.tamu.edu	(979) 458-6650		
PART 2 - P	RODUC	TS (Not Used)			

PART 3 - EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 1 Section "Summary" for limitations on work restrictions and utility interruptions.
 - 2. Division 2 Section "Dewatering" for disposal of ground water at Project site.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary construction facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of authorities having jurisdiction.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.

TEMPORARY FACILITIES AND CONTROLS Appendix G - Technical Specifications

La Jolla Cove Lifeguard Station

- 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
- 3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8inch- OD corner and pull posts, with 1-5/8-inch- OD top rails and with screening fabric around construction and staging sites. Provide vehicular and pedestrian gates with locks.
- B. Wood Enclosure Fence: Plywood, 8 feet high, framed with four 2-by-4-inch rails, with preservativetreated wood posts spaced not more than 8 feet apart. Provide covered walkways required by governing authorities for public rights-or-way.
- C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

2.2 TEMPORARY LIFEGUARD FACILITIES

A. The City owns a portable modular building that is to be used at the project site to temporarily accommodate the Lifeguard staff requirements for the use of Locker Rooms, Toilet Rooms, and Shower Rooms during the project duration.

As part of the work of this Contract, the Contractor shall provide the following:

1. Haul the City's portable building from its location to the project site;

2. Provide all required setting devices and bracing necessary to maintain structural stability for the portable building during the time it is in use at the project site;

TEMPORARY FACILITIES AND CONTROLS

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- 3. Construct a code-compliant disable access ramp at the building entrance;
- 4. Provide a temporary electrical power, water, sewer, connections of adequate size to the building;

5. At the end of the project, disconnect the building from temporary power, water and sewer ties, disassemble the disabled-accessible ramp and haul the portable building back to the location where it was formerly parked.

6. Contractor is responsible to haul the portable building to the previous location.

B. The Contractor shall verify the location of adequate power, sewer and water connections at the project site and assure that the connections will be maintained without interruption throughout the life of the project. Utility connections shall be provided in a way so that there is no possibility of injury to staff or to the public for the duration of the project due to the utility connections for the portable building.

2.3 TEMPORARY CONSTRUCTION FACILITIES

- A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.4 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

- 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.
- I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.
 - 1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 - 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.

TEMPORARY FACILITIES AND CONTROLS

- f. Engineers' offices.
- g. Owner's office.
- h. Principal subcontractors' field and home offices.
- 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Provide limited temporary parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater and groundwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 1 Section "Execution Requirements."
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- H. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- I. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

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3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 1 Section "Summary."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Division 2 Section "Tree Protection and Trimming."
- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- G. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and as approved by Owner.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

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- K. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
 - 1. Construct covered walkways using scaffold or shoring framing.
 - 2. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - 3. Paint and maintain appearance of walkway for duration of the Work.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.
 - 3. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.

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- 5. Do not install material that is wet.
- 6. Discard, replace, or clean stored or installed material that begins to grow mold.
- 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - 2. Use temporary equipment to control humidity until all wet work have been completed for 14 days.
 - 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

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SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Division 1 Section "Substitution Procedures" for requests for substitutions.
 - 2. Division 1 Section "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.

- 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 1 Section "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

- 1. Store products to allow for inspection and measurement of quantity or counting of units.
- 2. Store materials in a manner that will not endanger Project structure.
- 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
- 4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
- 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- 6. Protect stored products from damage and liquids from freezing.
- 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 4. Where products are accompanied by the term "as selected," Architect will make selection.
 - 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 - 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - 3. Products:

PRODUCT REQUIREMENTS

- a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
- b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
- 4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
- 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 1 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
 - 1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - 3. Evidence that proposed product provides specified warranty.

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- 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
- 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01600

SECTION 01635 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Division 1 Section "Alternates" for products selected under an alternate.
 - 2. Division 1 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 3. Divisions 2 through 16 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect,

sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
- e. Samples, where applicable or requested.
- f. Certificates and qualification data, where applicable or requested.
- g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
- h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
- i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
- j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
- k. Cost information, including a proposal of change, if any, in the Contract Sum.
- 1. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
- m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

- 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Requested substitution provides sustainable design characteristics that specified product provided.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed unless otherwise indicated.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01635

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.
- B. Related Requirements:
 - 1. Division 1 Section "Summary" for limits on use of Project site.
 - 2. Division 1 Section "Submittal Procedures" for submitting surveys.
 - 3. Division 1 Section "Selective Demolition" for demolition and removal of selected portions of the building.
 - 4. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
 - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by land surveyor.
- F. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Mechanical systems piping and ducts.
 - e. Control systems.
 - f. Communication systems.
 - g. Fire-detection and -alarm systems.
 - h. Electrical wiring systems.
 - i. Operating systems of special construction.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to

perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

- a. Water, moisture, or vapor barriers.
- b. Membranes and flashings.
- c. Exterior curtain-wall construction.
- d. Equipment supports.
- e. Piping, ductwork, vessels, and equipment.
- f. Noise- and vibration-control elements and systems.
- 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Division 1 sustainable design requirements Section.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to the Resident Engineer (RE) according to requirements in Division 1 Section "Project Management and Coordination."
- E. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify RE promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

- 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
- 2. Establish limits on use of Project site.
- 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
- 4. Inform installers of lines and levels to which they must comply.
- 5. Check the location, level and plumb, of every major element as the Work progresses.
- 6. Notify RE when deviations from required lines and levels exceed allowable tolerances.
- 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, elevations and height limit of construction and sitework.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 84 inches in occupied and unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

- 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Existing Utility Services and Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 - 5. Proceed with patching after construction operations requiring cutting are complete.
- F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
- G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

- 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
- 2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 1 Section "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating systems.
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 1 Section "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01700

SECTION 01820 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
- B. Related Requirements:
 - 1. Divisions 2 through 16 Sections for specific requirements for demonstration and training for products in those Sections.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For instructor.
- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 QUALITY ASSURANCE

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements," experienced in operation and maintenance procedures and training.
- B. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:

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- 1. Inspect and discuss locations and other facilities required for instruction.
- 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
- 3. Review required content of instruction.
- 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:

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- a. Instructions on meaning of warnings, trouble indications, and error messages.
- b. Instructions on stopping.
- c. Shutdown instructions for each type of emergency.
- d. Operating instructions for conditions outside of normal operating limits.
- e. Sequences for electric or electronic systems.
- f. Special operating instructions and procedures.
- 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - 1. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

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PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Division 1 Section "Operations and Maintenance Data."
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner with at least fourteen days' advance notice.
- C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- D. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

END OF SECTION 01820

SECTION 02010 - SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
 - 1. Division 01 Section "Summary" for restrictions on the use of the premises, Owneroccupancy requirements, and phasing requirements.
 - 2. Division 01 Section "Execution Requirements" for cutting and patching procedures.
 - 3. Division 01 Section "Selective Demolition" for clearing and removal of above- and below-grade improvements.
 - 4. Division 32 Section "Planting" for temporary protection of existing trees and plants that are affected by demolition and site work.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure tenant's on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Coordination of Tenant's continuing occupancy of portions of existing building.
- C. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.
- D. Predemolition Photographs or Video: Submit before Work begins.
- E. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.
- B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

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1.8 FIELD CONDITIONS

- A. Tenant may occupy portions of temporary building(s) immediately adjacent to selective demolition area. Conduct selective demolition so Tenant's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Resident Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 - 1. Hazardous material remediation is by Owner.
 - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.
 - 2. Maintain electrical facilities in service during selective demolition operations.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

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- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings preconstruction photographs or preconstruction videotapes.
 - 1. Inventory and record the condition of items to be removed and salvaged or to be reinstalled. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
 - 1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies and Owner. Coordinate with Owner for service interruption so as not to impact Owner's tenant's operations.
 - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - c. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - d. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 1 Section "Temporary Facilities and Controls."
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

- 5. Maintain adequate ventilation when using cutting torches.
- 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
- 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
- 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- 9. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management."
- 10. Repair existing concrete or stone site walls directly adjacent or related to the project
- B. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned, and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- D. Existing Stone Rubble Wall: At the lower stone rubble retaining wall, demolish and remove existing site paving. Repair and replace stone wall material where required. Provide a reinforced structural backing such as gunite or approved equal method to inside face of wall (away from beach).

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

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- 1. Do not allow demolished materials to accumulate on-site.
- 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- 4. Comply with requirements specified in Division 01 Section "Construction Waste Management."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.8 SELECTIVE DEMOLITION SCHEDULE

- A. Existing Construction to Be Removed: All portions of building including underground utilities as indicated on drawings.
- B. Existing Items to Be Removed and Reinstalled:
 - 1. Park Benches

END OF SECTION 02010

SECTION 02140 - DEWATERING

PART 1 GENERAL

1.01 SUMMARY

This Section covers the requirements for dewatering as necessary to control and lower groundwater levels and hydrostatic pressures to permit excavation and construction to be performed properly under dry conditions as specified below.

Dewatering operations shall be adequate to assure the integrity of the finished product. The responsibility for conducting the dewatering operation in a manner, which will protect adjacent structures and facilities, rests solely with the contractor. The cost of repairing any damage to adjacent structures and restoration of facilities shall be the responsibility of the contractor.

The contractor shall bear the sole responsibility for the design, installation, and operation of the dewatering system to comply with the requirements of this section and local, state, and federal regulations regarding dewatering operations and disposal of dewatering waters.

The contractor shall be required to install additional dewatering equipment as may be required throughout the duration of the project to maintain specific groundwater levels.

1.02 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines, which may create a safety hazard.

1.03 PROTECTION

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.
- C. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore

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surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.04 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02200, "Earthwork for Structures and Pavements"
- B. Division 1.

1.05 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

1.06 SCHEDULE AND PLAN

- A. The following shall be submitted in compliance with Division 1.
 - 1. The contractor shall make an independent investigation of the soil and groundwater conditions at the site(s). The results of the contractor's independent investigation shall include the results of any and all exploratory borings, laboratory tests, and analyses. The contractor's independent investigation shall be in report form.
 - 2. Prior to commencement of excavation, a detailed plan and schedule, with description, for dewatering of excavations, piezometers, estimated dewatering rates, volume and equipment requirements shall be submitted with the dewatering plan. The plan shall be signed and sealed by a California Registered Geotechnical Engineer, Engineering Geologist or Hydrogeologist with experience of at least one dewatering operation of similar magnitude and complexity in a recently completed construction project. The qualification of the dewatering system designer shall be submitted to the construction manager for approval. The contractor shall make an independent investigation of the soil conditions to be dewatered. The dewatering plan shall be prepared specifically to accommodate soil materials and groundwater conditions of the site.
 - 3. Demonstration of proposed system and verification that adequate personnel, materials, and equipment are readily available, including standby equipment.
 - 4. A copy of the executed permits for discharging effluent waters.

1.07 CONTROL AND OBSERVATION

- A. Adequate control shall be maintained to ensure that the stability of excavated and constructed slopes are not adversely affected by water, that erosion is controlled, and that flooding of excavation or damage to structures does not occur.
- B. Where critical structures or facilities exist immediately adjacent to areas of proposed dewatering, reference points shall be established and observed daily to detect any settlement that may develop.

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- C. A daily report shall be maintained recording the following:
 - 1. Groundwater elevations of ground water and piezometric water levels in observation wells (if any).
 - 2. Change in elevation of reference points as stated in subsection 1.08 to detect settlement in adjacent structures. Construction manager may suspend work if any settlement exceeds 0.05 feet.
- D. After dewatering is discontinued, a weekly report shall be maintained for two months recording:
 - 1. Change in elevation of reference points as stated in subsection 1.08 to detect settlement in adjacent structures.

1.08 INSPECTION

- A. During or after trench excavation, when the contractor observes sufficient groundwater to be present that may prevent proper installation of pipe bedding, pipelines, backfill, and compaction, then contractor shall call for inspection of conditions by the construction manager. The construction manager shall inspect the conditions and determine if unacceptable conditions are present for pipe installation.
- B. If the construction manager finds unacceptable trench conditions, then the contractor will be authorized to mobilize and start dewatering operations of the pipeline trench.
- C. Damp soils or low volumes of groundwater in the bottom of trenches are not sufficient cause for trench dewatering.

1.09 PERMITS

- A. The contractor shall obtain all required permits for discharging effluent waters.
- B. The contractor shall be responsible for all costs associated with obtaining all proper permits and for maintaining permit compliance, including all costs associated with permit violations.
- C. The contractor shall be responsible for all costs associated with the discharge of dewatering effluent into the sanitary sewer system of the local jurisdictional agency.
- D. Storm water runoff flowing into the excavation shall be minimized to the maximum extent possible. All water entering the excavation shall be subject to all dewatering requirements specified in this document.
- E. Protection of adjacent structures from adverse effects of dewatering shall be the responsibility of the contractor.

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Dewatering, where indicated, includes deep wells, well points, piezometers, sump pumps, temporary pipelines for water disposal, and rock or gravel placement, and other means including standby pumping equipment maintained on the jobsite continuously.

2.02 FOUNDATION ROCK

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Appendix G - Technical Specifications La Jolla Cove Lifeguard Station A. Foundation rock shall be included in the dewatering system to replace weakened soil within the excavation. Rock shall be 1-1/2 inch maximum crushed stone placed in minimum 12-inch layers and completely wrapped in filter fabric. Foundation rock shall be used in addition to bedding material shown on the plans and specifications, and it shall be used at the contractor's discretion, or as directed by the construction manager. Foundation rock shall be considered to be part of the dewatering system.

PART 3 EXECUTION

3.01 GENERAL

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings.
- B. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.
- C. All water encountered in the excavation shall be disposed of by the contractor in such a manner as will not damage public or private property or create a nuisance or health nuisance. The contractor shall furnish, install, and operate pumps, pipes, appliances, and equipment of sufficient capability to keep excavation free from water until the excavation is backfilled, unless otherwise authorized by the construction manager. No dewatering from inside the excavation will be permitted while the pipeline is being installed, unless the construction manager approves it.
- D. Dewatering shall be performed in compliance with Subsection 306-3.3 of the SSPWC and as specified herein.
- E. An independent assessment of the subsurface conditions shall be performed prior to submitting a dewatering plan. The assessment shall be signed and sealed by a California Registered Geotechnical, Engineering Geologist, or Hydrogeologist. The plan shall include, but not be limited to:
 - 1. Additional Laboratory Explorations.
 - 2. Laboratory Testing.
 - 3. Pump Testing.
 - 4. All boreholes and wells advanced by the contractor shall be logged and submitted for review.
- F. An adequate system shall be designed, installed, and maintained to lower and control the ground water to permit excavation, construction of structures, and placement of materials to be performed under dry conditions. The system shall include two piezometers at each structure and one piezometer at the midpoint of each pipeline reach. The piezometers shall be properly installed to accurately reflect the groundwater depth adjacent to the excavation.
- G. Sufficient dewatering equipment shall be installed to pre-drain the water-bearing strata below the bottom foundations, sewers, and other excavations.
- H. The hydrostatic head in water-bearing strata below foundations, drains, sewers, and other excavations shall be reduced to ensure that the water level and piezometric water levels are below the excavation surface at all times. The piezometric water level shall be maintained a minimum of

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3 feet below the excavation surface. No excavation shall be made with out proof of required lowered groundwater levels.

- I. The system shall be placed into operation prior to excavation below groundwater level to lower the groundwater level and shall be operated continuously for 24 hours a day, 7 days per week, until drains, sewers, and structures have been constructed and fill materials have been placed and dewatering is no longer required. Groundwater will need to remain depressed until adequate loading from proposed structures and uplift resistance to buoyant forces can be provided. All dewatering wells, well points, and piezometers shall be installed under the supervision of a California Registered Geotechnical Engineer, Engineering Geologist, or Hydrogeologist. The registered professional shall submit a written certificate that the system has been installed according to the dewatering plan.
- J. The site shall be graded to facilitate drainage. Surface runoff shall be diverted from excavations. Water entering the excavation from surface runoff shall be collected in shallow ditches around the perimeter of the excavation and disposed of in compliance with local, state, and federal regulations.
- K. Dewatering shall at all times be conducted in such a manner as to preserve the undisturbed bearing capacity of the subgrade soils at the proposed bottom of the excavation.
- L. If foundations oils are disturbed or loosened by the upward seepage of water or an uncontrolled flow of water, the affected areas shall be excavated and replaced with foundation rock completely wrapped in filter fabric at no additional cost to the owner.
- M. Flotation of structures and facilities shall be prevented by maintaining a positive and continuous removal of water. The dewatering system shall be in continuous operation until all excavations are backfilled.
- N. If well points or wells are used, they shall be adequately spaced to provide the necessary dewatering and shall be sandpacked and/or other means used to prevent pumping of fine sand or silts from the subsurface. A continual check shall be maintained to ensure that the subsurface soil is not being removed by the dewatering operation.
- O. All appropriate permits shall be obtained to discharge dewatering effluent into the sanitary sewer system. Note: If the laboratory results of the independent study show groundwater contamination and constituent concentrations are above allowable discharge limits per the local jurisdiction, a treatment system shall be provided under the bid allowances.
- P. The release of groundwater to its original level shall be performed in such a manner as not to disturb natural foundation soils, prevent disturbance of compacted backfill and prevent flotation or movement of structures, pipelines, and sewers.

END OF SECTION 02140

SECTION 02200 - EARTHWORK FOR STRUCTURES AND PAVEMENTS

PART 1 GENERAL

1.01 SUMMARY

This Section covers the requirements for earthwork including cut and fill operations and materials, removal and recompaction, disposition of on-site unsatisfactory material and debris. It is the responsibility of the contractor to provide adequate equipment and methods to accomplish the work in accordance with these specifications and any applicable grading codes and local agency ordinances.

The engineer makes no representation that the survey information is complete or that it addresses every site condition, which may be significant to the proposed work. The provision of the survey information by the contract documents does not relieve the contractor of the responsibility to carefully examine the site and to take into account any conditions or variance with or in addition to the conditions shown on the survey. The contractor shall notify the owner prior to clearing, grubbing, grading or other ground disturbance if any such conditions or variance exist.

1.02 REFERENCES

A. <u>Existing Topography and Site Conditions</u>:

Existing site conditions for the project are based on La Jolla Shores Lifeguard Facility, drawing number 19813-D, as prepared by Schoell and Paul Inc., dated 5-13-1981, YEAR. Prior to the start of work, the Contractor shall perform an As-Built Survey of the site. The As-Built Survey shall be performed by a California Licensed Land Surveyor, and shall confirm existing site conditions horizontally and vertically, including but not limited to, site topography, utility points of connection horizontally and vertically, storm drain appurtenances and pipe horizontally and vertically, ingress and egress locations and elevations. The Contractor shall notify the owner of any discrepancies prior to the start of work on the site. Any discrepancies not brought to the attention of the owner prior to starting the work shall not be considered relevant to the project.

1.03 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines, which may create a safety hazard.

1.04 DEFINITIONS

- A. **Backfill**: Material used in refilling a cut or other excavation.
- B. **Capillary Water Barrier**: A layer of clean, poorly graded crushed rock, stone, or natural sand or gravel having a high porosity which is placed beneath a building slab with or without a vapor barrier to cut off the capillary rise of pore water to the area immediately below a slab.
- C. **"Soil Fills**: Soil fills are defined as fills containing no rocks or hard lumps larger than 6 inches in maximum dimensions and containing at least 40 percent by weight of material smaller than 3/4 inch in size.

EARTHWORK FOR STRUCTURES AND PAVEMENTS Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- D. **Compaction**: The process of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in ASTM D1557 for general soil types abbreviated in this specification as "(amount indicated) percent ASTM D1557 maximum density".
- E. **Embankment**: A "fill" having a top that is higher than adjoining ground.
- F. **Excavation**: The removal of soil, rock, or hard material to obtain a specified depth or elevation.
- G. **Fill**: Specified material placed at a specified degree of compaction to obtain an indicated grade or elevation.
- H. Lift: A layer (or course) of soil placed on top of a previously prepared or placed soil in a fill or embankment.
- I. **Soil**: The loose surface material of the earth's crust resulting from the chemical and mechanical weathering of rock and organic material.
- J. **Subgrade**: The bottom layer of material (sometimes in-situ soils or rock) graded or otherwise prepared for supporting the addition of fill material, pavement courses, or building footings and slabs.
- K. **Unsatisfactory Material**: Existing, in-place soil or other material which can be identified as having insufficient strength characteristics or stability to carry intended loads in fill or embankment without excessive consolidation or loss of stability. Materials classified as PT, OH, or OL by ASTM D2487 are unsatisfactory. Unsatisfactory materials also include any expansive clays, decomposable or organic debris, rubber tires, metal and plastic. Expansive soils are soils with an expansive index greater than 35 when tested by UBC test standard 29-2.
- L. **Debris**: Existing materials such as asphalt, concrete, glass and other non-organic items that are present in some on-site fill areas.

1.05 DELIVERY AND STORAGE

Deliver and store materials in a manner to prevent contamination or segregation and erosion.

1.06 PROTECTION

- A. The contractor shall notify <u>DIGALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.
- C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the

California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Diego office is located at:

State of California Department of Industrial Relations Division of Occupational Safety and Health 7575 Metropolitan Drive, Ste. 207 San Diego 92108 (619) 767-2280 fax (619) 767-2299

1. <u>This project may include trenching in excess of 5 feet in depth which will require a permit from the California Division of Occupational Safety and Health (CAL-OSHA).</u> The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to the Owner for review prior to commencing the work.

- D. Prior to commencing the work, the Contractor shall <u>pothole all existing utilities at all crossing points</u> <u>and points of connection</u>. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.
- E. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Best Management Practices and the guidance provisions set forth in the Storm Water Pollution Prevention Plan shall be complied with for all phases of the work.
- F. Utilities: Movement of construction machinery and equipment over new and existing pipes, tunnels and utilities during construction shall be at the Contractor's risk. Perform all work adjacent to privately owned utilities as indicated in accordance with procedures outlined by utility company. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, use hand or light equipment excavation. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work as affected by the contract excavation until backfill has been completed.
- G. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be

responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.07 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02010, "Demolition and Removal".
- B. Section 02225, "Excavation, Backfilling and Compaction for Utilities".
- C. Section 02233, "Graded Crushed Aggregate Base Course for Pavements".
- D. Division 1.

1.08 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Soils Materials: Provide materials free from roots, wood, metal, plastic, scrap materials, vegetable matter, and other unsuitable materials.
 - 1. The on-site soils less any contaminated soil, debris, expansive clays, or other organic matter may be used in the required site fills. Any rock or other soil fragments greater than 4" in size shall not be used in the required fill. All required imported fill for site fills shall consist of relatively non-expansive soils with an expansion index of less than 20 and a CBR value of at least 10. Imported fill material shall be evaluated for use prior to importing. Any imported material shall contain sufficient fines (binder material) so as to provide a compacted fill that will be relatively impermeable and that will be stable in shallow trenches.
 - 2. Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Geotechnical Engineer shall not be used in fills.
 - 3. Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9 and 10; 40 CFR; and other applicable local, state, or federal laws.
 - 4. Representative samples of soil materials to be used for fill shall be tested in the laboratory by the Geotechnical Engineer to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.
 - 5. During grading operations, soil or ground water conditions other than those identified in the geotechnical report may be encountered by the Contractor. The Contractor shall immediately notify Owner if unanticipated conditions are encountered.

PART 3 EXECUTION

EARTHWORK FOR STRUCTURES AND PAVEMENTS

3.01 SURFACE PREPARATION

- A. The Contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings.
- B. Clearing and Grubbing: Perform clearing and grubbing in accordance with Section 02110, "Site Clearing", and Section 300-1 of the Standard Specifications. Protect from damage trees and shrubs and their root systems, which are outside the limits of grading. For trees and shrubs indicated to be removed, grub out matted roots and roots over 1" in diameter to at least 18" below the existing surface of areas to receive fill material. Brush refuse, stumps, roots, and timber shall become the property of the Contractor and removed from the site.
- C. Any unsatisfactory material, as previously defined, shall be segregated from satisfactory soil or debris and removed from the site.
- D. Debris Material: Debris material defined as broken up pieces of asphalt and concrete, glass and other non-organic materials shall be removed. This debris material shall become the property of the contractor and removed from the site.

3.02 REMOVAL AND RECOMPACTION REQUIREMENTS

- A. Areas supporting fills, structures, roadways or parking areas: Ground surface shall be scarified to a depth of 1' above the water table and water or dried, as needed, to achieve generally consistent moisture contents at or near optimum moisture content. Scarified materials shall be compacted to 90% relative compaction.
- B. Removed soils shall be compacted to 95% relative compaction.

3.03 GRADING

- A. Removed soils shall be thoroughly mixed and moisture conditioned as directed by the Geotechnical Engineer. Soil moisture, in the opinion of the Geotechnical Engineer, shall be very near optimum levels during compaction operations.
- B. Fill soils shall be mechanically compacted in thin, horizontal lifts to at least 90% of the laboratory maximum density. Sub grade soils beneath asphalt pavement shall be compacted to at least 95% of the laboratory maximum density within the upper one-foot.
- C. All patios, walkways and driveways require a base of 6" clean sand (SE30 or greater). Refer to section 02620, "Concrete Curbs, Gutters and Walks" for additional requirements.

3.04 EXISTING UNDERGROUND UTILITIES

All existing underground utilities shall be identified prior to commencing grading operations. Exercise sufficient care to prevent damage to underground utilities during grading operations. Adequate compaction levels within the utility trench backfills shall be confirmed by compaction testing by the Geotechnical Engineer during grading operations.

3.05 GRADED SLOPES

Graded cut and fill slopes shall be constructed at maximum steepness of 2H:1V gradient.

EARTHWORK FOR STRUCTURES AND PAVEMENTS

3.06 FINISH OPERATIONS

- A. Site Grading: Grade to finished grades indicated within 0.05'. Grade areas to drain water away from structures. Existing grades which are to remain but are disturbed by the Contractor's operations shall be restored as specified herein.
- B. Finishing Subgrades Under Structures and Pavements: Finish the surface of the top lift of the fill or top of the subgrade to the elevation and cross section indicated. The finished surface shall be smooth and of uniform texture. Lightly scarify or blade the finished surface to bring the finished surface to within 0.05' of the indicated grade and to eliminate imprints made by the compaction and shaping equipment. The surface shall show no deviations in excess of 3/8" when tested with a 10' straightedge.

3.07 DISPOSITION OF SURPLUS MATERIAL

A. Unsatisfactory Material and Debris: All unsatisfactory material and any debris material shall be removed from the site to a location approved by the Owner and the responsible City, county, and state where material must be dumped.

3.08 PROTECTION OF SURFACES

Protect newly graded areas from traffic, erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes prior to acceptance of work.

3.09 SOIL TESTING

- A. Soil testing during construction shall be performed by a Geotechnical Engineer engaged and paid for by the Owner. Materials and operations under this section shall be monitored by the Geotechnical Engineer. In general, no more than 1 foot of soil in vertical elevation shall be placed without at least one field density test being made within that interval. In addition, a minimum of one field density test shall be made for every 100 cubic yards of soil fill placed and compacted, unless directed otherwise by the Geotechnical Engineer.
- B. The Geotechnical Engineer shall make random field density tests of the compacted soil fill to provide a basis for expressing an opinion as to whether the fill material is compacted as specified. The basis for its opinion that the fill material has been compacted to at least the minimum relative compaction specified shall be that no tests in compacted or recompacted fill areas indicate a relative compaction of less than that specified. Density tests shall be made in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.
- C. Prior to placement of concrete, footing excavations and fill placement shall be observed and tested by the Geotechnical Engineer.
- D. The Contractor shall be responsible for any rework necessary to achieve the specified densities to the satisfaction of the Geotechnical Engineer.
- E. The Contractor shall complete all grading operations within the scheduled time approved by the owner. If grading operations continue beyond the scheduled time period, the Contractor shall be responsible for the cost of Geotechnical Engineering services required to provide testing during the time extension.

3.10 SURVEY SERVICES

- A. The Contractor shall be responsible for procuring all surveying services as may be required for construction. All construction surveying services shall be provided by a licensed land surveyor or registered civil engineer licensed to practice land surveying.
- B. The Contractor shall be responsible for any monumentation and/or benchmark which will be disturbed or destroyed by construction. Such points shall be referenced and replaced with appropriate monumentation by a licensed land surveyor or a registered civil engineer authorized to practice land surveying. A Corner Record for Record of Survey, as appropriate, shall be filed by the licensed land surveyor or registered civil engineer as required by the Land Surveyor's Act.

END OF SECTION 02200

SECTION 02221 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Demolition and removal of buildings and site improvements.
- 2. Removing below-grade construction.
- 3. Disconnecting, capping or sealing, and removing site utilities.

B. Related Sections:

- 1. Division 1 Section "Summary" for use of the premises and phasing requirements.
- 2. Division 1 Section "Construction Progress Documentation" for preconstruction photographs taken before building demolition.
- 3. Division 1 Section "Selective Demolition" for partial demolition of buildings, structures, and site improvements.
- 4. Division 2 Sections "Demolition and Removal" and "Earthwork for Structures and Pavement" for site clearing and removal of above- and below-grade site improvements not part of building demolition.
- 5. Division 15 Sections for demolishing or relocating site mechanical items.
- 6. Division 16 Sections for demolishing or relocating site electrical items.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse. Include fasteners or brackets needed for reattachment elsewhere.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 SUBMITTALS

A. Proposed Protection Measures: Submit informational report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

- B. Schedule of Building Demolition Activities: Indicate the following:
 - 1. Detailed sequence of demolition work, with starting and ending dates for each activity.
 - 2. Temporary interruption of utility services.
 - 3. Shutoff and capping or re-routing of utility services.
- C. Landfill Records: Provide affidavit of legal disposal of all waste materials.

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.
- C. Predemolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be demolished.
 - 2. Review structural load limitations of existing structures.
 - 3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review and finalize protection requirements.
 - 5. Review procedures for noise control and dust control.
 - 6. Review procedures for protection of adjacent facilities.

1.7 PROJECT CONDITIONS

- A. Buildings to be demolished will be vacated and their use discontinued before start of demolition.
- B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.
 - 1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
 - 2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
 - a. Do not close or obstruct walkways, or other facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for buildings and structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 2. Before building demolition, Owner will remove the following items:
 - a. All furnishings and equipment that the Owner wants to keep.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.

- 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. On-site storage or sale of removed items or materials is not permitted.

1.8 COORDINATION

A. Arrange demolition schedule so as not to interfere with Owner's on-site operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Satisfactory Soils: Comply with requirements in Division 2 Section "Earthwork."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Review Project Record Documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.
- D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

- A. Existing Utilities: Locate, identify, disconnect, and seal or cap off indicated utilities serving buildings and structures to be demolished.
 - 1. Arrange to shut off indicated utilities with utility companies.
 - 2. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.
 - 3. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of demolition.

3.3 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, and other building facilities during demolition operations.
- B. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
 - 2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.
 - a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.
- C. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Division 1 Section "Temporary Facilities And Controls."
- D. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 DEMOLITION, GENERAL

- A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 - 2. Maintain fire watch during and for at least 24 hours after flame cutting operations.
 - 3. Maintain adequate ventilation when using cutting torches.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
 - 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- C. Explosives: Use of explosives is not permitted.

3.5 DEMOLITION BY MECHANICAL MEANS

- A. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.
- B. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

- 1. Remove structural framing members and lower to ground by method suitable to minimize ground impact and dust generation.
- C. Below-Grade Construction: Demolish foundation walls and other below-grade construction.
 - 1. Remove below-grade construction, including foundation walls, and footings, completely to at least 24 inches below grade.
- D. Existing Utilities: Abandon existing utilities and below-grade utility structures. Cut utilities flush with grade.
- E. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.
 - 1. Piping: Disconnect piping at unions, flanges, valves, or fittings.
 - 2. Wiring Ducts: Disassemble into unit lengths and remove plug-in and disconnecting devices.

3.6 SITE RESTORATION

- A. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials according to backfill requirements in Division 2 Section "Earthwork for Structures and Pavements."
- B. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.

3.7 REPAIRS

A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved landfill acceptable to authorities having jurisdiction. See Division 1 Section "Temporary Facilities and Control" for disposal of demolition waste.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Do not burn demolished materials.

3.9 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.
 - 1. Clean roadways of debris caused by debris transport.

END OF SECTION 02221

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SECTION 02225 - EXCAVATING, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 GENERAL

1.01 SUMMARY

This Section includes requirements for excavating, preparation of pipe-laying surface, pipe bedding, backfilling and compaction for the piping systems furnished and installed under Section 02660, "Exterior Water Distribution System"; Section 02720, "Storm Drainage System" and Section 02730, "Exterior Sanitary Sewer System".

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D1556	Density of Soil in Place by the Sand Cone-Method
ASTM D1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457 mm) Drop
ASTM D2487	Classification of Soils for Engineering Purposes
ASTM D2922	Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D3017	Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

1.03 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines, which may create a safety hazard.

1.04 DESCRIPTION

The work includes excavation, preparation of pipe laying surface, pipe bedding, backfilling and compaction as specified herein, for the piping systems furnished and installed under Section 02660, "Exterior Water Distribution System"; Section 02720, "Storm Drainage System"; and Section 02730, "Exterior Sanitary Sewer System". The work also includes protection as specified herein, installation of buried warning and identification tape, sawcutting and removal of existing asphalt pavement within areas to be trenched through existing asphalt and pavement repair for areas trenched through existing asphalt as specified herein.

1.05 DEFINITIONS

A. **Backfill**: Material used in refilling a trench or other excavation.

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- B. **Compaction**: Any method of mechanically stabilizing a material by increasing its density at a controlled moisture condition. "Degree of Compaction" is expressed as a percentage of the maximum density obtained by the test procedure described in ASTM D1557 for general soil types, abbreviated in this specification as "(amount indicated) percent ASTM D1557 maximum density."
- C. **Embankment**: A "fill having a top that is higher than adjoining ground."
- D. **Fill**: Specified material placed at a specified degree of compaction to obtain an indicated grade or elevation.
- E. **Granular Pipe Bedding**: A dense, well-graded aggregate mixture of sand placed on a subgrade to provide a suitable foundation for pipe.
- F. **Hard Material**: Weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" but which usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.
- G. Lift: A layer or course of soil placed on top of prepared subgrade or a previously prepared or placed soil in a fill or backfill.
- H. **Rock**: Solid Homogenous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/2 cubic yard in volume.
- I. **Unyielding Material**: Rock or soil with cobbles in the trench bottom requiring a covering of finer grain material or special bedding to avoid bridging in the pipe or conduit.
- J. Unsatisfactory Material: Soil or other material identified as having insufficient strength or stability to carry intended loads on trench backfills without excessive consolidation or loss of stability. Also backfill material which contains refuse, large rocks, debris, and other material which could damage the pipe or cause the backfill not to compact. Materials classified as PT, OH, or OL by ASTM D2487 are unsatisfactory.
- K. **Unstable Material**: Material in the trench bottom which lacks firmness to maintain alignment and prevent joints from separating in the pipe, conduit, or appurtenance structure during backfilling. This may be material otherwise identified as satisfactory which has been disturbed or saturated.

1.06 SUBMITTALS

- A. Field Test Reports: Submit within 14 days of test date.
- B. Shoring Plan: The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements to Owner for review prior to commencing the work.

1.07 PROTECTION

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A. The Contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

- B. Prior to commencing the work, the Contractor shall <u>pothole all existing utilities at all crossing</u> <u>points and points of connection.</u> The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.
- C. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings.
- D. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Diego office is located at:

State of California Department of Industrial Relations Division of Occupational Safety and Health 7575 Metropolitan Drive, Ste. 207 San Diego 92108 (619) 767-2280 fax (619) 767-2299

1. <u>This project may include trenching in excess of 5 feet in depth which will require a permit from the California Division of Occupational Safety and Health (CAL-OSHA).</u> The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to Owner for review prior to commencing the work.

- E. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Pollution Prevention Plan shall be complied with for all phases of the work.
- F. Utilities: Movement of construction machinery and equipment over pipes and utilities during construction shall be at the Contractor's risk. For work immediately adjacent to or for excavations exposing a utility or other buried obstruction, use hand or light equipment excavation. Start hand or light equipment excavation on each side of the indicated obstruction and continue until the

obstruction is uncovered or until clearance for the new grade is assured. Support uncovered lines or other existing work affected by the contract excavation until backfill is completed. Report damage to utility or subsurface construction immediately to the Resident Engineer.

G. Structures and Surfaces: Protect newly backfilled areas and adjacent structures, slopes or grades from traffic, erosion settlement, or any other damage. Repair and reestablish damaged or eroded grades and slopes and restore surface construction prior to acceptance. Provide erosion control to prevent water-borne soil from leaving the site, by means of straw bale dikes or sand bags. The contractor shall be responsible to clean-up any soil deposited in the public right-of-way or on adjacent property.

1.08 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02010, "Demolition and Removal".
- B. Section 02200, "Earthwork for Structures and Pavements".
- C. Section 02660, "Exterior Water Distribution System".
- D. Section 02720, "Storm Drainage System".
- E. Section 02730, "Exterior Sanitary Sewer System".
- F. Division 1.

1.09 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

2.01 SOIL MATERIALS

Provide soil materials as described below free of debris, roots, wood, scrap material, vegetable matter, refuse, soft unsound particles, or other deleterious and objectionable materials.

- A. Backfill: Bring trenches to grade indicated on the drawings using material excavated on the site of this project. This material shall be approved by the Geotechnical Engineer prior to use as backfill. The maximum size of material used for backfill shall not exceed two inches.
- B. Bedding: Sand: Clean, course-grained sand classified as SW or SP by ASTM D2487 shall be used as bedding material.
- C. Utility trenches under slabs: Utility trenches under slabs in expansive soils shall be back filled with sand (SE 30 or greater) and compacted to a minimum of 90% of maximum dry density of the sand. Care shall be taken not to crush the utility or pipes during the compaction of the trench back fill.

2.02 BURIED WARNING AND IDENTIFICATION TAPE

Polyethylene plastic and metallic core or metallic-faced, acid- and alkali-resistant, polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Provide tape on rolls, three-inch-minimum width, color coded as stated below for the intended utility with warning and identification

imprinted in bold black letters continuously over the entire tape length. Warning and identification to read, "CAUTION, BURIED (intended service) LINE BELOW" or similar wording. Color and printing is to be permanent, unaffected by moisture or soil.

Warning tape Color Codes

Blue:	Water Lines, including Fire, Domestic and Irrigation
Green:	Sewer Lines
White:	Storm Drain Lines

- A. Warning Tape for Metallic Piping: Acid and alkali-resistant polyethylene plastic tape conforming to the width, color, and printing requirements indicated above. Minimum thickness of the tape shall be 0.003 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise with a maximum 350 percent elongation.
- B. Detectable Warning Tape for Non-Metallic Piping: Polyethylene plastic tape conforming to the width, color, and printing requirements indicated above. Minimum thickness of the tape shall be 0.004 inch. Tape shall have a minimum strength of 1500 psi lengthwise and 1250 psi crosswise. The tape shall be manufactured with integral wires, foil backing, or other means of enabling detection by a metal detector when the tape is buried up to three feet deep. Encase the metallic element of the tape in a protective jacket or provide with other means of corrosion protection.

PART 3 EXECUTION

3.01 GENERAL EXCAVATION

Keep excavations free from water while construction is in progress. Make trench sides as nearly vertical as practicable except where sloping of sides is allowed or required. Sides of trenches shall not be sloped from the bottom of the trench up to the elevation of the top of the utility. Excavate ledge rock, boulders, and other unyielding material to an overdepth at least one foot below the bottom of the utility unless otherwise indicated or specified on the drawings. Use sand placed in six-inch-maximum layers to refill overdepths to the proper grade. Grade bottom of trenches accurately to provide uniform bearing and support for each section of utility on undisturbed soil, or bedding material as indicated or specified at every point along its entire length except for portions where it is necessary to excavate for bell holes and for making proper joints. Dig bell holes and depressions for joints after trench has been graded.

Dimensions of bell holes shall be as required for properly making the particular type of joint to ensure that the bell does not bear on the bottom of the excavations. Trench dimensions shall be as indicated or specified.

3.02 GENERAL BEDDING

Shall be of the materials and depths as indicated for the utility and utility structures. Place bedding in six-inchmaximum loose lifts to one foot above utility unless otherwise specified. Ensure that initially placed material is tamped firmly under pipe haunches. Bring up evenly on each side and along the full length of the structure. Ensure that no damage is done to structures or their protective coatings. Provide uniform and continuous support for each section of structure except at bell holes or depressions necessary for making proper joints.

3.03 THRUST BLOCKS

Provide concrete thrust blocks for pipe anchorage in accordance with Standard Drawings W-17, W-18 and SDW-100.

3.04 BURIED WARNING AND IDENTIFICATION TAPE

Install tape in accordance with manufacturer's recommendations except as modified herein. Bury tape 6" below finished grade; under pavements bury tape 6" below top of subgrade.

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3.05 GENERAL BACKFILLING

Place backfill on top of bedding material in 8"-maximum loose lifts unless otherwise specified. Compact each loose lift as specified in paragraph "General Compaction" before placing the next lift. Do not backfill where the material in the trench is muddy, except as authorized. Where settlements greater than the tolerance allowed herein for grading occur in trenches and pits due to improper compaction, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation. Coordinate backfilling with testing of utilities. Complete all testing for utilities before backfilling.

3.06 GENERAL COMPACTION

Use hand-operated, plate-type, vibratory, or other suitable hand tampers in areas not accessible to larger rollers or compactors. Avoid damaging pipes and protective pipe coatings. Compact material in accordance with the following unless otherwise specified. If necessary, alter, change, or modify selected equipment or compaction methods to meet specified compaction requirements.

A. Compaction of Bedding and Backfill: Compact bedding and backfill material surrounding pipes to 90% of ASTM D1557 maximum density, except where specified to be 95% of ASTM D1557 maximum density in Section 02220, "Earthwork for Structures and Pavements".

3.07 SPECIAL EARTHWORK INSTALLATION REQUIREMENTS

- A. Precast Meter Boxes, Catchbasins and Cast-in-Place Structures: Provide at least 12 inches clear from outer surfaces to the embankment or shoring. Remove rock as specified herein. Remove unstable soils that are incapable of supporting the structure to an overdepth of one foot and refill with gravel or sand to the proper elevation. Refill overdepths with gravel or sand to the required grade and compact as specified. Set precast concrete structures on a minimum of 6 inches of gravel or sand material.
- B. Grading: Finish to grades indicated within 0.05 feet. Grade areas to drain water away from structures. Grade existing grades that are to remain but have been disturbed by the Contractor's operations.
- C. Protection of Surfaces: Protect newly graded areas from traffic, erosion, and settlements that may occur due to construction activity. Repair or reestablish damaged grades, elevations, or slopes.
- D. Pavement Repair: Repair pavement, curbs, and gutters damaged during construction with new improvements. Do not repair pavement until trench or pit has been backfilled and compacted as herein specified. Provide a temporary road surface of gravel or crushed stone over the backfilled portion until permanent pavement is repaired. Remove and dispose of temporary road surface material when permanent pavement is placed. Repair A.C. pavement in accordance with San Diego Regional Standard Drawings SDG-107 and SDG-108. Refer to Section 02513, "Asphalt Concrete Pavements" for asphalt concrete pavement specifications.

3.08 SOIL TESTING

The geotechnical engineer shall make random field density tests of the compacted soil to provide a basis for expressing an opinion as to whether the fill material is compacted as specified. The basis for his opinion that the fill material has been compacted to at least the minimum relative compaction specified shall be that no tests in compacted or recompacted fill areas indicate a relative compaction of less than that specified. Density tests hall be made in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

END OF SECTION 02225

SECTION 02231 - TREE PROTECTION AND TRIMMING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the protection and trimming of existing trees, and other vegetation, that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.
- B. Drawings and General Provisions of the Contract including General Conditions, Supplemental Conditions, and Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the dripline of individual trees or the perimeter dripline of groups of trees, unless otherwise indicated.
- B. "Tree" shall mean a woody perennial plant which usually has (but is not limited to) a single dominant trunk and has a mature height of fifteen feet (15') or more, and has a trunk diameter (caliper) of three (3") inches or more when measured at 24" above the finished grade. "Tree" shall also refer to any palm species, where palms are measured in "brown trunk height" (BTH).
- C. "Dripline" shall be generally defined as the outermost extent of the tree's foliaged canopy, which encompasses the tree leaves or fronds, trunk, branches, roots, and soil. In no case shall a dripline encompass an area under a tree canopy which is less than ten feet (10') in diameter. Since each tree is unique in size, scale, and form, the delineated dripline of each tree shall be refined at the discretion of the Landscape Architect.
- D. "Injury" shall be defined, without limitation, as any bruising, scarring, tearing, gouging, or breaking of roots, branches, or trunk(s), soil compaction around the dripline, or contamination around the dripline which results in the decline to the health of the tree.

1.3 PROJECT SITE CONDITIONS

- A. It is the intent of the project that certain existing plant materials shall be retained. Prior to the removal of any trees or vegetation, the Contractor shall confer with the Landscape Architect to determine which plants are to remain.
- B. Tree Flagging: Prior to commencement of Work, Contractor shall flag all existing trees and vegetation to remain and protected throughout the duration of Work. Adequately flag tree trunks with bright-colored tape (neon colors preferred). Verify flagged trees and vegetation with Landscape Architect. The Landscape Architect shall be extended the opportunity to participate in the tree flagging operations.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Tree Pruning Schedule: Written schedule from arborist detailing scope and extent of pruning of trees to remain, which interfere with or are affected by construction.
- C. Qualification Data: For tree service firm and arborist.

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- D. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- E. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

1.5 QUALITY ASSURANCE

- A. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of tree protection and trimming.
- B. Arborist Qualifications: An arborist certified by ISA or licensed in the jurisdiction where Project is located. The arborist shall be approved by the Landscape Architect, and the same arborist shall be used for all work of this section.
- C. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1.
 - 1. Before tree protection and trimming operations begin, meet with representatives of authorities having jurisdiction, the Owner, the Landscape Architect, consultants, and other concerned entities to review tree protection and trimming procedures and responsibilities.

1.6 GUARANTEE

A. If a tree to remain is destroyed or injured so that in the judgment of the Landscape Architect it should be replaced, it shall be removed at the expense of the Contractor. Contract shall pay compensation to the Owner, or Owner of the property where the tree was located, at the rate as specified herein this Section (see Compensation).

1.7 COMPENSATION

- A. Contractor shall replace any existing tree which died, or sustained injury, from the result of the Contractor's negligence to provide adequate required tree protection, pruning, or maintenance during the course of construction operations. Compensation shall be awarded to the Owner as follows:
 - 1. Contractor shall thoroughly remove damaged tree, including trunk, branches, and roots, at no cost to the Owner, and at the direction of the Landscape Architect. Contractor shall furnish and install an equal size tree, up to six-inch (6") caliper size, with a tree that is of the same form, species, shape, and in the same quantity as those tree(s) that were damaged, at the direction of the Landscape Architect.
 - 2. Contractor shall provide an additional cash settlement to the Owner for each damaged tree, as evaluated by the Landscape Architect. Additional compensation shall be based on the following formula:
 - a. Tree caliper measurement of the damaged tree(s), where caliper is measured at the greatest trunk diameter 24" above the finished grade:
 - 1) Tree Trunk Caliper

Amount

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a)	Less than 6"	none
b)	6" to 12"	\$9,000.00
c)	>12"to18"	\$15,000.00
d)	over 18", add for each caliper inch	\$1.000.00

- B. Contractor shall replace any existing vegetation (other than trees) that died or sustained injury from the result of the Contractor's negligence to provide adequate required vegetation protection, pruning, or maintenance during the course of construction operations, as evaluated by the Landscape Architect. Compensation shall be awarded to the Owner as follows:
 - 1. Contractor shall thoroughly remove damaged vegetation at no cost to the Owner, and at the direction of the Landscape Architect.
 - 2. Contractor shall furnish and install per requirements in Section 02900 "Landscape Planting", with five (5) gallon container stock minimum (as applicable) of the same form, species, shape, and in the same quantity as vegetation that was damaged, at the direction of the Landscape Architect.
- C. The Landscape Architect shall make the final judgment on whether trees and/or vegetation have been damaged by the Contractor during the execution of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D 448, Size 24, with 90 to 100 percent passing a 2-1/2-inch sieve and not more than 10 percent passing a 3/4-inch sieve.
- B. Topsoil: per relevant paragraphs of Section 02900 Landscape Planting.
- C. Filter Fabric: per relevant paragraphs of Section 02900 Landscape Planting.
- D. Barricade for Protection of Existing Trees Vegetation
 - 1. Fabric: Utility (snow) type fencing, minimum six feet (6') high, consisting of a vinyl meshed fabric in a bright orange color. Fabric shall be reviewed and approved by the Landscape Architect, prior to use.
 - 2. Posts: Metal or wood, sufficient in gauge (as appropriate) and size to support the fabric material in a taut and plumb condition. Posts shall be subject to approval by the Landscape Architect, prior to use.
 - 3. Signs: Posted plastic laminated signs, attached to fabric fencing, with words "WARNING-KEEP OUT-VEGETATION PROTECTION ZONE".
 - 4. Chain-Link Fence: Conform to Section 206-6 of the Standard Specifications for Public Works Construction ("Greenbook"): 11- gage metallic-coated steel chain-link fence fabric; with 1.90-inch diameter line posts (1-1/2 NPS), 2.375-inch diameter terminal and corner posts (2 NPS), 1.660-inch- diameter top rail (1-1/4 NPS), and 11-gage bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.
- E. Organic Mulch: per relevant paragraphs of Section 02900, Landscape Planting.

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PART 3 - EXECUTION

3.1 PREPARATION

- A. Locate and clearly flag trees and vegetation to remain or to be relocated. Protect existing site improvements to remain from damage during construction. Prior to commencement of construction activities, the Contractor shall erect and maintain a temporary fenced barricade around the dripline of individual trees, around perimeter dripline of groups of trees, and around other vegetation to remain.
 - 1. Prevent damage to roots during installation of barricade posts. Space posts approximately 4'-0" on center and securely attach fabric. Barricades shall be installed plumb, taut, and sturdy to prevent unauthorized access around dripline of trees and protected vegetation.
 - 2. At direction of Landscape Architect, install 48-inch minimum height chain-link fence, with top rail, in lieu of fabric and post fencing, according to ASTM F 567 and manufacturer's written instructions.
- B. Mulch areas inside tree protection zones, within dripline of trees to remain, and other vegetation areas indicated to remain.
 - 1. Apply 3-inch average thickness of organic mulch. Do not place mulch within 6 inches of tree trunks, or within 4 inches of shrub crown.
- C. Irrigation: Contractor shall supply fresh potable water in adequate amounts and rates of application as required to maintain the health of all protected trees and vegetation throughout the duration of the construction operations. Contractor shall maintain a watering schedule, and document dates and duration of irrigation applications.
 - 1. Construct a temporary watering basin, as required, on the surface of the existing undisturbed grade, with imported soil, to aid in the retention of water around existing protected trees and planting.
- D. Protect root systems of existing trees and vegetation from damage due to chemically injurious materials in solution, caused by run-off or spillage during mixing or placement of construction materials, and/or drainage of stored materials. The Contractor shall ensure that no foreign material and/or liquid, such as paint, concrete, cement, oil, turpentine, acid or the like, be deposited or allowed to be deposited on any soil within the dripline of any tree or shrub, or within 6" of the trunk of a vine. Should any such poisoning of the soil occur the Contractor shall remove said soil as directed by the Landscape Architect, and replace with acceptable soil at no expense to the Owner.
- E. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.
- F. Maintain tree protection zones free of weeds and trash.
- G. Do not allow fires within tree protection zones.

3.2 EXCAVATION

- A. Install shoring or other protective support systems to minimize sloping or benching of excavations, near trees or vegetation designated to remain.
- B. Do not excavate or trench within dripline of trees, unless approved in writing by the Landscape Architect.

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- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks or air spade, and comb soil to expose roots.
 - 1. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction.
 - 2. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
- D. Where utility trenches are required within tree protection zones, tunnel under or around roots by air or water drilling, auger boring, pipe jacking, or digging by hand.
 - 1. Root Pruning: Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots only at lateral branching portions of the root. Cut roots with sharp pruning instruments; do not break or chop or rip.

3.3 REGRADING

- A. Do not regrade within dripline of trees, unless approved in writing by the Landscape Architect.
- B. All regrading within dripline of trees shall be per direction, and under the observation of, the approved arborist.
- C. Grade Lowering: Where new finish grade is indicated below existing grade around trees, and approved by the Landscape Architect in writing, slope the grade away from trees as recommended by arborist, unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots or taproots; cut only smaller roots at lateral branching portions of the root. Cut roots with sharp pruning instruments; do not break or chop or rip.
- D. Minor Fill: Where existing grade is 6 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations. Do not backfill against tree trunk.

3.4 TREE PRUNING

- A. Prune trees to remain, which are affected by temporary and permanent construction, only as directed by the approved arborist.
- B. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.
- C. Pruning Standards: Prune trees according to ANSI A300 (Part 1) as follows:
 - 1. Type of Pruning: Cleaning
- D. Cut branches with sharp pruning instruments; do not break or chop or rip.
- E. Chip removed tree branches, and dispose of at a legal disposal site, or spread over areas identified by Landscape Architect.

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3.5 TREE REPAIR AND REPLACEMENT

- A. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to arborist's written instructions.
- B. Remove and replace trees indicated to remain that die or are damaged during construction operations that Landscape Architect determines are incapable of restoring to normal growth pattern.
 - 1. Provide new trees of same size and species as those being replaced; plant and maintain as specified in Section 02900, Landscape Planting.
- C. Aerate surface soil, compacted during construction, 10 feet beyond dripline and no closer than 36 inches to tree trunk. Drill 2-inch- diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

3.6 DISPOSAL OF WASTE MATERIALS

- A. Burning is not permitted.
- B. Disposal: Remove excess excavated material and displaced trees from the Owner's property.

END OF SECTION 02231

SECTION 02233 - GRADED CRUSHED AGGREGATE BASE COURSE FOR PAVEMENTS

PART 1 GENERAL

1.01 SUMMARY

The work includes placement of aggregate base course for pavements, concrete curb and gutter, and as indicated on the drawings.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C136	Sieve Analysis of Fine and Course Aggregates
ASTM D1556	Density of Soil in Place by the Sand-Cone Method
ASTM D1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) Rammer and 18-inch (457 mm) Drop
ASTM D2172	Quantitative Extraction of Bitumen from Bituminous Paving Mixtures

1.03 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines which may create a safety hazard.

1.04 SUBMITTALS

Certificates of Compliance for Class 2 Aggregate Base Course.

1.05 QUALITY ASSURANCE

Materials and workmanship specified herein with the referenced CalTrans Standard Specifications shall be in accordance with the referenced articles, sections and paragraphs of the standard except that contractual and payment provisions do not apply.

1.06 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02010, "Demolition and Removal".
- B. Section 02200, "Earthwork for Structures and Pavements".

GRADED CRUSHED AGGREGATE BASE COURSE FOR PAVEMENTS

- C. Section 02225, "Excavation, Backfilling and Compacting for Utilities."
- D. Section 02513, "Asphalt Concrete Pavements".
- E. Section 02620, Concrete Curbs, Gutters and Walks".
- F. Division 1.

1.07 PROTECTION

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. Prior to commencing the work, the Contractor shall <u>pothole all existing utilities at all crossing</u> <u>points and points of connection.</u> The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.
- C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Diego office is located at:

State of California Department of Industrial Relations Division of Occupational Safety and Health 7575 Metropolitan Drive, Ste. 207 San Diego 92108 (619) 767-2280 fax (619) 767-2299

1. <u>This project may include trenching in excess of 5 feet in depth which will require a</u> permit from the California Division of Occupational Safety and Health (CAL-OSHA). The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to the Owner for review prior to commencing the work.

D. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for

obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Best Management Practices and the guidance provisions set forth in the Storm Water Pollution Prevention Plan shall be complied with for all phases of the work.

E. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Control Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.08 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aggregates Base Course
 - 1. Aggregate Base Course Materials shall comply with Section 26 of SS-2, Class 2, for 3/4" maximum size gradation of the CalTrans Standard Specifications.
 - 2. Herbicide: Herbicide shall be barrier 50W-PBI Gordon, DuPont "Oust", or approved alternate. As with all chemicals, the contractors shall be responsible for following appropriate materials handling and good housekeeping measures when storing and applying the materials.

PART 3 EXECUTION

3.01 PREPARATION

Subgrade: Requirements for subgrade are specified in Section 02200, "Earthwork for Structures and Pavements". Prior to construction of base course, clean previously constructed subgrade of foreign substances. Apply herbicide to subgrade in accordance with manufacturers recommendations.

3.02 INSTALLATION

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A. Aggregate Base Course (Class 2) Installation: Place aggregate base in accordance with requirements of Section 26 of the CalTrans Standard Specifications. Grade and compact in layers to at least 95 percent of maximum density (ASTM D-1557). Maintain base course in proper condition until asphaltic concrete is in place, including drainage, rolling, shaping, and watering. Maintain sufficient moisture at the surface to prevent a dusty condition by light sprinkling with water. Recondition, reshape, and recompact areas of completed base course damaged in accordance with the specified requirements.

B. Aggregate Base Course thickness shall be as indicated on the drawings.

Pavement structural sections shall be confirmed by R-Value test results performed on the Sub grade soil at the completion of grading by the Geotechnical Engineer.

3.03 FIELD QUALITY CONTROL

Soil testing during construction shall be performed by a Geotechnical Testing Laboratory engaged and paid for by the Owner.

All material testing shall be performed by the Geotechnical Engineer. The following tests shall be performed:

- A. Base Course Finish Surface: Surface tolerance shall conform to Section 26 of the CalTrans Standard Specifications. When base course is constructed in more than one layer, specified smoothness requirements apply only to top surface.
- B. Gradation: Perform base course gradation test in accordance with ASTM C136. Make one test for each 500 tons of material.
- C. Base Course Density: Perform in place density tests in accordance with ASTM D1557. Make one maximum density test for each gradation. Make one set of two tests each for in place density for each 150 ton max or 5000 square feet, whichever is less, or as determined by the Geotechnical Engineer. In place density of aggregate base course shall be at least 95 percent of the laboratory maximum density.

END OF SECTION 02233

SECTION 02450 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Dry-installed drilled piers.
- 2. Slurry displacement-installed drilled piers.
- 3. Dry-installed or slurry displacement-installed drilled piers at Contractor's choice.

B. Related Sections:

- 1. Division 01 Section "Construction Progress Documentation" for recording preexisting conditions and drilled-pier progress.
- 2. Division 01 Section "Temporary Facilities and Controls."
- 3. Division 31 Section "Site Clearing" for preparation of subgrade for drilled-pier operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface.

1.3 UNIT PRICES

- A. Unit prices are included in Division 01 Section "Unit Prices."
- B. Drilled Piers: Actual net volume of drilled piers in place and approved. Actual length, shaft diameter, and bell diameter if applicable, may vary, to coincide with elevations where satisfactory bearing strata are encountered. These dimensions may also vary with actual bearing value of bearing strata determined by an independent testing and inspecting agency. Adjustments will be made on net variation of total quantities, based on design dimensions for shafts and bells.
 - 1. Base Bid shall include all drilled concrete pier foundation work indicated on the drawings. Unit Pricing will be used to establish costs to either reduce or increase the contract price based on actual drilled concrete pier foundation depths installed.
 - 2. Base bids on indicated number of drilled piers and, for each pier, the design length from top elevation to bottom of shaft, extended through the bell, if applicable, and the diameter of shaft and bell.
 - 3. Unit prices include labor, materials, tools, equipment, and incidentals required for excavation, trimming, shoring, casings, dewatering, reinforcement, concrete fill, testing and inspecting, and other items for complete drilled-pier installation.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Shop Drawings: For concrete reinforcement detailing fabricating, bending, supporting, and placing.
- D. Qualification Data: For qualified Installer land surveyor and testing agency.
- E. Welding certificates.
- F. Material Certificates: For the following, from manufacturer:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Steel reinforcement and accessories.
- G. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- H. Field quality-control reports.
- I. Other Informational Submittals:
 - 1. Record drawings.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer that has specialized in drilled-pier work.
- B. Testing Agency Qualifications: Qualified according to ASTM C 1077, ASTM D 3740, and ASTM E 329 for testing indicated.
- C. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code Steel."
 - 2. AWS D1.4, "Structural Welding Code Reinforcing Steel."
- D. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.
- E. Trial Drilled Pier Excavation: Drill a trial pier excavation of diameter and depth of same diameter and depth as largest drilled piers, and at location directed by the District's Geotechnical Engineer, located at least three diameters clear of permanent drilled piers, to demonstrate installer's drilling methods and evaluate soil stability.
 - 1. Backfill test hole with concrete slurry as directed by the Geotechnical Engineer.

DRILLED CONCRETE PIERS AND SHAFTS

- F. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to drilled piers including, but not limited to, the following:
 - a. Review geotechnical report.
 - b. Discuss existing utilities and subsurface conditions.
 - c. Review coordination with temporary controls and protections.

1.6 PROJECT CONDITIONS

- A. Existing Utilities: Locate existing underground utilities before excavating drilled piers. If utilities are to remain in place, provide protection from damage during drilled-pier operations.
 - 1. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, adapt drilling procedure if necessary to prevent damage to utilities. Cooperate with Owner and utility companies in keeping services and facilities in operation without interruption. Repair damaged utilities to satisfaction of utility owner.
- B. Interruption of Existing Utilities: Do not interrupt any utility to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility according to requirements indicated:
 - 1. Notify Construction Manager and Owner no fewer than five days in advance of proposed interruption of utility.
 - 2. Do not proceed with interruption of utility without Architect's Construction Manager's and Owner's written permission.
- C. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.
 - 1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
 - 2. The geotechnical report is **referenced** elsewhere in the Project Manual and is not part of the Contract Documents.
- D. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.
 - 1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

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- C. Galvanized Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed bars.
- D. Plain-Steel Wire: ASTM A 82, as drawn.
- E. Deformed-Steel Wire: ASTM A 496.
- F. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain. Cut bars true to length with ends square and free of burrs.

2.2 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type V. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class F.
- B. Normal-Weight Aggregate: ASTM C 33, graded, 1 inch nominal maximum coarse-aggregate size. Provide aggregate from a single source.
 - 1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.
- D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 4. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- E. Sand-Cement Grout: Portland cement, ASTM C 150, Type II; clean natural sand, ASTM C 404; and water to result in grout with a minimum 28-day compressive strength of 1000 psi, of consistency required for application.

2.3 STEEL CASINGS

- A. Steel Pipe Casings: ASTM A 283/A 283M, Grade C, or ASTM A 36/A 36M, carbon-steel plate, with joints full-penetration welded according to AWS D1.1/D1.1M.
- B. Corrugated-Steel Pipe Casings: ASTM A 929/A 929M, steel sheet, zinc coated.
- C. Liners: Comply with ACI 336.1.

2.4 SLURRY

A. Slurry: Pulverized bentonite pulverized attapulgite or polymers mixed with water to form stable colloidal suspension; complying with ACI 336.1 for density, viscosity, sand content, and pH.

2.5 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- D. Proportion normal-weight concrete mixture as follows:
 - 1. Compressive Strength (28 Days): As noted on structural drawings.
 - 2. Maximum Water-Cementitious Materials Ratio: As noted on structural drawings.
 - 3. Minimum Slump: Capable of maintaining the following slump until completion of placement:
 - a. 4 inches for dry, uncased, or permanent-cased drilling method.
 - b. 6 inches for temporary-casing drilling method.
 - c. 7 inches for slurry displacement method.
 - 4. Air Content: Do not air entrain concrete.

2.6 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, vibration, and other hazards created by drilled-pier operations.

3.2 EXCAVATION

A. General: Base Bid shall include either temporary casings or slurry displacement method for mitigating groundwater intrusion for drilled concrete pier excavations at the Northern Area indicated on the Structural Drawings.

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- B. Unclassified Excavation: Excavate to bearing elevations regardless of character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions.
 - 1. Obstructions: Unclassified excavated materials may include removal of unanticipated boulders, concrete, masonry, or other subsurface obstructions. Payment for removing obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or under-reaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.
- C. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:
 - 1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
 - 2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
 - a. Special excavation requires use of special rock augers, core barrels, air tools, blasting, or other methods of hand excavation.
 - b. Earth seams, rock fragments, and voids included in rock excavation area will be considered rock for full volume of shaft from initial contact with rock.
 - 3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.
- D. Prevent surface water from entering excavated shafts. Conduct water to site drainage facilities.
- E. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.
 - 1. Excavate bottom of drilled piers to level plane within 1:12 tolerance.
 - 2. Remove water from excavated shafts before concreting.
 - 3. Excavate rock sockets of dimensions indicated.
 - 4. Cut series of grooves about perimeter of shaft to height from bottom of shaft, vertical spacing, and dimensions indicated.
- F. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.
 - 1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
 - 2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.
- G. End-Bearing Drilled Piers: Probe with auger to a depth below bearing elevation, equal to diameter of the bearing area of drilled pier. Determine whether voids, clay seams, or solution channels exist.
 - 1. Test first three drilled piers and one of every six drilled piers thereafter.
 - 2. Fill augur-probe holes with grout.

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- H. Excavate shafts for closely spaced drilled piers and for drilled piers occurring in fragile or sand strata only after adjacent drilled piers are filled with concrete and allowed to set.
- I. Slurry Displacement Method: Stabilize excavation with slurry maintained a minimum of 60 inches above ground-water level and above unstable soil strata to prevent caving or sloughing of shaft. Maintain slurry properties before concreting.
 - 1. Excavate and complete concreting of drilled pier on same day if possible, or redrill, clean, and test slurry in excavation before concreting.
 - 2. Clean bottom of each shaft before concreting.
- J. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.
 - 1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete, or leave temporary casings in place.
- K. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.
 - 1. If location or out-of-plumb tolerances are exceeded, provide corrective construction. Submit design and construction proposals to Architect for review before proceeding.

3.3 STEEL REINFORCEMENT

- A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy bond with concrete.
- C. Fabricate and install reinforcing cages symmetrically about axis of shafts in a single unit.
- D. Accurately position, support, and secure reinforcement against displacement during concreting. Maintain minimum cover over reinforcement.
- E. Use templates to set anchor bolts, leveling plates, and other accessories furnished in work of other Sections. Provide blocking and holding devices to maintain required position during final concrete placement.
- F. Protect exposed ends of extended reinforcement, dowels, or anchor bolts from mechanical damage and exposure to weather.

3.4 CONCRETE PLACEMENT

- A. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.
 - 1. Construct a construction joint if concrete placement is delayed more than one hour. Level top surface of concrete and insert joint dowel bars. Before placing remainder of concrete, clean surface laitance, roughen, and slush concrete with commercial bonding agent or with sand-cement grout mixed at ratio of 1:1.

- B. Dry Method: Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement.
 - 1. Where concrete cannot be directed down shaft without striking reinforcement, place concrete with chutes, tremies, or pumps.
 - 2. Vibrate top 60 inches of concrete.
- C. Slurry Displacement Method: Place concrete in slurry-filled shafts by tremie methods or pumping. Control placement operations to ensure that tremie or pump pipe is embedded no fewer than 60 inches into concrete and that flow of concrete is continuous from bottom to top of drilled pier.
- D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing.
 - 1. Vibrate top 60 inches of concrete after withdrawal of temporary casing.
- E. Screed concrete at cutoff elevation level and apply scoured, rough finish. Where cutoff elevation is above the ground elevation, form top section above grade and extend shaft to required elevation.
- F. Protect concrete work, according to ACI 301, from frost, freezing, or low temperatures that could cause physical damage or reduced strength.
 - 1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 2. Do not use calcium chloride, salt, or other mineral-containing antifreeze agents or chemical accelerators.
- G. If hot-weather conditions exist that would seriously impair quality and strength of concrete, place concrete according to ACI 301 to maintain delivered temperature of concrete at no more than 90 deg F.
 - 1. Place concrete immediately on delivery. Keep exposed concrete surfaces and formed shaft extensions moist by fog sprays, wet burlap, or other effective means for a minimum of seven days.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Drilled piers.
 - 2. Excavation.
 - 3. Concrete.
 - 4. Steel reinforcement welding.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.
 - 1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

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- a. Bearing Stratum Tests: Testing agency will take undisturbed hardpan core samples from drilled-pier bottoms and test each sample for compression, moisture content, and density, and will report results and evaluations.
- D. Concrete Tests and Inspections: ASTM C 172 except modified for slump to comply with ASTM C 94/C 94M.
 - 1. Slump: ASTM C 143/C 143M; one test at point of placement for each compressive-strength test but no fewer than one test for each concrete load.
 - 2. Concrete Temperature: ASTM C 1064/C 1064M; 1 test hourly when air temperature is 40 deg F and below and 80 deg F and above, and 1 test for each set of compressive-strength specimens.
 - 3. Compression Test Specimens: ASTM C 31/C 31M; one set of four standard cylinders for each compressive-strength test unless otherwise indicated. Mold and store cylinders for laboratory-cured test specimens unless field-cured test specimens are required.
 - 4. Compressive-Strength Tests: ASTM C 39; one set for each drilled pier but not more than one set for each truck load. One specimen will be tested at 7 days, 2 specimens will be tested at 28 days, and 1 specimen will be retained in reserve for later testing if required.
 - 5. If frequency of testing will provide fewer than five strength tests for a given class of concrete, testing will be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 6. If strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 - 7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 - 8. Report test results in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. List Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests in reports of compressive-strength tests.
 - 9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 - 10. Additional Tests: Testing and inspecting agency will make additional tests of concrete if test results indicate that slump, compressive strengths, or other requirements have not been met, as directed by Architect.
 - a. Continuous coring of drilled piers may be required, at Contractor's expense, if temporary casings have not been withdrawn within specified time limits or if observations of placement operations indicate deficient concrete quality, presence of voids, segregation, or other possible defects.
 - 11. Perform additional testing and inspecting, at Contractor's expense, to determine compliance of replaced or additional work with specified requirements.
 - 12. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- E. An excavation, concrete, or a drilled pier will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports for each drilled pier as follows:
 - 1. Actual top and bottom elevations.
 - 2. Actual drilled-pier diameter at top and bottom.
 - 3. Top of rock elevation.

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- 4. Description of soil materials.
- 5. Description, location, and dimensions of obstructions.
- 6. Final top centerline location and deviations from requirements.
- 7. Variation of shaft from plumb.
- 8. Shaft excavating method.
- 9. Design and tested bearing capacity of bottom.
- 10. Depth of rock socket.
- 11. Levelness of bottom and adequacy of cleanout.
- 12. Properties of slurry and slurry test results at time of slurry placement and at time of concrete placement.
- 13. Ground-water conditions and water-infiltration rate, depth, and pumping.
- 14. Description, purpose, length, wall thickness, diameter, tip, and top and bottom elevations of temporary or permanent casings. Include anchorage and sealing methods used and condition and weather tightness of splices if any.
- 15. Description of soil or water movement, sidewall stability, loss of ground, and means of control.
- 16. Date and time of starting and completing excavation.
- 17. Inspection report.
- 18. Condition of reinforcing steel and splices.
- 19. Position of reinforcing steel.
- 20. Concrete placing method, including elevation of consolidation and delays.
- 21. Elevation of concrete during removal of casings.
- 22. Locations of construction joints.
- 23. Concrete volume.
- 24. Concrete testing results.
- 25. Remarks, unusual conditions encountered, and deviations from requirements.

3.6 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 316329

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SECTION 02513 - ASPHALT CONCRETE PAVEMENTS

PART 1 GENERAL

1.01 SUMMARY

The work includes the construction of asphalt concrete pavement, seal coat, redwood headers, as indicated on the drawings.

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C136	Sieve Analysis of Fine and Coarse Aggregates
ASTM D1556	Density of Soil in Place by the Sand-Cone Method
ASTM D1557	Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54 kg) Rammer and 18" (457 mm) Drop

ASTM D2172 Quantitative Extraction of Bitumen from Bituminous Paving Mixtures

1.03 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines, which may create a safety hazard.

1.04 SUBMITTALS

- A. Design Data
 - 1. Asphalt concrete: Submit a job-mix formula for each type of bituminous mixture 14 days before asphalt concrete placement. Ensure formula is within the specified design range.
- B. Statements
 - 1. Asphalt concrete: Submit copies of weighmaster's certificates or certified delivery tickets for each truck load of material.
- C. Certificates of Compliance
 - 1. Aggregates for asphalt concrete
 - 2. Asphalt cement
 - 3. Asphaltic emulsion

ASPHALT CONCRETE PAVEMENTS

D. Field Test Reports

1. Asphalt concrete: Submit as required in paragraph entitled "Field Quality Control".

1.05 QUALITY ASSURANCE

Materials and workmanship specified herein with the referenced Standard Specifications shall be in accordance with the referenced articles, sections and paragraphs of the standard except that contractual and payment provisions do not apply.

1.06 EQUIPMENT

A. Mixing Plant and Construction Equipment shall be per Section 203-6 of the Standard Specifications.

1.07 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02010, "Demolition and Removal".
- B. Section 02200, "Earthwork for Structures and Pavements".
- C. Section 02225, "Excavation, Backfilling and Compacting for Utilities."
- D. Section 02513, "Asphalt Concrete Paving".
- E. Section 02514, "Portland Cement Concrete Paving".
- F. Division 1.

1.08 PROTECTION

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. Prior to commencing the work, the Contractor shall <u>pothole all existing utilities at all crossing</u> <u>points and points of connection.</u> The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.
- C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Diego office is located at:

State of California Department of Industrial Relations Division of Occupational Safety and Health 7575 Metropolitan Drive, Ste. 207 San Diego 92108 (619) 767-2280 fax (619) 767-2299

1. <u>This project may include trenching in excess of 5 feet in depth which will require a permit</u> <u>from the California Division of Occupational Safety and Health (CAL-OSHA).</u> The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to the Owner for review prior to commencing the work.

- D. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Pollution Prevention Plan shall be complied with for all phases of the work.
- E. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.09 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

- 2.01 MATERIALS
 - A. Aggregates

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Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- 1. Asphalt Concrete: Class B-3, Section 400-4 of the Standard Specifications, conforming to 3/4 inch maximum size gradation. Final 1-inch surface course shall be 1/2-inch maximum size gradation, Class D, Section 400-4 of the Standard Specifications.
- B. Asphalt Materials
 - 1. Asphalt Cement: Section 203-1 of the Standard Specifications, Grade AR-4000
 - 2. Asphaltic Emulsion: Section 203-3 of the Standard Specifications, Grade SS-1 or SS-1h.
- C. Redwood Headers and Stakes
 - 1. Redwood Headers and Stakes shall conform to the requirements of Section 302-5.5 of the Standard Specifications.

PART 3 EXECUTION

3.01 PREPARATION

- A. Aggregate Base Course: Requirements for aggregate base course as specified in Section 02233, "Graded Crushed Aggregate Base Course for Pavements".
- B. Asphalt Concrete Preparation: Uniformly mix mineral aggregate with bituminous material in a central plant in accordance with Section 203 of the Standard Specifications. The percentage of asphalt cement binder shall be between five and eight percent.
- C. Final Asphalt Concrete Surface: The final 1-inch wearing course of asphalt concrete pavement shall be placed on the 2-inch construction course previously constructed after substantial completion of all grading and building construction.

3.02 INSTALLATION

- A. Aggregate Base Course (Class 2) Installation: Requirements for aggregate base course installation are specified in Section 02233 "Graded Crushed Aggregate Base Course for Pavements".
- B. Tack Coat: Tack coat shall conform to the provisions of Section 302-5.4 of the Standard Specifications. Apply asphaltic emulsion to the exposed edges of concrete gutters, curbs, drainage structures and other previously constructed concrete and asphalt surfaces against which asphaltic concrete is to be placed. Clean the surface of the construction course of all soil, debris, grit and construction laitance before applying tack coat for final wearing course. Coat surface by brooming, compressed air or pressurized water application.
- C. Asphalt Concrete Installation
 - 1. Placing: Deliver and spread bituminous mixtures to the roadbed at temperatures specified in Section 302-5.5 of the Standard Specifications.
 - 2. Compaction: Initial or breakdown rolling and the final rolling of the uppermost layer of the asphalt concrete shall be in accordance with Section 302-5.6 of the Standard Specifications. Compaction by vehicular traffic shall not be permitted.
 - 3. Joining Pavement: Carefully make joints between old and new pavements and of successive days' work in such manner as to ensure a continuous bond between old and new sections of the course. Expose and clean edges of existing pavement. Cut edge to straight, vertical surfaces. Paint joints with a uniform coat of tack coat before the fresh mixture is placed. Prepare joints in the new pavement in accordance with Section 302-5.7 of the Standard Specifications.
- D. Seal Coat: Seal coat and sand cover. Seal coat shall be asphalt emulsion type SS1H applied uniformly to the entire surface with an asphalt distributor at a rate of 0.10-0.15 gallons per square

yard. The engineer shall approve hand spraying. The asphalt emulsion shall be diluted with water at a rate of 1:1 parts of emulsion to water. Cover with clean dry sand at a rate of 10-15 pounds per square yard.

3.03 FIELD QUALITY CONTROL

All material testing shall be performed by the Geotechnical Engineer. The following tests shall be performed:

- A. Gradation
 - 1. Asphalt Concrete Gradation: Perform the asphalt concrete gradation test in accordance with ASTM C136. Make minimum one test for each 500 tons of material.
- B. Asphalt Content of Asphalt Concrete: Determine percent asphalt content by extraction in accordance with ASTM D2172, Method A. Make one test for each 500 tons of material. Asphalt cement binder content shall be between five and eight percent.

3.04 PROTECTION OF PAVEMENT

After final rolling, do not permit vehicular traffic on the pavement until pavement has cooled and hardened and in no case less than 6 hours.

END OF SECTION 02513

SECTION 02620 - CONCRETE CURBS, GUTTERS AND WALKS

PART 1 GENERAL

1.01 SUMMARY

The work includes all necessary labor and materials for the extent of concrete curbs, walks and paving as shown on the drawings.

1.02 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines which may create a safety hazard.

1.03 SUBMITTALS

Furnish certified reports of each proposed mix for each type of concrete prior to deliver and installation.

1.04 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02200, "Earthwork for Structures and Pavements".
- B. Division 1.

1.05 PROTECTION

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. Prior to commencing the work, the Contractor shall <u>pothole all existing utilities at all crossing</u> <u>points and points of connection</u>. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.
- C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8

of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Diego office is located at:

State of California Department of Industrial Relations Division of Occupational Safety and Health 7575 Metropolitan Drive, Ste. 207 San Diego 92108 (619) 767-2280 fax (619) 767-2299

1. <u>This project may include trenching in excess of 5 feet in depth which will require a permit</u> from the California Division of Occupational Safety and Health (CAL-OSHA). The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to the Owner for review prior to commencing the work.

- D. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Pollution Prevention Plan shall be complied with for all phases of the work.
- E. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.06 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

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1.07 QUALITY ASSURANCE

- A. Codes and Standards: Comply with local governing regulations if more stringent than herein specified.
- B. Comply with applicable provisions of the following, except as otherwise indicated:
 - 1. Applicable portions of the CBC including CCR, Title 24, Volume 2, Part 2, Chapters 18, 18A, 19, and 19A.
 - 2. The U. S. Department of Justice American with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities with the Latest Revisions (ADAAG).
 - 3. Conform to applicable City code for paving work on public property.
- C. Continuous surfaces, including walks and sidewalks, shall have a continuous common surface, not interrupted by steps or by abrupt changes in level exceeding 1/4 inch and shall be a minimum of 48 inches in width.
- D. Surface cross slopes: Surface cross slopes shall not exceed 1/4 inch per foot.
- E. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source.
- F. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by the requirements of the Contract Documents.
- G. Concrete Testing Service: Engage a qualified independent testing agency to design concrete mixes.
- H. Mockups: Cast mockups of full-size sections of concrete pavement to demonstrate typical joints, surface finish, texture, color, and standard of workmanship.
 - 1. Build mockup panels not less than 20 square feet for each different integrally colored concrete paving and finish. Locate on site as directed by Architect.
 - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
 - 3. Obtain Architect's approval of mockups before starting construction.
 - 4. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.
 - 5. Demolish and remove non-approved mockups from the site.
 - 6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- I. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 2 Section "Project management and coordination."
- J. Before submitting design mixes, review concrete pavement mix design and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with concrete pavement to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixes.
 - c. Ready-mix concrete producer.
 - d. Concrete subcontractor.

PART 2 PRODUCTS

CONCRETE CURBS, GUTTERS AND WALKS

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2.01 MATERIALS

- A. Forms: Comply with Section 303-5 of Standard Specifications.
- B. Aggregates: Comply with Sections 200-1.4 and 200-1.5 of the Standard Specifications.
- C. Form release agent: Colorless form coating compounds that will not bond with, stain or adversely affect concrete surfaces.
- D. Reinforcement:
 - 1. Comply with the requirements of Section 201-2 of the Standard Specifications.
 - 2. Reinforcing bars shall be new, deformed steel conforming to ASTM A615, Grade 40.
 - 3. Due to the corrosive nature of salt water and salt air, all rebar used shall be epoxy coated per ASTM 775, ASTM 934, including touch up kits.
 - a. Before unloading a bundle of coated rebar, make certain that the tie-downs are secure. Check for proper padding and bar separation on the transport. Visually inspect epoxycoated bars for damage. Check the coating on sheared ends. If uncoated or partially coated sheared ends are found, patch them and any other damage immediately.
 - b. When storing the rebar at the job site, always use wooden dunnage or other protective cribbing between the ground and the rebar to prevent sagging. Epoxy-coated rebar shall not be stacked directly on the ground or on other unprotected surfaces. Remember to leave aisle space between stacks to enable easy access. To avoid sagging, the rebar should be placed on a flat or relatively level terrain with timbers close together.
 - c. Once the rebar is placed, a final inspection must be made to locate any un-repaired placing and handling damage. When making repairs to damaged areas, it's important to use the following procedures:
 - Follow the manufacturer's recommended mixing procedures when mixing twopart mixing repair compound.
 - Mix the epoxy prior to use according to the manufacturer's recommended procedures.
 - Use a wire brush to remove all contaminants from damaged areas prior to applying the patch material.
 - A paintbrush should be used to apply the patch compound to the cleaned damaged area.
 - Avoid careless use of the patch compound on the rebar. Apply the compound to the patch area with sufficient, but not excessive overlap with the adjacent sound coating.
 - When in doubt about whether or not an area needs repairing, always repair it.
 - Allow patch material sufficient curing time as specified by the materials instructions before pouring the concrete. Patch materials generally cure more slowly at lower temperatures, and some require a minimum of 8 hours to cure.
 - d. When pouring the concrete, take caution when waling on the rebar not to drop anything such as hand tools or construction materials on the placed bars. To complete the pour, follow these guidelines:

- When vibrating concrete, use a non-metallic or rubber vibrating head to minimize damage to epoxy-coated rebar. Metal heads can cause damage to the coated bars within the concrete.
- Set up runways for concrete buggies and hoses and properly support them.
- Maneuver carefully to minimize damage to the coating and to prevent shifting of placed bars.
- E. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures, color stable, free of carbon black, nonfading, and resistant to lime and other alkalis.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Davis Colors.
 - b. Dayton Superior Corporation.
 - c. Scofield, L. M. Company.
 - d. Solomon Colors, Inc.
 - e. Or Approved Equal.
- F. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a mico-etch finish.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. ChemMasters.
 - b. Dayton Superior Corporation; Top-Cast[™] 05, "Sandblast Finish". (Basis of Design)
 - c. Euclid Chemical Company (The), an RPM company.
 - d. Meadows, W. R., Inc.
 - e. Scofield, L. M. Company.
 - f. Sika Corporation, Inc.
 - g. Or Approved Equal.
- G. Concrete
 - 1. Comply with the Standard Specifications.
 - 2. Concrete Classification: Concrete class shall be 520-C-2500.
 - 3. Maximum slump: 4 inches.
 - 4. Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup samples.
- H. Finish in accordance with Section 303-5.5 of the Standard Specifications.
- I. Joint Material:
 - 1. Premoulded expansion joint filler: 1/2" thick, depth as required by slab thickness of premoulded, resilient, non-bituminous material, in compliance with Section 201-3.2 of the Standard Specifications.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

Comply with Sections 301-1 and 303-1.2 of the Standard Specifications.

CONCRETE CURBS, GUTTERS AND WALKS

3.02 FORM WORK

Comply with Section 303-5.2 of the Standard Specifications.

3.03 REINFORCEMENT

Locate, place and support reinforcement as specified in Section 03300 unless otherwise shown.

- A. Walkway Duty Concrete: No. 3 bars at 24" on center, both ways.
- B. Heavy Duty Concrete: No. 3 bars at 18" on center, both ways.

3.04 CONCRETE PLACEMENT

Comply with the requirements of Section 303-5.3 of the Standard Specifications. Refer to this specification section for reinforcement requirements.

- A. Walkway Duty Concrete: 4" PCC over 4" Class II Aggregate base.
- B. Heavy Duty Concrete: 6" PCC over 4" Class II Aggregate base.

3.05 JOINTS

- A. General: Construct expansion, weakened-plane (contraction), and construction joints at right angles to the centerline, unless otherwise shown, and in accordance with Section 303-5.4 of the Standard Specifications.
- B. Weakened-Plane (Contraction) Joints: Provide weakened-plane joints consisting of saw cuts spaced at 6 feet on center each way, within 72 hours of concrete pour. Saw cuts shall be a minimum of 2 inches in depth and shall not exceed 1/8 inch in width.
- C. Construction Joints: Place construction joints at the end of all pours and at location where placement operations are stopped for a period of more than 1/2 hour, except where such pours terminate at expansion joints. Construct joints as shown, or if not shown, use standard metal keyway section forms. Clean of laitance and embedded in mortar matrix.
- D. Expansion Joints: Provide and install smooth dowels and pre-molded joint filler for expansion joints abutting concrete curbs, catch basins, manholes, inlets, structure, walks and other fixed objects. Locate in slab where indicated, filled to full depth with expansion joint material, in curbs. Locate only 1/2 inch below top of concrete and seal exposed joints with joint sealer.

3.06 CONCRETE FINISHING

- A. Comply with Section 303-5.5 of the Standard Specification.
- B. Broomed finish: Provide a medium broom finish on all surfaces less than 6% and a heavy broom finish on all surfaces greater than 6%.
- C. Retarder Finish: Expose fine aggregate in concrete paving surface where indicated as follows:
 - 1. Immediately after float finishing, spray-apply chemical surface retarder to concrete paving according to manufacturer's written instructions for aggregate exposure/etch depth indicated on Drawings.

3.07 CURING AND PROTECTION

- A. Comply with the requirements of Section 303-5.6 of the Standard Specifications.
- B. Cure and protection concrete with special finish per chemical surface retarder manufacturer's written instructions.
- C. Repair defective or damaged work in accordance with Section 303-5.7 of the Standard Specifications.

END OF SECTION 02620

CONCRETE CURBS, GUTTERS AND WALKS

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SECTION 02660 - EXTERIOR WATER DISTRIBUTION SYSTEM

PART 1 GENERAL

1.01 SUMMARY

The work includes construction of water service facilities and appurtenances, including the installation and testing of water services indicated for domestic supply, fire sprinkler supply and modification of the existing onsite water mains, as indicated on the drawings and specified herein. The Contractor shall furnish and install reduced pressure backflow preventer and appurtenances. The work also includes trench pavement repair for areas crossing existing pavement, as specified in Section 02225, "Excavating, Backfilling and Compacting for Utilities".

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

- A. National Fire Protection Association (NFPA): All fire service mains and pertinences shall comply with NFPA Latest Edition. In case on conflict between the drawings and NFPA 24, NFPA 24 requirements shall take precedence.
- B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D1785	PolyVinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80 and 120
ASTM D2466	(Vinyl Chloride) (PVC) Plastic Pipe Fitting, Schedule 40
ASTM D2564	Solvent Cements for PolyVinyl Chloride (PVC) Plastic Pipe and Fittings
ASTM D2774	(R Latest) Underground Installation of Thermoplastic Pressure Piping
ASTM D2855	Making Solvent-Cemented Joints with PolyVinyl Chloride (PVC) Pipe and Fittings
ASTM F402	Safe Handling of Solvent Cements and Primers Used for Joining Thermoplastic Pipe and Fittings

C. AMERICAN WATER WORKS ASSOCIATION

AWWA C-900	Polyvinyl Chlorid	le (PVC) Pressure	Pipe, 4 in.	Through 12 in.	, For Water

- AWWA C-509-80 Resilient-seated Gate Valve, 3 in. Through 12 in. NPS, For Water
- AWWA C-800 Underground Services Line Valves and Fittings
- AWWA M-23 PVC Pipe-Design and Installation
- D. UNDERWRITERS LABORATORIES, INC. (UL)
 - UL 262 Gate Valves For Fire Protection Service, Sixth Edition
 - UL 312 Check Valves For Fire Protection Service Seventh Edition
 - UL 789 Indicator Posts For Fire-Protection Service, Eighth Edition

EXTERIOR WATER DISTRIBUTION SYSTEM

E. UNI-BELL PLASTIC PIPE ASSOCIATION (UBPPA)

UBPPA UNI-B-8 Direct Tapping of Polyvinyl Chloride (PVC) Pressure Water Pipe

F. City of San Diego WATER UTILITIES DEPARTMENT

Approved Materials List, Latest Edition

1.03 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines which may create a safety hazard.

1.04 SUBMITTALS

- A. Manufacturer's Catalog Data
 - 1. Pipe and Fittings
 - 2. Joints and Couplings
 - 3. Valves, including reduced pressure BFP.
 - 4. Valve and Meter Boxes
 - 5. Fire Hydrants, Post Indicator Valves and Fire Department Connections

Submit manufacturer's standard drawings or catalog cuts.

- B. Certificates of Compliance
 - 1. Pipe and Fittings
 - 2. Pipe Joint Materials
 - 3. Valves

Certificates shall attest that products meet the requirements specified, and that tests set forth in each applicable referenced publication have been performed, whether specified in that publication to be mandatory or otherwise and that production control tests have been performed at the intervals or frequency specified in the publication. Other tests shall have been performed within 3 years of the date of submittal of certificates on the same type, class, grade, and size of material as is being provided for the project.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage: Inspect materials delivered to site for damage. Unload and store with minimum handling. Store materials on site in enclosures or under protective covering. Store plastic piping, jointing materials under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.
- B. Handling: Handle pipe, fittings, valves, hydrants, and other accessories in a manner to ensure delivery to the trench in sound undamaged condition. Carry, do not drag pipe to the trench. Store plastic piping, jointing materials that are not to be installed immediately, under cover out of direct sunlight.

1.06 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

EXTERIOR WATER DISTRIBUTION SYSTEM

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- A. Section 02225, "Excavation, Backfilling and Compaction for Utilities".
- B. Section 02200, "Earthwork for Structures and Pavements".
- C. Division 1.

1.07 PROTECTION

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. Prior to commencing the work, the Contractor shall <u>pothole all existing utilities at all crossing points and</u> <u>points of connection.</u> The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provides direction.
- C. Shoring: The California Division Occupational Safety and Health Enforces the requirement that building and construction contractors obtain a permit prior to commencing certain types of hazardous activity, as specified in Section 65000 of the State Labor Code and Section 341 of Title 8 of the California Code of Regulations. These activities include construction of trenches or excavations which are five feet or deeper and into which a person is required to descend, the construction or demolition of any building, structure, falsework, or scaffolding more than three stories high or the equivalent height, and the underground use of diesel engines in work in mines and tunnels. Construction permits are issued by district offices of the division. The San Diego office is located at:

State of California Department of Industrial Relations Division of Occupational Safety and Health 7575 Metropolitan Drive, Ste. 207 San Diego 92108 (619) 767-2280 fax (619) 767-2299

1. <u>This project may include trenching in excess of 5 feet in depth which will require a permit from the California Division of Occupational Safety and Health (CAL-OSHA).</u> The Contractor shall be responsible for obtaining the appropriate permit, and shall comply with the requirements of the permit, and with CAL-OSHA law.

The Contractor shall submit a shoring plan prepared in accordance with CAL-OSHA requirements, to the Owner for review prior to commencing the work.

D. Dewatering: Provide for the disposal of surface and subsurface water, which may accumulate in open excavations, unfinished fills, or other low areas. Remove water by trenching where approved, pumping, or other methods to prevent softening of exposed surfaces. Contractor is responsible for obtaining and paying for any permits for dewatering through all jurisdictional agencies, including the local Regional Water Quality Control Board. Surface dewatering plan shall include the rerouting of

any storm water runoff or natural drainage, if necessary, and shall comply with requirements of the City and the California State Water Resources Control Board. Construction water from dewatering or any other construction source shall not be allowed to discharge untreated to the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds, other surface waters, flood control facilities, or onto adjacent properties. California Storm Water Best Management Practices and the guidance provisions set forth in the Storm Water Pollution Prevention Plan shall be complied with for all phases of the work.

E. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction

1.08 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

2.01 WATER SERVICE LINE MATERIAL

- A. Piping Materials
 - 1. PolyVinyl Chloride (PVC) Pipe

PVC Plastic pipe and fittings shall bear the seal of the National Sanitation Foundation for potable water service. Plastic pipe and fittings shall be supplied from the same manufacturer.

PVC pipe smaller than 4 inches

- a. PolyVinyl Chloride (PVC) Plastic Piping shall conform to, ASTM D1785 Schedule 80 with SDR as necessary to provide 200 psi minimum pressure.
- b. Fittings shall conform to ASTM D2467, Schedule 80. Pipe and fittings shall be of the same PVC plastic material and shall be one of the following pipe/fitting combinations, as marked on the pipe and fitting, respectively: PVC 1220/PVC 12; PVC 2120/PVC II; PVC 2116/PVC II. Solvent cement for joining shall conform to ASTM D2564.
- B. Fittings
 - 1. Polyvinyl Chloride (PVC) Pipe

Joints and Jointing Material: Joints for pipe shall be push-on joints, ASTM D 3139. Joints between pipe and metal fittings, valves, and other accessories shall be push-on joints ASTM D 3139, flange joint or compression-type joints/mechanical joints, ASTM D and AWWA C111/A21.11, as called out on the drawing. Provide each joint connection with an elastomeric gasket suitable for the bell or coupling with which it is to be used. Gaskets for push-on joints for

pipe, ASTM F 477. Gaskets for push-on joints and compression-type joints/mechanical joints for joint connections between pipe and metal fittings, valves, and other accessories, AWWA C111/A21.11, respectively, for push-on joints and mechanical joints. Mechanically coupled joints using a sleeve-type mechanical coupling, as specified in paragraph entitled "Sleeve-Type mechanical Couplings," may be used as an optional jointing method in lieu of push-on joints on pain-end PVC plastic pipe, subject to the limitations specified for mechanically coupled joints using a Sleeve-Type Mechanical coupling and to the use of internal stiffeners as specified for compression-type joints in ASTM S 3139. In the case where there are vertical forces restrained joints shall be used.

- C. Valves and Other Water Main Accessories
 - 1. Gate Valves
 - a. AWWA C500

Unless otherwise specified, valves conforming to AWWA C500 shall be non-rising stem type with double-disc gates resilient sealed and mechanical-joint ends by flange. Gate valves shall be iron bodied, solid bronze internal working parts, parallel faced, double disc bottom wedging valves. The minimum designated water working pressure shall be 200 psi for valves four inches (4") through twelve inches (12") and 150 psi for larger valves.

b. AWWA C509

Unless specified otherwise, valves conforming to AWWA C509 shall be nonrising stem type with mechanical-joint by flange. Valves shall open by counterclockwise rotation of the valve stem. Stuffing boxes shall have O-ring stem seals and shall be bolted and constructed so as to permit easy removal of parts for repair. In lieu of mechanical-joint or flanged ends, joint ends, valves may have special ends for connection to sleeve-type mechanical coupling. Valve ends and gaskets for connection to sleeve-type mechanical coupling shall conform to the applicable requirements specified respectively for the joint or coupling. Valves shall be of one manufacturer. Fire protection water line valves shall meet the requirements of NFPA 24 and shall conform to UL 262. The valves shall open by counterclockwise rotation.

c. Coatings

Interior: Coat the interior cast iron surface at the place of manufacture. Sandblast surfaces in accordance with SSPC-SP5 (white metal blast cleaning). Apply two coats of epoxy resin (Keysite 740, Gilpon, or equal) to a minimum dry film thickness of 8 mils. Follow the paint manufacturer's recommendation. Take special care to remove all contaminants adjacent to the seats.

Exterior: Coat the exterior surfaces at the place of manufacture. Sandblast exterior surfaces in accordance with SSPC-SP6 (commercial blast cleaning). Apply two 16 mil coats (minimum dry thickness, each of Koppers bitumastic 50, Tnemec 46-465, or equal)

- d. Exterior Stems:
 - 1. Where the depth of the valve is such that its centerline is more than 4 feet below grade, provide operating extension stems to bring the operating nut to a point 6 inches below the surface of the ground and/or box cover. Extension stems shall be steel and shall be complete with 2 inches square operating nut.
 - 2. Construct shafts and coupling of carbon steel, galvanized after fabrication. Provide 2 inch operating nut. Provide tee shaped operating key. Key to be 5 feet long.
 - 3. Size shafts to safety withstand repeated reversals and stress due to full thrust of operating mechanism. Couple shaft to valve stem with a coupling, with a torque rating equal to, or greater than, torque required to operate valve.

- f. Valve Boxes: Valve boxes shall consist of Schedule 40 steel pipe (5.25 inches minimum diameter) with valve box cover. Coat steel pipe with best grade of asphalt pipe dip. Use valve box covers of cast iron manufactured by Alhambra Foundry, Alhambra, California; Neenah Foundry, Neenah, Wisconsin; or equal. Covers shall be marked "water" (cast in original mold) and shall be as shown in Standard Drawing SDW-107.
- g. Valve Blocking: Provide concrete valve blocking per Standard Drawing W-19.
- h. Products: Valves manufactured by Mueller, Decatur, Illinois; Crane Company, Irvine, California; or equal.
- 2. Check Valves

Check Valves: Shall be iron or brass body 175 psi maximum working pressure, 350 psi maximum test pressure bronze disc and seat, horizontal swing check valve with bolted bonnet. Check valves shall be designed for replacement of internal parts without removal of valve body from piping. Bosses on each side of clapper shall be drilled and tapped for gauge installation. Valve shall be flanged on both ends. Valve shall conform to AWWA C-508.

Exception: Wafer or swing check valves listed for vertical installation may be used at fire department connections.

5. Water Meters

AWWA C700 and AWWA C701. Meter shall register in U.S. gallons.

6. Reduced Pressure Backflow Assembly

AWWA C511 reduced pressure principal type, as modified herein. Backflow preventers shall have threaded connections and all bronze construction for sizes of 2 inches and smaller, and shall have flanged connections and galvanized cast-iron construction for sizes larger than 2-inches. The backflow preventer shall include two check valves located between two shut-off valves with an area of reduced pressure between the check valves and a relief device arranged to discharge to the atmosphere. Fluctuation in piping pressure shall not cause cycling. The backflow preventer shall automatically maintain a low pressure zone to positively prevent the backflow of water into the water supply system. The backflow preventer shall automatically indicate failure of any part vital to the prevention of backflow by the continuous discharge of the relief device. The backflow preventer shall be suitable for a cold water working pressure of 175 psig. The backflow preventer shall be designed so that any moving part may be replaced without removing the backflow preventer.

D. Bolts and Nuts for Flanges

All bolts, nuts, washers and rodding used for the installation of underground piping, valves and fitting shall be stainless steel conforming to UNS31600 (formerly AISI Type 316). Bolts shall conform to ASTM F 593, Alloy Group 2, Condition CW1/CW2 (depending on size). Nuts shall conform to ASTM F 594, Alloy Group 2, Condition CW1/CW2 (depending on size).

E. Detector Tape

Detector tape shall be inductively locatable and conductively traceable using a standard pipe and cable locating device. Tape shall bear a continuous printed message warning that a water line is buried below. Use tape 3 inches wide. Refer to section covering "Trenching Backfilling and Compacting for Utilities" for additional requirements.

F. Concrete for Thrust Blocks

- 1. Concrete for thrust blocks shall be Class 470-C-2000, conforming to Section 201 of the Standard Specifications.
- 2. Quantity of concrete and the area of bearing in undisturbed soil shall be as shown on the standard drawings or as indicated in NFPA 24.
- Mechanical restraint devices shall be provided at all pipe joints. Restraint devices shall be the wedging action type. All rods, nuts and washers shall be stainless steel per ASTM F-593 and F-594. Uniflange, EBBA iron or equal.
- G. Polyethylene Encasement
 - A. Polyethylene encasement shall completely encause and cover all metal surfaces.
 - 1. Pipe: All ductile-iron pipe shall be encased with polyethylene sleeves in accordance with Method A described in AWWA C105, or with polyethylene wrap in accordance with Method C described in AWWA C105.
 - 2. Fittings: Fittings such as tees, bends, and reducers shall be encased with polyethylene wrap in accordance with AWWA C105.
 - 3. Valves: Valves shall have only the stem and operating nut exposed and the wrap shall be attached so that the valve operation will not disturb the wrapping or break the seal.
 - B. Polyethylene sleeves shall be secured with polyethylene or vinyl adhesive tape or plastic tie straps at the ends and quarter points along the sleeve in a manner that will hold the sleeve securely in place during backfill. Polyethylene wrap shall be secured with polyethylene or vinyl adhesive tape in a manner that will hold the wrap securely in place during backfill.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPELINES

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. Prior to commencing the work, the contractor shall <u>POTHOLE EXISTING UTILITIES</u> at points of connection and all utility crossings to determine exact location.
- C. Installation of Water Service Piping
 - 1. Location: Connect water service piping to the building service where the building service has been installed. Where building service has not been installed, terminate water service lines approximately 5 feet from the building line at the points indicated; such water service lines shall be closed with plugs or caps.
- D. Special Requirements for Installation of Water Service Piping
 - 1. Install all water piping and appurtenances in accordance with City of San Diego Water Districts Standards and requirements.
- E. Pipe Anchorage: Provide concrete thrust blocks in accordance with Standard Drawings W-17 and W-18.

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- F. Earthwork and Buried Warning Tape: Perform earthwork operations in accordance with Section 02225, "Excavating, Backfilling and Compacting for Utilities", including installation of buried warning tape.
- G. Disinfection: Flush and disinfect all new water lines including reclaimed water lines and affected portions of existing potable water lines in accordance with AWWA C651. Apply chlorine by the continuous feed method.

3.02 FIELD QUALITY CONTROL

- A. Field Tests and Inspections: The Contractor shall perform pipeline testing in accordance with Section 306-1.4 of the Standard Specifications. The Contractor shall produce evidence, when required, that any item of work has been constructed in accordance with the drawings and specifications.
- B. Testing Procedure: Test water mains and water service lines in accordance with the applicable specified standard. Test PVC plastic water service lines made with PVC plastic water main pipe in accordance with the requirements of UNI B3 for pressure and leakage tests. Test water service lines in accordance with applicable requirements of AWWA C600 for hydrostatic testing. No leakage will be allowed at plastic pipe joints.
- C. Special Testing Requirements: For pressure test, use a hydrostatic pressure 50 psi greater than the maximum working pressure of the system, except that for those portions of the system having pipe size larger than 2 inches in diameter, hydrostatic test pressure shall be not less than 200 psi. Hold this pressure not less than 2 hours. Prior to the pressure test, fill that portion of the pipeline being tested with water for a soaking period of not less than 24 hours. For leakage test, use a hydrostatic pressure not less than the maximum working pressure of the system. Leakage test may be performed at the same time and at the same test pressure as the pressure test.

END OF SECTION 02660

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SECTION 02720 - STORM DRAINAGE SYSTEM

PART 1 GENERAL

1.01 SUMMARY

The work includes construction of drainage structures and the installation of all storm drain lines, trench drains and appurtenances, and subdrain system, grease trap structure, and other drainage improvements as indicated on the drawings. This work also includes trench pavement repair for areas crossing existing pavement, as specified in Section 02225, "Excavating, Backfilling and Compacting for Utilities".

1.02 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines which may create a safety hazard.

1.03 SUBMITTALS

- A. Certificates of Compliance
 - 1. Pipe and Fittings
 - 2. Pipe Joint Materials
 - 3. Precast Concrete Catch Basins and Cleanouts
 - 4. Plastic Area Drains (NDS, etc.)
 - 5. Specialty Metal Area Drains (Zurn, etc.)

Submit certificates attesting that tests set forth in each applicable referenced publication have been performed, whether specified in that publication to be mandatory or otherwise and that production control tests have been performed at the frequency of intervals specified in the publication. Other tests shall have been performed within 3 years of the date of submittal of certificates on the same type, class, grade and size of material as is being provided for the project.

- B. Manufacturer's Catalog Cuts
 - 1. Precast catch basins, Plastic Area Drains, Specialty Metal Area Drains and Cleanouts.
 - 2. Precast trench drain and appurtenances.

Submit manufacturer's catalog cuts for each applicable item.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage
 - 1. Piping: Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Keep inside of pipes and fittings free of dirt and debris.

- 2. Metal Items: Check upon arrival; identify and segregate as to types, functions, and sizes. Store off the ground in a manner affording easy accessibility and not causing excessive rusting or coating with grease or other objectionable materials.
- B. Handling: Handle pipe, fittings, and other accessories in a manner to ensure delivery to the trench in sound undamaged condition. Carry, do not drag pipe to trench.

1.05 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02225, "Excavation, Backfilling and Compaction for Utilities".
- B. Division 1.

1.06 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

2.01 MISCELLANEOUS MATERIALS

- A. Precast Concrete and Associated Materials:
 - 1. Precast Concrete Catch-basin: Precast concrete catch-basin and cleanout shall have knock-outs to match pipe sizes and grate size openings. San Diego Pre-cast, Jensen Precast or approved alternate. The bottom of the catch basin shall be 4" minimum concrete sloped at 2% to pipe invert.
- B. PolyVinyl Chloride (PVC) Plastic Piping
 - 1. PVC Plastic Pipe and Fittings: Shall conform to the provisions of section 207-17 of the Standard Specifications for public works construction.
 - 2. Joints and Jointing Material for PVC Plastic Piping: Shall conform to the provision of Sections 207-17.3.1, 2 and 207-17.3 of the Standard Specifications for solvent cement joints.
- C. Buried Warning and Identification Tape: Shall conform to the requirements of paragraph 2.02, Section 02225, "Excavation, Backfilling and Compacting for Utilities", of these specifications.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

A. The Contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages, which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

- B. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.
- C. General Requirements for Installation of Pipelines. These requirements shall apply to pipeline installation.
 - 1. Earthwork: Perform earthwork operations in accordance with Section 02225 "Excavation, Backfilling and Compacting for Utilities".
 - 2. Pipe Laying and Jointing: Conform to the provisions of Section 306-1 of the Standard Specifications. Inspect each pipe and fitting before and after installation; remove those found defective from site and replace with new. Provide proper facilities for lowering sections of pipe into trenches. Lay pipe with the bell ends in the upgrade direction. Adjust spigots in bells to provide a uniform space. Blocking or wedging between bells and spigots will not be permitted. Replace by one of the proper dimensions any pipe or fitting that does not allow sufficient space for proper caulking or installation of joint material. At the end of each workday, close open ends of pipe temporarily with wood blocks or bulkheads. Provide batterboards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batterboards for the same purpose.
 - 3. Installation of Buried Warning Tape: Install buried warning tape in accordance with the requirements of paragraph 3.03, Section 02225, "Excavation, Backfilling and Compacting for Utilities", of these specifications.
- D. Precast Catch Basins: Construct precast catch basins with a cast-in-place cast bottom a minimum of 4 inch thick, sloping toward pipe outlet at 2% minimum. Give a smooth finish to inside joints of precast concrete boxes. Cast-in-place concrete work shall be in accordance with section 201-1 and 303-1 of the Standard Specifications.
- E. Cast-In-Place Catch Basin and Cleanout Structures: Construct cast-in-place catch basin structures in accordance with Section 303-1 of the Standard Specifications.

3.02 METAL WORK

Workmanship and Finish: Perform metal work so that workmanship and finish will be equal to the best practice in modern structural shops and foundries. Form iron and steel to shape and size with sharp lines and angles. Do shearing and punching so that clean true lines and surfaces are produced. Make castings sound and free from warp, cold shuts, and blow holes that may impair their strength or appearance. Give exposed surfaces a smooth finish with sharp well-defined lines and arises. Provide rabbets, lugs, and brackets wherever necessary for fitting and support.

3.03 FIELD QUALITY CONTROL

- A. Field Tests and Inspections: The Contractor shall be able to produce evidence, when required, that each item of work has been constructed properly in accordance with the drawings and specifications.
 - 1. Pipeline Testing: Conform to the requirements of Section 306-1.2.12 of the Standard Specifications.

END OF SECTION 02720

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SECTION 02730 - EXTERIOR SANITARY SEWER SYSTEM

PART 1 GENERAL

1.01 SUMMARY

The work includes the installation of sanitary sewer lateral, onsite sewer mains and appurtenances, modification and removal of portions of the existing on-site sewer mains, as indicated on the drawings. The work also includes trench pavement repair for areas crossing existing pavement, as specified in Section 02225, "Excavating, Backfilling and Compacting for Utilities".

1.02 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

- A. UNI-BELL PLASTIC PIPE ASSOCIATION (UNI)
 - UNI B5 Installation of Polyvinyl Chloride (PVC) Sewer Pipe
 - UNI B6 Low-Pressure Air Testing of Installed Sewer Pipe

1.03 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

- A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.
- B. Locate all overhead utilities and powerlines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and powerlines which may create a safety hazard.

1.04 SYSTEM DESCRIPTION

Sanitary Sewer Gravity Pipeline: The system consists of polyvinyl chloride (PVC) plastic pipe, cleanout, and connections to existing sewer stub-outs indicated on the drawings.

1.05 SUBMITTALS

- A. Certificates of Compliance
 - 1. Pipe and Fittings
 - 2. Pipe Joint Materials

Certificates shall attest that tests set forth in each applicable referenced publications have been performed, whether specified in that publication to be mandatory or otherwise. Production control tests shall have been performed at the intervals or frequency specified in the referenced publication. Other tests shall have been performed within 3 years of the date of submittal of certificates on the same type, class, grade, and size of material as is being provided for the project.

- B. Manufacturers Catalogue Cuts
 - 1. Pipe and Fittings
 - 2. Pipe Joint Materials

EXTERIOR SANITARY SEWER SYSTEM

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1.06 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage
 - 1. Piping: Inspect materials delivered to site for damage; store with minimum of handling. Store materials on site in enclosures or under protective coverings. Store plastic piping and jointing materials and rubber gaskets under cover out of direct sunlight. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.
- B. Handling: Handle pipe, fittings, and other accessories in such manner as to ensure delivery to the trench in sound undamaged condition. Carry do not drag, pipe to trench.

1.07 RELATED WORK IN OTHER SECTIONS

The following work specified in other sections applies to the work of this Section, including but not limited to:

- A. Section 02225, "Excavation, Backfilling and Compaction for Utilities".
- B. Division 1.

1.08 SAFETY DURING CONSTRUCTION

The Contractor shall assume sole and completed responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

PART 2 PRODUCTS

2.01 PIPELINE MATERIALS

- A. PVC Plastic Gravity Sewer Piping
 - 1. PVC Plastic Gravity Pipe and Fittings: Conform to the provisions of Section 207-17 of the Standard Specifications and the City of San Diego Supplements.
 - 2. PVC Plastic Gravity Joints and Jointing Material: Conform to the provisions of Section 207-17 of the Standard Specifications and the City of San Diego Supplements.

PART 3 EXECUTION

3.01 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

- A. The contractor shall notify <u>DIG ALERT</u> at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.
- B. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other

than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.

- C. Install sanitary pipelines and appurtenances in conformance with the provisions of Section 306-1.2 of the Standard Specifications, and the following requirements:
 - 1. Location: The work covered by this section shall terminate at a point approximately 5 feet from the building, or as indicated. Where the location of the sewer is not clearly defined by dimensions on the drawings, do not lay sewer line closer horizontally than 10 feet to a water main or service line. Where sanitary sewer lines pass below water lines, lay pipe so that no joint in the sewer line will be closer than 3 feet, horizontal distance, to the water line.
 - 2. Earthwork and Buried Warning Tape: Perform earthwork operations in accordance with Section 02225, "Excavating, Backfilling and Compacting for Utilities", including installation of buried warning tape.
 - 3. Pipe Laying and Jointing: Inspect each pipe and fitting before and after installation; replace those found defective and remove from site. Provide proper facilities for lowering sections of pipe into trenches. Lay non-pressure pipe with the bell or groove ends in the upgrade direction. Adjust spigots in bells and tongues in grooves to give a uniform space all around. Blocking or wedging between bells and spigots will not be permitted. Replace by one of the proper dimensions, pipe or fittings that do not allow sufficient space for installation of joint material. At the end of each workday, close open ends of pipe temporarily with wood blocks or bulkheads. Provide batterboards not more than 25 feet apart in trenches for checking and ensuring that pipe invert elevations are as indicated. Laser beam method may be used in lieu of batterboards for the same purpose.
 - 4. Concrete encasement: Encase sewer lateral in locations indicated on the drawings, in accordance with Standard Drawing S-7.
- D. Special Requirements
 - 1. Cleanout: Construct cleanouts in accordance with the Standard Drawings S-3 and S-13. Maximum spacing shall be 100 feet.
 - 2. Removal and modification of existing on-site sewer mains. Remove portions of the existing on-site sewer mains, as indicated on the drawings. Provide caps at the point of removal.
 - 3. Pipe bedding shall be in accordance with DSD No. S4, Type C.

3.02 FIELD QUALITY CONTROL

- A. Field Tests and Inspections: The Contractor shall be able to produce evidence, when required, that each item of work has been constructed in accordance with the drawings and specifications.
- B. Tests for Nonpressure Lines
 - 1. Leakage Tests: Perform tests in accordance with Section 306-1.4.4 Air Pressure Test of the Standard Specifications or as directed by the City of San Diego.
 - 2. Field inspection for plastic pipe fittings in accordance with Section 306-1.2.12.
 - 3. Televising sewer manholes and storm drains in accordance with Section 306-1.4.8.
 - 4. Balling of sewers in accordance with 306-1.4.8.

END OF SECTION 02730

SECTION 02900 - LANDSCAPE PLANTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes all materials, labor, apparatus, tools, equipment, temporary construction, transportation, and services necessary for and incidental to performing the proper completion of Work as required to make a complete landscape planting and supplemental landscape construction item installation, as shown on the Contract Drawings, and as specified herein this Section.
- B. Work under this Section consists of, but is not necessarily limited to, furnishing and installing the following:
 - 1. Fine Grading.
 - 2. Soil Preparation.
 - 3. Pre Plant Weed Control.
 - 4. Shrubs
 - 5. Topsoil.
 - 6. Soil Conditioners, Amendments, and Fertilizers.
 - 7. Mulches.
 - 8. Maintenance and Guarantee.
- C. Related Sections: The following Sections contain requirements that relate to Work in this Section:
 - 1. Section 02200 Earthwork for Structures and Pavements.
 - 2. Section 02620 Concrete Curbs, Gutters, and Walks.
 - 3. Section 02810 Irrigation Systems.

1.2 PROJECT CONDITIONS

- A. Project Site shall be free of weeds, native grasses, evasive grasses, (Bermuda Grass, Nut Grass, Kikiyu Grass, etc.) prior prior to any planting or soil amendment placement.
- B. Excessive rock, dead or declining vegetation, trash, debris, or other items that has accumulated throughout the duration of the Project shall be removed from the Project Site by the Contractor, and as directed by the Landscape Architect.
- C. Prior to excavation for planting or placing of plant materials, the Contractor shall locate underground and overhead utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant material locations, the Contractor shall notify the Landscape Architect who shall arrange for the relocation of one or the other. The Contractor assumes responsibility for making repairs for damages resulting from Work as specified herein.

- D. Grading and soil preparation Work shall be performed only during the period when beneficial and optimum horticultural results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure or cause compaction, spreading and grading operations shall be suspended until, in the opinion of the Landscape Architect, the moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained.
- E. Contractor shall coordinate drainage Work with the other trades. Established site drainage shall be maintained by the Contractor during the phases of Work indicated herein this Section.
- F. Grade areas by filling and/or removing surplus soil as needed to insure proper grades and drainage as indicated on the Contract Drawings. Unless otherwise noted, soil finish grades shall be below hardscape/pavement areas as follows:
 - 1. Three inches (3") for all planting areas.
- G. Undulations and irregularities in the planting surfaces resulting from tillage, rototilling, and other operations, and ridges and rises which are visually evident and would effect the maintenance of any planting area, shall be leveled and floated out before planting operations are initiated.
- H. Final finish grades shall ensure positive drainage of the Project Site with surface drainage away from buildings, walls, and toward driveways, drain inlets, and catch basins.
 - 1. Final grades shall be acceptable to the Landscape Architect and Civil Engineer before planting operations will be allowed to commence.
 - 2. The above conditions shall also apply to the final finish grade at the time of project completion.
- I. Scales and dimensions as indicated on the Contract Drawings are approximate. Before proceeding with Work, the Contractor shall carefully check and verify dimensions and shall immediately notify Landscape Architect of any discrepancy between the Contract Drawings and/or Contract Specifications and the actual Project Site conditions.
- J. Quantities of plant materials, where indicated in legends, summary lists, and callouts on the Contract Drawings, are for the Contractor's convenience only, and are not guaranteed. The Contractor shall check and verify the count of plant material, and shall furnish a sufficient number of plant materials as needed to fulfill the intent of the Contract Drawings and complete the Work as shown. Plant symbol quantities indicated on the Plans in the Contract Drawings shall take precedence over quantities indicated in the Plant List and Plan callouts.
- K. The Contractor shall make arrangements to have a complete set of updated Contract Drawings and Contract Specifications at the Project Site at all times during Work under this Section.
- L. Record Set Drawings:
 - 1. Comply with the Conditions of the Contract and Division 1 Specification Sections.
 - 2. Record set Drawings shall be prepared by the Contractor indicating deviations in Work described herein and on the Contract Drawings, with respect to changes in materials, plant species, sizes, locations, and alignments. Record Set Drawings shall be prepared by marking the changes on a conformed set of diazo prints in red ink. Provide Record Set Drawings to the Landscape Architect prior to the end of the Contracted Maintenance Period.

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1.3 DEFINITIONS

- A. Plant Material(s) refers to living plants, inclusive of trees, palms, shrubs, groundcovers, vines, turf, grasses, etc.
- B. "Planting Area" (P.A.) as notated on the Contract Drawings, shall mean areas to be installed with plant material(s).
- C. Acceptance: Wherever the terms "acceptance", "approved", "acceptable" or "directed" are used herein, they mean acceptance by the Landscape Architect, in writing.
- D. ASTM American Society for Testing Materials.
- E. USDA United States Department of Agriculture.
- F. ANSI American National Standards Institute.
- G. Plant Height: Measurement of main body height, not measurement to branch tip.
- H. Plant Spread: Measurement of main body diameter, not measurement from branch tip to branch tip.
- I. "Brown Trunk Height" (BTH) indicating the height of palm trees. The "Brown Trunk Height" shall be measured accordingly as indicated in the Palm Planting Detail in the Contract Drawings.

1.4 REFERENCE STANDARDS

- A. Plant material shall be true to botanical and common name as indicated in the following:
 - 1. An Annotated Checklist of Woody Ornamental Plants of California, Oregon, and Washington, (Number 4091), McClintock and Leiser, Division of Agricultural Sciences, University of California, 1979.
 - 2. *American Standard for Nursery Stock, ANSI Z60.1-2004*, edition approved November 6, 1996, American Association of Nurserymen, and American National Standards Institute.
 - 3. *American Joint Committee on Horticultural Nomenclature*, 1942 Edition of Standardized Plant Names.
 - 4. Hortus III, 1976 Edition, Liberty Hyde Bailey Hortorium, Cornell University.
 - 5. The Hillier Gardener's Guide to Trees and Shrubs, 4th Edition, 1978.
 - 6. Manual of Cultivated Conifers, Den Ouden & Boon, 1978.
 - 7. Datascape Guide to Commercial Nomenclature, American Nurserymen Publishing Co., Chicago, IL, 1994.
- B. Plant material shall conform to the California State Department of Agriculture's regulations for nursery inspections, rules, and ratings.

1.5 SUBMITTALS

LANDSCAPE PLANTING

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- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections. Contractor shall submit no later than thirty (30) days after award of Contract, four (4) bound booklets.
- B. Each booklet under this Section shall be tabbed into specific sections, containing clearly identified (through yellow highlighter or other identification methods) and legible information on the following landscape information indicated in this Article:
 - 1. Product certificates, legible, signed by the Manufacturer, certifying that their products comply with the specified requirements. Certificates shall include grades, analysis, amount, supplier, species, type, size, and quantity, where applicable.
 - 2. Manufacturer's certified analysis for standard products.
 - 3. Analysis for other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
 - 4. Label data substantiating that plants, trees, shrubs, and planting materials comply with specified requirements.
 - 5. Soil amendment composition data and delivery receipts containing analytical data.
 - 6. Composition data and delivery receipts from the soil supplier of soil mixes (topsoil, etc.) specified herein this Section.
 - 7. List of proposed landscape materials, indicated by description, Manufacturer, and model number. Include catalog cuts and Manufacturer's current printed instructions of all material items described herein this Section.
 - 8. Plant List indicated by botanical name, common name, height, spread, caliper, container size, nursery, and location, contact person at nursery, and any specific remarks (i.e. "unable to locate", "photo submitted", etc.)
 - a. The Plant List shall be accompanied with color photographs of each plant species and corresponding size indicated in the Contract Drawings. Each photograph shall include a person, tape measurer, or other scaled reference. Review of the color photographs does not indicate acceptance of the plant material as delivered to the Project Site.
 - 9. Planting Schedule, indicating anticipated dates and locations for each type of planting.
 - 10. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and address of architects and States, and other information specified.
 - 11. Soil Test Results:
 - a. Agronomic Soil Fertility Testing, as described herein this Section.
 - b. Soil Percolation Testing, as described herein this Section.
 - 12. Minutes of Pre-Installation Conference, distributed and approved in writing as to the content of the conference by concerned parties in attendance.

- C. The Contractor shall submit the following five (5) sets of physical samples, sent to the Landscape Architect in resealable, labeled plastic bags (as applicable):
 - 1. 0.50 cubic foot each of landscape mulch materials, i.e. shredded wood mulch, etc.
 - 2. 0.50 cubic foot each of Soil Conditioner, Imported Amended Topsoil, etc.
 - 3. 0.50 cubic foot each of Soil Amendments and Fertilizers.
 - 4. (1) Fertilizer Tablet.
 - 5. (1) Mycorrhizal Inoculum Packet.
- D. At least one (1) plant of each species delivered to the Project Site shall have an identification tag from supplying nursery showing botanical and common name of the plant as identified in the Contract Drawings. The Landscape Architect shall be provided the opportunity for an on-site debriefing by the Contractor that identifies the size and specific type of plant material upon delivery.
- E. Contractor shall furnish to the Owner with an instructional booklet for landscape maintenance, recommending procedures to be established by the Owner for maintenance of landscape during an entire year cycle. Contractor shall contact Landscape Architect for instructions on contents and specific requirements (inclusive of pruning, mowing, spraying, pest control, weed abatement, et.al.) that shall be addressed within the scope of the landscape maintenance booklet. Booklet shall be reviewed for content and approved by the Landscape Architect prior to submission to the Owner, and prior to the expiration of required maintenance period as indicated herein this Section.
- F. Submittals will be rejected without the benefit of review by the Landscape Architect if they are difficult to read due to insufficient scale, poor image quality, or poor drafting quality; or if the required information is missing or not presented in the format as requested.
- G. No Work shall proceed under this Section until the Submittal requirements indicated herein have been reviewed and approved by the Landscape Architect.

1.6 QUALITY ASSURANCE

A. Installer Qualifications for all items indicated herein this Section:

Licensed Landscape Contractor, C-27, in the State of California.

- 1. Engage an experienced, licensed Contractor who has completed landscape work similar in material, design, and extent to that indicated for this Project and with a record of successful landscape establishment.
- 2. Installer's Field Supervision: Contractor shall maintain an experienced, full-time landscape supervisor/superintendent at the Project Site during times that landscape operations identified herein the Contract are in progress.
 - a. Superintendent shall be fluent in English and satisfactory to the Landscape Architect. Superintendent shall not be changed except with the consent of the Landscape Architect, and shall be authorized to represent the Contractor.
- B. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to the Landscape Architect's satisfaction, based on evaluation of agency-submitted

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criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

- C. Provide quality, size, genus, species, and variety of trees and shrubs indicated, complying with applicable requirements of ANSI Z60.1 "American Standard for Nursery Stock."
 - 1. Selection of trees and shrubs purchased under allowances will be made by Landscape Architect, who has the option to tag stock at their place of growth before the plant material is prepared for transplanting.
- D. Measurements: Measure trees and shrubs according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes.
 - 1. Take caliper measurements six inches (6") above ground for trees up to four inch (4") size, and twelve inches (12") above ground for larger sizes.
 - 2. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.
- E. Pre-Installation Conference: Prior to installation of any items presented within this Section or as indicated on the Contract Drawings, the Contractor shall conduct a Pre-Installation Conference at the Project Site:
 - 1. Meeting Minutes from the Conference shall be the responsibility of the Contractor, and shall be distributed to the parties in attendance for review and subsequent approval of the Conference discussion items.
 - 2. Discussion agenda items during the Conference shall include the Contractor's understanding and familiarity of the following:
 - a. Protection of existing trees and landscape areas on and adjacent to the Project Site, as may be affected by Work.
 - b. Contract-Grown Plant Material, as procured by the Owner (as applicable).
 - c. Site materials and finishes, including but limited to concrete pavement(s), walls, irrigation systems, site furnishings, etc.
 - d. Required Submittals, Samples, and Mockups.
 - e. Preparation and criteria for generation of the Punch List, determination of Substantial Completion, and Final Approval.
 - f. Soil Fertility Testing and Percolation Testing requirements.
 - g. Site Construction Observations, including scheduling, procedures, protocol, etc.
- F. Regulatory Requirements:
 - 1. Contractor shall meet the requirements of applicable laws, codes, and regulations as required by the authorities having jurisdiction over the Work.
 - 2. Provide for inspections and permits by Federal, State, and Local authorities in furnishing, transporting, and installing materials.

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- 3. Coordinate requirements directed by authorities within Work which is described or similar herein this Section with the Landscape Architect.
- G. Manufacturer's Directions: Follow manufacturer's directions and drawings in cases where the manufacturer's of articles used in this Section furnish directions covering points not shown in the Contract Drawings and Contract Specifications.
- H. Permits, Fees, Bonds, and Inspections: The Contractor shall arrange and pay for permits, fees, bonds, and inspections necessary to perform and complete his portion of the Work.
- I. Contract Drawings and Contract Specifications:
 - 1. Comply with the intent and meaning of Contract Drawings and Contract Specifications taken as a whole, not taking advantage of any readily perceived error or omission, shall any exist.
 - 2. Figures and dimensions on the Contract Drawings shall take precedence over measurements by scale, and detailed drawings shall take precedence over general drawings.
 - 3. Refer any errors and/or discrepancies in or between plans, specifications, lists, or notes to the Landscape Architect for adjustments before proceeding with the Work. The Contractor shall assume responsibility for proceeding with Work without referring.
 - 4. The Landscape Architect shall interpret the meaning of the Contract Drawings and Contract Specifications in the event of conflict, and their decision shall be final.

1.7 DELIVERY, STORAGE, AND HANDLING

- A.Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. Anti-Dessicant: Spray plant materials in full leaf immediately before transporting with anti-dessicant. Meet requirements of anti-dessicant manufacturer's current printed application instructions.
- C. Shrubs: Do not prune before delivery, except as approved by the Landscape Architect. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy natural shape. Provide protective covering during delivery.
- D. Handling Plant Materials
 - 1. Handle plant materials grown in containers only by their containers.
 - 2. DO NOT handle plant materials by their trunks or stems.
 - 3. DO NOT drop any plant materials.
 - 4. DO NOT bind or handle plants with wire or rope.
 - 5. Pad trunk and branches whenever using hoisting cables, chains, or straps.
 - 6. Should the Contractor engage in handling any of the plant material(s) by any unacceptable method(s), then the Landscape Architect shall reserve the right to reject any of the mishandled plant material(s). The Contractor shall replace rejected plant material(s) with approved plant material(s), at no additional cost to the Owner.

- E. Deliver shrubs after preparations for planting have been completed and install immediately. If planting is delayed more than six (6) hours after delivery, set planting materials in shade, protect from weather and mechanical damage, and keep roots moist. Anchor plants to prevent damage from winds.
 - 1. DO NOT remove container-grown stock from containers before time of planting.
 - 2. Water root systems of trees and shrubs stored on site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.8 PROJECT SITE CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform Work in a manner which will avoid damage. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, cease planting operations and notify the Landscape Architect for further direction.
- C. Installation: Perform planting operations only when weather and soil conditions are suitable in accordance with locally accepted practices.

1.9 COORDINATION, SCHEDULING, AND OBSERVATION

- A. Coordinate installation of planting materials during normal planting seasons for each type of plant material required. Coordinate with other trades on Project Site.
- B. Permits, Fees, Bonds, and Inspections: Contractor shall be responsible for scheduling reviews for permits, fees, bonds, and inspections necessary to perform and complete his portion of the Work.
- C. Site Observation: Periodic site observations shall be made by the Landscape Architect during the duration of Work. The Contractor shall request, in writing, at least one (1) week in advance of the time that a mandatory site observation by the Landscape Architect is requested. Mandatory site observations by the Landscape Architect shall be scheduled accordingly for the following Scope of Work:
 - 1. Pre-Construction Meeting.
 - 2. Upon completion and verifications of rough grading operations.
 - 3. Incorporation of soil conditionsg amendments and fertilizers into the soil.
 - 4. Upon completion and verifications of fine grading operations and prior to any planting operations.
 - 5. Inspection and review of plant material as delivered on-site.
 - 6. Spotting trees prior to excavation of planting holes.
 - 7. Preparation of the Punch List.

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- A. When planting, irrigation, and the other site Work as specified in the Contract Drawings and Specifications, prepared by the Landscape Architect, is 100% complete, the Contractor shall request an on-site visual inspection by the Owner and Landscape Architect in order to prepare the Punch List.
 - 1. A "Punch List Preparation Request" shall be addressed to the Landscape Architect, requesting a time and date for generating the Punch List:
 - a. Ther Contractor shall provide written notification requesting the presence of the Owner and Landscape Architect at least one (1) week prior to the scheduled date of the Punch List Preparation.
 - b. The Punch List Preparation Request shall be in the form of a letter, dated and signed by the Contractor, on letterhead.
 - c. The letter shall state as follows: "Work installed within Scope of Work identified on the Contract Drawings and Contract Specifications, prepared by the Landscape Architect, is 100% complete and ready for Punch List Preparation at the Project Site by the Owner."
 - 2. Should the Contractor's Work is found to be incomplete during the preparation of the Punch List (at the discretion of the Landscape Architect upon observation at the Project Site), then the Landscape Architect shall reserve the right to postpone the preparation of the Punch List until a time when the Contractor fully executes and completes the Work as identified on the Contract Drawings and Specifications.
 - a. Should the Punch List Preparation be postponed due to the incomplete Work, then the Landscape Architect reserves the right to charge the Contractor for the Landscape Architect time on an hourly basis, at the Landscape Architect current standard billing rate, plus expenses.
 - b. Should the Contractor be charged for time as indicated herein this Article, the Landscape Architect reserves the right to withhold the Acceptance of Work until the Contractor provides full compensation to the Landscape Architect accordingly.
- 8. Punch List Field Verification & Pre-Maintenance Review.
 - A. The Contractor shall request an on-site visual observation by the Owner and Landscape Architect to verify completion of outstanding items identified in the Punch List and subsequent recommendation for commencement of the Maintenance Period.
 - 1. A "Punch List Field Verification Request" shall be addressed to the Landscape Architect, requesting a time and date for field review of the items identified in the Punch List.
 - a. The Contractor shall provide written notification requesting the presence of the Owner and Landscape Architect at least one (1) week prior to the scheduled date of the Punch List Field Verification.
 - b. The Punch List Field Verification Request shall be in the form of a letter, dated and signed by the Contractor, on letterhead.
 - c. The letter shall state as follows: "Work installed within Scope of Work identified on the Contract Drawings and Contract Specifications, prepared by the

Landscape Architect, is 100% complete and ready for Punch List Field Verification Review at the Project Site by the Owner.

- 2. Should the Contractor's Work is found to be incomplete during the Punch List Field Verification (at the discretion of the Landscape Architect upon observation at the Project Site), then the Landscape Architect shall reserve the right to postpone the Punch List Field Verification until an time when the Contractor fully executes the Work identified in the Punch List.
 - a. Should the Punch List Field Verification be postponed due to the incomplete Work on the Punch List, then the Landscape Architect reserves the right to charge the Contractor for the Landscape Architect time on an hourly basis, at the Landscape Architect current standard billing rate, plus expenses.
 - b. Should the Contractor be charged for time as indicated herein this Article, the Landscape Architect reserves the right to withhold the Acceptance of Work until the Contractor provides full compensation to the Landscape Architect accordingly.
- B. Observation and satisfactory progress (as determined by the Landscape Architect) on completing the Punch List shall establish the Commencement Date of the Maintenance Period. The duration of the Maintenance Period shall be as specified herein this Section. This is not to be construed as a final observation nor Acceptance of Work, and it does not relieve the Contractor from any of the responsibilities in the Contract Drawings and Contract Specifications for the Project.
- 9. Final Review to determine Acceptance of Work.
 - A. Following the completion of the scheduled Maintenance Period, the Contractor shall request an on-site visual observation by the Owner and Landscape Architect to verify satisfactory completion of the Maintenance Period and to rectify the outstanding items identified in the Punch List.
 - 1. A "Final Review Request" shall be addressed to the Landscape Architect, requesting a time and date for the final field review to determine the Acceptance of Work.
 - a. Contractor shall provide written notification requesting the presence of the Owner and Landscape Architect at least one (1) week prior to the scheduled date of the Final Review.
 - b. The Final Review Request shall be in the form of a letter, dated and signed by the Contractor, on letterhead.
 - c. The letter shall state as follows: "Work installed within Scope of Work identified on the Contract Drawings and Contract Specifications, prepared by the Landscape Architect, is 100% complete and ready for issuance of Acceptance of Work by the Owner."
 - 2. Should the Contractor's Work be determined incomplete during the Final Review (at the discretion of the Landscape Architect upon observation at the Project Site), then the Landscape Architect shall reserve the right to postpone the Final Review until an time when the Contractor fully executes the Work.
 - a. Should the Final Review be postponed due to the incomplete Work, then the Landscape Architect reserves the right to charge the Contractor for the

Landscape Architect time on an hourly basis, at the Landscape Architect current standard billing rate, plus expenses.

b. Should the Contractor be charged for time as indicated herein this Article, the Landscape Architect reserves the right to withhold the Acceptance of Work until the Contractor provides full compensation to the Landscape Architect accordingly.

1.10 GUARANTEE

- A. General Guarantee: The Guarantee specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other guarantees made by the Contractor under requirements of the Contract Documents.
- B. Special Guarantee: Guarantee the following living planting materials for a period of one (1) year after date of Final Review as described herein this Section, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by the Owner, abnormal weather conditions unusual for guarantee period, or incidents that are beyond Contractor's control.
 - 1. Shrubs.
- C. Remove and replace dead planting materials immediately unless required to plant in the succeeding planting season, as directed by the Landscape Architect.
- D. Replace planting materials that are more than 25% dead, in an unhealthy condition, or as required by the Landscape Architect, at end of Guarantee period, as directed by the Landscape Architect.
- E. A limit of one (1) replacement of each plant material will be required, except for losses or replacements due to failure to comply with all requirements described herein this Section.

1.11 MAINTENANCE

- A. The Maintenance Period shall commence on the first day after landscape work on the project is completed and verified by the Landscape Architect. The Contractor shall receive dated notification as to the Commencement Date of the Maintenance Period. The Maintenance Period shall continue thereafter, at the following rate:
 - 1. Maintenance Period: Ninty (90) calendar days, following the Commencement Date of the Maintenance Period.
- B. The Contractor shall continuously maintain the involved areas of the Contract during the progress of the Work, and during the Maintenance Period, until Final Acceptance of Work is granted:
 - 1. Maintain plants and site conditions by pruning, cultivating, watering, weeding, cutting, trimming, edging, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray with pesticides and or herbicides, as required, to maintain plant materials free of insects and/or disease.
 - 2. Maintenance operations shall also include filling and replanting of low areas which may cause standing water, adjusting of sprinkler head height and watering pattern, filling and

recompacting eroded areas or areas with depressions caused by vehicles, bicycles, foot traffic, or unnatural soil settling or soil compaction, damage caused by rodents, deer, or other aminals, re-application of non-germinating hydroseeded areas, and weekly removal of trash, litter, clippings, and foreign debris.

- a. Maintenance operations shall include removing, raising, and replanting of trees or shrubs, including all ancillary staking, drainage, and irrigation, wherever it becomes apparent rootballs are too low, as demonstrated by the presence of standing water caused by irrigation practice, hand watering, precipitation, or other causes.
- C. Planting Area Maintenance Requirements (Fertilizer Application Rate Schedule): Refer to requirements indicated in Part III Execution herein this Section.
- D. The duration of Maintenance Period will be extended when, in the sole opinion of the Landscape Architect, improper or deficient maintenance practices are provided, and/or poor or unhealthy conditions of planted material is evident through the course of the scheduled Maintenance Period. The Contractor shall be responsible for providing additional maintenance, for a extended time period as determined by the Landscape Architect, and at no additional cost to the Owner, until proper maintenance practices are executed and maintained by the Contractor.
- E. The Contractor shall provide protection of planting areas against traffic or other damage by erecting fencing or other protection devices immediately after planting is completed. Warning signs, flags, and/or barricades shall be placed in various high-traffic areas. Damaged areas shall be repaired immediately by the Contractor at no cost to the Owner.

1.12 SAMPLES, TESTS, AND MOCKUPS

- A. The Landscape Architect reserves the right to take and analyze selected samples of plant material and/or products for conformity to the requirements as outlined in this Section at any time from the Project Site. Rejected plant materials and/or products shall be immediately removed from the Project Site by the Contractor at no cost to the Owner.
- B. Soil Preparation Conformance Test: After the soil amendments have been thoroughly mixed into the site, the Landscape Architect reserves the right to have agronomic testing performed on selective random samples of the mixed soil. Samples will be taken by the Contractor as directed by the Landscape Architect, and submitted by the Contractor to the approved agronomic soil testing laboratory specified herein this Section. The test(s) shall be performed for comparison to a control mix. Soil tests shall be the sole financial responsibility of the Contractor.
 - 1. Should the soils tests require further soil amendments, the Contractor shall provide the additional required amendments, to the satisfaction of the Landscape Architect, at no additional cost to the Owner.

1.13 SUBSTITUTIONS

- A. Substitutions shall be in accordance with Division I.
- B. Specific reference to Manufacturer's names and products specified herein are used as standards of quality. This implies no right to the Contractor to substitute other materials without prior written approval by the Landscape Architect for Work under this Section.
- C. Materials substituted and installed by the Contractor, without prior written approval by the Landscape Architect, may be rejected. Contractor shall not be entitled to be compensated by the

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D. If an approval is granted for a substitution, adjustment in the Contract amount shall be made in accordance with the Contract Conditions.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Selection of plant materials shall conform to the provisions outlined in this Section.
- B. Immediately upon award of Contract for Work in this Section, the Contractor shall locate and purchase or hold for purchase plant material as required.
- C. Contractor shall verify with the Landscape Architect of any plant material stock that has been nursery contract grown by the Owner for use within Work of this Contract.
 - 1. Contractor shall review the condition of the plant material with Landscape Architect at the nursery maintaining the plant material, and at the time of delivery at the Project Site.
- D. Plants shall have a growth habit typical for variety and species, symmetrical, with tightly knit branching, so trained or favored in development and appearance as to be superior in form, number of branches, compactness and symmetry, healthy, and vigorous in growth. Plant materials shall also be free from insect pests, eggs and larvae, plant diseases, sun scalds, fresh bark abrasions, excessive abrasions, windburn, saltburn, weeds, or other objectable disfigurements or conditions, as determined by the Landscape Architect.
 - 1. Container stock shall be grown in containers in which delivered for at least six (6) months, but not over two (2) years.
- E. Plant material shall be subject per the California State Department of Agriculture Regulations for Nursery Inspections of Rules and Grading. Quantity and size of plant shall be No. 1 Grade of Pinto Tag stock.
- F. Plant material shall have normal, well-developed branch systems, and vigorous, fibrous root systems, which are neither root- nor pot-bound, and are free of kinked, gnarled, or girdling roots.

2.2 PLANT MATERIAL

- A. General: Furnish nursery-grown plant material conforming to ANSI Z60.1, with healthy root systems developed by transplanting or root pruning.
- B. Refer to the Plant List on the Contract Drawings for the specified plant material specie(s), type(s), size(s), variety(ies), and minimum required height(s), spread(s), caliper(s), and other requirement(s).
- C. Grade: Provide plant material of sizes and grades conforming to ANSI Z60.1 for type of plant material required. Plant material of a larger size may be used if acceptable to the Landscape Architect, with a proportionate increase in size of roots or balls.

- D. Label each plant material of each variety with a securely attached, waterproof tag bearing legible designation of botanical and common name.
- E. Plant Material shall have grown in boxed or containers for sufficient time to permit full rooting within the specified container to bind the planting soil, but not so long as to create a "rootbound" condition. No boxed or container plant material shall be planted which have cracked or broken balls of earth when separated from their boxes or containers. No plant material shall be planted with damaged roots, broken root balls, or which are found to be "rootbound" when separated from their containers.
- F. Plant Material Review and Tagging:
 - 1. At the discretion of the Landscape Architect plant material will be reviewed, photographed, and tagged by the Landscape Architect at the nursery, or other place of growth prior to delivery of plant material to the Project Site. Contractor shall verify with the Landscape Architect if tagging operations are required.
 - 2. Tagging of plant material at the nursery or place of growth does not cancel the right of the Landscape Architect to reject plant material at the Project Site, if damaged or unacceptable conditions are found that were not detected at the nursery, place of growth, or in the submitted photographs.

2.3 SHRUBS

- A. Form and Size: Shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of Shrub as container-grown stock. Provide Shrubs that are established and well-rooted in removable containers.
 - 1. Height, spread, and/or other characteristics shall be as indicated on the Contract Drawings.

2.4 PLANTING SOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, 4 percent organic material minimum, free of stones one inch (1") or larger in any dimension, and other extraneous materials harmful to plant growth.
 - 1. Topsoil Source: Reuse surface soil stockpiled on the site. Verify suitability of surface soil to produce topsoil meeting requirements and amend when necessary. Supplement with imported topsoil when quantities are insufficient. Clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.5 SOIL AMENDMENTS

- A. Sand: Clean, washed, natural or manufactured sand, free of toxic materials. Sieve analysis at 100% passing through a #4 screen, 1-5% passing through a #200 screen.
 - 1. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. A-1 Washed Plaster Sand, Hanson Aggregates A-1 Soils.
 - b. Or equal (no known equal).

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- B. Water: Clean, fresh, and potable.
- C. Gypsum: Commercially-processed and packaged agricultural-grade (CaSO4) Calcium Sulfate Product, 92.0% minimum, pH at 7.1. Ninety percent (90%) shall pass through a 50-mesh screen.
 - 1. Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Domtar Gypsum.
 - b. Or equal (no known equal).
- D. Soil Sulfur: Elemental Sulphur (90% min.) commercially manufactured, water degradable, pelletized.
 - 1. Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Disper-Sul, Martin Resources, Inc.
 - b. Or equal.
- E. Iron: Non-staining, 40% Fe minimum, complete with micronutnutrients and 2% humic acids, as derived from iron oxide, manganese oxide, zinc oxide, magnesium oxide, and elemental sulfur.
 - 1. Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Gro-Power Iron, Gro-Power, Chino, CA 909-393-3744.
 - b. Iron 45 w/ Micronutrients, Tri-C Enterprises LLC, Chino, CA, 800-927-3311
- F. Aggregate: Clean, free of materials toxic to plant growth, ³/₄" size, in bottom of Raised Planters, at a minimum depth of six inches (6"). Provide Geotextile Filter Fabric between aggregate and backfill.
- G. Water Storing Polymer:
 - 1. Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Broadleaf P4, Broadleaf Industries, Chula Vista, CA
 - b. Or equal (no known equal)..
- H. Soil Conditioner Blend: Provide a thoroughly blended composition of Bulk Composted Organic Soil Amendment Material and Granular Soil Conditioning Material & Fertilizer. Any substitution for the "Soil Conditioner Blend" listed herein must be requested, in writing, by the Contractor and approved, in writing, by the Landscape Architect at least 30 days prior to installation.
 - 1. Bulk Composted Organic Soil Amendment Material
 - a. Material Composition: Bulk Composted Organic Amendment Material shall be produced from a composted, nitrollized blend of wood shavings, forest products, rice hulls, and/or biosolids. Upon completion of the composting process, the Material shall be thoroughly

cured for a minimum of 100 days, and shall be free from any trash, deleterious materials, and/or toxic chemicals. The Material shall be non-hazardous, and conform to US Environmental Protection Agency 40 CFR503 criteria for "Class A" products. It shall also exceed standards and specifications for unrestricted application as a landscape and agricultural soil amendment. Finished Material shall be screened to ½-inch minus particle size.

b. Analytical Properities: Contractor shall submit proof of the bulk composted organic amendment material by providing a sample as identified herein this Section, and a lab analysis that has been performed within 30 days of the installation of the planting. The shall have (at a minimum) the following properties:

Total Nitrogen (N%)	0.50-1.0%			
Phosphorus (as P2O5)	2.0%			
Potassium (as K2O)	0.2%			
PH (units)	7.0-8.0			
Carbon-to-Nitrogen Ratio <25-to-1				
ECe (millimho/cm)	<5.0; based on preleaching with = volume of water.			
Screen Anaysis	95% passing 1/2" screen, 5% passing 3/4" screen.			
Bulk Density	1,000 to 1,100 pounds/cubic yard.			
Sodium Absorption Ratio Under 20.0				
Total Iron	1.5%			
Organic Matter	Minimum 70%.			

- c. Application Rate: As indicated herein this Section under "Planting Soil Amendments Schedule".
- d. Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - 1. Soil Conditioner, Synagro Professional Organic Soil Products, 800-242-2222.
 - 2. Agromend, Agromin Horticultural Products, 800-AGROMIN.
 - 3. Humic Compost 1/2", Greenway Compost/Agri-Service, Inc., 760-723-6648.
 - 4. A-1 Life-Like, Hanson Aggregates/A-1 Soils, 858-536-7453.
 - 5. Superior Blend Compost, Artesia Sawdust Products, Inc. 909-947-5983.
- 2. Granular Soil Conditioning Material & Fertilizer
 - a. Material Composition and Analytical Properties: Granular Soil Conditioning Material & Fertilizer shall be a singular manufacturer-blended combination of soil conditioning material and fertilizer. It shall be granular in form, long-lasting, free flowing, and suitable

for application with approved equipment. It shall not contain any sewage sludge or manure-based products, and shall contain the following guaranteed minimum available analysis range:

Nitrogen	5.0% to 6.0%
Phosporic Acid	2.0% to 3.0%
Potash	1.0% to 4.0%
Humic Acids	15.0 % to 20.0%
Calcuim	7.0%
Sulfur	0.0% to 5.0%

- b. Commercial-Grade Products, Manufacturers and Associated Rates of Application: Subject to compliance with requirements, provide products by one (1) of the following:
 - 1. Tri-C 6-2-4, Tri-C Enterprises LLC, Chino, CA, 800-927-3311.
 - a. Application Rate at 70 lbs. per 1,000 square feet of planting area
 - 2. Gro-Power Plus 5-3-1, Gro-Power, Chino, CA 909-393-3744.
 - a. Application Rate at 200 lbs. per 1,000 square feet of plantiing area.
- I. Mycorrhizal Inoculum
 - 1. Mycorrhizal Inoculum for Plant Materials from Container Stock: In addition to providing Fertilizer/Planting Tablets, provide a dual soil-conditioning biological inoculum system of endo-and ecto- Mycorrhizal to further aid the plants ability to efficiently uptake available soil nutrients and also increase resistance to drought.
 - a. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - 1. 7-gram Myco-Pak, Tri-C Enterprises LLC, Chino, CA, 800-927-3311
 - 2. 4 oz. Packet Roots 1 Step, Roots, Inc., Independence, MO, 800-342-6173.
 - b. Provide at the prescribed application rate per the Manufacturer's written recommendations.
- J. Plant Vitamin/Hormone Stimulant
 - 1. Provide in a diluted liquid solution with water, at the time of watering-in recently planted plant species.
 - a. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - 1. SUPERthrive, Vitamin Institute.
 - 2. Roots2, Roots, Inc., Independence, MO 800-342-6173.
 - b. Provide at prescribed rate and application per Manufacturer's written recommendations, per 100 gallons of water.

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2.6 FERTILIZERS

- A. Composition: Nitrogen (N), phosphorous (P), and potassium (K) content, plus other elements, as indicated.
- B. Maintenance Period Fertilizer
 - 1. Fertilizer for maintenance shall be a long-lasting, controlled-release, uniform in composition, free flowing, granular-type fertilizer, with trace minerals, suitable for application with approved equipment. Fertilizer shall contain the following minimum available percentages by weight of plant food (pending results of soil analysis):

Total Nitrogen	14.0%
Available Phosphoric Acid	4.0%
Soluble Potash	9.0%
Sulphur	3.0%
Humus	30.0%
Humic Acids	6.0%

2. Products and Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following

a. Gro-Power Hi-Nitrogen 14-4-9, with 30% Humus, Gro-Power, Chino, CA 909- 393-3744.

- b. Or equal.
- C. Fertilizer Tablets:
 - 1. General: Fertilizer Tablet shall be 7-gram tablet, organic-based, tightly compressed chip-type commercial grade, 12-month slow-release planting tablets, and shall be composed of the following available percentages by weight of plant food (pending results of soil analysis):

Nitrogen	12.0% minimum
Phosphoric acid	8.0% minimum
Potash	8.0% minimum
Humus	20.0% minimum
Humic Acids w/ micronutrients	
and soil enhancers	4.0% minimum

- 2. Commercial-Grade Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Gro-Power 12-8-8 Planting Tablets, Gro-Power, Chino, CA 909-393-3744.
- 3. Application Rate: As indicated Herein this Section

2.7 MULCHES

A. Organic Wood Mulch: Organic Wood Mulch, free from deleterious materials, debris, and weed seed. Suitable as a top dressing shrubs consisting of following:

- 1. Type: Shredded cedar, redwood, fir, or hardwood commercial wood bark products, composted with humus and leaf materials. Organic Wood Mulch shall be graded and to average dimensions of one-inch (1") to two inches (2") in length, and flat in cross section.
- 2. Coverage depth:
 - a. Refer to Part III indicated herein this Section.
- 3. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. ES-2 Mulch, Agromin Horticultural Products, 800-AGROMIN.
 - b. Red Fir Bark, Greenway Compost, 760-723-6648.
 - c. A-1 Oak Deco Chips, Hanson Aggregates/A-1 Soils, 858-536-7453.
 - d. Or approved equal.

2.8 MISCELLANEOUS MATERIALS

- A. Anti-Desiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's instructions.
 - 1. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Aquatrols Corporation, Cherry Hill, NJ (609) 751-0309.
 - b. Or equal, (no known equal).
- B. Water: Clean, fresh, and potable.
- C. Stress Reducing Agent:
 - 1. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Roots Concentrate, Roots, Inc., Independence, MO 800-342-6173.
 - b. Or equal (no known equal).
- D. Wetting Agent and Soil Penetrant:
 - 1. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - a. Roots NoBurn, Roots, Inc., Independence, MO 800-342-6173.
 - b. Naiad-SS,
 - c. Or equal.

- E. Herbicides: EPA registered and approved.
 - 1. Non-Selective Post-Emergent Herbicide: Solution containing a minimum of 41% of the active ingredient "glyphosate", with a surfactant, mixed with water accordingly per the Manufacturer's directions.
 - a. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - 1. Roundup PRO, Monsanto Technology LLC.
 - 2. Or equal.
 - 2. Selective Pre-Emergent Herbicide, for the control of annual grasses and broadleaf weeds in turf grass areas, and woody ornamental trees, shrubs, vines, and groundcover areas.
 - a. Products & Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:
 - 1. Ronstar G, Aventis Environmental Science USA.
 - 2. *Treflan 5G*, Lesco Inc.

PART 3 - EXECUTION

- 3.1 GENERAL
 - A. Installation practices of the landscape plant materials shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted horticultural practice, as approved by the Landscape Architect. Contractor shall notify the Landscape Architect, in writing, on the anticipated commencement date and length of duration of the landscape installation.
 - B. Examine areas to receive landscape for compliance with requirements and for conditions affecting performance of Work of this Section. NO WORK UNDER THIS SECTION SHALL COMMENCE UNTIL ALL SUBMITTALS UNDER THIS SECTION HAVE BEEN REVIEWED AND APPROVED, IN WRITING. DO NOT PROCEED WITH INSTALLATION UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. NO PLANTING SHALL BE DONE IN ANY AREAS UNTIL THEY HAVE BEEN SATISFACTORILY PREPARED IN ACCORDANCE WITH THE REQUIREMENTS UNDER THIS SECTION
 - C. Soil moisture level prior to planting shall be no less than 75% of field capacity. The determination of adequate soil moisture for planting shall be the sole judgement of the Landscape Architect, and their decision shall be final.
 - D. If the soil moisture level is found to be insufficient for planting, all planting pits shall be filled with water and allowed to drain before commencing planting operations.
 - E. No more plants shall be distributed in the planting area on any day than can be planted and watered on that day. Plants shall be planted and watered as specified herein immediately after the removal of their containers. Containers shall not be cut prior to placing the plants in the planting area. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, and Landscape Architect acceptance before the start of planting work. Make minor adjustments as may be required.

- F. Prior to Work in this Section, Contractor shall examine previously installed Work from other trades and verify that such Work is complete and as required, to the point where the installation of the landscape may commence properly.
- G. Planting areas, which become compacted in excess of 85% relative compaction due to construction activities, shall be tilled and thoroughly cross-ripped to a minimum depth of 12" to alleviate the condition, taking care to avoid all existing subsurface utilities, drainage, etc.

3.2 PROTECTION OF SITE

- A. Contractor shall protect existing and new improvements and systems installed prior to planting installation. Maintain protection in place until completion of Work and maintenance period.
- B. Protect concrete paving, headers, and drainage from staining due to contact with wet nitrogen stabilized mulch/sawdust, or contact with chelated iron. Correct any stained concrete.

3.3 AGRONOMIC SOILS REPORT RECOMMENDATION

- A. Once rough grading has been accomplished, and prior to any soil preparation (amendments, fertilizers, etc.), soil samples shall be taken from representative areas and below grade depths of the Project Site. Locations and depths to gather the representative soil samples shall be accomplished by the Contractor under the direction of the Landscape Architect.
 - 1. Provide four (4) Soil Samples.
- B. Guidelines for Selecting the Soil Samples:
 - 1. Select a representative area to sample. The area needs to be uniform in color, texture, depth, and drainage with the same fertilizing program and type of use. Planting areas to receive lawns, flowerbeds, trees, cut areas, fill areas, etc. should be tested separately. An area containing multiple trees and shrubs can be grouped into one area if the planting is the same.
 - 2. Depths and process of soil sampling:
 - a. Sample as deep as the soil will be amended, generally six inches (6") deep for groundcover/lawns, 18" deep for shrub areas, 24" deep for small boxed trees, and 3'-4' for large boxed trees.
 - b. Use a soil probe or soil auger to remove a core sample; otherwise, use a shovel to dig a hole to the desired depth. Sample the soil from the side of the excavated hole, scrtaping the side with a trowel. The tools used for digging shall be clean and not rusty. Avoid sampling when the soil is too wet.
 - 3. In desired areas where multiple sub-samplings are taken from any one area to create a combined sample, mix the sub-samples homogenously together in a clean plastic bucket prior to placing in the plastic bag.
 - 4. Each Sample shall be delivered to the laboratory in a separate, resealable, one (1)-gallon plastic bag. Provide a minimum of four (4) cups of soil within each respective sample to allow for adequate testing.

- C. Soil testing shall be conducted by a reputable, certified, approved, agronomic soils laboratory, and shall be a member of the Council on Soil Testing and Plant Analysis:
 - 1. Soil and Plant Laboratory, Orange, CA, phone 714-282-8777.
 - 2. Fruit Growers Laboratory, Santa Paula, CA, phone 805-659-0910.
 - 3. Wallace Laboratories, El Segundo, CA, phone 310-615-0116.
- D. A standard Agronomic Suitability Analysis shall be performed on each of the soil samples. Analysis shall include pH; salinity (electroconductivity); available nutrients and toxic elements; measurement of sodicity (Sodium Absorption Ratio); estimate of soil texture and soil organic matter; presence of lime; and saturation extracts for nitrate, sulfate, sodium, calcium, magnesium, potassium, soluable phosphate, and boron.
- E. Contractor shall provide the laboratory a copy of the soil anendment and fertilizer schedules within the Contract Specifications. The soil fertility tests shall also include written recommendations for amending and/or correcting the project site soil conditions, and shall provide recommendations utilizing the amendments and fertilizers described herein this Section. The tests shall also indicate Maintenance and Post-Maintenance fertilization programs for all planted areas of the Project Site.
- F. Four (4) bound copies of the results of the Agronomic Soils Report Recommendation shall be received by the Landscape Architect an minimum of fourteen (14) days prior to amending of the soil and ordering soil amendments. The locations of where each of the soil test samples were derived from the Project Site shall be keyed to the site plan and shall be included with the results.
- G. Planting operations shall not commence until the results of the Agronomic Soils Report Recommendation are reviewed by the Landscape Architect.
- H. The quantity or type of amendments may be modified by the Landscape Architect within fourteen (14) days of receipt of the analysis, based on the Agronomic Soils Report Recommendation
- I. The Agronomic Soils Report Recommendation shall take precedence over the amendment and fertilizer application rates specified herein or on the Contract Documents.
 - 1. The Contractor shall be responsible to provide payment(s) to the Agronomic Soil Testing Laboratory for Work under the Agronomic Soil Fertility Testing Bid Allowance. Each payment made on the Laboratory's invoice shall be paid in full, and within a timely fashion not to exceed 30 days from the date of the invoice, as to not delay any Work under the Contract.
 - 2. At the completion of Work indicated herein this Article, the Contractor shall provide legible photocopies of all invoices and payments made to the Agronomic Soil Testing Laboratory, under the Agronomic Soil Fertility Testing Bid Allowance, to the Owner and/or Landscape Architect. All money remaining in the Allowance shall be refunded to the Owner as a condition of Final Acceptance of Work.

3.4 SOIL PERCOLATION TESTS

A. Prior to installing any plant material, the Contractor shall perform Soil Percolation Tests, through the direction of the Landscape Architect, in selected representative areas of the Project Site, to verify acceptable natural drainage, soil structure, and soil composition. The Contractor shall verify the locations of the Percolation Tests with the Landscape Architect.

- 1. Required Number of Soil Percolation Tests: Ten (10).
- B. Each Percolation Test shall be performed as follows:
 - 1. Dig a hole 2'-0" wide x 2'-0" long x 2'-0" deep.
 - 2. Fill the hole with water to top and cover with plywood and barricade. Allow hole to drain and fill again to top.
 - 3. Make daily observations, noting the depth of water each day.
 - 4. Report findings, in writing, to the Landscape Architect. Include the length of time the water takes to drain completely from each hole, date of test, location, and other information, which may be useful in providing further recommendations.
- C. Based on the combined results of the Agronomic Soil Fertility Tests and the Soil Percolation Tests, the Contractor may be required to install additional tree drainage sumps or other drainage methods at each planting pit for trees larger than 15-gallon container stock. This does not relieve the Contractor's obligation within the Base Bid to provide the required Tree Aeration Units indicated herein this Section. The Contractor shall include, as a line-item price within the Base Bid, the price per each tree drainage sump should they be required.
 - 1. Should additional tree drainage sumps or other methods are required, based on the results of the Agronomic Soil Fertility Tests and Soil Percolation tests, and per the direction of the Landscape Architect, then compensation shall be awarded to the Contractor at the line-item price (each) as provided by the Contractor.

3.5 FINISH GRADING

- A. Finish grading shall be as indicated on the Civil Engineer Drawings, unless otherwise noted on the Contract Drawings prepared by the Landscape Architect or noted herein this Section. Contractor shall report discrepancies (if any) to the Landscape Architect and Civil Engineer for clarification and resolution.
- B. Finish grades shall be measured at the top surface of surface materials. The finish grade below adjacent paving, curbs, or headers shall be three (3") inches in shrub and/or groundcover areas.
- C. Remove all rocks 1-1/2" inches and larger to a depth of six (6") inches below finish grade of shrub and groundcover areas and all other growth or debris from the site.
- D. Undulations and irregularities in the planting surfaces resulting from tillage, rototilling, and all other operations, and all ridges and rises which would affect the maintenance of any planting area and/or are visually evident to the Landscape Architect shall be leveled and floated out before planting operations are initiated.
- E. Fill gullies or ruts in excess of one (1") inch deep on areas to be planted with shrubs and groundcovers using adjacent soil, and compact soil to adjacent finish grade of soil.
- F. Finish grading adjacent to adjoining landscape areas or undisturbed native landscape areas shall be feathered and contour-graded to provide a visually natural condition. Contractor shall be responsible to remove all extraneous rocks, debris, and dead or dying brush material that has been affected by grading operations. Contractor is responsible for securing approval of all finish grades adjacent to landscape areas by the Landscape Architect as a condition of this Contract.

- G. Contractor shall take every precaution to protect and avoid damage to sprinkler heads, irrigation lines, drainage lines, improvements by other trades, and all underground utilities during grading and conditioning operations. The Contractor shall maintain established site grades and drainage during all stages of landscape construction.
- H. The finish grading shall be smooth, uniform, and free from abrupt grade changes and depressions to insure positive drainage of the site. All surface drainage shall drain away from buildings, walls, and walks, and shall drain towards roadways, streets, gutters, drains, and catch basins.
- I. Final grades shall be acceptable to the Landscape Architect before commencement of any planting operations. Planting or other landscape site construction improvements installed without prior approval of finish grades by the Landscape Architect shall be re-installed under requirements of this Section and other Sections of the Contract Specifications, with no additional cost to the Owner

3.6 CULTIVATION OF EXISTING SOIL

- A. The existing surface soil in all areas to be planted shall be ripped or cultivated to a depth of at least ten inches (10") to alleviate soil compaction, immediately prior to applying soil amendments.
- B. Before spreading ammendments, clean soil of roots, plants, sods, stones, cobbles, clay lumps, and other extraneous materials harmful to plant growth. Once completed, uniformly broadcast and blend the material listed under the "Planting Soil Amendments Schedule" with the existing soil to a six-inch (6") depth:
 - 1. A "Planting Soil Amendments Schedule" is included at the end of this Section.
 - 2. Mix gypsum with dry soil prior to mixing fertilizer. Prevent gypsum from contacting roots of acid-tolerant plants.
- C. The specified ripping and soil amending procedures shall be completed for all areas to be planted, including trees, shrubs, groundcovers, and ornamental grasses, prior to leaching and pre-plant weed control operations.

3.7 DEEP WATER LEACHING

- A. After cultivation of the existing soil, including incorporation of the soil amendments, and complete installation and testing of the irrigation system, the on-grade areas shall be deep water leached, compacted, and settled by continuous application of irrigation water until the soil has received a minimum of six (6") inches of water.
- B. After leaching operation, two (2) soil samples shall be taken by the Contractor from the same location as the soil fertility test specified herein this Section, per the direction of the Owner. The same laboratory used for the soil fertility tests shall analyze soil samples taken from the deep water leaching operation. Soil test shall meet the following requirements:

EC – Maximum 3.00 pH – Maximum 7.50, Minimum 6.00

C. The Contractor shall repeat reapplication of soil amendments and leaching operation if tests after the initial deep water leaching operations show a negative result. Expenses of testing, (re) application of soil amendment(s), and leaching operation(s) shall be borne by the Contractor.

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- D. Contractor shall fill in the depressions, voids, erosion scars, or settled trenches generated by the deep leaching operations with conditioned soil, leaving a final finish grade smooth and even to conform with the finished grades as indicated on the Contract Drawings.
- E. No planting shall be installed until approval has been given by the Owner.

3.8 PRE-PLANT WEED CONTROL

- A. Clear and remove existing weeds by mowing or grubbing to at least ¹/₄" below the soil surface.
- B. Fertilize areas to receive planting with urea 46-0-0 Commercial Fertilizer at the rate of ½ lb. per 1,000 square feet.
- C. Water area thoroughly and continuously for a period of two (2) consecutive weeks. Employ a specific watering duration and frequency program designed to germinate the residual weeds.
- D. After sufficient weed germination is present, apply an approved non-selective post-emergent contact herbicide according to the directions of the manufacturer. Protect and buffer surrounding properties, buildings, and vegetation from overspray as required.
- E. Allow for a sufficient time period to ensure that the weeds are dead and the herbicide has dissipated before applying a second weed kill.
- F. Water planting areas thoroughly and continuously for a period of one (1) week. Discontinue the watering process for one (1) day prior to the second application of the herbicide, if needed. Reapply the spraying operation with a straight contact herbicide. Avoid any irrigation for a minimum of four (4) days for effective weed kill.
- G. After the second application of herbicide, water planting areas thoroughly and continuously for three (3) consecutive days to saturate upper layers of the soil prior to commencing planting operations.
- H. Dead weeds shall be cleared and removed prior to planting.
- I. Maintain a weed-free Project Site until final acceptance by Owner, utilizing mechanical, chemical, or manual treatment.

3.9 EXCAVATION FOR SHRUBS

- A. Planting Holes and Trenches: Excavate planting hole with scarified vertical sides, with the bottom of the excavated hole slightly raised and compacted at the center to assist drainage and to minimize settlement of the plant material. Loosen any hard subsoil in the bottom of the excavation where evident, and remove all rocks greater than 1/2" in diameter, trash, debris, etc. Retain the excavated native soil for use as part of the Amended Planting Backfill Mixture (as indicated herein this Section).
 - 1. Container-Grown Trees and Shrubs: Excavate the planting hole to the width and depth indicated. Depth of the planting hole includes the depth indicated for the compacted setting layer at the bottom of the excavation.
 - a. Compacted Setting Layer: Allow six (6") inches of native planting soil.
 - b. Excavated Planting Hole Width:

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- 1. Excavate the planting hole at "3x" the diameter or width of the planting container size (where "x" equals the diameter or width of the planting container).
- B. Obstructions: Notify the Landscape Architect immediately if unexpected rock, debris, contaminants, obstructions, or other items that are detrimental to the healthy sustained growth of trees or shrubs is encountered in the excavation process.
 - 1. Hardpan Layer: If encountered, drill six-inch (6") diameter holes into free-draining strata or to a depth of ten (10") feet, whichever is less, and backfill with free-draining material.
- C. Drainage: Notify the Landscape Architect if subsoil conditions show evidence of unexpected water seepage or retention in tree or shrub planting holes.
- D. Fill excavations with water and allow to percolate out, before placing setting layer and positioning trees and shrubs.

3.10 PLANTING SHRUBS

- A. Container-Grown Plant Material: Set Container-Grown Plant Material plumb and in the center of the excavated planting hole, with top of the rootball raised above adjacent finish grade as indicated. Set Container-Grown Plant Material in the proper spacing and/or alignment(s) as indicated on the Contract Documents, or as further directed at the Project Site by the Landscape Architect.
 - For plastic container stock (1-gallon, 5-gallon, 15-gallon, etc.), carefully remove the plant container prior to setting the plant in the excavated hole so as not to damage rootball. Set the Plant Material stock on the specified setting layer of compacted native soil, with the top of rootball set above the finished grade: 2-inch for trees; 1-inch for all other container stock.. Provide the orientation of the Plant Material that is confirmed and accepted by the Landscape Architect. During the process of determining an acceptable orientation of the plant material, carefully handle the Plant Material by it's container; avoid handling the Plant Material by its trunk.
 - a. Plant Material with a damaged rootball upon removal of the container, or if the rootball fails to thoroughly hold the soil as it is removed from the container, or if the plant is mishandled or damaged during planting operations, shall be rejected.
 - 2. For wooden boxed container stock, carefully set whole boxed container of the Plant Material stock on the specified setting layer of compacted native soil, with the top of rootball set 2-inch above the finished grade. Provide the orientation of the Plant Material that is confirmed and accepted by the Landscape Architect. During the process of determining an acceptable orientation of the plant material, carefully handle the Plant Material by it's container; avoid handling the Plant Material by its trunk. Once orientation is accepted, remove the steel strapping and the sides of the wooden container so as not to damage the rootball or any part of the plant. Do not remove the bottom of the wooden container. Discard sides.
 - a. Plant Material with a damaged rootball upon removal of the container, or if the rootball fails to thoroughly hold the soil as it is removed from the container, or if the plant is mishandled or damaged during planting operations, shall be rejected.
 - 3. Prepare the Amended Planting Backfill Mixture: Amend each cubic yard of native soil excavated from the planting hole by incorporating and thoroughly mixing and blending in the following:

- a. ¹/₄ yard of Bulk Composted Organic Soil Amendment Material (as identified herein this Section).
- b. ¹/₂ pound of Granular Soil Conditioning Material & Fertilizer (as identified herein this Section).
- c. Add Mycorrhizal Inoculum to the excavated native soil, as specified.
- d. Pending the results of the Agronomic Soil Fertility Report, the Amended Planting Backfill Mixture may be modified accordingly to include additional soil amendments or fertilizers (gypsum, iron, potash, etc.) or the ratios as indicated in the Mixture indicated above may be modified.
 - 1. The cost of providing modifications to the Amended Planting Soil Backfill Mixture (as recommended through the Agronomic Soil Fertility Report and as directed by the Landscape Architect) shall be borne by the Contractor.
- 4. Install the Tree Root Aeration Unit(s) prior to backfilling operations, as required.
- 5. In areas where indicated on the Contract Drawings, install the Deep Watering Bubblers as part of the irrigation system.
- 6. Backfilling the excavated planting hole:
 - a. Place the Amended Planting Backfill Mixture around the rootball in the excavated planting hole. Place the Mixture in six-inch (6") lifts, tamping each lift accordingly to settle the Mixture and eliminate voids and air pockets.
 - b. Maintain the plant plumb while working the Mixture around the rootball. When the planting hole is approximately 1/2 backfilled, water thoroughly before placing the remainder of the Mixture.
 - c. Add the Fertilizer Tablets and other amendments, as required, at the prescribed application rates indicated herein this Article or if not indicated, per the Manufacturer's instructions.
 - d. Place the final layers of the Mixture, tamping accordingly, to the top of the rootball.
 - e. Do not tleave the sides of the rootball exposed. Do not place the Mixture on top of the rootball.
 - f. Dish and tamp top of the Mixture to form a three-inch (3") deep watering basin around the rim of the planting hole. Do not leave the sides of the rootball exposed. Do not cover the top of the root ball with the backfill mixture.
 - g. Thoroughly mix together water and Plant Vitamin/Hormone Stimulant in application ratio as recommended by Stimulant Manufacture. Apply liquid in sufficient quantity to thoroughly saturate the basin to settle the Mixture, and to eliminate voids and air pockets. Should any portions of the root mass be exposed, add additional Mixture as needed to thoroughly cover the root mass.
- B. Plant Settling and Orientation: Plant Material that has settled deeper than the surrounding grade shall be excavated and raised to the correct level, to the satisfaction of the Landscape Architect.

Plant Material installed without direction and/or approval as to its proper orientation shall be subject to excavation and acceptable orientation, to the satisfaction of the Landscape Architect.

- C. Fertilizer Tablet(s) Application Rate:
 - 1. Fertilizer Tablets shall be spread equidistantly around the perimeter within the Amended Planting Backfill Mixture, up to within three (3") inches of the finished grade of the Mixture, and at the following rates:

Size of Plant Material	Total Quantity of 7-gram Fertilizer Tablets
Five (5)-gallon Container stock.	Nine (9)
Fifteen (15)-gallon container stock	Fifteen (15)

2. Contractor shall not provide Fertilizer Tablets for designated native plant species, as indicated in the Contract Drawings or as directed by the Landscape Architect. Contractor shall verify with the Landscape Architect, in writing, as to which plants are subject to not receive the Fertilizer Tablets.

3.11 PRUNING PLANT MATERIAL

- A. At no time shall any plant material be pruned, trimmed, thinned, shaped, or topped prior to delivery. Any pruning, trimming, thinning, shaping, or topping of plant material shall be only conducted on the Project Site, and under the presence and direction of the Landscape Architect. Any plant material that has been pruned and delivered to the Project Site without prior approval by the Landscape Architect or an approved Certified Arborist shall be rejected.
- B. When directed by the Landscape Architect, or an approved certified Arborist, Contractor shall prune, thin, and shape plant material, according to standard horticultural practice, to preserve the natural character of the plant material.
 - 1. Prune to retain natural character, as directed by the Landscape Architect. or by an approved Certified Arborist.
 - 2. Pruning and remedial work shall be done under continuous supervision of the Landscape Architect or approved Certified Arborist, and per ANSI A-300 Pruning Standards. The Arborist shall be certified by the International Society of Arborists (ISA); or the Certified Arborist who is a member of the American Society of Consulting Arborists, in compliance with ISA and ANSI Standards.
 - 3. Provide pruning, cabling and bracing, irrigation, pest and disease control and other remedial treatments as recommended by the Landscape Architect or approved Certified Arborist, as required, to assure the long-term health of the trees and existing vegetation, and the safety of persons and property.

3.12 MULCHING

LANDSCAPE PLANTING

- A. Mulch backfilled surfaces of pits, trenches, planted areas, watering basins of plants, and other areas indicated In the Contract Documents.
- B. Organic Wood Mulch:
 - 1. Apply the following average thickness of organic mulch, and finish level with adjacent finished grades. Do not place the mulch directly against trunks or stems of the plants.
 - a. Thickness: Two (2") inches.
 - 2. While settlement and/or decomposition of the Organic Wood Mulch may occur, the Organic Wood Mulch thickness as specified shall be consistent throughout the entire duration of the Contract. The Contractor shall provide additional Organic Wood Mulch, as needed, and as directed by the Landscape Architect, to maintain the specified constant thickness of the Organic Wood Mulch, until Acceptance of Work is granted.

3.13 INSTALLATION OF MISCELLANEOUS MATERIALS

- A. Anti-Desiccant: When deciduous trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again two (2) weeks after planting.
 - 1. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage.

3.14 CLEAN UP AND PROTECTION

- A. During landscape operations, keep pavements clean and Work area in an orderly and safe condition. Contractor shall remove trash caused from his Work on a weekly basis throughout the duration of the Work.
- B. Protect landscape from damage due to landscape operations, operations by other Contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.
- C. Upon completion of his Work under this Section, the Contractor shall remove rubbish, waste, debris, excess construction materials, and other items resulting from construction operations offsite as described herein this Section and directed by the Landscape Architect.
- D. Scars, ruts, or other marks in the ground caused by the Contractor's Work shall be repaired.
- E. Remove equipment and implements of service, and leave the entire Project Site area in a neat, clean, and Owner-approved condition. Sidewalks, driveways, pavements, and site areas shall receive a broom-clean treatment or other cleaning treatment as directed by the Landscape Architect.

3.15 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Contractor shall remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the Owner's property.

3.16 FINAL REVIEW

LANDSCAPE PLANTING

- A. A Final Review shall be performed upon completion of the Maintenance Period.
 - 1. Contractor shall request attendance at the review by the Owner and the Landscape Architect the end of the Maintenance Period.
 - 2. At the time of Final Review, planting areas shall be free of weeds and neatly cultivated. Contractor shall perform all necessary corrective work and replacement of materials as identified.
 - a. Work requiring corrective measures by the sole judgement of the Landscape Architect shall be completed within ten (10) days of the Final Review.
 - b. Corrective Work and materials replacement shall be in accordance with the Contract Drawings and Contract Specifications, and shall be made at no expense to the Owner .
 - c. Maintenance Period shall be continued at no expense to the Owner as determined by the Landscape Architect until final acceptance of the completed Work is accomplished.
 - d. Contractor shall request a review upon completion of corrective Work and materials replacement.
 - 3. If, after review, the Landscape Architect finds the Work has been performed in accordance with the Contract Drawings and Contract Specifications, and plant materials are in satisfactory growing condition, a written notice of acceptance at the end of the Maintenance Period shall be issued by the Landscape Architect.

3.17 PLANTING SOIL AMENDMENTS SCHEDULE

A. Schedule: The following soil amendments shall be included as part of the Contractor's Base Bid:

Soi	l Amendment	Ratio
1.	Bulk Composted: Organic Soil Amendment	5 cu. yds. / 1,000 square feet of planting area.
2.	Granular Soil Conditioning Materia & Fertilizer	As indicated ratio per selected Manufacturer.
3.	Gypsum:	200 pounds / 1,000 square feet.
4.	Commercial Fertilizers:	As indicated ratios per selected Manufacturers.
5.	Iron (Non-staining)	10 pounds / 1,000 square feet of planting area.
6.	Soil Sulfer:	10 pounds / 1,000 square feet of planting area.

B. Modifications: The Planting Soil Amendments Schedule may be modified, based on the combined results of the Agronomic Soil Fertility Tests and Percolation Tests.

- 1. Contractor shall be provided no additional compensation by the Owner should modifications to the specified soil amendments and/or ratios are required indicated in the Base Bid Planting Soil Amendments Schedule, due to the Agronomic Soil Fertility Test results and recommendation of the Owner.
- 2. Contractor shall provide the Owner fair and adequate credit should less soil amendments and/or ratios are required from those as indicated in the Base Bid Planting Soil Amendments Schedule.

3.18 PLANTING AREA MAINTENANCE PERIOD REQUIREMENTS

- A. Fertilizer Application Rate Schedule:
 - 1. At 30-Day Maintenance milestone: No additional application of fertilizer is required.
 - 2. At 60-Day Maintenance milestone: Between the 45th and 50th day, evenly broadcast seven (7) lbs. of fertilizer per 1,000 sq. ft. of planting area, including turf areas, slopes, etc. Water thoroughly.
 - 3. At 90-Day Maintenance milestone: For second application, between 80th and 85th day, evenly broadcast seven (7) lbs. of fertilizer per 1,000 sq. ft. of planting area, including turf areas, slopes, etc. Water thoroughly.

END OF SECTION 02900

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings.
 - 2. Foundation walls.
 - 3. Slabs-on-grade.
 - 4. Building walls.
- B. Related Sections:
 - 1. Division 2 Section "Earthwork for Structures and Pavement" for drainage fill under slabs-ongrade.
 - 2. Division 2 Section "Concrete Curbs, Gutters, and Walks" for concrete pavement and walks.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork.
 - 1. At exposed vertical surfaces, show formwork panel joints and form tie locations.

- 2. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and installing and removing reshoring.
- E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - 1. Location of construction joints is subject to approval of the Architect.
- F. Samples: For vapor retarder.
- G. Qualification Data: For Installer, manufacturer, and testing agency.
- H. Welding certificates.
- I. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Curing compounds.
 - 6. Floor and slab treatments.
 - 7. Bonding agents.
 - 8. Adhesives.
 - 9. Vapor retarders.
 - 10. Semirigid joint filler.
 - 11. Joint-filler strips.
 - 12. Repair materials.
- J. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- K. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- L. Field quality-control reports.
- M. Minutes of preinstallation conference.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACIcertified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

- 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code Reinforcing Steel."
- F. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- G. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- H. Mockups: Cast concrete slab-on-grade and formed-surface panels to demonstrate typical joints, surface finish, texture, tolerances, floor treatments, and standard of workmanship.
 - 1. Build panel approximately 200 sq. ft. for slab-on-grade in the location indicated or, if not indicated, as directed by Architect approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - 2. Cast exposed concrete wall mockup 36 inches by 36 inches to demonstrate typical form joint, form tie voids, surface finish, tolerances, and workmanship. Maintain mockup during construction in an undisturbed condition for judging the completed work. Demolish and remove mockup when directed.
- I. Preinstallation Conference: Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete subcontractor.
 - e. Special concrete finish subcontractor.
 - 2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
- B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- D. Form Ties: Factory-fabricated, removable glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.

2.2 STEEL REINFORCEMENT

- A. Epoxy-Coated Reinforcing Bars: ASTM A 615/A 615M, Grade 60 ASTM A 706/A 706M, deformed bars, ASTM A 775/A 775M or ASTM A 934/A 934M, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.
- B. Epoxy-Coated Wire: ASTM A 884/A 884M, Class A, Type 1 coated, as-drawn, plain-steel wire, with less than 2 percent damaged coating in each 12-inch wire length.
- C. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884/A 884M, Class A coated, Type 1, plain steel.

2.3 REINFORCEMENT ACCESSORIES

- A. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, ASTM A 775/A 775M epoxy coated.
- B. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.
- C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

- 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
- 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type V, gray. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class F.
- B. Silica Fume: ASTM C 1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: Per Structural Drawings
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
- C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Xypex C-500.
- D. Calcium nitrate based corrosion inhibitor.
- E. Chemical Surface Retarder: Water-soluble, liquid, set retarder with color dye, for horizontal concrete surface application, capable of temporarily delaying final hardening of concrete to a mico-etch finish.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. ChemMasters.

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- b. Dayton Superior Corporation; Top-Cast[™] (Basis of Design)
 - 1) Top-CastTM 03 "Acid Etch Finish", where indicated on Drawings.
 - 2) Top-Cast[™] 05 "Sandblast Finish", where indicated on Drawings.
- c. Euclid Chemical Company (The), an RPM company.
- d. Meadows, W. R., Inc.
- e. Scofield, L. M. Company.
- f. Sika Corporation, Inc.
- g. Or Approved Equal.
- F. Color Pigment: ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures; color stable, free of carbon black, nonfading, and resistant to lime and other alkalis
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ChemMasters.
 - b. Davis Colors.
 - c. Dayton Superior Corporation.
 - d. Hoover Color Corporation.
 - e. Lambert Corporation.
 - f. QC Construction Products.
 - g. Rockwood Pigments NA, Inc.
 - h. Scofield, L. M. Company.
 - i. Solomon Colors, Inc.
 - 2. Color: As selected by Architect from manufacturer's full range.

2.6 VAPOR RETARDERS

- A. Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing, Inc.; Blackline 400.
 - b. Fortifiber Building Systems Group; Moistop Ultra 15.
 - c. Grace Construction Products, W. R. Grace & Co.; Florprufe 120.
 - d. Meadows, W. R., Inc.; Perminator 15 mil.
 - e. Raven Industries Inc.; Vapor Block 15.
 - f. Reef Industries, Inc.; Griffolyn Type-65G.
 - g. Stego Industries, LLC; Stego Wrap 15 mil Class A.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- C. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inch sieve, 10 to 30 percent passing a No. 100 sieve, and at least 5 percent passing No. 200 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.7 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Burke Group, LLC; Titan Hard.
 - b. ChemMasters; Chemisil Plus.
 - c. Conspec by Dayton Superior; Intraseal.
 - d. Curecrete Distribution Inc.; Ashford Formula.
 - e. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
 - f. Edoco by Dayton Superior; Titan Hard.
 - g. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
 - h. L&M Construction Chemicals, Inc.; Seal Hard.
 - i. Meadows, W. R., Inc.; LIQUI-HARD.

2.8 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals Building Systems; Confilm.
 - b. ChemMasters; SprayFilm.
 - c. Conspec by Dayton Superior; Aquafilm.
 - d. Dayton Superior Corporation; Sure Film (J-74).
 - e. Edoco by Dayton Superior; BurkeFilm.
 - f. Euclid Chemical Company (The), an RPM company; Eucobar.
 - g. L&M Construction Chemicals, Inc.; E-CON.
 - h. Meadows, W. R., Inc.; EVAPRE.
 - i. Sika Corporation; SikaFilm.
 - j. Symons by Dayton Superior; Finishing Aid.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering, or floor treatment.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals Building Systems; Kure-N-Seal W.
 - b. ChemMasters; Safe-Cure Clear.
 - c. Conspec by Dayton Superior; High Seal.
 - d. Dayton Superior Corporation; Safe Cure and Seal (J-19).
 - e. Edoco by Dayton Superior; Spartan Cote WB II 20 Percent.
 - f. Euclid Chemical Company (The), an RPM company; Diamond Clear VOX; Clearseal WB STD.

- g. L&M Construction Chemicals, Inc.; Dress & Seal WB.
- h. Meadows, W. R., Inc.; Vocomp-20.
- i. Symons by Dayton Superior; Cure & Seal 18 Percent E.
- j. Or Approved Equal.

2.9 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types I and II, non-load bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.10 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
 - 4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

- 2. Mix design shall be stamped by a registered engineer experienced in concrete mix design used for corrosive environments and submitted by the contractor to the SEOR for approval.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 15 percent.
 - 2. Combined Fly Ash and Pozzolan: 20 percent.
 - 3. Silica Fume: 10 percent.
 - 4. Combined Fly Ash, Pozzolans, and Silica Fume: 30 percent with fly ash or pozzolans not exceeding 20 percent and silica fume not exceeding 10 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 - 2. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: As indicated on drawings at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: Per Structural Drawings.
 - 3. Slump Limit: Per Structural Drawings
 - 4. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
 - 5. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.
- B. Foundation Walls: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: As indicated on drawings at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: Per Structural Drawings.
 - 3. Slump Limit: Per Structural Drawings.
 - 4. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
 - 5. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.
- C. Slabs-on-Grade: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: As indicated on drawings at 28 days.
 - 2. Slump Limit: Per Structural Drawings.
 - 3. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-1/2-inch nominal maximum aggregate size.
 - 4. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.
 - 5. Air Content: Do not allow air content of trowel-finished floors to exceed 3 percent.
- D. Building Walls: Proportion normal-weight concrete mixture as follows:

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- 1. Minimum Compressive Strength: As indicated on drawings at 28 days.
- 2. Maximum Water-Cementitious Materials Ratio: Per Structural Drawings.
- 3. Slump Limit: Per Structural Drawings.
- 4. Air Content: 3 percent, plus or minus 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."
 - 2. All embeds shall be properly secured prior to inspection.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.
 - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 VAPOR RETARDERS

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches and seal with manufacturer's recommended tape.
- B. Granular Course: Cover vapor retarder with granular fill and fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.
 - 1. Place and compact a 1/2-inch- thick layer of fine-graded granular material over granular fill.

3.6 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.

3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 4. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 - 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

- 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
- 2. Maintain reinforcement in position on chairs during concrete placement.
- 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
- 4. Slope surfaces uniformly to drains where required.
- 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
 - 1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete, such as waterproofing, or painting.
 - 2. Do not apply rubbed finish to smooth-formed finished concrete.
- B. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction.
 - 1. Apply scratch finish to surfaces indicated to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

- 1. Apply float finish to surfaces indicated to receive trowel finish and to be covered with fluidapplied or sheet waterproofing, or sand-bed terrazzo.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated, exposed to view, or to be covered with , ceramic , set over a cleavage membrane, paint, or another thin-film-finish coating system Insert locations.
 - 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - 3. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated where ceramic tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
 - 1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiberbristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
- G. Abrasive Blast Finish: Apply abrasive blast finish to smooth-formed finished concrete walls exposed to view. Prepare concrete for abrasive blasted finish by removing fins and rough spots and grinding offsets greater than 1/16 inch.
 - 1. Apply a light abrasive blasted finish on all exposed to view concrete surfaces, except provide medium to heavy blast finish for concrete floor not scheduled to receive flooring and for concrete pavement. Light blasted finish shall expose fine aggregate with occasional exposure of coarse aggregate with 1/16 inch reveal. Texture of concrete surfaces shall be uniform after blasting and shall match test applications as specified herein. Finish on walking surface to be equivalent to coefficient of friction of 0.7.
 - 2. Perform abrasive blasting in as continuous an operation as possible, utilizing the same work crew to maintain continuity of finish on each surface or area of work. Allow concrete to cure not less than 28 days before commencing work. Carefully coordinate work so that a minimum time elapses between the blasting operations and application of the water repellent and anti-graffiti coating.
 - 3. Use an abrasive grit or sand of the proper type and gradation as required to remove the surface laitance and define the aggregate and surrounding matrix surfaces to match the approved samples. If dry sandblasting operations are employed, use only steel or iron grit. If wet sandblasting operations are employed, use only silica sand. The abrasive shall not affect the color of the finished surface.
 - 4. The type of nozzle pressure and blasting techniques required shall be determined in the field mock-up. Diameters of air lines and hoses shall be in accordance with the recommendations of the manufacturer of the abrasive blasting equipment. Blasting of mock-up shall be accomplished under the observation of the Architect, who shall approve the acceptable surface texture to be used.

- 5. Abrasive blast corners and edges carefully, using back-up boards in order to maintain a uniform corner or edge line. Blasting shall be accompanied by an air hose to remove residue as surfaces are cut to enable examination of surfaces.
- 6. Take care to ensure the safety of the works and hold the Owner harmless of all claims of damages as a result of abrasive blasting. Abrasive blasting operations shall be in compliance with Air Pollution Control District, Rule 50 Visual Admissions and CCR Title 17, with a maximum of 40 percent opacity, and Rule 51 Nuisance. Provide each blaster with an air fed helmet. Provide control for collecting girt and dust from the abrasive operations.
- H. Retarder Finish: Expose fine aggregate in concrete slab surfaces where indicated as follows:
 - 1. Immediately after float finishing, spray-apply chemical surface retarder to concrete slab according to manufacturer's written instructions for aggregate exposure/etch depth indicated on Drawings.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.12 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.

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- c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
- 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.
- 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
- 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.13 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
 - 1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 - 2. Do not apply to concrete that is less than seven days' old.
 - 3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.14 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least six month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

3.15 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and onehalf parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 - 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles.

Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.16 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Engage a qualified testing and inspecting agency, approved by the Owner, to perform tests and inspections and to submit reports.
- B. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Steel reinforcement welding.
 - 3. Headed bolts and studs.
 - 4. Verification of use of required design mixture.
 - 5. Concrete placement, including conveying and depositing.
 - 6. Curing procedures and maintenance of curing temperature.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - 6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
 - 7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

- a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
- b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
- 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- 9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- 10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- 11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- 12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
- 13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- 14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.
- D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

3.17 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03300

SECTION 05120 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Structural steel.
 - 2. Grout.
- B. Related Sections:
 - 1. Division 5 Section "Metal Fabrications" for miscellaneous steel fabrications and other metal items not defined as structural steel.
 - 2. Division 9 painting Sections for surface-preparation and priming requirements for high performance coating.

1.3 DEFINITIONS

- A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- B. Seismic-Load-Resisting System: Elements of structural-steel frame designated as "SLRS" or along grid lines designated as "SLRS" on Drawings, including columns, beams, and braces and their connections.
- C. Demand Critical Welds: Those welds, the failure of which would result in significant degradation of the strength and stiffness of the Seismic-Load-Resisting System and which are indicated as "Demand Critical" or "Seismic Critical" on Drawings.

1.4 PERFORMANCE REQUIREMENTS

- A. Connections: Provide details of simple shear connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.
- B. Moment Connections: Type FR, fully restrained.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication of structural-steel components.

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- 1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
- 2. Include embedment drawings.
- 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
- 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.
- 5. Identify members and connections of the seismic-load-resisting system.
- 6. Identify demand critical welds.
- 7. For structural-steel connections indicated to comply with design loads, include structural design data signed and sealed by the qualified professional engineer responsible for their preparation.
- 8. Identify stainless and galvanized structural and miscellaneous steel that are passivated and not passivated.
- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code Steel," for each welded joint whether prequalified or qualified by testing, including the following:
 - 1. Power source (constant current or constant voltage).
 - 2. Electrode manufacturer and trade name, for demand critical welds.
- D. Qualification Data: For qualified professional engineer and testing agency.
- E. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- F. Mill test reports for structural steel, including chemical and physical properties.
- G. Product Test Reports: For the following:
 - 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 - 2. Direct-tension indicators.
 - 3. Tension-control, high-strength bolt-nut-washer assemblies.
 - 4. Shear stud connectors.
 - 5. Shop primers.
 - 6. Nonshrink grout.

1.6 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.
- C. Shop-Painting Applicators: Qualified according to AISC's Sophisticated Paint Endorsement P3 or SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code Steel."
- E. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC 303.

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- 2. AISC 341 and AISC 341s1.
- 3. AISC 360.
- 4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
 - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
 - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
 - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
 - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

1.8 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

- A. Angles: ASTM A276/A 276M stainless steel 304.
- B. Plate ASTM A 240/A 240M stainless steel
- C. Corrosion-Resisting Structural-Steel Shapes, Plates, and Bars: ASTM A 588/A 588M, Grade 50.
- D. Stainless Steel 316 Cold-Formed Hollow Structural Sections: ASTM A 312/A 312M, structural tubing.
- E. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS, CONNECTORS, AND ANCHORS

- A. Headed Anchor Rods: As indicated on Drawings, straight.
 - 1. Nuts: Stainless Steel

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- 2. Plate Washers: Stainless steel.
- 3. Washers: Stainless Steel

2.3 PRIMER

- A. Primer: Comply with Division 9 Painting Sections and Division 9 "High-Performance Coatings".
- B. Galvanizing Repair Paint: MPI#19 or SSPC-Paint 20 and ASTM A 780.

2.4 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.
 - 1. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
 - 2. Mark and match-mark materials for field assembly.
 - 3. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.
- C. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- D. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 3, "Power Tool Cleaning."
- E. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.
- F. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.
 - 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 - 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 - 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.5 SHOP CONNECTIONS

- A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 - 1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.6 SHOP PRIMING

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- A. Shop prime steel surfaces except the following:
 - 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
 - 2. Surfaces to be field welded.
 - 3. Surfaces to be high-strength bolted with slip-critical connections.
 - 4. Galvanized surfaces.
- B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
 - 1. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 - 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

2.7 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123/A 123M.
 - 1. Fill vent and drain holes that will be exposed in the finished Work unless they will function as weep holes, by plugging with zinc solder and filing off smooth.
- B. Galvanized Finish: All galvanizing finishes that are exposed to view are considered architectural finishes and shall be finished smooth, continuous, and without gross unevenness. Steel composition shall be compatible with hot dipped galvanizing process. General roughness, dull and mottled appearances are not acceptable.
- C. Touch up all damaged galvanized finish due to installation, welding, threading or other work with galvanizing repair compound. Prepare surfaces to receive compound by grinding to bare metal or by chemically etching. Compound shall be applied in multiple coats to achieve a minimum dry film thickness of 8 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
 - 1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
 - 1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Base Bearing and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of baseplate.
 - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.
- G. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

3.4 FIELD CONNECTIONS

A. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

- 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
- 2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
- 3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency approved by the Owner to inspect field welds and high-strength bolted connections.
- B. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.
 - 1. In addition to visual inspection, field welds will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- C. In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
 - 1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
 - 2. Conduct tests on additional shear connectors if weld fracture occurs on shear connectors already tested, according to requirements in AWS D1.1/D1.1M.
- D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.6 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.
 - 1. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Clean and prepare surfaces by cleaning method recommended by high performance coating manufacturer.

END OF SECTION 05120

STRUCTURAL STEEL FRAMING Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel framing and supports for overhead doors.
 - 2. Steel framing and supports for countertops.
 - 3. Steel framing and supports for mechanical and electrical equipment.
 - 4. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 5. Metal bollards.
 - 6. Metal downspout boots.
 - 7. Loose bearing and leveling plates for applications where they are not specified in other Sections.
 - 8. Custom stainless steel grab bar.
- B. Products furnished, but not installed, under this Section:
 - 1. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
 - 2. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
- C. Related Sections:
 - 1. Division 3 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slottedchannel inserts, wedge-type inserts, and other items cast into concrete.
 - 2. Division 4 Section "Unit Masonry Assemblies" for installing anchor bolts, and other items built into unit masonry.
 - 3. Division 5 Section "Structural Steel Framing."
 - 4. Division 5 Section "Decorative Metal Railings."
 - 5. Division 6 Sections for metal framing anchors and timber connectors.
 - 6. Division 6 Section "Exterior Finish Carpentry" for perforated metal stair risers.
 - 7. Division 9 Painting Sections for surface-preparation and priming requirement.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Nonslip aggregates and nonslip-aggregate surface finishes.
 - 2. Metal nosings and treads.
 - 3. Paint products.

- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
 - 2. Identify galvanized structural and miscellaneous steel that are passivated and not passivated.
- C. Samples for Verification: For each type and finish of extruded nosing.
- D. Qualification Data: For qualified professional engineer.
- E. Welding certificates.
- F. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.4 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code Steel."
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code Aluminum."
 - 3. AWS D1.6, "Structural Welding Code Stainless Steel."

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.6 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages and steel weld plates and angles for casting into concrete. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

- A. Steel Plates and Bars: ASTM A 276/A 276M; stainless steel 304
- B. Steel Tubing: ASTM A 312 stainless steel 316

2.3 NONFERROUS METALS

- A. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
- B. Bronze Extrusions: ASTM B 455, Alloy UNS No. C38500 (extruded architectural bronze).
- C. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).
- D. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.
- E. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, where built into exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
 - 2. Provide stainless-steel fasteners for fastening nickel silver.
 - 3. Provide bronze fasteners for fastening bronze.
- B. Slotted-Channel Inserts: Cold-formed, hot-dip galvanized-steel box channels (struts) complying with MFMA-4, 1-5/8 by 7/8 inches by length indicated with anchor straps or studs not less than 3 inches long at not more than 8 inches o.c. Provide with temporary filler and tee-head bolts, complete with washers and nuts, all zinc-plated to comply with ASTM B 633, Class Fe/Zn 5, as needed for fastening to inserts.

2.5 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Division 9 Painting Sections and Division 9 "High-Performance Coatings."
- B. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.6 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.

2.8 MISCELLANEOUS STEEL TRIM

A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize miscellaneous steel trim.

2.9 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 40 steel pipe.
- B. Prime bollards with zinc-rich primer.

2.10 PIPE GUARDS

- A. Fabricate pipe guards from 3/8-inch- thick by 12-inch- wide steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch clearance between pipe and pipe guard. Drill each end for two 3/4-inch anchor bolts.
- B. Galvanize pipe guards.

2.11 METAL DOWNSPOUT BOOTS

- A. Provide downspout boots made from cast iron in heights indicated with inlets of size and shape to suit downspouts. Provide units with flanges and holes for countersunk anchor bolts.
 - 1. Outlet: Horizontal, to discharge into pipe.
- B. Prime cast iron downspout boots with primer specified in Division 9 Section "High-Performance Coatings."

2.12 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

2.13 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2.14 CUSTOM STAINLESS STEEL GRAB BAR

- A. Fabricate custom shape grab bar as indicated.
- 2.15 FINISHES, GENERAL

METAL FABRICATIONS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.16 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Galvanized Finish: All galvanizing finishes that are exposed to view are considered architectural finishes and shall be finished smooth, continuous, and without gross unevenness. Steel composition shall be compatible with hot dipped galvanizing process. General roughness, dull and mottled appearances are not acceptable.
- C. Touch up all damaged galvanized finish due to installation, welding, threading or other work with galvanizing repair compound. Prepare surfaces to receive compound by grinding to bare metal or by chemically etching. Compound shall be applied in multiple coats to achieve a minimum dry film thickness of 8 mils.
- D. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, or masonry, or unless otherwise indicated.
 - 1. Shop prime with zinc-rich primer for interior items.
 - 2. Shop prime with primer specified in Division 9 Section "High-Performance Coatings" for exterior items.
- E. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- F. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

3.3 INSTALLING METAL BOLLARDS

- A. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- B. Fill bollards solidly with concrete, mounding top surface to shed water.

3.4 INSTALLING PIPE GUARDS

A. Provide pipe guards at exposed vertical pipes in parking area where not protected by curbs or other barriers. Install by bolting to wall or column with expansion anchors. Provide four 3/4-inch bolts at each pipe guard. Mount pipe guards with top edge 26 inches above driving surface.

3.5 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
 - 1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations unless otherwise indicated.
 - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.6 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 09 painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

SECTION 05730 - DECORATIVE METAL RAILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel guardrail with stainless-steel, wire-rope guard infill, and wood top rail.
 - 2. Aluminum guardrail, handrails and brackets.

B. Related Sections:

- 1. Division 6 Section "Exterior Finish Carpentry" for wood top rail of guardrail.
- 2. Division 9 Section "High-Performance Costing" for priming and finishes, steel guardrail, handrail, and brackets

1.3 DEFINITIONS

A. Railings: Guards, handrails, and similar devices used for protection of occupants at opensided floor areas, pedestrian guidance and support, visual separation, or wall protection.

1.4 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design railings, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. General: In engineering railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
 - 1. Stainless Steel: 60 percent of minimum yield strength.
 - 2. Aluminum: Type 6061 Marine Grade or Approved Equal
- C. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
 - b. Infill load and other loads need not be assumed to act concurrently.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.5 SUBMITTALS

- A. Product Data: For the following:
 - 1. Manufacturer's product lines of railings assembled from standard components.
 - 2. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Identify galvanized structural and miscellaneous steel that are passivated and not passivated.
- C. Samples for Initial Selection: For products involving selection of color, texture, or design, including mechanical finishes.
- D. Samples for Verification: For each type of exposed finish required.
 - 1. Sections of each distinctly different linear railing member, including handrails, top rails, and stanchions.
 - 2. Fittings and brackets.
 - 3. Welded connections.
 - 4. Assembled Samples of railing systems, made from full-size components, including top rail, stanchions, handrail, and infill. Show method of finishing members at intersections. Samples need not be full height.
- E. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Qualification Data: For qualified professional engineer.
- G. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- H. Welding certificates.
- I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.
- 1.6 QUALITY ASSURANCE
 - A. Source Limitations: Obtain each type of railing from single source from single manufacturer.
 - B. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including structural analysis, preconstruction testing, field testing, and in-service performance.

- 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- C. Product Options: Drawings indicate size, profiles, and dimensional requirements of railings and are based on the specific system indicated. Refer to Division 01 Section "Product Requirements."
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- D. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code Aluminum."
 - 3. AWS D1.6, "Structural Welding Code Stainless Steel."
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockups for each form and finish of railing consisting of two posts, top rail, infill area, and anchorage system components that are full height and are not less than one panel or segment in length.
 - 2. Approved mockups may become part of the completed Work.
- F. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION AND SCHEDULING

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not suit structural performance requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Aluminum Decorative Railings:
 - a. Architectural Metal Works.
 - b. Blum, Julius & Co., Inc.
 - c. Blumcraft of Pittsburgh.
 - d. CraneVeyor Corp.

- e. Livers Bronze Co.
- f. Tri Tech, Inc.
- g. Sapa North America
- h. CR Laurence
- i. Viva Railings

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Same metal and finish as supported rails unless otherwise indicated.
 - 1. Provide cast-metal brackets with flange tapped for concealed anchorage to threaded hanger bolt.
 - 2. Provide either formed- or cast-metal brackets with predrilled hole for exposed bolt anchorage.

2.3 FERROUS METAL

- A. Steel Pipe: ASTM A 53/A 52M, standard weight, Schedule 40.
- B. Steel Plate, Shapes, and Bar: ASTM A 36/A 36M.

2.4 STAINLESS STEEL

- A. Wire Rope and Fittings:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cable Connection (The).
 - b. Carl Stahl DecorCable, Inc.
 - c. Esmet, Inc.
 - d. Feeney Wire Rope & Rigging.
 - e. Hayn Enterprises, LLC.
 - f. Johnson, C. Sherman, Co., Inc.
 - g. Loos & Co., Inc.; Cableware Division.
 - h. Ronstan International Inc.
 - i. Secosouth, Inc.
 - 2. Wire Rope: 1-by-19 wire rope made from wire complying with ASTM A 492, Type 316.
 - 3. Wire-Rope Fittings: Connectors of types indicated, fabricated from stainless steel, and with capability to sustain, without failure, a load equal to minimum breaking strength of wire rope with which they are used.
 - 4. Provide clear PVC cover over wire rope.

2.5 MARINE GRADE ANODIZED ALUMINUM

- A. Guardrails and Handrails:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

DECORATIVE METAL RAILINGS

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- a. Architectural Metal Works.
- b. Blum, Julius & Co., Inc.
- c. Blumcraft of Pittsburgh.
- d. CraneVeyor Corp.
- e. Livers Bronze Co.
- f. Tri Tech, Inc.
- g. Sapa North America
- h. CR Laurence
- i. Viva Railings
- 2. Marine, Architectural Grade Type 6063 or Approved Equal
- 2.6 FASTENERS
 - A. Fastener Materials: Unless otherwise indicated, provide the following:
 - 1. Stainless-Steel Components: Type 316 stainless-steel fasteners.
 - 2. Hot-Dip Galvanized Steel Components: Type 316 stainless-steel fasteners where exposed. Hot-Dip zinc coating steel complying with ASTM A 153/A 153M for zinc coating.
 - 3. Dissimilar Metals: Type 316 stainless-steel fasteners.
 - B. Fasteners for Anchoring to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
 - C. Provide concealed fasteners for interconnecting railing components and for attaching railings to other work unless otherwise indicated or exposed fasteners are the standard fastening method for railings indicated.
 - 1. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.
 - D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - E. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.7 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Shop Primers: Provide primers that comply with Division 9 painting Sections and Division 9 Section "High-Performance Coatings."

- E. Intermediate Coats and Topcoats: Provide products that comply with Division 9 paining Sections and Division 9 Section "High-Performance Coatings."
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
 - 1. Water-Resistant Product: At all exterior locations, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.8 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Make up wire-rope assemblies in the shop to field-measured dimensions with fittings machine swaged. Minimize amount of turnbuckle take-up used for dimensional adjustment so maximum amount is available for tensioning wire ropes. Tag wire-rope assemblies and fittings to identify installation locations and orientations for coordinated installation.
- D. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- E. Form work true to line and level with accurate angles and surfaces.
- F. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.
- G. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- H. Connections: Fabricate railings with welded connections unless otherwise indicated.
- I. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 welds: no evidence of a welded joint.

- J. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
 - 1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- K. Form changes in direction as follows:
 - 1. By bending to smallest radius that will not result in distortion of railing member.
- L. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- M. Close exposed ends of hollow railing members with prefabricated end fittings.
- N. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns, unless clearance between end of rail and wall is 1/4 inch or less.
- O. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
- P. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- Q. For railing posts set in concrete, provide stainless-steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.
- 2.9 GENERAL FINISH REQUIREMENTS
 - A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 - B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.
 - C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
 - D. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.

2.10 STEEL AND IRON FINISHES

- A. Galvanized Railings:
 - 1. Hot-dip galvanize steel and iron railings, including hardware, after fabrication.
 - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
 - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
 - 4. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

- 5. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

2.11 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
- C. Directional Satin Finish: No. 4.
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- C. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Cover anchorage joint with flange of same metal as post, attached to post with set screws.
- C. Anchor posts to metal surfaces as indicated on drawings.

3.5 ATTACHING RAILINGS

A. Attach railing as shown on drawings.

3.6 ADJUSTING AND CLEANING

- A. Clean stainless steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.7 **PROTECTION**

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05730

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Framing with dimension lumber.
 - 2. Framing with timber.
 - 3. Framing with engineered wood products.
 - 4. Shear wall panels.
 - 5. Rooftop equipment bases and support curbs.
 - 6. Wood blocking, cants, and nailers.
 - 7. Wood furring and grounds.
 - 8. Wood sleepers.
 - 9. Utility shelving.
 - 10. Plywood backing panels.
- B. Related Requirements:
 - 1. Division 6 Section "Exterior Rough Carpentry" for elevated decks and other exterior construction made of wood.
 - 2. Division 6 Section "Sheathing."

1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Timber: Lumber of 5 inches nominal or greater in least dimension.
- D. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

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1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
 - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. Evaluation Reports: For the following, from ICC-ES:
 - 1. Wood-preservative-treated wood.
 - 2. Fire-retardant-treated wood.
 - 3. Engineered wood products.
 - 4. Shear panels.
 - 5. Power-driven fasteners.
 - 6. Powder-actuated fasteners.
 - 7. Expansion anchors.
 - 8. Metal framing anchors.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by grading agency.
 - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 15 percent unless otherwise indicated.
- C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
 - 1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4c for items in contact with the ground.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
 - 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
 - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or, omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

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- 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
- 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
- 4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
- 5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
 - 1. Use treatment that does not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fireretardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 - 4. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841. For enclosed roof framing, framing in attic spaces, and where high temperature fire-retardant treatment is indicated, provide material with adjustment factors of not less than 0.85 modulus of elasticity and 0.75 for extreme fiber in bending for Project's climatological zone.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
 - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or, omit marking and provide certificates of treatment compliance issued by testing agency.
- E. Application: Treat the following:
 - 1. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

- A. Non-Load-Bearing Interior Partitions: Standard, Stud, or No. 3 grade.
 - 1. Application: Interior partitions not indicated as load-bearing.
 - 2. Species:
 - a. Hem-fir; WCLIB, or WWPA.

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- b. Western woods; WCLIB or WWPA.
- B. Load-Bearing Partitions: No. 1 grade.
 - 1. Application: Exterior walls and interior load-bearing partitions.
 - 2. Species:
 - a. Douglas fir-larch; WCLIB or WWPA.
- C. Ceiling Joists: No. 2 grade.
 - 1. Species:
 - a. Douglas fir-larch; WCLIB or WWPA.
- D. Joists, Rafters, and Other Framing Not Listed Above: No. 1 grade.
 - 1. Species:
 - a. Douglas fir-larch; WCLIB or WWPA.
- E. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
 - 1. Application: Exposed exterior and interior framing indicated to receive a stained or natural finish.
 - 2. Species and Grade: As indicated above for load-bearing construction of same type.

2.5 TIMBER FRAMING

- A. Provide timber framing complying with the following requirements, according to grading rules of grading agency indicated:
 - 1. Species and Grade: Douglas fir-larch, Douglas fir-larch (north), or Douglas fir-south; No. 1 grade; NLGA, WCLIB, or WWPA.
 - 2. Maximum Moisture Content: 20 percent.
 - 3. Additional Restriction: Free of heart centers.

2.6 ENGINEERED WOOD PRODUCTS

- A. Engineered Wood Products, General: Products shall contain no urea formaldehyde.
- B. Source Limitations: Obtain each type of engineered wood product from single source from a single manufacturer.
- C. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boise Cascade Corporation.

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- b. Finnforest USA.
- c. Georgia-Pacific.
- d. Jager Building Systems Inc.
- e. Louisiana-Pacific Corporation.
- f. Pacific Woodtech Corporation.
- g. Roseburg Forest Products Co.
- h. Standard Structures Inc.
- i. Stark Truss Company, Inc.
- j. West Fraser Timber Co., Ltd.
- k. Weyerhaeuser Company.
- 2. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal- depth members.
- 3. Modulus of Elasticity, Edgewise: 2,000,000 psi.
- D. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Louisiana-Pacific Corporation.
 - b. Weyerhaeuser Company.
 - 2. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal- depth members.
 - 3. Modulus of Elasticity, Edgewise: 2,200,000 psi.

2.7 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Rooftop equipment bases and support curbs.
 - 4. Cants.
 - 5. Furring.
 - 6. Grounds.
 - 7. Utility shelving.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber and any of the following species:
 - 1. Hem-fir (north); NLGA.
 - 2. Mixed southern pine; SPIB.
 - 3. Spruce-pine-fir; NLGA.
 - 4. Hem-fir; WCLIB or WWPA.
 - 5. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
 - 6. Western woods; WCLIB or WWPA.
 - 7. Northern species; NLGA.
 - 8. Eastern softwoods; NeLMA.
- C. For utility shelving, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

- 1. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Premium or No. 2 Common (Sterling) grade; NeLMA, NLGA, WCLIB, or WWPA.
- 2. Mixed southern pine; No. 1 grade; SPIB.
- 3. Hem-fir or hem-fir (north); Select Merchantable or No. 1 Common grade; NLGA, WCLIB, or WWPA.
- 4. Spruce-pine-fir (south) or spruce-pine-fir; Select Merchantable or No. 1 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
- D. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
 - 1. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.
- E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.8 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.9 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 316 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.10 METAL FRAMING ANCHORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cleveland Steel Specialty Co.
 - 2. KC Metals Products, Inc.
 - 3. Phoenix Metal Products, Inc.
 - 4. Simpson Strong-Tie Co., Inc. (Basis of Design)
 - 5. USP Structural Connectors.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of basis-of-design products of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- C. Stainless-Steel Sheet: ASTM A 666, Type 316.
 - 1. Use for exterior and interior location.

2.11 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.
- C. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
 - 1. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.
- E. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- G. Do not splice structural members between supports unless otherwise indicated.
- H. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- I. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
 - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal- thickness.
 - 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
- J. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- K. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use copper naphthenate for items not continuously protected from liquid water.
- L. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in the California Building Code.
- M. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- N. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
 - 2. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.
- D. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal- size furring horizontally and vertically at 24 inches.
- C. Furring to Receive Gypsum Board Plaster Lath: Install 1-by-2-inch nominal- size furring vertically at 16 inches o.c.

3.4 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.
 - 1. For exterior walls, provide 2-by-6-inch nominal- and 2-by-4-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 2. For interior partitions and walls, provide 2-by-6-inch nominal- and 2-by-4-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
 - 1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.
 - 2. For load-bearing walls, provide double-jamb studs for openings 60 inches and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

3.5 FLOOR JOIST FRAMING INSTALLATION

- A. General: Install floor joists with crown edge up and support ends of each member with not less than 1-1/2 inches of bearing on wood or metal, or 3 inches on masonry. Attach floor joists as follows:
 - 1. Where supported on wood members, by toe nailing or by using metal framing anchors.
 - 2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.
- B. Fire Cuts: At joists built into masonry, bevel cut ends 3 inches and do not embed more than 4 inches.
- C. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 48 inches.
- D. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than 1/3 depth of joist; do not locate closer than 2 inches from top or bottom.
- E. Provide solid blocking of 2-inch nominal thickness by depth of joist at ends of joists unless nailed to header or band.
- F. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches or securely tie opposing members together. Provide solid blocking of 2-inch nominal thickness by depth of joist over supports.
- G. Anchor members paralleling masonry with 1/4-by-1-1/4-inch metal strap anchors spaced not more than 96 inches o.c., extending over and fastening to three joists. Embed anchors at least 4 inches into grouted masonry with ends bent at right angles and extending 4 inches beyond bend.
- H. Provide solid blocking between joists under jamb studs for openings.
- I. Under non-load-bearing partitions, provide double joists separated by solid blocking equal to depth of studs above.
 - 1. Provide triple joists separated as above, under partitions receiving ceramic tile and similar heavy finishes or fixtures.
- J. Provide bridging of type indicated below, at intervals of 96 inches o.c., between joists.
 - 1. Diagonal wood bridging formed from bevel-cut, 1-by-3-inch nominal- size lumber, doublecrossed and nailed at both ends to joists.
 - 2. Steel bridging installed to comply with bridging manufacturer's written instructions.

3.6 CEILING JOIST AND RAFTER FRAMING INSTALLATION

- A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.
 - 1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide 1-by-8-inch nominal-size or 2-by-4-inch nominal-size stringers spaced 48 inches o.c. crosswise over main ceiling joists.
- B. Rafters: Notch to fit exterior wall plates and toe nail or use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where

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06100 - 11 316 | Page rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

- 1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafters.
- 2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafter.
- C. Provide collar beams (ties) as indicated or, if not indicated, provide 1-by-6-inch nominal- size boards between every third pair of rafters, but not more than 48 inches o.c. Locate below ridge member, at third point of rafter span. Cut ends to fit roof slope and nail to rafters.
- D. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

3.7 TIMBER FRAMING INSTALLATION

- A. Install timber with crown edge up and provide not less than 4 inches of bearing on supports. Provide continuous members unless otherwise indicated; tie together over supports as indicated if not continuous.
- B. Treat ends of timber beams and posts exposed to weather by dipping in water-repellent preservative for 15 minutes.

3.8 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06100

SECTION 06150 - WOOD DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior wood decks.
- B. Related Sections:
 - 1. Division 6 Section "Rough Carpentry" for dimension lumber items associated with wood decking.
 - 2. Division 6 Section "Exterior Finish Carpentry" for exterior stair treads and trim.
 - 3. Division 9 Section "Wood Stains and Transparent Finishes" for penetrating sealer for wood decking.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. For preservative-treated wood products, include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
- B. Samples: 24 inches long, showing the range of variation to be expected in appearance of wood decking.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Schedule delivery of wood decking to avoid extended on-site storage and to avoid delaying the Work.
- B. Store materials under cover and protected from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings. Stack wood decking with surfaces that are to be exposed in the final Work protected from exposure to sunlight.

PART 2 - PRODUCTS

2.1 WOOD DECKING, GENERAL

A. General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

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- B. Moisture Content: Provide wood decking with 15 percent maximum moisture content at time of dressing.
- C. Supplier: The following is one of the available suppliers:
 - 1. Tess Lindsey WOODPLY FOREST PRODUCTS Tel.: 530-365-2701 Cell: 530-524-3880

2.2 WOOD DECKING

- A. Decking Species: Brazilian Redwood.
- B. Decking Nominal Size: As indicated on Drawings.
- C. Decking Grade: FAS (kiln-dried).
- D. Grade Stamps: Factory mark each item with grade stamp of grading agency. Apply grade stamp to surfaces that will not be exposed to view.
- E. Face Surface: Smooth.
- F. Edge: Eased edges.

2.3 ACCESSORY MATERIALS

- A. Fasteners for Wood Decking: Provide fastener size and type complying with decking standard for thickness of deck used.
- B. Fastener: Type 316 stainless steel screws.
- C. Sealant: Elastomeric joint sealant complying with requirements in Division 7 Section "Joint Sealants" for Use NT (nontraffic) and for Uses M, G, A, and, as applicable to joint substrates indicated, O joint substrates.
 - 1. Use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. End Sealer: Clear, aqueous wax sealer as recommended by manufacturer for exterior hardwood use.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. UC Coatings; Anchorseal
 - b. Or approved equal.
- E. Penetrating Sealer: Complying with Division 9 Section "Wood Stains and Transparent Finishes" and compatible with topcoats specified for use over it.

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2.4 FABRICATION

A. Seal Coat: After fabricating and surfacing decking, apply a saturation coat of penetrating sealer as recommended by fabricator.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Cut lumber to required lengths. Seal ends immediately after cutting with aqueous wax end sealer.

3.3 INSTALLATION

- A. Locate end joints for controlled random lay-up.
 - 1. Use #7 x 2 ¹/₄" trim head screws for decking (countersink) or as indicated on Drawings (for decking over steel supports)
 - 2. Two screws minimum per board at each joist or support.
- B. Set wood decking to required levels and lines, with members plumb, true to line, cut, and fitted. Fit wood decking to other construction; scribe and cope as needed for accurate fit.
- C. Apply finish to wood decking within two weeks of installation or as recommended by siding manufacturer/supplier to maintain natural, hardwood color.

3.4 ADJUSTING

A. Repair damaged surfaces and finishes after completing erection. Replace damaged decking if repairs are not approved by Architect.

3.5 PROTECTION

A. Protect installed products from damage from weather and other causes during construction.

END OF SECTION 06150

WOOD DECKING

SECTION 06160 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wall sheathing.
 - 2. Roof sheathing.
 - 3. Subflooring.
 - 4. Sheathing joint and penetration treatment.
- B. Related Requirements:
 - 1. Division 6 Section "Rough Carpentry" for plywood backing panels.
 - 2. Division 7 Section "Self-Adhering Air and Vapor Barriers" for water-resistant barrier applied over wall sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated plywood complies with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.4 INFORMATIONAL SUBMITTALS

- A. Evaluation Reports: For following products, from ICC-ES:
 - 1. Preservative-treated plywood.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardanttreated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

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1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PANEL PRODUCTS

- A. Plywood: Either DOC PS 1 or DOC PS 2 unless otherwise indicated.
- B. Oriented Strand Board: DOC PS 2.
- C. Thickness: As needed to comply with requirements specified, but not less than thickness indicated.
- D. Factory mark panels to indicate compliance with applicable standard.

2.2 PRESERVATIVE-TREATED PLYWOOD

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4b for items in contact with the ground.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.
- C. Application: Treat all plywood unless otherwise indicated.

2.3 WALL SHEATHING

- A. Plywood Wall Sheathing: Exterior sheathing.
 - 1. Span Rating: Not less than 32/16.
 - 2. Nominal Thickness: Not less than 3/8 inch.
- B. Oriented-Strand-Board Wall Sheathing: Exposure 1 sheathing.
 - 1. Span Rating: Not less than 32/16.
 - 2. Nominal Thickness: Not less than 3/8 inch.
- C. Paper-Surfaced Gypsum Wall Sheathing: ASTM C 1396/C 1396M, gypsum sheathing; with water-resistant-treated core and with water-repellent paper bonded to core's face, back, and long edges.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.

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- b. G-P Gypsum Corporation.
- c. LaFarge North America Inc.
- d. National Gypsum Company.
- e. Temple-Inland Inc.
- f. United States Gypsum Co.
- 2. Type and Thickness: Type X, 5/8 inch thick.
- 3. Edge and End Configuration: Square.
- 4. Size: 48 by 96 inches or 48 by 108 inches for vertical installation.
- D. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/1177M.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corporation; GlasRoc.
 - b. G-P Gypsum Corporation; Dens-Glass Gold.
 - c. Temple-Inland Inc.; GreenGlass
 - d. United States Gypsum Co.; Securock.
 - 2. Type and Thickness: Type X, 5/8 inch thick.
 - 3. Size: 48 by 96 inches 48 by 108 inches, or 48 by 120 inches for vertical installation.

2.4 ROOF SHEATHING

- A. Plywood Roof Sheathing: Exterior, Structural I sheathing.
 - 1. Span Rating: As indicated on Drawings.
 - 2. Nominal Thickness: As indicated on Drawings.
- B. Oriented-Strand-Board Roof Sheathing: Exposure 1, Structural I sheathing.
 - 1. Span Rating: As indicated on Drawings.
 - 2. Nominal Thickness: As indicated on Drawings.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. For roof and wall sheathing, provide fasteners of Type 316 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

2.6 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Paper-Surfaced or Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutralcuring silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other

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materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Division 7 Section "Joint Sealants."

- B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
 - 1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.
- C. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

2.7 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Framing: Formulation complying with APA AFG-01 and ASTM D 3498 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in the California Building Code.
- D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.
- E. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

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3.2 WOOD STRUCTURAL PANEL INSTALLATION

- A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
 - 1. Wall and Roof Sheathing:
 - a. Nail or screw to wood framing as indicated.
 - b. Space panels 1/8 inch apart at edges and ends.

3.3 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to wood framing with screws.
 - 2. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install boards with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent boards without forcing. Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each steel stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.
 - 2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- D. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.
 - 2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.
- E. Seal sheathing joints according to sheathing manufacturer's written instructions.
 - 1. Apply elastomeric sealant to joints and fasteners and trowel flat. Apply sufficient amount of sealant to completely cover joints and fasteners after troweling. Seal other penetrations and openings.
 - 2. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

END OF SECTION 06160

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SECTION 06201 - EXTERIOR FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Exterior standing and running trim.
 - 2. Lumber siding.
 - 3. Soffit board.
 - 4. Exterior wood bench
- B. Related Sections include the following:
 - 1. Division 5 Section "Decorative Metal Railing" for support of top rail of guardrail.
 - 2. Division 6 Section "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view and for structural wood decking and framing exposed to view.
 - 3. Division 9 Section "Wood Stain and Transparent Finishes" for finishing of exterior carpentry.
 - 4. Division 6 Section "Wood Decking" for elevated exterior wood deck.

1.3 DEFINITIONS

- A. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained. Include chemical treatment manufacturer's written instructions for finishing treated material.
 - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

- 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Samples for Initial Selection: For each type of siding indicated.
- C. Samples for Verification:
 - 1. For each species and cut of lumber and panel products, with 1/2 of exposed surface finished; 50 sq. in. for lumber and 8 by 10 inches for panels.
- D. Compliance Certificates:
 - 1. For lumber that is not marked with grade stamp.
 - 2. For preservative-treated wood that is not marked with treatment quality mark.
- E. Warranties: Special warranties specified in this Section.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation within and around stacks and under temporary coverings.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish can be applied without exposure to rain, snow, or dampness.
 - 1. For exterior ornamental wood columns, comply with manufacturer's written instructions and warranty requirements.
- B. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by ALSC's Board of Review.
 - 1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
 - 2. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.

- B. Softwood Plywood: DOC PS 1.
- C. Hardboard: AHA A135.4.
- D. Supplier for Exotic Wood: The following is one of the available suppliers:
 - 1. Tess Lindsey WOODPLY FOREST PRODUCTS Tel.: 530-365-2701 Cell: 530-524-3880

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS FOR NON-EXOTIC WOOD

- A. Water-Repellent Preservative Treatment by Nonpressure Process: AWPA N1 (dip, spray, flood, or vacuum-pressure treatment).
 - 1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC), combined with an insecticide containing chloropyrifos (CPF).
 - 2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
 - 3. Application: Where indicated.
- B. Preservative Treatment by Pressure Process:
 - 1. Lumber: AWPA C2. Kiln dry after treatment to a maximum moisture content of 19 percent.
 - 2. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 - 3. For exposed items indicated to receive transparent finish, do not use chemical formulations that contain colorants or that bleed through or otherwise adversely affect finishes.
 - 4. Do not use material that is warped or does not comply with requirements for untreated material.
 - 5. Mark lumber with treatment quality mark of an inspection agency approved by ALSC's Board of Review.
 - a. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or, omit marking and provide certificates of treatment compliance issued by inspection agency.
 - 6. Application: Where indicated.

2.3 STANDING AND RUNNING TRIM

- A. Lumber Trim for Clear Finish:
 - 1. Species and Grade: Brazilian Redwood, FAS (kiln-dried).
 - 2. Face Surface: Surfaced (smooth).
 - 3. Maximum Moisture Content: 15 percent.

2.4 LUMBER SIDING

A. Provide kiln-dried lumber siding complying with DOC PS 20.

EXTERIOR FINISH CARPENTRY

- B. Species and Grade: Brazilian Redwood, FAS.
- C. Pattern: Board siding, S4S, actual overall dimensions as indicated on drawings, measured on the face and thick edge at 15 percent maximum moisture content.

2.5 SOFFIT BOARD

- A. Species and Grade: Brazilian Redwood; FAS (kiln-dried).
- B. Thickness: As indicated.
- C. Surface: Surfaced (smooth).

2.6 STAIRS AND RAILINGS

- A. Stairs:
 - 1. Treads: Thickness as indicated, kiln-dried with nosing as indicated on Drawings.
 - a. Species and Grade: Brazilian Redwood, FAS.
 - 2. Risers: Perforated stainless steel sheet as manufactured by McNichols, Accurate Perforating, or approved equal.
- B. Top Rail at Guardrail: Brazilian Redwood, FAS (Kiln-dried); railing profile as indicated.

2.7 WOOD BENCH

- A. Species and Grade: Brazilian Redwood; FAS (kiln-dried).
- B. Thickness: As indicated.
- C. Surface: Surfaced (smooth).

2.8 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails or screws, in sufficient length to penetrate not less than 1-1/2 inches into wood substrate.
 - 1. For face-fastening siding, provide stainless steel ringed-shank siding nails unless hot-dip galvanized nails are used.
 - 2. For Ipe and Brazilian redwood, provide Type 316 stainless-steel fasteners.
 - 3. For pressure-preservative-treated wood, provide Type 316 stainless-steel fasteners.
 - 4. For applications not otherwise indicated, provide Type 316 stainless-steel fasteners.
- B. Wood Glue: Waterproof resorcinol glue recommended by manufacturer for exterior carpentry use.
- C. Flashing: Comply with requirements in Division 7 Section "Sheet Metal Flashing and Trim" for flashing materials installed in exterior finish carpentry.

- D. End Sealer: Clear, aqueous wax sealer as recommended by manufacturer for exterior hardwood use.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. UC Coatings; Anchorseal
 - b. Or approved equal.

2.9 FABRICATION

- A. Back out or kerf backs of standing and running trim wider than 5 inches, except members with ends exposed in finished work.
- B. Ease edges of lumber less than 1 inch in nominal thickness to 1/16-inch radius and edges of lumber 1 inch or more in nominal thickness to 1/8-inch radius.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials, unless otherwise indicated. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Install to tolerance of 1/8 inch in 96 inches for level and plumb. Install adjoining exterior finish carpentry with 1/32-inch maximum offset for flush installation and 1/16-inch maximum offset for reveal installation.
 - 3. Install stairs with no more than 3/16-inch variation between adjacent treads and risers and with no more than 3/8-inch variation between largest and smallest treads and risers within each flight.

- 4. Coordinate exterior finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate exterior finish carpentry.
- C. Seal ends of exotic hardwood lumber and trim immediately after cutting with aqueous wax end sealer.
- D. Apply finish to exotic hardwood lumber and trim within two weeks of installation or as recommended by siding manufacturer/supplier to maintain natural, hardwood color.

3.4 STANDING AND RUNNING TRIM INSTALLATION

- A. Install flat grain lumber with bark side exposed to weather.
- B. Install trim with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches long except where necessary.
 - 1. Use scarf joints for end-to-end joints.
 - 2. Stagger end joints in adjacent and related members.
- C. Fit exterior joints to exclude water. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
- D. Unless otherwise indicated, countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.

3.5 SIDING INSTALLATION

- A. Install siding to comply with manufacturer's written instructions.
- B. Horizontal Lumber Siding: Install siding as indicated.
- C. Flashing: Install metal flashing as indicated on Drawings and as recommended by siding manufacturer.
- D. Finish: Apply finish within two weeks of installation or as recommended by siding manufacturer/supplier to maintain natural, hardwood color.

3.6 STAIR AND RAILING INSTALLATION

- A. Treads and Risers at Exterior Stairs: Secure treads and risers as indicated and as recommended by tread supplier.
- B. Railings: Secure top rails to support as indicated.

3.7 ADJUSTING

A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.8 CLEANING

A. Clean exterior finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.9 **PROTECTION**

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 06201

SECTION 06402 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior plywood paneling.
 - 2. Wood cabinets.
 - 3. Solid-surfacing-material countertops.
 - 4. Interior trim, including interior doorframes and jambs
 - 5. Shop finishing of interior woodwork.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood furring, and shims, for installing woodwork and concealed within other construction before woodwork installation.
 - 2. Division 8 Section "Flush Wood Door" for field finishing door to match plywood paneling.
 - 3. Division 9 Section "Wood Stains and Transparent Finishes" for field finishing plywood paneling.

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

- A. Product Data: For panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, solid-surfacing material, cabinet hardware and accessories, and finishing materials and processes.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
 - 4. Apply WI-certified compliance label to first page of Shop Drawings.
- C. Samples for Initial Selection:

- 1. Shop-applied transparent finishes.
- 2. PVC edge material
- 3. Thermoset decorative panels.
- 4. Solid-surfacing materials.
- 5. Plywood panel products.
- D. Samples for Verification:
 - 1. Lumber with or for transparent finish, not less than 5 inches wide by 24 inches long, for each species and cut, finished on 1 side and 1 edge.
 - 2. Veneer-faced panel products with or for transparent finish, 8 by 10 inches, for each species and cut. Include at least one face-veneer seam and finish as specified.
 - 3. Thermoset decorative-panels, 8 by 10 inches, for each type, color, pattern, and surface finish, with edge banding on 1 edge.
 - 4. Solid-surfacing materials, 6 inches square.
 - 5. Corner pieces as follows:
 - a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
- E. Product Certificates: For each type of product, signed by product manufacturer.
- F. Woodwork Quality Standard Compliance Certificates: WI-certified compliance certificates.
- G. Qualification Data: For Installer.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Licensee of WI's Certified Compliance Program.
- B. Quality Standard: Unless otherwise indicated, comply with WI's "Manual of Millwork" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
 - 1. Provide WI-certified compliance labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.
 - 2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in

areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete and dry.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
 - 2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.
- B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 08 Section "Door Hardware" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of WI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Products: Comply with the following:
 - 1. Hardboard: AHA A135.4.
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
 - 3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 - 5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
- C. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

- 1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semiexposed edges.
- D. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Avonite, Inc.
 - b. E. I. du Pont de Nemours and Company. (Basis of Design)
 - c. Formica Corporation.
 - d. Nevamar Company, LLC; Decorative Products Div.
 - e. Wilsonart International; Div. of Premark International, Inc.
 - 2. Colors and Patterns: As selected by Architect from manufacturer's full range.
- E. Hardwood Veneer Plywood Paneling: Manufacturer's stock hardwood plywood panels complying with HPVA-HP-1, made without urea-formaldehyde adhesive, and finished with a tinted, protective coating.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Columbia Forest Products
 - b. Timber Products Company
 - c. Western Panel Manufacturing, Inc.
 - d. Cherokee Wood Products
 - e. Anderson Plywood
 - f. or approved equal.
- F. Pre-Finished Finnish Birch Plywood: Finnish birch plywood with improved face and core veneers composed of 1.5mm cross-banded Finland birch hardwood veneers and bonded with phenolic resin adhesive; faces on both sides are pre-surfaced with a colored, translucent phenolic resin film.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Finland Color Plywood Corporation; "KoskiDecor" (Basis of Design)
 - b. or approved equal.

2.2 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 08 Section "Door Hardware (Scheduled by Describing Products)."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, selfclosing.
- C. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.
- D. Catches: Magnetic catches, BHMA A156.9, B03141.
- E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- F. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.

- G. Drawer Slides: BHMA A156.9, B05091.
 - 1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zincplated steel ball-bearing slides.
 - 2. Box Drawer Slides: Grade 1HD-100; for drawers not more than 6 inches high and 24 inches wide.
 - 3. File Drawer Slides: Grade 1HD-200; for drawers more than 6 inches high or 24 inches wide.
 - 4. Keyboard Slides: Grade 1HD-100; for computer keyboard shelves.
- H. Door Locks: BHMA A156.11, E07121.
- I. Drawer Locks: BHMA A156.11, E07041.
- J. Grommets for Cable Passage through Countertops: 2-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
 - 1. Product: Subject to compliance with requirements, provide "SG series" by Doug Mockett & Company, Inc.
- K. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Stainless Steel: BHMA 630.
- L. For concealed hardware, provide finish that complies with product class requirements in BHMA A156.9 for BHMA finish number indicated.
 - 1. Satin Stainless Steel: BHMA 630.

2.3 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Contact Adhesive: 250 g/L.
- E. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement or Contact cement.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.
- F. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Fry Reglet Corp.
- b. Gordon, Inc.
- c. Or approved equal.
- 2. Aluminum: Alloy and temper with not less than then strength and durability properties of ASTM B221, Alloy 6063-T5.
- 3. Finish: clear anodized, Class I.

2.4 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom-grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
 - 2. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.
 - 3. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
 - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.
 - 2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 - 1. Seal edges of openings in countertops with a coat of varnish.

2.5 INTERIOR PLYWOOD PANELING

- A. Hardwood Veneer Plywood Paneling:
 - 1. Face Veneer Species and Cut: Select White Ash, Quarter-sliced
 - a. Face Grade: A
 - b. Matching of Adjacent Veneer Leaves: Book match.
 - c. Veneer Matching within Panel Face: Balance match.
 - 2. Backing Veneer Species: Same species as face veneer
 - a. Back Grade: 3

- 3. Panel-Matching Method: Match panels within each separate area by the following method:
 - a. Premanufactured sets used full width as indicated
- 4. Vertical Panel-Matching Method: Panel vertical slip match; panels are slip matched from lower panels to upper panels.
- 5. Construction Core: Composite core, constructed of veneer inner plies with MDF crossbands.
- 6. Thickness: 3/4 inch
- 7. Panel Size: 48 by 96 inches
- 8. Glue bond: Type II (Interior)
- 9. Edge Treatment: Sealed
- 10. Finish: semi-transparent tinted stain with protective coating
 - a. Stain color: As selected by Architect from manufacturer's full range.
- B. Pre-Finished Finnish Birch Plywood Paneling (Fin-Ply):
 - 1. Face Veneers (both sides) Species and Cut: Finnish birch, short-grain
 - a. Face Grade: Premium
 - b. Veneer Matching within Panel Face: Balance match.
 - 2. Thickness: 3/4 inch (14-ply)
 - 3. Panel Size: 48 by 96 inches
 - 4. Edge Treatment: Sealed
 - 5. Finish coating color: As selected by Architect from manufacturer's full range.

2.6 WOOD CABINETS

- A. Grade: Premium.
- B. WI Construction Style: Style A, Frameless.
- C. WI Construction Type: Type I, multiple self-supporting units rigidly joined together.
- D. WI Door and Drawer Front Style: Flush overlay.
- E. Wood Species and Cut for Exposed Surfaces: Prefinished Finnish Birch Plywood (Fin-ply), per paragraph 2.1.G and 2.5.B.
 - 1. Grain Direction: Vertically for drawer fronts, doors, and fixed panels.
 - 2. Matching of Veneer Leaves: Book match.
 - 3. Vertical Matching of Veneer Leaves: End match.
 - 4. Veneer Matching within Panel Face: Balance match.
- F. Semiexposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: Same species and cut indicated for exposed surfaces.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber, same species indicated for exposed surfaces.
 - 3. Drawer Bottoms: Hardwood plywood.

G. Provide dust panels of ¹/₄-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers, unless located directly under tops.

2.7 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Solid-Surfacing-Material Thickness: 3/4 inch.
- B. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 - 1. As selected by Architect from manufacturer's full range.
- C. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate tops with shop-applied edges of materials and configuration indicated.
 - 2. Fabricate tops with shop-applied backsplashes.
- D. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

2.8 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. Grade: Premium.
- B. Wood Species and Cut: Select White Ash.
- C. For trim items wider than available lumber, use veneered construction. Do not glue for width.
- D. For rails wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.
- E. Backout or groove backs of flat trim members, and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- F. Assemble casings in plant except where limitations of access to place of installation require field assembly.

2.9 INTERIOR FRAMES AND JAMBS FOR TRANSPARENT FINISH

- A. Grade: Premium.
- B. Wood Species and Cut: Match wood doors.
- C. For frames or jambs wider than available lumber, use veneered construction. Do not glue for width.

2.10 SHOP FINISHING

A. Grade: Provide finishes of same grades as items to be finished.

- B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- C. General: Shop finish transparent-finished interior architectural woodwork at fabrication shop as specified in this Section. Refer to Division 09 painting Sections for field finishing architectural woodwork.
- D. Shop Priming: Shop prime transparent-finished architectural woodwork with stain, including backpriming (if any), other pretreatments, and first coat of finish as specified in Division 9 section "Wood Stains and Transparent Finishes". Seal all edges and edges of cutouts with first coat of finish.
- E. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
 - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.
- F. Transparent Finish:
 - 1. Grade: Custom.
 - 2. WI Finish System 1d.: Polyurethane.
 - 3. Staining: Match approved sample for color.
 - 4. Wash Coat for Stained Finish: Apply wash-coat sealer to woodwork made from closed-grain wood before staining and finishing.
 - 5. Filled Finish for Open-Grain Woods: After staining (if any), apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match stained wood.
 - a. Apply wash-coat sealer after staining and before filling.
 - 6. Sheen: Satin, 31-45 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

- A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- F. Paneling: Anchor paneling to supporting substrate. Do not use face fastening, unless otherwise indicated.
 - 1. Install flush paneling with no more than 1/16 inch in 96-inch vertical cup or bow and 1/8 inch in 96-inch horizontal variation from a true plane.
- G. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
 - 1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 2. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head sized for 1-inch penetration into wood framing, blocking or hanging strips.
- H. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
 - 3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
 - 4. Caulk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."
- I. Standing and Running Trims: Install with minimum number of joints possible, using full-length pieces from maximum length of lumber available to greatest extent possible. Do not use pieces less than 96 inches long, except where shorter length pieces are necessary. Install trim no more variation from a straight line more then 1/8" in 96 inches.
- J. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.
- K. Refer to Division 09 Sections for final finishing of installed architectural woodwork not indicated to be shop finished.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

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- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06402

SECTION 07132 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Modified bituminous sheet waterproofing.
 - 2. Modified bituminous sheet waterproofing, fabric reinforced.
 - 3. Molded-sheet drainage panels.
- B. Related Sections include the following:
 - 1. Division 7 Section "Joint Sealants" for joint-sealant materials and installation.

1.3 SUBMITTALS

- A. Product Data: Include manufacturer's written instructions for evaluating, preparing, and treating substrate, technical data, and tested physical and performance properties of waterproofing.
- B. Samples: For the following products:
 - 1. 12-by-12-inch square of waterproofing and flashing sheet.
 - 2. 4-by-4-inch square of drainage panel.
- C. Installer Certificates: Signed by manufacturers certifying that installers comply with requirements.
- D. Qualification Data: For Installer.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for waterproofing.
- F. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that is approved or licensed by waterproofing manufacturer for installation of waterproofing required for this Project.
- B. Source Limitations: Obtain waterproofing materials, protection course, and molded-sheet drainage panels through one source from a single manufacturer.

- C. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver liquid materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by waterproofing manufacturer.
- C. Remove and replace liquid materials that cannot be applied within their stated shelf life.
- D. Store rolls according to manufacturer's written instructions.
- E. Protect stored materials from direct sunlight.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
 - 1. Do not apply waterproofing in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.7 WARRANTY

- A. Special Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to replace waterproofing material that does not comply with requirements or that fails to remain watertight within specified warranty period.
 - 1. Warranty does not include failure of waterproofing due to failure of substrate prepared and treated according to requirements or formation of new joints and cracks in substrate exceeding 1/16 inch in width.
 - 2. Warranty Period: Five years from date of Substantial Completion.
- B. Special Installer's Warranty: Specified form, on warranty form at end of this Section, signed by Installer, covering Work of this Section, for warranty period of two years.
 - 1. Warranty includes removing and reinstalling protection board, drainage panels, insulation, pedestals, and pavers on plaza decks.

PART 2 - PRODUCTS

2.1 MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Modified Bituminous Sheet: Not less than 60-mil- thick, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated to a 4-mil- thick, polyethylene film with release liner on adhesive side and formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. American Hydrotech, Inc.; VM 75.
 - b. Carlisle Coatings & Waterproofing Inc.; CCW MiraDRI 860/861.
 - c. Grace, W. R. & Co.; Bituthene 3000 or 4000.
 - d. Meadows, W. R., Inc.; SealTight Mel-Rol.
 - e. Pecora Corporation; Duramem 700-SM.
 - f. Polyguard Products; Polyguard 650.
 - 2. Physical Properties:
 - a. Tensile Strength: 250 psi minimum; ASTM D 412, Die C, modified.
 - b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
 - c. Low-Temperature Flexibility: Pass at minus 20 deg F; ASTM D 1970.
 - d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836.
 - e. Puncture Resistance: 40 lbf minimum; ASTM E 154.
 - f. Hydrostatic-Head Resistance: 150 feet minimum; ASTM D 5385.
 - g. Water Absorption: 0.15 percent weight-gain maximum after 48-hour immersion at 70 deg F; ASTM D 570.
 - h. Vapor Permeance: 0.05 perms; ASTM E 96, Water Method.
- B. Modified Bituminous Sheet, Fabric Reinforced: 60-mil- thick, self-adhering sheet consisting of rubberized-asphalt membrane embedded in spun-bonded polyester or fiberglass nonwoven fabric reinforcement laminated to a 0.50-mil- thick polyester film with release liner on adhesive side.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Protecto Wrap Company; Jiffy Seal 140/60.
 - b. Royston Laboratories, Div. of Chase Corporation; Royal-Gard.
 - 2. Physical Properties:
 - a. Pliability: No cracks when bent 180 degrees over a 1-inch mandrel at minus 25 deg F; ASTM D 146.
 - b. Hydrostatic-Head Resistance: 150 feet minimum.
 - c. Vapor Permeance: 0.05 perms; ASTM E 96, Water Method.

2.2 AUXILIARY MATERIALS

- A. General: Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
 - 1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.

- B. Primer: Liquid solvent-borne primer recommended for substrate by manufacturer of sheet waterproofing material.
- C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by manufacturer of sheet waterproofing material.
- D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, trowel grade or low viscosity.
- E. Substrate Patching Membrane: Low-viscosity, two-component, asphalt-modified coating.
- F. Sheet Strips: Self-adhering, rubberized-asphalt sheet strips of same material and thickness as sheet waterproofing.
- G. Mastic, Adhesives, and Tape: Liquid mastic and adhesives, and adhesive tapes recommended by waterproofing manufacturer.
 - 1. Detail Tape: Two-sided, pressure-sensitive, self-adhering reinforced tape, 4-1/2 inches wide, with a tack-free protective adhesive coating on one side and release film on self-adhering side.
 - 2. Detail Strips: 62.5-mil- thick, felt-reinforced self-adhesive strip, 9 inches wide, with release film on adhesive side.
- H. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch thick, predrilled at 9-inch centers.
- I. Protection Course for waterproofing membrane over mud slab: 72# mineral cap sheet.
- J. Protection Course: Fan folded, with a core of extruded-polystyrene board insulation faced one side or both sides with plastic film, nominal thickness 1/4 inch, with compressive strength of not less than 8 psi per ASTM D 1621, and maximum water absorption by volume of 0.6 percent per ASTM C 272.
- K. Protection Course: Unfaced, fan-folded, extruded-polystyrene board insulation, nominal thickness 1/4 inch with compressive strength of not less than 8 psi per ASTM D 1621.
- L. Protection Course: Extruded-polystyrene board insulation, unfaced, ASTM C 578, Type X, 1/2 inch thick.
- M. Protection Course: Molded-polystyrene board insulation, ASTM C 578, Type I, 0.90-lb/cu. ft. minimum density, 1-inch minimum thickness.

2.3 MOLDED-SHEET DRAINAGE PANELS

A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel: Manufactured composite subsurface drainage panels consisting of a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding No. 70 sieve laminated to one side with or without a polymeric film bonded to the other side of a studded, nonbiodegradable, molded-plastic-sheet drainage core, with a vertical flow rate of 9 to 15 gpm per ft.

PART 3 - EXECUTION

3.1 EXAMINATION

SELF-ADHERING SHEET WATERPROOFING

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- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
 - 1. Verify that concrete has cured and aged for minimum time period recommended by waterproofing manufacturer.
 - 2. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dustfree, and dry substrates for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.
- E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.
 - 1. Install sheet strips and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch or 1/8 inch for modified bituminous deck paving waterproofing.
- F. Bridge and cover isolation joints, expansion joints, and discontinuous deck-to-wall and deck-to-deck joints with overlapping sheet strips.
 - 1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.
- G. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
 - 1. Install membrane strips centered over vertical inside corners. Install 3/4-inch fillets of liquid membrane on horizontal inside corners and as follows:
 - a. At footing-to-wall intersections, extend liquid membrane each direction from corner or install membrane strip centered over corner.
- H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D 6135.

3.3 MODIFIED BITUMINOUS SHEET WATERPROOFING APPLICATION

A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and according to recommendations in ASTM D 6135.

- B. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.
- C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch- minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure watertight installation.
 - 1. When ambient and substrate temperatures range between 25 and 40 deg F, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F.
- D. Two-Ply Application: Install sheets to form a membrane with lap widths not less than 50 percent of sheet widths to provide a minimum of 2 thicknesses of sheet membrane over areas to receive waterproofing.
- E. Horizontal Application: Apply sheets from low point to high point to ensure that side laps shed water.
- F. Apply continuous sheets over sheet strips bridging substrate cracks, construction, and contraction joints.
- G. Seal exposed edges of sheets at terminations not concealed by metal counterflashings or ending in reglets with mastic.
- H. Install sheet waterproofing and auxiliary materials to tie into adjacent waterproofing.
- I. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions.
- J. Install protection course with butted joints over waterproofing membrane immediately.
 - 1. Molded-sheet drainage panels may be used in place of a separate protection course to vertical applications when approved by waterproofing manufacturer and installed immediately.
- K. Correct deficiencies in or remove sheet waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

3.4 MOLDED-SHEET DRAINAGE PANEL INSTALLATION

- A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, according to manufacturer's written instructions. Use adhesives that do not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.
 - 1. For vertical applications, install protection course before installing drainage panels.

3.5 FIELD QUALITY CONTROL

A. Engage a full-time site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions; surface preparation; membrane application, flashings, protection, and drainage components; and to furnish daily reports to Resident Engineer.

3.6 PROTECTION AND CLEANING

- A. Do not permit foot or vehicular traffic on unprotected membrane.
- B. Protect waterproofing from damage and wear during remainder of construction period.
- C. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07132

SECTION 07190 - WATER REPELLENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes penetrating water-repellent treatments for the following vertical and horizontal surfaces:
 - 1. Cast-in-place concrete.
 - 2. Concrete masonry unit.
- B. Related Sections:
 - 1. Division 3 Section "Cast-in-Place Concrete" for floor sealers and curing agent.
 - 2. Division 4 Section "Unit Masonry Assemblies" for concrete masonry.
- C. Chloride-Ion Intrusion in Concrete: NCHRP Report 244, Series II tests.
 - 1. Reduction in Chloride Content: 80 percent.

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Testing: Installed water repellents shall comply with performance requirements indicated, as evidenced by reports based on Project-specific preconstruction testing of existing substrate assemblies by a qualified testing agency.
 - 1. Select sizes and configurations of assemblies to adequately demonstrate capability of water repellents to comply with performance requirements.
 - 2. In addition to verifying performance requirements, use test applications to verify manufacturer's written instructions for application procedure and optimum rates of product application to substrate assemblies.
 - 3. Notify Resident Engineer seven days in advance of the dates and times when assemblies will be tested.

1.4 SUBMITTALS

- A. Preconstruction Testing: For each type of product indicated.
- B. Samples: For each type of water repellent and substrate indicated, 12 by 12 inches in size, with specified water-repellent treatment applied to half of each Sample.
- C. Qualification Data: For qualified Applicator.
- D. Product Certificates: For each type of water repellent, from manufacturer.

WATER REPELLENTS

- 1. Product is compatible with anti-graffiti coating.
- E. Preconstruction Testing Reports: For water-repellent-treated substrates.
- F. Field quality-control reports.
- G. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: An employer of workers trained and approved by manufacturer.
- B. Mockups: Apply water repellent to each type of substrate required.
 - 1. Locate each test application as directed by Resident Engineer.
 - 2. Size: 25 sq. ft.
 - 3. Final approval by Resident Engineer of water-repellent application will be from test applications.
- C. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Limitations: Proceed with application only when the following existing and forecasted weather and substrate conditions permit water repellents to be applied according to manufacturers' written instructions and warranty requirements:
 - 1. Building has been closed in for not less than 30 days before treating wall assemblies.
 - 2. Ambient temperature is above 40 deg F and below 100 deg F and will remain so for 24 hours.
 - 3. Substrate is not frozen and substrate-surface temperature is above 40 deg F and below 100 deg F.
 - 4. Rain or snow is not predicted within 24 hours.
 - 5. Not less than 24 hours have passed since surfaces were last wet.
 - 6. Windy conditions do not exist that might cause water repellent to be blown onto vegetation or surfaces not intended to be treated.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer and Applicator agree(s) to repair or replace materials that fail to maintain water repellency specified in "Performance Requirements" Article within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PENETRATING WATER REPELLENTS

A. Silane, Penetrating Water Repellent for concrete: Clear, containing 20 percent or more solids of alkyltrialkoxysilanes; with alcohol, mineral spirits, water, or other proprietary solvent carrier; and with 400 g/L or less of VOCs.

- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals, LLC; Enviroseal 20.
 - b. Evonik Degussa Corp.: Protectosil Aqua-Trete BH-N.
 - c. Pecora Corporation; KlereSeal 940-S VOC or KlereSeal 9100-S.
 - d. PROSOCO, Inc.; SL100 or SLX100.
 - e. Or Approved Equal.
- B. Silane/Siloxane-Blend, Penetrating Water Repellent for Concrete Masonry: Clear, silane and siloxane blend with 400 g/L or less of VOCs.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Construction Chemicals, LLC; Enviroseal Double 7 HD or Enviroseal PBT for concrete masonry.
 - b. Evonik Degussa Corporation; Protectosil Aqua-Trete EM.
 - c. Pecora Corporation; KlereSeal 910-W or KlereSeal 920-W.
 - d. PROSOCO, Inc.; Saltguard WB or Siloxane PD.
 - e. Or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements and conditions affecting performance of the Work.
 - 1. Verify that surfaces are clean and dry according to water-repellent manufacturer's requirements. Check moisture content in three representative locations by method recommended by manufacturer.
 - 2. Inspect for previously applied treatments that may inhibit penetration or performance of water repellents.
 - 3. Verify that there is no efflorescence or other removable residues that would be trapped beneath the application of water repellent.
 - 4. Verify that required repairs are complete, cured, and dry before applying water repellent.
 - 5. Verify the product is compatible with anti-graffiti coating.
- B. Test pH level according to water-repellent manufacturer's written instructions to ensure chemical bond to silica-containing or siliceous minerals.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Cleaning: Before application of water repellent, clean substrate of substances that could impair penetration or performance of product according to water-repellent manufacturer's written instructions and as follows:
 - 1. Cast-in-Place Concrete and Concrete Masonry: Remove oil, curing compounds, laitance, and other substances that inhibit penetration or performance of water repellents according to ASTM E 1857.

B. Protect adjoining work, including mortar and sealant bond surfaces, from spillage or blow-over of water repellent. Cover adjoining and nearby surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces. Cover live vegetation.

3.3 APPLICATION

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect the substrate before application of water repellent and to instruct Applicator on the product and application method to be used.
- B. Apply a heavy-saturation coating of water repellent, on surfaces indicated for treatment, using 15 psipressure spray with a fan-type spray nozzle to the point of saturation. Apply coating in dual passes of uniform, overlapping strokes. Remove excess material; do not allow material to puddle beyond saturation. Comply with manufacturer's written instructions for application procedure unless otherwise indicated.
- C. Apply a second saturation coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

3.4 FIELD QUALITY CONTROL

- A. Testing of Water-Repellent Material: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when water repellent is being applied:
 - 1. Engage the services of a qualified testing agency to sample water-repellent material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance of water-repellent material with product requirements.
 - 3. Owner may direct Contractor to stop applying water repellents if test results show material being used does not comply with product requirements. Contractor shall remove noncomplying material from Project site, pay for testing, and correct deficiency of surfaces treated with rejected materials, as approved by Resident Engineer..
- B. Coverage Test: In the presence of Resident Engineer, hose down a dry, repellent-treated surface to verify complete and uniform product application. A change in surface color will indicate incomplete application.
 - 1. Notify Resident Engineer seven days in advance of the dates and times when surfaces will be tested.
 - 2. Reapply water repellent until coverage test indicates complete coverage.

3.5 CLEANING

- A. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by waterrepellent application as work progresses. Correct damage to work of other trades caused by waterrepellent application, as approved by Resident Engineer.
- B. Comply with manufacturer's written cleaning instructions.

WATER REPELLENTS

END OF SECTION 07190

SECTION 07250 - WEATHER BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Building wrap.
 - 2. Flexible flashing.
- B. Related Requirements:
 - 1. Division 6 Section "Sheathing" for sheathing joint and penetration treatment.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For building wrap, include data on air and water-vapor permeance based on testing according to referenced standards.

1.4 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For water-resistive barrier and flexible flashing, from ICC-ES.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

- A. Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Chemical Company (The); Styrofoam Weathermate Plus Brand Housewrap.
 - b. DuPont (E. I. du Pont de Nemours and Company); Tyvek CommercialWrap.
 - c. Raven Industries Inc.; Fortress Pro Weather Protective Barrier.
 - d. Or Approved Equal.

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- 2. Water-Vapor Permeance: Not less than 150 g through 1 sq. m of surface in 24 hours per ASTM E 96/E 96M, Desiccant Method (Procedure A).
- 3. Air Permeance: Not more than 0.004 cfm/sq. ft. at 0.3-inch wg when tested according to ASTM E 2178.
- 4. Allowable UV Exposure Time: Not less than three months.
- B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.

2.2 MISCELLANEOUS MATERIALS

- A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.030 inch.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. DuPont (E. I. du Pont de Nemours and Company); DuPont Flashing Tape.
 - b. Grace Construction Products, a unit of W. R. Grace & Co. Conn.; Vycor Butyl Self Adhered Flashing.
 - c. Protecto Wrap Company; BT-25 XL for openings and PS-45 for roof.
 - d. Raven Industries Inc.; Fortress Flashshield.
 - e. Carlisle Coatings & Waterproofing; CCW-705-TWF Thru-Wall Flashing.
 - f. Fortifiber Building Systems Group; Fortiflash 25 or Fortiflash 40.
 - g. Grace Construction Products, a unit of W. R. Grace & Co. Conn.; Vycor Plus Self-Adhered Flashing or Vycor V40 Self-Adhered Flashing.
 - h. Polyguard Products, Inc.; Polyguard JT-20 Tape or Polyguard JT-30 Tape.
- B. Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.
- C. Nails and Staples: ASTM F 1667.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

- A. Cover exposed exterior surface of sheathing with water-resistive barrier securely fastened to framing immediately after sheathing is installed.
- B. Cover sheathing with water-resistive barrier as follows:
 - 1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.
 - 2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.
- C. Building Wrap: Comply with manufacturer's written instructions.
 - 1. Seal seams, edges, fasteners, and penetrations with tape.
 - 2. Extend into jambs of openings and seal corners with tape.

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3.2 FLEXIBLE FLASHING INSTALLATION

- A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.
 - 1. Prime substrates as recommended by flashing manufacturer.
 - 2. Lap seams and junctures with other materials at least 4 inches except that at flashing flanges of other construction, laps need not exceed flange width.
 - 3. Lap flashing over water-resistive barrier at bottom and sides of openings.
 - 4. Lap water-resistive barrier over flashing at heads of openings.
 - 5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

END OF SECTION 07250

SECTION 07542 - POLYVINYL-CHLORIDE (PVC) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Adhered PVC membrane roofing system, including prefabricated perimeter edge attachment and fascia assembly.
- 2. Vapor retarder.
- 3. Roof insulation.
- B. Related Sections:
 - 1. Division 6 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Division 6 Section "Sheathing" for wood-based, structural-use deck panels.
 - 3. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings, and gutter.
 - 4. Division 7 Section "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure as calculated according to ASCE 07-05, as modified by CBC 1609A using wind speed specified on drawings.
- D. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a membrane roofing system,

and that are listed in FM Approvals' "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.

- 1. Fire/Windstorm Classification: Class 1A-90.
- 2. Hail Resistance: MH.
- E. Energy Performance: Provide roofing system with initial solar reflectance not less than 0.51 and emissivity not less than 0.84 when tested according to CRRC-1.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
- C. Samples for Verification: For the following products:
 - 1. Sheet roofing, of color specified, including T-shaped side and end lap seam.
 - 2. Roof insulation.
 - 3. Metal termination bars.
 - 4. Battens.
 - 5. Six insulation fasteners of each type, length, and finish.
- D. Qualification Data: For qualified Installer and manufacturer.
- E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - 1. Submit evidence of compliance with performance requirements.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.
- G. Research/Evaluation Reports: For components of membrane roofing system, from the ICC-ES.
- H. Field quality-control reports.
- I. Maintenance Data: For roofing system to include in maintenance manuals.
- J. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed and FM Approvals approved for membrane roofing system identical to that used for this Project.

- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.
- C. Source Limitations: Obtain components including roof insulation and fasteners for membrane roofing system from same manufacturer as membrane roofing or approved by membrane roofing manufacturer.
- D. Exterior Fire-Test Exposure: ASTM E 108, Class A; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- E. Preinstallation Roofing Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.
 - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 - 7. Review governing regulations and requirements for insurance and certificates if applicable.
 - 8. Review temporary protection requirements for roofing system during and after installation.
 - 9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, and other components of membrane roofing system.
 - 2. Warranty Period: 20 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
 - 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PVC MEMBRANE ROOFING

- A. PVC Sheet: ASTM D 4434, Type II, Grade I, glass fiber reinforced, felt backed.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Sarnafil Inc.; Sarnafil G410.
 - b. Or Approved Equal.
 - 2. Thickness: 60 mils, nominal.
 - 3. Exposed Face Color: Light gray.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
 - 1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet membrane.
 - 1. Where flashing is exposed to view at roof edge, provide prefabricated perimeter edge attachment and fascia assembly approved for use by roofing manufacturer; "Edge-Tile Slope" by Sika Sarnifil Inc.

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- C. Bonding Adhesive: Manufacturer's standard.
- D. Slip Sheet: Manufacturer's standard, of thickness required for application.
- E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel bars, approximately 1 by 1/8 inch thick; with anchors.
- F. Metal Battens: Manufacturer's standard, aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.
- G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.3 VAPOR RETARDER

- A. Polyethylene Film: ASTM D 4397, 10 milsthick, minimum, with maximum permeance rating of 0.13 perm.
 - 1. Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
 - 2. Adhesive: Manufacturer's standard lap adhesive, FM Approvals approved for vapor-retarder application.
- B. Laminated Sheet: Kraft paper, two layers, laminated with asphalt and edge reinforced with woven fiberglass yarn with maximum permeance rating of 0.50 perm and with manufacturer's standard adhesive.
- C. Glass-Fiber Felts: ASTM D 2178, Type IV, asphalt impregnated.

2.4 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by PVC membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Approvals-approved roof insulation.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, Grade 3, felt or glass-fiber mat facer on both major surfaces.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.

POLYVINYL-CHLORIDE (PVC) ROOFING

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.
- C. Full-Spread Applied Insulation Adhesive: Insulation manufacturer's recommended spray-applied, lowrise, two-component urethane adhesive formulated to attach roof insulation to substrate or to another insulation layer.
- D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/4 inch.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. Georgia-Pacific Corporation; Dens Deck, Dens Deck Prime, or Dens Deck DuraGuard, as approved by roofing manufacturer.
- E. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.

2.6 ASPHALT MATERIALS

A. Roofing Asphalt: ASTM D 312, Type III or Type IV, or ASTM D 6152, SEBS modified.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 VAPOR-RETARDER INSTALLATION

- A. Polyethylene Film: Loosely lay polyethylene-film vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2 inches and 6 inches, respectively.
 - 1. Continuously seal side and end laps with tape or adhesive as required by roof manufacturer.
- B. Laminate Sheet: Install laminate-sheet vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2 inches and 6 inches, respectively. Bond vapor retarder to substrate as follows:
 - 1. Apply adhesive at rate recommended by vapor-retarder manufacturer. Seal laps with adhesive.
 - 2. Apply ribbons of hot roofing asphalt at spacing, temperature, and rate recommended by vaporretarder manufacturer. Seal laps with hot roofing asphalt.
- C. Built-up Vapor Retarder: Install two glass-fiber felt plies lapping each felt 19 inches over preceding felt. Embed each felt in a solid mopping of hot roofing asphalt. Glaze-coat completed surface with hot roofing asphalt. Apply hot roofing asphalt within plus or minus 25 deg F of equiviscous temperature.
- D. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into membrane roofing system.

3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
 - 1. Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.
- H. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together and fasten to roof deck.
 - 1. Fasten cover boards according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.

- 2. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.
- I. Install slip sheet over insulation and immediately beneath membrane roofing, per manufacturer's recommendation.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
 - 1. Install sheet according to ASTM D 5036.
- B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.
- G. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars as recommended by roofing manufacturer.
- F. Install prefabricated perimeter edge attachment and fascia assembly at exposed roof edge locations as recommended by roofing manufacturer.

3.7 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.9 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS <**Insert name**> of <**Insert address**>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner: <Insert name of Owner>.
 - 2. Address: <Insert address>.
 - 3. Building Name/Type: <**Insert information**>.
 - 4. Address: <**Insert address**>.
 - 5. Area of Work: *<***Insert information***>*.
 - 6. Acceptance Date: *<***Insert date***>*.
 - 7. Warranty Period: *<Insert time>*.
 - 8. Expiration Date: *<Insert date>*.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

- D. This Warranty is made subject to the following terms and conditions:
 - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. Lightning;
 - b. Peak gust wind speed exceeding <**Insert wind speed**> mph;
 - c. Fire;
 - d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. Vapor condensation on bottom of roofing; and
 - g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
 - 2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
 - 3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
 - 4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
 - 5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
 - 6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
 - 7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.
- E. IN WITNESS THEREOF, this instrument has been duly executed this <Insert day> day of <Insert month>, <Insert year>.
 - 1. Authorized Signature: <Insert signature>.
 - 2. Name: <**Insert name**>.
 - 3. Title: **<Insert title**>.

END OF SECTION 07542

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Manufactured Products:
 - a. Manufactured reglets and counterflashing.
 - 2. Formed Products:
 - a. Formed roof drainage sheet metal fabrications.
 - b. Formed low-slope roof sheet metal fabrications.
 - c. Formed wall sheet metal fabrications.
- B. Related Sections:
 - 1. Division 6 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Division 7 Section "Polyvinyl-Chloride (PVC) Roofing" for installing sheet metal flashing, fascia and trim integral with membrane roofing.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Fabricate and install roof edge flashing and copings capable of resisting the following forces according to recommendations in FMG Loss Prevention Data Sheet 1-49:
 - 1. Wind Zone 2: For velocity pressures of 31 to 45 lbf/sq. ft.: 90-lbf/sq. ft. perimeter uplift force, 120-lbf/sq. ft. corner uplift force, and 45-lbf/sq. ft. outward force.
- C. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
 - 1. Identification of material, thickness, weight, and finish for each item and location in Project.
 - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 - 3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 4. Details of termination points and assemblies, including fixed points.
 - 5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
 - 6. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
 - 7. Details of special conditions.
 - 8. Details of connections to adjoining work.
 - 9. Detail formed flashing and trim at a scale of not less than 3 inches per 12 inches.
- C. Samples for Initial Selection: For each type of sheet metal flashing, trim, and accessory indicated with factory-applied color finishes involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 - 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
 - 3. Accessories and Miscellaneous Materials: Full-size Sample.
- E. Qualification Data: For qualified fabricator.
- F. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.
- G. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

SHEET METAL FLASHING AND TRIM

- 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. Preinstallation Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
 - 2. Review methods and procedures related to sheet metal flashing and trim.
 - 3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 - 4. Review special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect sheet metal flashing.
 - 5. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.7 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- B. Zinc-Tin Alloy-Coated Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, dead-soft, fully annealed stainless-steel sheet of minimum uncoated thickness indicated; coated on both sides with a zinc-tin alloy (50 percent zinc, 50 percent tin), with factory-applied gray preweathering.

SHEET METAL FLASHING AND TRIM

- 1. Products: Subject to compliance with requirements, provide the following:
 - a. Follansbee Steel; TCS II.
 - b. Or Approved Equal.
- C. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation; structural quality.
 - 2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 40; structural quality.
 - 3. Surface: Smooth, flat.
 - 4. Exposed Coil-Coated Finish:
 - a. Four-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat and clear coats. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 5. Color: As selected by Architect from manufacturer's full range.
 - 6. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

2.2 UNDERLAYMENT MATERIALS

- A. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.
- B. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
- C. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factoryapplied coating.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

- 2. Fasteners for Zinc-Tin Alloy-Coated Stainless-Steel Sheet: Series 300 stainless steel.
- 3. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel.
- C. Solder:
 - 1. For Zinc-Tin Alloy-Coated Stainless Steel: ASTM B 32, 100 percent tin.
 - 2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane or silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
- H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.4 MANUFACTURED SHEET METAL FLASHING AND TRIM

- A. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and welded corners and junctions or with interlocking counterflashing on exterior face, of same metal as reglet, and as approved by roofing manufacturer.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cheney Flashing Company.
 - b. Fry Reglet Corporation.
 - c. Heckmann Building Products Inc.
 - d. Hickman, W. P. Company.
 - e. Hohmann & Barnard, Inc.; STF Sawtooth Flashing.
 - f. Keystone Flashing Company, Inc.
 - g. National Sheet Metal Systems, Inc.
 - h. Sandell Manufacturing Company, Inc.
 - 2. Material: Stainless steel, 0.019 inch thick.
 - 3. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
 - 4. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
 - 5. Accessories:
 - a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.

- b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.
- 6. Finish: Mill or with manufacturer's standard color coating as selected by architect.

2.5 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.
- D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- E. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
- F. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.
- H. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch- long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters.
 - 1. Gutter Style: As shown on drawings.
 - 2. Expansion Joints: Lap type.
 - 3. Accessories: Continuous removable leaf screen with sheet metal frame and hardware cloth screen.
 - 4. Gutters with Girth up to 15 Inches: Fabricate from the following materials:

- Zinc-Tin Alloy-Coated Stainless Steel: 0.015 inch thick. a.
- 5. Gutters with Girth 16 to 20 Inches: Fabricate from the following materials:
 - Zinc-Tin Alloy-Coated Stainless Steel: 0.018 inch thick. a.
- Downspouts: Fabricate downspouts complete with mitered elbows. Furnish with metal hangers, from Β. same material as downspouts, and anchors as indicated on drawings.
 - 1. Fabricate from the following materials:
 - Steel Pipe: Schedule 40, hot-dipped galvanized. a.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- Copings: Fabricate in minimum 96-inch- long, but not exceeding 10-foot- long, sections. Fabricate joint A. plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, seal, and solder or weld watertight.
 - 1. Coping Profile: As shown on drawings.
 - 2. Joint Style: Butt, with 12-inch- wide, concealed backup plate.
 - 3. Fabricate from the following materials:
 - a. Zinc-Tin Alloy-Coated Stainless Steel: 0.024 inch thick.
- Base Flashing: Fabricate from the following materials: Β.
 - 1. Zinc-Tin Alloy-Coated Stainless Steel: 0.018 inch] thick.
- C. Counterflashing: Fabricate from the following materials:
 - 1. Zinc-Tin Alloy-Coated Stainless Steel: 0.018 inch thick.
- D. Flashing Receivers: Fabricate from the following materials:
 - 1. Zinc-Tin Alloy-Coated Stainless Steel: 0.015 inch thick.
- E. Roof-Penetration Flashing: Fabricate from the following materials:
 - 1. Zinc-Tin Alloy-Coated Stainless Steel: 0.018 inch.
- F. Roof-Drain Flashing: Fabricate from the following materials:
 - 1. Zinc-Tin Alloy-Coated Stainless Steel: 0.015 inch thick.

2.8 WALL SHEET METAL FABRICATIONS

- Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend 4 A. inches beyond wall openings. Form head and sill flashing with 2-inch- high, end dams. Fabricate from the following materials:
 - 1. Stainless Steel: 0.016 inch thick.
 - Zinc-Tin Alloy-Coated Stainless Steel: 0.015 inch thick. 2.

SHEET METAL FLASHING AND TRIM

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. General: Install underlayment as indicated on Drawings.
- B. Polyethylene Sheet: Install polyethylene sheet with adhesive for anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped and taped joints of not less than 2 inches.
- C. Felt Underlayment: Install felt underlayment with adhesive for temporary anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.

3.3 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
 - 4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 - 5. Install sealant tape where indicated.
 - 6. Torch cutting of sheet metal flashing and trim is not permitted.
 - 7. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.

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- 1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
- 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- E. Seal joints as shown and as required for watertight construction.
 - 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
 - 1. Do not solder metallic-coated steel and aluminum sheet.
 - 2. Pre-tinning is not required for zinc-tin alloy-coated stainless steel and zinc-tin alloy-coated copper.
 - 3. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
 - 4. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

3.4 ROOF DRAINAGE SYSTEM INSTALLATION

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Attach gutters at eave or fascia to firmly anchored straps spaced not more than 36 inches apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
 - 1. Fasten gutter spacers to front and back of gutter.
 - 2. Loosely lock straps to front gutter bead and anchor to roof deck.
 - 3. Anchor and loosely lock back edge of gutter to continuous cleat or eave or apron flashing.
 - 4. Anchor back of gutter that extends onto roof deck with cleats spaced not more than 24 inches apart.
 - 5. Anchor gutter with spikes and ferrules spaced not more than 24 inches apart.

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- 6. Install gutter with expansion joints at locations indicated, but not exceeding, 50 feet apart. Install expansion-joint caps.
- 7. Install continuous gutter screens on gutters with noncorrosive fasteners, hinged to swing open for cleaning gutters.
- C. Downspouts: Join sections with 1-1/2-inch telescoping joints.
 - 1. Provide hangers with fasteners designed to hold downspouts securely to walls as indicated. Locate hangers at top and bottom and at approximately 60 inches o.c. in between.
 - 2. Connect downspouts to underground drainage system indicated, unless shown otherwise.

3.5 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
- B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered 3-inch centers, or as recommended by roofing manufacturer.
- C. Copings: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated.
 - 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at 16-inch centers.
 - 2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at 16-inch centers.
- D. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches over base flashing. Install stainless-steel draw band and tighten.
- E. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with sealant. Secure in a waterproof manner by means of snap-in installation and sealant or lead wedges and sealant or interlocking folded seam or blind rivets and sealant.
- F. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric or butyl sealant and clamp flashing to pipes that penetrate roof.

3.6 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Reglets: Installation of reglets is specified in Division 4 Section "Unit Masonry Assemblies."

SHEET METAL FLASHING AND TRIM

C. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches beyond wall openings.

3.7 MISCELLANEOUS FLASHING INSTALLATION

A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.

3.8 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.9 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07620

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Silicone joint sealants.
- 2. Urethane joint sealants.
- 3. Latex joint sealants.
- 4. Solvent-release-curing joint sealants.
- 5. Preformed joint sealants.
- 6. Acoustical joint sealants.
- B. Related Sections:
 - 1. Division 4 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
 - 2. Division 8 Section "Glazing" for structural and other glazing sealants.
 - 3. Division 9 Section "Gypsum Board" for sealing perimeter joints.
 - 4. Division 9 Section "Tiling" for sealing tile joints.

1.3 PRECONSTRUCTION TESTING

- A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use ASTM C 1087 or manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each application indicated below:

- a. Each kind of sealant and joint substrate indicated.
- 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
- 4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
- 5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
- 6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.
- E. Qualification Data: For qualified Installer and testing agency.
- F. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- G. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- I. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

- 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- J. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.
- K. Field-Adhesion Test Reports: For each sealant application tested.
- L. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
- C. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
 - 2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
- D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.
- E. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.

- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Twenty years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
 - 1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.
 - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. Dow Corning Corporation; 790.
- b. GE Advanced Materials Silicones; SilPruf LM SCS2700.
- c. Pecora Corporation; 890 or 890FTS.
- d. Sika Corporation, Construction Products Division; SikaSil-C990.
- e. Tremco Incorporated; Spectrem 1.
- B. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Omniseal 50.
 - b. Dow Corning Corporation; 791 or 795.
 - c. GE Advanced Materials Silicones; SilPruf SCS2000.
 - d. Pecora Corporation; 864.
 - e. Polymeric Systems, Inc.; PSI-641.
 - f. Sika Corporation, Construction Products Division; SikaSil-C995.
 - g. Tremco Incorporated; Spectrem 2 or Spectrem 3.
- C. Single-Component, Nonsag, Traffic-Grade, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use T.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corporation; 790.
 - b. Pecora Corporation; 301 NS or 311 NS.
 - c. Tremco Incorporated; Spectrem 800.
 - d. Or Approved Equal.
- D. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Pecora Corporation; 898.
 - b. Tremco; Tremsil 600 White
 - c. Or Approved Equal.

2.3 URETHANE JOINT SEALANTS

- A. Single-Component, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920. Type S, Grade NS, Class 25, for Use T.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Sonolastic NP1 or Sonolastic Ultra.
 - b. Sika Corporation, Construction Products Division; Sikaflex 1a.
 - c. Tremco Incorporated; Vulkem 116.

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

- 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Sonolac.
 - b. Pecora Corporation; AC-20+.
 - c. Schnee-Morehead, Inc.; SM 8200.
 - d. Tremco Incorporated; Tremflex 834.

2.5 SOLVENT-RELEASE-CURING JOINT SEALANTS

- A. Acrylic-Based Joint Sealant: ASTM C 1311.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Schnee-Morehead, Inc.; Acryl-R Acrylic Sealant.
 - b. Tremco Incorporated; Mono 555.
- B. Butyl-Rubber-Based Joint Sealant: ASTM C 1311.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Bostik, Inc.; Chem-Calk 300.
 - b. Pecora Corporation; BC-158.
 - c. Tremco Incorporated; Tremco Butyl Sealant.

2.6 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. OSI Acoustical Sealant SC175
 - b. Pecora Corporation; AC-20 FTR.
 - c. Tremco; tremco Acoustical Sealant.
 - d. USG Corporation; SHEETROCK Acoustical Sealant.

2.7 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.

JOINT SEALANTS

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- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- G. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.
 - 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 - 3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.
 - b. Whether sealant dimensions and configurations comply with specified requirements.
 - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
 - 4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 - 5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Joints between different materials listed above.
 - c. Other joints as indicated.
 - 2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing.
 - 3. Urethane Joint Sealant: Single component, nonsag, traffic grade.
 - 4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
 - d. Control and expansion joints in ceilings and other overhead surfaces.
 - e. Other joints as indicated.
 - 2. Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 50.
 - 3. Urethane Joint Sealant: Single component, nonsag, Class 25.
 - 4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
 - 1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - c. Other joints as indicated.
 - 2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing.
 - 3. Urethane Joint Sealant: Single component, nonsag, traffic grade.
 - 4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Tile control and expansion joints.
 - d. Vertical joints on exposed surfaces of interior unit masonry or concrete walls and partitions.
 - e. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
 - f. Other joints as indicated.
 - 2. Joint Sealant: Latex.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Sealant Location:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - c. Other joints as indicated.
 - 2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, Silicone.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.
 - 1. Joint Location:
 - a. Acoustical joints where indicated.
 - b. Other joints as indicated.
 - 2. Joint Sealant: Acoustical.
 - 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 07920

SECTION 08211 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid-core doors with wood-veneer faces.
 - 2. Factory fitting flush wood doors to frames and Factory machining for hardware.
- B. Related Sections:
 - 1. Division 6 Section "Interior Architectural Woodwork" for door frames.
 - 2. Division 8 Section "Glazing" for glass view panels in flush wood doors.
 - 3. Division 9 Sections "Interior Painting", and "Staining and Transparent Finishing" for field finishing doors.

1.3 SUBMITTALS

- A. Product Data: For each type of door indicated. Include details of core and edge construction, and trim for openings.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate requirements for veneer matching.
- C. Samples for Verification:
 - 1. Corner sections of doors, approximately 8 by 10 inches, with door faces and edges representing actual materials to be used.
 - a. Provide samples for each species of veneer and solid lumber required.
 - b. Provide samples for each color, texture, and pattern of plastic laminate required.
 - c. Finish veneer-faced door samples with same materials proposed for factory-finished doors.
 - 2. Frames for light openings, 6 inches long, for each material, type, and finish required.
- D. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSCaccredited certification body.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.
- C. Quality Standard: In addition to requirements specified, comply with WI's "Manual of Millwork."
 - 1. Provide WI-Certified Compliance Certificate indicating that doors comply with requirements of grades specified.
 - 2. Provide WI-Certified Compliance Certificate for installation.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Exterior Doors: 2 years.
 - 4. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Algoma Hardwoods, Inc.
 - 2. Ampco, Inc.

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- 3. Buell Door Company Inc.
- 4. Chappell Door Co.
- 5. Eggers Industries.
- 6. Graham; an Assa Abloy Group company.
- 7. Haley Brothers, Inc.
- 8. Mohawk Flush Doors, Inc.; a Masonite company.
- 9. Oshkosh Architectural Door Company.
- 10. VT Industries Inc.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.
- B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- C. Structural-Composite-Lumber-Core Doors:
 - 1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
 - b. Screw Withdrawal, Edge: 400 lbf.

2.3 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- A. Exterior and Interior Solid-Core Doors:
 - 1. Grade: Premium, with Grade A faces.
 - 2. Species: Select white ash.
 - 3. Cut: Quarter sliced.
 - 4. Match between Veneer Leaves: Book match.
 - 5. Assembly of Veneer Leaves on Door Faces: Balance match.
 - 6. Room Match: Provide door faces of compatible color and grain within each separate room or area of building.
 - 7. Exposed Vertical Edges: Same species as faces.
 - 8. Core: Either glued wood stave or structural composite lumber.
 - 9. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit abrasive planed before veneering. Faces are bonded to core using a hot press.

2.4 LOUVERS AND LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads as follows unless otherwise indicated.
 - 1. Wood Species: Same as door.
 - 2. Profile: Manufacturer's standard shape.

2.5 FABRICATION

FLUSH WOOD DOORS

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 - 1. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
- C. Openings: Cut and trim openings through doors in factory.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Division 08 Section "Glazing."
- D. Exterior Door: Factory treat exterior doors with water repellent after fabrication has been completed but before factory finishing.
- 2.6 Doors for Transparent Finish: Shop prime doors with stain (if required), other required pretreatments, and first coast of finish as specified in Division 9 Section "Exterior Painting", "Interior Painting", and "Wood Stains and Transparent Finishes". Seal all four edges, edges of cutouts, and mortises with the first coast of finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.
- C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 1/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.

FLUSH WOOD DOORS

2. Bevel non-fire-rated doors 1/8 inch in 2 inches at lock and hinge edges.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08211

SECTION 08255 - FRP SANDSTONE TEXTURE FLUSH DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. Sandstone texture, fiberglass reinforced polyester (FRP) flush door.

1.3 RELATED SECTIONS

- A. Division 8 Section "Aluminum-Framed Entrances and Storefronts".
- B. Division 8 Section "Door Hardware".

1.4 REFERENCES

- A. AAMA 1503.1 Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
- B. ASTM B 209 Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM B 221 Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- D. ASTM D 256 Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- E. ASTM D 570 Water Absorption of Plastics.
- F. ASTM D 638 Tensile Strength of Plastics.
- G. ASTM D 790 Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- H. ASTM D 1621 Compressive Properties of Rigid Cellular Plastics.
- I. ASTM D 1623 Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
- J. ASTM D 2126 Response of Rigid Cellular Plastics to Thermal and Humid Aging.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide door assemblies that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturer's corresponding standard systems.

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- B. Indoor air quality testing per ASTM D 6670-01: GREENGUARD Environmental Institute Certified including GREENGUARD for Children and Schools Certification.
- C. Thermal Transmission, Exterior Doors, U-Value, AAMA 1503.1: Maximum of 0.29BTU/hr x sf x degrees F.
- D. Compressive Strength, Foam Core, Nominal Value, ASTM D 1621: 79.9 psi.
- E. Compressive Modulus, Foam Core, Nominal Value, ASTM D 1621: 370 psi.
- F. Tensile Adhesion, Foam Core, Nominal Value, ASTM D 1623: 45.3 psi.
- G. Thermal and Humid Aging, Nominal Value, 158 Degrees F and 100 Percent Humidity for 14 Days, ASTM D 2126: Minus 5.14 percent volume change.

1.6 SUBMITTALS

- A. Comply with Division 1"Submittal Procedures".
- B. Product Data: Submit manufacturer's product data, including description of materials, components, fabrication, finishes, and installation.
- C. Shop Drawings: Submit manufacturer's shop drawings, including elevations, sections, and details, indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.
- D. Samples:
 - 1. Door: Submit manufacturer's sample of door showing face sheets, core, framing, and finish.
 - 2. Color: Submit manufacturer's samples of standard colors of doors and frames.
- E. Test Reports: Submit certified test reports from qualified independent testing agency indicating doors comply with specified performance requirements.
- F. Manufacturer's Project References: Submit list of successfully completed projects including project name and location, name of architect, and type and quantity of doors manufactured.
- G. Maintenance Manual: Submit manufacturer's maintenance and cleaning instructions for doors, including maintenance and operating instructions for hardware.
- H. Warranty: Submit manufacturer's standard warranty.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years successful experience.
 - 2. Door components from same manufacturer.
 - 3. Evidence of a compliant documented quality management system.

1.8 DELIVERY, STORAGE, AND HANDLING

FRP SANDSTONE TEXTURE FLUSH DOORS

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying opening door mark and manufacturer.
- B. Store materials in clean, dry area indoors in accordance with manufacturer's instructions.
- C. Handling: Protect materials and finish from damage during handling and installation.

1.9 WARRANTY

- A. Warrant doors, against failure in materials and workmanship, including excessive deflection, faulty operation, and deterioration of finish or construction in excess of normal weathering.
- B. Warranty Period: Ten years starting on date of shipment. In addition, a limited lifetime (while the door is in its specified application in its original installation) warranty covering: failure of corner joinery, core deterioration, delamination or bubbling of door skin.
- C. Warranty Period for FRP Painted Finish: Five years starting on date of shipment.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Special-Lite, Inc., P.O. Box 6, Decatur, Michigan 49045. Toll Free (800) 821-6531. Phone (269) 423-7068. Fax (800) 423-7610. Web Site www.special-lite.com. E-Mail info@special-lite.com.

2.2 FRP SANDSTONE TEXTURE FLUSH DOORS

- A. Model: SL-20 Sandstone Texture Doors with fiberglass reinforced polyester (FRP) face sheets.
- B. Door Opening Size: As indicated on the Drawings.
- C. Construction:
 - 1. Door Thickness: 1-3/4 inches.
 - 2. Stiles and Rails: Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T5 alloy recovered from industrial processes, minimum of 2-5/16-inch depth.
 - 3. Corners: Mitered.
 - 4. Provide joinery of 3/8-inch diameter full-width tie rods through extruded splines top and bottom integral to standard tubular shaped stiles and rails reinforced to accept hardware as specified.
 - 5. Securing Internal Door Extrusions: 3/16-inch angle blocks and locking hex nuts for joinery. Welds, glue, or other methods are not acceptable.
 - 6. Furnish extruded stiles and rails with integral reglets to accept face sheets. Lock face sheets into place to permit flush appearance.
 - 7. Rail caps or other face sheet capture methods are not acceptable.
 - 8. Extrude top and bottom rail legs for interlocking continuous weather bar.
 - 9. Bottom of Door: Install bottom weather bar with nylon brush weatherstripping into extruded interlocking edge of bottom rail.
 - 10. Glue: Use of glue to bond sheet to core or extrusions is not acceptable.
- D. Face Sheet:

FRP SANDSTONE TEXTURE FLUSH DOORS

- 1. Material: FRP, 0.120-inch thickness, finish color throughout.
- 2. Texture: Sandstone.
- 3. Color: Dark Bronze.
- 4. Adhesion: The use of glue to bond face sheet to form core is prohibited.
- E. Core:
 - 1. Material: Poured-in-place polyurethane foam.
 - 2. Density: Minimum of 5 pounds per cubic foot.
 - 3. R-Value: Minimum of 9.
- F. Hardware:
 - 1. Premachine doors in accordance with templates from specified hardware manufacturers and hardware schedule.

2.3 MATERIALS

- A. Aluminum Members:
 - 1. Aluminum extrusions made from prime-equivalent billet that is produced from 100% reprocessed 6063-T5 alloy recovered from industrial processes: ASTM B 221.
 - 2. Sheet and Plate: ASTM B 209.
 - 3. Alloy and Temper: As required by manufacturer for strength, corrosion resistance, application of required finish, and control of color.
- B. Components: Door components from same manufacturer.
- C. Fasteners:
 - 1. Material: Aluminum, 18-8 stainless steel, or other noncorrosive metal.
 - 2. Compatibility: Compatible with items to be fastened.
 - 3. Exposed Fasteners: Screws with finish matching items to be fastened.

2.4 FABRICATION

- A. Sizes and Profiles: Required sizes for door and profile requirements shall be as indicated on drawings.
- B. Coordination of Fabrication: Field measure before fabrication and show recorded measurements on shop drawings.
- C. Assembly:
 - 1. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
 - 2. Remove burrs from cut edges.
- D. Welding: Welding of doors or frames is not acceptable.
- E. Fit:
 - 1. Maintain continuity of line and accurate relation of planes and angles.
 - 2. Secure attachments and support at mechanical joints with hairline fit at contacting members.

FRP SANDSTONE TEXTURE FLUSH DOORS

2.5 ALUMINUM FINISHES

- A. Anodized Finish: Class I finish, 0.7 mils thick.
 - 1. Dark Brown, AA-M10C12C22A44.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive doors. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Ensure openings to receive door are plumb, level, square, and in tolerance.

3.3 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
- B. Install doors plumb, level, square, true to line, and without warp or rack.
- C. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by Architect.
- D. Set thresholds in bed of mastic and backseal.
- E. Install exterior doors to be weathertight in closed position.
- F. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by Architect.
- G. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Manufacturer's representative shall provide technical assistance and guidance for installation of doors.

3.5 ADJUSTING

A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.6 CLEANING

A. Clean doors promptly after installation in accordance with manufacturer's instructions.

FRP SANDSTONE TEXTURE FLUSH DOORS

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

3.7 PROTECTION

A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION 08255

SECTION 08411 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Exterior and Interior storefront framing.
- 2. Storefront framing for punched openings.
- 3. Exterior and interior manual-swing entrance doors and door-frame units.
- 4. Brake metal for infill panels.
- B. Related Sections:
 - 1. Division 8 Section "Aluminum Windows" for operable window.
 - 2. Division 8 Section "Structural-Sealant-Glazed Curtain Walls" for matching finishes.

1.3 DEFINITIONS

A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Aluminum-framed systems shall withstand the effects of the following performance requirements without exceeding performance criteria or failure due to defective manufacture, fabrication, installation, or other defects in construction:
 - 1. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
 - 2. Dimensional tolerances of building frame and other adjacent construction.
 - 3. Failure includes the following:
 - a. Deflection exceeding specified limits.
 - b. Thermal stresses transferring to building structure.
 - c. Framing members transferring stresses, including those caused by thermal and structural movements to glazing.
 - d. Noise or vibration created by wind and by thermal and structural movements.
 - e. Loosening or weakening of fasteners, attachments, and other components.
 - f. Sealant failure.
 - g. Failure of operating units.

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

- B. Delegated Design: Design aluminum-framed systems, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Structural Loads:
 - 1. Wind Loads Design Pressure: As calculated according to ASCE 07-05 as modified by CBC 1609A using wind speed specified on drawings.
 - 2. Seismic Loads Design Pressure: As indicated on Drawings.
- D. Deflection of Framing Members:
 - 1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane shall not exceed L/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
 - 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components directly below them to less than 1/8 inch and clearance between members and operable units directly below them to less than 1/16 inch.
- E. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
 - 1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
 - 2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
 - 3. Test Durations: As required by design wind velocity, but not fewer than 10 seconds.
- F. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft.
- G. Water Penetration under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft..
- H. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
 - 2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance when tested according to AAMA 501.5.
 - a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
 - b. Low Exterior Ambient-Air Temperature: 0 deg F.
- I. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than 45 when tested according to AAMA 1503.
- J. Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having an average U-factor of not more than 0.57 Btu/sq. ft. x h x deg F when tested according to AAMA 1503.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for aluminum-framed systems.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Include details of provisions for system expansion and contraction and for drainage of moisture in the system to the exterior.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed systems, made from 12-inch lengths of full-size components and showing details of the following:
 - 1. Joinery, including concealed welds.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- F. Other Action Submittals:
 - 1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.
- G. Delegated-Design Submittal: For aluminum-framed systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 1. Detail fabrication and assembly of aluminum-framed systems.
 - 2. Include design calculations.
- H. Qualification Data: For qualified Installer and testing agency.
- I. Seismic Qualification Certificates: For aluminum-framed systems, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
- J. Welding certificates.
- K. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems, indicating compliance with performance requirements.
- L. Field quality-control reports.
- M. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

N. Warranties: Sample of special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- C. Engineering Responsibility: Prepare data for aluminum-framed systems, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.
- D. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
 - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- E. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.
- F. Source Limitations for Aluminum-Framed Systems: Obtain from single source from single manufacturer.
- G. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code Aluminum."
- H. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical wall area with operable window as shown on Drawings.
 - 2. Field testing shall be performed on mockups according to requirements in "Field Quality Control" Article.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- I. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 WARRANTY

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- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration caused by thermal movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water leakage through fixed glazing and framing areas.
 - e. Failure of operating components.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

1.9 MAINTENANCE SERVICE

- A. Entrance Door Hardware:
 - 1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of entrance door hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide product by one of the following:
 - 1. Arcadia, Inc.
 - 2. Kawneer North America; an Alcoa company; Trifab 451. (Basis of Design)
 - 3. Vistawall Architectural Products; The Vistawall Group; a Bluescope Steel company.
 - 4. Wausau Window and Wall Systems.
 - 5. Or Approved Equal.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Sheet and Plate: ASTM B 209.
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 - 4. Structural Profiles: ASTM B 308/B 308M.
 - 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

- B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
 - 1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.
 - 2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
 - 3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
 - 1. Construction: Nonthermal.
 - 2. Glazing System: Retained mechanically with gaskets on four sides.
 - 3. Glazing Plane: As indicated.
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Do not use expand fasteners, except for hardware application. Use exposed fasteners with countersunk Phillips screw heads, fabricated from stainless steel.
- D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts, complying with ASTM A 123/A 123M or ASTM A 153/A 153M.
- E. Concealed Flashing: Dead-soft, 0.018-inch- thick stainless steel, ASTM A 240/A 240M of type recommended by manufacturer.
- F. Framing System Gaskets and Sealants: Manufacturer's standard, recommended by manufacturer for joint type.

2.4 GLAZING SYSTEMS

- A. Glazing: As specified in Division 08 Section "Glazing."
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile and hardness required to maintain watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.

2.5 ENTRANCE DOOR SYSTEMS

A. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing operation.

- 1. Door Construction: 1-3/4-inch overall thickness, with minimum 0.125-inch- thick, extrudedaluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
- 2. Door Design: Wide stile; 5-inch nominal width.
 - a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches above floor or ground plane.
- 3. Glazing Stops and Gaskets: Beveled or Square, snap-on, extruded-aluminum stops and preformed gaskets.
 - a. Provide nonremovable glazing stops on outside of door.
- B. Entrance Door Hardware: As specified in Division 08 Section "Door Hardware."

2.6 ACCESSORY MATERIALS

- A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 07 Section "Joint Sealants."
- B. Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 30-mil thickness per coat.

2.7 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Means to drain water passing joints, condensation within framing members, and moisture migrating within the system to exterior.
 - 4. Physical and thermal isolation of glazing from framing members.
 - 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 6. Provisions for field replacement of glazing from interior.
 - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Storefront Framing: Fabricate components for assembly using screw-spline system.
- F. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
- G. Entrance Doors: Reinforce doors as required for installing entrance door hardware.

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- H. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- I. Brake Metal: Fabricate brake metal and infill aluminum panel to match storefront system. Thickness to be 0.090 inches minimum and as required based on the width and length of brake metal.
- J. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

- A. High-Performance Organic Finish: 4-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
 - 6. Seal joints watertight unless otherwise indicated.
- B. Metal Protection:
 - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or applying sealant or tape, or by installing nonconductive spacers as recommended by manufacturer for this purpose.
 - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.

- D. Set continuous sill members and flashing in full sealant bed as specified in Division 07 Section "Joint Sealants" to produce weathertight installation.
- E. Install components plumb and true in alignment with established lines and grades, and without warp or rack.
- F. Install glazing as specified in Division 08 Section "Glazing."
- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
 - 1. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.
- H. Install perimeter joint sealants as specified in Division 07 Section "Joint Sealants" to produce weathertight installation.

3.3 ERECTION TOLERANCES

- A. Install aluminum-framed systems to comply with the following maximum erection tolerances:
 - 1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet; 1/4 inch over total length.
 - 2. Alignment:
 - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch.
- B. Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to perform field tests and inspections.
- B. Testing Services: Testing and inspecting of representative areas to determine compliance of installed systems with specified requirements shall take place as follows. Do not proceed with installation of the next area until test results for previously completed areas show compliance with requirements.
 - 1. Water Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Test Area: A minimum area of 75 feet by 1 story of aluminum-framed systems.
- C. Repair or remove work if test results and inspections indicate that it does not comply with specified requirements.
- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- E. Aluminum-framed assemblies will be considered defective if they do not pass tests and inspections.
- F. Prepare test and inspection reports.

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3.5 ADJUSTING

- A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
 - 1. For entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch, measured to the leading door edge.

END OF SECTION 08411

SECTION 08520 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes operable aluminum-framed windows for exterior locations.
- B. Related Sections include the following:
 - 1. Division 8 Section "Aluminum-Framed Entrances and Storefronts" and "Structural-Sealant-Glazed Curtain Wall" for coordinating finish among aluminum fenestration units.

1.3 DEFINITIONS

- A. Performance class designations according to AAMA/WDMA 101/I.S.2/NAFS:
 - 1. AW: Architectural.
 - 2. HC: Heavy Commercial.
 - 3. C: Commercial.
 - 4. LC: Light Commercial.
 - 5. R: Residential.
- B. Performance grade number according to AAMA/WDMA 101/I.S.2/NAFS:
 - 1. Design pressure number in pounds force per square foot used to determine the structural test pressure and water test pressure.
- C. Structural Test Pressure: For uniform load structural test, is equivalent to 150 percent of the design pressure.
- D. Minimum Test Size: Smallest size permitted for performance class (gateway test size). Products must be tested at minimum test size or at a size larger than minimum test size to comply with requirements for performance class.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide aluminum windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified, and that are of minimum test size indicated below:
 - 1. Size required by AAMA/WDMA 101/I.S.2/NAFS for optional performance grade.
 - 2. Size indicated on Drawings.

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- B. Structural Performance: Provide aluminum windows capable of withstanding the effects of the following loads, based on testing units representative of those indicated for Project that pass AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Structural Test:
 - 1. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour at 33 feet above grade, according to ASCE 7, Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
 - a. Basic Wind Speed: 85 mph.
 - b. Importance Factor: 1.0.
 - c. Exposure Category: C.
 - 2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch, whichever is less, at design pressure based on testing performed according to AAMA/WDMA 101/I.S.2/NAFS, Uniform Load Deflection Test or structural computations.
- C. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F material surfaces.

1.5 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of aluminum window indicated.
 - 1. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.
- B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances, installation details, and the following:
 - 1. Mullion details, including reinforcement and stiffeners.
 - 2. Joinery details.
 - 3. Expansion provisions.
 - 4. Flashing and drainage details.
 - 5. Weather-stripping details.
 - 6. Glazing details.
 - 7. Window System Operators: Show locations, mounting, and details for installing operator components and controls.
 - 8. For installed products indicated to comply with design loads, include structural analysis data prepared by or under the supervision of a qualified professional engineer detailing fabrication and assembly of aluminum windows and used to determine the following:
 - a. Structural test pressures and design pressures from wind loads indicated.
 - b. Deflection limitations of glass framing systems.
- C. Samples for Verification: For aluminum windows and components required, prepared on Samples of size indicated below.

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- 1. Main Framing Member: 12-inch- long, full-size sections of extrusions with factory-applied color finish.
- 2. Hardware: Full-size units with factory-applied finishes.
- 3. Weather Stripping: 12-inch-long sections.
- D. Product Schedule: For aluminum windows. Use same designations indicated on Drawings.
- E. Qualification Data: For Installer and manufacturer.
- F. Field quality-control test reports.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed within the last four years by a qualified testing agency for each type, class, grade, and size of aluminum window. Test results based on use of downsized test units will not be accepted.
- H. Maintenance Data: For operable window sash, operating hardware, weather stripping, window system operators and finishes to include in maintenance manuals.
- I. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An installer acceptable to aluminum window and aluminum storefront manufacturer for installation of units required for this Project.
 - 1. Installer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
 - 2. Engineering Responsibility: Preparation of data for aluminum windows, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Manufacturer Qualifications: A manufacturer capable of fabricating aluminum windows that meet or exceed performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.
- C. Source Limitations: Obtain aluminum windows through one source from a single manufacturer.
- D. Product Options: Drawings indicate size, profiles, and dimensional requirements of aluminum windows and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements." Do not modify size and dimensional requirements.
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- E. Fenestration Standard: Comply with AAMA/WDMA 101/I.S.2/NAFS, "North American Fenestration Standard Voluntary Performance Specification for Windows, Skylights and Glass Doors," for definitions and minimum standards of performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.
 - 1. Provide AAMA-certified aluminum windows with an attached label.
- F. Glazing Publications: Comply with published recommendations of glass manufacturers and with GANA's "Glazing Manual" unless more stringent requirements are indicated.

- G. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup for type(s) of window(s) indicated, in location(s) shown on Drawings.
- H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to aluminum windows including, but not limited to, the following:
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review and discuss the finishing of aluminum windows that is required to be coordinated with the finishing of other aluminum work for color and finish matching.
 - 3. Review, discuss, and coordinate the interrelationship of aluminum windows with other exterior wall components. Include provisions for structural anchorage, glazing, flashing, weeping, sealants, and protection of finishes.
 - 4. Review and discuss the sequence of work required to construct a watertight and weathertight exterior building envelope.
 - 5. Inspect and discuss the condition of substrate and other preparatory work performed by other trades.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify aluminum window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to meet performance requirements.
 - b. Structural failures including excessive deflection, water leakage, air infiltration, or condensation.
 - c. Faulty operation of movable sash and hardware.
 - d. Deterioration of metals, other materials, and metal finishes beyond normal weathering.
 - e. Failure of insulating glass.
 - 2. Warranty Period:
 - a. Window: Two years from date of Substantial Completion.
 - b. Metal Finish: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Arcadia, Inc.
 - 2. EFCO Corporation.
 - 3. Fleetwood Aluminum Products, Inc.
 - 4. Graham Architectural Products Corp.
 - 5. Kawneer; an Alcoa Company; Glassvent (Basis of Design)
 - 6. Wausau Window and Wall Systems.
 - 7. Winco Window Company.
 - 8. Or Approved Equal.

2.2 MATERIALS

- A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi ultimate tensile strength, not less than 16,000-psi minimum yield strength, and not less than 0.062-inch thickness at any location for the main frame and sash members.
- B. Fasteners: Nonmagnetic stainless steel, warranted by manufacturer to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components.
 - 1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads, or provide standard, noncorrosive, pressed-in, splined grommet nuts.
 - 2. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.
- C. Anchors, Clips, and Accessories: Nonmagnetic stainless steel, complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- D. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- E. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action and for complete concealment when aluminum window is closed.
 - 1. Weather-Stripping Material: Manufacturer's standard system and materials complying with AAMA/WDMA 101/I.S.2/NAFS.
- F. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701/702.
 - 1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semirigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 701/702.

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- G. Replaceable Weather Seals: Comply with AAMA 701/702.
- H. Sealant: For sealants required within fabricated windows, provide window manufacturer's standard, permanently elastic, nonshrinking, and nonmigrating type recommended by sealant manufacturer for joint size and movement.

2.3 WINDOW

- A. Window Type: Casement and projected awning.
- B. AAMA/WDMA Performance Requirements: Provide aluminum windows of performance indicated that comply with AAMA/WDMA 101/I.S.2/NAFS unless more stringent performance requirements are indicated.
 - 1. Performance Class and Grade: HC 40 for casement and projected awning windows.
- C. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.
- D. Solar Heat-Gain Coefficient (SHGC): Provide aluminum windows with a whole-window SHGC maximum of 0.32 (center of glass), determined according to NFRC 200 procedures.
- E. Air Infiltration: Maximum rate not more than indicated when tested according to AAMA/WDMA 101/I.S.2/NAFS, Air Infiltration Test.
 - 1. Maximum Rate: 0.3 cfm/sq. ft. of area at an inward test pressure of 6.24 lbf/sq. ft..
- F. Water Resistance: No water leakage as defined in AAMA/WDMA referenced test methods at a water test pressure equaling that indicated, when tested according to AAMA/WDMA 101/I.S.2/NAFS, Water Resistance Test.
 - 1. Test Pressure: 15 percent of positive design pressure, but not less than 2.86 lbf/sq. ft. or more than 15 lbf/sq. ft..
- G. Forced-Entry Resistance: Comply with Performance Grade 10 requirements when tested according to ASTM F 588.
- H. Operating Force and Auxiliary (Durability) Tests: Comply with AAMA/WDMA 101/I.S.2/NAFS for operating window types indicated.

2.4 GLAZING

A. Glass and Glazing Materials: Refer to Division 8 Section "Glazing" for glass units and glazing requirements applicable to glazed aluminum window units.

2.5 HARDWARE

A. General: Provide manufacturer's special corrosion-resistant hardware designed for Marine environment fabricated from stainless steel, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accommodate sash or ventilator weight and dimensions. Cadmium-plated hardware is not permitted. Do not use aluminum

in frictional contact with other metals. Where exposed, provide solid bronze or nonmagnetic stainless steel.

- B. Gear-Type Rotary Operators: Comply with AAMA 901 when tested according to ASTM E 405, Method A.
 - 1. Operation Function: All ventilators move simultaneously and securely close at both jambs without using additional manually controlled locking devices.
- C. Four- or Six-Bar Friction Hinges: Comply with AAMA 904.
 - 1. Locking mechanism and handles for manual operation.
 - 2. Friction Shoes: Provide friction shoes of nylon or other nonabrasive, nonstaining, noncorrosive, durable material.
- D. Limit Devices: Provide limit devices designed to restrict sash or ventilator opening.
- E. Pole Operators: Tubular-shaped anodized aluminum; with rubber-capped lower end and standard pushpull hook at top to match hardware design; of sufficient length to operate window without reaching more than 48 inches above floor, 1 pole operator and pole hanger pr room that has operable window more than 72 inches above floor.
- F. Casement Windows: Provide the following operating hardware:
 - 1. Operator: Gear-type rotary single-arm operator located on jamb at sill or Gear-type rotary dualarm operator located on jamb at sill.
 - a. Rating: Provide rotary operator rated C-HC40 according to AAMA 901.
 - b. Handle: Standard crank.
 - 2. Hinge: Heavy-duty, concealed, four- or six bar friction egress hinge with adjustable-slide friction shoe; designed to permit ventilator operation for inside cleaning of outside glass face; two per ventilator.
 - 3. Lock: Combination lever handle and cam-action lock with keeper; two per ventilator.
 - 4. Limit Device: Concealed friction adjustor, adjustable stay bar or support arms with adjustable, limited, hold-open limit device.
- G. Projected Awning Windows: Provide the following operating hardware:
 - 1. Operator: Gear-type rotary operator located on jamb at sill.
 - a. Handle: Standard crank. For windows where handle is located more than 48" above finish floor, provide universal and pole ring system and telescoping pole crank as manufactured by Truth Hardware.
 - 2. Operator for Clerestory Window: Provide universal and pole ring system and telescoping pole crank as manufactured by Truth Hardware.
 - 3. Hinge: Concealed four- or six-bar friction hinge located on each jamb near top rail; two per ventilator.
 - 4. Lock: Combination lever handle and cam-action lock with concealed pawl and keeper; two per ventilator.
 - 5. Limit Device: Concealed friction adjustor, adjustable stay bar or support arms with adjustable, limited, hold-open limit device; located on jamb of each ventilator.

2.6 INSECT SCREENS

- A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Fabricate insect screens to fully integrate with window frame. Locate screens on inside or outside of window and provide for each operable exterior sash or ventilator.
 - 1. Comply with SMA 1004, "Specifications for Aluminum Tubular Frame Screens for Windows," for minimum standards of appearance, fabrication, attachment of screen fabric, hardware, and accessories unless more stringent requirements are indicated.
- B. Stainless-Steel Insect Screen Frames: Fabricate frames of nonmagnetic stainless-steel members of 0.020inch minimum wall thickness, with mitered or coped joints or corner extrusions, concealed fasteners, adjustable rollers, and removable PVC spline/anchor concealing edge of frame. Finish frames with No. 2B, bright mill finish.
- C. Stainless-Steel Wire Fabric: 18-by-16 mesh of 0.011-inch- diameter, nonmagnetic stainless-steel wire, Type 316, complying with FS RR-W-365, Type VI.
- D. Wickets: Provide sliding or hinged wickets, framed and trimmed for a tight fit and for durability during handling.

2.7 FABRICATION

- A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.
- B. Fabricate aluminum windows that are reglazable without dismantling sash or ventilator framing.
- C. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator.
 - 1. Horizontal-Sliding Windows: Provide operable sash with a double row of sliding weather stripping in horizontal rails and single- or double-row weather stripping in meeting or jamb stiles, as required to meet specified performance requirements. Provide compression-type weather stripping at perimeter of each movable panel where sliding-type weather stripping is not appropriate.
- D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.
- E. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.
- F. Subframes: Provide subframes with anchors for window units as shown, of profile and dimensions indicated but not less than 0.062-inch- thick extruded aluminum. Miter or cope corners, and weld and dress smooth with concealed mechanical joint fasteners. Finish to match window units. Provide subframes capable of withstanding design loads of window units.
- G. Factory-Glazed Fabrication: Glaze aluminum windows in the factory where practical and possible for applications indicated. Comply with requirements in Division 8 Section "Glazing" and with AAMA/WDMA 101/I.S.2/NAFS.

H. Glazing Stops: Provide snap-on glazing stops coordinated with Division 8 Section "Glazing" and glazing system indicated. Provide glazing stops to match sash and ventilator frames.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. High-Performance Organic Finish (3-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coatings; Organic Coating: manufacturer's standard 3-coat, thermocured system consisting of specially formulated inhibitive primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work. Verify rough opening dimensions, levelness of sill plate, and operational clearances. Examine wall flashings, vapor retarders, water and weather barriers, and other built-in components to ensure a coordinated, weathertight window installation.
 - 1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
 - 2. Wood Frame Walls: Dry, clean, sound, well nailed, free of voids, and without offsets at joints. Ensure that nail heads are driven flush with surfaces in opening and within 3 inches of opening.
 - 3. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with Drawings, Shop Drawings, and manufacturer's written instructions for installing windows, hardware, accessories, and other components.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- D. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.
- E. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

3.3 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating sashes and ventilators, screens, hardware, operators, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.
- B. Clean aluminum surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels, and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- E. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain window operating system. Refer to Division 1 Section "Demonstration and Training."

END OF SECTION 08520

ALUMINUM WINDOWS Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Door Hardware, including electric hardware.
 - 2. Storefront and entrance door hardware.
 - 3. Gate Hardware.
 - 4. Digital keypad access control devices.
 - 5. Access control system.
 - 6. Wall or floor-mounted electromagnetic hold-open devices.
 - 7. Remote button release hardware.
 - 8. Padlocks.
 - 9. Cylinders for doors fabricated with locking hardware.
 - 10. Wiring diagrams for electric hardware.
 - 11. Key cabinets.

B. Related Sections:

- 1. Section 06200 Finish Carpentry: Finish Hardware Installation
- 2. Section 07920 Joint Sealants exterior thresholds
- 3. Section 08100 Metal Doors and Frames
- 4. Section 08211 Flush Wood Doors
- 5. Section 08255 FRP Sandstone Texture Flush Doors
- 6. Section 08411 Aluminum-Framed Entrances and Storefronts
- 7. Section 08912- Structural-Sealant -Glazed Curtain Walls
- 8. Section 16100 Electrical
- C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.
 - 1. Windows.
 - 2. Cabinets, including open wall shelving and locks.
 - 3. Signs, except where scheduled.
 - 4. Toilet accessories, including grab bars.
 - 5. Installation.
 - 6. Rough hardware.
 - 7. Conduit, junction boxes & wiring.
 - 8. Electronic access locks, except cylinders where detailed.
 - 9. Corner Guards.

10. Wrought Iron railing gates and supports.

1.2 **REFERENCES**:

Use date of standard in effect as of Bid date.

- A. American National Standards Institute ANSI 156.18 Materials and Finishes.
- B. ICC/ANSI A117.1 2003 Specifications for making buildings and facilities usable by physically handicapped people.
- C. BHMA Builders Hardware Manufacturers Association
- D. DHI Door and Hardware Institute
- E. NFPA National Fire Protection Association
 - 1. NFPA 80 Fire Doors and Windows
 - 2. NFPA 105 Smoke and Draft Control Door Assemblies
 - 3. NFPA 252 Fire Tests of Door Assemblies
- F. UL Underwriters Laboratories
 - 1. UL10C Positive Pressure Fire Tests of Door Assemblies.
 - 2. UL 305 Panic Hardware
- G. WHI Warnock Hersey Incorporated State of California Building Code
- H. Local applicable codes
- I. SDI Steel Door Institute
- J. WI Woodwork Institute
- K. AWI Architectural Woodwork Institute
- L. NAAMM National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

- A. SUBMITTALS: Submit six copies of schedule per Section 01330. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Type, style, function, size, quantity and finish of hardware items.
 - 2. Use BHMA Finish codes per ANSI A156.18.
 - 3. Name, part number and manufacturer of each item.
 - 4. Fastenings and other pertinent information.
 - 5. Location of hardware set coordinated with floor plans and door schedule.
 - 6. Explanation of abbreviations, symbols, and codes contained in schedule.
 - 7. Mounting locations for hardware.
 - 8. Door and frame sizes, materials and degrees of swing.
 - 9. List of manufacturers used and their nearest representative with address and phone number.

- 10. Catalog cuts.
- 11. Wiring Diagrams.
- 12. Manufacturer's technical data and installation instructions for electronic hardware.
- 13. Date of jobsite visit.
- B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.
- C. Deviations: Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.
- D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, not the discrepancy in the submittal and request direction from Architect for resolution.
- E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.
- F. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.
- G. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE:

- A. Qualifications:
 - 1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.
 - a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.
- B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.
- C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C / UBC Standard 7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.
- E. Note: scheduled resilient seals may exceed selected door manufacturer's requirements.
- F. See 2.6.E for added information regarding resilient and intumescent seals.
- G. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.
- H. Pre-Installation Meetings: Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Include manufacturers' representatives of locks, panic hardware and door closers in the meetings. Convene prior to commencement of related work.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Delivery: coordinate delivery to appropriate locations (shop or field).
 - 1. Permanent keys and cores: secured delivery direct to Owner's representative.
- B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.
- C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.6 PROJECT CONDITIONS AND COORDINATION:

- A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.
- B. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information:
 - 1. Location of embedded and attached items to concrete.
 - 2. Location of wall-mounted hardware, including wall stops.
 - 3. Location of finish floor materials and floor-mounted hardware.
 - 4. Locations for conduit and raceways as needed for electrical, electronic and electropneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
 - 5. Manufacturer templates to door and frame fabricators.
- C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.
- D. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.
 - 1. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

1.7 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties:

1.	Locksets: Mechanical Locksets: Electrical/Access Control	Three years One year
2.	Exit Devices:	Three years mechanical One year electrical
3.	Closers:	Ten years mechanical Two years electrical
4.	Hinges:	Life of Building
5.	Other Hardware	Two years

1.8 COMMISSIONING:

- A. Conduct these tests prior to request for certificate of substantial completion:
 - 1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
 - 2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
 - 3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

1.9 REGULATORY REQUIREMENTS:

- A. Locate latching hardware between 30" to 44" above the finished floor, per California Building Code, Section 1133B.2.5.2.
- B. Adjust doors to open with not more than 5.0 lbs pressure to open at exterior doors and 5.0 lbs at interior doors. As allowed per California Building Code, Section 1133B.2.5, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15 lbs.
- C. Adjust door closer sweep periods so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door, per California Building Code Section 1133B.2.5.1
- D. All hardware to meet California Building Code Sections 1133B.2.1, 1133B.2.5.1 and 1003.3.1..
- E. Thresholds: Comply with California Building Code Section 1133B.2.4.1.
- F. Floor stops: Do not locate in path of travel. Locate no more than 4" from walls.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Listed acceptable alternate manufacturers: submit for review products with equivalent function and features of scheduled products.

ITEM:	MANUFACTURER:	ACCEPTABLE SUB:
Hinges	(IVE) Ives	Hager
Continuous Hinges	(IVE) Ives	Markar, Zero
Pivots	(IVE) Ives	Rixson
Key System	(BES) Best	Owner Standard
Locks	(SCH) Schlage (SCH) Schlage	Best Standard
Exit Devices	(VON) Von Duprin	Owner Standard
Power Supplies-Exits	(VON) Von Duprin	Owner Standard
Power Supplies-Locks	(SCH) Schlage Electronics	Owner Standard
Electrical Power Transfer	(VON) Von Duprin	Owner Standard
Closers	(LCN) LCN	Owner Standard
Auto Flush Bolts	(IVE) Ives	DCI, Trimco
Coordinators	(IVE) Ives	DCI, Trimco
Silencers	(IVE) Ives	Rockwood, Trimco
Push & Pull Plates	(IVE) Ives	Rockwood, Trimco
Kickplates	(IVE) Ives	Rockwood, Trimco
Stops & Holders	(IVE) Ives	Rockwood, Trimco
Overhead Stops	(GLY) Glynn-Johnson	Owner's Standard
Thresholds	(NGP) National Guard Products	Pemko, Zero
Seals & Bottoms	(PEM) Pemko	NGP, Zero
Key Cabinets	(LUN) Lund	TelKee

Manufacturers and their abbreviations used in this schedule:

GAT	Gate Latch USA
GLY	Glynn-Johnson Hardware
IVE	H. B. Ives
KEE	Keedex
LCN	LCN Closers
NGP	National Guard Products
SCE	Schlage Electronics
SCH	Schlage Lock Company
VON	Von Duprin

2.2 HINGING METHODS:

- A. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.
- B. Conform to manufacturer's published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.
- C. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.
 - 1. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins and security studs.
 - 2. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
 - 3. Provide butt hinges where indicated in the hardware sets for doors 3'6" and over, minimum heavy weight, sizing 5 x 5 and over, per manufacturers recommendation.
 - 4. Provide butt hinges where indicated in the hardware sets for doors over 7'6" in height with a minimum of four butt hinges.
- D. Continuous Hinges:
 - 1. Geared-type aluminum.
 - a) Use wide-throw units where needed for maximum degree of swing, advise architect if commonly available hinges are insufficient.
 - b) Heavy duty type with a minimum of 32 bearings.
 - 2. Pinned steel/stainless steel type: continuous stainless steel, 0.25-inch diameter stainlesssteel hinge pin.
 - a) Use engineered application-specific wide-throw units as needed to provide maximum swing degree of swing, advise architect if required width exceeds 8 inches.
- E. Pivots: high-strength forged bronze or stainless steel, tilt-on precision bearing and bearing pin.
 - 1. Bottom and intermediate pivots: adjustability of minus 1/16 inch, plus 1/8 inch.
- F. Provide wire transfers of 10 wire capacity for the Von Duprin EPT10 when specified in the hardware sets and Butt Hinge transfer of 8 wires when specified in the hardware sets.

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

- A. Mortise Locksets and Latchsets: as scheduled.
 - 1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
 - 2. Latchbolts: 3/4 inch throw stainless steel anti-friction type.
 - 3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
 - a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
 - 4. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.
 - 5. Thumbturns: accessible design not requiring pinching or twisting motions to operate, Schlage L583-363 type.
 - 6. Deadbolts: stainless steel 1-inch throw.
 - 7. Electric operation: Manufacturer-installed continuous duty solenoid with Request to Exit Switches (RX) with Power Supplies.
 - 8. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
 - 9. Scheduled Lock Series and Design: Schlage L series, 06A design.
 - 10. Certifications:
 - a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - b) ANSI/ASTM F476-84 Grade 31 UL Listed.
 - 11. Provide spanner head security fasteners for mortise locksets.

2.4 EXIT DEVICES / PANIC HARDWARE

- A. General features:
 - 1. Independent lab-tested 1,000,000 cycles.
 - 2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
 - 3. 0.75-inch throw deadlocking latchbolts.
 - 4. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
 - 5. No exposed screws to show through glass doors.
 - 6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
 - 7. Releasable in normal operation with 15-lb. maximum operating force per UBC Standard 10-4, and with 32 lb. maximum pressure under 250-lb. load to the door.
 - 8. Flush end cap design as opposed to typical "bottle-cap" design end cap.
 - 9. Comply with CBC Section 1003.3.1.9.
- B. Specific features:

- 1. Non-Fire Rated Devices: cylinder dogging.
- 2. Lever Trim: breakaway type, forged brass or bronze escutcheon min .130" thickness, compression spring drive, match lockset lever design.
- 3. Fire-Labeled Devices: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
- 4. Provide electronic exit device with lever handles, Request to Exit Switches and the Von Duprin PS873 Series Power Supply.

2.5 CLOSERS

- A. Surface Closers:
 - 1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
 - 2. ISO 2000 certified. Units stamped with date-of-manufacture code.
 - 3. Independent lab-tested 10,000,000 cycles.
 - 4. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.
 - 5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
 - 6. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 1133B.2.5, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.
 - 7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
 - 8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
 - 9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
 - 10. Exterior doors: seasonal adjustments not required for temperatures from 120 degrees F to -30 degrees F, furnish checking fluid data on request.
 - 11. Non-flaming fluid, will not fuel door or floor covering fires.
 - 12. Pressure Relief Valves (PRV) not permitted.
 - 13. Provide special templates for door closers and concealed overhead holders/stops.

2.6 OTHER HARDWARE

- A. Automatic Flush Bolts: Low operating force design.
- B. Overhead Stops: Non-plastic mechanisms and finished metal end caps. Field-changeable holdopen, friction and stop-only functions.
- C. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.
- D. Door Stops: Provide stops to protect walls, casework or other hardware.

FINISH HARDWARE

- 1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.
- 2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.
- 3. Thresholds: As scheduled and per details. Comply with CBC Section 1133B.2.4.1. Thresholds to be bronze base, anchored with bronze machine screws and metal anchors and cut for pivots were provided.
- 4. Exteriors: Seal perimeter to exclude water and vermin. Use sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
- E. Through-bolts: Do not use. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.
- F. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

2.7 FINISH:

- 1. Generally BHMA 630, Satin Stainless Steel
- 2. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated, BHMA 695, to match other hardware, unless otherwise noted.
- C. Aluminum items: Dark Anodized match predominant adjacent material. Seals to coordinate with frame color.

2.8 KEYING REQUIREMENTS:

- A. Key System: Best, interchangeable core throughout. Key blanks available only from factorydirect sources, not available from after-market keyblank manufacturers. For estimate use factory GMK charge. Initiate and conduct meeting with Owner to determine system keyway(s), keybow styles, structure, degree of physical security. Furnish Owner's written approval of the system. Contractor will install permanent cylinders/cores under the supervision of the Owner's Representative.
 - 1. Construction keying: furnish temporary keyed-alike cores. Remove at substantial completion and install permanent cylinders/cores in Owner's presence. Demonstrate that construction key no longer operates.
 - 2. Temporary cylinders/cores remain supplier's property.
 - 3. Furnish 30 construction keys.
 - 4. Furnish 5 construction control keys.
 - 5. Key Cylinders: furnish 7-pin solid brass construction.
- B. Cylinders/cores: keyed at factory of lock manufacturer where permanent records are maintained. Locksets and cylinders same manufacturer.
- C. Permanent keys: use secured shipment direct from point of origination to Owner.

FINISH HARDWARE

- 1. For estimate: 4 keys per change combination, 5 master keys per group, 2 control keys.
- D. Bitting List: use secured shipment direct from point of origination to Owner at completion.

2.9 KEY CABINET:

A. Provide a key cabinet by Lund or equal, Model Small Wall Key Box (30-120 Keys), baked enamel

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS:

A. Can read and understand manufacturers' templates, suppliers hardware schedule and printed installation instructions. Can readily distinguish drywall screws from manufacturers furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.2 PREPARATION:

- A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation.
- B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.
 - 1. Notify Architect of code conflicts before ordering material.
 - 2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 30 inches to 44 inches above the finished floor, per CBC Section 1133B.2.5.1.
 - 3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.
- C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.3 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surfacemounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.
 - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
 - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
 - 3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
 - 4. Replace fasteners damaged by power-driven tools.

- B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.
- C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.
- D. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.
- E. Drill pilot holes for fasteners in wood doors and/or frames.
- F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.
- G. Provide proper brackets to accommodate the mounting of closers on doors with flush transoms.

3.4. ADJUSTING

- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
 - 1. Hardware damaged by improper installation or adjustment methods: repair or replace to Owner's satisfaction.
 - 2. Adjust doors to fully latch with no more than 1 pound of pressure.
 - 3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
 - 4. Adjust door closers per 1.9 this section.
- B. Inspection: Use hardware supplier's consultant or consultant's agent. Include supplier's report with closeout documents.
- C. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following:
 - 1. Re-adjust hardware.
 - 2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
 - 3. Identify items that have deteriorated or failed.
 - 4. Submit written report identifying problems

3.5 DEMONSTRATION:

A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.6 PROTECTION/CLEANING:

- A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
- B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.7 COMMISSIONING:

FINISH HARDWARE

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station A. With the Owner's Representative present, illustrate and demonstrate the functioning and operation of the Electronic Access Control System operations of the electronic exit device and automatic operators. Illustrate and demonstrate the coordination between cylinder switches and the electronic exit devices and the automatic operators.

3.8 SCHEDULE OF FINISH HARDWARE

- A. See door schedule in drawings for hardware set assignments.
- B. Miscellaneous Material:

Heading 001

1 SGL DOORS 201A AND 201B / EXTERIOR OBSERVATION TOWER 201 3'0" x 6'-10 x 3 1/4" x WD x WDF x NON-RTD

Each Assembly to have:

2	EA	PIVOT	7226 INT	613	IVE
1	EA	TOP PIVOT	7226T	613	IVE
1	EA	KEY PAD LOCK	AD-200-MS-70-KP-SPA-BD	613	SCH
1	EA	STD COMBINATED CORI	EBEST CONSTRUCTION CORE	613	BES
1	EA	STD COMBINATED CORI	E1C7 KEY TO OWNER'S REQUEST KEYWAY OF RECORD	613	BES
1	EA	SURFACE CLOSER	4041T BUMPER SRI BODY AND TRACK	695	LCN
1	EA	OVERHEAD STOP	100H SERIES	613	GLY
1	EA	DRIP CAP	16DUR FINISH ARCHITECT'S CHOICE	DUR	NGP
1	EA	THRESHOLD	426BR CUT FOR PIVOTS MS&METAL ANCHORS	720	NGP
1	EA	DOOR SWEEP	618 DUR	DUR	NGP
1	SET	HEAD BRUSH SEAL	706DUR HEAD & JAMBS	DUR	NGP
1	EA	APPLIED STOP	AS18	613	IVE

1 3/4 INCH WOOD DOOR WITH OUTSIDE APPLIED PANEL OF 1 1/2 INCHES. OFFSET PIVOT FOR THE 1 3/4" THICK DOOR. ADD MORTISE LOCK TO HAVE AN EXTEND OUTSIDE SPINDLE FOR THE APPLIED OUTSIDE PANEL. MITER THRESHOLD ENDS IF NECESSARY. SPECIAL COORDINATION TEMPLATE REQUIRED FOR DOOR CLOSER AND OVERHEAD HOLD TEMPLATING. REFER TO LCN.

.ELECTRONIC ACCESS CONTROL KEYPAD SYSTEM BY OTHERS. KEYPAD ACCESS CONTROL SYSTEM AND WIRING BY OTHERS. ELECTRIC OUTSIDE LEVER LINKED TO KEYPAD SYSTEM. LOCATION OF KEYPAD, POWER SUPPLIES, CONTROLLER PER DRAWINGS PROVIDE A POINT TO POINT WIRING DIAGRAM.

Heading 002

1 SGL DOOR 104 UNISEX TOILET 104

3'0" x 7'0" x 1-3/4" x WD x WF x NON-RTD

Each Assembly to have:

3	ΕA	HINGE	3CB1 4.5 X 4 NRP	613	IVE
1	EA	PRIVACY SET	L9044 17A FINISH 643E	SPL	SCH
1	EA	OVERHEAD STOP	814S	613	GLY
1	EA	KICK PLATE	8400 10" X 34"	613	IVE
1	EA	MOP PLATE	8400 6" X 34"	613	IVE
3	EA	SILENCER	SR65	GRY	IVE

Heading 003

1 SGL DOOR 101A EXTERIOR / OBSERVATION GALLERY 3'0" x 6'10" x 1-3/4" x LPWD x ALF x NON-RTD

Each Assembly to have:

		-			
1	ΕA	CONTINUOUS HINGE	224HD 95"	313	IVE
1	EA	CLASSROOM LOCK	L9077BDC 17A FINISH 643E X SPANNER HEAD SCREWS	SPL	SCH
2	EA	STD COMBINATED CORE	BEST CONSTRUCTION CORE	613	BES
2	EA	STD COMBINATED CORE	1C7 KEY TO OWNER'S REQUEST KEYWAY OF RECORD	613	BES
1	EA	SURFACE CLOSER	4041 H SRI BODY & ARM - PULL SIDE MOUNT	695	LCN
1	EA	OVERHEAD STOP	104S	630	GLY
1	EA	THRESHOLD	426BR MS&METAL ANCHORS-	720	NGP
1	EA	DOOR SWEEP	678DUR	DUR	NGP

MITER THRESHOLD ENDS IF NECESSARY JAMB AND HEAD SEALS BY THE DOOR/FRAME MANUFACTURER. ELECTRONIC ACCESS CONTROL KEYPAD SYSTEM BY OTHERS. KEYPAD ACCESS CONTROL SYSTEM AND WIRING BY OTHERS. ELECTRIC OUTSIDE LEVER LINKED TO KEYPAD SYSTEM. LOCATION OF KEYPAD, POWER SUPPLIES, CONTROLLER PER DRAWINGS PROVIDE A POINT TO POINT WIRING DIAGRAM.

END OF SECTION 08710

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
 - 1. Windows.
 - 2. Doors.
 - 3. Storefront framing.
 - 4. Structural-Sealant Glazed Curtain Walls.
 - 5. Glazed entrances.
- B. Related Sections:
 - 1. Division 8, "Sectional Overhead Doors" for glazing in sectional overhead doors.
 - 2. Division 8, "Translucent Linear Channel Glazing System" for channel glass

1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Interspace: Space between lites of an insulating-glass unit.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Design glass, including comprehensive engineering analysis according to ASTM E 1300 by a qualified professional engineer, using the following design criteria:
 - 1. Design Wind Pressures: As indicated on Drawings.
 - 2. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical, design glass to resist design wind pressure based on glass type factors for short-duration load.
 - 3. Glass Type Factors for Wired, Patterned, and Sandblasted Glass:

- a. Short-Duration Glass Type Factor for Wired Glass: 0.5.
- b. Long-Duration Glass Type Factor for Wired Glass: 0.3.
- c. Short-Duration Glass Type Factor for Patterned Glass: 1.0.
- d. Long-Duration Glass Type Factor for Patterned Glass: 0.6.
- e. Short-Duration Glass Type Factor for Sandblasted Glass: 0.5.
- 4. Thickness of Patterned Glass: Base design of patterned glass on thickness at thinnest part of the glass.
- 5. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch, whichever is less.
- 6. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

1.5 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glazing material type, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
 - 1. Testing will not be required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
 - 2. Use ASTM C 1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
 - 3. Test no fewer than eight samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
 - 4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including the use of specially formulated primers.

1.6 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches square.
 - 1. Tinted glass.
 - 2. Coated glass.
 - 3. Wired glass.
 - 4. Insulating glass.
- C. Glazing Accessory Samples: For exposed sealants, in 12-inch lengths. Install sealant Samples between two strips of material representative in color of the adjoining framing system.
- D. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

- E. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Qualification Data: For installers, manufacturers of insulating-glass units with sputter-coated, low-e coatings, glass testing agency, and sealant testing agency.
- G. Product Certificates: For glass and glazing products, from manufacturer.
- H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for tinted glass, coated glass, glazing sealants, and glazing gaskets.
 - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
- I. Preconstruction adhesion and compatibility test report.
- J. Warranties: Sample of special warranties.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- E. Source Limitations for Glass: Obtain tinted float glass, coated float glass, laminated glass, and insulating glass from single source from single manufacturer for each glass type.
- F. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.
- G. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: GANA's "Laminated Glazing Reference Manual" and GANA's "Glazing Manual."
 - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- H. Safety Glazing Labeling: Where safety glazing labeling is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

- I. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- J. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Install glazing in mockups specified in Division 08 Sections "Aluminum-Framed Entrances and Storefronts", "Aluminum Windows", and "Structural-Sealant-Glazed Curtain Walls" to match glazing systems required for Project, including glazing methods.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- K. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review temporary protection requirements for glazing during and after installation.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written recommendations for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or below 40 deg F.

1.10 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer's standard form in which coated-glass manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty on Laminated Glass: Manufacturer's standard form in which laminated-glass manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delaminated-glass standard.

- 1. Warranty Period: 10 years from date of Substantial Completion.
- C. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form in which insulatingglass manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL

- A. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
 - 1. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.
 - 2. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
- B. Strength: Where float glass is indicated, provide annealed float glass, Kind HS heat-treated float glass, or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened glass is indicated, provide Kind HS heat-treated float glass or Kind FT heat-treated float glass as needed to comply with "Performance Requirements" Article. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
- C. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - 1. For monolithic-glass lites, properties are based on units with lites 6.0 mm thick.
 - 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 3. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
 - 4. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
 - 5. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.2 GLASS PRODUCTS

- A. Float Glass: ASTM C 1036, Type I, Quality-Q3, Class I (clear) unless otherwise indicated.
- B. Heat-Treated Float Glass: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
 - 2. For uncoated glass, comply with requirements for Condition A.
 - 3. For coated vision glass, comply with requirements for Condition C (other coated glass).

- C. Uncoated Tinted Float Glass: Class 2, complying with other requirements specified.
 - 1. Products: Subject to compliance with requirements, provide the following:
 - a. PPG Industries; Solexia.
 - 2. Tint Color: Green.
 - 3. Visible Light Transmittance: **<Insert value>** percent minimum.
- D. Film-Faced Polished Wired Glass: ASTM C 1036, Type II, Class 1 (clear), Form 1, Quality-Q6 and complying with testing requirements in 16 CFR 1201 for Category II materials.
 - 1. Mesh: M2 (square).

2.3 LAMINATED GLASS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. PPG/Old Castle; Solexia/Solarban 60 pvb. (Basis of Design)
- B. Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
 - 1. Construction: Laminate glass with polyvinyl butyral interlayer to comply with interlayer manufacturer's written recommendations.
 - 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 - 3. Interlayer Color: Clear unless otherwise indicated.
- C. Glass: Comply with applicable requirements in "Laminated-Glass Types" Article.

2.4 INSULATING GLASS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Pilkington North America
 - 2. PPG Industries; Solexia/Solarban 60. (Basis of Design)
- B. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190, and complying with other requirements specified.
 - 1. Sealing System: Dual seal, with manufacturer's standard primary and secondary.
 - 2. Spacer: Aluminum with bronze, color anodic finish.
 - 3. Desiccant: Molecular sieve or silica gel, or blend of both.
- C. Glass: Comply with applicable requirements in "Glass Products" Article and in "Laminated Glass" Article as indicated by designations in "Insulating-Glass Types" Article.

2.5 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from one of the following:
 - 1. EPDM complying with ASTM C 864.
 - 2. Silicone complying with ASTM C 1115.
 - 3. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned EPDM silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
 - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

2.6 GLAZING SEALANTS

- A. General:
 - 1. Compatibility: Provide glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 - 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 - 3. VOC Content: For sealants used inside of the weatherproofing system, not more than 250 g/L when calculated according to 40 CFR 59, Subpart D.
 - 4. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems; Omniseal 50.
 - b. Dow Corning Corporation; 756 SMS.
 - c. GE Advanced Materials Silicones; SilGlaze II SCS2800.
 - d. Pecora Corporation; 895.
 - e. Sika Corporation, Construction Products Division; SikaSil-C995.
 - f. Tremco Incorporated; Spectrem 2 or Spectrem 3.
 - 2. Applications: All windows.

2.7 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.8 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.
- G. Perimeter Insulation for Fire-Resistive Glazing: Product that is approved by testing agency that listed and labeled fire-resistant glazing product with which it is used for application and fire-protection rating indicated.

2.9 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

2.10 MONOLITHIC-GLASS TYPES

- A. Glass Type: Clear fully tempered float glass.
 - 1. Thickness: 6.0 mm.
 - 2. Provide safety glazing labeling.
- B. Glass Type: Polished wire-glass with safety film.
 - 1. Thickness: 6.0 mm.
 - 2. Provide safety glazing labeling.

- C. Glass Type: Tinted fully tempered float glass.
 - 1. Thickness: 6.0 mm
 - 2. Winter Nighttime U-Factor: 1.02 maximum.
 - 3. Summer Daytime U-Factor: 0.93 maximum.
 - 4. Solar Heat Gain Coefficient: 0.61 maximum.
 - 5. Provide safety glazing labeling.

2.11 LAMINATED-GLASS TYPE

- A. Glass Type at location indicated: Low-e-coated, laminated vision glass with two plies of tinted and clear fully tempered float glass.
 - 1. Thickness of Each Glass Ply: 6.0 mm or as indicated.
 - 2. Interlayer Thickness: 0.060 inch (1.52 mm).
 - 3. Low-E Coating: Pyrolytic on third surface.
 - 4. U-Factor: 0.95 maximum.
 - 5. Solar Heat Gain Coefficient: 0.45 maximum.
 - 6. Provide safety glazing labeling.

2.12 INSULATING-GLASS TYPES

- A. Glass Type (at tower): Low-e-coated, tinted insulating glass.
 - 1. Overall Unit Thickness: 1 inch.
 - 2. Thickness of Each Glass Lite: 6.0 mm.
 - 3. Outdoor Lite: Tinted fully tempered float glass.
 - 4. Interspace Content: Air.
 - 5. Indoor Lite: Clear fully tempered float glass.
 - 6. Low-E Coating: Pyrolytic on third surface.
 - 7. Visible Light Transmittance: 61 percent minimum.
 - 8. Winter Nighttime U-Factor: 0.29 maximum.
 - 9. Summer Daytime U-Factor: 0.27 maximum.
 - 10. Solar Heat Gain Coefficient: 0.36 maximum.
 - 11. Provide safety glazing labeling.
- B. Glass Type (all other locations): Low-e-coated, tinted insulating glass.
 - 1. Overall Unit Thickness: 1 inch.
 - 2. Thickness of Each Glass Lite: 6.0 mm.
 - 3. Outdoor Lite: Tinted fully tempered float glass.
 - 4. Interspace Content: Air.
 - 5. Indoor Lite: Clear fully tempered float glass.
 - 6. Low-E Coating: Pyrolytic on third surface.
 - 7. Visible Light Transmittance: 61 percent minimum.
 - 8. Winter Nighttime U-Factor: 0.29 maximum.
 - 9. Summer Daytime U-Factor: 0.27 maximum.
 - 10. Solar Heat Gain Coefficient: 0.36 maximum.
 - 11. Provide safety glazing labeling.
 - 12. Provide obscure insulating glass as shown on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.
 - 3. Minimum required face and edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that will leave visible marks in the completed work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Adjust glazing channel dimensions as required by Project conditions during installation to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches.
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.7 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 08800

SECTION 08912 - STRUCTURAL-SEALANT-GLAZED CURTAIN WALLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Field-glazed, two-sided structural-sealant-glazed curtain-wall assemblies.
- B. Related Sections:
 - 1. Division 8 Section "Aluminum Framed Storefronts and Entrances" for conventionally glazed storefronts.

1.3 ALLOWANCES

A. Provide field quality-control testing as part of testing and inspecting allowance.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Comply with performance requirements specified, as determined by preconstruction testing manufacturer's standard of structural-sealant-glazed curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - 1. Structural-sealant-glazed curtain walls shall withstand movements of supporting structure indicated on Drawings including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 - 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- B. Delegated Design: Design structural-sealant-glazed curtain walls, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Structural Loads:

- 1. Wind Loads Design Pressure: As calculated according to ASCE 07-05 as modified by CBC 1609A using wind speed specified on Drawwings.
- D. Structural-Test Performance: Provide structural-sealant-glazed curtain walls tested according to ASTM E 330 as follows:
 - 1. When tested at positive and negative wind-load design pressures, assemblies do not evidence deflection exceeding specified limits.
 - 2. When tested at 150 percent of positive and negative wind-load design pressures, assemblies, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
 - 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- E. Deflection of Framing Members: At design wind pressure, as follows:
 - 1. Deflection Normal to Wall Plane: Limited to edge of glass in a direction perpendicular to glass plane not exceeding L/175 of the glass edge length for each individual glazing lite or an amount that restricts edge deflection of individual glazing lites to 3/4 inch, whichever is less.
 - 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than 1/8 inch.
 - a. Operable Units: Provide a minimum 1/16-inch clearance between framing members and operable units.
 - 3. Cantilever Deflection: Where framing members overhang an anchor point, limit deflection to 2 times the length of cantilevered member divided by 175.
- F. Seismic Performance: Structural-sealant-glazed curtain walls shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
 - 1. Component Importance Factor is 1.0.
 - 2. Design Displacement: As indicated on Drawings.
 - 3. Test Performance: Meets criteria for passing based on building occupancy type when tested according to AAMA 501.4 at design displacement and 1.5 times the design displacement.
- G. Water Penetration under Static Pressure: No evidence of water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft..
- H. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures:
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
 - 2. Test Interior Ambient-Air Temperature: 75 deg F.
- I. Energy Performance: Structural-sealant-glazed curtain walls shall have certified and labeled energy performance ratings according to NFRC.
 - 1. Thermal Transmittance (U-Factor): Fixed glazing and framing areas shall have U-factor of not more than 0.57 Btu/sq. ft. x h x deg F or 1.19 Btu/sq. ft. x h x deg F as determined according to NFRC 100, and as shown on ENV-1-C.
 - 2. Solar Heat Gain Coefficient: Fixed glazing and framing areas shall have a SHGC of no greater than 0.35 or 0.45 as determined according to NFRC 200, and as shown on ENV-1-C.

- 3. Air Infiltration: Maximum air leakage through fixed glazing and framing areas of 0.30 cfm/sq. ft. of fixed wall area as determined according to ASTM E 283 at a minimum static-air-pressure differential of 6.24 lbf/sq. ft..
- 4. Condensation Resistance: Fixed glazing and framing areas shall have an NFRC-certified CR rating of no less than 45 as determined according to NFRC 500
- J. Structural Sealant: Capable of withstanding tensile and shear stresses imposed by structural-sealantglazed curtain walls without failing adhesively or cohesively. When tested for preconstruction adhesion and compatibility, cohesive failure of sealant shall occur before adhesive failure.
 - 1. Adhesive failure occurs when sealant pulls away from substrate cleanly, leaving no sealant material behind.
 - 2. Cohesive failure occurs when sealant breaks or tears within itself but does not separate from each substrate because sealant-to-substrate bond strength exceeds sealant's internal strength.
- K. Structural-Sealant Joints:
 - 1. Designed to carry gravity loads of glazing.
 - 2. Designed to produce tensile or shear stress of less than 20 psi.
 - 3. Design reviewed and approved by structural-sealant manufacturer.

1.5 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Provide structural-sealant-glazed curtain walls that comply with testperformance requirements indicated, as evidenced by reports of tests performed on manufacturer's standard assemblies by a qualified testing agency.
- B. Preconstruction Sealant Testing: Perform sealant manufacturer's standard tests for compatibility with and adhesion of each material that will come in contact with sealants and each condition.
 - 1. Test a minimum five production-run samples each of metal, glazing, and other material.
 - 2. Prepare samples using techniques and primers required for installed assemblies.
 - 3. Perform tests under environmental conditions that duplicate those under which assemblies will be installed.
 - 4. For materials that fail tests, determine corrective measures necessary to prepare each material to ensure compatibility with and adhesion of sealants including, but not limited to, specially formulated primers. After performing these corrective measures on the minimum number of samples required for each material, retest materials.

1.6 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For structural-sealant-glazed curtain walls. Include plans, elevations, sections, full-size details, and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 - 2. Include full-size isometric details of each vertical-to-horizontal intersection of structural-sealantglazed curtain walls, showing the following:
 - a. Joinery, including concealed welds.

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- b. Anchorage.
- c. Expansion provisions.
- d. Glazing.
- e. Flashing and drainage.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch lengths of full-size components and showing details of the following:
 - 1. Joinery, including concealed welds.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- F. Delegated-Design Submittal: For structural-sealant-glazed curtain walls indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- G. Qualification Data: For qualified Installer and testing agency.
- H. Seismic Qualification Certificates: For structural-sealant-glazed curtain walls, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
- I. Welding certificates.
- J. Energy-Performance Certificates: For structural-sealant-glazed curtain walls, accessories, and components, from manufacturer.
 - 1. Basis for Certification: NFRC-certified energy-performance values for each structural-sealantglazed curtain wall.
- K. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency, for structural-sealant-glazed curtain walls, indicating compliance with performance requirements.
- L. Preconstruction Test Reports: For structural-sealant-glazed curtain walls and elastomeric glazing sealants.
- M. Source quality-control reports.
- N. Field quality-control reports.
- O. Maintenance Data: For structural-sealant-glazed curtain walls to include in maintenance manuals. Include ASTM C 1401 recommendations for postinstallation-phase quality-control program.
- P. Warranties: Sample of special warranties.

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1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.
- C. Product Options: Information on Drawings and in Specifications establishes requirements for assemblies' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- D. Structural-Sealant Glazing: Comply with ASTM C 1401 for design and installation of structural-sealantglazed curtain walls.
- E. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code Aluminum."
- F. Energy-Performance Standards: Comply with NFRC for minimum standards of energy performance, materials, components, accessories, and fabrication. Comply with more stringent requirements if indicated.
 - 1. Provide NFRC-certified, structural-sealant-glazed curtain walls with an attached label.
- G. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockups of typical wall area as shown on Drawings.
 - 2. Field testing shall be performed on mockups according to requirements in "Field Quality Control" Article.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- H. Preinstallation Conference: Conduct conference at Project site.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of structural supports for structural-sealant-glazed curtain walls by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 WARRANTY

A. Special Assembly Warranty: Standard form in which manufacturer and Installer agrees to repair or replace components of structural-sealant-glazed curtain walls that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

- 1. Failures include, but are not limited to, the following:
 - a. Structural failures including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - d. Water penetration through fixed glazing and framing areas.
 - e. Failure of operating components.
- 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Arcadia, Inc.
 - 2. EFCO Corporation.
 - 3. Kawneer North America; an Alcoa company. 1600 Wall (Basis of Design)
 - 4. United States Aluminum.
 - 5. Vistawall Architectural Products; The Vistawall Group; a Bluescope Steel company.
 - 6. Wausau Window and Wall Systems.
 - 7. Or Approved Equal.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Sheet and Plate: ASTM B 209.
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
 - 3. Extruded Structural Pipe and Tubes: ASTM B 429.
 - 4. Structural Profiles: ASTM B 308/B 308M.
 - 5. Welding Rods and Bare Electrodes: AWS A5.10/A5.10M.
- B. Steel Reinforcement: Manufacturer's standard zinc-rich, corrosion-resistant primer, complying with SSPC-PS Guide No. 12.00; applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC-SP COM and prepare surfaces according to applicable SSPC standard.
 - 1. Structural Shapes, Plates, and Bars: ASTM A 36/A 36M.

- 2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008M.
- 3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011M.

2.3 FRAMING

- A. Framing Members: Manufacturer's standard formed- or extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
- B. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- C. Anchors: Three-way adjustable anchors, with minimum adjustment of 1 inch, that accommodate fabrication and installation tolerances in material and finish and are compatible with adjoining materials and recommended by manufacturer.
 - 1. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- D. Concealed Flashing: Dead-soft, 0.018-inch- thick stainless steel, ASTM A 240/A 240M of type recommended by manufacturer.
- E. Framing Sealants: Manufacturer's standard sealants with VOC content of 250g/L or less when calculated according to 40 CFR 59, Subpart D (EPA method 24).

2.4 GLAZING

- A. Glazing: Comply with Division 8 Section "Glazing."
- B. Glazing Gaskets, Spacers, Setting Blocks, Sealant Backings, and Bond Breakers: Manufacturer's standard permanent, nonmigrating types compatible with sealants and suitable for joint movement and assembly performance requirements.
- C. Glazing Gaskets, Spacers, Setting Blocks, Sealant Backings, and Bond Breakers: As specified in Division 8 Section "Glazing."
- D. Glazing Sealants: For structural-sealant-glazed curtain walls, as recommended by manufacturer for joint type, and as follows:
 - 1. Structural Sealant: ASTM C 1184, chemically curing silicone formulation that is compatible with system components with which it comes in contact, specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in curtain-wall assembly indicated.
 - a. Provide sealants for use inside of the weatherproofing system that have a VOC content of 100 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - b. Color: As selected by Architect from manufacturer's full range of colors.

- 2. Weatherseal Sealant: ASTM C 920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with structural sealant and other system components with which it comes in contact; recommended by structural-sealant, weatherseal-sealant, and structural-sealant-glazed curtain-wall manufacturers for this use.
 - a. Provide sealants for use inside of the weatherproofing system that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - b. Color: Matching structural sealant.

2.5 OPERABLE UNITS

- A. Venting Windows: Comply with Division 8 Section "Aluminum Windows."
- B. Doors: Comply with Division 8 Section "Aluminum-Framed Entrances and Storefronts."

2.6 ACCESSORY MATERIALS

- A. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.
- B. Cleaning Agent and Cloth: As recommended by structural-sealant manufacturer.

2.7 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.
- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
 - 6. Provisions for field replacement of glazing from interior. Include accommodations for using temporary support device (dutchman) to retain glazing in place while sealant cures.
 - 7. Internal guttering systems or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within structural-sealant-glazed curtain wall to exterior.
- D. Factory-Assembled Frame Units:
 - 1. Rigidly secure nonmovement joints.
 - 2. Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion.
 - 3. Preparation includes, but is not limited to, cleaning and priming surfaces.
 - 4. Seal joints watertight unless otherwise indicated.
 - 5. Install glazing to comply with requirements in Division 8 Section "Glazing."

E. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

- A. High-Performance Organic Finish: Three-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

2.9 SOURCE QUALITY CONTROL

A. Perform quality-control procedures complying with ASTM C 1401 recommendations including, but not limited to, assembly material qualification procedures, sealant testing, and assembly fabrication reviews and checks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmoving joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion, electrolytic deterioration, and impediments to movement of joints.
 - 6. Weld components in concealed locations to minimize distortion or discoloration of finish. Protect glazing surfaces from welding.
 - 7. Seal joints watertight unless otherwise indicated.
- B. Metal Protection:
 - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer, applying sealant or tape, or installing nonconductive spacers as recommended by manufacturer for this purpose.
 - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within structural-sealant-glazed curtain walls to exterior.
- D. Install components plumb and true in alignment with established lines and grades.
- E. Install operable units level and plumb, securely anchored, and without distortion. Adjust weatherstripping contact and hardware movement to produce proper operation.
- F. Install glazing as specified in Division 8 Section "Glazing." Prepare surfaces that will contact structural sealant according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.
- G. Install weatherseal sealant according to Division 7 Section "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

3.3 ERECTION TOLERANCES

- A. Erection Tolerances: Install to comply with the following nonaccumulating maximum tolerances:
 - 1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet, unless shown otherwise.
 - 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
 - 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
 - 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of representative areas of structural-sealant-glazed curtain walls shall take place as installation proceeds to determine compliance of installed assemblies with specified requirements.
 - 1. Structural-Sealant Adhesion: Test structural sealant according to recommendations in ASTM C 1401, Destructive Test Method A, "Hand Pull Tab (Destructive)," Appendix X2.
 - a. Test a minimum of four areas on each building facade.
 - b. Repair installation areas damaged by testing.
 - 2. Water Spray Test: Before installation of interior finishes has begun, areas designated by Architect shall be tested according to AAMA 501.2 and shall not evidence water penetration.
 - a. Test Area: A minimum area of 75 feet by one story of structural-sealant-glazed curtain wall.

- C. Structural-sealant-glazed curtain walls will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION 08912

SECTION 09250 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Interior gypsum board.
- 2. Exterior gypsum board for ceilings and soffits
- 3. Tile backing panels.
- B. Related Requirements:
 - 1. Division 6 Section "Sheathing" for gypsum sheathing for exterior walls.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 QUALITY ASSURANCE

- A. Mockups: Before beginning gypsum board installation, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Install mockups for the following:
 - a. Each level of gypsum board finish indicated for use in exposed locations.
 - 2. Apply or install final decoration indicated, including painting and wallcoverings, on exposed surfaces for review of mockups.
 - 3. Simulate finished lighting conditions for review of mockups.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. American Gypsum.
 - 2. CertainTeed Corp.
 - 3. Georgia-Pacific Gypsum LLC.
 - 4. Lafarge North America Inc.
 - 5. National Gypsum Company.
 - 6. PABCO Gypsum.
 - 7. Temple-Inland.
 - 8. USG Corporation..
- B. Gypsum Wallboard: ASTM C 1396/C 1396M.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- C. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- D. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
 - 1. Thickness: 1/2 inch.
 - 2. Long Edges: Tapered.
- E. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.
 - 1. Core: 5/8 inch
 - 2. Long Edges: Tapered.

GYPSUM BOARD

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station 3. Mold Resistance: ASTM D 3273, score of 10.

2.3 SPECIALTY GYPSUM BOARD

- A. Glass-Mat Interior Gypsum Board: ASTM C 1658/C 1658M. With fiberglass mat laminated to both sides. Specifically designed for interior use.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Georgia-Pacific Gypsum LLC; DensArmour Plus.
 - 2. Core: 5/8 inch.
 - 3. Long Edges: Tapered.
 - 4. Mold Resistance: ASTM D 3273, score of 10.

2.4 EXTERIOR GYPSUM BOARD FOR CEILINGS AND SOFFITS

- A. Exterior Gypsum Soffit Board: ASTM C 1396/C 1396M, with manufacturer's standard edges.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Gypsum.
 - b. CertainTeed Corp.
 - c. Georgia-Pacific Gypsum LLC.
 - d. Lafarge North America Inc.
 - e. National Gypsum Company.
 - f. PABCO Gypsum.
 - g. Temple-Inland.
 - h. USG Corporation.
 - 2. Core: 5/8 inch.
- B. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. CertainTeed Corp.; GlasRoc Sheathing.
 - b. Georgia-Pacific Gypsum LLC; Dens-Glass Gold.
 - c. National Gypsum Company; Gold Bond, e(2)XP.
 - d. USG Corporation; Securock Glass Mat Sheathing.
 - 2. Core: 5/8 inch.

2.5 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178/C 1178M, with manufacturer's standard edges.
 - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. CertainTeed Corp.; GlasRoc Tile Backer.
- b. Georgia-Pacific Gypsum LLC; DensShield Tile Backer.
- c. Or Approved Equal.
- 2. Core: 5/8 inch.
- 3. Mold Resistance: ASTM D 3273, score of 10.

2.6 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Rolled zinc.
 - 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. L-Bead: L-shaped; exposed long flange receives joint compound.
 - d. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - e. Expansion (control) joint.
- B. Exterior Trim: ASTM C 1047.
 - 1. Material: Rolled zinc.
 - 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (Control) Joint: One-piece, rolled zinc with V-shaped slot and removable strip covering slot opening.
- C. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fry Reglet Corp.
 - b. Gordon, Inc.
 - c. Pittcon Industries.
 - 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
 - 3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.7 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Board: Paper.
 - 2. Exterior Gypsum Soffit Board: Paper.
 - 3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
 - 4. Tile Backing Panels: As recommended by panel manufacturer.

- C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Exterior Applications:
 - 1. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - 2. Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board manufacturer.
- E. Joint Compound for Tile Backing Panels:
 - 1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
- D. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
- E. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
 - b. Grabber Construction Products; Acoustical Sealant GSC.
 - c. Pecora Corporation; AC-20 FTR.
 - d. USG Corporation; SHEETROCK Acoustical Sealant.
- F. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."
- G. Vapor Retarder: As specified in Division 07 Section "Thermal Insulation."

2.9 TEXTURE FINISHES

- A. Primer: As recommended by textured finish manufacturer.
- B. Texture Finish: Water-based, job mixed, drying type texture finish for trowel application.
 - 1. Texture: Light orange peel.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and framing, with Installer present, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

- H. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Wallboard Type: As indicated on Drawings.
 - 2. Type X: As indicated on Drawings.
 - 3. Ceiling Type: As indicated on Drawings.
 - 4. Moisture- and Mold-Resistant Type: As indicated on Drawings.
 - 5. Glass-Mat Interior Type: As indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
 - 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.4 APPLYING EXTERIOR GYPSUM PANELS FOR CEILINGS AND SOFFITS

- A. Apply panels perpendicular to supports, with end joints staggered and located over supports.
 - 1. Install with 1/4-inch open space where panels abut other construction or structural penetrations.
 - 2. Fasten with corrosion-resistant screws.

3.5 APPLYING TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at locations indicated to receive tile. Install with 1/4-inch gap where panels abut other construction or penetrations.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.6 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners unless otherwise indicated.
 - 2. Bullnose Bead: Use where indicated.
 - 3. LC-Bead: Use at exposed panel edges.
 - 4. L-Bead: Use where indicated.
 - 5. U-Bead: Use where indicated.
 - 6. Curved-Edge Cornerbead: Use at curved openings.
- D. Exterior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead: Use at exposed panel edges.
- E. Aluminum Trim: Install in locations indicated on Drawings.

3.7 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 2: Panels that are substrate for tile.
 - 3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 09 Sections.
- E. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.
- F. Glass-Mat Faced Panels: Finish according to manufacturer's written instructions.

3.8 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.

- B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture matching approved mockup and free of starved spots or other evidence of thin application or of application patterns.
- C. Prevent texture finishes from coming into contact with surfaces not indicated to receive texture finish by covering them with masking agents, polyethylene film, or other means. If, despite these precautions, texture finishes contact these surfaces, immediately remove droppings and overspray to prevent damage according to texture-finish manufacturer's written recommendations.

3.9 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other nondrywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09250

SECTION 09310 - CERAMIC TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Ceramic tile.
 - 2. Waterproof membrane.
 - 3. Crack isolation membrane.
 - 4. Tile backing panels.
- B. Related Sections:
 - 1. Division 7 Section "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
 - 2. Division 9 Section "Gypsum Board" for glass-mat, water-resistant backer board.

1.3 DEFINITIONS

- A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.
- B. ANSI A108 Series: ANSI A108.01, ANSI A108.02, ANSI A108.1A, ANSI A108.1B, ANSI A108.1C, ANSI A108.4, ANSI A108.5, ANSI A108.6, ANSI A108.8, ANSI A108.9, ANSI A108.10, ANSI A108.11, ANSI A108.12, ANSI A108.13, ANSI A108.14, ANSI A108.15, ANSI A108.16, and ANSI A108.17, which are contained in "American National Standard Specifications for Installation of Ceramic Tile."
- C. Module Size: Actual tile size plus joint width indicated.
- D. Face Size: Actual tile size, excluding spacer lugs.

1.4 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
 - 1. Level Surfaces: Minimum 0.6.
 - 2. Step Treads: Minimum 0.6.
 - 3. Ramp Surfaces: Minimum 0.8.

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1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.
- C. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required.
 - 2. Full-size units of each type of trim and accessory for each color and finish required.
 - 3. Stone thresholds in 6-inch lengths.
 - 4. Metal edge strips in 6-inch lengths.
- D. Qualification Data: For qualified Installer.
- E. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- F. Product Certificates: For each type of product, signed by product manufacturer.
- G. Material Test Reports: For each tile-setting and -grouting product.

1.6 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain tile of each type and color or finish from one source or producer.
 - 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer for each product:
 - 1. Waterproof membrane.
 - 2. Crack isolation membrane.
 - 3. Joint sealants.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of each type of wall tile installation.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- E. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.9 EXTRA MATERIALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

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- 1. Where tile is indicated for installation on exteriors or in wet areas, do not use back- or edgemounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.
- E. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.

2.2 TILE PRODUCTS

- A. Tile Type: Glazed wall tile.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Marazzi Tile, Inc.
 - b. American Olean; Division of Dal-Tile International Inc.
 - c. Daltile; Division of Dal-Tile International Inc.; "Semi-Gloss". (Basis of Design)
 - d. Deutsche Steinzeug America, Inc.
 - e. Florida Tile Industries, Inc.
 - f. Florim USA.
 - g. Laufen.
 - h. Grupo Porcelanite.
 - i. Portobello America, Inc.
 - j. Seneca Tiles, Inc.
 - k. United States Ceramic Tile Company.
 - l. Or Approved Equal.
 - 2. Type 1 Module Size: 4x8 inches.
 - 3. Type 2 Module Size: 4x4 inches.
 - 4. Thickness: 5/16 inch.
 - 5. Face: Plain with modified square edges or cushion edges.
 - 6. Finish: Bright, opaque glaze.
 - 7. Tile Color and Pattern: As selected by Architect from manufacturer's full range. Provide 25% of tile from Group 1, 25% of tile from Group 2, and 50% of tile from Group 4.
 - 8. Grout Color: As selected by Architect from manufacturer's full range.
 - 9. Mounting: Factory, back mounted.
 - 10. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Wainscot Cap for Portland Cement Mortar Installations: Bullnose cap, module size 4-1/4 by 4-1/4 inches.
 - b. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose, module size 4-1/4 by 4-1/4 inches.
 - c. External Corners for Portland Cement Mortar Installations: Bullnose shape with radius of at least 3/4 inch unless otherwise indicated.
 - d. External Corners for Thin-Set Mortar Installations: Surface bullnose, same size as adjoining flat tile.
 - e. Internal Corners: Field-butted square corners. For coved base and cap use angle pieces designed to fit with stretcher shapes.

2.3 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Chlorinated Polyethylene Sheet: Nonplasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric; 0.030-inch nominal thickness.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Noble Company (The); Nobleseal TS.
- C. PVC Sheet: Two layers of PVC sheet heat-fused together and to facings of nonwoven polyester; 0.040inch nominal thickness.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Compotite Corporation; Composeal Gold.
- D. Fabric-Reinforced, Modified-Bituminous Sheet: Self-adhering, SBS-modified-bituminous sheet with woven reinforcement facing; 0.040-inch nominal thickness.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. National Applied Construction Products, Inc.; Strataflex.
- E. Fabric-Reinforced, Fluid-Applied Membrane for thin-set tile installation: System consisting of liquidlatex rubber or elastomeric polymer and continuous fabric reinforcement.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Boiardi Products; a QEP company; Elastiment 344 Reinforced Waterproofing and Anti-Fracture/Crack Suppression Membrane.
 - b. Bonsal American; an Oldcastle company; B 6000 Waterproof Membrane with Glass Fabric.
 - c. Bostik, Inc.; Hydroment Blacktop 90210.
 - d. Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane.
 - e. Laticrete International, Inc.; Laticrete 9235 Waterproof Membrane.
 - f. MAPEI Corporation; Mapelastic L (PRP M19).
 - g. Mer-Kote Products, Inc.; Hydro-Guard 2000.

2.4 CRACK ISOLATION MEMBRANE

- A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.12 for high performance and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Chlorinated Polyethylene Sheet: Nonplasticized, chlorinated polyethylene faced on both sides with nonwoven polyester fabric; 0.030-inch nominal thickness.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Noble Company (The); Nobleseal CIS.

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- C. PVC Sheet: Two layers of PVC sheet heat-fused together and to facings of nonwoven polyester; 0.040inch nominal thickness.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Compotite Corporation; Composeal Gold.
- D. Fabric-Reinforced, Modified-Bituminous Sheet: Self-adhering, modified-bituminous sheet with fabric reinforcement facing; 0.040-inch nominal thickness.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. MAPEI Corporation; Mapelastic SM.
 - b. National Applied Construction Products, Inc.; Strataflex.

2.5 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
 - 1. Cleavage Membrane: Asphalt felt, ASTM D 226, Type I (No. 15); or polyethylene sheeting, ASTM D 4397, 4.0 mils thick.
 - 2. Reinforcing Wire Fabric: Galvanized, welded wire fabric, 2 by 2 inches by 0.062-inch diameter; comply with ASTM A 185 and ASTM A 82 except for minimum wire size.
 - 3. Expanded Metal Lath: Diamond-mesh lath complying with ASTM C 847.
 - a. Base Metal and Finish for Interior Applications: Zinc-coated (galvanized) steel sheet.
 - b. Base Metal and Finish for Exterior Applications: Zinc-coated (galvanized) steel sheet.
 - c. Configuration over Studs and Furring: Flat.
 - d. Configuration over Solid Surfaces: Self furring.
 - e. Weight: 3.4 lb/sq. yd..
 - 4. Latex Additive: Manufacturer's standard water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed.
- B. Dry-Set Portland Cement Mortar (Thin Set): ANSI A118.1.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Laticrete International, Inc.
 - f. MAPEI Corporation.
 - 2. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.1.
- C. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

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- a. Boiardi Products; a QEP company.
- b. Bonsal American; an Oldcastle company.
- c. C-Cure.
- d. Custom Building Products.
- e. Laticrete International, Inc.
- f. MAPEI Corporation.
- 2. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
- 3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.6 GROUT MATERIALS

- A. Standard Cement Grout: ANSI A118.6.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Laticrete International, Inc.
 - f. MAPEI Corporation.
- B. Polymer-Modified Tile Grout: ANSI A118.7.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Boiardi Products; a QEP company.
 - b. Bonsal American; an Oldcastle company.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Laticrete International, Inc.
 - f. MAPEI Corporation.
 - 2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.

2.7 ELASTOMERIC SEALANTS

- A. General: Provide sealants, primers, backer rods, and other sealant accessories that comply with the following requirements and with the applicable requirements in Division 7 Section "Joint Sealants."
 - 1. Use primers, backer rods, and sealant accessories recommended by sealant manufacturer.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.

2.8 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: Angle or L-shape, height to match tile and setting-bed thickness, metallic or combination of metal and PVC or neoprene base, designed specifically for flooring applications; stainless-steel, ASTM A 666, 300 Series exposed-edge material.
- C. Temporary Protective Coating: Either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
 - 1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F per ASTM D 87.
 - 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- D. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- E. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.

2.9 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with bonded mortar bed comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.

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- 3. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed.
- 4. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 TILE INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
 - 2. Where adjoining tiles on floor, base, walls, or trim are specified or indicated to be same size, align joints.
 - 3. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- E. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:

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- 1. Glazed Wall Tile: 1/16 inch.
- F. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- G. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- H. Grout Sealer: Apply grout sealer to grout joints in tile floors according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.

3.4 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 CRACK ISOLATION MEMBRANE INSTALLATION

- A. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
- B. Do not install tile or setting materials over crack isolation membrane until membrane has cured.

3.6 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-portland cement grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 - 3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.
- B. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

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D. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.7 EXTERIOR TILE INSTALLATION SCHEDULE

- A. Exterior Wall Installations, Masonry or Concrete:
 - 1. Tile Installation by artist.

3.8 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Wall Installations, Masonry:
 - 1. Tile Installation W211: Cement mortar bed (thickset) bonded to substrate; TCA 211 and ANSI A108.1C.
 - a. Tile Type: Glazed wall tile.
 - b. Bond Coat Mortar for Wet-Set Method: Dry-set or Latex-portland cement mortar.
 - c. Thin-Set Mortar for Cured-Bed Method: Dry-set or Latex- portland cement mortar.
 - d. Grout: Polymer-modified unsanded grout.
- B. Interior Wall Installations, Wood Studs or Furring:
 - 1. Tile Installation W245: Thin-set mortar on coated glass-mat, water-resistant gypsum backer board; TCA W245.
 - a. Tile Type: Glazed wall tile.
 - b. Thin-Set Mortar: Dry-set or Latex- portland cement mortar.
 - c. Grout: Polymer-modified unsanded grout.

END OF SECTION 09310

SECTION 09860 - ANTI-GRAFFITI COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and field application of anti-graffiti coating systems to items and surfaces indicated.
- B. Related Sections include the following:
 - 1. Division 7 Section "Water Repellent."

1.3 SUBMITTALS

- A. Product Data: For each coating system indicated. Coating shall be compatible with water repellent.
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and crossreference the specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each material specified.
- B. Certification by manufacturer that products supplied comply with requirements indicated that limit the amount of VOCs in coating products.
- C. Samples for Verification: For each material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate.
- D. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Warranty.

1.4 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed anti-graffiti coating system applications similar in material and extent to those indicated for Project, is certified by the manufacterer, and whose work has a record of successful in-service performance.
- B. Source Limitations: Obtain coatings, and removal agent from the same manufacturer.

1.5 PERFORMANCE REQUIREMENTS

- A. Provide anti-graffiti coating system complying with the following:
 - 1. Permanent coating system.
 - 2. Show no signs of deterioration, or change of appearance after graffiti removal during the warranty period.
 - 3. Capablity of removing 100% of all types of paint and graffiti materials from treated surfaces without damaging the coating or the substrate.
 - 4. Upon graffiti removal, no evidence of graffiti shall remain.
 - 5. Capable of withstanding a minimum of 120 cleaning cycles without measurable coating deterioration.
 - 6. Shall not increase dirt pick-up of substrate.
 - 7. Meet the following test results for the following chemicals:

a.	MEK	No effect after 5 days
b.	Carboxylic Acid	No effect after 5 days
c.	75% Phosphoric Acid	No effect after 5 days
d.	37% HCL	3 hours blister
e.	50% Sulfuric Acid	No effect after 5 days
f.	20% NIT	68 hours blister

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label with the following information:
 - 1. Name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. Handling instructions and precautions.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 - 1. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and applying coatings.

1.7 PROJECT CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 45 and 95 deg F.
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before proceeding with or continuing coating operation.

1.8 EXTRA MATERIALS

- A. Furnish extra graffiti removal materials in quantities described below. Package coating materials in unopened, factory-sealed containers for storage and identify with labels describing contents.
 - 1. Quantity: One full case.

PART 2 - PRODUCTS

2.1 ANTI-GRAFFITI SYSTEM/MANUFACTURER

- A. Evonik Degussa Corporation; Protectosil Antigraffiti.
- B. Or Approved Equal.

2.2 ANTI-GRAFFITI COATING MATERIALS

- A. VOC Classification: Provide materials that comply with South Coast Air Quality Management District's VOC classification.
- B. Coatings shall meet requirements of the following:
 - 1. ASTM B 117 and ASTM D 714 (salt spray minimum acceptable of 8000 hours).
 - 2. ASTM D 530 (hardness)
 - 3. ASTM D 412 (tensile strength and elongation)
 - 4. ASTM D 522 (pass 3/8 inch mandral)
 - 5. ASTM D 968 (abrasion test)
 - 6. ASTM E 96 (vapor transmission)
 - 7. Water clear, non-yellowing, free of waxes and urethanes.
 - 8. Non-toxic, non-flammable, biodegradable, with a PH 7 8.5.
 - 9. Shall allow moisture vapor transmission.
- C. Coating:
 - 1. Finish: Matte.
 - 2. Color: Clear.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. With Applicator present, examine substrates and conditions under which anti-graffiti coatings will be applied, for compliance with coating application requirements.
 - 1. Apply coatings only after unsatisfactory conditions have been corrected and surfaces to receive coatings are thoroughly dry.

- 2. Start of application is construed as Applicator's acceptance of surfaces within that particular area.
- B. Coordination of Work: Review other Sections in which primers or other coatings are provided to ensure compatibility of total systems for various substrates. On request, furnish information on characteristics of specified finish materials to ensure compatible primers.
 - 1. If a potential incompatibility of primers applied by others exists, obtain the following from the primer Applicator before proceeding:
 - a. Confirmation of primer's suitability for expected service conditions.
 - b. Confirmation of primer's ability to be top coated with materials specified.
 - 2. Notify Architect about anticipated problems before using the coatings specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.
 - 1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
- B. Cleaning: Before applying coatings, clean substrates of substances that could impair bond of coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and coating application so dust and other contaminates from cleaning process will not fall on wet, newly coated surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be coated according to manufacturer's written instructions for each substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove primers and reprime substrate.
 - 2. Cementitious Substrates: Prepare concrete, concrete masonry block, and cement plaster surfaces to be coated. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces.
 - a. Do not coat surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
- D. Material Preparation: Carefully mix and prepare coating materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.
 - 2. Stir materials before applying to produce a mixture of uniform density. Stir as required during application.

3.3 APPLICATION

A. General: Apply coatings according to manufacturer's written instructions.

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- 1. Use applicators and techniques best suited for the material being applied.
 - a. Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 - b. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until coating has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat does not cause undercoat to lift or lose adhesion.
- B. Application Over Cementitious Surfaces:
 - 1. Base: Diluted to 1 percent concentration (1 part Protectosil Antigraffiti to 14 part potable water).
 - 2. Finish: 2 coats of full strength of coating (non-diluted).
- C. Completed Work: Match approved Samples for color, texture, and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.4 FIELD QUALITY CONTROL

A. Demonstration: Apply alkyd-based graffiti to a 2 ft. sq. treated area selected by the Architect. 5 days minimum after application, demonstrate complete removal of the graffiti in the presence of the Architect.

3.5 CLEANING

- A. Cleanup: At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
 - 1. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being coated or not, against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
 - 1. Provide "Wet Paint" signs to protect newly coated finishes. After completing coating operations, remove temporary protective wrappings provided by others to protect their work.
 - 2. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION 09860

SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Galvanized metal.
 - 2. Wood.
 - 3. Gypsum board.
- B. Related Sections include the following:
 - 1. Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
 - 2. Division 6 Sections for shop priming carpentry with primers specified in this Section.
 - 3. Division 8 Sections for factory priming windows and doors with primers specified in this Section.
 - 4. Division 9 Section "Wood Stains and Transparent Finishes" for surface preparation and the application of wood stains and transparent finishes on interior wood substrates.
 - 5. Division 9 Section "High-Performance Coatings" for special-use coatings.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Specified MPI manufacturers are indicated and listed in "MPI Approved Products List." If the specified paint manufacturer does not have an approved, available, voc-compliant paint product for the MPI category at the time of submittal, an equal first line, premium architectural paint product listed may be acceptable upon review and approval from the Architect.
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 - 2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
 - 3. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: MPI approved or first quality finishes of Frazee, ICI, and Sherwin Williams are indicated. Subject to compliance with requirements and review and approval from architect, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Additional MPI Manufacturers: Subject to compliance with requirements and review and approval from architect, alternate manufacturers include:
 - 1. Dunn-Edwards Corporation
 - 2. Vista Paint.
 - 3. Or equal (under the provisions for substitutions in Div 1)

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:
 - 1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
 - 2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
 - 3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - 4. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.

- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene).
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.
- C. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS/SEALERS

- A. Interior Latex Primer/Sealer: MPI #50.
 - 1. Frazee 061 Aquaseal
 - 2. ICI Prep N Prime 1000 Hi-Hide
 - 3. SW PrepRite 400 Latex Primer
- B. Interior Alkyd Primer/Sealer: MPI #45.
 - 1. Frazee 367 Fraflo
 - 2. ICI Prep N Prime 1110 *not available in SCAQMD
 - 3. SW PrepRite Wall & Wood Primer B49W2
- C. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint systems indicated.

2.4 METAL PRIMERS

- A. Alkyd Anticorrosive Metal Primer: MPI #79.
 - 1. Frazee 661F Metal Prime
 - 2. ICI 4360 Devguard Low VOC Universal Primer
 - 3. SW Controls Rust B49
- B. Phosphoric Acid Wash for Galvanized and Non-ferrous Metal:
 - 1. Frazee Jasco Prep N Prime
 - 2. ICI Jasco Prep N Prime
 - 3. SW Jasco Prep N Prime

2.5 WOOD PRIMERS

- A. Interior Latex-Based Wood Primer: MPI #39.
 - 1. Frazee 168 Prime Plus
 - 2. ICI Gripper 3210
 - 3. SW PrepRite Pro Block B51W20

2.6 LATEX PAINT

- A. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
 - 1. Frazee 124 Mirroglide
 - 2. ICI Dulux Ultra 1407
 - 3. SW ProMar 200 B21W251

2.7 ALKYD PAINTS

- A. Interior Alkyd (Semigloss): MPI #47 (Gloss Level 5).
 - 1. Frazee 628 Aroplate II
 - 2. ICI Dulux Ultra 1507 *not available in SCAQMD
 - 3. Sw ProClassic B34 Series

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Wood: 15 percent.
 - 2. Gypsum Board: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

- 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- F. Aluminum Substrates: Remove surface oxidation.
- G. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- H. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.

- e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
- f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
- g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- 2. Electrical Work:
 - a. Switchgear.
 - b. Panelboards.
 - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Galvanized-Metal Substrates:
 - 1. Latex Over Waterborne Primer System:
 - a. Prime Coat: Waterborne galvanized-metal primer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex (semigloss).

- 2. Alkyd System:
 - a. Prime Coat: Alkyd anti-corrosive galvanized-metal primer.
 - b. Intermediate Coat: Interior alkyd matching topcoat.
 - c. Topcoat: Interior alkyd (semigloss).
- B. Wood Panel Substrates: Including painted plywood backing panel.
 - 1. Latex System:
 - a. Prime Coat: Interior latex-based wood primer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex (semigloss).
- C. Gypsum Board Substrates:
 - 1. Latex System:
 - a. Prime Coat: Interior latex primer/sealer
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex (flat), (eggshell), or (semigloss) as needed.

END OF SECTION 09912

SECTION 09931 - WOOD STAINS AND TRANSPARENT FINISHES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of wood finishes on the following substrates:
 - 1. Exterior Substrates:
 - a. Exposed dimension lumber (rough carpentry).
 - b. Dressed lumber (finish carpentry).
 - c. Wood decks and stairs.
 - d. Wood doors.
 - 2. Interior Substrates:
 - a. Wood doors.
 - b. Exposed dimension lumber (rough carpentry).
 - c. Dressed lumber (finish carpentry).
 - d. Exposed wood panel and plywood panel products.
- B. Related Sections include the following:
 - 1. Division 9 Section "Interior Painting" for surface preparation and application of standard paint systems on interior substrates.
 - 2. Division 9 Section "High-Performance Coatings" for special-use coatings.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Samples for Verification: For each type of finish system and in each color and gloss of finish indicated.
 - 1. Submit Samples on representative samples of actual wood substrates, 8 inches square.
 - 2. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:

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- 1. Cross-reference to finish system and locations of application areas. Use same designations indicated on Drawings and in schedules.
- 2. Printout of MPI's current "MPI Approved Products List" for each product category specified in Part 2, with the product proposed for use highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Specified MPI manufacturers are indicated and listed in "MPI Approved Products List." If the specified paint manufacturer does not have an approved, available, voc-compliant paint product for the MPI category at the time of submittal, an equal first line, premium architectural paint product listed may be considered as acceptable upon review and approval from the Architect.
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and finish systems indicated.
- B. Mockups: Apply benchmark samples of each finish system indicated and each color selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each type of finish system and substrate.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of stain color selections will be based on benchmark samples.
 - a. If preliminary stain color selections are not approved, apply additional benchmark samples of additional stain colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply finishes only when temperature of surfaces to be finished and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply exterior finishes in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: MPI approved or first quality finishes of Frazee, ICI, and Sherwin Williams (SW) are indicated. Subject to compliance with requirements and review and approval from architect, additional manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Duckback Products (Superdeck Brand Products)
 - 2. Deft, Inc.
- B. Additional MPI Manufacturers:
 - 1. Dunn-Edwards Corporation
 - 2. Vista Paint.
 - 3. Or equal (under the provisions for substitutions in Div 1)
- C. Exotic Wood Finish Manufacturers:
 - 1. Duckback Products (Superdeck Brand Products)
 - 2. Messmer's.
 - 3. Or Equal.

2.2 MATERIALS, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each finish system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a finish system, provide products recommended in writing by manufacturers of topcoat for use in finish system and on substrate indicated.
- B. Stain Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS AND SEALERS

- A. Lacquer Sanding Sealer: MPI #84.
 - 1. Frazee NAS1420 Lacquer Sanding Sealer (voc 275 g/l)
 - 2. ICI Lacquer Sanding Sealer LS 153

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3. SW Low VOC 275 g/L Lacquer Sanding Sealer T60

2.4 STAINS

- A. Exterior, Solid-Color Latex Stain: MPI#16.
 - 1. Frazee 209 Acrikote
 - 2. ICI Woodpride Solid Stain 2610
 - 3. SW Woodscapes Solid Color Stain A15 Series
- B. Interior Wood Stain (Semitransparent): MPI #90.
 - 1. Frazee 685 Wood Stain
 - 2. ICI Woodpride 1700V
 - 3. SW WoodClassics Oil Stain A49
- C. Exterior/Interior Wood Stain and Sealer (Clear): waterborne, alkyd dispersion
 - 1. Superdeck® DFS Clear UVB
 - 2. Or approved equal.

2.5 POLYURETHANE VARNISHES

- A. Interior Polyurethane Varnish (Satin): MPI #57, Gloss Level 4, Oil-Modified.
 - 1. Deft Defthane® Polyurethane (VOC 275 g/L)
 - 2. ICI McCloskey Heirloom 6702
 - 3. SW WoodClassics Varnish A66F3

2.6 EXOTIC WOOD PENETRATING SEALER

- A. Exterior Penetrating Oil-based Sealer (Transparent) with UV inhibitors:
 - 1. Superdeck ® Exotic Hardwood Stain and Sealer
 - 2. Messmer's UV Plus for Hardwood Deck.
 - 3. Or Approved Equal

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
 - 1. Maximum Moisture Content of Wood Substrates: 15 percent when measured with an electronic moisture meter.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes.

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- 3. Begin finish application only after unsatisfactory conditions have been corrected and surfaces are dry.
- 4. Beginning application of finish system constitutes Contractor's acceptance of substrate and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be finished. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and finishing.
 - 1. After completing finishing operations, reinstall items that were removed; use workers skilled in the trades involved. Remove surface-applied protection if any.
- C. Clean and prepare surfaces to be finished according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Remove surface dirt, oil, or grease by washing with a detergent solution; rinse thoroughly with clean water and allow to dry. Remove grade stamps and pencil marks by sanding lightly. Remove loose wood fibers by brushing.
 - 2. Remove mildew by scrubbing with a commercial wash formulated for mildew removal and as recommended by stain manufacturer.
 - 3. Countersink steel nails, if used, and fill with putty tinted to final color to eliminate rust leach stains.
- D. Apply wood filler paste to open-grain woods, as defined in "MPI Architectural Painting Specification Manual," to produce smooth, glasslike finish.

3.3 APPLICATION

- A. Apply finishes according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for finish and substrate indicated.
 - 2. Finish surfaces behind movable equipment and furniture same as similar exposed surfaces.
- B. Apply finishes to produce surface films without cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other surface imperfections.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when finishes are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample finish materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance with product requirements.

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3. Owner may direct Contractor to stop applying finishes if test results show materials being used do not comply with product requirements. Contractor shall remove non-complying materials from Project site, pay for testing, and refinish surfaces finished with rejected materials. Contractor will be required to remove rejected materials from previously finished surfaces if, on refinishing with complying materials, the two finishes are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing finish application, clean spattered surfaces. Remove spattered materials by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from finish application. Correct damage by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced finished wood surfaces.

3.6 EXTERIOR WOOD-FINISH-SYSTEM SCHEDULE

- A. Exposed Rough Carpentry Substrates:
 - 1. Waterborne Alkyd Stain and Sealer System:
 - a. Two Stain Coats: Exterior/Interior clear stain and sealer (clear).
- B. Finish Carpentry Substrates:
 - 1. Exotic Wood Penetrating Sealer:
 - a. Finish Coats: As recommended by exotic wood penetrating sealer manufacturer.
- C. Wood Deck, Siding, and Stair Substrates:
 - 1. Exotic Wood Penetrating Sealer:
 - a. Finish Coats: As recommended by exotic wood penetrating sealer manufacturer.

3.7 INTERIOR WOOD-FINISH-SYSTEM SCHEDULE

- A. Exposed Rough Carpentry Substrates:
 - 1. Waterborne Alkyd Stain and Sealer System.
 - a. Two Stain Coats: Exterior/Interior wood stain and sealer (clear).
- B. Finish Carpentry Substrates:
 - 1. Polyurethane Varnish Over Stain System: MPI INT 6.3E.

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- a. Stain Coat: Interior wood stain (semitransparent), MPI #90.
- b. Three Finish Coats: Interior, oil-modified, clear urethane (satin), MPI #57
- C. Exposed Wood Panel and Plywood Panel-Product Substrates:
 - 1. Polyurethane Varnish Over Stain System: MPI INT 6.4E.
 - a. Stain Coat: Interior wood stain (semitransparent), MPI #90.
 - b. Three Finish Coats: Interior, oil-modified, clear urethane (satin), MPI #57.

END OF SECTION 09931

SECTION 09960 - HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The contractor shall furnish all materials, labor, equipment, and incidentals required to provide a protective coating system for the surfaces listed herein and not otherwise excluded.
- B. The work includes painting and finishing of interior and exterior exposed items and surfaces such as structural steel, miscellaneous metals, guardrails, posts, fittings, valves, and all other work obviously required to be painted unless otherwise specified herein or on the drawings. The omission of minor items in the schedule of work shall not relieve the contractor of his obligation to include such items where they come within the general intent of the specification as stated herein.
- C. The following items will not be painted:
 - 1. Any code-requiring labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.
 - 2. Any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts, unless otherwise indicated.
 - 3. Aluminum handrails, walkways, windows, louvers and grating unless otherwise specified herein.
 - 4. Signs and nameplates.
 - 5. Finish hardware.
 - 6. Stainless steel angles, tubes, pipe, etc.
 - 7. Products with polished chrome, aluminum, nickel, or stainless steel finish.
 - 8. Plastic switch plates and receptacle plates.
 - 9. Flexible couplings, lubricated bearing surfaces, insulation and metal and plastic pipe interior.

1.3 REFERENCES

- A. SSPC Society of Protective Coatings.
- B. Metal Ladder Manufacturer's Association Specification for Ladders and Scaffolds.
- C. UL Requirement for Ladders and Scaffolds.

1.4 QUALITY ASSURANCE

- A. The Contractor is responsible for the workmanship and quality of the coating system installation.
- B. Workmanship shall be performed by skilled workmen thoroughly trained in necessary crafts and completely familiar with specific requirements and methods specified herein.

- C. All materials shall be produced by a single manufacturer. Total paint system shall be from one manufacturer and no cross coating allowed between primers and finish coats.
- D. Contractor shall coordinate the sequencing of the coating system application as required to meet the aesthetic effects, performance criteria and quality standards outlined on Drawings and in Specifications. Where feasible, surface preparation as well as prime and finish coating shall be completed in the Shop, to the furthest extent practicable. Items to be coated that also require field assembly and installation shall be prepped, primed and finished in strict accordance with manufacturer's written recommendations and instructions.

1.5 SUBMITTALS

- A. Submit manufacturer's printed literature and other data as required to certify compliance with requirements and systems specified herein.
- B. Material Safety Data Sheets (MSDS) for materials to be delivered to the job site, including coating system materials, solvents, and abrasive blast media.
- C. Storage requirements including temperature, humidity, and ventilation for Coating System materials as recommended by the manufacturer.
- D. Detailed, written instructions for coating system treatment and graphic details for coating system terminations in the structures to be coated including pipe penetrations, metal embedments, gate frames, and other terminations to be determined from the contract drawings.
- E. Samples for Initial Selection: For each type of topcoat product indicated.
 - 1. Colors: Match Architect's sample for color indicated on Drawings.
- F. Samples:
 - 1. Samples of each finish and color shall be submitted to the Architect/Engineer for approval before any work is started.
 - 2. Such samples when approved in writing shall constitute a standard, as to color and finish only, for acceptance or rejection of the finish work.
 - 3. Rejected samples shall be resubmitted until approved.
- G. VOC Requirements: Submit manufacturer's product data sheets showing that paints and coatings comply with Federal, State, and Local, whichever is more stringent, requirements for VOC (Volatile Organic Compound).

1.6 DELIVERY, HANDLING AND STORAGE

- A. Deliver all material to site in original, new, unopened containers, labeled and bearing manufacturer's name and stock number, product and brand name, contents by volume for major constituents, instructions for mixing and reducing, and application instruction.
- B. Provide adequate storage facilities designed exclusively for the purpose of paint storage and mixing. Facility area shall be located away from open flames, be well ventilated, and be capable of maintaining ambient storage temperature of no less than 45 degrees F in accordance with manufacturer's recommendations. Flammable materials shall be stored in accordance with state and local requirements.

- C. Paint, coatings, reducing agents, and other solvents must be stored in original containers until opened; if not resealable, then must be transferred to UL approved safety containers. Provide proper ventilation, personal protection and fire protection for storage and use of same.
- D. Comply with requirements set forth by Occupational Safety and Health Act, OSHA, for storage and use of painting materials and equipment.

1.7 EXTRA STOCK

- A. Upon completion of work, the owner may request at least one gallon of each type and color of product used.
- B. Containers shall be tightly sealed and clearly labeled for identification.

PART 2 - PRODUCTS

2.1 ACCEPTABLE SYSTEMS AND MANUFACTURERS

A. General: Paint products/systems specified are not intended to limit competition, but to establish a standard of quality desired. The owner will consider equivalent systems by other manufacturers.

2.2 MATERIALS

- A. Materials specified herein are by the following manufacturers:
 - 1. Tnemec Company, Inc., North Kansas City, Missouri, represented by TPC Consultants, Inc., (310) 637-2363 / (858) 243-3543.
 - 2. PPG Protective & Marine Coatings (PPG-PMC)/Amercoat, Pittsburgh, PA, represented by Pacific Southwest Coatings, (562) 691-3550. Regional distributor is Frazee Paint, (858) 626-3600.
- B. Equivalent materials of other manufacturers may be substituted on approval of the Owner's Representative. Request for substitution shall include manufacturer's literature for each product giving name, generic type, descriptive information, performance and test data, and evidence of satisfactory past performance. No request for substitution shall be considered that would decrease film thickness and/or number of coats or offer a change in the generic type of coating specified.
- C. No substitution will be considered unless request for approval has been submitted by the bidder and has been received by the Architect/Engineer at least ten days prior to the date of bids. The burden of proof of the merit of the proposed substitute is upon the proposer. The Owner's Representative's decision of approval or disapproval of the proposed substitution shall be final.

PART 3 – EXECUTION

3.1 INSPECTION

HIGH-PERFORMANCE COATINGS

A. Thoroughly examine surface scheduled to be painted prior to commencing work. Report in writing to the Resident Engineer any condition that may affect proper application and overall performance of coating system. Do not proceed with work until such conditions have been corrected. Commencing with work indicates acceptance of existing conditions and for responsibility for performance of applied coating.

3.2 PROTECTION

- A. Extreme diligence shall be taken to ensure that vehicles, equipment, hardware, fixtures, materials, etc., are protected against paint spillage, overspray, etc. Such damages shall be corrected at no expense to Owner.
- B. Surfaces not to be coated shall be masked, removed, or otherwise covered to protect against cleaning and coating application procedures and weather. Drop cloths shall be used to protect floor, walls, machinery, equipment, and previously coated surfaces.
- C. Exercise care in erecting, bracing, handling, and dismantling staging and scaffolding, to avoid scratching or damaging walls, floors, equipment, etc.

3.4 SURFACE PREPARATION OF BARE, UNTREATED (NON-PASSIVATED) GALVANIZED STEEL

- A. Prepare bare, untreated (non-passivated) galvanized steel metal surfaces in strict accordance with manufacturer's instructions.
- B. Ensure surfaces are dry.
- C. Remove rust from galvanized steel:
 - 1. Remove white rust from galvanized steel by hand or power brushing.
 - 2. Remove rust from old galvanized steel in accordance with SSPC-SP 2 or SP 3.
 - 3. Do not damage or remove galvanizing.
- D. Remove visible oil, grease, dirt, dust, and other soluble contaminants in accordance with SSPC-SP 1 or manufacturer's instructions as specified for coating system.
- E. Thoroughly roughen the entire surface to be coated using compressed air brush off blast cleaning per SSPC-SP7 / NACE No. 4 with a fine abrasive to achieve a uniform anchor profile of 1-2 mils.
 - 1. If galvanized steel is <u>not</u> bare and has been <u>passivated</u>, the galvanized surfaces will need to properly prepared by abrasive brush off cleaning in order to be coated. <u>No other method will be accepted</u>.

3.5 TOUCH-UP O<u>F S</u>HOP APPLIED COATING<u>S</u>

- A. All shop applied coatings with manufacturer's standard paint, shall be touched-up with compatible primer. Notify Architect/Engineer or Resident Engineer in writing of anticipated problems due to incompatible coating systems.
- B. All shop applied coatings with specified primer as listed in "Coating System Schedule" shall be touched up with same primer before any topcoat(s) are applied.

3.6 APPLICATION

- A. No paint shall be applied when surrounding air temperature, as measured in the shade, is below 45 degrees F. No paint shall be applied when the temperature of the surface to be painted is below 40 degrees F. Paint shall not be applied to wet or damp surfaces, and shall not be applied in rain, snow, fog or mist, or when the relative humidity exceeds 85%. Paint shall not be applied when the substrate temperature is within 5 degrees of the dewpoint. Paint manufacturer's temperature guidelines must be followed.
- B. No paint shall be applied when it is expected that the relative humidity will exceed 85% or that the air temperature will drop below 45 degrees F within 4 hours after the application of the paint.
- C. Maintain proper ventilation in area of work to alleviate volatile solvents evaporating from coating materials.
- D. All ingredients in any container of the coating materials shall be thoroughly mixed and shall be agitated often enough during application to keep the pigment suspended.
- E. Should thinning be required use only the amounts specified by the coating manufacturer.
- F. Application of coating shall be by brush, roller or spray and in accordance with manufacturer's recommendations. All material shall be evenly applied to form a smooth, continuous, uniform coating. Drips, runs, sags, or pinholes shall not be acceptable.
- G. Provide proper application equipment, including ladders, scaffolding, masking materials, and tools to perform work. Ladders and scaffolding shall meet or exceed UL requirements and Metal Ladder Manufacturer's Association.
- H. Meet all requirements set forth by Occupational Safety and Health Act, OSHA, for confined space.

3.7 SYSTEM INSPECTION AND TESTING

- A. After application of each coating in the specified system and its surface has cured, measure its thickness with a properly calibrated Nordson Microtest Dry Film Thickness Gauge, or equivalent. Follow standard method for measurement of dry paint thickness with magnetic gauges as outlined in Steel Structures Painting Council's SSPC-PA2.
- B. Make as many determinations as needed to ensure the specified thickness values in each typical area. To all surfaces having less dry film thickness than specified, apply additional coat(s) at no extra cost to Owner to bring thickness up to specifications.
- C. Structural metals in immersion service that receive a protective coating system shall be checked with a non-destructive holiday detector. All pinholes or defects shall be repaired in accordance with manufacturer's printed recommendations and then retested.
- D. Painting contractor shall permit Owner's Representative and/or paint & coating manufacturer (as requested by owner) to inspect his work for conformance to this specification. Owner reserves the right to reject all work that does not comply with this specification.
- 3.8 CLEAN-UP

HIGH-PERFORMANCE COATINGS

- A. Upon completion, painting contractor shall clean up and remove from site all surplus materials, tools, appliances, empty cans, cartons, and rubbish resulting from painting work. Site shall be left in neat, orderly condition.
- B. Remove all protective drop cloths and masking from surfaces not being painted. Provide touch-up around same areas as directed by Owner's Representative.
- C. Remove all misplaced paint splatters or drippings resulting from this work.

3.9 COATING SYSTEM SCHEDULE

- A. BARE, UNTREATED (NON-PASSIVATED) GALVANIZED STEEL MISCELLANEOUS FABRICATIONS
 - 1. Engineered Siloxane system (PPG-PMC/Amercoat products listed): Structural steel, Handrails, Guardrails, Stair support components and other galvanized metal.

Surface Preparation:	SSPC-SP 7/NACE NO. 4 Brush-Off Blast Cleaning	
		Dry Film-Mils
Prime Coat:	Amerlock 2 VOC	4.0 - 5.0
Finish Coat:	PSX-700	3.0 - 5.0
	Total Film Thickness:	7.0 - 10.0

2. Epoxy-Polyurethane system (Tnemec products listed): Structural steel, Handrails, Guardrails, Stair support components and other galvanized metal.

Surface Preparation:	SSPC-SP 7/NACE NO. 4 I	Brush-Off Blast Cleaning		
-		_	Dry Filr	n-Mils
Prime Coat:	Series V69 Epoxoline II*		2.0 -	3.0
Finish Coat:	Series 740 (Gloss) or 750 (Semi-Gloss) Endura-Shield UVX*	** 2.0 -	3.0
		Total Film Thickness:	4.0 -	6.0
*DDG DMC/Amerco	pat product for Prime Coat	Americack 2 VOC (4.0.5.0 mile I	DET)	

*PPG-PMC/Amercoat product for Prime Coat: Amerlock 2 VOC (4.0-5.0 mils DFT) *PPG-PMC/Amercoat product for Finish Coat: Amershield VOC (4.0-5.0 mils DFT)

END OF SECTION 09960

SECTION 10200 - LOUVERS AND VENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Fixed, extruded-aluminum louvers.
- 2. Wall vents (brick vents).
- B. Related Sections:
 - 1. Division 15 Sections for louvers that are a part of mechanical equipment.

1.3 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades; i.e., the axes of the blades are horizontal.
- C. Vertical Louver: Louver with vertical blades; i.e., the axes of the blades are vertical.
- D. Drainable-Blade Louver: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening.
- E. Storm-Resistant Louver: Louver that provides specified wind-driven rain performance, as determined by testing according to AMCA 500-L.

1.4 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design louvers, including comprehensive engineering analysis by a qualified professional engineer, using structural and seismic performance requirements and design criteria indicated.
- B. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures shall be considered to act normal to the face of the building.
 - 1. Wind Loads: Determine loads based on pressures as indicated on Drawings.

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- C. Seismic Performance: Louvers, including attachments to other construction, shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes, without buckling, opening of joints, overstressing of components, failure of connections, or other detrimental effects.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- E. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
- B. Shop Drawings: For louvers and accessories. Include plans, elevations, sections, details, and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.
 - 1. Show weep paths, gaskets, flashing, sealant, and other means of preventing water intrusion.
 - 2. Show mullion profiles and locations.
 - 3. Wiring Diagrams: For power, signal, and control wiring for motorized adjustable louvers.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of metal finish required.
- E. Delegated-Design Submittal: For louvers indicated to comply with structural and seismic performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed according to AMCA 500-L by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for each type of louver and showing compliance with performance requirements specified.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain louvers and vents from single source from a single manufacturer where indicated to be of same type, design, or factory-applied color finish.
- B. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.2/D1.2M, "Structural Welding Code Aluminum."
 - 2. AWS D1.3, "Structural Welding Code Sheet Steel."
 - 3. AWS D1.6, "Structural Welding Code Stainless Steel."
- C. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Extrusions: ASTM B 221, Alloy 6063-T5, T-52, or T6.
- B. Aluminum Sheet: ASTM B 209, Alloy 3003 or 5005 with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Aluminum Castings: ASTM B 26/B 26M, Alloy 319.
- D. Fasteners: Use types and sizes to suit unit installation conditions.
 - 1. Use tamper-resistant screws for exposed fasteners unless otherwise indicated.
 - 2. For fastening aluminum, use aluminum or 300 series stainless-steel fasteners.
 - 3. For color-finished louvers, use fasteners with heads that match color of louvers.
- E. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, made from stainless-steel components, with capability to sustain, without failure, a load equal to 4 times the loads imposed, for concrete, or 6 times the load imposed, for masonry, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.2 FABRICATION, GENERAL

- A. Assemble louvers in factory to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Maintain equal louver blade spacing to produce uniform appearance.
- C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
 - 1. Frame Type: Channel unless otherwise indicated.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Provide vertical mullions of type and at spacings indicated, but not more than recommended by manufacturer, or 72 inches o.c., whichever is less.
- F. Provide subsills made of same material as louvers for louvers.
- G. Join frame members to each other and to fixed louver blades with fillet welds, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.3 FIXED, EXTRUDED-ALUMINUM LOUVERS

- A. Horizontal, Drainable-Blade Louver:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Airolite Company, LLC (The).
 - b. Arrow United Industries; a division of Mestek, Inc.
 - c. Construction Specialties, Inc.
 - d. Greenheck Fan Corporation; Model ESD-403 (Basis of Design)
 - e. Industrial Louvers, Inc.
 - f. Louvers & Dampers, Inc.; a division of Mestek, Inc.
 - g. Metal Form Manufacturing Inc.
 - h. Nystrom Building Products.
 - i. Reliable Products, Inc.
 - j. Ruskin Company; Tomkins PLC.
 - 2. Louver Depth: 4 inches.
 - 3. Frame and Blade Nominal Thickness: Not less than 0.080 inch.
 - 4. Mullion Type: Exposed.
 - 5. Louver Performance Ratings:
 - a. Free Area: Not less than 8.0 sq. ft. for 48-inch- wide by 48-inch- high louver.
 - b. Point of Beginning Water Penetration: Not less than 1000 fpm.
 - c. Air Performance: Not more than 0.10-inch wg static pressure drop at 750-fpm free-area intake velocity.
 - 6. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

2.4 LOUVER SCREENS

- A. General: Provide screen at each exterior louver.
 - 1. Screen Location for Fixed Louvers: Interior face.
 - 2. Screening Type: Insect screening.
- B. Secure screen frames to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches from each corner and at 12 inches o.c.
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
 - 1. Metal: Same kind and form of metal as indicated for louver to which screens are attached. Reinforce extruded-aluminum screen frames at corners with clips.
 - 2. Finish: Same finish as louver frames to which louver screens are attached.
 - 3. Type: Rewirable frames with a driven spline or insert.
- D. Louver Screening for Aluminum Louvers:
 - 1. Insect Screening: Aluminum, 18-by-16 mesh, 0.012-inch wire.
 - 2. Insect Screening: Stainless steel, 18-by-18 mesh, 0.009-inch wire.

LOUVERS AND VENTS

2.5 WALL VENTS (BRICK VENTS)

- A. Extruded-Aluminum Wall Vents:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Airolite Company, LLC (The).
 - b. Arrow United Industries; a division of Mestek, Inc.
 - c. Construction Specialties, Inc.
 - d. Greenheck Fan Corporation: Model 'BVE' (Basis of Design)
 - e. Industrial Louvers, Inc.
 - f. Louvers & Dampers, Inc.; a division of Mestek, Inc.
 - g. Metal Form Manufacturing Inc.
 - h. Nystrom Building Products.
 - i. Reliable Products, Inc.
 - j. Ruskin Company; Tomkins PLC.
 - 2. Extruded-aluminum louvers and frames, not less than 0.125-inch nominal thickness, assembled by welding; with 18-by-14- mesh, aluminum insect screening on inside face; incorporating weep holes, continuous drip at sill, and integral waterstop on inside edge of sill; of load-bearing design and construction.
 - 3. Dampers: Aluminum blades and frames mounted on inside of wall vents; operated from exterior with Allen wrench in socket-head cap screw. Fabricate operating mechanism from Type 304 stainless-steel components.
 - 4. Finish: Kynar finish to match storefront system.

2.6 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

2.7 ALUMINUM FINISHES

- A. Finish louvers after assembly.
- B. High-Performance Organic Finish: 2-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

3.2 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.3 INSTALLATION

- A. Locate and place louvers and vents level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Repair finishes damaged by cutting, welding, soldering, and grinding. Restore finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory, make required alterations, and refinish entire unit or provide new units.
- F. Protect unpainted galvanized and nonferrous-metal surfaces that will be in contact with concrete, masonry, or dissimilar metals from corrosion and galvanic action by applying a heavy coating of bituminous paint or by separating surfaces with waterproof gaskets or nonmetallic flashing.
- G. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Division 7 Section "Joint Sealants" for sealants applied during louver installation.

3.4 ADJUSTING AND CLEANING

- A. Test operation of adjustable louvers and adjust as needed to produce fully functioning units that comply with requirements.
- B. Clean exposed surfaces of louvers and vents that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- C. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- D. Restore louvers and vents damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
 - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION 10200

LOUVERS AND VENTS

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

SECTION 10350 - FLAGPOLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes ground-mounted flagpoles made from stainless steel.
- B. Owner Furnished Material: Flag.
- C. Related Sections:
 - 1. Division 16 Section for site lighting fixtures.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Flagpole assemblies, including anchorages and supports, shall withstand the effects of gravity loads, and the following loads and stresses within limits and under conditions indicated according to the following design criteria:
 - 1. Seismic Loads: As indicated on drawings. Design pole according to SEI/ASCE 7.
 - 2. Wind Loads: according to NAAMM FP 1001, "Guide Specifications for Design of Metal Flagpoles" and SEI/ASCE 7 as modified by CBC Section 1609A using wind speed specified on the structural drawings.
 - 3. Base flagpole design on polyester flags of maximum standard size suitable for use with flagpole or flag size indicated, whichever is more stringent.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, operating characteristics, fittings, accessories, and finishes for flagpoles.
- B. Shop Drawings: For flagpoles. Include plans, elevations, details, and attachments to other work. Show general arrangement, jointing, fittings, accessories, grounding, anchoring, and support.
 - 1. Include details of beam-mounted connections and mountings.
- C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- D. Delegated-Design Submittal: For flagpole assemblies indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

FLAGPOLES

- E. Qualification Data: For qualified professional engineer.
- F. Operation and Maintenance Data: For flagpoles to include in operation and maintenance manuals.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain flagpole as complete unit, including fittings, accessories, bases, and anchorage devices, from single source from single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. General: Spiral wrap flagpoles with heavy paper and enclose in a hard fiber tube or other protective container.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. American Flagpole; a Kearney-National Inc. company.
 - 2. Atlantic Fiberglass Products, Inc.
 - 3. Baartol Company.
 - 4. Concord Industries, Inc.
 - 5. Eder Flag Manufacturing Company, Inc.
 - 6. Ewing Flagpoles.
 - 7. Lingo Inc.; Acme Flagpole Company Division.
 - 8. Millerbernd Manufacturing Company.
 - 9. Morgan-Francis; Division of Original Tractor Cab Co., Inc.
 - 10. PLP Composite Technologies, Inc.
 - 11. Pole-Tech Company Inc.
 - 12. U.S. Flag & Flagpole Supply, LP.
 - 13. USS Manufacturing Inc.

2.2 FLAGPOLES

- A. Flagpole Construction, General: Construct flagpoles in one piece if possible. If more than one piece is necessary, comply with the following:
 - 1. Fabricate shop and field joints without using fasteners, screw collars, or lead calking.
 - 2. Provide flush hairline joints using self-aligning, snug-fitting, internal sleeves.
- B. Exposed Height: 30 feet.
- C. Aluminum Flagpoles: Provide cone-tapered flagpoles fabricated from seamless extruded tubing complying with ASTM B 241/B 241M, Alloy 6063, with a minimum wall thickness of 3/16 inch.
- D. Metal Foundation Tube: Manufacturer's standard corrugated-steel foundation tube, not less than 0.064inch- (1.6-mm-) nominal wall thickness. Provide with 3/16-inch (4.8-mm) steel bottom plate and support plate; ³/₄-inch- (19-mm-) diameter, steel ground spike; and steel centering wedges welded together.

FLAGPOLES

Galvanize steel after assembly. Provide loose hardwood wedges at top of foundation tube for plumbing pole. Provide corrosion protection between dissimilar metals.

- 1. Provide flashing collar of same materials and finish as flagpole.
- 2. Provide steel ground protectors extending 12 inches (300 mm) aboveground and 6 inches (150 mm) belowground for steel flagpoles where flashing collars are not provided.

2.3 FITTINGS

- A. Finial Ball: Manufacturer's standard flush-seam ball, sized as indicated or, if not indicated, to match flagpole-butt diameter.
 - 1. Spun stainless steel, finished to match flagpole.
- B. Internal Halyard, Winch System: Manually operated winch with control stop device and removable handle, stainless-steel cable halyard, and concealed revolving truck assembly with plastic-coated counterweight and sling. Provide flush access door secured with cylinder lock. Finish truck assembly to match flagpole.
 - 1. Halyard Flag Snaps: Provide two stainless-steel swivel snap hooks per halyard.
 - a. Provide with neoprene or vinyl covers.

2.4 MISCELLANEOUS MATERIALS

- A. Drainage Material: Crushed stone, or crushed or uncrushed gravel; coarse aggregate.
- B. Sand: ASTM C 33, fine aggregate.
- C. Elastomeric Joint Sealant: Joint sealant complying with requirements in Division 7 Section "Joint Sealants" for Use NT (nontraffic) and for Use M, G, A, and, as applicable to joint substrates indicated, for Use O.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.5 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.6 ALUMINUM FINISH

- A. High-Performance Organic Finish: Two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: As selected by Architect from manufacturer's full range.

FLAGPOLES

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, including foundation; accurate placement, pattern, orientation of anchor bolts, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare uncoated metal flagpoles that are set in foundation tubes by painting below-grade portions with a heavy coat of bituminous paint.
- B. Foundation Excavation: Excavate to neat clean lines in undisturbed soil. Remove loose soil and foreign matter from excavation and moisten earth before placing concrete. Place and compact drainage material at excavation bottom.
- C. Provide forms where required due to unstable soil conditions and for perimeter of flagpole base at grade. Secure and brace forms to prevent displacement during concreting.
- D. Place concrete, as specified in Division 3 Section "Cast-in-Place Concrete." Compact concrete in place by using vibrators. Moist-cure exposed concrete for not less than seven days or use nonstaining curing compound.
- E. Trowel exposed concrete surfaces to a smooth, dense finish, free of trowel marks, and uniform in texture and appearance. Provide positive slope for water runoff to perimeter of concrete base.

3.3 FLAGPOLE INSTALLATION

- A. General: Install flagpoles where shown and according to Shop Drawings and manufacturer's written instructions.
- B. Ground Set: Place foundation tube, center, and brace to prevent displacement during concreting. Place concrete. Plumb and level foundation tube and allow concrete to cure. Install flagpole, plumb, in foundation tube.
 - 1. Foundation Tube: Place tube seated on bottom plate between steel centering wedges and install hardwood wedges to secure flagpole in place. Place and compact sand in foundation tube and remove hardwood wedges. Seal top of foundation tube with a 2-inch (50-mm) layer of elastomeric joint sealant and cover with flashing collar.

END OF SECTION 10350

SECTION 10431 - SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Dimensional characters.
 - 2. Panel signs.
- B. Related Sections include the following:
 - 1. Division 1 Section "Temporary Facilities and Controls" for temporary Project identification signs and for temporary information and directional signs.
 - 2. Division 10 Section "Post and Panel/Pylon Signage" for freestanding signs.
 - 3. Division 15 & 16 Sections for labels, tags, and nameplates for mechanical, plumbing and electrical systems.

1.3 DEFINITIONS

A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for signs.
 - 1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
 - 2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Acrylic sheet.
- D. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:

- 1. Dimensional Characters: Full-size Samples of each type of dimensional character (letter, number, and graphic element).
- 2. Solid Phenolic Sheet: 8 by 10 inches for each color required.
- 3. Panel Signs: Not less than 12 inches square including border.
- 4. Trim: 6-inch- long sections of each profile.
- 5. Accessories: Manufacturer's full-size unit.
- E. Qualification Data: For Installer and fabricator.
- F. Maintenance Data: For signs to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- C. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- D. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and California Building Code.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of signs in exterior locations to be performed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

A. Coordinate placement of anchorage devices with templates for installing signs.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of metal and polymer finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image colors and sign lamination.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel:

- 1. Stainless-Steel Sheet: ASTM A240/A240M or ASTM A666, Type 316, stretcher-leveled standard flatness.
- 2. For steel exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surface exhibit pitting, seam marks, roller marks, rolled trade names or roughness.
- B. Phenolic-Backed Photopolymer Sheet: Provide light-sensitive, water-wash photopolymer face layer bonded to a phenolic base layer to produce a composite sheet with overall, face layer, and base-layer thicknesses, respectively, of 0.120, 0.040, and 0.080 inch.

2.2 DIMENSIONAL CHARACTERS

- A. Fabricated Channel Characters: Form exposed faces and sides of characters to produce surfaces free from warp or distortion. Include internal bracing for stability and attachment of mounting accessories. Comply with the following requirements:
 - 1. Stainless-Steel Sheet: Not less than 0.050 inch thick for face and 0.031 inch thick for returns.
 - a. Finish: No. 4
 - 2. Provide manufacturer's hardware for projection mounting of channel characters at distance from wall surface indicated.

2.3 PANEL SIGNS

- A. Laminated Interior and Exterior Signs: Solid phenolic panel core with graphic image covered with thermosetting resin face layer.
 - 1. Surface Finish: Matte, UV resistant, outdoor.
 - 2. Edge Condition: Beveled.
 - 3. Corner Condition: Rounded to radius indicated.
 - 4. Thickness: 1/8 inch.
- B. Brackets: Fabricate brackets and fittings for bracket-mounted signs from extruded aluminum to suit panel sign construction and mounting conditions indicated. Factory paint brackets in color matching background color of panel sign.
- C. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
 - 1. Panel Material: Opaque acrylic sheet, photopolymer, or clear acrylic sheet with opaque color coating, subsurface applied.
 - 2. Raised-Copy Thickness: Not less than 1/32 inch.

- D. Colored Coatings for Acrylic Sheet: For copy and background colors, provide colored coatings, including inks, dyes, and paints, that are recommended by acrylic manufacturers for optimum adherence to acrylic surface and are UV and water resistant for five years for application intended.
 - 1. Custom Paint Colors: Match Pantone color matching system.
 - 2. Color: As selected by Architect from manufacturer's full range.

2.4 ACCESSORIES

A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.5 FABRICATION

- A. General: Provide manufacturer's standard signs of configurations indicated.
 - 1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
 - 2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
 - 3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
 - 4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 STAINLESS-STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- B. Directional Satin Finish: No. 4 finish.

2.8 SOLID PHENOLIC SHEET FINISHES

A. As recommended by manufacturers for optimum adherence of thermosetting graphic face layer that are UV and water resistant for five years for application intended.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items, including anchor inserts, and electrical power are sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
- B. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
 - 1. Silicone-Adhesive Mounting: Attach signs to irregular, porous, or vinyl-covered surfaces.
 - 2. Shim Plate Mounting: Provide 1/8-inch- thick, concealed aluminum shim plates with predrilled and countersunk holes, at locations indicated, and where other mounting methods are not practicable. Attach plate with fasteners and anchors suitable for secure attachment to substrate. Attach panel signs to plate using method specified above.
 - 3. Mechanical Fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.
 - 4. Signs Mounted on Glass: Provide matching opaque plate on opposite side of glass to conceal mounting materials.
- C. Bracket-Mounted Signs: Provide manufacturer's standard brackets, fittings, and hardware for mounting signs that project at right angles from walls and ceilings. Attach brackets and fittings securely to walls and ceilings with concealed fasteners and anchoring devices to comply with manufacturer's written instructions.
- D. Dimensional Characters: Mount characters using standard fastening methods to comply with manufacturer's written instructions for character form, type of mounting, wall construction, and condition of exposure indicated. Provide heavy paper template to establish character spacing and to locate holes for fasteners.
 - 1. Projected Mounting: Mount characters at projection distance from wall surface indicated.

3.3 CLEANING AND PROTECTION

A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 10431

SECTION 10436 - POST AND PANEL/PYLON SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Nonilluminated post and panel signs.
- B. Related Sections include the following:
 - 1. Division 1 Section "Temporary Facilities and Controls" for temporary Project identification signs and for temporary informational and directional signs.
 - 2. Division 3 Section "Cast-in-Place Concrete" for concrete foundations and concrete fill.
 - 3. Division 10 Section "Signage" for wall-mounted signs and dimensional characters.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide post and panel signs capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Wind Loads Design Pressure: As calculated according to ASCE 07-05 as modified by CBC 1609A using wind speed specified on drawings.
 - a. Uniform pressure as indicated on Drawings.
- B. Seismic Performance: Provide post and panel signs capable of withstanding the effects of earthquake motions determined according to SEI/ASCE 7, "Minimum Design Loads for Buildings and Other Structures" and the California Building Code.
- C. Thermal Movements: Provide post and panel signs that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 DEFINITIONS

A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

POST AND PANEL/PYLON SIGNAGE

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for post and panel/pylon signage.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Provide message list, typestyles, graphic elements, and layout for each sign at least half size and full-size details of graphics.
 - 3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for the following:
 - 1. Aluminum.
 - 2. Die-cut vinyl characters and graphic symbols. Include representative samples of available typestyles and graphic symbols.
- D. Samples for Verification: For each of the following products and for the full range of color, texture, and sign material indicated, of sizes indicated:
 - 1. Aluminum: For each form, finish, and color, on 6-inch- long sections of extrusions and squares of sheet at least 4 by 4 inches.
 - 2. Include a full-size representative sample of surface-applied graphic symbol required in each panel. Show graphic style, colors, finishes, typestyles, and graphic symbol.
 - 3. Accessories: Manufacturer's full-size unit.
- E. Qualification Data: For Installer and fabricator.
- F. Maintenance Data: For signs to include in maintenance manuals.
- G. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Fabricator of products.
- B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- C. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.
- D. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines and ICC A117.1.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit installation of signs to be performed according to manufacturers' written instructions and warranty requirements.

B. Field Measurements: Indicate measurements on Shop Drawings.

1.8 COORDINATION

A. Coordinate installation of anchorages for post and panel/pylon signage. Furnish setting drawings, templates, and directions for installing anchorages and other items that are to be embedded in concrete.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of post and panel signs that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Deterioration of metal and polymer finishes beyond normal weathering.
 - b. Deterioration of embedded graphic image colors and sign lamination.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.
- B. Steel:
 - 1. Steel Tubing or Pipe: ASTM A 500, Grade B, hot dipped galvanized after fabrication with a minimum of 2.0 oz. of zinc /sq. ft. of surface area, conforming to ASTM A 123.
 - 2. Steel Members Fabricated from Plate or Bar Stock: ASTM A 529/A 529M or ASTM A 572/A 572M, 42,000-psi minimum yield strength.
 - 3. Bolts for Steel Framing: ASTM A 307 or ASTM A 325 as necessary for design loads and connection details.
 - 4. For steel exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surfaces exhibit pitting, seam marks, roller marks, rolled trade names, or roughness.
- C. Applied Vinyl: Die-cut characters from non-reflective vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.
- D. Color: As indicated.

2.2 PANEL SIGNS

A. Sign Message Panels: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner.

POST AND PANEL/PYLON SIGNAGE

- 1. Coordinate dimensions and attachment methods to produce message panels with closely fitting joints. Align edges and surfaces with one another in the relationship indicated.
- 2. Increase metal thickness or reinforce with concealed stiffeners or backing materials as needed to produce surfaces without distortion, buckles, warp, or other surface deformations.
- 3. Continuously weld joints and seams unless other methods are indicated; grind, fill, and dress welds to produce smooth, flush, exposed surfaces with welds invisible after final finishing.

2.3 POSTS

- A. General: Fabricate posts to lengths required for mounting method indicated.
 - 1. Direct-Burial Method: Provide posts 36 inches longer than height of sign to permit direct embedment in concrete foundations.
 - 2. Reverse Sleeve Method: Provide inserts recommended by manufacturer, sized for close fit inside posts. Size inserts for direct embedment in concrete foundations and to attach sign posts securely and prevent sign from overturning when subjected to normal loading conditions prevailing at Project site, but not less than 1/3 of post height plus 36 inches for embedment. Drill posts and inserts for through bolts for fastening them together.
 - a. Provide bolts for fastening posts to inserts.
- B. Steel Posts: Fabricate from 0.120-inch- thick, square steel tubing. Include post caps, fillers, spacers, junction boxes, access panels, and related accessories required for complete installation. Hot-dip galvanize post assemblies after fabrication to comply with ASTM A 123/A 123M.
 - 1. Post Size: 2 inches square, unless otherwise indicated.
 - 2. Post Finish: Galvanized.

2.4 ACCESSORIES

A. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.5 FABRICATION

- A. General: Provide manufacturer's standard post and panel signs of configurations indicated.
 - 1. Welded Connections: Comply with AWS standards for recommended practices in shop welding. Provide welds behind finished surfaces without distortion or discoloration of exposed side. Clean exposed welded surfaces of welding flux and dress exposed and contact surfaces.
 - 2. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
 - 3. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
 - 4. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISHES

- A. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.
 - 1. Organic Coating: Thermosetting, modified-acrylic enamel primer/topcoat system complying with AAMA 2603 except with a minimum dry film thickness of 1.5 mils, medium gloss.
 - 2. Accessibility signage shall be Federal Standard Blue 595B.

2.8 GALVANIZED STEEL FINISHES

- A. Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
 - 1. Galvanizing Repair Paint: ZRC Cold Galvanizing Compound, or equal (No known equal).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items, including anchor inserts, are sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Excavation: Excavate for sign foundation to elevations and dimensions indicated. Reconstruct subgrade that is not firm, undisturbed, or compacted soil, or that is damaged by freezing temperatures, frost, rain, accumulated water, or construction activities by excavating a further 12 inches, backfilling with satisfactory soil, and compacting to original subgrade elevation.

- B. Set anchor bolts and other embedded items required for installation of signs. Use templates furnished by suppliers of items to be attached.
 - 1. Protect portion of posts and/or inserts above ground from concrete splatter.
- C. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
 - 2. Mechanical Fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.

3.3 CLEANING AND PROTECTION

A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.

END OF SECTION 101426

SECTION 10507 - SOLID PLASTIC LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid Plastic (HDPE) lockers.
- B. Related Section:
 - 1. Division 6 Section "Rough Carpentry" for blocking for lockers.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of solid plastic locker.
- B. Shop Drawings: For solid plastic lockers. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locker trim and accessories.
 - 2. Include locker identification system and numbering sequence.
- C. Samples for Initial Selection: For color finishes.
- D. Qualification Data: For qualified Installer.
- E. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.
- F. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Regulatory Requirements: Where plastic lockers are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities", The California Building Code (CBC), and ICC/ANSI A117.1.

C. Preinstallation Conference: Conduct conference at Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver plastic lockers until spaces to receive them are clean, dry, and ready for their installation.
- B. Deliver master and control keys or combination control charts to Owner by registered mail or overnight package service.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of recessed openings by field measurements before fabrication.

1.7 COORDINATION

- A. Coordinate sizes and locations of concrete bases for plastic lockers.
- B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that plastic lockers can be supported and installed as indicated.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of plastic lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Faulty operation of latches and other door hardware.
 - 2. Damage from deliberate destruction and vandalism is excluded.
 - 3. Warranty Period for Lockers: 25 years from date of Substantial Completion.

1.9 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Full-size units of the following plastic locker hardware items equal to [10] <Insert number> percent of amount installed for each type and finish installed, but no fewer than [five] <Insert number> units:
 - a. Locks.
 - b. Identification plates.

PART 2 - PRODUCTS

SOLID PLASTIC LOCKERS

2.1 MATERIALS

A. Solid Plastic: High density polyethylene (HDPE).

2.2 SOLID PLASTIC LOCKERS

- A. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Bradley;
 - 2. Comtec Industries, Inc.; TuffTec Lockers. (Basis of Design)
 - 3. ASI Storage Solutions, Inc.
 - 4. Penco Products, Inc.
- B. Lockers shall be double tier, 15 inches wide by 18 inches deep and 72 inches high. Locker tops shall be sloped.
 - 1. See drawings for location on accessible locker.
- C. These specifications will be regarded as minimum. Lockers constructed of other materials, including materials with a core and not of solid plastic, will not be acceptable.
- D. Locker doors and frames shall be made from high impact, high density polyethylene (HDPE) formed under high pressure into solid plastic components ¹/₂" thick with homogeneous color throughout. Doors shall have manufacturer's standard venting at the top and bottom of the door.
- E. Sides, tops, bottoms, backs, and shelves shall be made from high impact, high density, polyethylene (HDPE) formed under pressure into solid plastic components 3/8" thick with homogenous natural color throughout. Components shall have machined edges to accept assembly brackets. Out sides, insides, tops, bottoms, backs, dividers and shelves shall be natural in color.
- F. Material Testing-All solid plastic components shall resist deterioration and discoloration when subjected to any of the following: acetic acid 80%, acetone, ammonia 12%, ammonium phosphate, bleach 12%, borax, brine, caustic soda, chlorine water, citric acid, copper chloride, core oils, hydrochloric acid 40%, hydrogen peroxide 30%, isopropyl alcohol, lactic acid 25%, lime sulfur, nicotine, potassium bromide soaps, sodium bicarbonate, trisodium phosphate, urea, urine and vinegar. (Testing in accordance with corrosion testing procedure established by the United States Plastic Corporation.)
- G. Continuous latch shall be made from high impact HDPE plastic and capable of accepting various locking mechanisms. Latch shall be securely fastened to the entire length of the door, providing a continuous latch. Locks shall be built-in key lock.
- H. Door hinge shall be made from heavy duty extruded aluminum with a powder coating to match the locker door and frame. Door hinge shall be full length assembled onto the door and front.
- I. Assembly profile shall be full depth, width and height of the lockers. Profile shall be made from PVC plastic and snap fit assemble onto locker outsides, insides, backs, tops and bottoms.
- J. Coat hooks shall be two-prong and made from high impact plastic. Hooks shall be mounted to bottom of the shelf or divider, one each per door opening.
- K. All HDPE components shall have a smooth "orange peel" finish. Locker doors and door frames shall be the same color and selected from manufacturer's standard colors.

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2.3 FABRICATION

- A. Locker components shall be fabricated square and rigid with a finish free of scratches and chips.
- B. Solid plastic locker components shall snap together for easy assembly and shall provide a solid and secure construction. Adjacent lockers shall share a common side panel. Locker units shall be manufactured for assembly in a group of no more than five adjacent lockers.
- C. Accessible Locker: Fabricate as follows:
 - 1. Locate bottom shelf no lower than 15 inches above the floor.
 - 2. Where books, coat rods, or additional shelves are provided, locate no higher than 48 inches above the floor.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install level, plumb, and true; shim as required, using concealed shims.
 - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c.
 - 2. Anchor single rows of lockers to walls near top of lockers and to base.
- B. Connect groups together with standard fasteners, with no exposed fasteners on face frames.
- C. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
 - 1. Attach door locks on doors using security-type fasteners.
 - 2. Identification Plates: Identify lockers with identification indicated on Drawings.
 - a. Attach plates to each locker door, near top, centered, per manufacturer's installation instructions.
 - 3. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
 - 4. Attach sloping-top units to lockers, with closures at exposed ends.
 - 5. Attach boxed end panels with concealed fasteners to conceal exposed ends of nonrecessed lockers.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding.

- B. Protect lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.
- C. Touch up marred finishes, or replace lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 10507

SECTION 10522 - FIRE EXTINGUISHER CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Fire protection cabinets for the following:
 - a. Portable fire extinguishers.
- B. Related Sections:
 - 1. Division 9 painting Sections for field painting fire protection cabinets.
 - 2. Division 10 Section "Signs" for directional signage to out-of-sight fire extinguishers and cabinets.
 - 3. Division 10 Section "Fire Extinguishers."

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire protection cabinets.
 - 1. Fire Protection Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.
 - 2. Show location of knockouts for hose valves.
- B. Shop Drawings: For fire protection cabinets. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Initial Selection: For each type of fire protection cabinet indicated.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Size: 6 by 6 inches square.
- E. Product Schedule: For fire protection cabinets. Coordinate final fire protection cabinet schedule with fire extinguisher schedule to ensure proper fit and function. Use same designations indicated on Drawings.
- F. Maintenance Data: For fire protection cabinets to include in maintenance manuals.

1.4 COORDINATION

- A. Coordinate size of fire protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.
- B. Coordinate sizes and locations of fire protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stainless-Steel Sheet: ASTM A 666, Type 304.

2.2 FIRE PROTECTION CABINET

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. J. L. Industries, Inc., a division of Activar Construction Products Group; Architecture Series (Basis of Design).
 - b. Kidde Residential and Commercial Division, Subsidiary of Kidde plc.
 - c. Larsen's Manufacturing Company.
 - d. Potter Roemer LLC.
 - e. Watrous Division, American Specialties, Inc.
- B. Cabinet Construction: Nonrated.
- C. Cabinet Material: Stainless Steel sheet.
- D. Semirecessed Cabinet: Cabinet box partially recessed in walls of sufficient depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend). Provide where walls are of insufficient depth for recessed cabinets but are of sufficient depth to accommodate semirecessed cabinet installation.
 - 1. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- E. Cabinet Trim Material: Same material and finish as door.
- F. Door Material: Stainless Steel sheet.
- G. Door Style: Solid opaque panel with frame.
- H. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - 1. Provide manufacturer's standard.
 - 2. Provide continuous hinge, of same material and finish as trim, permitting door to open 180 degrees.
- I. Accessories:

FIRE EXTINGUISHER CABINETS

- 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
- 2. Break-Glass Strike: Manufacturer's standard metal strike, complete with chain and mounting clip, secured to cabinet.
- 3. Lettered Door Handle: One-piece, cast-iron door handle with the word "FIRE" embossed into face.
- 4. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.
- 5. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated.
 - a. Identify fire extinguisher in fire protection cabinet with the words "FIRE EXTINGUISHER`."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Pressure-sensitive vinyl letters.
 - 3) Lettering Color: Red.
 - 4) Orientation: Vertical.

J. Finishes:

1. Stainless Steel: No. 4.

2.3 FABRICATION

- A. Fire Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 - 1. Weld joints and grind smooth.
 - 2. Provide factory-drilled mounting holes.
 - 3. Prepare doors and frames to receive locks.
 - 4. Install door locks at factory.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.
 - 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
 - 2. Miter and weld perimeter door frames.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire protection cabinets after assembly.

FIRE EXTINGUISHER CABINETS

D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.5 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
 - 1. Run grain of directional finishes with long dimension of each piece.
 - 2. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
 - 3. Directional Satin Finish: No. 4.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Prepare recesses for semirecessed fire protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire protection cabinets in locations and at mounting heights indicated or, if not indicated, at heights indicated below:
 - 1. Fire Protection Cabinets: 54 inches above finished floor to top of cabinet, or fire extinguisher handle is 48" above finished floor, whichever is lower.
- B. Fire Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Provide inside latch and lock for break-glass panels.
 - 2. Fasten mounting brackets to inside surface of fire protection cabinets, square and plumb.
- C. Identification: Apply vinyl lettering at locations indicated.

3.4 ADJUSTING AND CLEANING

A. Remove temporary protective coverings and strippable films, if any, as fire protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.

FIRE EXTINGUISHER CABINETS

- B. Adjust fire protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire protection cabinet and mounting bracket manufacturers.
- E. Replace fire protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 10522

SECTION 10523 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.
- B. Related Sections:
 - 1. Division 10 Section "Fire Extinguisher Cabinets."

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.
- B. Product Schedule: For fire extinguishers. Coordinate final fire extinguisher schedule with fire protection cabinet schedule to ensure proper fit and function. Use same designations indicated on Drawings.
- C. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.
- D. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FMG.

1.5 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Amerex Corporation.
 - b. Ansul Incorporated; Tyco International Ltd.
 - c. J. L. Industries, Inc.; a division of Activar Construction Products Group.
 - d. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
 - e. Larsen's Manufacturing Company.
 - f. Potter Roemer LLC.
 - g. Or Approved Equal.
 - 2. Valves: Manufacturer's standard.
 - 3. Handles and Levers: Stainless steel.
 - 4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.
- B. Multipurpose Dry-Chemical Type in Aluminum Container: UL-rated 2-A:10-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-aluminum container.

2.2 MOUNTING BRACKETS

- A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Amerex Corporation.
 - b. Ansul Incorporated; Tyco International Ltd.
 - c. J. L. Industries, Inc.; a division of Activar Construction Products Group.
 - d. Larsen's Manufacturing Company.
 - e. Potter Roemer LLC.

FIRE EXTINGUISHERS

Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
 - a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
 - 1. Mounting Brackets: 48 inches above finished floor to top of fire extinguisher.
- B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 10523

SECTION 10700 – ROLLING SHUTTERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior overhead coiling storm and security shutters.
- B. Related Sections:
 - 1. Division 5 Section "Metal Fabrications" for miscellaneous steel supports.
 - 2. Division 8 Section "Sectional Overhead Doors" for sectional overhead doors.
 - 3. Division 16 Sections for electrical service and connections for powered operators and accessories.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance, Exterior Shutters: Exterior shutters shall withstand the wind loads, the effects of gravity loads, and loads and stresses within limits and under conditions indicated according to SEI/ASCE 7.
 - 1. Wind Loads Design Pressure: As calculated according to ASCE 07-05 as modified by CBC 1609A using wind speed specified on drawings.
 - 2. Deflection Limits: Design shutters to withstand design wind load without evidencing permanent deformation or disengagement of door components.

1.4 SUBMITTALS

- A. Product Data: For each type and size of storm and security shutters and accessory. Include the following:
 - 1. Construction details, material descriptions, dimensions of individual components, profiles for slats, and finishes.
 - 2. Rated capacities, operating characteristics, electrical characteristics, and furnished accessories.
- B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Wiring Diagrams: For power, signal, and control wiring.

ROLLING SHUTTERS

- C. Samples for Initial Selection: Manufacturer's finish charts showing full range of colors and textures available for units with factory-applied finishes.
 - 1. Include similar Samples of accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 - 1. Shutter Slats: 12 inches long.
- E. Qualification Data: For qualified Installer.
- F. Test Reports: Certified test reports showing compliance with requirement.
- G. Maintenance Data: For overhead coiling doors to include in maintenance manuals.
- H. Warranty: Manufacturer's sample warranty for Owner's acceptance.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain shutters and accessories from single source from single manufacturer.
 - 1. Obtain operators and controls from shutter manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Pre-installation Conference: Conduct conference at project site.
 - 1. Review shutter installation and coordination requirements, field conditions, and manufacturer's installation instructions.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components in manufacturer's original undamaged containers with seals unbroken and identification labels intact until time of use.
- B. Store components on elevated platforms, under cover, and in a dry location and protected from other construction activities.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements of openings by field measurements fabrication. Show recorded measurement on Shop Drawing.

PART 2 - PRODUCTS

2.1 ROLLING SHUTTER ASSEMBLY

- A. Shutter Curtain: Shutters formed with curtain of interlocking extruded aluminum slats.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Rollac Shutters of Texas; "Securamax" Model RLL55-X (Basis of Design).
 - b. Or Approved Equal.
- B. Shutter Material: Extruded Aluminum Type 6063-T5.
- C. Shutter Slats: Curved profile slats of 2.59 inch center-to-center height with end retention system.
- D. Rails: Extruded Type 6063-T5 aluminum with exposed finish matching shutter slats.
- E. Rail Type: End retention.
- F. Hood: Match curtain material and finish.
 - 1. Shape: As shown on Drawings.
 - 2. Mounting: As shown on Drawings.
- G. Sill: Manufacturer's standard.
- H. Locking Devices: Equip door with locking device assembly.
 - 1. Locking Device Assembly: Manufacturer's standard.
- I. Electric Shutter Operator:
 - 1. Motor 110v/60hz, UL approved motors and controllers. Provide manual override capability allowing manual operation in case of power outage.
- J. Door Finish:
 - 1. Powder-Coated Finish: Color as selected by Architect from manufacturer's full range.
 - 2. Interior Curtain-Slat Facing: Match finish of exterior curtain-slat face.

2.2 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.3 ALUMINUM FINISHES

A. Baked-Enamel or Powder-Coat Finish: AAMA 2603. Comply with coating manufacturer's written instructions for cleaning, conversion coating, application, and baking.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates areas and conditions, with Installer present, for compliance with requirements for substrate construction and other conditions affecting performance of the Work.
- B. Examine locations of electrical connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install rolling shutters and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Install rolling shutters, hoods, and operators at the mounting locations indicated for each door.

3.3 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
 - 1. Perform installation and startup checks according to manufacturer's written instructions.
 - 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.4 ADJUSTING

- A. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion.
- B. Lubricate bearings and sliding parts as recommended by manufacturer.
- C. Adjust seals to provide weathertight fit around entire perimeter.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain rolling shutters.

END OF SECTION 10700

ROLLING SHUTTERS

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SECTION 10801 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Public-use washroom accessories.
- 2. Underlavatory guards.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
- B. Samples: Full size, for each accessory item to verify design, operation, and finish requirements.
 - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.
- D. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.
- E. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

TOILET, BATH, AND LAUNDRY ACCESSORIES

1.5 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.6 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of stainless steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.
- I. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.2 PUBLIC-USE WASHROOM ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Bobrick Washroom Equipment, Inc.
 - 2. Bradley Corporation.
 - 3. Or Approved Equal.
- B. Toilet Tissue (Roll) Dispenser:

TOILET, BATH, AND LAUNDRY ACCESSORIES

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- 1. Description: Double-roll dispenser.
- 2. Mounting: Surface mounted.
- 3. Operation: Noncontrol delivery with theft-resistant spindle.
- 4. Capacity: Designed for 5-inch- diameter tissue rolls.
- 5. Material and Finish: Stainless steel, No. 4 finish (satin).
- C. Liquid-Soap Dispenser:
 - 1. Description: Designed for dispensing soap in liquid or lotion form.
 - 2. Mounting: Vertically oriented, surface mounted.
 - 3. Capacity: 40 oz. minimum.
 - 4. Materials: Stainless Steel.
 - 5. Lockset: Tumbler type.
 - 6. Refill Indicator: Window type.
- D. Grab Bar:
 - 1. Mounting: Flanges with concealed fasteners.
 - 2. Material: Stainless steel, 0.05 inch thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 - 3. Outside Diameter: 1-1/2 inches.
 - 4. Configuration and Length: As indicated on Drawings.
- E. Seat-Cover Dispenser:
 - 1. Mounting: Recessed mounted.
 - 2. Minimum Capacity: 250 seat covers.
 - 3. Exposed Material and Finish: Stainless steel, No. 4 finish (satin).
 - 4. Lockset: Tumbler type.
- F. Paper Towel (Folded) Dispenser:
 - 1. Mounting: Semirecessed.
 - 2. Minimum Capacity: 400 C-fold or 525 multifold towels.
 - 3. Material and Finish: Stainless steel, No. 4 finish (satin).
 - 4. Lockset: Tumbler type.
 - 5. Refill Indicators: Pierced slots at sides or front.
- G. Mirror Unit:
 - 1. Frame: Stainless-steel channel.
 - a. Corners: Manufacturer's standard Mitered and mechanically interlocked.
 - 2. Size: As indicated on Drawings.

2.3 UNDERLAVATORY GUARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Plumberex Specialty Products, Inc.
 - 2. Truebro by IPS Corporation.

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B. Underlavatory Guard:

- 1. Description: Insulating pipe covering for supply and drain piping assemblies that prevent direct contact with and burns from piping; allow service access without removing coverings.
- 2. Material and Finish: Antimicrobial, molded plastic, white.

2.4 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10801

SECTION 15100 - HEATING, VENTILATING AND AIR CONDTIONING

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

A. The General Conditions, Supplementary Conditions, and Division 1, are a part of this section and the contract for this work and apply to this section as fully as if repeated herein.

1.2 SCOPE

A. The work under this Section includes everything necessary for and incidental to executing and completing the Heating, Ventilating and Air Conditioning work, except as hereinafter specifically excluded.

1.3 SUBMITTALS

- A. Submit a minimum of six copies of shop drawings for all products. All submittal sheets shall be clearly marked or highlighted showing conformance to specifications and schedule. All submittals shall be crossed referenced to the requirements of each specification paragraph pertaining to the item being submitted. All requirements must be shown on manufacturer's literature. Manufacturer's representative's letterhead, or super-imposed notations, are not acceptable. This requirement pertains to all sections of Division 15000. No exceptions. Submittals not so marked will be subject to rejection.
- B. Submittals not conforming to the requirements of the plans and specifications and requiring resubmittal for additional review will be subject to a Ninety Dollar (\$90.00) an hour charge for the time involved in reviewing the resubmittals.
- C. The contractor shall assume any extra costs to other work or trades resulting from the use of substitutions. All substitutions shall be supplied as approved at no extra charge.

1.4 WORK INCLUDED

- A. Work included shall be as indicated on the drawings, including but not limited to the following:
- B. Installation.
 - 1. Ductwork

- 2. Casings and Plenums
- 3. Flexible Connectors
- 4. Duct Sealants
- 5. Manual Dampers
- 6. Backdraft Dampers
- 7. Insulation
- 8. Acoustical Duct Liner
- 9. Thermal Duct Wrap
- 10. Air Distribution
- 11. Thermostat
- 12. Inline Fans

1.5 RELATED WORK NOT IN THIS SECTION

- A. Painting, except as hereinafter specified.
- B. Division 16 will provide all line voltage wiring, disconnects, magnetic starters except those furnished under this section as part of packaged equipment, manual starters, and connect up all motors complete.

1.6 DELIVERY AND STORAGE OF MATERIALS

A. Provide for the safety and good condition of all materials and equipment until final acceptance by the Architect. Protect all materials and equipment from damage from any cause whatever, and provide adequate and proper storage facilities during the progress of the work. Replace all damaged and defective work precedent to filing application for final acceptance.

1.7 CODES AND STANDARDS

- A. All work and materials shall be in full accordance with Title 24 CCR and the latest rules and regulations of the State Fire Marshall; the Safety Orders of the Division of Industrial Safety; the National Electric Code; the California Plumbing Code; Local Building Codes; the California Mechanical Code; Vol. II of the California Building Code; CCR T-24; and other applicable codes, laws or regulations of bodies lawfully empowered and having jurisdiction over this project. Nothing in the plans or specifications is to be construed to permit work not conforming to these codes.
- B. This Contractor shall obtain all permits, patent rights, and licenses that are required for the performing of his work by all laws, ordinances, rules and regulations or orders of any officer and/or body, shall give all notices necessary in connection therewith, and pay all fees relating thereto and all costs and expenses incurred on account thereof. No

work shall be covered before inspection by the jurisdictional inspection and the Architect.

1.8 SEISMIC ANCHORAGE AND BRACING

- A. All equipment and ductwork shall be anchored or braced in accordance with the California Building Code. The contractor is responsible for providing anchorage or bracing for all equipment regardless of whether detailed or shown on the plans. All equipment and ductwork supports not detailed or shown on the plans requires approval of a registered Structural Engineer.
- B. All equipment and ductwork shall be supported or braced in accordance with the SMACNA "Seismic Restraint Manual: Guideline for Mechanical Systems" latest edition, Superstrut "Seismic Restraint System", OSHPD #OPA-0003, Unistrut Corp. "Seismic Bracing For Ductwork, Conduit, and Cable Tray Supports", OSHPD #OPA-0120, B-Line "Seismic Restraints", OSHPD #OPA-0114 or Mason Industries restraint guide, OSHPD #OPA-0349. If the duct size exceeds the size included in these manuals, custom designed supports are required. All custom supports require the approval of a registered Structural Engineer. All shop drawings and calculations shall be submitted prior to fabrication.
- C. All flexibly mounted equipment shall be provided with seismic vibration isolation devices designed in accordance with the California Building Code. All anchors and equipment connections shall be submitted. All seismic vibration isolation devices shall be submitted with structural calculations signed by a Registered Structural Engineer in the State of California.

1.9 CUTTING AND PATCHING

- A. Perform all cutting and fitting required for work of this section in rough construction of the building.
- B. All patching of finished construction of building shall be performed under the sections of specifications covering these materials.
- C. Openings through fire rated walls for pipes and ducts shall be packed with impervious noncombustible materials to provide a tight fit. All duct penetrations through fire rated walls shall have a fire smoke damper with smoke detector and access panel.

1.10 GENERAL

A. Unless otherwise specified herein, all equipment and fixtures shall be installed in accordance with the manufacturer's recommendations.

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- B. Before submitting his bid, the Contractor for the work under this section shall carefully study all drawings, and shall make a careful examination of the premises. He shall definitely determine in advance, the methods of installing and connecting the apparatus, the means to be provided for getting any equipment into place, and shall make himself thoroughly familiar with all the requirements of the contract. After award of the contract, no subsequent allowances will be made to the Contractor due to his failure to comply with the above requirements and any other conditions affecting the installation and completion of all work.
- C. Workmanship: All labor shall be carefully skilled for this kind of work, thorough and first class in all respects and under the direction of a competent foreman.

1.11 DAMAGE BY LEAKS

A. This Contractor shall be responsible for damage to the grounds, walks, roads, buildings, piping systems, electrical systems and their equipment and contents, caused by leaks in the piping systems being installed or having been installed herein. He shall repair at his expense all damage so caused. All repair work shall be done as directed by the Architect.

1.12 EMERGENCY REPAIRS

A. The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee bond nor relieving the Contractor of his responsibilities.

1.13 EXPLANATION AND PRECEDENCE OF DRAWINGS

- A. For purposes of clearness and legibility, drawings are essentially diagrammatic, and, although size and location of equipment are drawn to scale wherever possible, Contractor shall make use of all data in all the contract documents and shall verify this information at building site.
- B. The drawings indicate required size and points of termination of ducts, and suggest proper routes to conform to structure, avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the work of the Contractor to make the installation in such a manner as to conform to structure, avoid obstructions, preserve headroom and keep openings and passageways clear, without further instructions or cost to the Owner.
- C. Shop drawings shall be furnished indicating all changes to meet space requirements, code requirements and as necessary to resolve all space conflicts.

- D. It is intended that all apparatus be located symmetrically with architectural elements. Refer to architectural details in completing the correlating work.
- E. The Contractor shall fully inform himself regarding any and all peculiarities and limitations of the spaces available for the installation of all work and materials furnished and installed under the Contract. He shall exercise due and particular caution to determine that all parts of his work are made quickly and easily accessible.
- F. The Contractor shall study all drawings and specifications to determine any conflict with ordinances and statutes. Any errors or omissions shall be reported, and any changes shall be shown in the as-built drawings and the additional work performed at no cost to the Owner.
- G. Submittal of bid shall indicate the Contractor has examined the site and drawings and has included all required allowances in his bid. No allowance shall be made for any error resulting from Contractor's failure to visit job site and to review drawings, and bid shall include costs for all required drawings and changes as outlined above, all at no cost to Owner.

1.14 SUPERVISION AND COOPERATION

- A. This Contractor shall include the services of experienced superintendents for each sub-section who shall be constantly in charge of the work, together with the qualified journeymen, helpers and laborers, required to properly unload, install, connect, adjust, start and operate and test the work involved, including equipment and materials furnished by others and by the Owner.
- B. The work under this section shall be in cooperation with the work of other trades to prevent conflict or interference and to aid rapid completion of the overall project.

1.15 OPERATION

- A. The Owner may require operation of parts or all of the installation for beneficial occupancy prior to final acceptance. Refer to General Conditions of the Contract.
- B. Cost of utilities for such operation shall be paid by the Owner. Said operation shall not be construed as acceptance of the work.

1.16 ELECTRICAL

A. When electrical work is specified in previous or subsequent sections to be furnished and installed by Division 16, it shall be installed in metallic conduit and in full accordance with the California Electrical Code and the State of California Industrial Accident

Commission's Safety Orders. Conduit shall be installed in accordance with the Electrical Division of these Specifications.

- B. The line voltage wiring shown on the Electrical Drawings is based on the control diagram, control specifications and specified items as outlined herein. Any changes necessary to accommodate the controls and specified items furnished which increase the cost for line voltage wiring shall be paid for by the Contractor.
- C. Before order is placed for motors or other electrical devices, the Contractor shall check with Division 26 plans and specifications, and verify requirements as to type, mounting and current characteristics as well as to any special delivery instructions.
- D. This Contractor shall furnish, install and/or align all motors for driving the equipment furnished and installed by this contract. Motors shall be designed to operate at full load continuously without exceeding a temperature rise of 40°C. The size of all motors shall be the size required by equipment it drives. Each belt connected motor shall
- E. Motors shall be fitted with base and slide rails. Motors shall be Westinghouse, General Electric, Fairbanks Morse, Wagner, Allis Chalmers, or Sterling. Each motor shall have a sufficient starting torque to start the apparatus drive. All motors shall be wound for the voltage shown in the schedule on the drawings.
- F. Each motor for a belt drive shall be fitted with adjustable "V" belt sheaves. These shall be key seated and set screwed to the motor shafts and the combined motor and sheave shall run in perfect balance.
- G. All motors less than 1/2 HP shall have built-in running thermal overload protection. Motors 1/2 HP and larger, shall be rated for 3-phase service unless otherwise noted.
- H. All motors installed exposed to the weather, shall be totally enclosed and weatherproof.
- I. Starters: All individual motor starters will be furnished under the Electrical Section of the specifications, unless noted otherwise. For starters to be furnished under this section, see Control Diagram on the drawings and Equipment Section of the specifications.

1.17 UTILITY SERVICES DURING CONSTRUCTION

A. All water and electric power used for construction shall be paid for by the Contractor.

1.18 ACCESS PANELS

A. Access Doors and Panels: Wherever volume dampers, fire dampers, controls or other items or parts of the installation which require periodic inspection or adjustment are

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B. Duct access doors shall be labeled as to its use, e.g., "Fire Damper", etc. Lettering shall be a minimum of 1/2" high, and be clearly visible from normal traffic areas.

1.19 COORDINATION

A. Coordinate layout and installation of Ductwork, Equipment, and suspension system components with other construction, including light fixtures, HVAC equipment, electrical conduit, fire suppression system components, and partition assemblies.

PART 2 - PRODUCTS

2.1 DUCTWORK

- A. The contractor shall furnish and install all PVC ductwork and plenums shown on plans, except where otherwise noted. Construction and gauges shall conform to the requirements of the California Mechanical Code, 2010 Edition. Installation of ducts shall conform to the requirements of The 2010 California Mechanical Code and SMACNA HVAC Duct Construction Standards, 2005 Edition, unless more restrictive within this specification. Duct shall have smooth interiors and all seams, braces, and hangers shall be on the outside. Ductwork exposed in occupied areas shall be free from visual imperfections including, pitting, seam marks, stains, discoloration and other imperfections, including those that would impair painting. Duct shall be constructed for a minimum static pressure of 2" w.c., unless otherwise noted.
- B. All duct piping, sizes 6" through 24", shall be PVC seamless extruded type, as manufactured by GF Harvel® Plastics Inc or approved equal. This duct pipe shall be extruded from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784, trade name H707 PVC. All extruded PVC duct shall have a maximum flame spread rating of 25 or less per ULC S102.2. All PVC extruded duct pipe shall meet GF Harvel Inc. published standards with regard to material and dimensions, and shall carry a maximum temperature rating of 140°F. All extruded duct pipe shall be manufactured in the USA, using domestic materials, by an ISO 9001 certified manufacturer, and shall be stored indoors at the manufacturing site until shipped from the factory. All extruded PVC duct pipe shall be marked with the manufacturer's name or identifying symbol.

1. Hangers, seams, and joint reinforcements on outside of ductwork shall be free of sharp/jagged edges. All standing duct seams/reinforcements shall have the corners rounded or chamfered 45°. Duct hanger rods shall be trimmed back near bolt, and hanger straps shall extend under duct a minimum of 1", and have corners rounded or chamfered 45°.

2.2 CASINGS AND PLENUMS

- A. Casings and plenums shall be constructed in accordance with Section 9 of the SMACNA Duct Construction Standards, 2005, with the following additions and deletions.
 - 1. Construct using the alternate casing construction Figure 9-3.
 - 2. Construction that is subject to high static pressure shall be constructed to the 6" Load Class. This would include any air handler walls and any plenums that could be subject to the full static pressure of the fan. Including return, supply and mixing plenums that have the possibility of accidental closing of dampers or fire dampers and subjecting the plenum to the full static pressure of the supply fan.
 - 3. Construction that is subject to low static pressure shall be constructed to the 2" Load Class. This would include any plenums that are not subject to the full static pressure of the fan. Including return, supply and mixing plenums that have direct openings to the building or outside without any dampers or possibility of blockage and not subjecting the plenum to the full pressure of the supply fan.
 - 4. Table 9-1 Alternate Casing Panels shall be used to determine panel width.
 - 5. Joints and bracing shall face inside.
 - 6. Omit eliminators shown in Figure 9-13.
 - Casing access doors shall be constructed per Figure 9-16, Section "A-A". Hinges shall be 3" x 2" zinc plated. Latches shall be 1/2" diameter, Durodyne SP-20. Doors shall be a minimum of 30"W x 78"H with a minimum of 3 hinges and latches. Provide Manville 812 Series insulation inside access door.
 - 8. Omit Section C-C, Figure 9-16.
 - 9. Insulated plenum and casings shall be lined with 22 gauge galvanized steel panels.
 - 10. Plenum shall be packed with 3" thick, 1-1/2 pound per cubic foot density, unfaced spin glass insulation Manville 812 Series.

2.3 FLEXIBLE CONNECTORS

A. Flexible Connectors: Furnish and install "Durodyne" or approved equal, double neoprene coated, 30 ounce glass fabric flexible connections, properly connected to 24 gauge metal, fitted on duct connections, at fan or unit inlets and outlets, and where indicated on plans.

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2.4 DUCT SEALANTS

- A. Multi-Component Urethane: ASTM C920, Type M, Grade NS, Class 50; Uses T,, M, A, and O; two component, chemical curing, nonstaining, nonbleeding, color as selected.
 - 1. Dymeric 240/240FC.
 - 2. Vulkem 227.

2.5 MANUAL DAMPERS

- A. Manual dampers for round ducts shall be constructed per SMACNA Fig. 2-14-C with blades of 20 gauge steel. Provide 2" hand quadrant standoff bracket on all ducts with wrapped insulation. Shafts shall be continuous through damper. Hand quadrant shall be "Durodyne" 3/8" stampline regulator, Model KSR-19, or approved equal. Damper kit shall include regulator, round end bearing and square end bearing. Exposed duct shall have concealed style regulator set, "Durodyne" Model 8008, or approved equal. "Jiffy" or "Rapit" dampers will not be accepted.
- B. Manual dampers for rectangular ducts shall be Greenheck MBD-15 opposed blade dampers with 16 gauge galvanized steel blades and locking hand quadrant. Provide locking hand quadrant with 1-1/2" standoff mounting bracket on all ducts with wrapped insulation.

2.6 BACKDRAFT DAMPERS:

A. Counterbalanced dampers shall consist of 6063T5 extruded aluminum channel frame (0.063 in thick) with 2 in depth; blades from 0.05 in 6063T5 extruded aluminum; synthetic polycarbonate axle bearings; damper shall be equipped with extruded vinyl blade seals; and internal 0.125 in aluminum linkage. Damper manufacturer's printed application and performance data including pressure, velocity and temperature limitations shall be submitted for approval showing damper suitable for pressures to 2.5 in wg, velocities to 2,000.0 ft/min and temperatures to 180 °F. Testing and ratings to be in accordance with AMCA Standard 500. Greenheck model ES-30, ES-10 or ES-40.

2.7 INSULATION

- A. The products listed below are manufactured by Owens Corning. Equivalent Products as manufactured by Schuller, Knauf, or approved equal are acceptable.
- B. Ducts shall be lined as follows:
 - 1. All supply and return ducts for 10' from units and all ductwork exposed to weather.

- 2. All exhaust ducts for 10' from all exhaust fans.
- 3. All ductwork and plenums as shown on the plans.
- C. Duct Liner shall not be used in the supply ductwork of systems with filters over 30% efficiency. Duct liner shall not be used in supply ductwork serving electronic equipment i.e., telephone equipment rooms, computer facilities or other sensitive areas.
- D. Supply and return ductwork not specified to be lined shall be insulated with thermal duct wrap.
- E. Ductwork installed exposed in a conditioned space does not require thermal duct wrap. Exposed ductwork shall be lined as specified above.
- F. Ductwork located outdoors, in a space between the roof and insulated ceiling, in a space directly under a roof with fixed vents or openings to the outside or unconditioned spaces, in unconditioned crawlspaces and other unconditioned spaces shall be insulated to a minimum installed level of R-8.

2.8 ACOUSTICAL DUCT LINER

- A. Line ductwork specified above with 1-1/2" duct liner with minimum R-Value of 6.0, except ductwork exterior to the building walls or roof, which shall be lined with 2" liner and minimum R-value of 8.0. Flame spread -25, fuel contributed and smoke developed rating shall not exceed -50.
- B. Round Duct Liner: Quiet Zone, rigid preformed round liner with air surface coated with acrylic coating treated with EPA register anti-microbial agent proven to resist microbial growth as determined by ASTM G 21 and G 22.
 - 1. 'K' Value: ASTM C 518, 0.23 at 75°F.
 - 2. Noise Reduction Coefficient of 0.85 as per ASTM C 423 (Type A mounting).
 - 3. Maximum Velocity: 6,000 ft/min.
 - 4. Installed R-Value: 6.5

2.9 THERMAL DUCT WRAP

- A. All supply and return ductwork not specified to be lined shall be insulated with 1-1/2" thick faced fiberglass duct wrap insulation blanket 1.0 lb. density. Supply and return ductwork insulation shall be 1-1/2" thick all service faced duct wrap insulation. Flame spread -25, fuel contributed and smoke developed rating shall not exceed -50.
- B. Flexible Fiber Glass Blanket: Owens Corning Type 100 meeting ASTM C 553 flexible blanket.

- 1. 'K' Value: 0.26 at 75°F installed.
- 2. Density: 1.0 lb/cu ft.
- 3. Vapor Barrier Jacket: FSK, aluminum foil reinforced with fiberglass yarn and laminated to fire-resistant kraft,
- 4. Installed R-Value: 6.0
- C. Rigid Fiberglass Board: 814 Spin-Glas meeting ASTM C 612; rigid board.
 - 1. 'K' Value: 0.23 at 75°F.
 - 2. Density: 3.0 lb/cu ft.
 - 3. Vapor Retardant Jacket: AP, bleached kraft paper bonded to aluminum foil, reinforced with fiberglass yarn; or FSK, aluminum foil reinforced with fiberglass yarn and laminated to fire-resistant kraft.

2.10 AIR DISTRIBUTION DEVICES

- A. Performance: Contractor shall provide the required air throw and spread no apparent drafts or excessive air movement within the air conditioned area. Any air distribution accessories required to affect these conditions shall be provided and installed by Contractor. Grilles, registers or ceiling diffusers causing excessive air movements, drafts or objectionable noise, shall be replaced at no cost to the Owner. Paint inside of all ducts including volume dampers, etc., behind registers and diffusers with two coats flat black enamel.
- B. Grilles, registers or ceiling diffusers causing excessive air movements, drafts or objectionable noise, shall be replaced at no cost to the Owner.
- C. Ceiling diffusers shall be surface mounted, flush with ceiling, with integral opposed blade volume control and removable multi-deflection core. Diffusers shall be Price model AMCD, aluminum, or approved equal. Provide round neck reducer when required. Finish being white powder coat.
- D. Ceiling return registers shall match perforated supply diffusers above with integral opposed blade volume control. Price model APDDR, aluminum, or approved equal. Finish being white powder coat.
- E. Ceiling return registers shall have extruded aluminum border and core with integral opposed blade volume control. Price model 80D, (aluminum OBD model 82DAL) or approved equal. Finish being white powder coat.
- F. The outside air grille Price model 80FF, shall have components constructed of extruded aluminum frame and aluminum egg crate face plate, 1/2" x1/2" x1/2" aluminum grid. Borders and frames are of all-welded construction with reinforced mitered corners. Hinge-tab mechanism allows hinging or removal of grille from the filter frame for

cleaning. Include 1/4 turn quick-release fasteners and 2" thick 30% efficient Can-Fil Farr 30/30 filter.

G. Installation: Paint inside of all ducts including volume dampers, etc., behind registers and diffusers with two coats flat black enamel.

2.11 THERMOSTAT

- A. Provide a programmable thermostat for each unit as shown on the plans. the thermostat shall include the following features:
 - 1. Bright back-lit display with interactive touch screen
 - 2. Programming functions stored in permanent memory
 - 3. Min and max heating range
 - 4. Daylight savings time key
 - 5. Programmable fan can be programmed in the "on", "auto" or "circulate" mode for each period
 - 6. Vacation/leave program will hold vacation/leave temperature for up to 256 days
 - 7. Outdoor temperature display
 - 8. 5-Year limited warranty

2.12 INLINE FANS

- A. Inline fans shall be of the centrifugal direct drive type. The fan housing shall be constructed of aluminum. The wheel shall be backward inclined aluminum. The fan shall have two bolted access panels. The fan shall have integral duct connection flanges. Sleeve bearing motors and corrosion resistant fasteners. The access for wiring shall be external. The motor disconnect shall be internal and of the plug in type. The motor shall be mounted on vibration isolators. The fan wheel(s) shall be of the forward curved centrifugal type, constructed of galvanized steel and dynamically balanced.
- B. All fans shall be licensed to bear the AMCA Certified Ratings Seals for sound and air performance and shall be U.L. Listed and C.S.A. approved.
- C. Inline fans shall be Model SQ as manufactured by Greenheck.
- D. Options & Accessories:
 - 1. Switch, NEMA-1, Toggle, Junction Box Mounted and Wired
 - 2. Coated with Permatector, Gray (040), Fan and Attached Acc
 - 3. Inlet Guard, Aluminum
 - 4. Outlet Guard, Aluminum

PART 3 - EXECUTION

3.1 METAL AND DUCTWORK INSTALLATION

- A. Duct shall be suspended in accordance with SMACNA guidelines from structural parts of the building.
- B. For ducts over 36" wide, support shall be trapeze hangers consisting of hanger rods with double nuts and angle iron, 2001 California Mechanical Code, and Fee and Mason Fig. 255L beam clamps or appropriate equal. Ducts shall be secured against lateral displacement at every third hanger. Where wide ducts obstruct the suspended ceiling hangers, a trapeze of angle of size suitable for the span shall be constructed below the duct for ceiling suspension. All hangers and supports in central office areas shall have rounded edges.
- C. Ducts 19" wide and larger shall be cross-broken or beaded on all four sides. Elbows shall be cross-broken, beading is not acceptable.
- D. All changes in direction of ducts shall be made with an inside radius not less than the width of the duct.
- E. Changes in shape of ducts shall be made at small angles, sides of ducts shall diverge or converge at an angle not greater than 15° whenever possible or as shown on the plans.
- F. All branch take offs, including individual discharge outlets, shall have volume dampers.
- G. All square turn elbows greater than 45° shall have turning vanes and shall be cross-crimped.
- H. All seams and transverse joints on all ducts shall be made airtight with Vulkem polyurethane sealant. Duct tape will not be accepted. Clean duct of oil or other foreign substance prior to application. All duct systems shall be sealed to a leakage rate not to exceed 5% of the fan flow.
- I. All ducts shall be installed in the locations and the sizes shown on the drawings. Should it be found that any necessary duct dimensions have been omitted from the drawings, the Contractor shall notify the Architect, who will supply the dimensions, and the Contractor shall then construct the ducts in accordance with these sizes. Should it be found impractical to install any duct of the exact sizes given, a duct of a different shape but having the same resistance shall be installed; the sizes of the substitute duct shall be approved by the Architect.
- J. All ducts shall be installed true to line and grade. All concealed horizontal ducts shall be installed to leave the greatest possible headroom under them unless for clearances of other work they need to be installed at an intermediate plane. Where necessary, changes

of elevation in the ducts shall be made to secure this result, but not without approval of the Architect.

- K. All ductwork, mixing dampers, fire dampers, grilles, etc., shall be thoroughly cleaned and free of dust and debris before and after installation.
- L. All round branch duct take-off connections to rectangular sheet metal duct shall be accomplished using a flared spin-in fitting. Fitting size shall be same size of branch take-off duct.
- M. All duct openings in roof shall be provided with a minimum of 4" high curbs. The Contractor shall flash and counter flash all ducts where they pass through roof. All flashing and counter-flashing shall be No. 24 gauge galvanized iron, unless otherwise indicated on drawings. Where ducts pass through interior walls, or partitions, close visible opening around ducts with collars.
- N. All ductwork and plenums exposed to weather shall be sealed watertight with caulking conforming to the requirements of other Divisions.
- O. Ducts mounted on the roof shall be installed a minimum of 18" above the roof, unless shown otherwise on the plans.

3.2 SEALANT INSTALLATION

- A. Install primer and sealants in accordance with ASTM C 1193 and manufacturer's instructions.
- B. Apply primer where required for sealant adhesion.
- C. Install sealants immediately after joint preparation.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

3.3 THERMAL DUCT WRAP

A. Insulation shall be installed with joints lapped not less than 1-1/2" secured with 16 soft galvanized iron wire spaced approximately 12" on centers. Secured with UL listed pressure sensitive tape and/or outward clinched expanded staples and vapor barrier mastic as needed.

3.4 ACOUSTICAL DUCT LINER

A. All duct sizes shown on drawings are net inside dimensions. Allowances shall be made for liner thickness.

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Appendix G - Technical Specifications La Jolla Cove Lifeguard Station B. Liner shall be cemented to duct with adhesive and mechanically fastened with adhered fasteners. Where widths of ducts or casings exceed 20", both mechanical fasteners and adhesive shall be used. Maximum fastener spacing shall be per insulation manufacturer. Exposed edges shall be securely taped to prevent fraying.

3.5 TEST AND AIR BALANCE

- A. Total System Balance shall be performed by an independent agency which specializes in and whose business is dedicated to testing, adjusting and verification of the HVAC system performance. This work shall conform to the "National Standards for Total System Balance" sixth edition 2002, and other criteria as set forth in this specification. The test and balance report shall use AABC forms, and shall portray an accurate account of all conditions during the test and balance procedure. The Balancing Agency shall be a certified member of the Associated Air Balance Council (AABC) or the National Environmental Balancing Bureau (NEBB).
- B. Balance the supply and return air systems by first arriving at the fan total air quantity, reading air velocities at cooling coils at scheduled temperature, return air and outside air openings; and a duct traverse. Filter banks shall be artificially loaded to simulate approximately 50% dirty filters. The fan RPM shall then be adjusted for the specified air quantities allowing for a maximum of 2% for duct leakage. The quantity of air to each outlet shall not be less than 10% of that amount. If so instructed by the Mechanical Engineer, further balancing of temperatures shall be made and indicated by thermometer or by temperature recorder. Upon completion of test and balance, mark final location of all manual damper levers with a permanent black marker pen. Contractor shall include indoor and outdoor temperature/humidity at each room sensor after system balance has been completed.
- C. As a part of the work of this contract, Contractor shall make any changes in the pulleys, belts and dampers required for correct balance at no additional cost to the Owner. Note: When complete and proper fan speed is determined, pulleys shall be provided such that belts ride in the position (low end of RPM range) and speed can be increased without changing pulley.
 - 1. The supply fan capacity shall be adjusted to provide the total system air flow
- D. The contractor shall provide two sets of test and balance data for variable air volume systems. The first set of data shall include all required measurements when the system is operating at full capacity with air flow quantities indicated on the construction documents. The second set of data shall include all required measurements when the system is operating in its normal mode to meet space requirements.
- E. Performance Pitot Tube Traverse of all Supply, Return and Exhaust Systems

- 1. Except as specifically indicated herein, pitot tube traverse shall be taken in branch ducts to assure specified flow to all zones. Pitot tubes, associated instruments, traversing, and testing techniques shall conform to the ASHRAE Handbook of Fundamentals.
- 2. Pitot tube traverse may be omitted:
 - a. Where the duct serves only a single room or space and its design volume is less than 2000 CFM.
 - b. Where duct's design velocity and air quantity may be determined by measurements of terminals served.
- 3. Test holes shall be in a straight duct, as far as possible downstream from elbows, bends, takeoffs and other turbulence generating devices, to optimize reliability of flow measurements. All test holes shall be drilled into ductwork prior to installation. Contractor shall verify all metal shavings have been removed from the ductwork, and test holes shall be plugged with red caps. See construction documents for additional test hole locations.
- F. Furnish Typewritten Data for all Supply Fans Tabulating
 - 1. Quantity of air in CFM at each air outlet or inlet. Contractor shall mark the position of the manual volume damper with a permanent black marker.
 - 2. Dry and wet bulb temperatures at each thermostat to the nearest 1/10 of 1 degree.
 - 3. Outdoor dry and wet bulb temperature, wind direction and velocity, and barometric pressure at the time tests are conducted.
 - 4. RPM of fan.
 - 5. RPM of motor.
 - 6. Ampere input of each motor (one reading on each leg on three (3) phase).
 - 7. No load Amperage and Brake Horsepower calculations on all motors.
 - 8. Static pressure in inches water gauge at inlet and outlet of fan .
 - 9. Duct Traverse data.
- G. Sound Test Procedures
 - 1. Sound level measurements shall be taken at times when the building is occupied, or when activity in surrounding areas and background noise levels in areas tested are at a minimum and relatively free from sudden changes in noise levels.
 - 2. Measurements shall be taken with all equipment secured, except that being tested.
 - 3. The required sound levels shall be measured at any point within a room not less than six (6) feet from an air terminal or room unit, and not closer than three (3) feet from any floor, wall, or ceiling surface.
 - 4. Sound levels shall be measured 3'-0" from the air handler/outside air intake, air handler/fan casing, exhaust discharge louvers and chillers.
 - 5. Sound levels shall be measured with a General Radio Model 1982-9720 Sound Analysis System 30-140 DB Octave Band Analyzer. The "A" scale shall be used

to measure over-all sound levels. The specified octave band levels shall be determined with the above sound level meter set on "A."

- H. Air Balance Drawings
 - 1. The Air Balance Agency shall prepare a complete set of drawings showing actual duct runs, outlet/inlet locations and differential pressure sensor locations in ductwork/pipe. Drawings shall be keyed to, and furnished with, the Air Balance report.

3.6 REQUIREMENTS FOR ACCEPTANCE INSPECTION

- A. All of the following items must be completed prior to final inspections. No exceptions will be made and no final payment will be made until all items are completed.
- B. Cleaning Equipment and Premises:
 - 1. Thoroughly clean all parts of the registers, grilles, and equipment. Exposed parts which are to be painted shall be thoroughly cleaned of cement, plaster and other materials and all oil and grease spots shall be removed. Such surfaces shall be carefully wiped and all cracks and corners scraped out.
 - 2. Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots left smooth and clean.
 - 3. Electrical device covers shall not be installed until finish coat of paint is completed. Device handles and receptacles shall be covered and/or protected during the painting operation to preserve the original factory bright new finish.
- C. Operating Instruction and Service Manual: The Contractor shall carefully prepare three (3) operating instruction and service manuals for the entire system including all equipment, except Owner-furnished equipment. They shall be submitted for approval immediately upon completion of the work. Failure to submit for approval will delay final inspection and acceptance of the work by the Architect.
 - 1. The following items together with any other necessary pertinent data shall be included in the manual. This is not complete and is to be used as a guide:
 - a. Manufacturer's Literature: Copy of manufacturer's instructions for operation and maintenance of all mechanical equipment, including replacement parts, lists and drawings. These brochures and any other required operating and service instructions shall be submitted to the Architect. The Contractor shall mark brochure literature indicating the model, sizes, capacities, curve operating points, etc., in a manner to clearly indicate the equipment installed. The Contractor shall remove all pages or sheets from the bulletins and catalogs that do not pertain to equipment installed on the project.

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- b. Oiling, lubrication and greasing data.
- c. Complete electrical load data from operation test.
- d. Test data on all equipment.
- e. Belt sizes, types and lengths.
- f. Serial numbers of all principal pieces of equipment.
- g. Manufacturer's suppliers and subcontractors names and addresses and phone numbers.
- h. Control diagram and written sequence of operation.
- i. Written guarantee.
- j. As-builts corrected and completed to date.
- D. Written Instructions: Typewritten instructions of operation and maintenance of the system composed of operating instructions, maintenance instructions and a maintenance schedule.
- E. Operating instructions shall contain a brief description of the system. Adjustments requiring the technical knowledge of the service agency personnel shall not be included in the operating instructions. The fact such adjustments are required, however, shall be noted.
- F. Maintenance instructions shall list each item of equipment requiring inspection, lubrication or service and describe the performance of such maintenance.
- G. Maintenance schedule shall list each item of equipment, shall show the exact type of bearing on every component of each item of equipment, and shall show when each item of equipment should be inspected or serviced.

3.7 DRAWINGS OF RECORD

- A. These drawings shall serve as work progress report sheets and the Contractor shall make all notations, neat and legible, thereon daily as the work proceeds. The drawings shall be available for inspection at all times and shall be kept at the job at a location designated by the Engineer.
- B. At completion of the work, these as-built drawings shall be signed by the Contractor indicating his approval, dated and returned to the Engineer.

3.8 GUARANTEE

- A. All work under this section shall be guaranteed in writing in accordance with the General Provisions.
- B. The Contractor shall and hereby does warrant that:

- 1. All material except as otherwise noted shall be new, free from defect and of the quality and rating shown or specified.
- 2. Any defect due to missing or improper material or faulty workmanship existing or developing during the warranty period shall be corrected and the resulting damage repaired without additional cost to the Owner.
- 3. The warranty period shall be one year from date of acceptance of the project.

3.9 ADDITIONAL WORK

A. Design is based on equipment as described in the Drawings Equipment Schedule. Any change in foundation bases, electrical wiring, conduit, connections, piping, controls, and openings required by alternate equipment specified and submitted and approved shall be paid for by this Contractor.

* * * *

SECTION 15150 - PIPING AND ACCESSORIES

PART 1 - GENERAL

1.1.1. GENERAL CONDITIONS

A. The General Conditions, Supplementary Conditions, and Division 1, are a part of this section, and the contract for this work, and apply to this section as fully as if repeated herein.

1.1.2. SCOPE

A. The work under this Section includes everything necessary for and incidental to executing and completing the Piping System except as hereinafter specifically excluded.

1.1.3. SUBMITTALS

- A. Submit a minimum of six copies of shop drawings for all products. All submittal sheets shall be clearly marked or highlighted showing conformance to specifications and schedule. All submittals shall be cross referenced to the requirements of each specification paragraph pertaining to the item being submitted. All requirements must be shown on manufacturer's literature. Manufacturer's representative's letterhead, or super-imposed notations, are not acceptable. This requirement pertains to all sections of Division 15. No exceptions. Submittals not so marked will be subject to rejection.
- *B.* Submittals not conforming to the requirements of the plans and specifications and requiring resubmittal for additional review will be subject to a Ninety Dollar (\$90.00) an hour charge (or as indicated in Division 1) for the time involved in reviewing the resubmittals.

1.1.4. WORK INCLUDED

- A. Work included shall be as indicated on the drawings, including but not limited to the following:
 - 1. Piping.
 - 2. Valves.
 - 3. Pipe Hangers and Guides.
 - 4. Gauges & Temperature Indicators.
 - 5. Connectors.
 - 6. Insulation.

1.1.5. RELATED WORK NOT INCLUDED IN THIS SECTION

A. Painting, except as hereinafter specified.

1.1.6. DELIVERY AND STORAGE OF MATERIALS

A. Provide for the safety and good condition of all materials and equipment until final acceptance by the Architect. Protect all materials and equipment from damage from any cause whatever, and provide adequate and proper storage facilities during the progress of the work. Replace all damaged and defective work precedent to filing application for final acceptance.

1.1.7. CODES AND STANDARDS

- A. All work and materials shall be in full accordance with the latest rules and regulations of the State Fire Marshal; the Safety Orders of the Division of Industrial Safety; the National Electric Code; the 2007 California Plumbing Code; 20017California Building Codes; the 2007 California Mechanical Code; Vol. II of the 2007 California Building Code; and other applicable codes, laws or regulations of bodies lawfully empowered and having jurisdiction over this project. Nothing in the plans or specifications is to be construed to permit work not conforming to these codes.
- *B.* This Contractor shall obtain all permits, patent rights and licenses that are required for the performing of his work by all laws, ordinances, rules and regulations, or orders of any officer and/or body, shall give all notices necessary in connection therewith, and pay all fees relating thereto and all costs and expenses incurred on account thereof. No work shall be covered before inspection by the jurisdictional inspection and the Architect.

1.1.8. SEISMIC ANCHORAGE AND BRACING

- A. All equipment and piping shall be anchored or braced in accordance with the California Building Code. The contractor is responsible for providing anchorage or bracing for all equipment regardless of whether detailed or shown on the plans. All equipment and ductwork supports not detailed as shown on the plans, requires approval of a registered structural engineer.
- B. All piping shall be supported or braced in accordance with the ANSI/SMACNA 001-2008 "Seismic Restraint Manual: Guideline for Mechanical Systems" latest approved edition, Superstrut "Seismic Restraint System", Unistrut Corp. "Seismic Bracing For Ductwork, Conduit, and Cable Tray Supports", "Mason Seismic Restraint Guidelines" or B-Line "Seismic Restraints." If the pipe size exceeds the size included in these manuals, custom designed supports are required. All custom supports require the approval of a registered Structural Engineer. All shop drawings and calculations shall be submitted prior to fabrication. (updated 5.11.09)
- *C.* All flexibly mounted equipment shall be provided with seismic vibration isolation devices designed in accordance with the California Building Code. All anchors and equipment connections shall be submitted. All seismic vibration isolation devices shall be submitted with structural calculations signed by a Registered Structural Engineer in the State of California.

1.1.9. WELDING

- A. Welding Procedure Specifications: Before any welding is performed, the Contractor shall submit copies of his welding procedure specification for all metals included in the work together with proof of its qualification as outlined in ANSI B31.1.
- *B.* Performance Qualification Record: Before any welder or operator shall perform any welding, the Contractor shall submit 3 copies of the Welder's Performance Qualification

Record in conformance with ANSI B31.1 showing that the welder was tested under the approved procedure specification submitted by the Contractor. In addition, the Contractor shall also submit each welder's assigned number, letter, or symbol, which shall be used to identify the work of the welder that shall be affixed immediately upon completion of the weld. Welders making defective welds after passing a qualification test shall be given a requalification test and upon failing to pass the test shall not be permitted to work this contract.

C. Previous Qualification: Welding procedures, welders and welding operators previously qualified by test may be accepted for this contract without requalification subject to approval and provided that all the conditions specified in ANSI B31.1 are met before a procedure can be used.

1.1.10. CUTTING AND PATCHING

- A. Perform all cutting and fitting required for work of this section in rough construction of the building.
- *B.* All patching of finished construction of building shall be performed under the sections of specifications covering these materials.
- C. Openings through fire rated walls for pipes shall be packed with impervious noncombustible materials to provide a tight fit.

1.1.11. GENERAL

- *A.* Unless otherwise specified herein, all equipment shall be installed in accordance with the manufacturer's recommendations.
- *B.* Before submitting his bid, the Contractor for the work under this section shall carefully study all drawings, and shall definitely determine in advance, the methods of installing and connecting the apparatus, the means to be provided for getting the equipment into place, and shall make himself thoroughly familiar with all the requirements of the contract. After award of the contract, no subsequent allowances will be made to the Contractor due to his failure to comply with the above requirements and any other conditions affecting the installation and completion of all work.
- *C.* Workmanship: All labor shall be carefully skilled for specific kind of work, thorough and first class in all respects and under the direction of a competent foreman.
- *D.* Special Note: Any work called for on plans shall be installed whether or not mentioned in these specifications.

1.1.12. DAMAGE BY LEAKS

A. This Contractor shall be responsible for damages to the grounds, walks, roads, buildings, piping systems, electrical systems, and their equipment and contents, caused by leaks in the piping systems being installed or having been installed herein. He shall repair at his expense all damage so caused. All repair work shall be done as directed by the Architect.

1.1.13. EMERGENCY REPAIRS

A. The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee bond nor relieving the Contractor of his responsibilities.

1.1.14. EXPLANATION AND PRECEDENCE OF DRAWINGS

- A. For purposes of clearness and legibility, drawings are essentially diagrammatic and, although size and location of equipment are drawn to scale wherever possible, Contractor shall make use of all data in all of the contract documents and shall verify this information at the building site.
- *B.* The drawings indicate required size and points of termination of pipes, and suggest proper routes to conform to structure, avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the responsibility of and the work of the Contractor to make the installation in such a manner as to conform to structure, avoid obstructions, preserve headroom and keep openings and passageways clear without further instructions or cost to the Owner.
- *C.* Shop drawings shall be furnished indicating all changes to meet space requirements, code requirements and as necessary to resolve all space conflicts.
- *D.* It is intended that all apparatus be located symmetrical with architectural elements. Refer to architectural details in completing and correlating work.
- *E.* The Contractor shall fully inform himself regarding any and all peculiarities and limitations of the spaces available, for the installation of all work and materials furnished and installed under the contract. He shall exercise due and particular caution to determine that all parts of his work are made quickly and easily accessible.
- *F*. The Contractor shall study all drawings and specifications to determine any conflict with ordinances and statutes. Any errors or omissions shall be reported, and any changes shall be shown in the as-built drawings and the additional work performed at no cost to the Owner.
- *G.* Submittal of bid shall indicate the Contractor has examined the site and drawings and has included all required allowances in his bid. No allowance shall be made or any error resulting from Contractor's failure to visit job site and to review drawings, and bid shall include costs for all required drawings and changes as outlined above, all at no cost to Owner.

1.1.15. EXCAVATION AND BACKFILL

- *A.* See other Divisions for excavation and backfill requirements.
- *B.* Underground piping shall be installed with a minimum of 24" cover from finish grade and deeper as noted on drawings. Excavation depths shall be coordinated with other trades.
- *C.* Excavation for pipes shall be cut a minimum of 6" below the required grade. A 6" bed of sand or other approved material shall be then placed and properly compacted to provide an accurate grade and uniform bearing throughout the length of the pipe.
- D. Sand used shall be certified to a resistance of not less than the surrounding soil when wet with distilled water and shall consist of clean, natural, washed sand. The particles size shall pass through a 3/8" screen, 90% of them will pass through a 1/4" screen and not more than 25% will pass through a No. 50 screen.
- E. Backfilling will not be placed until the work has been inspected, tested and approved.

- *F.* Clods or lumps 2" in size or larger will not be permitted in the backfill. If the excavated material is not suitable, adequate material shall be provided by hauling from other locations.
- G. Surplus earth or material remaining after backfilling shall be removed from the site as indicated in "Earthwork" section.

1.1.16. SUPERVISION AND COOPERATION

- A. This Contractor shall include the services of experienced superintendents who shall be constantly in charge of the work, together with the qualified journeymen, helpers, and laborers, required to properly unload, install, connect, adjust, start and operate and test the work involved, including equipment and materials furnished by others and by the Owner.
- *B.* The work under this section shall be in cooperation with the work of other trades to prevent conflict or interference and to aid rapid completion of the overall project.

1.1.17. OPERATION

- A. The Owner may require operation of parts or all of the installation for beneficial occupancy prior to final acceptance. Refer to General Conditions of the Contract.
- *B.* Cost of utilities for such operation shall be paid by the Owner. Said operation shall not be construed as acceptance of the work.

1.1.18. ACCESS PANELS

A. Access Doors and Panels: Wherever valves, air vents or other items or parts of the installation which require periodic inspection or adjustment are concealed by permanent non-removable construction, an access door shall be provided. Door shall be manufactured by "Milcor" or approved equal with slotted head cam locks. Types to be as approved and as appropriate for the surface and construction in which it is installed. Furnishing and locating by this Contractor; installation by others; verify all locations with Architect.

1.1.19. ELECTRICAL

- A. When electrical work is specified in previous or subsequent sections to be furnished and installed by Division 15, it shall be installed in metallic conduit and in full accordance with the National Electrical Code and the State of California Industrial Accident Commission's Safety Orders. Conduit shall be installed in accordance with the Electrical Division of these Specifications.
- *B.* The line voltage wiring shown on the Electrical Drawings is based on the control diagram, control specifications and specified items as outlined herein. Any changes necessary to accommodate the controls and specified items furnished which increase the cost for line voltage wiring shall be paid for by the Contractor.
- *C.* Before order is placed for motors or other electrical devices, the Contractor shall check with Division 16 plans and specifications, and verify requirements as to type, mounting and current characteristics as well as to any special delivery instructions.
- D. This Contractor shall furnish, install and/or align all motors for driving the equipment furnished and installed by this contract. Motors shall be designed to operate at full load

continuously without exceeding a temperature rise of 40°C. The size of all motors shall be the size required by equipment it drives. Each belt connected motor shall be fitted with base and slide rails. Motors shall be Westinghouse, General Electric, Fairbanks Morse, Wagner, Allis Chalmers, or Sterling. Each motor shall have a sufficient starting torque to start the apparatus drive. All motors shall be wound for the voltage shown in the schedule on the drawings.

- *E.* Each motor for a belt drive shall be fitted with adjustable "V" belt sheaves. These shall be key seated and set screwed to the motor shafts and the combined motor and sheave shall run in perfect balance.
- *F.* All motors less than 1/2 HP shall have built-in running thermal overload protection. Motors 1/2 HP and larger, shall be rated for 3-phase service unless otherwise noted.
- G. All motors installed exposed to the weather, shall be totally enclosed and weatherproof.
- *H.* All motors 3 horsepower and larger, shall be energy efficient type in compliance with NEMA Energy Efficiency Standards, and qualify for local utility rebates, Century E, or approved equal. Submittals shall show efficiency and power factor at 100% load.
- *I.* Starters: All individual motor starters will be furnished under the Electrical Section of the specifications, unless noted otherwise. For starters to be furnished under this section, see Control Diagram on the drawings and Equipment Section of the specifications.

PART 2 - PRODUCTS

2.1.1. PUMPS

A. Furnish and install pumps with capacities as shown on plans. Unit shall be in-line type for installation in vertical or horizontal piping. Pump must be capable of being serviced without disturbing piping connections. Pump body shall be of Class 30 cast iron, rated 175 psi working pressure, with gauge ports at nozzles, and with vent and drain ports.

2.1.2. PIPING

- A. Make-up Water Piping:
 - 1. Piping shall be Type "L" copper tube conforming to ASTM B88.
- *B.* Radiant heating Piping:
 - 1. Radiant heating piping shall be PEX-AL multi-layered, cross-linked polyethylene tubing with an aluminum inner core specifically manufacturered for radiant floor heating. Piping shall be manufactured with an integral aluminum oxygen layer that limits oxygen diffusion through the walls of tubing to less than 0.006g/m cu.ft./day at 104 degrees F. water temperature.
 - 2. Piping shall meet A.S.T.M. F-1281, NSF Std. 14 and 61 and carry the UPC certification mark as approved by the International Association of Plumbing and Mechanical Officials (IAPMO).

2.1.3. UNIONS

A. Unions for copper tubing shall be solder joint end type. Provide Dielectric unions at piping connections of dissimilar materials.

2.1.4. FLANGES

- A. The raised faces on flanges shall be removed when used with flanges having flat face.
- B. Flanges:
 - 1. For copper pipe, provide cast bronze, ANSI B16.24, 150 lb.
 - 2. For steel pipe, provide welding neck, steel ANSI B16.5, 150 lb.
- *C.* Bolting: Material used for bolts and studs shall conform to ASTM A307, Grade B and material for nuts shall conform to ASTM A194, Grade 2.
- *D.* Gaskets: Gaskets shall be of a material that resists attack by the fluid in the pipe line and shall be suitable for the pressure and temperature ranges encountered.

2.1.5. VALVES

- A. Ball Valves:
 - 1. 1" and Smaller: Full ported, bronze body, 400 psi w.o.g., threaded or solder connections, reinforced TFE gaskets, bronze ball and stem. Nibco 585-70.
 - 1-1/2" to 2": Full port, bronze body 400 psi w.o.g., threaded reinforced TFE seats, packing and gasket, cast red bronze with hard chrome plate, silicon bronze stem. Nibco T-585-70.
- B. Butterfly Valves:
 - 1. 2-1/2" and Larger: Ductile body, 416 stainless steel stem, bronze disc and EPDM rubber seat. Provide with extended stem when installed in piping which is to receive insulation. Valves shall have lug type bodies, leverlock operator with balancing plate. 8" and larger shall have gear operator. Nibco LD2000.
- C. Swing Check Valves:
 - 1. 3" and Smaller: 300 psi w.o.g., ASTM B-62 bronze body, threaded connections, renewable composition seat and disc. Nibco T-433.
 - 4" and Larger: 125 psi at 450°F iron body, bronze mounted regrind renew, swing check, bronze seat ring and disc, bolted cover, flanged connections, Nibco 918. Install with dielectric flange gaskets.
- D. Spring Check Valves:
 - 2" and Smaller: 300 psi w.o.g., ASTM B-62 bronze body, renewable composition disc selected for the required application, threaded connections. Nibco T-480. Install with union and colder/thread adapters for easy removal.
- *E.* Non-Slam Check Valve:

PIPING AND ACCESSORIES Appendix G - Technical Specifications La Jolla Cove Lifeguard Station

- 1. 2-1/2" and Larger: 125 psi w.o.g., wafer style cast-iron body, stainless steel spring, renewable seats and disc. Nibco Fig. W-910. Install with dielectric flange gaskets.
- F. Pressure Relief Valves:
 - 1. Furnish and install as shown on plans a diaphragm operated Safety Relief Valve, ASME labeled for relieving pressure in psig and a rating of BTU/hr. as called for on the plans. The fluid should not discharge into the spring chamber. The valve should have a low blow down differential. The valve seat and all moving parts exposed to fluid are to be of non-ferrous metal. ITT Bell & Gossett, or approved equal.
- G. Circuit Balancing Valve:
 - Circuit Balancing Valves for heating and chilled water service, or domestic hot water shall be Globe Style Valves for precise regulation and control and rated 175psi for Iron and 240psi for bronze at 250□F. Valves ½" to 2" shall be constructed of dezincification resistant brass (DZR) or bronze alloy. Valves 2 1/2" to 12" will be constructed of iron with ANSI Class 125/150 flanged or grooved ends. Each valve shall have two metering / test ports with internal check valves and protective caps. All valves must be equipped with visual position readout and concealed memory stops for repeatable regulation and control.
 - a. NIBCO T or S1710 (1/2" 2")
 - b. NIBCO F or G737 (2 -1/2" 12")
 - c. Tour & Anderson STAD/STAS (1/2" 2")
 - d. Tour & Anderson STAF/STAG (2 1/2" 12")
 - e. Armstrong ABV-G (w/flange adapter)
 - f. Armstrong ABV-G
- H. Automatic Flow Control Valves:
 - 1. Furnish and install as shown on plans with manufacturer's recommendations Model WS Automatic Flow Control Valve. Unit to be Flow Design Inc., or approved equal.
- *I.* Equipment Drain Valve:
 - 1. Furnish and install at each piece of equipment a drain valve for service use. Nibco Fig. No. 74, or approved equal.

2.1.6. PIPE SUPPORTS

All pipe supports installed in exterior locations shall be made from corrosion resistant materials.

- A. Pipe Hangers:
 - 1. Piping 1/2" Through 3": For non-insulated pipe malleable iron type (Grinnell Fig 104, or approved equal), or insulated pipe adjustable steel clevis type (Grinnell Fig. 300, or approved equal) with threaded solid steel hanger rods.

- 2. Piping 3" and Larger: For non-insulated pipe use adjustable steel clevis type hangers, Grinnell Fig. 260, or approved equal, with threaded solid steel hanger rods. For insulated pipe use Grinnell Fig. 300, or approved equal.
- 3. Grouped Piping: Trapeze type hangers with rollers may be used where two or more pipes run parallel to each other. Submit shop drawings of all trapeze hangers for approval before progressing with any work.
- 4. Sizing: Size all hangers on insulated piping to fit outside covering.
- 5. Piping Mounted on Roof: Shall be "Portable Pipe Hangers, Inc." (800/797-6585), "Miro Industries" (800/768-6978), or approved equal. Supports shall consist of galvanized steel strut, hot dipped galvanized hangers, and plastic/carbon black base. Support base shall be installed on 1/4" SBS bitumen protection pad set in asphalt. Installation shall be per Manufacturer's instructions.
- *B.* Pipe Riser Clamp:
 - 1. Pipe 3/4" Through 8": Use Grinnell Fig. 261 for standard steel and cast iron pipe. Provide Grinnell 261c for all copper and brass pipe.
- C. Pipe Guides:
 - 1. 3" to 24" Pipe: Flexonics PG Series or approved equal. Provide auxiliary bracing as required to support from structure.
- D. Pipe Anchors:
 - 1. B-Line B3256, or approved equal. Provide auxiliary bracing as required to anchor to structure.
- E. Pipe Isolation:
 - 1. Semco trisolators or Super-Strut isolators.

2.1.7. SUCTION DIFFUSER

- A. Furnish and install a suction diffuser of size and type noted on drawings. Unit shall consist of angle type body with straightening vanes and combination Diffuser-Strainer-Orifice cylinder with 3/16" diameter openings for pump protection.
- B. A permanent magnet shall be located within the flow stream and shall be removable for cleaning. The orifice cylinder shall be equipped with a disposable fine mesh strainer, which shall be removed after system start-up. Orifice cylinder shall be designed to withstand pressure differential to equal pump shutoff head and shall have a free area equal to five times cross section area of the pump suction opening. Straightening vane shall extend the full length of the orifice cylinder and shall be replaceable. Unit shall be provided with adjustable support foot to carry weight of suction piping. Suction diffuser shall be ITT Bell & Gossett, Paco, or approved equal.

2.1.8. AUTOMATIC AIR VENTS

A. Furnish and install vents as manufactured by Sarco 13w, Apco 50, Hoffman 792, or approved equal. Provide 3/4" NPT inlet and 1/2" NPT outlet. Provide 1/2" drain piping to the nearest waste line or floor sink. Provide a 1/2" ball valve and union ahead of all automatic air vents. Provide air vent at highest points of the system, and all down flow in piping, or where air trapping may occur. Provide manual 1/2" ball valve, in lieu of automatic air vent, in locations where waste line or floor sink are not readily available.

2.1.9. EXPANSION TANK

A. ASME stamped horizontal steel expansion tank. The tank shall be galvanized after fittings have been installed. The tank shall have airtrol fitting, gauge glass set, screened tank drain, and two tappings. Tank shall be ITT Bell & Gossett, or approved equal.

2.1.10. STRAINERS

A. Strainers shall be self-cleaning flush type, cast iron body with 3/4" ball blowoff valve with male hose connection fitting. Strainers 2-1/2" and smaller shall have solder or thread connections and Strainers 3" and larger shall have flange connections and have a minimum open area of three times the area of strainer inlet pipe. Use 40 mesh screens and Everdur wood packing during initial cleaning of systems then replace with 20 mesh stainless steel screen. Watts Regulator Series 77, or approved equal.

2.1.11. PIPE LINE TEMPERATURE INDICATION

- *A*. Thermometers: All pipe line thermometers shall be Weiss DVBM adjustable-angle type solar powered, digital display, or approved equal. Industrial thermometer shall have an ABS case, 3/8" LCD digits, and ambient operating conditions of -30°F/140°F, 100% humidity. Range shall be from -40°F/300°F. Provide optional thermometer cover.
- B. Wells: Wells are to be lagging extension stem type as follows: For pipe lines up to 7" size, use 2-1/2" immersion. Threaded-O-Lets shall be welded to pipe, or pipe size 3/4" threaded tee furnished for mounting of wells. Direct welding of wells in pipe lines will not be permitted. Provide wells for all thermometers.
- *C.* Provide thermometers where indicated and at the following locations:
 - 1. Adjacent to each control or sensing device on piping/equipment (except where remote thermometer in the same room is provided under control system).
 - 2. Inlet and outlet of each heat transfer device (coil banks shall be regarded as a single heat transfer device).
 - 3. Outlets of each changeover (2-position) control valve.
 - 4. Inlets and outlets of each 3-way modulating valve.
- *D.* Locate thermometers so they can be easily read. Where each cannot be easily read, provide a remote reading type thermometer of like quality.

2.1.12. PRESSURE GAUGES

A. Weksler EA-14, or approved equal, pressure gauges where indicated. The gauges shall have 4-1/2" dial size. The case shall be a plain screwed ring depending on whether the gauge is to mounted on a panel or to be pipe supported. The same instructions for mounting (with regard to height and location) as for thermometers shall be followed. Cases shall be stainless steel. The scale range shall be 0 to 100 psi for all water. Phosphor bronze movement. When gauges are apt to be subjected to a vacuum, provide compound gauges reading 30 to 100 psi connection. Gauge cocks shall be Weksler A10

female, tee head, or approved equal. Provide all gauges with Weksler MSB4 adjustable snubber.

2.1.13. PRESSURE AND TEMPERATURE TEST STATION

A. 1/4" MPT fitting capable of receiving either a Temperature or pressure probe 1/8"
 O.D. Fitting shall be solid brass with two valve cores of neoprene (max. 200°F) or Nordel (max. 275°F) fitted with a color-coded and marked cap with gasket and shall be rated at 1000 psig. Pete's plug, or approved equal.

2.1.14. FLASHING

- A. Provide for all pipes passing through roofs and exterior walls or membranes. Fabricate of 4-lb. seamless lead, Semco #1100-2.
- B. Heating Water Systems (Above Grade):
 - 1. Piping in interior dry locations shall be insulated with 1-1/2" fiberglass Manville Micro-lok with AP-T jacket. Fittings shall be covered with Zeston PVC fittings. An intact vapor barrier shall be maintained on the entire system. Finish exposed insulation ends with 8 oz. canvas sized with Arabol.
 - 2. Hot Equipment: Armstrong 3/4" closed cell plastic insulation.
 - 3. Heating Water Pump: No insulation required.
- C. Valves, Strainers and Irregular Shapes: Insulate with Dow Chemical Co. "Trymer" 2000 block styrofoam insulation minimum 1" thickness to fit component. Wire in place with 20 gauge galvanized annealed steel wire. Operators for valves shall extend clear of insulation. All components shall be marked on outside of block. Insulation shall have flame-spread rating of 25 or less, and a smoke-developed rating of 50 or less, as tested by ASTM E 84.
- D. Pipe Fittings with Vapor Barrier: Wrap with minimum 1 lb. per cu. ft. fiberglass blanket in compression (minimum 2:1) to a thickness equal to the adjacent insulation. Secure in place with minimum 20 gauge galvanized annealed steel wire. Cover with Zeston or equal PVC fitting covers and tape cover joints with Manville or equal Z-tape and secure in accordance with manufactures recommendations.
- *E.* Pipe Fittings Without Vapor Barrier: Wrap with minimum 1 lb. per cu. ft. fiberglass blanket in compression (min. 2:1) to a thickness equal to the adjacent insulation. Secure in place with minimum 20 gauge galvanized annealed steel wire. Cover with Zeston or equal PVC fitting covers and secure in accordance with manufacturer's recommendations.

2.1.15. FLEXIBLE EQUIPMENT CONNECTORS

A. Hyspan series 4500 with end fittings as required by equipment. Provide a minimum of 9" length, unless otherwise noted on plans.

PART 3 - EXECUTION

3.1.1. INSTALLATION

A. Install all piping equipment in accordance with manufacturer's recommendations.

3.1.2. PIPING INSTALLATION

- A. Install piping grouped neatly, free of unnecessary bends and stresses. Conceal all piping in finished portion of building, except as otherwise noted.
- B. Make proper provisions for contraction or expansion of all piping.
- *C.* Use reducing fittings for pipe size changes do not use bushings. Make all changes in pipe material with pipe adapters.
- *D.* Prior to installation of piping to or at mechanical equipment, verify with the equipment manufacturers as to clearance required for maintenance, repair, inspection, and part replacement for the respective equipment. Install piping to provide such clearance so that an absolute minimum of piping is required to be disturbed. Provide means for removal of such piping by using unions, flanges, or mechanical couplings at connections to equipment.
- *E.* Provide holes at pipe penetrations through structure. Holes shall be 1" greater in diameter than outside of piping (including pipe covering, if any). Pack voids between holes and pipe with fiberglass, and seal with resilient non-combustible, non-hardening sealant on both ends. Make waterproof all pipe penetrations through floors and exterior walls. Make fireproof all pipe penetrations through fire-rated structure. Provide polished chrome escutcheons, split ring type, for all exposed piping penetrating structure.
- *F.* Where equipment connection sizes are smaller than piping sizes indicated, make size reduction immediately adjacent to the equipment connections. Flanges or unions at such equipment connection points may be the same size as the equipment connections.
- G. All branch connections to steel piping for instruments, test plugs, chemical injection, vents, drains and the like, shall be made at tee fittings, or by welding a Thread-o-let, Weld-o-let, of Sock-o-let to the main steel piping.
- *H.* All branch connections to copper tubing for instruments, test plugs, chemical injection, vents, drains, and the like, shall be made at tee fittings.
- *I.* Unless otherwise indicated, valves shall be full size of the line in which they are installed; automatic control valves excepted. Prior to installation of control valves, verify with control manufacturer as to sizes, piping hookup, and the like for same.
- *J.* Install valves with stems straight up wherever possible; do not install valves with stems below the horizontal position.
- *K.* In mechanical equipment areas, provide chain wheel (with guide) and endless chain for exposed gate valves, globe valves and butterfly valves located 6'-9" or higher above floor and where indicated.
- *L.* Properly grade all water piping to provide flow, air elimination and drainage. Do not install piping so as to create noise or flow impairment. Do not use "butt or bullhead" tee in water flow; that is to say, do not use tee fittings with water flowing into tee at the side

outlet and water flowing out of tee from the remaining two end outlets, or with water flowing into tee at two end outlets and water flowing out of tee from side outlet.

- *M*. In closed hydronic systems, use eccentric flat top fittings for pipe size changes and provide valved relief to vent all high points and downflow in piping with 3/4" drain valve (with nipple and chained cap) to drain all low points.
- *N.* Separately pipe, not less than full size, discharge from all safety valves to nearest floor sink/drain or to safe location, and terminate pipe to discharge safely.
- O. Separately pipe equipment drain, with shut-off valve, to nearest floor sink/drain.
- *P.* Do not permit the use of any mechanical piping system under this Division of Work to be used as electrical grounding.
- Q. Pipes Over Electrical Equipment: Where pipe joints or valves in pipes containing water occur within 3' in a horizontal direction, of electrical panels and electronic equipment, provide a drip pan of galvanized steel construction of a size which will afford maximum protection.
 - 1. Pans: 24 gauge, edges turned up 2-1/2" all sides, reinforced with galvanized steel angles or by rolling edge over 1/4" diameter steel rod.
 - 2. Provide drain with 3/4" brass flange and copper pipe to floor.
 - 3. Support the pan with bars or angles, brace to prevent sagging or swaying.
- *R*. Cleaning and Treating of Piping Systems:
 - 1. Include the internal cleaning and treating of all piping systems installed / modified under this section.
 - 2. Recirculating water systems, both open and closed, shall be filled and flushed with a 0.25 solution, by weight, of a non-foaming chemical detergent, to remove all foreign matter. After final filling, the pH of the water shall not exceed 8.0. Where necessary to provide for water circulation throughout systems that are incomplete, install temporary valved bypasses. After cleaning process is complete on all strainers, clean and replace baskets.
 - 3. Work shall be completed and circulation shall have been established throughout all systems and where water from these systems runs clean, free from all deposits. The Contractor shall submit to the Architect a statement that each of the piping systems is cleaned and treated.
- S. Support at Pumps: Arrange and support all piping so that absolutely no weight of the piping rests on the pump flanges. Alignment for final piping connection shall be such that slip fit is allowed. Should it be necessary to force the bolts, the piping shall be taken down and rearranged to allow the proper fit.
- *T.* Install chrome plated split escutcheons around all pipes passing through finished walls, floors and ceilings.
- *U.* Sleeve and seal air and water tight all piping passing through exterior walls, through plenum or fire walls above ceilings and elsewhere as designated. All sealers shall be waterproof and fireproof.

V. All piping shall be isolated from pipe hangers, clamps, etc. with 1" wide strips of hair felt or pipe isolators.

3.1.3. SOLDERED AND BRAZED JOINTS

A. Solder or braze aboveground copper lines. Cut tubing ends square and remove all fins and burrs; do not use dented or otherwise damaged tubing. Clean outside of tubing ends and recessed area inside of fittings by burnishing until all dirt, oxide and other foreign substances are removed. Use either fine crocus cloth or a wire fitting brush made especially for this type of work. Apply a light coating of flux to burnished tubing and fitting joint surfaces, then insert tubing to full depth of fitting and expelled all flux. Allow joints to cool slowly and remove flame marks and excess flux. Before mating joints to valves, remove stems and washers.

3.1.4. PIPE HANGERS AND SUPPORTS

- A. Horizontal piping shall be supported as follows: Use beam clamps for attachment to structural steel surfaces and expansion type inserts for attachment to concrete surfaces. Clamps and inserts shall be sized for the required hanger rod and comply with all applicable codes and safety regulations. The use of "C" clamps designed to attach threaded rod to one side of a steel beam flange shall not be used unless they are provided with a restraining strap, or hook to the opposite beam flange.
- B. Hangers: Adjustable wrought steel clevis.
- *C.* Wall Support for Pipe Sizes 4" and Over: Welded steel bracket and wrought steel clamp, adjustable steel yoke and cast iron roll for hot pipe sizes 6" and over.
- D. Vertical Support: Steel riser clamp.
- *E.* Floor Support for Pipe Sizes to 4": Cast iron adjustable pipe saddle, locknut nipple, floor flange and concrete pier or steel support.
- *F.* Design hangers to impede disengagement by movement of supported pipe.

Nominal Pipe	Distance Between	Hanger Rod Diameter
Size (in.)	Support	(in.)
		• 10
1/2 to $1-1/2$	6	3/8
2	10	3/8
2-1/2 to 4	10	1/2
5 to 8	10	5/8

G. Support horizontal steel and copper piping as follows

- H. Place a pipe support within one foot of each horizontal elbow.
- *I.* Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

3.1.5. INSULATION INSTALLATION

A. It is the intent that all insulation products be Applied and installed in accordance with the manufacturer's recommendations.

- B. Piping: Insulation end joints to be tightly butted together. If covering is found to not seal or show pucker the longitudinal seam will be stapled closed with outward clinch staples, 3" on centers. Locate all longitudinal seams out of sight. Cover end joints with factory-furnished 4" wide vapor barrier stripping tapes, heavily coating the underside and secure with vapor barrier adhesive. Seal all ends of pipe insulation with vapor barrier mastic at valves, fittings, flanges, direct hanger contacts.
- C. All Pipe Supports: Where the pipe is supported by the insulation, the contractor shall install an insert section of cellular glass or calcium silicate with galvanized steel jacket inside the vapor barrier. The length of insert section shall not be less than 6" for all pipingthrough 6" diameter pipe size. Provide Pipe Shields, Inc. Model A-1000, Insulshield by McDonald Supply Company, or equal.
- D. Block Styrofoam for Irregular Shapes:
 - 1. Application: Cut and miter all insulation as required to fit shapes of pump housings. Insulate impeller housing with the top half of the cover easily removable for access to the pump casing bearings, etc. Fasten insulation in place securely and seal all joints with Fosters 30-46 foam cement and fill all voids with insulating cement.
 - 2. Finish: Cover with a final jacket of 8 oz. canvas securely pasted in place and seal with Arabol lagging adhesive and leave ready for painting. The top 1/3 of each pump jacket shall be removable for service access.

3.1.6. IDENTIFICATION OF PIPING AND EQUIPMENT

- A. Mechanical Equipment: Identify all mechanical equipment with nameplate bearing equipment name and number, using 1-1/2" white Bakelite with 1/2" black letters permanently mounted by screws in a conspicuous place. All mechanical equipment shall be provided with a permanently affixed nameplate containing the model, manufacturer name, and serial number. Impeller size shall be included on pump information. Nameplate shall be engraved aluminum.
- *B.* Piping shall be identified with Seton or Brady pipe markers. Length of color field shall be a minimum of 12" in lengths. Height of letter shall be a minimum of 1-1/4". Markers shall also have flow direction arrows. Provide identification a minimum of every 20'-0".
- C. Valve Tags: Attach a 1" diameter x 18 gauge brass tag to each valve with a brass chain. Identify each tag by a stamped 1/2" high number. Mount a valve index list in each Mechanical Room on 1/4" plywood board and wood frame with 1/8" thick clear plexiglass cover. List to contain valve number, location, function, normal position and any special requirements.

3.1.7. UNIONS AND FLANGES

A. Place unions or flanges where necessary to permit easy disconnection of piping and apparatus and as indicated. Each connection having a screwed-end valve shall have a union. Install dielectric unions or flanges between ferrous and non-ferrous piping, equipment and fittings, except that bronze valves and fittings may be used without dielectric couplings for ferrous-to-ferrous or non-ferrous to non-ferrous junctions.

3.1.8. TESTS

A. Contractor shall make all tests required by all legally constituted authorities and as listed below.

- 1. All tests shall be made in the presence of the Owner's Representative and a duly authorized inspector. The Owner's Representative shall be notified five days before tests are made.
- 2. Concealed work and insulated work shall remain uncovered until required testing has been performed and approved by the Owner's Representative. If work required by Owner's Representative has been completed, it shall then be uncovered for testing at the Contractor's expense.
- 3. Obtain all required documents of certification indicating approval, acceptance and compliance with the requirements of all administrative authorities having jurisdiction over the work. No final payment shall be made until all such certificates are delivered to the Owner's Representative.
- 4. Furnish labor, materials, and instruments, and bear other costs in connection with all tests.
- 5. All piping systems, except as hereinafter noted, shall be given hydrostatic (with water) test of at least 150% of the maximum operating pressure.
- 6. Before making test, remove or valve off from the system, gauges, traps, and other apparatus or equipment that may be damaged by test pressure.
- 7. Install a calibrated test pressure gauge in the system to observe any loss in pressure. Maintain the required test pressure for a sufficient length of time to enable an inspection to be made of all joints and connections. Perform tests after installation and prior to acceptance.
- 8. Final pressures at the end of the test period shall be no more or less than that caused by expansion or contraction of the test medium due to temperature changes.
- 9. After tests have been made and leaks repaired, clean and flush systems as hereinafter specified. Water piping shall be left under supply main pressure for the balance of the construction period.
- 10. Written results of tests shall be given to Owner.

3.1.9. STRAINERS

A. Provide strainers with meshes suitable for the services where indicated or where dirt might interfere with the proper operation of valve parts, orifices or moving parts of equipment.

3.1.10. CAPS AND CONNECTORS

A. Cap and valve outlets for future connections. Provide non-metallic connectors at all connections between ferrous and non-ferrous piping.

3.1.11. REQUIREMENTS FOR ACCEPTANCE INSPECTION

- *A*. All of the following items must be completed prior to final inspections. No exceptions will be made and no final payment will be made until all items are completed.
 - 1. Cleaning Equipment and Premises:

- a. Thoroughly clean all parts of the equipment. Exposed parts that are to be painted shall be thoroughly cleaned of cement, plaster and other materials and all oil and grease spots shall be removed. Such surfaces shall be carefully wiped and all cracks and corners scraped out.
- b. Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots left smooth and clean.
- c. Electrical device covers shall not be installed until finish coat of paint is completed. Device handles and receptacles shall be covered and/or protected during the painting operation to preserve the original factory bright new finish.
- 2. Operating Instruction and Service Manual: The Contractor shall carefully prepare (6) six operating instruction and service manual for the entire system including all equipment, except Owner-furnished equipment. They shall be submitted for approval immediately upon completion of the work. Failure to submit for approval will delay final inspection and acceptance of the work by the Engineer.
 - a. The following items together with any other necessary pertinent data shall be included in the manual. This is not complete and is to be used as a guide: Manufacturer's Literature: Copy of manufacturer's instructions for operation and maintenance of all mechanical equipment, including replacement parts, lists and drawings. These brochures, and any other required operating and service instructions, shall be submitted to the Engineer. The Contractor shall mark brochure literature indicating the model, sizes capacities, curve operating points, etc., in a manner to clearly indicate the equipment installed.
 - b. The Contractor shall remove all pages or sheets from the bulletin and catalogs that do not pertain to equipment installed on the project shall include: Oiling, lubrication and greasing data.

Complete electrical load data from operation test.

Test data on all equipment.

Serial numbers of all principal pieces of equipment.

Written Guarantee.

As-builts corrected and completed to date.

c. Written Instructions: Typewritten instructions of operating and maintenance of the system composed of operating instructions, maintenance instructions and a maintenance schedule.

3.1.12. DRAWINGS OF RECORD

- *A.* Provide a set of blueprint "as-builts" for the purpose of showing a complete picture of the work as actually installed.
- *B.* These drawings shall serve as work progress report sheets and the Contractor shall make all notations, neat and legible, thereon daily as the work proceeds. The drawings shall be available for inspection at all times and shall be kept at the job.

C. At completion of the work, these as-built drawings shall be signed and dated by the Contractor indicating approval, and returned to the Engineer.

3.1.13. GUARANTEE

- A. All work under this section shall be guaranteed in writing.
- *B.* The contractor shall and hereby does warrant that:
 - 1. All material except as otherwise noted shall be new, free from defect and of the quality and rating shown or specified.
 - 2. Any defect due to missing or improper material or faulty workmanship existing or developing during the warranty period shall be corrected and the resulting damage repaired without additional cost to the Owner.
 - 3. The warranty period shall be one year from date of acceptance of the project.

3.1.14. ADDITIONAL WORK

A. Design is based on equipment as described in the Drawings Equipment Schedule. Any change in foundation bases, electrical wiring, conduit, connections, piping, controls, and openings required by alternate equipment specified and submitted and approved, shall be paid for by this Contractor.

3.1.15. WATER SYSTEMS BALANCE

- A. General Requirements for Balancing Systems:
 - 1. Submit for approval the name of the balancing organization together with the other submittals required for Division 15.
 - 2. All work shall be done under direct supervision of a qualified independent test and balance contractor.
 - 3. All instruments used shall be accurately calibrated and maintained in good working order. Testing shall not begin until system has been completed and is in full working order. The Contractor shall put all systems and equipment into full operation and shall continue the operating of same during each working day of testing and balancing.
- B. Submittals:
 - 1. The Contractor shall submit submittal data for the testing and balancing of the air conditioning systems.
- C. Balance Report:
 - 1. Reports shall be completed in the format used by the Associated Air Balance Council with additional data provided as required herein. Four copies of the balance report shall be provided for review by the project mechanical engineer. If any areas are determined to be unsatisfactory, these areas shall be rebalanced before final payment.
- D. Circulating Water Systems Balance Procedure:

1. Measure, record and adjust to design flows each of the following parameters for each system. After adjustment, remeasure and re-record each parameter. Submit all recorded data in the format previously described. Identify each piece of equipment by its description on the plans, record manufacture and model number on all nameplate data.

END OF SECTION 15150

SECTION 15200 PLUMBING

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

A. The General Conditions, Supplementary Conditions, and Division 01, are a part of this section and the contract for this work and apply to this section as fully as if repeated herein.

1.2 SUBMITTALS

A. Submit a minimum of six copies of shop drawings for all products. All submittal sheets shall be clearly marked or highlighted showing conformance to specifications and schedule. All submittals shall be crossed referenced to the requirements of each specification paragraph pertaining to the item being submitted. All requirements must be shown on manufacturer's literature. Manufacturer's representative's letterhead, or super-imposed notations, are not acceptable. This requirement pertains to all sections of Division 15. No exceptions. Submittals not so marked will be subject to rejection.

1.3 CODES AND STANDARDS

A. All work and materials shall be in full accordance with the latest rules and regulations of the State Fire Marshal, the Safety Orders of the Division of Industrial Safety, the California Building Code, the California Mechanical Code, the California Plumbing Code the California Electrical Code, Local Building Codes, and other applicable codes, laws or regulations of bodies lawfully empowered and having jurisdiction over this project. Nothing in the plans or specifications is to be construed to permit work not conforming to these codes.

1.4 SEISMIC ANCHORAGE AND BRACING

- A. All equipment and piping shall be anchored or braced in accordance with the California Building Code. The contractor is responsible for providing anchorage or bracing for all equipment regardless of whether detailed or shown on the plans. All equipment and ductwork supports not detailed as shown on the plans, requires approval of a registered structural engineer.
- B. All piping shall be supported or braced in accordance with the SHL-A "Seismic Restraint Manual: Guideline for Mechanical Systems" latest approved edition, Superstrut "Seismic Restraint System", Unistrut Corp. "Seismic Bracing For Ductwork,

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Conduit, and Cable Tray Supports", or B-Line "Seismic Restraints." If the pipe size exceeds the size included in these manuals, custom designed supports are required. All custom supports require the approval of a registered Structural Engineer. All shop drawings and calculations shall be submitted prior to fabrication.

C. All flexibly mounted equipment shall be provided with seismic vibration isolation devices designed in accordance with the California Building Code. All anchors and equipment connections shall be submitted. All seismic vibration isolation devices shall be submitted with structural calculations signed by a Registered Structural Engineer in the State of California.

1.5 PERMITS

- A. Perform all cutting and fitting required for work of this section in rough construction of the building.
- B. All patching of finished construction of building shall be performed under the sections of specifications covering these materials.
- C. All cutting of concrete work by this Contractor shall be by core drilling or concrete saw. No cutting or coring shall be done without first obtaining the permission of the Architect.

1.6 GENERAL

- A. Unless otherwise specified herein, all equipment and fixtures shall be installed in accordance with the manufacturer's recommendations.
- B. Before submitting his bid, the Contractor for the work under this section shall carefully study all drawings, and shall make a careful examination of the premises. He shall definitely determine in advance, the methods of installing and connecting the apparatus, the means to be provided for getting any equipment into place, and shall make himself thoroughly familiar with all the requirements of the contract. After award of the contract, no subsequent allowances will be made to the Contractor due to his failure to comply with the above requirements and any other conditions affecting the installation and completion of all work.
- C. Workmanship: All labor shall be carefully skilled for this kind of work, thorough and first class in all respects and under the direction of a competent foreman.
- D. Special Note: Any work called for on plans shall be installed whether or not mentioned in these specifications.

1.7 VERIFICATION OF LEAD CONTENT IN PLUMBING PRODUCTS

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- A. Comply with California Health and Safety Code 116875 (AB 1953-2006) Lead Content in Plumbing Products for valves and fittings. All valves 2" and smaller and all fittings 2" and smaller for installation in the domestic water system, whether serving a fixture providing domestic water for human consumption or serving a fixture providing domestic water to a fixture not normally considered as for use for human consumption shall be provided with valve and fittings that have been verified by an independent evaluation service as meeting the requirements of the California Health and Safety Code 116875 (AB 1953-2006). When valves or fittings larger than 2" are required and verified products are available from the specified manufacturer(s), verified valves and fittings shall be submitted for approval and provided, as approved.
- B. Comply with California Health and Safety Code 116875 (AB 1953-2006) Lead Content in Plumbing Products for piping specialties installed in the domestic water system whether serving a fixture providing domestic water for human consumption or serving a fixture providing domestic water to a fixture not normally considered as for use for human consumption shall have been verified by an independent evaluation service as meeting the requirements of the California Health and Safety Code 116875 (AB 1953-2006). When piping specialty item larger than 2" is required, and a verified product is available from the specified manufacturer(s), the verified plumbing specialty item shall be submitted for approval and provided, as approved.

1.8 DAMAGE BY LEAKS

A. This Contractor shall be responsible for damage to the grounds, walks, roads, buildings, piping systems, electrical systems and their equipment and contents, caused by leaks in the piping systems being installed or having been installed herein. He shall repair at his expense all damage so caused. All repair work shall be done as directed by the Architect.

1.9 EMERGENCY REPAIRS

A. The Owner reserves the right to make emergency repairs as required to keep equipment in operation without voiding the Contractor's guarantee bond nor relieving the Contractor of his responsibilities.

1.10 EXPLANATION AND PRECEDENCE OF DRAWINGS

A. For purposes of clearness and legibility, drawings are essentially diagrammatic, and, although size and location of equipment are drawn to scale wherever possible, Contractor shall make use of all data in all the contract documents and shall verify this information at building site.

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- B. The drawings indicate required size and points of termination of pipes, and suggest proper routes to conform to structure, avoid obstructions and preserve clearances. However, it is not intended that drawings indicate all necessary offsets, and it shall be the work of the Contractor to make the installation in such a manner as to conform to structure, avoid obstructions, preserve headroom and keep openings and passageways clear, without further instructions or cost to the Owner.
- C. It is intended that all apparatus be located symmetrical with architectural elements. Refer to architectural details in completing the correlating work.
- D. The contractor shall be fully informed regarding any and all peculiarities and limitations of the spaces available for the installation of all work and materials furnished and installed under the contract. The contractor shall exercise due and particular caution to determine that all parts of his work are made quickly and easily accessible.
- E. The Contractor shall study all drawings and specifications to determine any conflict with ordinances and statutes. Any errors or omissions shall be reported, and any changes shall be shown in the as-built drawings and the additional work performed at no cost to the Owner.
- F. Submittal of bid shall indicate the Contractor has examined the site and drawings and has included all required allowances in his bid. No allowance shall be made for any error resulting from Contractor's failure to visit job site and to review drawings, and bid shall include costs for all required drawings and changes as outlined above, all at no cost to Owner.

1.11 EXCAVATION AND BACKFILL

- A. See other Divisions for excavation and backfill requirements.
- B. Underground piping shall be installed with a minimum of 24" cover from finish grade and deeper as noted on drawings. Excavation depths shall be coordinated with other trades.
- C. Excavation for pipes shall be cut a minimum of 6" below the required grade. A 6" bed of sand or other approved material shall be then placed and properly compacted to provide an accurate grade and uniform bearing throughout the length of the pipe.
- D. Sand used shall be certified to a resistance of not less than the surrounding soil when wet with distilled water and shall consist of clean, natural, washed sand. The particles size shall pass through a 3/8" screen, 90% of them will pass through a l/4" screen and not more than 25% will pass through a No. 50 screen.
- E. Backfilling will not be placed until the work has been inspected, tested and approved.

- F. Clods or lumps 2" in size or larger will not be permitted in the backfill. If the excavated material is not suitable, adequate material shall be provided by hauling from other locations.
- G. Surplus earth or material remaining after backfilling shall be removed from the site as indicated in "Earthwork" section.

1.12 SUPERVISION AND COOPERATION

- A. This Contractor shall include the services of experienced superintendents for each sub-section who shall be constantly in charge of the work, together with the qualified journeymen, helpers and laborers, required to properly unload, install, connect, adjust, start, operate and test the work involved, including equipment and materials furnished by others and by the Owner.
- B. The work under this section shall be executed in cooperation with the work of other trades to prevent conflict or interference and to aid rapid completion of the overall project.

1.13 OPERATION

- A. The Owner may require operation of parts or all of the installation for beneficial occupancy prior to final acceptance. Refer to General Conditions of the Contract.
- B. Cost of utilities for such operation shall be paid by the Owner. Said operation shall not be construed as acceptance of the work.

1.14 UTILITY SERVICES DURING CONSTRUCTION

A. All water and electric power used for construction shall be paid for by the Contractor.

1.15 COORDINATION

- A. Coordinate layout and installation of piping and suspension system components with other construction, including light fixtures, HVAC ductwork / equipment, electrical conduit, fire suppression system components, and partition assemblies.
- B. Coordinate pipe sleeve installations for foundations wall penetrations.
- C. Coordinate installation of pipe sleeves for penetrations through exterior walls and floor assemblies.

PART 2 - PRODUCTS

2.1 DOMESTIC WATER PIPING:

A. Above grade exposed piping shall be type "L" copper tubing hard drawn with wrought copper solder sweat fittings. Where below grade and within 5' of building line, shall be type "K" copper tubing in single continuous length with polyethylene outer tubing.

2.2 DOMESTIC WATER DISTRIBUTION 5' OUTSIDE BUILDING EXCEPT AS OTHERWISE NOTED ON PLANS:

 A. 1-1/2" and smaller schedule 40 PVC conform to ASTM 1785 with solvent welded fittings. 2" and larger class 200 PVC gasket bell end shall conform to ASTM 1869 with PVC fittings. Provide thrust block at each change in direction.

2.3 DOMESTIC WATER TUBING

- A. Tubing
 - 1. Material: Crosslinked polyethylene (PEX) manufactured by PEX-a or Engel method
 - 2. Type: Wirsbo AQUAPEX
 - 3. Material Standard: Manufactured in accordance with ASTM F876 and ASTM F877 and tested for compliance by an independent third party agency
 - 4. Standard grade hydrostatic design and pressure ratings from PPI
 - 5. Fire-rated assembly listings in accordance with ANSI/UL 263
 - a. UL Design No. L557 1-hour wood frame floor/ceiling assemblies
 - b. UL Design No. K913 2-hour concrete floor/ceiling assemblies
 - c. UL Design No. U372 1-hour wood stud/gypsum wallboard wall assemblies
 - d. UL Design No. V444 1-hour steel stud/gypsum wallboard wall assemblies
 - 6. Minimum Bend Radius (cold bending): No less than six times the outside diameter. Use a bend support as supplied by the PEX tubing manufacturer for tubing with a bend radius less than stated.
 - 7. Nominal Inside Diameter: Provide tubing with nominal inside diameter, in accordance with ASTM F876 as indicated.
 - a. ³/₈ inch [9.53mm]
 - b. ¹/₂ inch [12.7mm]
 - c. ³/₄ inch [19.05mm]
 - d. 1 inch [25.4mm]

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- e. 1¼ inch [31.75mm]
- f. 1¹/₂ inch [38.1mm]
- g. 2 inch [50.8mm]
- B. Fittings
 - 1. Material: Fitting assembly is manufactured from material listed in paragraph 5.1 of ASTM F1960.
 - 2. Material Standard: Comply with ASTM F1960.
 - 3. Type: PEX-a cold expansion fitting.
 - a. Assembly consists of the appropriate ProPEX insert with a corresponding ProPEX Ring.
- C. Manifolds
 - 1. Material
 - a. Type L copper body with UNS 3600 series brass ProPEX outlet connections
 - b. Engineered Plastic (EP) body with ProPEX outlet connections
 - 2. Manifold Type
 - a. Uponor ProPEX 1" Copper Manifold
 - b. Uponor engineered plastic (EP) Manifold
 - 3. All manifolds manufactured with the appropriate-sized ProPEX fittings on the manifold supply inlets.
- D. Accessories
 - 1. Angle stops and straight stops that are compatible with PEX tubing are supplied by the PEX tubing manufacturer.
 - 2. Bend supports designed for maintaining tight radius bends are supplied by the PEX tubing manufacturer.
 - 3. ProPEX expander tool to install the ASTM F1960 compatible fittings are supplied by the PEX tubing manufacturer.
 - 4. The tubing manufacturer provides clips and/or PEX rails for supporting tubing runs.
 - 5. All horizontal tubing hangers and riser clamps are epoxy-coated material.

2.4 PIPING SPECIALTIES

A. Tracer Wire: Provide on all plastic pipe No. 10 AWG, TW insulated copper wire. Spiral wrap around complete length of all plastic piping at approximately 2' intervals, terminate above grade or in yard box with a 24" pipe.

- B. Unions In Copper Tubing 2" and Smaller: ANSI B16.18 cast bronze union coupling or ANSI B15.24 class 150 bronze flanges. NIBCO 633.
- C. Dielectric Fittings:
 - Provide fittings and unions to install between pipes made of dissimilar metals. Unions shall be factory certified to withstand a minimum of 600 volts on a dry line with no flash over and shall be rated to 180°F at 250 PSI. Flanged fittings shall have a bolt isolator to insulate each bolt in the flange and shall be rated at 175 PSI. Bolts shall be constructed of durable, corrosion resistant polysulfone. Flanged fittings shall have a Standard Gasket "A" (GA) suitable for water, air, oil, natural gas, propane, gasoline, kerosene, mineral oil, vegetable oil and alkalines in 210°F at 250 PSI. Threaded end connections shall meet ANSI B2.1 and flanged fittings shall meet ANSI B16.42 (iron) and ANSI B16.24 Bronze. Unions shall conform to ANSI B16.39, including hydrostatic strength and air pressure testing. Dielectric fittings and unions shall be constructed of the following materials:

a.	Gray Iron	ASTM A48-83
b.	Malleable iron parts	ASTM A-197-79
c.	Steel parts	ASTM A108
d.	Bronze parts	ASTM B-16
e.	Zinc parts	ASTM B633-85

- 2. Dielectric fittings shall be WATTS Series 3000.
- D. Water hammer arrestors: ANSI A112.26.1, ASSE 1010, sized in accordance with PDI WH-201, precharged piston type constructed of hard drawn Type K copper, threaded brass adapter, brass piston with O-ring seals, FDA approved silicone lubricant, suitable for operation in temperature range 35°F to 150°F maximum 150 psig working pressure, 1500 psig surge pressure. J. R. Smith Series 5000.
- E. Strainers: Y Type, cast bronze body, ASTM B62, 20 mesh stainless steel screens, bolted or threaded screen retainer tapped for a blowoff valve, sweat, threaded or flanged body rated at not less than 150 psi WOG. Manufactured by Armstrong.
- F. Strainers: Y type, cast iron body, ASTM A126, 20 mesh stainless steel screens; bolted or threaded screen retainer tapped for a blowoff valve, threaded or flanged ends, rated at not less than 150 psi WOG. Manufactured by Armstrong.

2.5 VALVE BOXES

A. "Brooks Products" 3L concrete with self-closing cast-iron cover 10 x 20 or smaller, and concrete lid for larger boxes. Cover to be marked with name of service.

2.6 SANITARY WASTE AND VENT FITTINGS AND PIPING

- A. Soil, Waste, Vent and Downspouts Above and Below Grade Within 5' of Building Line: No hub service weight cast iron soil pipe and fittings conforming to the latest issue of CISPI 301, ASTM A-888. Pipe and fittings shall be GreenSpec listed. Manufacturer shall be Charlotte, Tyler, AB&I, or approved equal.
- B. Joints: Joints for hubless pipe and fittings shall conform to the manufacturer's installation instructions and local code requirements. Hubless couplings shall be composed of a heavy duty four or six band coupling, stainless steel shield / clamp assembly and a fire resistant neoprene gasket conforming to ASTM C1540, CISPI 310, Factory Mutual 1680 class 1, and bear the NSF trademark, manufactured by Anaco Husky SD4000, Fernco, MiFab or approved equal. Joints for hub and spigot shall be installed with compression gaskets conforming to the requirements of ASTM C-564, or shall be installed with lead and oakum.
- C. Sewer from 5' outside building except as otherwise noted on plans; schedule 40 PVC piping conforming to ASTM D 2665, fittings conforming to ASTM D 2466 with solvent welded joints conforming to ASTM D2564.
- D. Vent Piping: Service weight cast-iron with same joint as used for soil and waste above grade.

2.7 PIPING SPECIALTIES

- A. Tracer Wire: Provide on all plastic pipe No. 10 AWG, TW insulated copper wire. Spiral wrap around complete length of all plastic piping at approximately 2' intervals, terminate above grade or in yard box with a 24" pipe.
- B. Trap Seal Primer Distribution Unit: Where trapped floor drains with trap primer connections are installed the contractor shall provide a trap seal primer with a 1/2" water line to each floor drain. Provide trap primer distribution unit to serve up to (4) four floor drains. The automatic trap seal primer shall have a cast bronze body with 1/2" NPT female / male connections. Trap seal primer to be model PR-500, as manufactured by Precision Plumbing Products, Inc or approved equal.
- C. Trap Seal Primer: Where trapped floor drains with trap primer connections are installed the contractor shall provide a trap seal primer with a 1/2" water line to each floor drain. A water saver trap seal primer made of a cast bronze P-trap with cleanout, 17 gauge tubing outlet, slip joint nuts, washers and escutcheons, 1/2" primer tube with compression fitting connection at wall is to be provided and installed. Trap seal primer is to be Series 2698 Prime-eze, as manufactured by J.R. Smith or approved equal.

2.8 CLEANOUT BOXES

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Brooks Products" 3L, or approved equal, concrete with self-closing cast-iron cover 10 x 20 or smaller, and concrete lid for larger boxes. Cover to be marked with name of service.

2.9 CLEANOUTS

- A. Floor Cleanouts: J.R. Smith Fig. 4023, or approved equal, with polished nickel bronze non-skid adjustable round or square top.
- B. Wall Cleanouts: J.R. Smith Fig. 4472, or approved equal, series with chrome plated cover and screws.
- C. Outside Cleanouts: J.R. Smith Fig. 4258, or approved equal, low flange type for non-surfaced areas and areas surfaced with asphalt paving.
- D. Outside Cleanouts: J.R. Smith Fig. 4253, or approved equal, high flange type for areas surfaced with concrete or other poured material. Vandal-proof cover to be marked "Cleanout." Encase anchoring flange in 20" square x 6" concrete pad, top of cleanout flush with finished surface.

2.10 ROOF FLASHING

A. Furnish and install on each pipe passing through the roof, a "Stoneman" No. 1110-7, or approved equal, six pound, seamless lead flashing assembly. Flashing shall have reinforced boot and be complete with cast iron counter flashing sleeve and Permaseal waterproofing compound. All vent pipes shall be terminated 7" above the roof.

2.11 INSULATION

- A. All domestic hot water supply piping, recirculating piping, and condensate piping shall be insulated with Johns Manville, or approved equal, Micro-Loc HP preformed fiber glass pipe insulation, complying with ASTM C 547, Class 3 (to 850°F), rigid, molded pipe insulation, noncombustible.
 - 1. Thermal Conductivity ("k"): 0.23 Btu•in/(hr•ft2•°F) at 75°F mean temperature per ASTM C 518.
 - 2. Maximum Service Temperature: 850°F.
 - 3. Rated 25/50 per ASTM E 84, UL 723 and NFPA 255.
 - 4. When being used over stainless steel, product must comply with the requirements of ASTM C 795.
 - 5. All-Service (ASJ) Vapor-Retarder Jacket: A white, kraft paper, reinforced with a glass fiber yarn and bonded to an aluminum foil, with selfsealing longitudinal closure laps (SSL) and butt strips.

- B. Field-Applied Jackets:
 - 1. PVC Plastic: Zeston 2000 Series. One piece, molded type fitting covers and jacketing material, gloss white.
 - 2. Connections: Tacks, pressure sensitive, color matching, vinyl tape.
 - 3. Aluminum Jacket: 0.016" thick sheet, (smooth/ embossed) finish, with longitudinal slip joints and 2" laps, die-shaped fitting covers with factory-attached protective liner.
 - 4. Stainless Steel Jacket: Type 304 stainless steel, 0.10", (smooth/ corrugated) finish.
- C. Install insulation per manufacturer's requirements.
- 2.12 FITTINGS, VALVES, TEES, ETC.
 - A. All fittings, valves, tees, flanges, connections, etc. shall be insulated and covered with the appropriate Zeston 2000 PVC or metal insulated fitting cover.
 - 1. Fittings shall be manufactured from ultraviolet resistant PVC.
 - 2. Connections: Tacks, pressure sensitive, color matching, vinyl tape, Perma-Weld Adhesive.

2.13 EXPOSED DRAIN AND SUPPLY PIPES BELOW LAVATORIES

- A. Insulate all drainage piping including all hot and cold water valve and supplies under lavatories. PVC Insulators to comply with CBC (California Building Code) shall meet Testing Standard ASTM E 84-07 with a 25 flame spread/50 smoke. Insulators to meet and be listed with IPC/IAPMO Property and Material Standard PS 94-2008. With a onepiece design, fusion molded fabrication and pliable for high flexibility requirements. PVC insulators material to be 1/8" thick. Surfaces to be soft, smooth, nonabsorbent, easy to clean U/V inhibited, antimicrobial, antifungal properties. Insulator shall have a dual fastening system which consists of fusion bonded Velcro fastener strips for full slit enclosure and tamper resistant, smooth, non-abrasive snap-locking fasteners. Surfaces to be soft, smooth, non-absorbent, easy to clean U/V inhibited, antimicrobial, antifungal properties. Insulators shall have a dual fastening system which consists of fusion bonded Velcro fastener strips for full slit enclosure and tamper resistant, smooth, nonabrasive snap-locking fasteners. Manufacturer: Plumberex or approved equal Brand: Handy-Shield Maxx
- B. Exposed drain and supply pipes below lavatories shall be insulated with Trap-Guard protection cover system. Cover shall be elastomeric insulation with Velcro closure PVC covers. Cover shall comply with all handicap code requirements. Manufactured by Buckaroos (Fishers Indiana), or approved equal.

2.14 PLUMBING FIXTURES

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A. Reference is made to Kohler Company, it is understood to mean that equivalent fixtures as manufactured by Elkay, American Standard Manufacturing Company, Crane Company, Eljer, or approved equal, are acceptable if used throughout. Faucets by Symmons, equivalents by Zurn, T & S, Bradley, or approved equal, are acceptable. Equivalent toilet seats by Beneke, Olsonite, or approved equal, are acceptable. Equivalent carrier, floor drains, etc. by J.R. Smith, Josam, Wade, Zurn, or approved equal, are acceptable.

2.15 ACCESS DOORS AND PANELS:

A. Wherever valves, air vents, or other items or parts of the installation which require periodic inspection or adjustment are concealed by permanent non-removable construction, an access door or panel shall be provided. Installation of access doors to be coordinated by general contractor. Types to be submitted and approved for the surface, and construction in which it is installed. Access door to be manufactured by Mifab, Inc., or approved equal, and be Series CAD or UA, or series MFRU for fire rated walls.

2.16 ROOF FLASHING

A. Furnish and install on each pipe passing through the roof, a "Stoneman" No. 1110-7, or approved equal, six pound, seamless lead flashing assembly. Flashing shall have reinforced boot and be complete with cast iron counter flashing sleeve and Permaseal waterproofing compound. All vent pipes shall be terminated 7" above the roof.

PART 3 - EXECUTION

3.1 PIPE INSTALLATION GENERAL

- A. PEX Piping and Tubing
 - 1. The installing contractor or plumbing contractor shall provide written certification that the contractor/plumbing contractor shall comply with the flushing requirements of the California Plumbing Code to PEX installation.
 - 2. The installation of PEX tubing shall not be installed within the first eighteen (18) inches of piping connected to a water heater.

3.2 PIPE INSTALLATION

A. Wirsbo AQUAPEX Tubing

- 1. Install Wirsbo AQUAPEX tubing in accordance with the tubing manufacturer's recommendations and as indicated in the installation handbook.
- 2. Do not install PEX tubing within 6 inches [152 mm] of gas appliance vents or within 12 inches [305 mm] of any recessed light fixtures.
- 3. Do not solder within 18 inches [457 mm] of PEX tubing in the same waterline. Make sweat connections prior to making PEX connections.
- 4. Do not expose PEX tubing to direct sunlight for more than 30 days.
- 5. Ensure no glues, solvents, sealants or chemicals come in contact with the tubing without prior permission from the tubing manufacturer.
- 6. Use grommets or sleeves at the penetration for PEX tubing passing through metal studs.
- 7. Protect PEX tubing with sleeves where abrasion may occur.
- 8. Use strike protectors where PEX tubing penetrates a stud or joist and has the potential for being struck with a screw or nail.
- 9. Use tubing manufacturer-supplied bend supports where bends are less than six times the outside tubing diameter.
- 10. Minimum horizontal supports are installed not less than 32 inches between hangers in accordance with model plumbing codes and the installation handbook.
- 11. PEX riser installations require epoxy-coated riser clamps installed at the base of the ceiling per floor.
- 12. A mid-story support is required for riser applications.
- 13. Pressurize Wirsbo AQUAPEX tubing with air in accordance with applicable codes or in the absence of applicable codes to a pressure of 25 psi (173 kPa) above normal working pressure of the system.
- 14. Comply with safety precautions when pressure testing, including use of compressed air, where applicable. Do not use water to pressurize the system if ambient air temperature has the possibility of dropping below 32°F (0°C).
- B. Through-penetration Firestop
 - 1. Ensure compliance of one- and two-hour rated through penetration assemblies in accordance with ASTM E814.
 - 2. A list of firestop manufacturers that list PEX tubing with their firestop systems is available from the PEX tubing manufacturer.
- C. Joints in copper tubing shall be made by first thoroughly cleaning the surface of the pipe and fittings, applying flux and sweating with 95-5 tin Antimony "soft-solder."
- D. Pipe shall be carefully cleaned before installation. The ends of threaded pipe shall be reamed out full size with a long taper reamer so as to be partially bell-mouthed and perfectly smooth.
- E. Flush out all water mains and sanitary drains with water so as to obtain free flow. Remove all obstructions and defects discovered. Remove and re-lay any sections and pipe already laid and found to be defective or which has had grade or joints disturbed.

- F. Openings in pipes, drains, fittings, apparatus and equipment shall be kept covered or plugged to prevent foreign substance from entering.
- G. Run piping free of traps, sags, or bends. Grade and valve for complete drainage and control of the system.
- H. All piping to be run to maintain headroom and keep passageways and openings clear. Run parallel and straight with adjacent walls or ceilings to present a uniform appearance.
- I. All piping, except where noted otherwise on plans, shall be concealed in walls or above ceilings.
- J. Bending or forcing of pipe will not be allowed. Use fittings for all offsets or changes in alignment of piping.
- K. Proper provision shall be made for expansion and contraction by means of fittings and anchors and supports of all piping.
- L. Street elbows, bushings and long screw fittings will not be allowed.
- M. All piping shall be isolated from dissimilar metals, other piping, any part of the building, framing, conduit, supports etc., with Elmdor/Stoneman Series 500 trisolator or approved equal.
- N. PDI sized water hammer arresters shall be installed at the end of the branch line between the last two self-closing water faucet / flush valve fixtures served. When the branch line exceeds 20'-0" in length, an additional water hammer arrester shall be installed.
- O. Unions shall be installed after each screw-type valve, connections for all equipment, appliances and as required for erection and maintenance. No unions shall be installed in a concealed location.
- P. Install isolation unions on all connections between dissimilar metals (galvanized steel, black steel to copper).
- Q. All piping shall be isolated from dissimilar metals, other piping, any part of the building, framing, conduit, supports etc., with Elmdor/Stoneman Series 500 trisolator or approved equal.

3.3 INSTALLATION OF PLUMBING SYSTEMS

A. No holes for pipe or equipment will be allowed in any structural members without written consent of the Architect. Where pipes are to pass through or interfere with any

member, or where notching, boring or cutting of the structure is necessary, the work shall be done by the Contractor as directed by the Architect.

- B. The Contractor shall, at a time in advance of the work, coordinate with other disciplines as to his requirements for openings, recesses, and chases in the walls, partitions, or framing. Should furnishing this information be neglected, delayed, or incorrect and additional cutting is found to be required, the costs of same shall be charged to the Contractor.
- C. Sleeves through foundation walls shall be standard weight black steel pipe, flush with walls and two pipe sizes larger than the pipe passing through. Sleeves shall be caulked with oakum to within 1" of the wall lines and then completely filled with an approved bitumastic compound. Sleeves for piping through masonry wall above grade or floor or through floors shall be #10 gauge galvanized sheet steel and shall extend completely through the walls, or floor finishing flush on both sides. Sleeves shall be 1/2" larger than the pipe passing through with oakum caulking to make opening airtight. Sleeves through concrete firewalls or floors shall be packed with suitable non- combustible material. Provide and install polished chromium plate brass floor ceiling on wall plates for all pipes, exposed in finished portions of the buildings.
- D. All scaled and figured dimensions are approximate and are given for estimate purposes only. Before proceeding with any work, this Contractor shall carefully check and verify all dimensions, sizes, etc., and shall assume full responsibility for the installation with respect to other parts of the equipment, and to the structure.
- E. Any minor changes in work, which has not been installed, shall be made by this Contractor without additional compensation, except changes that are caused by architectural revisions that increase or decrease the size of the materials specified or indicated on the drawings.
- F. This Contractor shall submit an estimate of the cost of or credit for such changes he does not consider of a minor nature and shall proceed only upon the written authority of the Architect.
- G. Coordinate all sanitary vents through roof with HVAC equipment. Terminate all vents at least 10'-0" from any outside air intakes.
- H. Pipes Over Electrical Equipment: Where pipe joints or valves in pipes conveying water occur within 3' in a horizontal direction, of electrical panels and electronic equipment, provide a drip pan of galvanized steel construction of a size which will afford maximum protection.
 - 1. Pans: 24 gauge, edges turned up 2-1/2" all sides, reinforced with galvanized steel angles or by rolling edge over 1/4" diameter steel rod.
 - 2. Provide drain with 3/4" brass flange and copper pipe to floor.
 - 3. Support the pan with bars or angles, brace to prevent sagging or swaying.

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3.4 SANITARY WASTE AND VENT PIPE INSTALLATION

- A. No-Hub cast-iron Soil Pipe Institute Pamphlet #100 and the I.A.P.M.O. IS-6-75.
- B. All sanitary sewers, storm drains and waste lines shall grade as indicated on drawings. The sections of the pipe shall be laid and fitted so that when completed the pipe will have smooth and uniform invert. Water shall not be allowed in the trenches while the pipes are being laid. Dirt, cement, or any other superfluous material of any description shall be carefully removed from the interior of the piping system as the work progresses. Constant inspection shall be made in pipe and fittings during and after all installation for possible fractures and failures caused by installation. Backfill so as not to disturb pipe or jointing.
- C. Flush out all sanitary drains with water so as to obtain free flow. Remove all obstructions and defects discovered. Remove and re-lay any sections and pipe already laid and found to be defective or which has had grade or joints disturbed.
- D. Openings in pipes, drains, fittings, apparatus and equipment shall be kept covered or plugged to prevent foreign substance from entering.
- E. Run piping free of traps, sags, or bends. Grade and valve for complete drainage and control of the system.
- F. All piping to be run to maintain headroom and keep passageways and openings clear. Run parallel and straight with adjacent walls or ceilings to present a uniform appearance.
- G. All piping, except where noted otherwise on plans, shall be concealed in walls or above ceilings.
- H. Bending or forcing of pipe will not be allowed. Use fittings for all offsets or changes in alignment of piping.

3.5 CLEANOUTS

- A. As specified (see plans for size), cleanouts shall be caulked into pipe where shown on plans under countertops where they occur in walls to avoid their being too conspicuous. Cleanouts shall be accessible in all cases and shall be brought to surface on "Y" branches. All cleanouts shall be provided with removable floor or wall plate as herein specified.
- B. In addition to the cleanouts shown on the plans, install cleanouts in all horizontal lines at each aggregate change of direction exceeding 135°, and at the base of any vertical riser longer than 8'-0". Install cleanout outside the building at the lower end of the building drain and extend to grade.

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3.6 FIXTURE INSTALLATION

- A. All plumbing fixtures shall be bedded and caulked along joint at walls, countertops, and other intersecting surfaces with Vulkem white silicone, use clear at stainless steel fixtures.
- B. Plumbing fixture trim and exposed supplies and waste shall be brass with polished chrome plated finish. Individual loose key stops, or, so specified, screw driver stops, shall be provided for all supplies, and unless integral with valves or faucets, unless otherwise approved by Architect, shall be mounted under the fixture. Exposed supplies and wastes through walls shall be provided with polished chrome plated cast brass wall escutcheons.
- C. Fixtures with hangers or supporting arms shall have hangers or arms securely mounted on a l/4" thick x 6" wide steel wall plate which shall extend at least one stud beyond the first and last fixture mounting points. Concealed arm assemblies shall be attached to plates by four 3/8" x 1-1/4" steel bolts and nuts, and hangers and exposed arms by 5/16" minimum full thread steel studs and jamb nuts. Plates shall be drilled and tapped at the time of fixture installation.
- D. Wall plates shall be recessed flush with studs and shall be securely attached to each stud crossed. In steel stud construction, a 1-1/2" x 18" long furring channel shall be attached to each notched stud with fillet welds 1" long on 6" centers front and back. Plates shall be continuous fillet welded at both top and bottom to each furring channel.

3.7 TESTS AND ADJUSTMENTS

- A. No piping work, fixtures, or equipment shall be concealed or covered until inspected and approved by the Engineer, who shall be notified when the work is ready for inspection. All work shall be completely installed, tested as required by this section and the State Ordinances and State Safety Orders, and shall be leak-tight before inspection is requested. All tests shall be repeated upon request to the satisfaction of those making the inspection.
- B. Piping tests shall be made with the medium and under pressure listed below. Use a calibrated Bristol Pressure Recorder on all tests. Recorder range shall be 0 300 pounds or required range for specific test.

		Gauge Pressure	
	Type of System	(Lbs. per sq. inch, gauge)	Test Medium
1.	Soil, Waste, Vent Rainwater leaders Storm Drainage Piping Within	Minimum of 5 psi for each joint, for duration of test with no loss in pressure.	Water

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	Building		
2.	Fuel Gas	50 PSI	Compressed Air
3.	Domestic Water	150 PSI	Water

- C. Test pressure in pounds per square inch, gauge, are given as initial pressure to be applied to lines being tested, together with test medium.
- D. Tests are to be applied for a minimum period of twenty-four (24) hours and until tests are complete.
- E. Final pressures at the end of test period shall be no more nor less than that caused by expansion or contraction of the test medium due to temperature changes.

3.8 PLUMBING INSULATION

- A. Pipe insulation thickness:
 - 1. Runouts to individual fixtures that are no more than 12 feet long and smaller than 2" shall be insulated with 0.5" insulation.
 - 2. Pipe sizes up to 4" shall be insulated with 1.0" insulation.
 - 3. Pipe sizes 5" and larger shall be insulated with 1.5" insulation.
- B. General:
 - 1. All pipe insulation shall be continuous through wall and ceiling openings and sleeves, except where fire stop materials are required.
 - 2. All surface finishes are to be extended to protect all surfaces, ends and raw edges of insulation.
 - 3. Rigid insulation inserts shall be installed on pipe sizes 1¹/₂" or larger under outside hangers. Inserts shall be of equal thickness to the adjoining insulation and shall be provided with vapor retarder seals where required.
 - 4. Insulation inserts shall not be less than the following lengths:

Pipe Size, In.	Length, In.
$1\frac{1}{2} - 2\frac{1}{2}$	10
3 – 6	12

- 5. Galvanized metal shields shall be applied between hangers or supports and the pipe insulation. Shields shall be formed to fit the insulation and shall extend up to the centerline of the pipe and the length specified for the insulation hanger inserts less 4" to allow for vapor retarding butt joints on each side of the shields.
- 6. Specified adhesives, mastics and coatings shall be applied at the manufacturer's recommended minimum coverage per gallon.
- 7. When Zeston 2000 PVC Insulated Fitting Covers are used, care shall be taken to ensure that the surface temperature of the fitting will be kept below 150°F by the

use of a proper thickness of insulation and by keeping the PVC cover away from contact with, or exposure to, sources of direct or radiant heat.

- C. Indoor piping: This portion of the installation procedure is applicable for piping in all indoor areas, including concealed spaces, mechanical rooms and inhabited areas.
 - 1. Preformed fiber glass pipe insulation with all service jacket shall be applied to piping with all joints tightly fitted to eliminate voids.
 - 2. Longitudinal jacket laps and butt strips shall be smoothly secured according to manufacturer's recommendations.
 - 3. When adhered, the lap and butt strips must be pressurized by rubbing firmly with a plastic squeegee or the back of a knife blade to ensure positive closure.
 - 4. The installed thickness shall be enough that the surface temperature shall be kept below 150°F.
 - 5. For pipe exposed in mechanical equipment rooms or in finished spaces less than 10' above finished floor, finish with aluminum jacket.
 - 6. Fittings, valves and flanges shall be insulated with PVC insulated fitting covers and Hi-Lo Temp insulation inserts per manufacturer's recommendations.

3.9 DRAWINGS OF RECORD

- A. Provide erasable mylar reproducible "as-builts" for the purpose of showing a complete picture of the work as actually installed. Copies of the contract drawings can be made available upon request at cost to the contractor.
- B. These drawings shall serve as work progress report sheets and the Contractor shall make all notations, neat and legible, thereon daily as the work proceeds. The drawings shall be available for inspection at all times and shall be kept at the job at a location designated by the Architect.
- C. At completion of the work, these as-built drawings shall be signed by the Contractor indicating his approval, dated and returned to the Architect.
- D. Invert elevations for buried piping and conduit. The dimensions location of all concealed raceway shall be accurately recorded on the "as-built" drawings. Elevation, on Mean Sea Level base, of all piping and conduit runs outside the building shall be recorded.

3.10 FINAL INSPECTION

A. If upon final completion of the final inspection and review of the maintenance manuals and "as-built" drawings, the list of required corrections is such that a re-inspection is required, the contractor will be subject to a charge of Ninety Dollars (\$90.00) per hour for any additional time required.

3.11 GUARANTEE

- A. All work under this section shall be guaranteed in writing in accordance with the General Provisions.
- B. All material except as otherwise noted shall be new, free from defect and of the quality and rating shown or specified.
- C. Any defect due to missing or improper material or faulty workmanship existing or developing during the warranty period shall be corrected and the resulting damage repaired without additional cost to the Owner.
- D. The warranty period shall be one year from date of acceptance of the project.

* * * *

SECTION 16100 - ELECTRICAL

PART 1 – GENERAL

1.1 SUMMARY

- A. The General Conditions and applicable portions of other sections are a part of this section, the same as if here written.
- B. This section, together with the electrical and related drawings and documents is intended to specify complete and operable electrical and related systems and may apply to performance by other than electrical trades, just as other sections may apply to performance by the electrical trade.
- C. The Contractor shall be responsible for determining the extent of work to be performed under this section by the electrical and other trades. Where a specific trade is mentioned, it is a means of referring to a separation of work corresponding to the separation shown on the plans and to avoid duplication or omission of related work by two or more trades.
- D. The work under this section shall be so organized, planned and coordinated with others that the project will proceed expeditiously and on schedule and conflicts will be avoided. Refer to other applicable portions of the contract documents even though not specifically referenced.
- E. All electrical material and equipment of similar characteristics and use shall be of the same manufacturer and shall closely match in appearance. Material and equipment of identical characteristics and use shall be identical.

1.2 DESCRIPTION OF WORK

- A. Work Included: This Specification and the Drawings cover furnishing and installing the complete, operable electrical system including, but not limited to, the following systems complete and operative:
 - 1. 240Y/120 Volt, 1 phase, 3-wire lighting and power systems including panels, feeders, metering equipment and associated equipment.
 - 2. Branch circuit wiring.
 - 3. Lighting fixtures complete with lamps.
 - 4. Grounding system.
 - 5. Electrical work for mechanical systems except where specified under other sections.
 - 6. Conduit only system consisting of empty conduit (with pull wires), terminal backboards, terminal cabinets, boxes with plaster rings and blank covers where indicated for public telephone.
- B. Work under this Section on Mechanical Systems:
 - 1. Power (line voltage) conduits, wiring, outlets and connections shall be furnished and installed under the Electrical Section of the Specifications.
 - 2. HVAC and plumbing control and interlock wiring regardless of voltage, and conduits for same, will be provided, wired and connected under Division 15 unless specifically noted otherwise on

the plans.

- 3. All magnetic and manual motor starters, contactors, relays, push button stations, control equipment, etc. shall be furnished under the Mechanical Section of the Specifications unless specifically noted on the Drawings. Refer to diagrams for installation and connections.
- 4. Disconnect switches and miscellaneous devices shall be furnished, installed and connected under the Electrical Section of the Specifications, as indicated on the plans.
- 5. If substitution of control equipment other than that specified requires any changes in the electrical work from that shown on the plans in order to accomplish the correct control sequence, any extra cost of the equipment or electrical work shall be the responsibility of the Mechanical Contractor.
- 6. Final connections of the electric power driven equipment shall be made under the Electrical Section of the Specifications.
- 7. Equipment furnished and/or installed under the Electrical Specifications shall be installed in locations and in such a manner as required by the Mechanical and Plumbing Specifications and as directed by the Engineer. The Electrical Contractor shall refer to all other sections of these plans and Specifications and coordinate work to provide complete, operating Mechanical and Plumbing systems.
- A. Related Work Specified elsewhere: The following work, although similar in nature or relevant to the work of the Section, is specified in other Sections or is to be furnished by others:
 - 1. Electrical equipment or installations specified herein to be furnished as a part of Mechanical Section of Specifications.
 - 2. Temporary site construction power.

1.3 DRAWINGS

The Contract Drawings indicate the extent and the general locations and arrangement of equipment, conduit, and wiring. Lighting fixtures, equipment and outlets shall be located to avoid interference with mechanical or structural features; in addition, lighting fixtures shall be symmetrically located according to the room arrangement. All locations for electrical work shall be checked and coordinated with the Architectural Drawings. If any conflicts occur necessitating departures from the Contract Drawings, details of departures and reasons therefore shall be submitted as soon as practicable for written approval, and the equipment shall not be installed until approval is received.

1.4 CODES AND REGULATIONS

- A. All work and materials shall be in accordance with applicable requirements of public authorities having jurisdiction and utilities furnishing services. Nothing in the plans or specifications shall be construed as permitting work that is not in conformance with applicable codes or regulations. Codes governing this work include but are not limited to the latest approved edition of the following:
 - 1. National Fire Protection Associations' California Electrical Code.
 - 2. California Administrative Codes.
 - 3. Occupational Safety and Health Act (OSHA).
 - 4. Local Ordinances and Regulations.

- 5. Underwriters Laboratories, Inc. (U.L.) Published Standards.
- B. Requirements of codes and regulations shall be considered as minimum. Where contract documents exceed, without violating, code and regulation requirements, contract document shall take precedence. Where codes conflict, the more stringent shall apply.
- C. The Contractor shall furnish all materials and labor required for compliance with codes and regulations, even though not specifically mentioned or shown.

1.5 STANDARDS

- A. Electrical material and equipment shall have been tested and listed or labeled as conforming to approved published standards by Underwriters' Laboratories where such listing or labeling service is available for the class of material or equipment used. Where applicable, listing or labeling shall apply to the complete assembled equipment and not to the components alone. Where listing or labeling service is not available for an assembly, the components shall be listed or labeled and applied within their ratings.
- B. Electrical installations shall conform to the standards set forth in the National Electrical Contractors Association (NECA) "Installation Standards Handbook".

1.6 LOCATIONS AND DIMENSIONS

- A. Install all material and equipment in such a manner as to avoid obstructions, preserve clearances, maintain code spacings and keep openings and passageways clear.
- B. The drawings are diagrammatic to the extent that many offsets, bends, fittings and exact locations are not shown. The Contractor shall determine the best methods, exact locations and routes for his installation and note any conflicts or obstructions. The locations shown for conduits, outlets, materials and equipment may be refined to meet the architectural, structural and mechanical conditions with the approval of the Owner. Where dimensions are shown, they shall be adhered to as closely as practicable.
- C. Where apparatus and equipment is shown to scale or dimensioned on the drawings, dimensions have been taken from typical equipment of the general class indicated. The Contractor shall carefully verify that the material and equipment he plans to install will fit into the spaces provided and proper clearances will be maintained. The Contractor shall assume full responsibility for the fitting of his materials and equipment to other equipment and structure.
- D. Mounting heights shown are from finished floor or pavement or grade to middle of wall mounted outlet boxes and from finished floor to bottom of suspended fixtures unless otherwise indicated.
- E. The exact locations of borings, trenches, excavations, ground rods and all new sub-surface work shall be adjusted to avoid damaging or disturbing any existing underground structure, pipe, or cable. The Contractor shall make every reasonable effort to determine their existing correct locations.

1.7 PERMITS AND INSPECTIONS

Apply and pay for all permits required by any public authorities having jurisdiction and arrange and pay for inspections required. Deliver any certificates of such inspections to the Owner.

1.8 ELECTRICAL AND TELEPHONE SERVICES

A. Contractor shall be responsible for and shall include in his work all service charges and costs and all equipment, material and labor required to provide power and telephone services shown.

- B. Contractor shall contact the serving utilities and make all arrangements for obtaining the correct services at the proper times.
- C. Electrical services shall conform to the requirements of San Diego Gas & Electric and telephone service shall conform to the requirements of Verizon. Contractor shall verify service locations and requirements prior to bid.

1.9 MATERIAL AND EQUIPMENT SUBMITTALS

- A. A materials list, shop drawings, data sheets and samples shall be submitted for review in conformance with Division 1. Submittals shall be made and favorable review secured before material and equipment is installed.
- B. The materials list shall include manufacturer, type, and such other descriptive data as may be required to determine the acceptability of each item. Submit lists of materials for the following:
 - 1. Conduits and fittings
 - 2. Outlet boxes and fittings.
 - 3. Wiring devices.
 - 4. Coverplates, including engraving schedules.
 - 5. Conductors, 600 Volt.
 - 6. Lamps.
 - 7. Wire.
- C. Provide shop drawings for equipment and systems where required by the specification for those items. Shop drawings shall include information on each component, wiring diagrams, layouts, dimensions, and sufficient other data to establish compliance with the specifications and acceptability of the equipment or system. Shop drawings may be catalog data sheets where indicated, providing sufficient detail is shown. Submit shop drawings for the following:
 - 1. Panelboards.
 - 2. Circuit breakers.
 - 3. Disconnect switches.
 - 4. Relays and contactors.
 - 5. Lighting fixtures with photometric data, and choice of standard finishes available for selection by the Architect, and full data on special finishes specified.
 - 6. Terminal cabinets.
 - 7. Nameplate schedules.
 - 8. Time clocks.

- 9. Meter Pedestals.
- D. Samples may be required at the discretion of the Owner.
- E. If equipment other than specified is submitted, submit scaled plans for all electrical equipment rooms and areas. Plans shall be at scale of 1/4-inch equals one foot, shall show actual dimensions of equipment proposed for use and required working clearances. Plans shall accompany shop drawings.
- F. Late, incorrect, improper or rejected submittals will not be acceptable reasons for delaying the work or substituting non-specified material or equipment. The Contractor is responsible for providing proper submittals and allowing adequate time for their processing.
- G. The Contractor shall assume any extra costs to other work or trades resulting from the use of substitutions. All substitutions shall be supplied as approved at no extra charge.

1.10 AS-BUILT DRAWINGS

- A. On a set of contract drawings, kept at the site during construction, the Contractor shall mark all work that is installed differently from that shown, including any revised circuitry, material or equipment, and sufficient dimensions to locate all materials installed beneath and outside the building such as underground conduits, cabling, ground rods and stub-outs.
- B. The marked drawings shall be kept current as the work progresses and shall be available for inspection upon request. At the close of construction these shall be transferred to a set of reproducibles and turned over to the owner.
- C. The correct and completed "as-built" drawings are a pre-requisite to final contract payment in conformance with Division 1.

1.11 GUARANTEE

- A. All work shall be guaranteed for a minimum period of one year from either the official date of completion or from the official date of acceptance by the Owner whichever is the later date.
- B. Certain items shall be guaranteed for a longer period, as stated in the specification for those items.
- C. Should any trouble develop during this time due to defective material, faulty workmanship, or noncompliance with plans, specifications, codes, or directions of the Owner, Architect, Engineer or Inspector the Contractor shall furnish all necessary labor and materials to correct the trouble without additional charges.

PART 2 - PRODUCTS

- 2.1 Meter Pedestals:
 - A. Meter Pedestals shall be as specified on the plans.

2.2 PANELBOARDS

- A. Panelboards shall be factory assembled circuit breaker type by Siemans or equal. The number of poles, type, voltage and ampere ratings shall be as indicated on the plans. All panels shall have copper bussing.
- B. Neutral wires shall be connected to a common neutral bus with binding screws or lugs. The neutral bus shall be insulated from the cabinet. Ground wires shall be connected to a common equipment ground bus

with binding screws or lugs. The ground bus shall be bonded to the cabinet.

- C. All bolted connections shall be torque-tightened in conformance with the manufacturer's recommendations.
- D. Cabinets for panelboards shall be of the same manufacturer as the panelboards. Cabinets shall be flush or surface mounted as shown on the plans. Contractor shall coordinate depth of flush cabinets with depth of wall cavities. Cabinets shall be constructed of code gauge steel and shall be shop finished in ANSI 61 light gray enamel.
- E. Fronts of cabinets shall be steel, fastened with screws in countersunk washers, or with approved concealed spring clamps. Cabinet fronts shall have hinged lockable doors with milled keys and circuit schedule holders with clear plastic windows. Doors shall be fastened to trim with substantial flush hinges. Circuit schedules shall be typewritten or printed in ink and shall clearly indicate the circuit and equipment served. Mark spares with pencil only. All panels shall be keyed alike. Fronts shall be shop finished in ANSI 61 light gray enamel.
- F. Provide handle blocking (lock-on) and padlock-off devices where shown on the panel schedules.
- G. Provide a panel identification nameplate as specified under "Nameplates". Each circuit breaker pole shall be identified with a stamped or otherwise permanent number designation. Circuits shall be arranged as shown on the panel schedules.
- H. Provide 10% spare breaker space in all panels.
- I. Submit detailed shop drawings of the panelboards, including breakers and all components as required under "Submittals".

2.3 CIRCUIT BREAKERS

- A. Circuit breakers shall be by the manufacturer specified for panelboards.
- B. Breakers shall be bolt-on type in all panels. Clamp-on, push-on, or plug-in breakers are not acceptable. Removable handle ties and dual, quad or tandem breakers are not acceptable. Mounting hardware, accessories, faceplates, and enclosures shall be provided as necessary for the intended use.
- C. Circuit breakers shall be quick-make and quick-break, and the handle mechanism shall be trip-free to prevent holding contacts closed against a short circuit or sustained overload. Contacts shall be of high pressure butt-type and shall be made of a silver-alloy material. Arc chutes shall be provided. Automatic thermal and magnetic tripping devices shall be located in each pole of the breaker. The thermal device shall provide instantaneous tripping on short circuits.
- D. Short circuit interrupting capacity shall be as indicated on the plans and shall in no case be less than 10,000 amps symmetrical at the applied voltage.
- E. Enclosures for individually mounted circuit breakers shall be NEMA I for dry locations and NEMA 3R for damp or outside locations. Quality, manufacturer and finish shall be the same as panelboards. Provide a nameplate as specified under "Nameplates".
- F. Submit data on breakers with switchboard or panelboard shop drawings as required under "Submittals". Submittal shall include interrupting capacities in symmetrical amps at the applied voltage. Letter designations are not sufficient.
- 2.4 STARTERS AND CONTACTORS 600 VOLT

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- A. Provide type and rating shown on the plans and as required. Motor starters and contactors with separate enclosures shall be Allen-Bradley, FPE, General Electric, Gould, Square D, Westinghouse or equal. Enclosures shall be NEMA I for interior dry locations and NEMA 3R for exterior or damp locations with ANSI 61 finish.
- B. Starters and contactors furnished or installed under other sections shall comply with special requirements of those sections.
- C. Motor starters shall have thermal overload protection in all phases and shall have an H.O.A. switch on the cover. Each starter or contactor controlling equipment remote from the starter or contactor shall have a red pilot light to indicate equipment is energized.
- D. Refer to mechanical and electrical plans and control diagrams for accessories and equipment such as transformers and auxiliary contacts and provide as a part of the assembly. Verify all requirements for starters and contactors with the actual mechanical system to be installed.
- E. Where shown on the plans, fractional horsepower motors shall have toggle type manual starters with thermal overload protection in each phase. Provide a padlocking-off device on the handle and where the motor is out of sight of the switch provide a pilot light in the cover to indicate switch is closed.
- F. Starters and contactors may be combination type. Disconnects shall comply with section "Disconnect Switches" and circuit breakers shall comply with the section "Circuit Breakers".
- G. Provide nameplates for each starter and contactor identifying the item controlled as specified under "Nameplates".
- H. Submit data on starters and contactors with shop drawings of assemblies where they will be used as required under "Submittals".

2.5 DISCONNECT SWITCHES

- A. Switches shall be by one of the manufacturers specified for switchboards.
- B. Enclosures shall be Heavy Duty. They shall be externally operated, quick-make, quick-break, blade type, of number of poles and rating indicated or required. Switches in motor circuits shall be HP rated.
- C. Enclosures shall be NEMA I for dry, interior locations and NEMA 3R or 4 for damp, wet or exterior locations. Finish shall be ANSI 61. Covers shall have a defeatable interlock. Covers shall be padlockable.
- D. Short circuit withstand ratings shall be RMS symmetrical 200,000 amps.
- E. Switches shall accept fuses of the rating and UL or NEMA class indicated. Plug fuses shall not be used. Provide fusetrons on circuits protecting motors unless otherwise indicated. Fuses shall be installed so that the rating is clearly visible from the front without removing the fuse.
- F. Where the switch is a part of a switchboard assembly, provide mounting hardware to match the switchboard.
- G. Provide a nameplate on each disconnect switch as specified in "Nameplates". Nameplate shall show item controlled, voltage, phase, and source of power.
- H. In case of a substitution of material or equipment protected, the disconnect and fuses shall be resized accordingly.

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I. Submit data sheets of the disconnect switches as required under "Submittals". Where switches are an assembled part of a switchboard, submit with the switchboard shop drawings.

2.6 SNAP SWITCHES

- A. AC general use snap switches shall be toggle handle, quiet operating, premium or heavy duty specification grade, UL listed and verified to meet Federal Specification W-S-896-d and NEMA heavy duty tests. All switches shall be rated 120/277 volts. Switches shall be Hubbell DS 120-20 amp.
- B. Toggle handles shall be white.
- C. For pilot lighting, the toggle handle shall illuminate when the switch is in the "on" position. The light shall be white or amber.
- D. Switches shall be constructed with silver-cadmium alloy contacts, permanent lubrication, and binding head screws suitable for #10 AWG wire. Connection shall be made by wrapping the wire around the screw or tightening a screw clamp. Push-in type connections are not acceptable. Switches may have built-in pigtail connection in lieu of screw connection. Switches shall have means of grounding.
- E. Submit data sheets as required under "Submittals".

2.7 RECEPTACLE OUTLETS

- A. Receptacle outlets shall be standard NEMA configuration, grounding type, specification grade.
- B. General convenience outlets shall be 15 amp or 20 amp, 125 volt, 2 pole, 3 wire. The attachment screw shall have an automatic grounding clip. A green hex head grounding screw shall be connected to the bridge which shall run around a molded plastic body. The bridge shall be securely locked to the body. Outlets shall be UL listed and meet NEMA heavy duty performance tests. Contacts shall be high performance double wipe type. Where indicated, outlets shall have isolated grounding. Outlets shall have binding head screws suitable for #10 AWG wire. Connection shall be made by wrapping the wire around the screw or tightening a wire clamp. Push-in type connections are not acceptable. Outlets may have built-in pigtail connection in lieu of screw connection. The outlet front shall be white. Receptacles shall be Hubbell DR 20DR.
- C. Special outlets, not listed above, shall be standard NEMA configuration for the application shown and shall be of equal grade and quality to those listed above. An approved cord cap or plug shall be furnished with each receptacle outlet except general convenience and clock type. Plug shall be of the same grade, quality and manufacturer as the outlet. Cord caps and plugs shall be of equal quality to the outlets listed above.
- D. Submit data sheets for outlets and plugs as required under "Submittals".

2.8 OUTLET AND JUNCTION BOXES

- A. The size of each outlet or junction box shall be determined by the number and size of wires and conduits entering the box, but shall be not less than 4-inch square and 2-1/8 inches deep unless otherwise indicated.
- B. Outlet and junction boxes for interior use shall be PVC, knockout type, except where other types of boxes are indicated or specified.
- C. All outdoor outlets will be installed in a recessed stainless steel box with a flush, lockable cover with a 20 amp GFCI receptacle and on a separate circuit. (Cole TL310)

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- D. Outlet boxes shall be equipped with plaster rings, extension rings, inserts and fixture studs as may be required. Knockout seals shall be provided where knockouts are not intact.
- E. Telephone outlet boxes shall be 4-11/16" square with single gang rings.

2.9 TRIM AND COVERPLATES

- A. Provide a trim or coverplate for each outlet, receptacle, switch, device and box. Ganged devices shall have gang plates exactly matching the arrangement and quantity of devices.
- B. Plates for flush interior boxes shall be stainless steel.
- C. For surface interior outlet and junction boxes of the pressed steel knockout type, use 1/2" raised galvanized steel plates for devices and flat galvanized steel for blank plates.
- D. All plates for exterior use shall be gasketed and shall have weatherproof covers for devices.
- E. All plates shall fit the box perfectly with no field modification necessary. Surface plates shall not overhang the box. All plates shall be manufactured specifically for the type of outlet, device and box to which they are applied.
- F. Plates for telephone outlets shall have one knockout and shall match device plates.
- G. Special plates or application shall be as indicated on the drawings or otherwise specified.

2.10 PULL, TERMINAL AND SPLICE BOXES

- A. Pullboxes for general above ground use shall be code gauge steel and shall be installed wherever indicated or required in order to facilitate the pulling of wires or cables in conduit. Boxes shall be provided with removable covers secured with machine screws. Where pullboxes are located in damp or wet locations, cover fastening screws or bolts shall be plated with zinc or cadmium and covers shall be gasketed.
- B. Pull, terminal and splice boxes for above ground use shall have a painted or galvanized finish. Paint finish shall be ANSI 61.
- C. Submit shop drawings or data sheets on boxes as required under "Submittals".

2.11 CONDUITS AND FITTINGS

- A. Rigid steel conduit, galvanized or sherardized, shall be used where exposed to the weather for stub-ups, in concrete or masonry construction in contact with the earth, where shown on the plans and may be used for underground work. Fittings shall be of the screw thread type. All joints shall be made liquid and gas-tight. Couplings, lock-nuts, bushings, etc., shall be hot dipped galvanized. Conduits shall be provided with grounding bushings at ends, unless fitted into hubs or similar terminations.
- B. Galvanized steel electrical metallic tubing (EMT) shall be used in above ground, interior, dry locations protected from the weather and physical damage and may be used in concrete or masonry construction not in contact with the earth. Fittings shall be compression type with gland sealing rings or set screw type. Indent, or drive-on fittings will not be permitted. No BX or MC cables will be allowed.
- C. Rigid aluminum conduit may be used in lieu of EMT for sizes over 1" in accessible, interior, dry locations. Fittings shall be suitable for aluminum and shall be of the threaded type. Provide bushings at ends unless fitted into hubs or similar terminations.

ELECTRICAL

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- D. Flexible conduit shall be galvanized steel or aluminum and shall be used where shown on the plans and to connect conduit systems to motors, direct wired and vibrating equipment and as a final connection to lighting fixtures in accessible ceilings. Where used in damp or wet locations it shall be of the liquid-tight type with outer neoprene jacket and suitable liquid-tight fittings. Flexible aluminum conduit shall have a grounding conductor and shall have approved grounding fittings.
- E. Rigid non-metallic conduit shall be used where specifically shown or specified and may be used for underground work. Rigid non-metallic conduit shall be polyvinyl chloride (PVC) Schedule 40, minimum 3/4", except that service conduits shall be of a type approved by the utility. All fittings, solvent cement, etc., shall be manufactured specifically for the type of material and system with which they are used. Joints shall be made liquid and gas-tight by a method recommended by the manufacturer. Non-metallic conduit shall not be used where exposed to public view or access. Stub-ups shall be rigid galvanized steel with grounding bushings. All PVC conduit will be buried below ground level and never be in concrete slab or concrete floor. Outside block walls may be PVC.
- F. Steel conduits and fittings in underground work shall be thoroughly coated with a bitumastic compound to prevent corrosion except where encased in concrete.
- G. Service conduit installations are subject to approval by the serving utilities and shall be installed in strict conformance with their requirements.
- H. All rigid conduit exposed to salt air shall be PVC coated. This includes all exposed conduit inside structure.

2.12 WIRE AND CABLE - 600 VOLT

- A. Deliver all wire and cable to site in original unbroken packages, plainly marked or tagged with Underwriters' label, size and type of conductor, type of insulation, name of manufacturing company, trade name of wire and month and year when manufactured, which date shall not exceed 8 months from delivery to site.
- B. Wire and cable for use on systems of 50 volts to 600 volts shall be 600 volt rated type THW or THHN except where other insulation is specifically indicated. Conductors shall be copper.
- C. Wire and cable for use on systems of below 50 volts shall be 300 volt PVC insulated and suitable for the class of wiring except as otherwise indicated or specified. Conductors shall be copper.
- D. Wire and cable for use in lighting fixtures, heaters and other heat producing equipment shall have suitable heat resistant insulation.
- E. Conductors of number 10 and smaller may be solid. Number 8 and larger shall be stranded.
 - 1. Stranded wire only shall be used where subject to movement, such as for connecting pilot lights on cabinet doors and similar applications. Bundle and support wire in such a way as to avoid tension or flexing at terminals.
 - 2. Where stranded wire is connected to binding screws, nylon, self-insulated, ring tongue, pressure type terminals equal to T & B Sta-kon shall be used on the wire.
- F. All wire sizes are stated in America Wire Gauge (AWG).
- G. One neutral shall be provided for every circuit. No shared neutrals.

2.13 LIGHTING FIXTURES AND LAMPS

ELECTRICAL

- A. Fixture shall be complete with all required accessories and equipment, including lamps, necessary for a complete installation.
- B. Fixtures and trims shall be assembled and installed with care to avoid and eliminate light leaks. Where necessary, gasketing, patching, or other effective means shall be used. There shall be no entry for insects or dirt into any fixture.
- C. Fixtures and luminaries of one type shall be of one manufacturer and of identical finish and appearance.
- D. Contractor shall verify the ceiling or wall construction and the mounting requirements of each fixture and provide plaster frames, special flanges, concrete pour housings, boxes, brackets, adapters, hangers, stems, canopies and other materials necessary to properly mount the fixture.
- E. Fixture shall be supported in conformance with the paragraph "Earthquake Requirements".
- F. Submit shop drawings on all fixtures as required under "Submittals". "Shop Drawings" may be catalog data sheets if complete information including mounting hardware is shown and identified. Shop drawings shall include mounting details and show compatibility with the ceiling, pole, bracket or other equipment.
- G. Contractor shall verify the fire rating of the ceiling or wall construction and provide required fire rated assembly.

2.14 NAMEPLATES AND LABELS

- A. Nameplates shall be furnished for circuit breakers, switches, switchboards, and panelboards which are furnished or installed under this section. Nameplates shall be a minimum size of 1" high and 3" wide by 3/32" thick.
- B. Nameplates, except as noted, shall be engraved laminated black and white plastic with characters cut through the black plastic.
- C. Attach nameplates with 2 cadmium plated steel bolts, or pan-head screws. Adhesive attachment material will not be acceptable.
- D. Provide wire marker on each conductor in electrical panel; pull box, outlet and junction box. This includes disconnects and connections. If more than one neutral conductor is present, mark each related circuit and panel number.
- E. Label outside of all cover plates of wiring devices and junction boxes with circuit and panel number. Each branch circuit device cover plate will be labeled (engraved or silk screen) to indicate branch circuit and panel number. Devices will include, but not be limited to, the following; toggle switches, dimmer switches and receptacle.

2.15 FLUORESCENT BALLASTS

A. Electronic ballasts for fluorescent and T8 rapid start and T5 programmed start lamps shall be high power factor, sound rated A, with Class P auto-reset thermal protection. They shall operate all lamps for which they are designed at a frequency of not less than 20 KHZ without detectable flicker, deliver constant full light output and normal lamp life, be unaffected by lamp failure, be surge and transient protected to 6000 volts, operate at a core temperature not to exceed 60 degrees Centigrade, comply with FCC and NEMA limits for RFI and EMI, limit the input current third harmonic content to 10% maximum, and be physically interchangeable with core and coil type magnetic ballasts.

ELECTRICAL

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B. Ballasts shall be certified by the California Energy Commission in all applicable categories as required by that agency.

2.16 LAMPS:

A. Lamps shall be as indicated on the fixture schedule and shall be manufactured by General Electric, Phillips, Osram/Sylvania or equal. All fluorescent lamps to be 86CRI.

2.17 TIME CLOCKS

- A. All time clocks shall be Tork 7200ZL astronomical, 40 amp contact.
- B Lighting contactor will be provided if more than 2 circuits for outside lights. Install hand, off automatic switch for testing during the day for outside lights.

PART 3 - EXECUTION

3.1 INSTALLATION AND CONNECTION OF ELECTRICAL EQUIPMENT

- A. Where indicated on the plans, equipment furnished by others shall be completely connected to the electrical system as required for correct operation.
- B. All outlets, devices, and equipment furnished under this section shall be fully installed and connected under this section.
- C. Furnish all necessary flexible conduit, boxes, fittings, receptacles, caps, cords, and other material that may be required for the proper installation of all equipment. Refer to manufacturer's directions where applicable.
- D. Coordinate the work carefully to ensure that all electrical requirements of equipment are met and all systems are made complete and operational.

3.2 WORK ON HVAC AND PLUMBING SYSTEMS

- A. Complete power circuits, including breakers, switches, disconnects, wire and conduit, outlets and connections to HVAC and plumbing equipment shall be provided under this section.
- B. Low voltage starters and controller shall be provided under this section except where part of a package unit or panel specified in Division 15. High voltage starters and controllers will be provided under Division 15.
- C. HVAC and plumbing control and interlock wiring regardless of voltage, and conduits for same, will be provided, wired and connected under Division 15 unless specifically noted otherwise on the plans.
- D. Equipment furnished and/or installed under the Electrical section shall be installed in locations and in such a manner as required by the HVAC and Plumbing Section or as directed. The Electrical Contractor shall refer to all other sections of these plans and specifications and coordinate the work to provide complete and correct wiring and conduit systems for HVAC and Plumbing work.
- E. If substitution of controls or mechanical equipment other than that specified requires any changes in the electrical work from that shown on the plans, any extra cost of the equipment or electrical work shall be the responsibility of the HVAC and/or Plumbing Contractor.

3.3 TELEPHONE AND DATA REQUIREMENTS

ELECTRICAL

- A. The Requirements of the Telephone Company where applicable shall be a part of this Specification.
- B. Contractor is to provide all conduits and boxes as indicated on the plans. Conduit and Boxes shall be as specified in this section.
- C. Backboards: Three-quarters inch (3/4") fir plywood, one (1) piece per installation, finished in matte grey, fire retardant.
- D. Provide a complete system or systems of empty conduit, outlets, and terminal cabinets ready for installation of wire and equipment.
- E. Provide wall outlets consisting of a four inch (4") or four and eleven-sixteenths inch (4 11/16") square box and a single device plaster cover set flush where shown, and finished with a blank plate to match other plates in building. Provide stubs for future extension as required.
- F. Provide a three-eighths inch (3/8") polypropylene pull line in each empty conduit.
- G. All telephone and data conduit sizes shown are based on a maximum of two (2) ninety (90) degree bends or a total of one hundred eighty (180) degrees per run. Insert accessible pullbox in run where more than two (2) ninety (90) degree bends are required for a single run of conduit. Inside radius of bends in conduit: Twelve (12) times the internal diameter of the conduit, minimum.

3.4 MISCELLANEOUS WORK

- A Do all miscellaneous metal and concrete work required; all core drilling required; all cutting and patching required; all excavation and backfill required; and provide all hangers, anchors, chases, supports, etc. required for the installation of the electrical systems.
- B. Touch up or refinish damaged surfaces of panels, switchboards, and other equipment worked under this section, to the satisfaction of the Architect.
- C. Backboards required for equipment installed under this section shall be provided under this section and shall be finished with two coats of fire retardant paint.
- D. All work shall be in accordance with applicable portions of the specifications.

3.5 INSTALLATION AND CONNECTION OF WIRING

- A. All wiring shall be installed in conduit except where other raceway systems or methods are specifically shown on the drawings or required.
- B. Thoroughly clean out all conduit and wire-ways and see that all parts are perfectly dry before pulling any wires. Use no lubricant except as recommended by the wire or cable manufacturer.
- C. Make all connections and splices necessary to properly complete the electrical wiring. Connections and splices shall be made only in pull, junction or outlet boxes, or in switchboards, wireways or panels having sufficient code sized gutter space. Connections and splices in 600 volt wires smaller than No. 6 AWG shall be made with "Scotchlok" or "Ideal" or equal spring type connectors and in copper wires No. 6 AWG and larger shall be made with vise or split bolt type solderless connectors and shall be insulated and taped.
- D. Soldering will not be an acceptable method of connecting any power conductors assembled under this work.

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3.6 INSTALLATION OF CONDUIT AND BOXES

- A. All conduit systems shall be mechanically and electrically continuous.
- B. The minimum sizes of conduit shall be code size for the number and size of conductors, unless a larger size is shown, in which case such larger size shall be used.
- C. Conduits shall be run concealed, except in certain approved and indicated locations. Where run exposed, conduit shall be grouped in neat parallel lines following the lines of the building structure as closely as possible.
- D. A 1/8" polyethylene pullrope shall be installed in every run of conduit-only.
- E. Conduit installed on equipment shall not obstruct any removable panel, access door or device. Conduit and boxes shall be installed so as not to interfere with or touch any piping, fixtures, or equipment except where attached to it.
- F. Conduit to be installed in concrete or masonry work shall be carefully laid and rigidly supported in the forms in such a manner as to provide proper clearance and so that all boxes will be flush after forms have been removed.
- G. Threads shall be tapered type, running threads will not be permitted on conduit or nipples.
- H. Not more than four 90-degree or bends or the equivalent shall be used on any single run of conduit, except conduit for telephone cable shall not have more than two 90-degree bends or the equivalent. Where more bends are necessary, provide suitable pullboxes or fittings.
- I. The ends of all conduit shall be square, carefully reamed out to full size, shouldered in the fittings and bushed or capped wherever stubbed or terminated.
- J. Upon completion of any run of conduit, test the run and see that it is free of obstruction. Plug each end with conduit pennies and bushings and leave plugged until ready to pull wire.
- K. Conduit shall not run through footings or grade beams or other structural members except where specifically directed by the structural Engineer.
- L. Conduit shall not pierce roof except where specifically directed and in a manner that will be completely and permanently weather and watertight. Where pitch pans or equivalent are used, they shall be filled level with the top to avoid water accumulation. Where conduit pierces exterior walls, the installation shall be made weatherproof and watertight.
- M. Outlet boxes shall be securely and independently fastened to the structure and in concealed work, shall be supported flush with finished surface of walls or ceilings.
- N. Conduit run on the surface of the structure shall be securely supported with pipe straps or strut type channel assemblies. Conduits suspended below the structure shall be supported with split ring and rod or trapeze assemblies.
- O. Fasteners shall be machine screws, nut and lockwashers in metal; wood screws in wood; or expansion shields or inserts in masonry or concrete. Wooden inserts will not be acceptable. Perforated strap iron shall not be used as a strap, support or hanger in any case.
- P. Conduit run underground and not required to be concrete encased shall be laid on a minimum 3" deep bed of sand so that no stress is induced in the duct and covered with at least 3" of sand before backfilling. Where shown as concrete encased a minimum 3" thick continuous envelope of concrete shall be poured

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around the conduit starting at one end. Concrete for duct encasement shall be at least 3000 psi concrete with 1 inch maximum aggregate.

3.7 GROUNDING

- A. Make good mechanical and electrical contact at all panel boards, switchboards, outlet boxes, junction boxes, and wherever the conduit run is connected. Permanently and effectively ground all switchboards, panelboards, transformers, conduit, fixtures, motors and other equipment as required by all applicable codes, regulations and standards.
- B. Flush wall outlets and switches shall have a bonding wire or approved mounting screw from ground terminal to metal box.
- C. Provide grounding jumper straps across all dielectric unions, water meters and at similar points in the piping system where the ground path can become interrupted. All conduits shall contain a grounding wire which shall be connected to provide a continuous and adequate equipment grounding system. Conduits shall be properly code sized to accommodate the additional grounding wire. Where insulated, the grounding wire shall be green.
- D. Ground rods shall be copper coated steel of length and diameter shown on the plans. They shall be driven vertically leaving the top end not less than 6" below grade.
- E. System neutrals shall be grounded at the sources of power only. The service shall be grounded as required by code.

3.8 CLEANING AND PROTECTION

- A. At frequent intervals during the time he is on the site, the Contractor shall clean up after his work and remove his debris from the premises leaving the building and grounds clean.
- B. Provide adequate protection for all material and equipment worked, furnished or installed under this section. Material and equipment shall be stored in a clean dry place and shall be covered or protected from damage or contamination during storage and after installation.
- C. All material and equipment furnished under this section shall be thoroughly cleaned of cement, plaster, paint spatters, and other foreign materials. Oil and grease spots shall be removed with a non-flammable cleaning solvent. All surfaces shall be carefully wiped clean. Boxes, cabinets and enclosures shall be cleaned, inside and out.

3.9 CHECKING AND TESTING OF EQUIPMENT AND SYSTEMS

- A. Switchgear, panels, disconnects, starters, contactors and all other equipment installed under this section shall be inspected for defects, and tested for proper operation.
- B. Enclosures and cabinets shall be checked for cleanliness inside and out and for defective or damaged finish.
- C. Systems shall be tested for short circuits, open circuits, wrong connections and grounds, and shall be free from mechanical and electrical defects.
- D. Circuits shall be tested for proper neutral and ground connections.
- E. Where required or directed, systems shall be tested in the presence of the Owner to demonstrate that equipment furnished, installed or connected functions in the manner intended.

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- F. The Contractor shall furnish all necessary instruments and equipment required for making his tests, and shall immediately correct any defective work at no additional cost.
- G. Additional testing shall be done as specified in the paragraphs for specific items.
- H. Electrical contractor to hire an independent test lab to provide switchgear ground fault system test as well as pick up current and time delay settings.

3.10 EARTHQUAKE REQUIREMENTS

- A. All electrical material and equipment shall be installed with bracing, cabling or anchoring necessary to comply with the requirements of the California Administration Code Title 21, table T21-23-J.
- B. Pendant, suspended, or stem mounted lighting fixtures shall have a steel stranded aircraft cable attached to the structure and to the fixture at each point of support in addition to the fixture hanger. Cables shall be installed slack and shall be capable of supporting four times the vertical load. The fixture shall be capable of swinging 45 degrees in any direction. Where a 45 degree swing would cause the fixture to strike a wall or other object, suitable cables or other means of bracing shall be added to prevent the fixture from swinging against the other object.
- C. Switchboards and similar equipment shall be anchored to the floor in such a manner as to resist a force of 20% of its operating weight in any direction.

3.11 TRAINING

A User staff and maintenance personnel will be thoroughly trained (minimum of 4 hours) in the use of each electrical system or major piece of equipment installed. This training will be provided as a part of the Contractors bid to supply the system or equipment.

END OF SECTION

APPENDIX H

Asbestos & Lead Management Program





ASBESTOS & LEAD MANAGEMENT PROGRAM

SUMMARY SCOPE OF WORK

SECTION 02081

for

Asbestos Abatement

on

La Jolla Cove Life Guard Station

October 10, 2012

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City of San Diego Environmental Services Department Office of Energy, Sustainability and Environmental Protection Asbestos & Lead Management Program 9601 Ridgehaven Court, Ste 320 San Diego, CA 92123 Tel: (858) 492-5086 Fax: (858) 492-5089

PART 1 - GENERAL

1.1 SUMMARY SCOPE OF WORK

The City of San Diego's Asbestos and Lead Management Program (ALMP) has performed a hazardous materials inspection of the La Jolla Cove Life Guard Station (LGS) to identify asbestos and lead containing materials, and other hazardous materials (refer to Appendix A for a summary). The City will perform the following removal/abatement of asbestos and lead materials prior to the Notice To Proceed (NTP) being issued to the CONTRACTOR. Removal will include the following:

ь.

1) All identified asbestos containing materials (ACM) which includes all roof mastics. The asbestos containing roofing mastic is present throughout the roof on penetrations, seams, and patches.

NOTE: The removal of these materials prior to issuance of NTP shall NOT be included in the cost of this contract.

2.1 <u>SAMPLE COLLECTION</u>

The inspection and sampling performed by the ALMP was conducted without using destructive methods. Therefore, it is possible for the CONTRACTOR to encounter additional suspected hazardous materials within wall cavities or plenum areas. The CONTRACTOR and his staff shall remain vigilant in identifying any suspected materials that not yet been tested throughout work activities.

NOTE: If additional suspected asbestos materials or loose and flaky lead paint are identified, stop work in that area and immediately notify the CONSTRUCTION MANAGER.

As soon as possible, the City will undertake confirmation of the material and determine if abatement is required. If additional abatement is required, the City will conduct such abatement at no cost to the CONTRACTOR.

The CONTRACTOR shall remain out of that work area if abatement is required. There will be no additional financial compensation to the CONTRACTOR during the removal of this asbestos or lead containing materials.

All paint coatings present were sampled at the time of the inspection for lead. If a coating is present and no laboratory results are shown in Appendix A, it shall be assumed to contain lead above acceptable regulatory levels unless the CONTRACTOR performs sampling

through a California Department of Public Health certified Lead Inspector/Assessor to determine otherwise. The CONTRACTOR's sampling results shall be submitted to the City for review and include the state accreditation of the laboratory, sampling information, and related chain of custodies.

If the CONTRACTOR salvages components or building materials that have coatings on them, he shall ensure the lead is disclosed to all persons accepting their salvaged material. Submit to the City a letter of evidence from the person accepting the lead coated salvaged material.

Debris generated from demolition that will be salvaged via crushing shall be segregated into separate piles for lead containing and non-lead containing. The CONTRACTOR shall perform testing for lead on all crushed concrete and other aggregate materials they may be reusing or selling.

After demolition is complete, all loose paint chips present shall be collected by the CONTRACTOR, have a waste characterization performed, and then properly disposed of.

** END OF SECTION **

CITY OF SAN DIEGO LA JOLLA COVE LGS

SECTION 02081-3 SUMMARY SCOPE OF WORK

La Jolla Cove Lifeguard Station

Appendix H - Asbestos & Lead Management Program

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<u>APPENDIX A</u>

LABORATORY RESULTS

1. Overview

The City of San Diego's Asbestos and Lead Management Program (ALMP) was requested to perform asbestos and lead inspection services for the La Jolla Cove LGS. This inspection was completed May 7, 2004.

2. Lead and Asbestos Bulk Sample Laboratory Results

LA JOLLA COVE LIFEGUARD STATION LEAD SAMPLING				
Sample #	Description & Location	Color	Condition	Lead (PPM)
5698-1	Paint throughout Exterior of Facility	Brown	Fair	80
Summary: The painted surfaces are considered acceptable if less than 600 parts per million				

Summary: The painted surfaces are considered acceptable if less than 600 parts per million (PPM).

LA JOLLA COVE LIFEGUARD STATION ASBESTOS SAMPLING			
SAMPLE #	DESCRIPTION & LOCATION	CONDITION	ASBESTOS %
5698-2	ROOFING MASTIC ON SEAMS & Penetrations	GOOD	20

* Information from records of previous sample results

This survey did not include materials concealed behind walls and hard ceilings or below grade. If suspected materials are found during demolition/deconstruction activities that are not mentioned in this report then work must stop in the affected so the materials can be tested.

** END OF APPENDIX A **

CITY OF SAN DIEGO LA JOLLA COVE LGS La Jolla Cove Lifeguard Station

tion Appendix H - Asbestos & Lead Management Program

APPENDIX I

Waste Management Form For Construction and Demolition (C&D) Debris



Waste Management Form for Construction & Demolition (C&D) Debris



Required for projects described in Municipal Code §66.0601-66.0610. Please see Information Bulletin 119 for more information.

PART I Complete this section before obtaining a building or demolition permit. Submit this form and your recycling deposit to the Development Services Department when paying permit fees.						
Approval No Project Title (if applicable)						
Project Address Zip Code						
-						
Property Owner Contact Name Title						
Signature Date						
Phone	Fax		Email			
Contact Mailing Address (if d	ifferent than proj	ect address)				
City	1 0					
-			-			
Project Type (check all that ap				Demolition	1	
	Commerci	ial 🖉 Residentia	al 🖉 Single Fa	amily 🗖 Mult	i-Family 🗖	
Estimated Square Feet			ТО	RE FILLED OUT	Γ BY DSD STAFF	
Estimated Start Date			_		id \$	
			-	~ -	μφ	
Estimated Completion Date _	/	/	<i>DJ</i> _			
Fill out the following tabl Goal : Reduce quantity of		0	0		•	
Indicate quantities in tons for each material listed. Note: A = B + C (Please use the <i>City Construction and Demolition Debris Conversion Rate Tables</i> if converting from volume to tonnage.)						
			L. L.	,	8 /	
Material Type	A Estimated Waste Ouantity	B Estimated Salvage Reuse OR Recycled	C Estimated Disposal	D Hauler	E Facility Destination(s)	
	Estimated	Estimated	C Estimated Disposal	D	E	
Asphalt & Concrete	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures,	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply)	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic)	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new,	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap)	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap) Landscape Debris Unpainted Wood & Pallets Roofing Materials	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap) Landscape Debris Unpainted Wood & Pallets Roofing Materials Scrap Metal	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap) Landscape Debris Unpainted Wood & Pallets Roofing Materials Scrap Metal Stucco	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap) Landscape Debris Unpainted Wood & Pallets Roofing Materials Scrap Metal Stucco Garbage / Trash	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap) Landscape Debris Unpainted Wood & Pallets Roofing Materials Scrap Metal Stucco Garbage / Trash Other (please describe)	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	
Asphalt & Concrete Brick / Masonry / Tile Dirt Mixed Inerts Mixed C&D Debris Cabinets, Doors, Fixtures, Windows (circle all that apply) Carpet Carpet Padding / Foam Cardboard Ceiling Tile (acoustic) Drywall (Used, new, unpainted sheets or scrap) Landscape Debris Unpainted Wood & Pallets Roofing Materials Scrap Metal Stucco Garbage / Trash	Estimated Waste	Estimated Salvage Reuse	C Estimated Disposal	D	E	

ES-008 - 1 -Appendix I - Waste Management Form For Construction & Demolition (C&D) Debris La Jolla Cove Lifeguard Station

PART I Continued

Refer to the table on the previous page and fill in the blanks below to determine your estimated diversion rate.

(Total Column B / Total Column A : _____) x 100 = ____%

For Multi-Family, Commercial and Industrial Projects ONLY (Single family projects do not need to answer this question):

My project complies with Municipal Code §142.0805 which requires certain space allocation for trash and recyclable material storage.

PART II Complete this section after final inspection. Submit with a copy of all diversion and disposal receipts, written statements or photographs documenting on-site reuse or other reuse or donation, and a copy of PART I of this form to apply for your refund.

Send completed form and all documentation to:

City of San Diego Environmental Services Department Attn: C&D Diversion Coordinator 9601 Ridgehaven Court, Suite 320 San Diego, CA 92123

Applicants must submit refund requests within 180 days following project final inspection. Requests submitted after 180 days will not be eligible for a refund. Refunds will not be issued if all requested information and documentation is not provided. Refunds will be mailed within 45 days following receipt of all proper forms and documentation.

Applicant is advised of San Diego Municipal Code section 11.0401(b) which states: "No person willfully shall make a false statement or fail to report any material fact in any application for City license, permit, certificate, employment or other City action under the provisions of the San Diego Municipal Code."

Section A

I certify under penalty of perjury under the laws of the State of California that the information provided in and with this form pertains to construction and demolition debris generated only from the project listed in PART I, that I have reviewed the accuracy of the information, and that the information is true and correct to the best of my knowledge and belief.

Name	Title	
Signature	Date	
Final Inspection Date		
	D refund for this project t	nt person and address than that listed in PART I. o be sent to the person listed in Section C below
Section C Please send refund to:		
Name	_ Address	
City	State	Zip Code
-	•	nvironmental Services Department -services/recycling/cdrecycling.shtml

APPENDIX J

Adjacent Project(s)



SEWER AND WATER REPLACEMENT **GROUP 820**

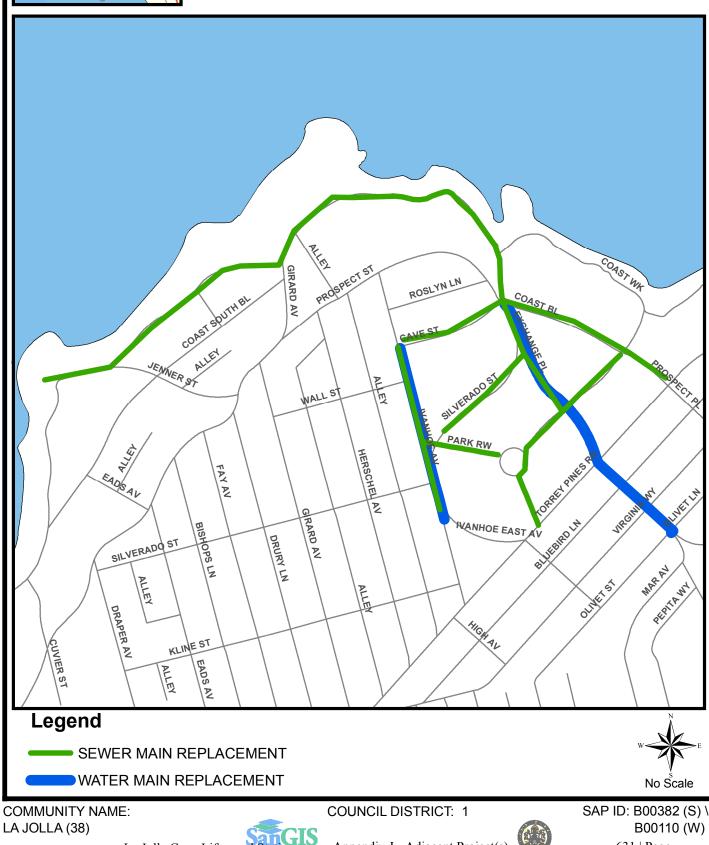
SENIOR ENGINEER WENDY GAMBOA 619-235-1971

PROJECT ENGINEER MERYL JIMENEZ 619-235-1977

PROJECT MANAGER MICHAEL NINH 619-533-7443

CONSTRUCTION PROJECT INFORMATION LINE 619-533-4207





Date: October 11,2012 La Jolla Cove Lifeguard Station



Appendix J - Adjacent Project(s)

B00110 (W) 631 | Page

City of San Diego

CITY CONTACT: Damian Singleton, Contract Specialist, Email: Dsingleton@sandiego.gov Phone No. (619) 533-3482, Fax No. (619) 533-3633

ADDENDUM "A"

FOR



LA JOLLA COVE LIFEGUARD STATION

BID NO.:	K-14-5708-DBB-3
SAP NO. (WBS/IO/CC):	S-00792
CLIENT DEPARTMENT:	1912
COUNCIL DISTRICT:	2
PROJECT TYPE:	BB

BID DUE DATE:

2:00 PM SEPTEMBER 11, 2013 CITY OF SAN DIEGO PUBLIC WORKS CONTRACTING GROUP 1010 SECOND AVENUE, SUITE 1400, MS 614C SAN DIEGO, CA 92101

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

Tony Heinrichs, Director Public Works Department

Dated: *August 20, 2013* San Diego, California

TH/NB/DS/egz

City of San Diego

CITY CONTACT: <u>Damian Singleton, Contract Specialist, Email: Dsingleton@sandiego.gov</u> Phone No. (619) 533-3482, Fax No. (619) 533-3633

ADDENDUM "B"





LA JOLLA COVE LIFEGUARD STATION

BID NO.:	K-14-5708-DBB-3
SAP NO. (WBS/IO/CC):	S-00792
CLIENT DEPARTMENT:	1912
COUNCIL DISTRICT:	2
PROJECT TYPE:	BB
PROJECT TYPE:	ВВ

BID DUE DATE:

2:00 PM SEPTEMBER 11, 2013 CITY OF SAN DIEGO PUBLIC WORKS CONTRACTING GROUP 1010 SECOND AVENUE, SUITE 1400, MS 614C SAN DIEGO, CA 92101

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Architect: 5 J. ROESL RALI RE n .28 Z 2013 Seal: C 10987 IF OF CALIFORN Registered Architect 1) Date O/ Date 129 Seal: For City Engineer 21

ADDENDUM "B"

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Question pertaining to Scope or Specifications

- Q1. Do the contractors need to assign a Project Information Officer (PIO) for the project?
- A1. The PIO is designated by the City however it is recommended for the Contractors to have their own PIOs.
- Q2. Are the contractors responsible to maintain the temporary facilities?
- A2. Yes, they are responsible for maintaining and paying for temporary utilities during construction.
- Q3. Do the contractors need to provide any foundation for the temporary facilities?
- A3. No, they are currently on jacks.
- Q4. How is the traffic controlled during the operation?
- A4. Traffic control is coordinated with the City of San Diego's Field Engineering Division.
- Q5. Please provide Ceramic Tile Colors.
- A5. Since tile colors and names depend on the contractor's proposed manufacturer, the tile colors will be chosen by the Architect from the manufacturer's full range of colors. See Specifications Section 09310, 2.2-A.
- Q6. A4-1.0 Keynote 31, please clarify the counter top material.
- A6. See Detail 9/A6-1.2 Counter to be solid surface material per specification requirements Plan Number 32674-31-D, page 28 of 29 of this addendum.
- Q7. Please provide a manufacturer and color for the solid surface.
- A7. See Specifications Section 06402, 2.1-D for a list of solid surface countertop manufacturers. Color will be selected by the Architect from proposed manufacturer's full range. See Section 2.7 of the Contract for additional requirements.

C. VOLUME 1

- 1. To the Supplementary Special Provisions-Appendices, **ADD** "Appendix K, Appliances Matrix", pages 6 of 29 through 7 of 29 of this Addendum.
- 2. To Appendix G, Technical Specifications, Section 01500 Temporary Facilities and Controls, pages 124 through 132, **DELETE** in its entirety and **SUBSTITUTE** with Section 01500 Temporary Facilities and Controls, pages 8 of 29 through 16 of 29 of this Addendum.

D. PLANS

- 1. To Drawing number 32674-2-D, **DELETE** in its entirety and **REPLACE** with 32674-2-D, page 17 of 29 of this Addendum.
- 2. To Drawing number 32674-13-D, **DELETE** in its entirety and **REPLACE** with 32674-13-D, page 18 of 29 of this Addendum.
- 3. To Drawing number 32674-17-D, **DELETE** in its entirety and **REPLACE** with 32674-17-D, page 19 of 29 of this Addendum.
- 4. To Drawing number 32674-18-D, **DELETE** in its entirety and **REPLACE** with 32674-18-D, page 20 of 29 of this Addendum.
- 5. To Drawing number 32674-20-D, **DELETE** in its entirety and **REPLACE** with 32674-20-D, page 21 of 29 of this Addendum.
- 6. To Drawing number 32674-21-D, **DELETE** in its entirety and **REPLACE** with 32674-21-D, page 22 of 29 of this Addendum.
- 7. To Drawing number 32674-22-D, **DELETE** in its entirety and **REPLACE** with 32674-22-D, page 23 of 29 of this Addendum.
- 8. To Drawing number 32674-23-D, **DELETE** in its entirety and **REPLACE** with 32674-23-D, page 24 of 29 of this Addendum.
- 9. To Drawing number 32674-25-D, **DELETE** in its entirety and **REPLACE** with 32674-25-D, page 25 of 29 of this Addendum.
- 10. To Drawing number 32674-26-D, **DELETE** in its entirety and **REPLACE** with 32674-26-D, page 26 of 29 of this Addendum.
- 11. To Drawing number 32674-27-D, **DELETE** in its entirety and **REPLACE** with 32674-27-D, page 27 of 29 of this Addendum.

- 12. To Drawing number 32674-31-D, **DELETE** in its entirety and **REPLACE** with 32674-31-D, page 28 of 29 of this Addendum.
- 13. To Drawing number 32674-32-D, **DELETE** in its entirety and **REPLACE** with 32674-32-D, age 29 of 29 of this Addendum.

Tony Heinrichs, Director Public Works Department

Dated: *August 28, 2013* San Diego, California

TH/NB/DS/egz

APPENDIX K

APPLIANCES MATRIX

Appliances for the La Jolla Cove Lifeguard Station

ltem	Desc.	<u>Other</u>
GE Profile [™] Series ENERGY STAR® 22.0 Cu. Ft. Refrigerator with External Dispenser Model #: PFSS2MJYSS	Side-by-Side Refrigerator with Bottom Drawer Freezer. Stainless w/ Water Dispenser and Ice Maker	Largest cubic feet that can fit into available opening 22.0 Cu Feet
GE Profile Series Spacemaker® 1.9 Cu. Ft. Over-the-Range Microwave Oven with Recirculating Venting	1.9 Cu ft. installed over countertop	
Model #: PNM1971SRSS		
GE Washer/Dryer Stack Bracket Kit		
Model #: GEFLSTACK		
GE® 2.2 DOE Cu. Ft. Frontload Washer	Color: White	
Model #: WCVH4800KWW	Dimensions: 33 5/16 in x 23 1/2 in x 26 5/8 in	
	TOTAL CAPACITY 2.2 cu ft	
GE® 4.0 Cu.Ft. Capacity Electric Dryer	Color: White:	
Model #: DCVH480EKWW	Dimensions 33 3/8 in x 23 1/2 in x 25 11/16 in	
U-Line under-counter Ice Maker	Marine grade stainless	Produces up to 23
Model #: SS1095NF	steel	pounds of ice daily

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 1 Section "Summary" for limitations on work restrictions and utility interruptions.
 - 2. Division 2 Section "Dewatering" for disposal of ground water at Project site.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary construction facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of authorities having jurisdiction.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.

3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails and with screening fabric around construction and staging sites. Provide vehicular and pedestrian gates with locks.
- B. Wood Enclosure Fence: Plywood, 8 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart. Provide covered walkways required by governing authorities for public rights-or-way.
- C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

2.2 TEMPORARY LIFEGUARD FACILITIES

A. The City owns both a portable modular lifeguard observation tower and a portable modular building that are to be transported and placed at the project site. The modular buildings will be used to temporarily accommodate the Lifeguard requirements for storage, office space and the use of locker rooms, toilet rooms, and shower rooms during the project duration.

As part of the work of this Contract, the Contractor shall provide the following:

- 1. Transport both portable buildings from their storage City location to the project site;
- 2. Provide all required setting devices and bracing necessary to maintain structural stability for the portable buildings during the time it is in use at the project site;
- 3. For the temporary modular observation tower provide a raised platform and set and secure the tower onto the platform. Platform height shall be between 4' to 8'.

The contractor shall work with the lifeguard staff to set the appropriate height and to orient the temporary tower;

- 4. Construct and provide access to the raised platform.
- 5. Construct a code-compliant disable access ramp at the building entrance for the locker room building;
- 6. Provide a temporary electrical power, water, sewer, connections of adequate size to the buildings where required;
- 7. At the end of the project, disconnect the buildings from temporary power, water and sewer ties, disassemble the disabled-accessible ramp and transport the portable buildings back to their location where they were formerly stored;
- 8. Repair any disturbed areas of the park landscape / lawn to original conditions.
- B. The Contractor shall verify the location of adequate power, sewer and water connections at the project site and assure that the connections will be maintained without interruption throughout the life of the project. Utility connections shall be provided in a way so that there is no possibility of injury to staff or to the public for the duration of the project due to the utility connections for the portable building.

2.3 TEMPORARY CONSTRUCTION FACILITIES

- A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.4 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.
- I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.
 - 1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 - 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.

- b. Ambulance service.
- c. Contractor's home office.
- d. Contractor's emergency after-hours telephone number.
- e. Architect's office.
- f. Engineers' offices.
- g. Owner's office.
- h. Principal subcontractors' field and home offices.
- 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Provide limited temporary parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater and groundwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 1 Section "Execution Requirements."
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

- 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- B. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- C. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

1.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 1 Section "Summary."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Division 2 Section "Tree Protection and Trimming."
- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

- G. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and as approved by Owner.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- K. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
 - 1. Construct covered walkways using scaffold or shoring framing.
 - 2. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
 - 3. Paint and maintain appearance of walkway for duration of the Work.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.
 - 3. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.
 - 5. Do not install material that is wet.
 - 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 - 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - 2. Use temporary equipment to control humidity until all wet work have been completed for 14 days.
 - 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.

- b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
- c. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.
- 3.6 OPERATION, TERMINATION, AND REMOVAL
 - A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
 - B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
 - C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
 - D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
 - E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

CITY OF SAN DIEGO LIFEGUARD SERVICES CITY OF SAN DIEGO - ENGINEERING AND CAPITAL PROJECTS DEPT. **LA JOLLA COVE LIFEGUARD STATION** 1160 COAST BLVD., LA JOLLA, CA 92037

ABBREVIATIONS

CONT. CORR. C.O.T. C.T. CTSK DBL. DF. D.F. DG DIA. DIAG. DIM. DISP. DN. DR. DS. DWG (E) EA EJ ELECT. ELEV. ENCL.	ASPHALT CONCRETE ADJUSTABLE ABOVE FINISH FLOOR ABOVE FINISH GRADE ALUMINUM ARCHITECTURAL BOARD BUILDING BLOCKING BEAM BOTTOM OF BEAM BOTTOM OF BEAM BOTTOM BETWEEN CABINET CATCH BASIN CONTRACTOR FURNISHED – OWNER INSTALLED CAST IN PLACE COLD JOINT CONTROL JOINT CHAIN LINK CEILING CLEAR CONCRETE MASONRY UNIT CLEAN OUT COLUMN COMPOSITION CONCRETE CONNECTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONTINUOUS CORRIDOR CENTER OF TRUSS CERAMIC TILE COUNTERSINK DOUBLE DOUGLAS FIR DRINKING FOUNTAIN DECOMPOSED GRANITE DIAMETER DIAGONAL DISPENSER DOWN DOOR DOWN DOOR EXISTING EXISTING EXISTING EACH EXPANSION JOINT ELECTRICAL ELEVATION ENCLOSURE	F.B. F.D. FDN. F.E. F.E.C. F.F. F.F.E. FIN. FLASH'G FLR. F.O.C. F.O.F. F.O.F. F.O.S. FRAM'G FRP FT. FTG. F.V. GA. GALV. G.I. GL. GLB. GOV'T GYP. BD. H.D. HDR. HDR. HDR. HDR. HDR. HDR. HD	FIRE BLANKET FLOOR DRAIN FOUNDATION FIRE EXTINGUISHER FIRE EXTINGUISHER FIRE EXTINGUISHER FINISH FLOOR ELEX FINISH FLOOR ELEX FINISH FLOOR ELEX FINISH FLOOR ELEX FINISH FLOOR ELEX FLOOR FACE OF CONCRET FACE OF MASONRY FACE OF STUD FRAMING FIBERGLASS REINFO PANELS FOOT (OR FEET) FOOTING FIELD VERIFY GAUGE GALVANIZED GALVANIZED IRON GLASS GLU-LAM BEAM GOVERNMENT GYPSUM BOARD HOLD DOWN HARDWARE HEADER HANGER HORIZONTAL HOLD DOWN HARDWARE HEADER HANGER HORIZONTAL HOLD W METAL HOUR HEIGHT INSULATION INTERIOR JOINT JOIST LAMINATE LAVATORY LIGHT MATERIAL MAXIMUM MACHINE BOLT MECHANICAL MANUFACTURER MINIMUM MINUTE MISCELLANEOUS MASONRY OPENING MOISTURE RESISTAN METAL NEW NOT IN CONTRACT NUMBER NOT TO SCALE OVER ON CENTER OWNER FURNISHED	R CABINET VATION E ORCED	O.H. OPN'G OPP. PB PERF. PL. PLAST. PLYWD. PR. PROJ. P.T.D.F. REC.S REFL. REFRIG. REF. REFRIG. RET. REF. REF. RM. ROOF'G S.C. SDRSD SHT'G SHT. SJM. SJ S.M.S. SQ. S.S. STD. STL. STOR. ST. ST. ST. ST. ST. ST. ST. ST. ST. ST	ROOF DRAIN RECOMMENDATIONS REFLECTED REFRIGERATOR REINFORCED (OR REINFORCEMENT) REQUIRED RETAINING ROOF ROOF ROOM ROOFING SOLID CORE SCHEDULE SAN DIEGO REGIONAL STANDARD DRAWINGS SHEATHING SHEET SIMILAR SAWCUT JOINT SHEET METAL SCREWS SQUARE STAINLESS STEEL STANDARD STEEL STORAGE STRUCTURAL SUSPENDED TOILET ACCESSORY TOP & BOTTOM TELEPHONE TEMPERED TOP OF GRATE TOOLED JOINT TOP OF GRATE TOOLED JOINT TOP OF MASONRY TOP OF PARAPET TUBE STEEL TOP OF WALL TYPICAL UNLESS NOTED OTHERWISE UNLESS OTHERWISE NOTED	78 NE 78 NE 71 EX INDICATES SL 2 DE A4 SH C SE A4 SH C SO Z CO SO CO INDICATES SO C SO C SO Z O SO CO INDICATES SO CO SO Z CO SO CO SO CO INDICATES SO INDICATES SO
EQ. EQUIP. EXIST. EXT.	EQUAL EQUIPMENT EXISTING EXTERIOR	0.F.C.I. 0.F.O.I. 0.P.C.I.	OWNER FURNISHED CONTRACTOR INSTA OWNER FURNISHED INSTALLED OWNER PROVIDED - CONTRACTOR INSTA	LLED – OWNER	W/ W.C. WD. W.J. W.P. W.R.	DOUGLAS FIR WITH WATERCLOSET WOOD WEAKENED JOINT WATERPROOF WATER RESISTANT	2. ALL DRAINAGE SHALL BE DIREC IMPROVED PUBL SYSTEM OR PUB ALL DRAINAGE DISCHARGED IN BLUFF.
	REFER	ENCE		ENTS	₩T.	WEIGHT	3. THE CONTRACTO CITY ENGINEER.
STANDAR DOCUMEN CITY OF DOCUMEN CALIFORN SUPPLEM DOCUMEN 2. STANDAR CITY OF DOCUMEN 3. EQUAL O STANDAR	AD SPECIFICATIONS: AD SPECIFICATIONS FOR PUBLIC WORK AT NO. PITS050409-01, FILED MAY 4 SAN DIEGO SUPPLEMENT, 2009 UPDA AT NO. PITS050409-02, FILED MAY 4 AND DEPARTMENT OF TRANSPORTATION ENT AND THE CITY OF SAN DIEGO SI AT NO. AEC1231064, FILED DECEMBER AD DRAWINGS: SAN DIEGO STANDARD DRAWINGS INC AT NO. AEC1231063, FILED DECEMBER PPORTUNITY PROGRAM REQUIREMENT: AD FEDERAL EQUAL EMPLOYMENT OPP AT NO. 769023, FILED SEPTEMBER 11	S CONSTRUCTIO , 2012 ATE , 2012 N, MANUAL OF GN BOOK, 2003 6, 2006 CLUDING ALL RE 2 31, 2012. S: PORTUNITY CONS	UNIFORM TRAFFIC CONTRO 5 EDITION GIONAL STANDARD DRAWN	BOOK" DE DEVICES (MUTCI			 USED, EQUIPMENTHE CONSTRUCT CONDUCTED TO RESOURCES, PR POSSIBLE. ANY CITY MANAGER. 4. CONSTRUCTION SHALL BE MANA 5. THE PROJECT S 6. ANY TEMPORAR WILL REQUIRE R 7. IF GRADING EXC THE REQUIREMENT
CHANGE	CONSTRUCTION CH DATE AFFECTED OR ADDED S	ANGE / ADDEN	APPROVAL NO.	-		-	
ADD. B	8/14/13 T-2.0, AS-1.1, A1-1.0, A1-1 A2-1.1, A3-1.0, A3-1.2, A4- A6-1.2, A6-1.3			0	1	CITY OF	SAN DI
				IF THIS BAR MEASURE 1" T IS NOT TO	HEN DRAWING	PUBLIC	WORKS

SYMBOLS

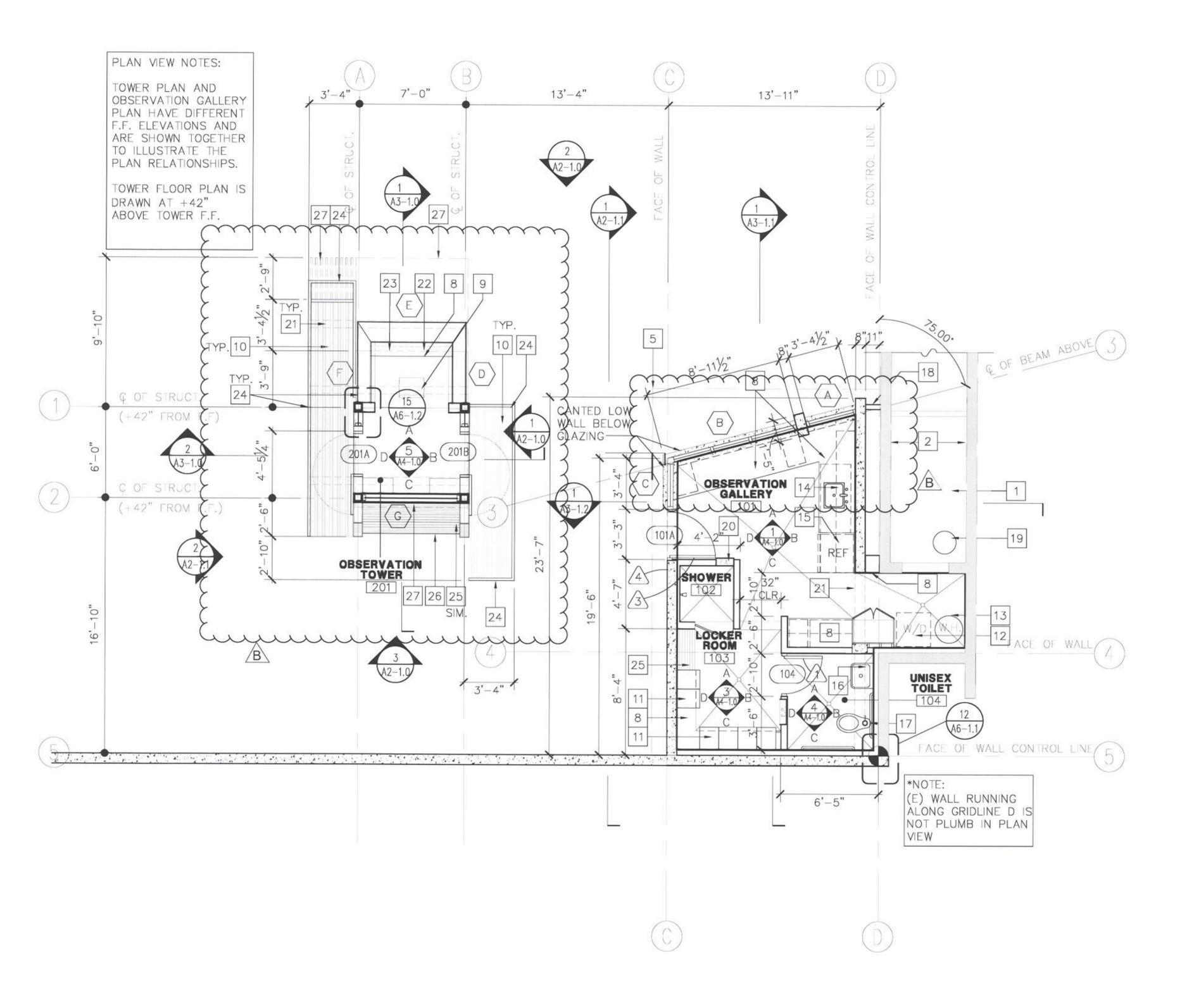
GENERAL NOTES

PROPERTY LINE THE PLYWOOD	1. THE PROJECT SPECIFICATIONS ISSUED AS PART OF THESE CONSTRUCTION DO INTEGRAL PART OF THE CONTRACT DOCUMENTS.
NEW OR FINISHED CONTOURS	 THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THAT ALL WORK MATERIALS AND CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE APPLICA FEDERAL REQUIREMENTS AND REGULATIONS.
EXISTING CONTOURS WD. BLOCKING WD. CONT. MEMBER	3. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL DIMENSIONS PRIOR
SLOPING SURFACE WORK POINT, CONNECTION POINT	BID. THE CONTRACTOR IS ALSO RESPONSIBLE FOR OBTAINING ALL REQUIRED 4. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, GRADES, ELEVATION
DETAIL NUMBER	DIMENSIONS BEFORE STARTING WORK. THE RESIDENT ENGINEER (R.E.) SHALL IMMEDIATELY OF ANY DISCREPANCIES OR INCONSISTENCIES.
SECTION NUMBER SHEET SECTION APPEARS ON (101A) DOOR NUMBER REFERENCE	5. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL EXISTING UTILITY AREA TO BE EXCAVATED PRIOR TO THE BEGINNING OF EXCAVATION. THE CO PROTECT ALL UTILITY LINES, SERVICE LINES TO REMAIN WHICH ARE ENCOUNT CONSTRUCTION.
CONCRETE 4A WALL TYPE REFERENCE	 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENFORCEMENT OF FEDER CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REQUIREMENT REGULATIONS.
SOIL a SIGN TYPE REFERENCE	7. DO NOT SCALE ANY DRAWINGS IN THIS SET.
ALIGN FINISHES	8. ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, S DETAILS. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GEN TYPICAL DETAILS.
	9. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WO AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE RES (R.E.) IMMEDIATELY BEFORE PROCEEDING WITH ANY WORK SO INVOLVED. NO BE MADE UNLESS THE ARCHITECT AND THE OWNER ARE NOTIFIED IN WRITING SUCH A CHANGE ACCORDING TO THE CONTRACT.
	10. THE ARCHITECT IS NOT RESPONSIBLE FOR HAZARDOUS MATERIALS ABATEMEN
	11. PROVIDE BACKING AT ALL INDICATED FIXTURES, TOILET ACCESSORIES, SIGNS, LOCATIONS.
	12. DURING CONSTRUCTION PERIOD, MATERIALS OF CONSTRUCTION SHALL BE SPR ON FRAMED FLOORS OR ROOF. THE LOAD SHALL NOT EXCEED THE DESIGN L EACH PARTICULAR LEVEL.
	13. ITEMS SHOWN AS N.I.C. ON PLANS MAY REQUIRE SEPARATE SUBMITTALS, APP PERMITS. INSTALLING CONTRACTOR(S) IS RESPONSIBLE FOR OBTAINING PERMITEMS.
	14. CONTRACTOR SHALL VERIFY MINIMUM 1.5% SITE DRAINAGE TO DRAINAGE INLET OTHERWISE NOTED.
	15. CONTRACTOR SHALL ENSURE ALL FINISH MATERIALS BE FLUSH WHERE NEW FI MATERIAL JOINS EXISTING TO PROVIDE SMOOTH TRANSITION.
	16. SAFETY GLAZING IN HAZARDOUS LOCATIONS SUCH AS GLASS DOORS, GLAZING SUCH DOORS AND GLAZING ADJACENT TO WALKWAY SURFACES TO COMPLY W C.B.C., APPLICABLE EDITION.
	17. ALL ITEMS INDICATED ON THE DRAWINGS ARE NEW UNLESS OTHERWISE NOTED
SITE PROTECTION NOTES	18. ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS
ALLY SENSITIVE LANDS THAT ARE OUTSIDE OF THE ALLOWABLE	19. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL OF
FAREA SHALL BE LEFT IN A NATURAL STATE. E FROM THE CONSTRUCTION AND PROJECT IMPROVEMENTS ON THE PREMISES RECTED AWAY FROM ANY COASTAL BLUFF AND EITHER INTO AN EXISTING OR IBLIC STORM SYSTEM OR ONTO A STREET DEVELOPED WITH A GUTTER PUBLIC RIGHT-OF-WAY DESIGNATED TO CARRY SURFACE DRAINAGE RUN-OFF. E FROM UNIMPROVED AREAS SHALL BE APPROPRIATELY COLLECTED AND IN ORDER TO REDUCE, CONTROL, OR MITIGATE EROSION OF THE COASTAL	20. CONTRACTOR SHALL CONDUCT A PRE-INSTALLATION CONFERENCE, INCLUDING SUBCONTRACTORS, TO REVIEW AND COORDINATE ROUTING AND LAYOUT OF PIF LIGHT FIXTURES, RECESSED CHASES IN WOOD CEILING, AND OTHER VISUALLY I MOUNTED ITEMS WITH ARCHITECT FOR APPROVAL PRIOR TO START OF WORK. PIPES, WHERE VISUALLY EXPOSED, SHALL BE NEATLY INSTALLED, WHICH MAY THE SHORTEST DISTANCE/ROUTING NOR THE MOST EFFICIENT INSTALLATION/PI CONTRACTOR WILL NOT BE ALLOWED TO REQUEST ADDITIONAL COMPENSATION REQUIRED TO ACHIEVE A VISUALLY ACCEPTABLE INSTALLATION.
R. THE SCHEDULE STALL DETAIL THE CONSTRUCTION METHODS TO BE	21. WELDS SHALL BE GROUND SMOOTH AT ALL STRUCTURAL AND MISC. STEEL (A STEEL) FABRICATIONS EXPOSED TO VIEW.
ANT TO BE USED, ROUTES OF ACCESS, AND ANY ACTIVITY NECESSARY FOR	22. ALL (EXPOSED AND CONCEALED) STRUCTURAL AND MISCELLANEOUS STEEL (EX INTERIOR) SHALL BE HOT-DIP GALVANIZED UNLESS OTHERWISE NOTED.
PROPERTIES AND THE SURROUNDING AREAS TO THE GREATEST EXTENT	 ALL HOT-DIP GALVANIZED STEEL THAT WILL RECEIVE A HIGH-PERFORMANCE O BARE AND UNTREATED (NON-PASSIVATED).
N SHALL BE PERMITTED PROVIDED THAT ALL CONSTRUCTION MATERIALS	24. ALL EXPOSED AND PARTIALLY EXPOSED HOT-DIP GALVANIZED STEEL SHALL B
SHALL HAVE NO NET LOSS OF ON-STREET PARKING.	25. ALL EXPOSED STAINLESS STEEL THAT DOES NOT RECEIVE HP PAINT SHALL BE
ARY STORAGE OF EQUIPMENT OR MATERIALS AND ACTIVITIES ON THE BEACH	OR BETTER.
XCEEDS 1,000 CUBIC YARDS, PROVIDE PALEONTOLOGICAL MONITORIING PER	CONSULTANT
DIEGO S PROJECT	ROESLING NAKAMURA TERADA ARCHITECTS 363 Fifth Avenue San Diego, California 92101 P619.233,1023 www.mtarchitects.com
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		LC	GAL	DESC	RIPTIC					
ITS IS AN				AS BLOCK	58, LA JOLLA	PARK, MAP THEROF				
HP, ODES AND	NO. 352, FILED MARCH 22, 1887. THE .05 ACRE PROJECT SITE IS LOCATED AT 1160 COAST BOULEVARD IN THE RS-1-7 ZONE COASTAL OVERAL ZONE SENSITIVE COASTAL OVERLAX ZONE COASTAL REICHT									
JBMITTING A	ZONE, COASTAL OVERAL ZONE, SENSITIVE COASTAL OVERLAY ZONE, COASTAL HEIGHT LIMITATION OVERLAY ZONE, COASTAL IMPACT AND BEACH IMPACT OVERLAY ZONE AND RESIDENTIAL TANEM PARKING OVERLAY ZONE WITHIN THE LA JOLLA COMMUNITY PLANNING AREA.									
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ENGINEER SES ARE TO	1. AT THE OBSERVA									
ξ	FIVE-WINDOW PLANEL SHOWN ON SHEETS A1	ALTERNATIVE	THAT REPL	ACE THE TH	REE-WINDOWS	TYPE D, E AND F AS				
RAILS, ETO	THE WINDOW PANELS S VERTICAL OUTWARD INC PANEL WITH A MIN. 13	CLINE. EACH 2 DEGREE A	H GLASS PA	NEL SHALL E	BE BUTTED NEX	T TO THE ADJOINING				
UT IF PLACED	MAX WITH CLEAR CAUL	KING INFILL.	N LIEU OF TI	HE THREE-P	ANEL DESIGN (CURRENTLY SHOWN ON				
S AND	THE PLANS. ALL OTHER THE DESIGN SHALL BE	R DESIGN AN	ND SPECIFCA	TION REQUIR	EMENTS SHALL	APPLY.				
R SUCH	REPRESENTATIVES BEFO	ORE FABRICA	TION AND IN	STALLATION						
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SURFACE	uuu				uuu	B				
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SURFACE ACENT TO ECTION 2406 CES. NVOLVED CONDUITS,						B				
CES. NVOLVED CONDUITS, ED CEILING DUITS AND ESULT IN						B				
CES. IVOLVED CONDUITS, D CEILING UITS AND ESULT IN E.			BID SI	JBMITT	'AL	B				
CES. VOLVED CONDUITS, D CEILING UITS AND ESULT IN E. FFORTS		JOLLA								
URFACE CENT TO CTION 2406 CES. VOLVED ONDUITS, D CEILING UITS AND ESULT IN E. FFORTS		JOLLA			JARD ST					
CES. IVOLVED CONDUITS, ED CEILING OUITS AND ESULT IN E. IFFORTS AINLESS AND			COVE	LIFEGU	JARD ST					
SURFACE CENT TO CTION 2406 CES. VOLVED CONDUITS, ED CEILING DUITS AND	LA Sheet title: G	ENERA	COVE	LIFEGU ES & S	JARD ST	ATION LA, CALIFORNIA SHEET NO: T-2.0				
URFACE CENT TO CTION 2406 CES. VOLVED CONDUITS, D CEILING UITS AND ESULT IN E. FFORTS AINLESS AND S SHALL BE	LA Sheet title: G	ENERA	COVE	LIFEGU ES & S , CA	JARD ST	ATION LA, CALIFORNIA SHEET NO: T-2.0				
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RFACE INT TO TON 2406 S. DLVED NDUITS, CEILING TS AND OULT IN TORTS ILESS AND SHALL BE ED WITH A AINLESS	LA Sheet title: G	ENERA	COVE L NOT AN DIEGO	LIFEGU ES & S , CA DEPARTMENT	JARD ST LA JOL	ATION LA, CALIFORNIA SHEET NO: T-2.0 WBS S00792				
RFACE ENT TO FION 2406 SILON 2406 SULT IN FORTS AND SULT IN FORTS AND SHALL BE ED WITH A AINLESS	LA SHEET TITLE: G CHY ENGINEER	ENERA	COVE L NOT AN DIEGO TAL PROJECTS OF 67_SHEE	LIFEGU ES & S , CA ; DEPARTMENT IS &/ 19 / DATE	JARD ST LA JOL SYMBOLS	ATION LA, CALIFORNIA SHEET NO: T-2.0 WBS S00792 NO. ELIF CETIN ASSOCIATE ENGINEER JIHAD SLEIMAN				
RFACE ENT TO TION 2406 ES. OLVED NDUITS, CEILING ITS AND SULT IN FORTS NLESS AND SHALL BE ED WITH A AINLESS	LA SHEET TITLE: G C ENGINEER DESCRIPTION	BY	COVE L NOT AN DIEGO TAL PROJECTS OF 67_SHEE	LIFEGU ES & S , CA DEPARTMENT IS &/19/ DATE DATE	JARD ST LA JOL SYMBOLS	ATION LA, CALIFORNIA SHEET NO: T-2.0 WBS S00792 NO. ELIF CETIN ASSOCIATE ENGINEER				
RFACE ENT TO TION 2406 S. OLVED NDUITS, CEILING ITS AND SULT IN FORTS NLESS AND SHALL BE ED WITH A AINLESS	LA SHEET TITLE: C ENGINEER DESCRIPTION BID SUBMITTAL	BY	COVE L NOT AN DIEGO TAL PROJECTS OF 67_SHEE	LIFEGU ES & S , CA DEPARTMENT IS Ø/19/ DATE DATE 5/1/13	JARD ST LA JOL SYMBOLS	ATION LA, CALIFORNIA SHEET NO: T-2.0 WBS S00792 NO. ELIF CETIN ASSOCIATE ENGINEER JIHAD SLEIMAN				
AND SHALL BE	LA SHEET TITLE: C ENGINEER DESCRIPTION BID SUBMITTAL	BY	COVE L NOT AN DIEGO TAL PROJECTS OF 67_SHEE	LIFEGU ES & S , CA DEPARTMENT IS Ø/19/ DATE DATE 5/1/13	JARD ST LA JOL SYMBOLS	ATION LA, CALIFORNIA SHEET NO: T-2.0 WBS S00792 NO. ELIF CETIN ASSOCIATE ENGINEER JIHAD SLEIMAN				
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RFACE ENT TO TION 2406 S. OLVED NDUITS, CEILING ITS AND SULT IN FORTS NLESS AND SHALL BE ED WITH A AINLESS	LA SHEET TITLE: C ENGINEER DESCRIPTION BID SUBMITTAL	BY	COVE	LIFEGU ES & S , CA DEPARTMENT IS Ø/19/ DATE DATE 5/1/13	JARD ST LA JOL SYMBOLS	ATION LA, CALIFORNIA SHEET NO: T-2.0 WBS S00792 WBS S00792 ELIF CETIN ASSOCIATE ENGINEER JIHAD SLEIMAN PROJECT ENGINEER				



	GENERAL NOTES
	1. HIGHEST POINT ON ROOF SHALL NOT EXCEED ELEVATION 35.0'
30-1-1	2. EXISTING AND PROPOSED GRADES TO MATCH
251	 SEE SHEETS AD-1.0 FOR SITE DEMOLITION PLANS SEE LOWER LEVEL SITE PLAN AND ROOF PLANS FOR ADDITIONAL INFO.
~_) 	5. CONTRACTOR SHALL BE RESPONSIBLE FOR EMERGENCY VEHICLE ACCESS DURING CONSTRUCTION.
642	6. CONTRACTOR SHALL PROTECT EXISTING PALM TREES FROM DAMAGE
141	DURING CONSTRUCTION.
	7. CONTRACTOR SHALL PROTECT EXISTING CONC. SEA WALL FROM DAMAGE DURING CONSTRUCTION.
05 (/	8. ALL ITEMS ARE NEW U.O.N.
TA:	9. SEE CIVIL, LANDSCAPE, STRUCTURAL. ELECTRICAL MECHANICAL AND PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.
1 7 1	LEGEND
	CONCRETE DECK - FINISH: RETARDER (CHEMICAL SURFACE RETARDER, TOP-CAST "05 SANDBLAST FINISH", OR
	APPROVED EQUAL) COLOR: NATURAL. SEE A1-1.2
/	CONCRETE PAVING - SEE CIVIL DRAWINGS FOR ADDITIONAL INFO
	(E) WALL TO REMAIN
1.	(#) SIGNAGE PER SIGN SCHEDULE. SEE A5-1.1
	KEYNOTES
	1 (E) CONCRETE STAIRS OR PAVING TO REMAIN
1 million	2 (E) CONCRETE WALLS TO REMAIN
1	3 LINE OF (N) BUILDING BELOW
	4 PLANTER – SEE LANDSCAPE 5 C.I.P. CONCRETE VIEW DECK
	6 C.I.P. STAIRS. SEE 9/AS-2.1
	7 C.I.P. PAVING MATCH EXISTING
	8 OBSERVATION TOWER VIEW PLATFORM
	9 ACCESSIBLE RAMP. SEE 14/AS-2.0
	10 C.I.P. RETAINING WALL. SEE CIVIL
	11 GUARDRAIL @ VIEW DECK. SEE 6&8/A6-1.3
	12 GUARDRAIL W/HANDRAIL. SEE 7&9/AS-2.1
	13GUARDRAIL ONLY. SEE 7/AS-2.114TOWER GUARDRAIL. SEE 3 & 5 /A6-1.4
	15 (E) CONCRETE CURB TO REMAIN
	16 ELEC. METER PEDESTAL W/ CONC PAD PER ELECTRICAL.
	17 S.S. VERTICAL SIGN POST
	18 BOLLARD FIXTURE PER ELECT. W/ CONC FTG. PER MFG.
	19 (N) CONCRETE BENCH WITH OPEN STORAGE BELOW. SEE 12/AS-2.0
	20 INFORMATION BOARD (N.I.C.) 21 ALUM. GATE. MATCH GUARD RAIL PER DTL. 5/A6-1.4
/	22 (E) TREE TO BE REMOVED.
//	23 (N) PALM TREE. SEE LANDSCAPE DRAWINGS
	24 DRAIN PER CIVIL
	25 EDGE OF PLANTER / (N) CURB. MATCH (E)
//	26 (E) BENCH. FASTEN IN PLACE. COORDINATE WITH OWNER
/	27 (E) PALM TREE TO REMAIN
-	28 (E) STORM DRAIN
5)	29 (N) C.I.P. SIGNAGE WALL. SEE 19/AS-2.0 30 (N) ALUM. FLAG POLE - 30' MAX HT. FROM ADJACENT GRADE. SEE
-	16/AS-2.1
	BID SUBMITTAL
	SUD SUDMITTAL
	LA JOLLA COVE LIFEGUARD STATION
	SHEET TITLE: SHEET NO:
	MVNVN
	ARCHITECTS INC UPPER LEVEL SITE PLAN AS-1.1
	Sas Fifth Avenue San Diego, California 92101 P619.233.1023 CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
	ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 13 OF 67 SHEETS NO. S00792
	FOR DITY ENGINEER 18/19/13 ELIF CETIN
	DESCRIPTION BY APPROVED DATE FILMED JIHAD SLEIMAN
1	BID SUBMITTAL RE 5/1/13 PROJECT MANAGER ADDENDUM B RE 8/14/13
	NO. C 1987
·-0"/	BEN 2-28/5 T LAMBERT COORDINATES



OBSERVATION TOWER & OBSERVATION ROOM FLOOR PLAN

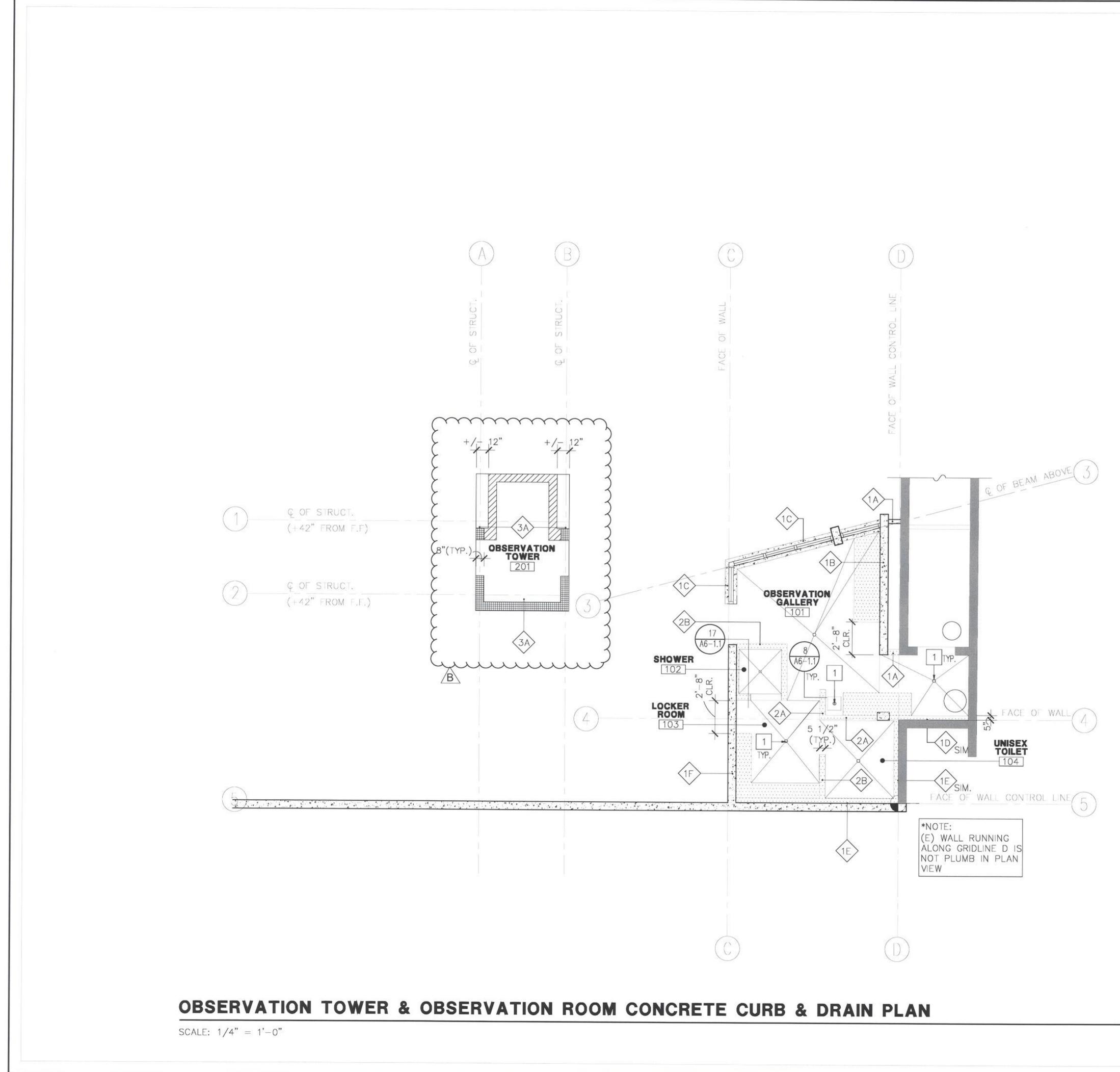
SCALE: 1/4" = 1'-0"

ADDENDUM "B"

GENERAL	NOTES						
		TEEL SUALL					
1. ALL STRUCTURA AND FINISHED V	WITH A HIGH-PE						
 ALL ITEMS ARE SEE SHEET A6- 		TYPES					
LEGEND							
(E) WALL 1	O REMAIN						
(N) C.I.P. (CONCRETE WALL	7					
(N) WOOD	STUD WALL ON	TOP OF 4"	HIGH CONCRE	ETE CURB			
\leq	DOOR SCHEDUL						
X WINDOW TY	PE PER SCEDUL	_e – see A	\5-1.0				
X SIGN TYPE							
SHEET KE	EY NOTE	ES					
1 (E) STAIR TO	REMAIN						
2 (E) WALL TO	REMAIN						
3 C.I.P. CONCRE	TE WALL-SEE S	STRUCT.					
4 FLOOR DRAIN							
5 C.I.P. CONCRE	TE VIEWING PLA	TFORM AB	OVE				
6 C.I.P. CONCRE	TE STAIR						
7 BUTT-JOINT (LAZING						
8 BUILT IN CASI	EWORK						
9 OBSERVATION	SEATING						
10 2X REDWOOD	PLATFORM DEC	К					
11 PLASTIC LOCK	ERS						
12 STACKABLE W	ASHER/DRYER						
13 WATER HEATE	R – SEE PLUM	- SEE PLUMBING					
14 KITCHEN SINK	- SEE PLUMBING						
15 REFRIGERATOR	2						
16 LAVATORY -	SEE PLUMBING						
17 WATER CLOSE	T – SEE PLUME	BING					
18 LOUVER - SE	E 14/A6-1.1						
19 NEW WASTE C	OLLECTION TAN	K AND PUN	IP. SEE PLUME	BING			
20 FIRE EXTIGUIS	HER - SEE 5/	A6-1.8					
21 STRUCT. BEAM	ABOVE – SEE	STRUCTUR	RAL				
22 EDGE OF CON	CRETE SLAB BE	LOW					
23 LINE OF GLAS	S @ FLOOR LEV	/EL					
24 TOWER GUARD	RAIL, SEE 3 &	5 / A6-1	.4				
25 WOOD BENCH.	SEE 19/A6-1.	8					
26 END OF STRU	CTURE @ GROUI	ND LEVEL					
27 ROOF ABOVE							
TECTS							
ONITECTS		BID 3	UBMITTAL	•			
۵	LA JOLLA	COVE	LIFEGUAR	D STATION			
0 m 0				LA JOLLA, CALIFORN			
A UMANAN OL	SHEET TITLE: OBSERV.	TOWER	8	SHEET NO:			
DESLING NAKAMURA TERADA CHITECTS INC			OOR PLAN	A1-1.0			
3 Fifth Avenue n Diego, California 92101 19.233.1023		AN DIEGO, ND CAPITAL PROJEC	CALIFORNIA cts department	WBS # NO \$00792			
w.mtarchitects.com	SHE DIV	TT OF 67 SH	IEETS				
<	FOR CITY ENGINEER	1 1 1	DATE FILMED	ELIF CETIN SECTION HEAD			
ALSED ARCHYA	BID SUBMITTAL	RE	5/1/13	JIHAD SLEIMAN PROJECT MANAGER			
RALPH J. ROESLING	ADDENDUM B	RE	8/14/13	CONTROL CERTIFICATION			
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B REVISIONS TO LIFEGUARD TOWER GLAZING AND ALL ASSOCIATED COMPONENTS REVISIONS TO LIFEGUARD TOWER WORK COUNTER AND ALL ASSOCIATED COMPONENTS REVISIONS TO LIFEGUARD OBSERVATION ROOM STOREFRONT WINDOWS AND ALL ASSOCIATED COMPONENTS

1



August 28, 2013 La Jolla Cove Lifeguard Station

ADDENDUM "B"

GENERAL NOTES

- 1. ALL CURBS TO HAVE 1/2" COVED FLOOR TO CURB CORNERS
- 2. ALL CURBS TO HAVE 1/4" EASED TOP EDGES
- 3. ALL EXPOSED CONCRETE TO BE SEALED
- 3. VERIFY DEPTHS OF CURBS PER CABINET DEPTH AT EA. LOCATION

LEGEND

(E) WALL TO REMAIN

(N) C.I.P. CONCRETE WALL

(N)	4"
 WAI	

" RAISED CONCRETE CURB

(#) WALL TYPE - SEE SHEET A6-1.1

2" HIGH CURB - FULL HEIGHT GLAZING LOCATION - SEE 9 & 10 /A6-1.2

2" HIGH CURB - 2X6 STUD WALL LOCATION - SEE 7 /A6-1.2

1 DRAIN PER PLUMBING

	ACHITECTS		BID	SUB	міт:	TAL	
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		DESCRIPTION	BY	APPROVED	DATE	FILMED	JIHAD SLEIMAN
	LISED ARCH	BID SUBMITTAL	RE		5/1/13		PROJECT MANAGER
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1) (NO. C 10987						CONTROL CERTIFICATION
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	E OF CALIFO	CONTRACTOR		STARTED COMPLETED			32674-18-D



(A)

8

10

5

5

A6-1.1

A2-1.0

OBSERVATION TOWER

201

5

Q OF STRUCT.

Q OF STRUCT.

(+42" FROM F.F.)

(+42" FROM F.F)

A3-1.

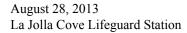
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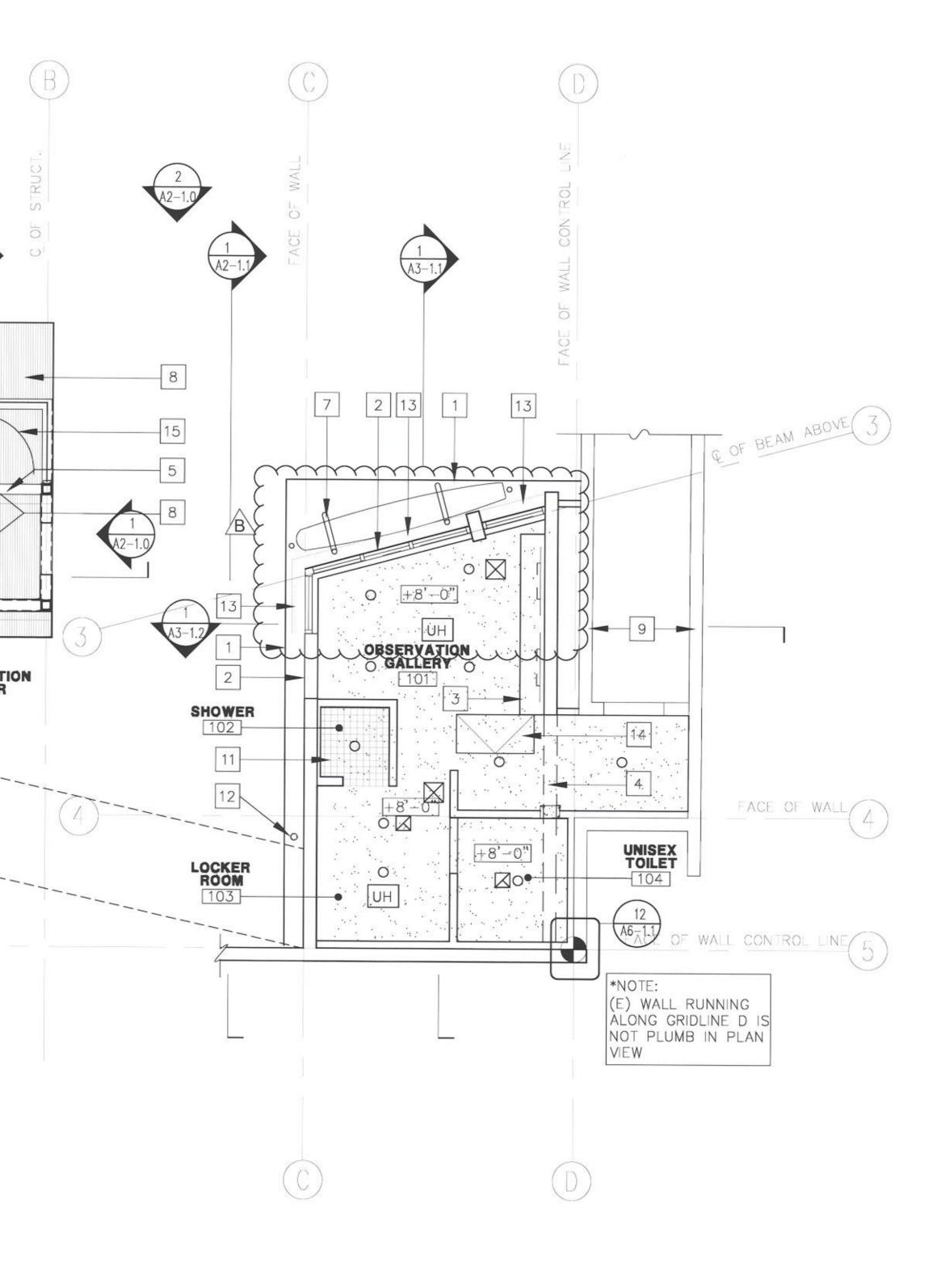
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(5)

SCALE: 1/4" = 1'-0"



L



ADDENDUM "B"

GENERAL NOTES

- BRAZILIAN REDWOOD SIDING TO BE COATED W/ CLEAR SEALER PRIOR TO INSTALLATION.
 ALL STRUCTURAL AND MISC. STEEL TO BE HOT-DIPPED GALVANIZED

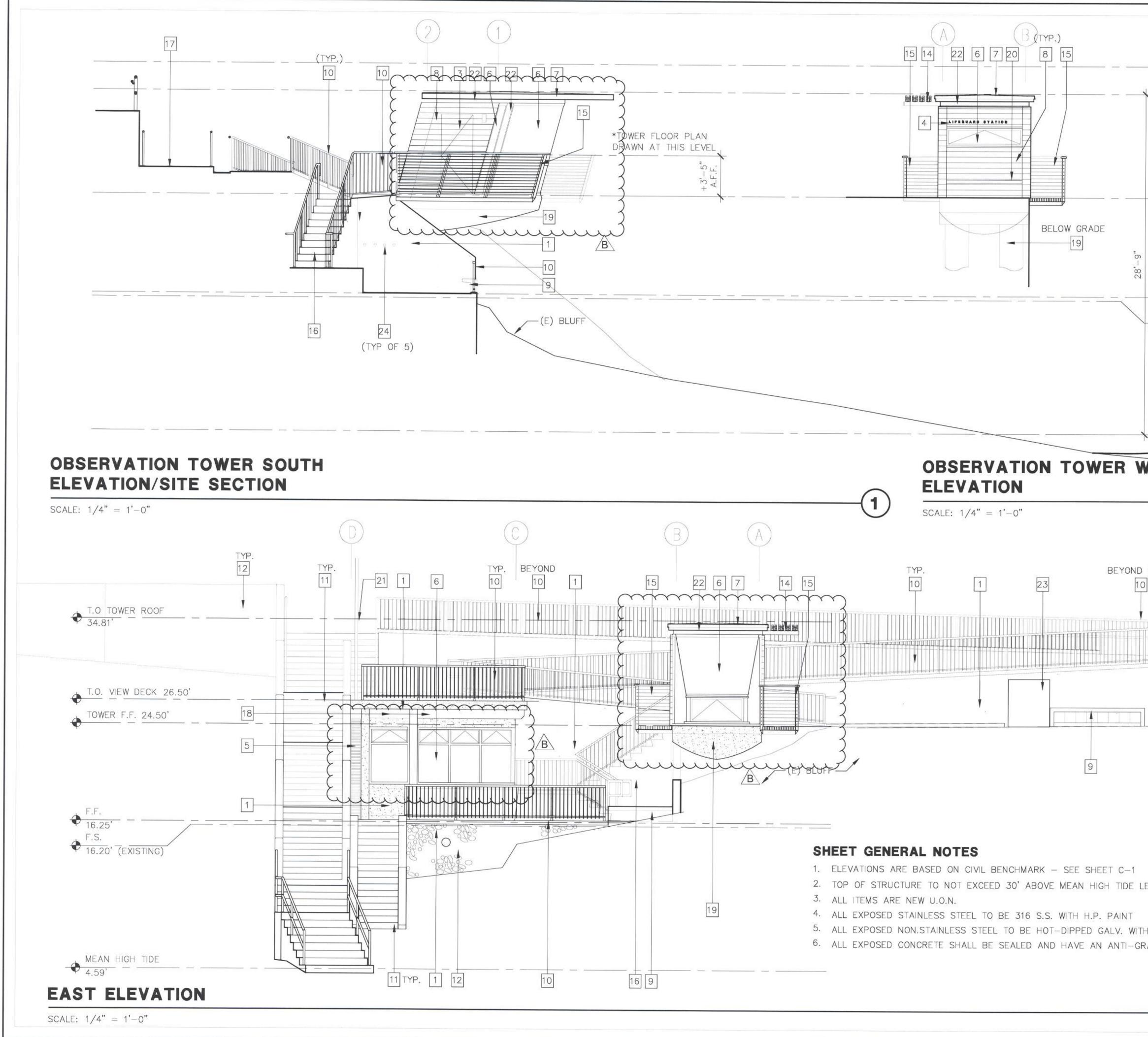
LEGEND

	(N) GYPSUM BOARD CEILING - SEE 1/A6-1.8
0	(N) RECESSED LIGHT FIXTURE PER ELECTRICAL
¢	(N) SURFACE MOUNTED LIGHT FIXTURE PER ELECTRICAL
	(N) FLUOR. LIGHT FIXTURE MOUNTED UNDER CAB. PER ELECTRICAL
\square	(N) EXHAUST FAN PER MECHANICAL
UH	SURFACE MOUNTED UNIT HEATER
	(E) INTERIOR CORNER OF BUILDING

SHEET KEY NOTES

- 1 LINE OF C.I.P. CONC. DECK ABOVE
- 2 C.I.P. CONC. LINTEL SEE STRUCTURAL
- 3 UPPER CABINET
- 4 C.I.P. CONC. BEAM SEE STRUCTURAL
- 5 HSS FRAME SEE STRUCTURAL
- 6 EXTERIOR WALL BELOW
- 7 DOUBLE SURF BOARD RACK SEE DETAIL 10/A6-1.3
- 8 2X WOOD CEILING
- 9 (E) WALL TO REMAIN
- 10 SHADE TRELLIS STRUCTURE
- 11 CERAMIC TILE SHOWER CEILING
- 12 DECK OVERFLOW SEE 14/A6-1.3
- 13 ROLL DOWN SHUTTER
- 14 CLG. ACCESS PANEL
- 15 BIGEYE ALUM. BINOCULAR CLG. MOUNTED TRACK. COORDINATE LOCATION WITH CITY

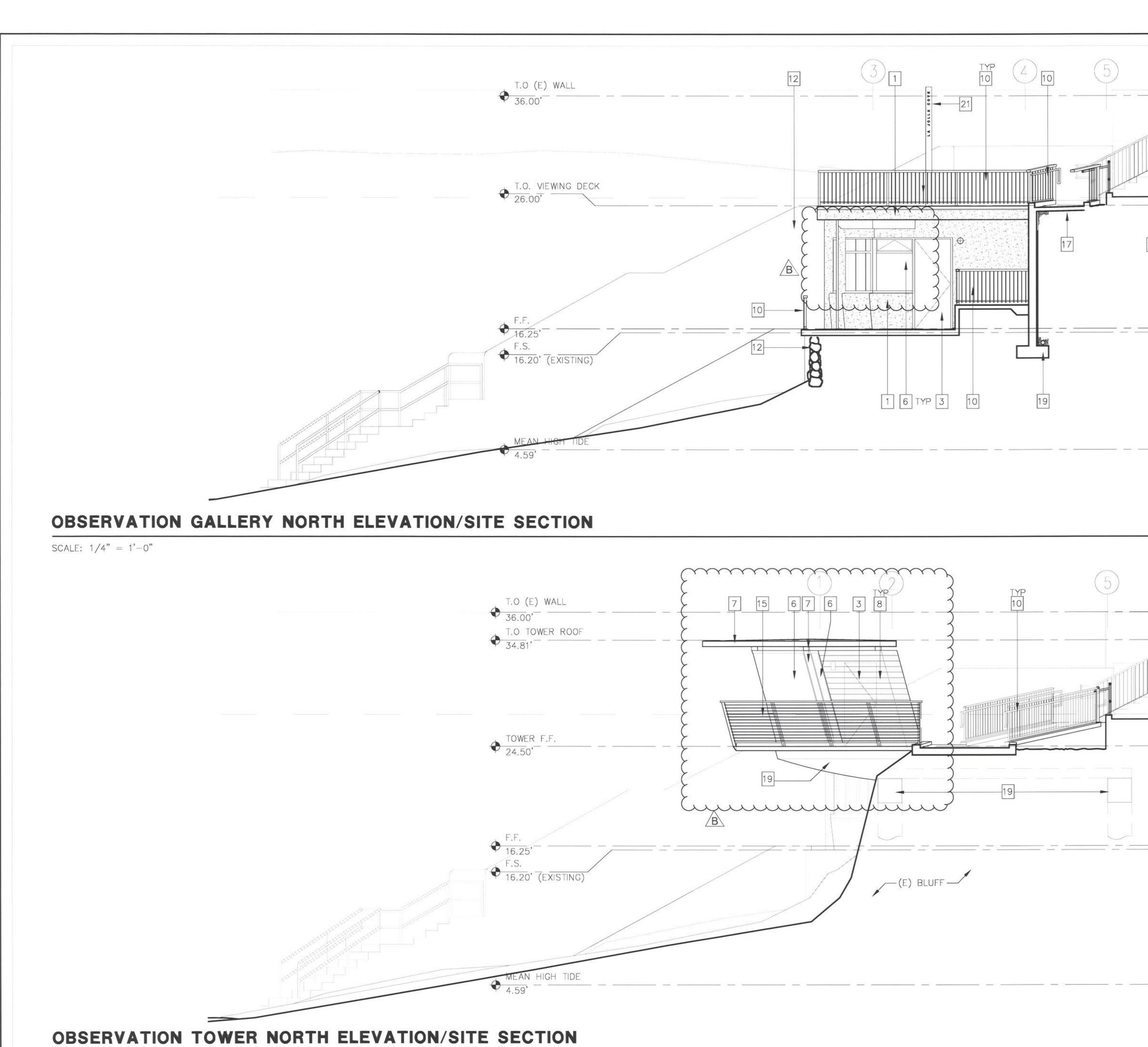
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	BEH. 2-28/15			_			LAMBERT COORDINATES
	OF CALIFO	CONTRACTOR		STARTED			32674-20-D



August 28, 2013 La Jolla Cove Lifeguard Station ADDENDUM "B"

	KEY	NOTES						
T.O (E) WALL	#	MATERIAL	FINISH	COLOR				
	1	C.I.P. CONCRETE	ACID FINISH	NATURAL				
	2	ALUM. WINDOW FRAME	KYNAR PAINT	DARK GREY				
	3	DOOR PER SCHEDULE	FACTORY	PER SCHEDULE				
	4	ALUM. SIGNAGE LETTERS	FACTORY	NATURAL				
	5	ALUM. LOUVER	FACTORY	DK GRAY				
TOWER F.F. 24.50' •	6	WINDOW PER SCHEDULE	FACTORY	PER SPEC.				
24.50 '	7	ALUM. FLASHING	PAINT	DK. GREY				
		BRAZILIAN REDWOOD SIDING	STAIN / SEAL	NATURAL				
		PRE-CAST. CONCRETE BENCH	ACID ETCHED SEAL	CLEAR				
F.F.		ALUMINUM HANDRAIL/ GUARDRAIL	FACTORY	N/A				
16.25' • F.S. D' (EXISTING) •	11	(E) STAIRS	N/A	N/A				
D' (EXISTING) 🕈	12	(E) WALL	N/A	N/A				
	13	(E) HANDRAIL	N/A	N/A				
		BRAZILIAN REDWOOD LOUVERS O/MTL FRAME	STAIN	NATURAL				
	15	S.S. CABLE GUARDRAIL W/ TEAK HANDRAIL	FACTORY	N/A				
N HIGH TIDE	16	C.I.P. CONC. STAIRS	ACID FINISH	NATURAL				
1.09 T	17	C.I.P. RAMP	ACID FINISH	NATURAL				
ST	18	ROLL DOWN SHUTTER	FACTORY	DK GRAY				
— (3)		C.I.P. CONC. FOUNDATION (SEE STRUCT.)	BOARD FORM	NATURAL				
\smile		2X REDWOOD BENCH	STAIN	CLEAR				
	21	S.S. 4X8 T.S. SIGNAGE	H.P. PAINT	DK GREY				
.)	22 5	STAINLESS STEEL FRAME	H.P. PAINT	DK. GREY				
	23 E	ELEC SERVICE PEDESTAL	N/A	N/A				
	24 1	" DIA X 4" ALUM. DOWELS	FACTORY	NATURAL				
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		10 TYP.						
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9		12 TYP.						
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	RALPH J. ROES	ADDENDUM B	RE 5/1/13 RE 8/14/13	PROJECT MANAGER				
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B REVISIONS TO LIFEGUARD TOWER GLAZING AND ALL ASSOCIATED COMPONENTS REVISIONS TO LIFEGUARD OBSERVATION ROOM STOREFRONT WINDOWS AND ALL ASSOCIATED COMPONENTS



August 28, 2013 La Jolla Cove Lifeguard Station

SCALE: 1/4" = 1'-0"

ADDENDUM "B"

		1	KE١	NOTES				
10			#	MATERIAL		FINISH	COLOF	R
			1	C.I.P. CON	ICRETE	ACID FINISH	NATUR	RAL
			2	ALUM. WIN	NDOW FRAME	KYNAR PAINT	DARK	GREY
			3	DOOR PER	R SCHEDULE	FACTORY	PER SCHED	DULE
			4	ALUM. SIG	NAGE LETTERS	FACTORY	NATUR	RAL
			5	ALUM. LO	UVER	FACTORY	DK GF	RAY
			6	WINDOW P	ER SCHEDULE	FACTORY	PER S	PEC.
16			7	ALUM. FL	ASHING	PAINT	DK. G	REY
			8	BRAZILIAN SIDING	REDWOOD	STAIN / SEAL	NATUR	RAL
			9		ICRETE BENCH	SEAL	CLEAR	2
			10	ALUMINUM	HANDRAIL/	FACTORY	N/A	
			11	(E) STAIR		N/A	N/A	
			12	(E) WALL		N/A	N/A	
			13	(E) HAND	RAIL	N/A	N/A	
			14		REDWOOD O/MTL FRAME	STAIN	NATUR	RAL
			15	S.S. CABL	E GUARDRAIL HANDRAIL	FACTORY	N/A	
			16		IC. STAIRS	ACID FINISH	NATUR	RAL
			17	C.I.P. RAN	1P	ACID FINISH	NATUR	RAL
			18	ROLL DOW	N SHUTTER	FACTORY	DK GF	YAY
—(1)			19	C.I.P. CON (SEE STRU	IC. FOUNDATION	BOARD FORM	NATUR	RAL
\bigcirc			20	2X REDWO	DOD BENCH	STAIN	CLEAR	ł
			21	S.S. 4X8	T.S. SIGNAGE	H.P. PAINT	DK GF	REY
			22	STAINLESS	STEEL FRAME	H.P. PAINT	DK. G	REY
			23	ELEC SER	VICE PEDESTAL	N/A	N/A	
	 SI 1. 2. 3. 4. 5. 6. 	ELEV TOP ALL ALL ALL PAIN	ATION OF S ITEMS EXPO EXPO T EXPO	NS ARE BA TRUCTURE S ARE NEW SED STAIN SED NON.S	NOTES SED ON CIVIL BE TO NOT EXCEED U.O.N. LESS STEEL TO B STAINLESS STEEL RETE SHALL BE S	30' ABOVE MEAN BE 316 S.S. WITH TO BE HOT-DIPP	n HIGH H.P. P PED GAL	TIDE LEVEL AINT .V. WITH H.P.
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				<	FOR OTY ENGINEER			SECTION HEAD

DATE STARTED_____ DATE COMPLETED___

RE

RE

BY APPROVED DATE FILMED

5/1/13

8/14/13

DESCRIPTION

BID SUBMITTAL ADDENDUM B

CONTRACTOR___ INSPECTOR___

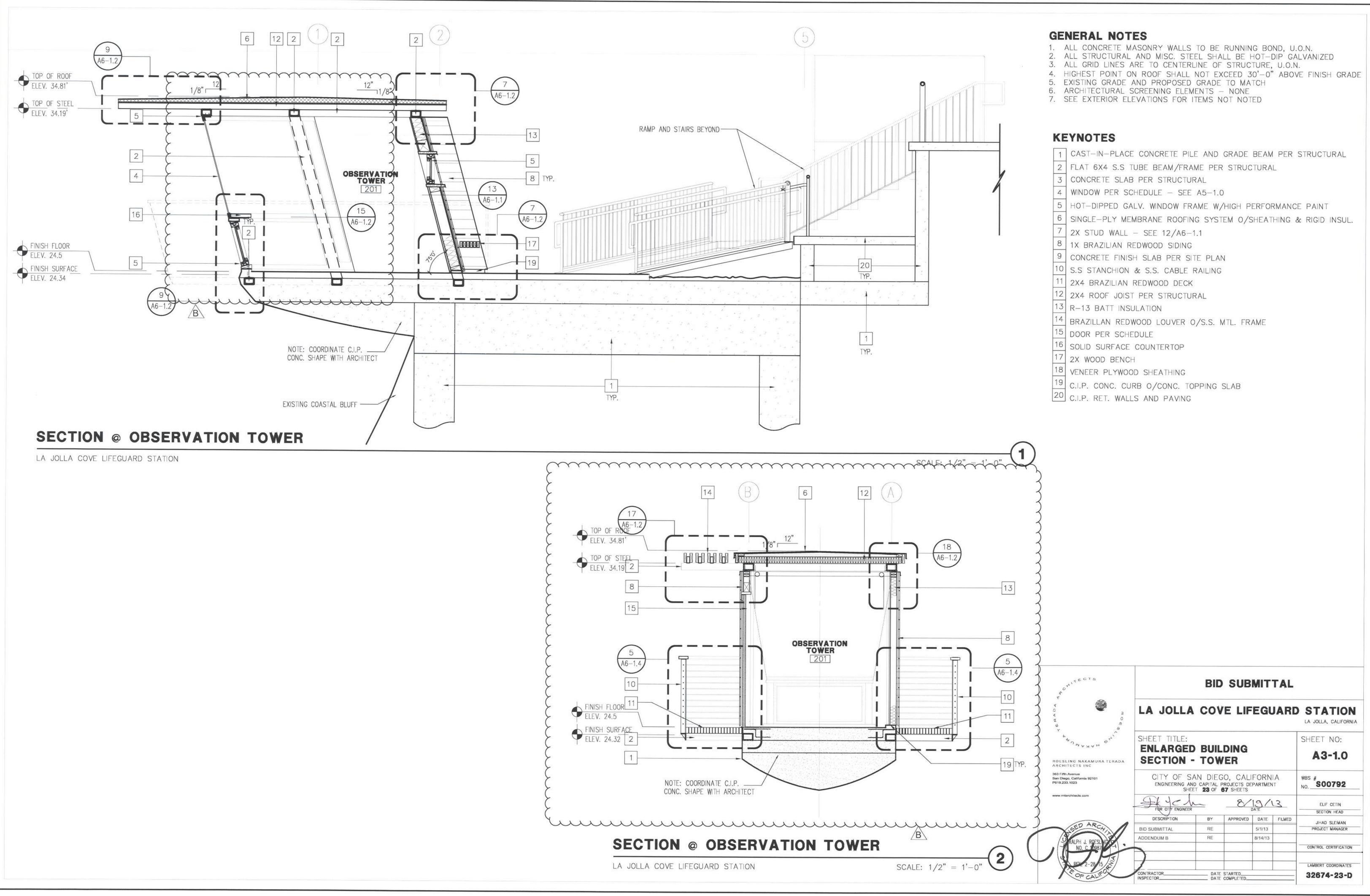
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JIHAD SLEIMAN PROJECT MANAGER

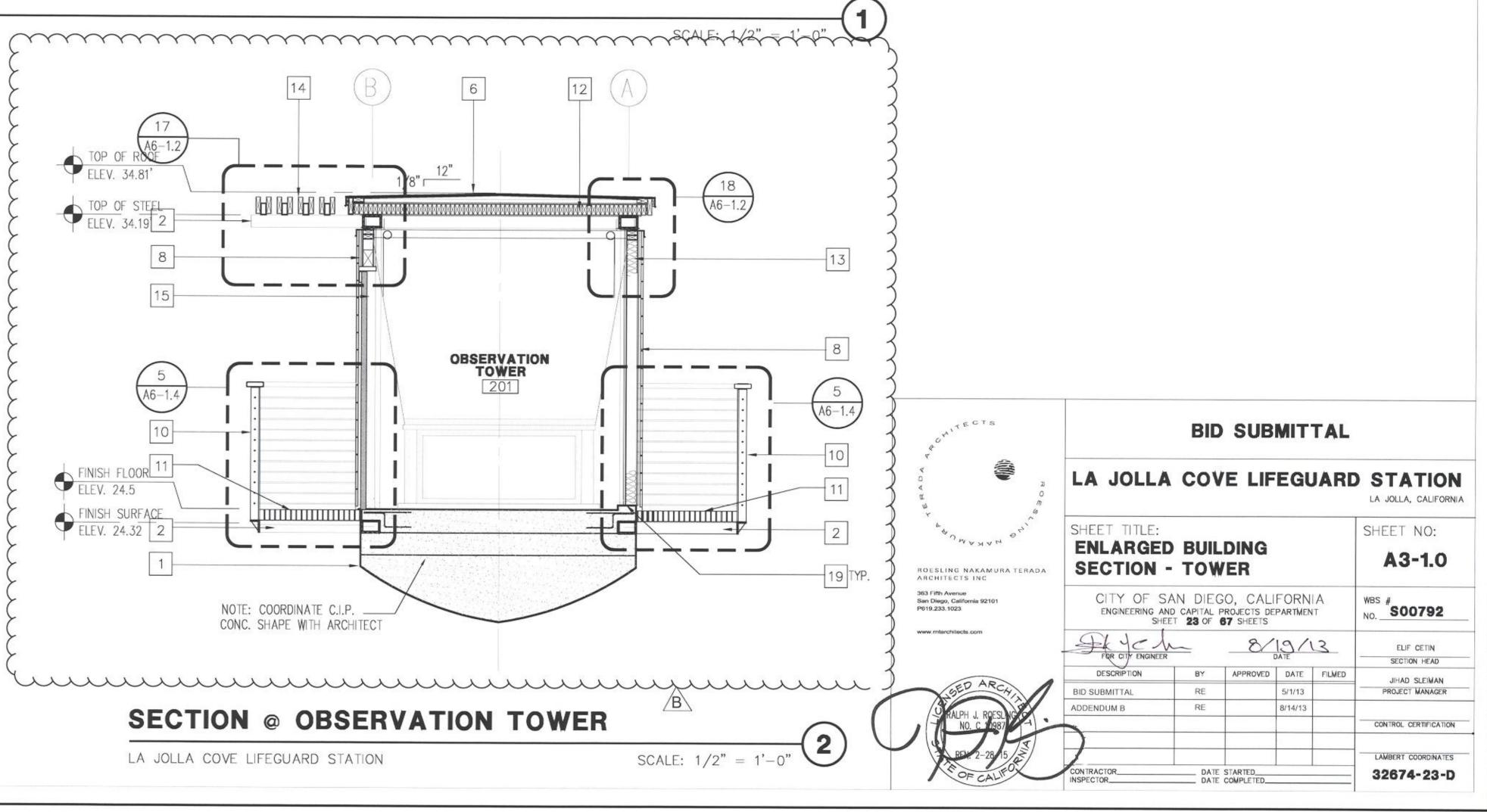
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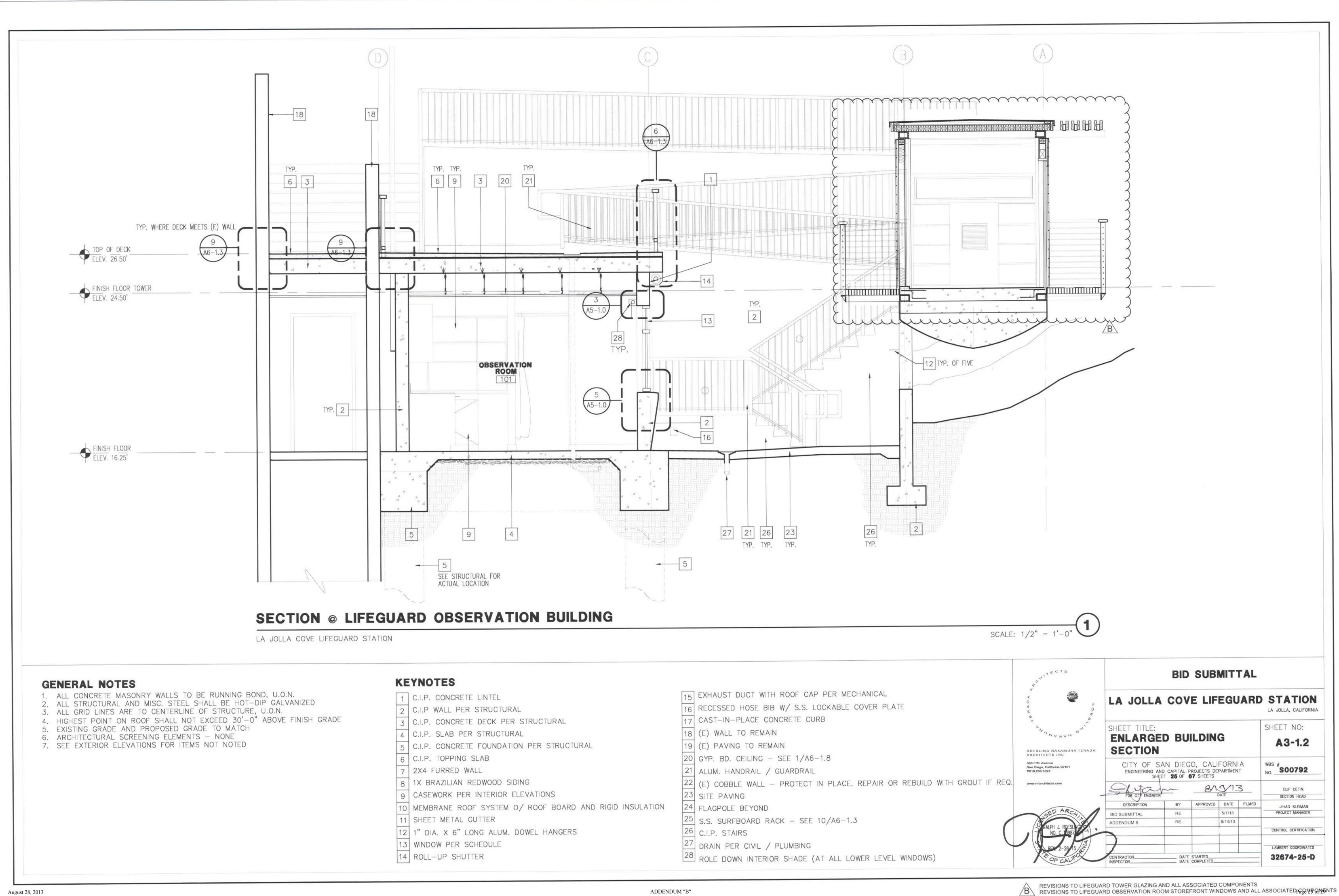
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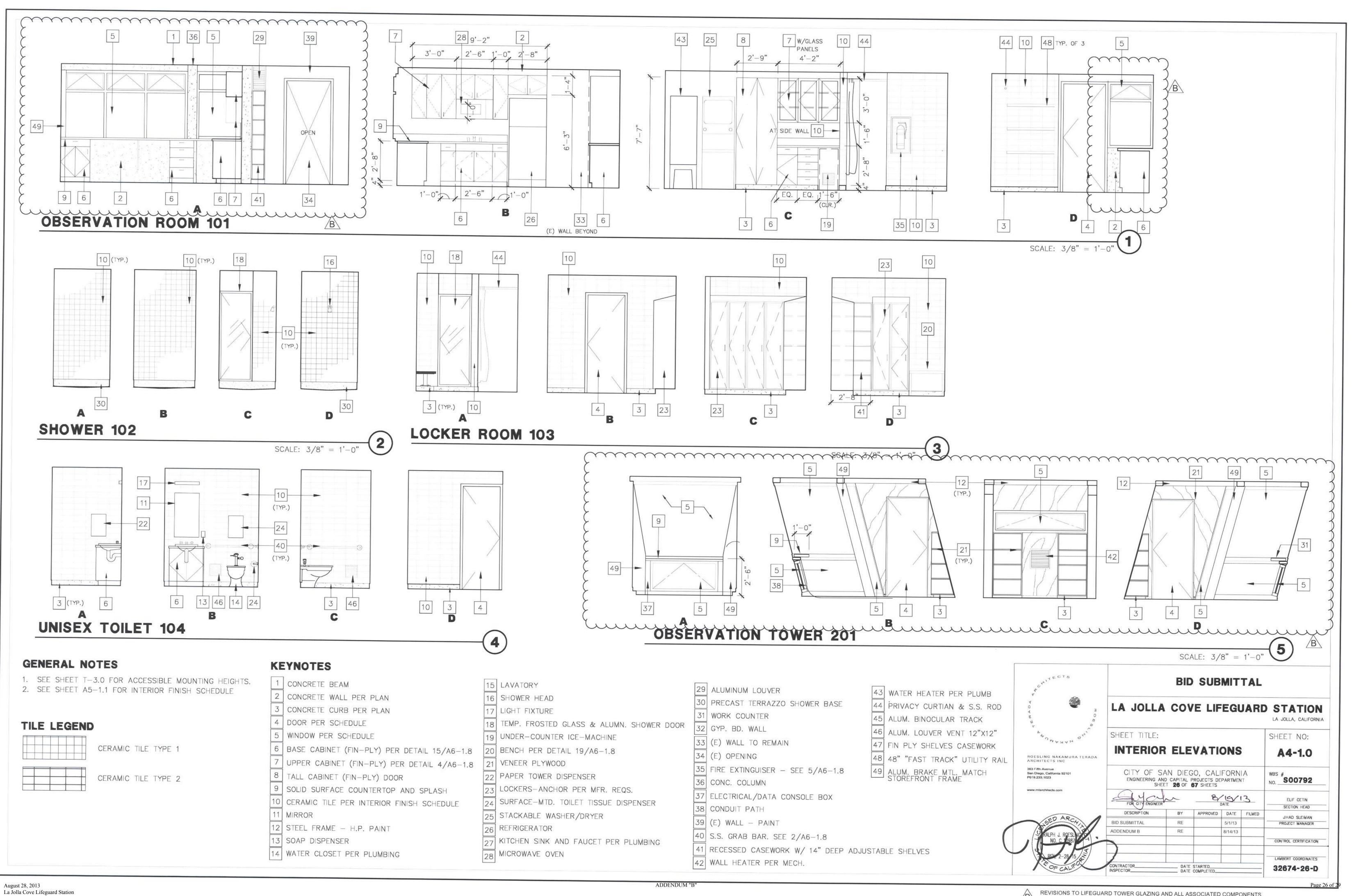




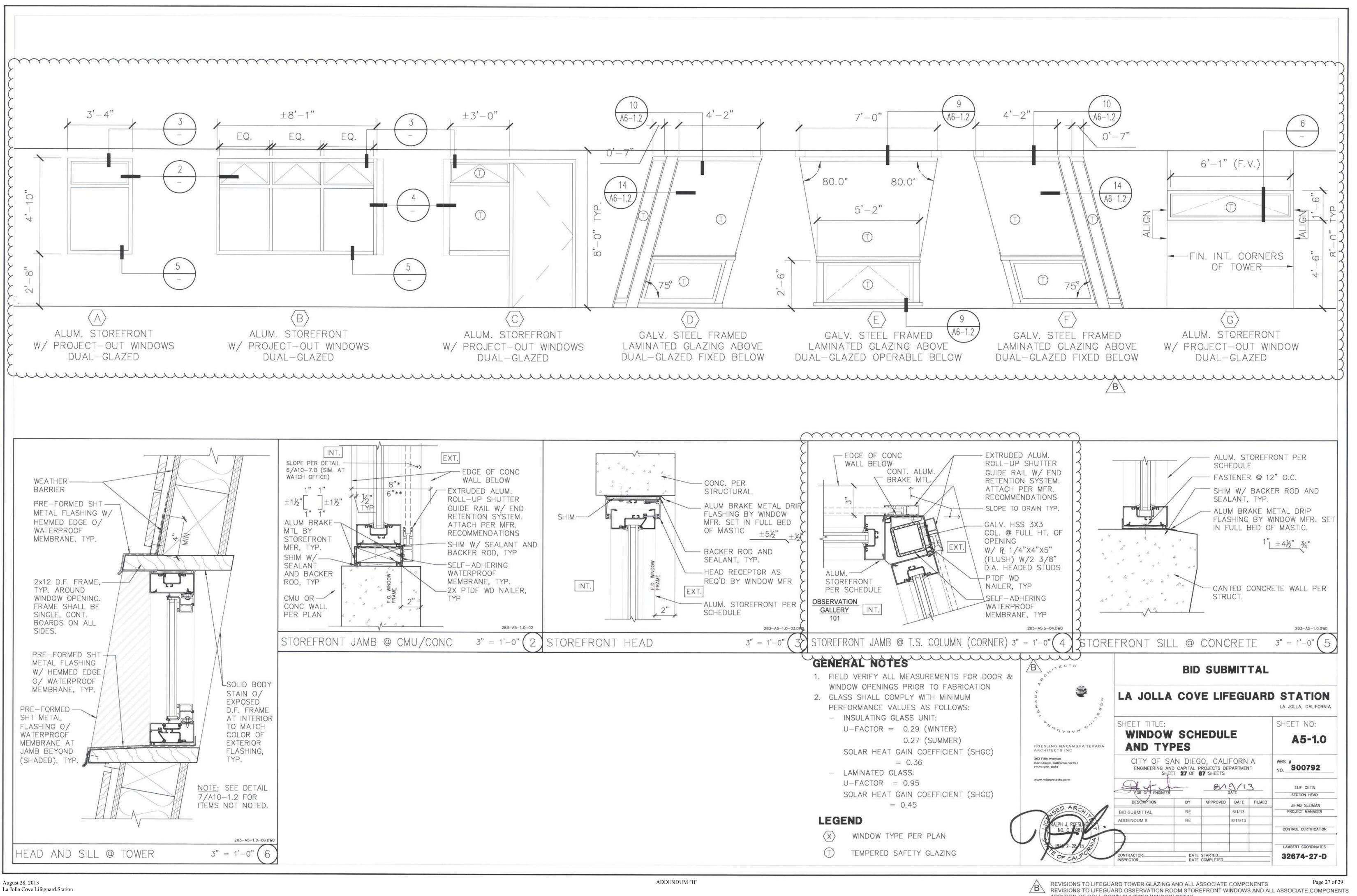




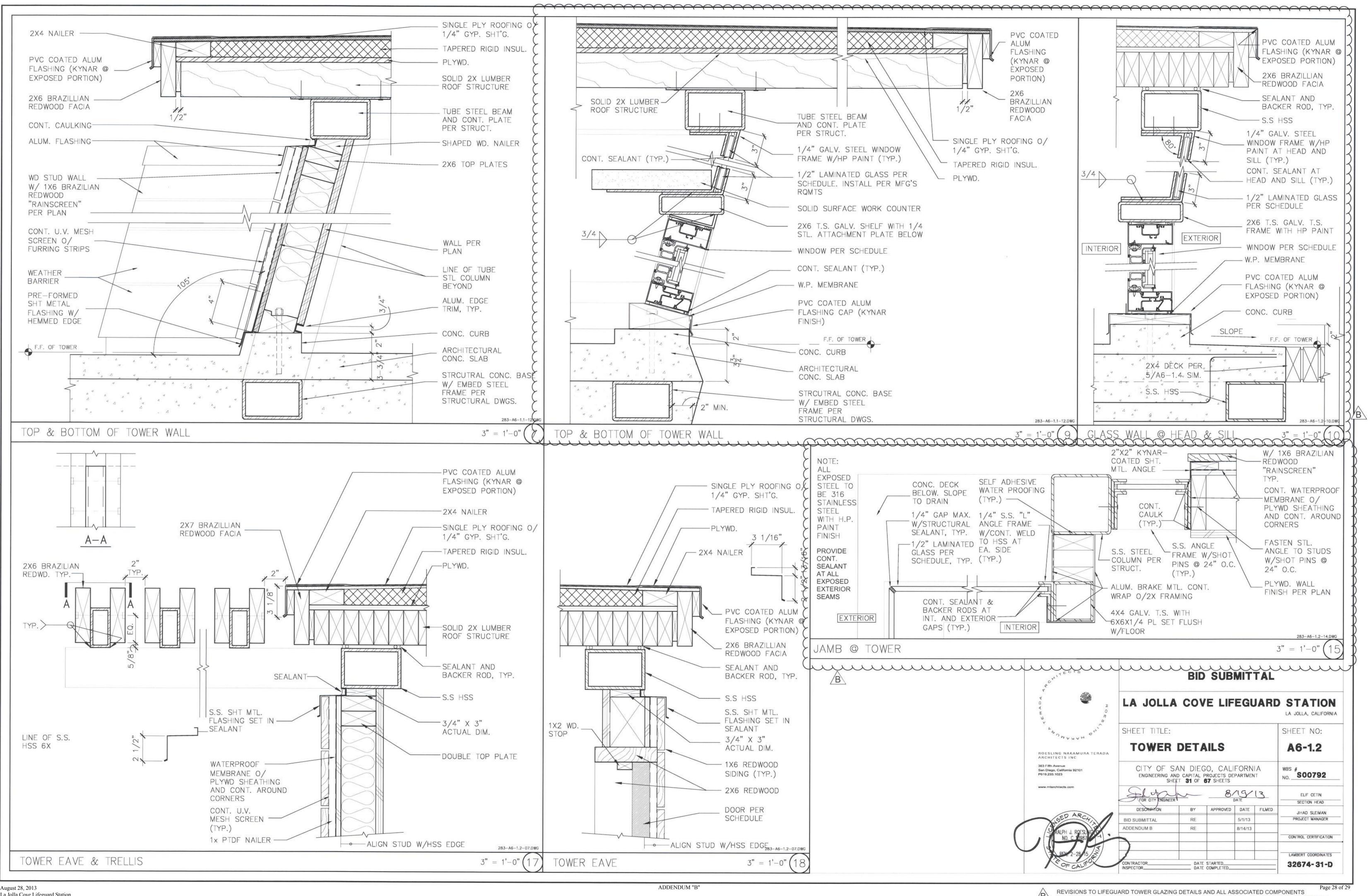
ADDENDUM	"B'



B REVISIONS TO LIFEGUARD TOWER GLAZING AND ALL ASSOCIATED COMPONENTS REVISIONS TO LIFEGUARD OBSERVATION ROOM STOREFRONT WINDOWS AND ALL ASSOCIATED COMPONENTS ADDITION OF UNDERCOUNTER CASEWORK AT OBSERVATION ROOM

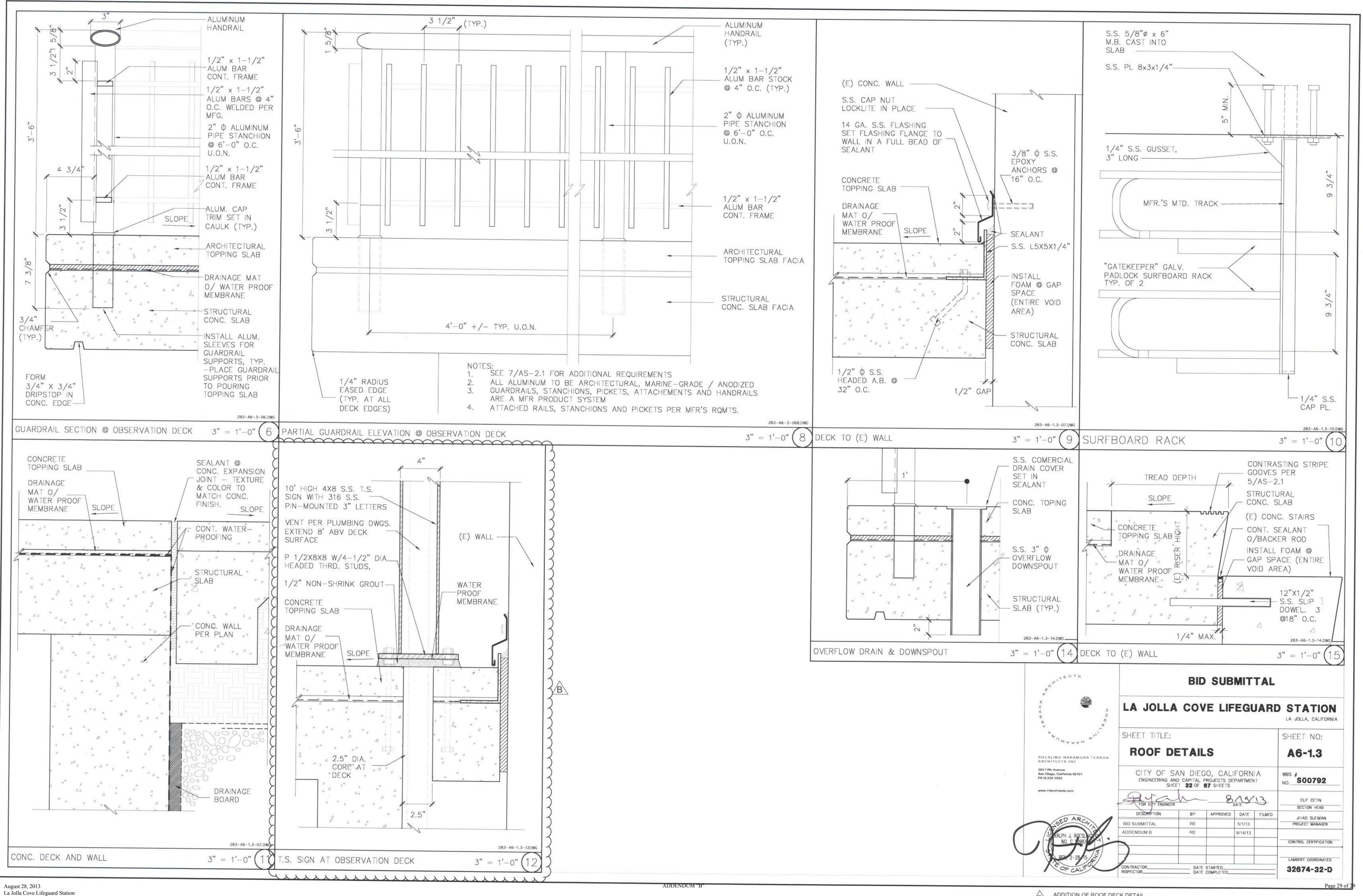


ADDITION OF ROLL-DOWN SHUTTER WINDOW DETAIL



La Jolla Cove Lifeguard Station

B REVISIONS TO LIFEGUARD TOWER GLAZING DETAILS AND ALL ASSOCIATED COMPONENTS REVISIONS TO LIFEGUARD TOWER WORK COUNTER DETAILS AND ALL ASSOCIATED COMPONENTS





CITY CONTACT: Damian Singleton - Contract Specialist, Email: dsingleton@sandiego.gov Phone No. (619) 533-3482 - Fax No. (619) 533-3633



ADDENDUM "C"

FOR

LA JOLLA COVE LIFEGUARD STATION

BID NO.:	K-14-5708-DBB-3
SAP NO. (WBS/IO/CC):	S-00792
CLIENT DEPARTMENT:	1912
COUNCIL DISTRICT:	2
PROJECT TYPE:	BB

BID DUE DATE:

2:00 PM SEPTEMBER 11, 2013 CITY OF SAN DIEGO PUBLIC WORKS CONTRACTING GROUP 1010 SECOND AVENUE, SUITE 1400, MS 614C SAN DIEGO, CA 92101

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Architect:

C 1098 ŝ Seal: 1). R¢g stered Architect

5 Seal: City Engineer Date 2). For

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

- Q1. Note #4 A2-1.0, what size is the aluminum lettering?
- A1. Letters are 3" high stainless steel pin-mounted channel signs. See specifications for thickness and mounting requirements.
- Q2. Can you please provide specifications for window covering?
- A2. For window coverings, provide Mecho®/5 Wide Bracket shades with optional fascia and center support brackets or approved equal. Screen material shall be ThermoVeil® SunScreen or approved equal. The following windows shall have window covers :A, B, C, D, E, F, & G. At windows D, E and F only upper windows shall have shades. Contractor shall verify all lengths and sizes.

C. ADDENDUM "B"

1. To Item C.2, Appendix G, Technical Specifications, Section 01500, "Temporary Facilities and Controls", pages 8 through 16, **DELETE** in their entirety and **SUBSTITUTE** pages 4 of 14 through 14 of 14 of this Addendum.

Tony Heinrichs, Director Public Works Department

Dated: September 6, 2013 San Diego, California

TH/NB/DS/egz/ls

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 1 Section "Summary" for limitations on work restrictions and utility interruptions.
 - 2. Division 2 Section "Dewatering" for disposal of ground water at Project site.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary construction facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of authorities having jurisdiction.

La Jolla Cove Lifeguard Station

- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
 - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
 - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
 - 3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch (50-mm, 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch-(60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-)OD top rails and with screening fabric around construction and staging sites. Provide vehicular and pedestrian gates with locks.
- B. Wood Enclosure Fence: Plywood, 8 feet(2.4 m)high, framed with four 2-by-4-inch(50by-100-mm)rails, with preservative-treated wood posts spaced not more than 8

feet(2.4 m)apart. Provide covered walkways required by governing authorities for public rights-or-way.

C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

2.2 TEMPORARY LIFEGUARD FACILITIES

A. The City owns both a portable modular lifeguard observation tower and a portable modular building that are to be transported and placed at the project site. The modular buildings will be used to temporarily accommodate the Lifeguard requirements for storage, office space and the use of locker rooms, toilet rooms, and shower rooms during the project duration.

As part of the work of this Contract, the Contractor shall provide the following:

- 1. Transport both portable buildings from their storage City location to the project site;
- 2. Provide all required setting devices and bracing necessary to maintain structural stability for the portable buildings during the time it is in use at the project site;
- 3. For the temporary modular observation tower provide a raised platform and set and secure the tower onto the platform. Platform height shall be between 4' to 8'. The contractor shall work with the lifeguard staff to set the appropriate height and to orient the temporary tower;
- 4. Construct and provide access to the raised platform.
- 5. Construct a code-compliant disable access ramp at the building entrance for the locker room building;
- 6. Provide a temporary electrical power, water, sewer, connections of adequate size to the buildings where required;
- 7. At the end of the project, disconnect the buildings from temporary power, water and sewer ties, disassemble the disabled-accessible ramp and transport the portable buildings back to their location where they were formerly stored;
- 8. Repair any disturbed areas of the park landscape / lawn to original conditions.
- B. The Contractor shall verify the location of adequate power, sewer and water connections at the project site and assure that the connections will be maintained without interruption throughout the life of the project. Utility connections shall be provided in a way so that there is no possibility of injury to staff or to the public for the duration of the project due to the utility connections for the portable building.

2.3 TEMPORARY CONSTRUCTION FACILITIES

- A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.4 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

PART 3 - EXECUTION

- 3.1 INSTALLATION, GENERAL
 - A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
 - 1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.
- I. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.
 - 1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 - 2. At each telephone, post a list of important telephone numbers.

- Police and fire departments. a.
- b. Ambulance service.
- c. Contractor's home office.
- Contractor's emergency after-hours telephone number. d.
- Architect's office. e.
- f. Engineers' offices.
- Owner's office. g.
- Principal subcontractors' field and home offices. h.
- 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- Traffic Controls: Comply with requirements of authorities having jurisdiction. Β.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Provide limited temporary parking areas for construction personnel.
- Dewatering Facilities and Drains: Comply with requirements of authorities having D. jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater and groundwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.

- 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
- 3. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Division 1 Section "Execution Requirements."
- G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- H. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- I. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 1 Section "Summary."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

La Jolla Cove Lifeguard Station

- 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
- 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Division 2 Section "Tree Protection and Trimming."
- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- G. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and as approved by Owner.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- K. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction.
 - 1. Construct covered walkways using scaffold or shoring framing.

- 2. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
- 3. Paint and maintain appearance of walkway for duration of the Work.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.

- 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.
 - 3. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.
 - 5. Do not install material that is wet.
 - 6. Discard, replace, or clean stored or installed material that begins to grow mold.
 - 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 - 2. Use temporary equipment to control humidity until all wet work have been completed for 14 days.
 - 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.

c. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

City of San Diego

CONTRACTOR'S NAME: APR CONSTRUCTION, INC. ADDRESS: 3916 MURRAY HILL ROAD, LA MESA, CA 91941

 TELEPHONE NO.:
 619 247-7327
 FAX NO.:
 619 464-3835

CITY CONTACT: DAMIAN SINGLETON, CONTRACT SPECIALIST, Email: DSingleton@sandiego.gov Phone No. (619) 533-3482, Fax No. (619) 533-3633

J.Sleiman/NB/egz

CONTRACT DOCUMENTS



FOR

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LA JOLLA COVE LIFEGUARD STATION

VOLUME 2 OF 2

BID NO.:	K-14-5708-DBB-3	
SAP NO. (WBS/IO/CC):	S-00792	
CLIENT DEPARTMENT:	1912	
COUNCIL DISTRICT:	2	
PROJECT TYPE:	BB	

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

> THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.

THIS BIDDING DOCUMENT TO BE SUBMITTED IN ITS ENTIRETY REFER TO VOLUME 1 COVER PAGE FOR TIME, DATE, AND LOCATION

TABLE OF CONTENTS

Volume 2 - Bidding Documents

The following forms must be completed in their entirety and submitted with the Bid. Include the form(s) even if the information does not apply. Where the information does not apply write in N/A. Failure to include any of the forms may cause the Bid to be deemed **non-responsive**. If you are uncertain or have any questions about any required information, contact the City no later than 14 days prior to Bid due date.

1.	Bid/Proposal	3
2.	Bid Bond	7
	Non-Collusion Affidavit to be executed by Bidder and Submitted with Bid under 23 USC 112 and PCC 7106	8
4.	Contractors Certification of Pending Actions	9
5.	Equal Benefits Ordinance Certification of Compliance	10
6.	Proposal (Bid)	11
7,	Form AA35 - List of Subcontractors	14
8.	Form AA40 - Named Equipment/Material Supplier List	15

PROPOSAL

Bidder's General Information

To the City of San Diego:

Pursuant to "Notice Inviting Bids", specifications, and requirements on file with the City Clerk, and subject to all provisions of the Charter and Ordinances of the City of San Diego and applicable laws and regulations of the United States and the State of California, the undersigned hereby proposes to furnish to the City of San Diego, complete at the prices stated herein, the items or services hereinafter mentioned. The undersigned further warrants that this bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

The undersigned bidder(s) further warrants that bidder(s) has thoroughly examined and understands the entire Contract Documents (plans and specifications) and the Bidding Documents therefore, and that by submitting said Bidding Documents as its bid proposal, bidder(s) acknowledges and is bound by the entire Contract Documents, including any addenda issued thereto, as such Contract Documents incorporated by reference in the Bidding Documents.

IF A SOLE OWNER OR SOLE CONTRACTOR SIGN HERE:

(1) Name under which business is conducted	N/A	
(2) Signature (Given and surname) of proprietor	N/A	·····
(3) Place of Business (Street & Number) <u>N/A</u>		
(4) City and StateN/A		Zip CodeN/A
(5) Telephone NoN/A	_ Facsimile No	N/A

IF A PARTNERSHIP, SIGN HERE:

т з з

(1)	Name under	which business is	conducted	N/A	
` ´					

(2) Name of each member of partnership, indicate character of each partner, general or special (limited):

N/A

/h T . 1 . . 1 . .

(3)	Signature (Note: Signature must be made by a N/A	general partner)	
	Full Name and Character of partner		
	N/A		
(4)	Place of Business (Street & Number)N	/A	
(5)	City and StateN/A		Zip Code <u>N/A</u>
(6)	Telephone NoN/A	Facsimile No	N/A
IF A C	ORPORATION, SIGN HERE:		
(1)	Name under which business is conducted <u>APF</u>	RCONSTRUCTION	, INC.
(2)	Signature, with official title of officer authorize	ed to sign for the cor	poration:
	ERIC SCARBROUGH		
	(Printed Name)		
	PRESIDENT		
	(Title of Officer)	(Im	press Corporate Seal Here)
(3)	Incorporated under the laws of the State of	•	· · · ,
	Place of Business (Street & Number) 3916 ML		
~ /	× , <u> </u>		Zin Code 91941
(0)		Facsimile No. <u>6</u>	119 404-3033

Proposal (Rev. July 2012) La Jolla Cove Lifeguard Station

THE FOLLOWING SECTIONS MUST BE FILLED IN BY ALL PROPOSERS:

In accordance with the "NOTICE INVITING BIDS", the bidder holds a California State Contractor's license for the following classification(s) to perform the work described in these specifications:

LICENSE CLASSIFICATION B

LICENSE NO. 940651 EXPIRES 12-31-2013

This license classification must also be shown on the front of the bid envelope. Failure to show license classification on the bid envelope may cause return of the bid unopened.

TAX IDENTIFICATION NUMBER (TIN):

E-Mail Address: ADMIN@APRCONSTRUCTION.COM

THIS PROPOSAL MUST BE NOTARIZED BELOW:

f i

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I certify, under penalty of perjury, that the representat Contractor's license number, classification and expiration dat				my State
Signature () (M	Title _	PRESIDENT		
<i>V</i> SUBSCRIBED AND SWORN TO BEFORE ME, THIS2	22	DAY OF 4	AUGUST	<u>,2013</u> .
Notary Public in and for the County of <u>SAN DIEGO</u>		, State of _	CA	
(NOTARIAL SEAL)	·			

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BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That APR Construction, Inc.

_____as Principal, and

American Contractors Indemnity Company as Surety, are held and firmly bound unto The City of San Diego hereinafter called "OWNER," in the sum of 10% OF THE TOTAL BID AMOUNT for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the bidding schedule(s) of the OWNER's Contract Documents entitled

La Jolla Cove Lifeguard Station

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" enters into a written Agreement on the form of agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this	<u>12th</u> day of	August	2013
APR Construction, Inc.	(SEAL)	American Contractors Indemnity Co	ompany (SEAL)
(Bfincipal) By: (Bfincipal) By:	۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰ - ۲۰۰۰	By: (Surety) (Signature)	
(SEAL AND YOTARIAL ACKNO	WLEDGEMENT OF	(Signary Patricia Zenizo, Atto SURETY)	prney-in-fact

Bid Bond (Rev. July 2012) La Jolla Cove Lifeguard Station 7 | Page

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

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<u> </u>	
State of California	
County of Los Angeles	}
On <u>August 12, 2013</u> before me, <u>M.</u>	S. Rodriguez, Notary Public
personally appeared PATRICIA ZENIZO	
	Name(s) of Signer(s)
M. S. RODRIGUEZ NOTARY PUBLIC · CALIFORNIA LOS ANGELES COUNTY COMMISSION # 1872651 MY COMM. EXPIRES JAN. 2, 2014	who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(iee), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument. I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.
Though the information below is not required by law, it n	nay prove valuable to persons relying on the document
and could prevent fraudulent removal and rea Description of Attached Document	ttachment of this form to another document.
Title or Type of Document:	
Document Date:	
	• • • • • • • • • • • • • • • • • • •
Signer(s) Other Than Named Above: Capacity(ies) Claimed by Signer(s)	
Capacity(ies) Claimed by Signer(s)	
Signer's Name:	Signer's Name:
Signer is Representing:	Signer Is Representing:

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POWER OF ATTORNEY

AMERICAN CONTRACTORS INDEMNITY COMPANY UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY

KNOW ALL MEN BY THESE PRESENTS: That American Contractors Indemnity Company, a California corporation. United States Surety Company, a Maryland corporation and U.S. Specialty Insurance Company, a Texas corporation (collectively, the "Companies"), do by these presents make, constitute and appoint:

Patricia Zenizo or Elisabete Salazar of Los Angeles, California

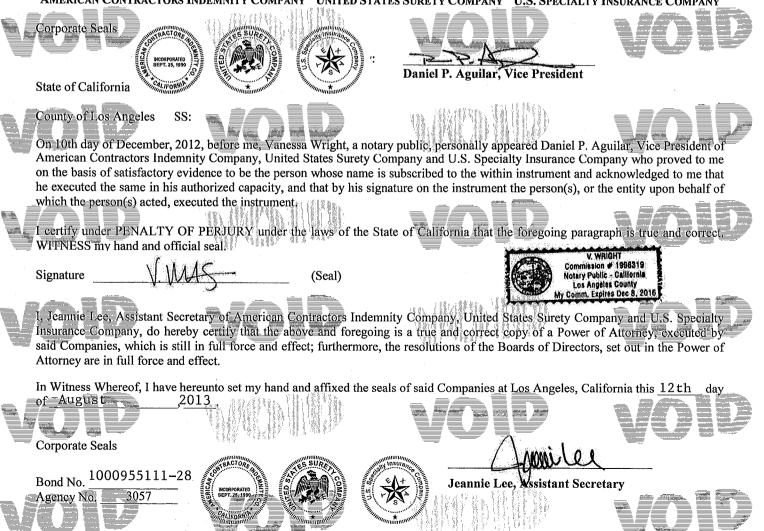
Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full gower and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings, including any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts, and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached.

IN-WITNESS WHEREOF, The Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 10th day of December, 2012.

AMERICAN CONTRACTORS INDEMNITY COMPANY UNITED STATES SURETY COMPANY U.S. SPECIALTY INSURANCE COMPANY



NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID UNDER 23 UNITED STATES CODE 112 AND PUBLIC CONTRACT CODE 7106

State of California)) ss. County of SAN DIEGO)

ERIC SCARBROUGH _____, being first duly sworn, deposes and THE PRESIDENT of the party making the foregoing says that he or she is bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

	2.		
Signed:	[m /sh		
	\cup \bigwedge	V	
Title:	PRESIDENT		-

Subscribed and sworn to before me this		_day of AUGUST,	<u>2013</u>
LETICIA MILLAN PRICE,		Leticia Millan Price	~~~{
Nota		Commission No. 2005698 NOTARY PUBLIC-CALIFORNIA SAN DIEGO COUNTY Commission Expires JAN 31, 2017	,]
(SEAL))		

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CONTRACTORS CERTIFICATION OF PENDING ACTIONS

As part of its bid or proposal (Non-Price Proposal in the case of Design-Build contracts), the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against the Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

CHECK ONE BOX ONLY.

- The undersigned certifies that within the past 10 years the Bidder has NOT been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers.
 - The undersigned certifies that within the past 10 years the Bidder has been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers. A description of the status or resolution of that complaint, including any remedial action taken and the applicable dates is as follows:

LOCATION	DESCRIPTION OF CLAIM	LITIGATION (Y/N)	-Status	RESOLUTION/REMEDIAL ACTION TAKEN
N/A	N/A	N/A	N/A	N/A
	·			
				·
		N/A N/A	N/A N/A N/A	OX/N N/A N/A N/A N/A N/A

Contractor Name:_	APR CONSTRUCTION, INC.		
Certified By	ERIC SCARBROUGH	Title _	PRESIDENT
	Nature When the	Date	8/22/2013
	Signature USE ADDITIONAL FORMS AS NEC	,	X

EQUAL BENEFITS ORDINANCE CERTIFICATION OF COMPLIANCE



For additional information, contact: CITY OF SAN DIEGO EQUAL BENEFITS PROGRAM 202 C Street, MS 9A, San Diego, CA 92101 Phone (619) 533-3948 Fax (619) 533-3220

COMPANY INFORMATION

Company Name: APR CONSTRUCTION, INC.

Company Address: 3916 MURRAY HILL ROAD., LA MESA, CA 91941

Contact Name: ERIC SCARBROUGH Contact Phone:619 247-7327

Contact Email: ADMIN@APRCONSTRUCTION.COM

CONTRACT INFORMATION

Contract Title: LA JOLLA COVE LIFEGUARD STATION

Contract Number (if no number, state location): SAN DIEGO, CA

Start Date: 9/2/2013 ESTIMATE

End Date: 185 WORKING DAYS

SUMMARY OF EQUAL BENEFITS ORDINANCE REQUIREMENTS

The Equal Benefits Ordinance [EBO] requires the City to enter into contracts only with contractors who certify they will provide and maintain equal benefits as defined in SDMC §22.4302 for the duration of the contract. To comply:

- Contractor shall offer equal benefits to employees with spouses and employees with domestic partners.
 - Benefits include health, dental, vision insurance; pension/401(k) plans; bereavement, family, parental leave; discounts, child care; travel/relocation expenses; employee assistance programs; credit union membership; or any other benefit.
 - Any benefit not offer an employee with a spouse, is not required to be offered to an employee with a domestic partner.
- Contractor shall post notice of firm's equal benefits policy in the workplace and notify employees at time of hire and during open enrollment periods.
- Contractor shall allow City access to records, when requested, to confirm compliance with EBO requirements.

■ Contractor shall submit *EBO Certification of Compliance*, signed under penalty of perjury, prior to award of contract. NOTE: This summary is provided for convenience. Full text of the EBO and Rules Implementing the EBO are available at *www.sandiego.gov/administration*.

CONTRACTOR EQUAL BENEFITS ORDINANCE CERTIFICATION

Please indic	ate your firm's compliance status with the EBO. The City may request supporting documentation.				
X	I affirm compliance with the EBO because my firm <i>(contractor must <u>select one</u> reason):</i>				
	 Provides equal benefits to spouses and domestic partners. Provides no benefits to spouses or domestic partners. 				
	□ Has no employees.				
	□ Has collective bargaining agreement(s) in place prior to January 1, 2011, that has not been renewed or expired.				
	I request the City's approval to pay affected employees a cash equivalent in lieu of equal benefits and verify my firm made a reasonable effort but is not able to provide equal benefits upon contract award. I agree to notify employees of the availability of a cash equivalent for benefits available to spouses but not domestic partners and to continue to make every reasonable effort to extend all available benefits to domestic partners.				
	I for any contractor to knowingly submit any false information to the City regarding equal benefits or cash equivalent ith the execution, award, amendment, or administration of any contract. [San Diego Municipal Code §22.4307(a)]				
that my firm	Ity of perjury under laws of the State of California, I certify the above information is true and correct. I further certify understands the requirements of the Equal Benefits Ordinance and will provide and maintain equal benefits for of the contract or pay a cash equivalent if authorized by the City.				
ERIC SCARBROUGH / PRESIDENT					
	Name/Title of Signatory				
	FOR OFFICIAL CITY USE ONLY				

🗆 Approved 认 🗆 Not Approved – Reason:

rev 02/15/2011

EBO Analyst:

Receipt Date:

PROPOSAL (BID)

The Bidder agrees to the construction of LA JOLLA COVE LIFEGUARD STATION, for the City of San Diego, in accordance with these contract documents for the prices listed below. The Bidder guarantees the Contract Price for a period of 120 days (90 days for federally funded contracts and contracts valued at \$500,000 or less) from the date of Bid opening to Award of the Contract. The duration of the Contract Price guarantee shall be extended by the number of days required for the City to obtain all items necessary to fulfill all conditions precedent e.g., bond and insurance.

Item	Quantity	Unit	Payment Reference	NAICS	Description	Unit Price	Extension
BASE BID							1
1.	1	LS	2-4.1	524126	Bonds (Payment and Performance)		\$ 15,000.00
2.	1	AL	7-5.3	236220	Building Permits - Type I Allowance		\$12,000.00
3.	1	AL	4-1.3.4	541350	Special Inspection-Type I Allowance		\$8,000
4.	1	LS	9-3.4.1	236220	Mobilization		\$ 16,000.00
5.	1	LS	9-3	236220	Field Construction		\$ 650,000.00
6.	1	LS	701-13.9.5	541330	Storm Water Pollution Prevention		\$ 3,700.00
7.	1	LS	701-13.95	237990	Storm Water Pollution Implementation		\$ 1,900.00
8.	1	AL	9-3.5	236220	Field Orders-Type II Allowance		\$77,000.00
9.	1	LS	9-3	236220	Furniture, Fixtures and Equipments		\$ 23,000,00
10.	50	VF	9-3.1	236220	Caisson lengths that exceed the depth shown on the construction drawings due to unforeseen field conditions	\$ Ø	\$ Ø
ESTIMATED TOTAL BASE BID:					\$ 80 6,600.00		
E							

TOTAL BID PRICE FOR BID (Items 1 through 10 inclusive) amount written in words:

Eight hundred and six thousand six hundred dollars and zero cents.

The Bid shall contain an acknowledgment of receipt of all addenda, the numbers of which shall be filled in on the Bid form. If an addendum or addenda has been issued by the City and not noted as being received by the Bidder, this proposal shall be rejected as being **non-responsive**. The following addenda have been received and are acknowledged in this bid:

The names of all persons interested in the foregoing proposal as principals are as follows:

ERIC SCARBROUGH

IMPORTANT NOTICE: If Bidder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Bidder or other interested person is an individual, state first and last names in full.

Bidder: APR CONSTRUCTION, INC.

Title: PRESIDENT	
Business Address: 3916 MURRAY HILL ROAD, LA MESA, CA 91941	
Place of Business:	
Place of Residence: 3916 MURRAY HILL ROAD, LA MESA CA 91941	
Signature:	
Proposal (BID) (Rev. July 2012)	12 Page
La Jolla Cove Lifeguard Station	

NOTES:

- A. The City shall determine the low Bid based on the Base Bid alone.
- B. Prices and notations shall be in ink or typewritten. All corrections (which have been initiated by the Bidder using erasures, strike out, line out, or "white-out") shall be typed or written in with ink adjacent thereto, and shall be initialed in ink by the person signing the bid proposal.
- C. Failure to initial all corrections made in the bidding documents shall cause the Bid to be rejected as **non-responsive** and ineligible for further consideration.
- D. Blank spaces must be filled in, using figures. Bidder's failure to submit a price for any Bid item that requires the Bidder to submit a price shall render the Bid **non-responsive** and shall be cause for its rejection.
- E. Unit prices shall be entered for all unit price items. Unit prices shall not exceed two (2) decimal places. If the Unit prices entered exceed two (2) decimal places, the City will only use the first two digits after the decimal points without rounding up or down.
- F. All extensions of the unit prices bid will be subject to verification by the City. In the case of inconsistency or conflict between the product of the Quantity x Unit Price and the Extension, the product shall govern.
- G. In the case of inconsistency or conflict, between the sums of the Extensions with the estimated total Bid, the sum of the Extensions shall govern.
- H. Bids shall not contain any recapitulation of the Work. Conditional Bids will be rejected as being **non-responsive**. Alternative proposals will not be considered unless called for.

BIDDING DOCUMENTS

LIST OF SUBCONTRACTORS

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Bidder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Contractor's total Bid. The Bidder shall also list below the portion of the work which will be done by each subcontractor under this Contract. The Contractor shall list only one Subcontractor for each portion of the Work. The **DOLLAR VALUE** of the total Bid to be performed shall be stated for all subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as **non-responsive** and ineligible for award. The Bidder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percent of the Work to be performed with the Bidders' own forces. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB©	WHERE CERTIFIED@	CHECK IF JOINT VENTURE PARTNERSHIP
Name: Scott Drain & Plumbing Address: 3719 Peak St. City: SD State: CA Zip: 92413 Phone: 619 665-3443	Constructor	Plumbing	\$ 4,500.00	NIA	NA	N/A
Name: AKKan Electric Address: 1727 32nd st City: SD State: CA Zip: 9202 Phone: 619 379-3827	Constructor	Electrical	\$ 3,800.00	NIA	NIA	NIA
Name:						

① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		
As appropriate, Bidder shall indicate if Subcontractor	is certified by:		
City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

The Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

2

Form Title:	LIST OF SUBCONTRACTORS	(Rev. July 2012)
Form Number:	AA35	
La Jolla Cove Li	ifeguard Station	14 Page

NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

The Bidder seeking the recognition of equipment, materials, or supplies obtained from Suppliers towards achieving any mandatory, voluntary, or both subcontracting participation percentages shall list the Supplier(s) on the Named Equipment/Material Supplier List. The Named Equipment/Material Supplier List, at a minimum, shall have the name, locations (City) and the DOLLAR VALUE of the Suppliers. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for such materials and supplies unless vendor manufactures or substantially alters materials and supplies in which case 100% will be credited. The Bidder is to indicate (Yes/No) whether listed firm is a supplier or manufacturer. In calculating the subcontractor participation percentages, vendors/suppliers will receive 60% credit of the listed DOLLAR VALUE, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed dollar value for purposes of calculating the Subcontractor Participation Percentage, Suppliers will receive 60% credit of the listed DOLLAR VALUE, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed DOLLAR VALUE for purposes of calculating the subcontractor participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	DOLLAR VALUE OF MATERIAL OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSBO	WHERE CERTIFIED ©
Name: Suferior Ready mix Address: 7500 mission barge El City: 50 State: CH Zip: 92108 Phone: 619 286 7371	Concrete	\$68,000.00	Yes	no	NA	V/A
Name: White Cap Inc. Address: 7560 Convey ct City: SD State: CA Zip: 92(22 Phone: 858 580-993)	Forms	\$25,000.00	V es	no	NIA	NIA
Name:						

1 As appropriate, Bidder shall identify Vendor/Supplier as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		
2 As appropriate, Bidder shall indicate if Vendor/Supplier	is certified by:		
City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA
The Bidder will not receive any subcontracting participation	percentages if the I	Bidder fails to submit the required proof of certification	1.
Form Title: NAMED EQUIPMENT/MATERIAL SUPPLI Form Number: AA40	ER LIST		(Rev. July 2012)
rominumoti. AA40			

La Jolla Cove Lifeguard Station

CITY OF SAN DIEGO LIFEGUARD SERVICES **CITY OF SAN DIEGO - ENGINEERING AND CAPITAL PROJECTS DEPT.** LA JOLLA COVE LIFEGUARD STATION 1160 COAST BLVD., LA JOLLA, CA 92037

PROJECT TEAM LANDSCAPE ARCHITECT <u>OWNER</u> WALLACE ROBERTS & TODD, INC. CITY OF SAN DIEGO ENGINEERING AND CAPITAL PROJECTS DEPT. ATTN: LAURA BURNETT 1133 COLUMBIA STREET, SUITE 205 ATTN: JIHAD SLEIMAN SAN DIEGO, CA. 92101 600 B. STREET, SUITE 800 SAN DIEGO, CA 92101 T. (619) 696-9303 ⊤. (619) 533–7532 F. (619) 696-7935 ARCHITECT STRUCTURAL ENGINEER ROESLING NAKAMURA ARCHITECTS, INC. FLORES LUND CONSULTING ATTN: RALPH ROESLING ATTN: CRAIG VOSS, P.E. 363 FIFTH AVENUE, SUITE 202 10525 VISTA SORRENTO PARKWAY SAN DIEGO, CA. 92101 SUITE 350 SAN DIEGO, CA. 92121 ⊤. (619) 233–1023 ⊤. (858) 500-4500 F. (619) 233-0016 F. (858) 500-4501 GEOTECHNICAL ENGINEER NINYO & MOORE MECHANICAL ATTN: JEFF KENT BENDER DEAN ENGINEERING 5710 RUFFIN ROAD 438 CAMINO DEL RIO SOUTH SAN DIEGO, CA. 92123 SUITE 217 T. (858) 576-1000 SAN DIEGO, CA. 92108-3547 ATTN: MARK BENDER P.E. F. (858) 576-9600 VICINITY MAP ⊤. (619) 704–1900 F. (858) 427–1608 <u>CIVIL ENGINEER</u> FLORES LUND CONSULTING ATTN: MIKE MAGEE, P.E. ELECTRICAL ENGINEER 10525 VISTA SORRENTO PARKWAY KRUSE AND ASSOCIATES <u>LA JOLLA</u> 12245 WORLD TRADE DR #A SUITE 350 <u>UNDERWATER</u> SAN DIEGO, CA. 92121 SAN DIEGO, CA. 92128 <u>PARK</u> ATTN: KEITH KRUISE ⊤. (858) 500-4500 ⊤. (858) 676−9776 F. (858) 500-4501 F. (858) 676-9744 DESIGN CONSULTANT HECTOR PEREZ 7920 PROSPECT PLACE RD. LA JOLLA, CA. 92037 PINES PROSPECT TORREY ⊤. (619) 889-2760 $\widehat{\mathbf{1}}$ SCOPE OF WORK NORTH PROJECT CONSISTS OF THE DEMOLITION AND REMOVAL OF AN EXISTING 30 SF WOOD-FRAME LIFEGUARD TOWER STRUCTURE AND 144 SF (APPROX) CONCRETE AUXILIARY CITY OF SAN DIE OWNER: BUILDING AND WOOD STAIRS ADJACENT TO THE (E) TOWER. ENGINEERING AND 600 B STREET, S NEW WORK SHALL INCLUDE A NEW 80 SF STEEL-FRAMED, WOOD SIDED LIFEGUARD SAN DIEGO, CA S OBSERVATION TOWER ON A CAST-IN-PLACE CONCRETE CANTILEVERED BASE AND A NEW 400 SF (APPROX.) OBSERVATION GALLERY / STORAGE FACILITY WITH A PUBLIC VIEW DECK SITE ADDRESS: 1160 COAST BLVE ABOVE. BOTH STRUCTURES REPLACE EXISTING LIFEGUARD STRUCTURES. WORK SHALL LA JOLLA, CA 920 INCLUDE SITE AND LANDSCAPE IMPROVEMENTS AND WILL ALLOW PUBLIC ACCESS TO THE PARK MID-LEVEL LANDING AREA AND TO THE NEW PUBLIC VIEW DECK. #350-010-01-00 APN: EMPLOYEE SHIFT DATA ZONING: RS-1-7 TOTAL NUMBER OF EMPLOYEES IS 5 COASTAL OVERLA COASTAL HEIGHT SHIFTS PER DAY PER EMPLOYEE: OF THE LA JOLLA 0800-1800 A. ONE GUARD 1000-1800 ONE GUARD SITE AREA: 0.05 ACRES 1100-1900 ONE GUARD 1030-2030 ONE GUARD EXISTING FLOOR AREA: (E) LIFEGUARE ONE SERGEANT 0845-1845 or 1030-2030 (E) AUXILARY (TO BE DEMOLISHED) TOTAL (THE SCHEDULE IS ADJUSTED ACCORDING TO SUNSET) PROPOSED FLOOR AREA: LIFEGUARD S NOTE: TWO EXISTING DESIGNATED LIFEGUARD PARKING SPACES WILL BE KEPT. LOWER OBSER TOTAL OCCUPANCY: B (PROPOSE DECLARATION OF RESPONSIBLE CHARGE HEREBY DECLARE THAT I AM THE ARCHITECT OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED CONSTRUCTION TYPE: V-B (PROPC RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT NO. OF STORIES: STANDARDS. 9'-6" OBSI BUILDING HEIGHT*: UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SAN 13'-6" LOWE DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME AS ARCHITECT OF WORK, OR OF GUARDRAIL) MY RESPONSIBLITIES FOR PROJECT DESIGN. 28'-8" FROM *PROJECT IS SUBJECT TO PROPOSITION ' HIGHEST POINT OF THE ROOF, EQUIPMEN DATE RALPH J. ROESLING, ARCHITECT C-10987 SPRINKLERED: NO ROESLING NAKAMURA TERADA ARCHITECTS, INC. PARKING: SEE SHEET AS **CONSTRUCTION CHANGE / ADDENDUM** CHANGE DATE AFFECTED OR ADDED SHEET NUMBERS APPROVAL NO. CITY OF SAN DI 0 1 PUBLIC WORKS IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

LA JOLLA COVE LIFEGUARD STATION

SHEET INDEX

	T-1.0 TITLE SHEET T-2.0 GENERAL NOTES & SYMBOLS T-3.0 ACCESSIBILITY NOTES & DETAILS
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	C-2.1 GRADING AND DRAINAGE PLAN/UTILITY
	C-2.2 GRADING AND DRAINAGE PLAN/UTILITY C-3.0 EROSION CONTROL PLAN
	C-4.0 HORIZONTAL CONTROL PLAN
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	A6-1.6 NOT USED A6-1.7 NOT USED
	A6-1.8 CASEWORK & INTERIOR DETAILS
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ND CAPITAL PROJECTS DEPARTMENT SUITE 800	S3.1 LOWER LEVEL STRUCTURAL SITE PLAN S3.2 ENLARGED FOUNDATION AND FRAMING PLANS
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VD. 92037	S4.1 WALL SECTIONS S5.0 FRAMING DETAILS
00	S5.1FRAMING DETAILSS5.2CONCRETE DETAILS
	MECHANICAL MO.1 MECHANICAL LEGEND AND NOTES
AY ZONE, SENSITIVE COASTAL OVERLAY ZONE, T OVERLAY ZONE, AND PARKING IMPACT OVERLAY ZONE	M1.0 MECHANICAL FLOOR PLAN M2.0 MECHANICAL TITLE 24
LA COMMUNITY PLAN	M2.0 MECHANICAL TITLE 24 M3.0 MECHANICAL SECTION
	PLUMBING
RD TOWER: 50 SF RY BUILDING: <u>180 SF</u>	P0.1 PLUMBING LEGEND, SCHEDULE AND NOTES P1.0 WATER FLOOR PLAN
230 SF	P1.1 PLUMBING WASTE FLOOR PLAN P2.0 PLUMBING WASTE ISOMETRIC
STATION/OBSERVATION TOWER: 80 SF	P2.1 PLUMBING WATER ISOMETRIC
ERVATION ROOM / VIEW DECK: 284 SF 364 SF	P3.0 PLUMBING SECTIONS P4.0 PLUMBING DETAILS
SED LIFEGUARD STATION/OBSERVATION TOWER)	
POSED LIFEGUARD STATION/OBSERVATION TOWER)	E0.1 SYMBOLS LIST E0.2 FIXTURE SCHEDULE
	E1.1 SITE PLAN – ELECTRICAL E2.1 OBSERVATION TOWER & FLOOR LIGHTING PLAN
SERVATION TOWER	E3.1 OBSERVATION TOWER & FLOOR POWER PLAN E3.2 OBSERVATION TOWER & FLOOR DATA PLAN
WER OBSERVATION ROOM/VIEW DECK (MEASURMENT TO TOP OF	E4.1 SINGLE LINE DIAGRAM E5.1 TITLE 24
OM MEAN HIGH TIDE LEVEL TO TOP OF OBERVATION TOWER	TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM
'D' PROVISIONS LIMITING HEIGHT TO 30' MAXIMUM MEASURED TO THE NT OR ANY VENT, PIPE, ANTENNA OR OTHER PROJECTION.	CONSULTANT
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IEGO	□ □ □ San Diego, California 92101 ↓ ↓ ₽619.233.1023 ↓ ↓ ↓ ↓ ↓
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S PROJECT	A U W A X A N BLY
PER VIGUAR	· · · · ·

	CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING PARTS OF THE TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS (CCR).
	2010 BUILDING STANDARDS ADMINISTRATIVE CODE PART 1, TITLE 24 C.C.R.
	2010 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.;
	2010 CALIFORNIA ELECTRICAL CODE (CEC) PART 3, TITLE 24 C.C.R.;
	2010 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.;
	2010 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.;
	2010 CALIFORNIA ENERGY CODE (CPC), PART 6, TITLE 24 C.C.R.;
	2010 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.;
	2010 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 C.C.R. 2008 TITLE 19, C.C.R, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
	2007 NFPA 72 NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED)
	(NOTE: SEE UL STANDARD 1971 FOR "VISUAL DEVICES")
	2006 NFPA 253 CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS 2008 NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS
	REFERENCE CODE SECTION FOR NFPA STANDARDS - CBC (SFM) 3504.1
	AMERICAN WITH DISABILITIES ACT (ADA), TITLE II, ADA STANDARDS FOR ACCESSIBLE DESIGN
	(APPENDIX A OF 28 CFR, PART 36)
	FIRE PROTECTION NOTES
	FIRE DEPARTMENT FINAL INSPECTION RECOMMENDED. SCHEDULE ALL INSPECTIONS 24 HOURS IN ADVANCE.
	ALL EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. NO DEADBOLTS, NO SLIDING BOLTS, ETC.
	INTERIOR FINISHES SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 8, CALIFORNIA BUILDING CODE, 2010 EDITION.
	ALL DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME-RETARDANT CONDITION.
	L (CCR T-19 SEC 1.14 3.08 3.21 AND C.F.C. SEC. 804).
	(C.C.R. T-19, SEC. 1.14, 3.08, 3.21, AND C.F.C. SEC. 804). THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C.
	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87.
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	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS. CONTRACTOR SHALL PROVIDE PROPER FIRE TRUCK ACCESS & FIRE EXITS DURING
	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS.
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	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS. CONTRACTOR SHALL PROVIDE PROPER FIRE TRUCK ACCESS & FIRE EXITS DURING CONSTRUCTION AT ALL TIMES.
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	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS. CONTRACTOR SHALL PROVIDE PROPER FIRE TRUCK ACCESS & FIRE EXITS DURING CONSTRUCTION AT ALL TIMES. FIRE EXTINGUISHER TYPE SHALL BE 2-A:10-B:C
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	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS. CONTRACTOR SHALL PROVIDE PROPER FIRE TRUCK ACCESS & FIRE EXITS DURING CONSTRUCTION AT ALL TIMES. FIRE EXTINGUISHER TYPE SHALL BE 2–A:10–B:C SPEC NO. 5708 LA JOLLA COVE LIFEGUARD STATION LA JOLLA CALIFORNIA SHEET TITLE: TITLE SHEET CITY OF SAN DIEGO, CA
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RCHY JA	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS. CONTRACTOR SHALL PROVIDE PROPER FIRE TRUCK ACCESS & FIRE EXITS DURING CONSTRUCTION AT ALL TIMES. FIRE EXTINGUISHER TYPE SHALL BE 2-A:10-B: C SPEC NO. 5708 LA JOLLA COVE LIFEGUARD STATION LA JOLA, CALFORNIA SHEET TITLE: TITLE SHEET CITY OF SAN DIEGO, CA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 1 OF B7 SHEETS CITY ENGINEER CITY ENGINEER DATE DESCRIPTION BY APPROVED DATE FILMED T. C. SLEWARA, COMPLY WITH C.F.C. ARTICLE SHEET FILMED T. C. SLEWARA, COMPLY WITH CALIFORNIA FILMED T. C. SLEWARA, COMPLY WITH CALIFORNIA SHEET TITLE: TITLE SHEET CITY ENGINEER BY APPROVED DATE FILMED T. C. SLEWARA, COMPLY WITH CALIFORNIA SHEET TITLE SHEET TO SECTION HEAD T. C. SLEWARA, COMPLY WITH CALIFORNIA SHEET TITLE BY APPROVED DATE FILMED
N X QESLING 1987	THE CONSTRUCTION, REMODEL, OR DEMOLITION OF A BUILDING SHALL COMPLY WITH C.F.C. ARTICLE 87. FIRE HYDRANTS SHALL COMPLY WITH CALIFORNIA FIRE CODE REQUIREMENTS FOR ON-SITE FIRE HYDRANTS. CONTRACTOR SHALL PROVIDE PROPER FIRE TRUCK ACCESS & FIRE EXITS DURING CONSTRUCTION AT ALL TIMES. FIRE EXTINGUISHER TYPE SHALL BE 2-A:10-B:C SPEC NO. 5708 LA JOLLA COVE LIFEGUARD STATION LA JOLL, CALFORNIA SHEET TITLE: TITLE SHEET SHEET TITLE: TITLE SHEET CITY OF SAN DIEGO, CA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT OHEET 1 OF 97 SHEETS CITY ENGINEER CITY ENGINEER OG-24-13 EUF CETIN SECTION BY APPROVED DATE FILMED T-SECTION SIDEMAN
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CITY OF SAN DIEGO LIFEGUARD SERVICES CITY OF SAN DIEGO - ENGINEERING AND CAPITAL PROJECTS DEPT. LA JOLLA COVE LIFEGUARD STATION 1160 COAST BLVD., LA JOLLA, CA 92037

GENERAL NOTES

ABBREVIATIONS

-		ΓÐ		0.H.	OPPOSITE HAND	
\$ &	DIAMETER AND CENTERLINE	F.B. F.D. FDN.	FIRE BLANKET FLOOR DRAIN FOUNDATION	OPN'G OPP.	OPENING OPPOSITE	PR
С #	POUND (OR NUMBER)	F.E. F.E.C.	FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET	PB PERF.	PULL BOX PERFORATED	78 NE
A.B. ABV.	ANCHOR BOLT ABOVE	F.F. F.F.E.	FINISH FLOOR FINISH FLOOR ELEVATION	PL. PLAST.	PLATE (OR PLASTIC) PLASTER	71 EX
ACOUST. A.C.		FIN. FLASH'G	FINISH FLASHING	PLYWD. PR.	PLYWOOD PAIR	INDICATES SL
ADJ. A.F.F.	ADJUSTABLE ABOVE FINISH FLOOR	FLR. F.O.C.	FLOOR FACE OF CONCRETE	PROJ. P.T.D.F.	PROJECTION PRESSURE TREATED	
A.F.G. ALUM.	ABOVE FINISH GRADE ALUMINUM	F.O.F. F.O.M. F.O.S.	FACE OF FINISH FACE OF MASONRY FACE OF STUD		DOUGLAS FIR	A4 SH
ARCH. BD.	ARCHITECTURAL	FRAM'G FRP	FRAMING FIBERGLASS REINFORCED	R (OR RAʿĽ R.D.	RADIUS ROOF DRAIN RECOMMENDATIONS	C SE
BLDG. BLKG.	BUILDING BLOCKING	FT.	PANELS FOOT (OR FEET)	REC.S REFL. REFRIG.	REFLECTED REFRIGERATOR	A4 K
ВМ. В.О.В.	BEAM BOTTOM OF BEAM	FTG. F.V.	FOOTING FIELD VERIFY	REINF.	REINFORCED (OR REINFORCEMENT)	cc
BOT. BTWN.	BOTTOM BETWEEN	GA.	GAUGE	REQ. RETAIN'G	REQUIRED RETAINING	SC SC
CAB.	CABINET	GALV. G.I. GL.	GALVANIZED GALVANIZED IRON GLASS	RET. RF.	RETAINING ROOF	<u>7/////////</u> CCC
C.B. C.F.O.I.	CATCH BASIN CONTRACTOR FURNISHED OWNER INSTALLED		GLU-LAM BEAM GOVERNMENT	RM. ROOF'G	ROOM ROOFING	
C.I.P. CJ.	CAST IN PLACE COLD JOINT	GYP. BD.	GYPSUM BOARD	S.C. SCHED.	SOLID CORE SCHEDULE	
C.J. C.L.	CONTROL JOINT CHAIN LINK	H.D. HD W R.	HOLD DOWN HARDWARE	SDRSD SHT'G	SAN DIEGO REGIONAL STANDARD DRAWINGS	
CLG. CLR.	CEILING CLEAR	HDR. HGR.	HEADER HANGER HORIZONTAL	SHT. SIM.	SHEATHING SHEET SIMILAR	
	CONCRETE MASONRY UNIT	HORIZ. H. M . HR.	HOLLOW METAL HOUR	SJ S.M.S.	SAWCUT JOINT SHEET METAL SCREWS	
COL, COMP. CONC.	COLUMN COMPOSITION CONCRETE	HT.	HEIGHT	SQ. S.S. STD.	SQUARE STAINLESS STEEL STANDARD	
CONN.	CONNECTION CONSTRUCTION	INSUL. INT.	INSULATION INTERIOR	STL. STOR.	STEEL STORAGE	
CON⊺. CORR.	CONTINUOUS CORRIDOR	JT.		STRUCT. SUSP.	STRUCTURAL SUSPENDED	
C.O.T. C.T.	CENTER OF TRUSS CERAMIC TILE	JST. LAM.	JOIST LAMINATE	Т.А.	TOILET ACCESSORY	
CTSK DBL.	COUNTERSINK	LAV. LAV. LT.	LAVATORY LIGHT	T&B TEL. TEMP.	TOP & BOTTOM TELEPHONE TEMPERED	
DF. D.F.	DOUGLAS FIR DRINKING FOUNTAIN	MATR'L	MATERIAL	TG TJ	TOP OF GRATE TOOLED JOINT	
DG DIA.	DECOMPOSED GRANITE DIAMETER	MAX. M.B.	MAXIMUM MACHINE BOLT	Т.О. Т.О.М.	TOP OF TOP OF MASONRY	
DIAG. DIM.	DIAGONAL DIMENSION	MECH. MFR.	MECHANICAL MANUFACTURER MINIMUM	T.O.P. TS	TOP OF PARAPET TUBE STEEL	
DISP. DN.	DISPENSER DOWN	MIN. MIN	MINIMUM MINUTE MISCELLANEOUS	T.₩. TYP.	TOP OF WALL Typical	
DR. D.S. DWG	DOOR DO₩NSPOU⊤ DRA₩ING	MISC. M.O. M.R.	MASONRY OPENING MOISTURE RESISTANT	U.N.O. U.O.N.	UNLESS NOTED OTHERWISE	
(E)	EXISTING	MTL. (N)	METAL NEW	0.0.11.	UNLESS OTHERWISE NOTED	
EA EJ	EACH EXPANSION JOINT	N.I.C. NO.	NOT IN CONTRACT NUMBER	V.A .T.	VINYL ASPHALT TILE	
ELECT. ELEV.	ELECTRICAL ELEVATION	N.T.S. 0/	NOT TO SCALE OVER ON CENTER	V.C.T. VERT.	VINYL COMPOSITION TILE	1. ENVIRONMENTA DEVELOPMENT
ENCL. EQ.		0.C. 0.F.C.I.	ON CENTER OWNER FURNISHED - CONTRACTOR INSTALLED	V.G.D.F.	VERTICAL GRAIN DOUGLAS FIR	2. ALL DRAINAGE
EQUIP. EXIST. EXT.	EQUIPMENT EXISTING	0.F.O.I.	OWNER FURNISHED - OWNER INSTALLED	VV/	WITH WATERCLOSET	SHALL BE DIRI
	EXTERIOR	0.P.C.I.	OWNER PROVIDED - CONTRACTOR INSTALLED	W.C. WD. W.J.	WATERCLOSET WOOD WEAKENED JOINT	SYSTEM OR PU ALL DRAINAGE
				W.D. W.P. W.R.	WATER RESISTANT	DISCHARGED II BLUFF.
	و محمد المحمد			W⊺.	WEIGHT	3. THE CONTRAC
1 074104	REFER	KENCI	E DOCUMENT	3		USED, ÉQUIPM THE CONSTRU
STANDA	RD SPECIFICATIONS FOR PUBLIC WO		ON 2012 EDITION, "GREENBOOK"			CONDUCTED TO RESOURCES, P
CITY OF	ent no. pits050409–01, filed May san diego suppleMent, 2012 up	DATE				POSSIBLE. AN' CITY MANAGEF
DOCUME	ENT NO. PITS050409-02, FILED MAY	4, 2012	UNIFORM TRAFFIC CONTROL DEVICES (MUTCD 2006) INCLU	DING THE CALIFORNIA	4. CONSTRUCTION SHALL BE MAN
SUPPLE	MENT AND THE CITY OF SAN DIEGO ENT NO. AEC1231064, FILED DECEMB	SIGN BOOK. 200	D3 EDITION			5. THE PROJECT
	<u>RD DRAWINGS</u> : 5 SAN DIEGO STANDARD DRAWINGS I					6. ANY TEMPORA
DOCUME	ENT NO. AEC1231063, FILED DECEMB	ER 31, 2012.	EVIDIAL STANDARD DRAWINGS.			WILL REQUIRE
STANDA	OPPORTUNITY PROGRAM REQUIREMENT	PPORTUNITY CON	ISTRUCTION CONTRACT SPECIFICATIONS	AND THE EQUAL OF	PPORTUNITY CLAUSE	THE REQUIREN
	ENT NO. 769023, FILED SEPTEMBER CONSTRUCTION	CHANGE / ADDI				
CHANGE	DATE AFFECTED OR ADDE	D SHEET NUMBERS	APPROVAL NO.	1	CITY OF	SAND
		· · · · · · · · · · · · · · · · · · ·				
				S BAR DOES NOT E 1" THEN DRAWIN	_G PUBLIC	WUKK
L				NOT TO SCALE.	-	

SYMBOLS

		PLYWOOD	1.	THE PROJECT SPECIFICATION INTEGRAL PART OF THE CO		THESE CONSTRU	CTION DOC
ROPERTY LINE EW OR FINISHED CONTOURS		STEEL	2.	THE CONTRACTOR SHALL E	TION SHALL BE IN COMPL		
XISTING CONTOURS		WD. BLOCKING	3.	FEDERAL REQUIREMENTS AND THE CONTRACTOR SHALL V		ALL DIMENSION	IS PRIOR 1
LOPING SURFACE		WD. CONT. MEMBER WORK POINT, CONNECTION POINT		BID. THE CONTRACTOR IS	ALSO RESPONSIBLE FOR	OBTAINING ALL	REQUIRED
ETAIL NUMBER	12	MORK POINT, CONNECTION POINT DATUM POINT OR CONTROL POINT KEY NOTE	4.	DIMENSIONS BEFORE START	TING WORK. THE RESIDEN	I ENGINEER (R.E	E.) SHALL
HEET DETAIL APPEARS ON	(101A)	DOOR NUMBER REFERENCE	5.	THE CONTRACTOR SHALL D AREA TO BE EXCAVATED P	DETERMINE THE LOCATION PRIOR TO THE BEGINNING	OF ALL EXISTING	GUTILITY S The CON
ECTION NUMBER HEET SECTION APPEARS ON	$\underbrace{1}$	WINDOW NUMBER REFERENCE		PROTECT ALL UTILITY LINES CONSTRUCTION.	S, SERVICE LINES TO REM	AIN WHICH ARE	ENCOUNTE
ONCRETE	(4A)	WALL TYPE REFERENCE	6.	THE CONTRACTOR SHALL E CALIFORNIA OCCUPATIONAL REGULATIONS.	BE RESPONSIBLE FOR THE SAFETY AND HEALTH AD	ENFORCEMENT OF MINISTRATION RI	OF FEDERA EQUIREMEN
	0	SIGN TYPE REFERENCE	7.	DO NOT SCALE ANY DRAW	INGS IN THIS SET.		
ONCRETE MASONRY UNIT		ALIGN FINISHES	8.	ALL DIMENSIONS SHALL TA DETAILS. SPECIFIC NOTES TYPICAL DETAILS.	KE PRECEDENCE OVER SC AND DETAILS SHALL TAK	ALE SHOWN ON E PRECEDENCE	PLANS, SI Over gene
			9.	ALL OMISSIONS AND CONFL AND/OR SPECIFICATIONS SI (R.E.) IMMEDIATELY BEFORE BE MADE UNLESS THE ARC SUCH A CHANGE ACCORDIN	HALL BE BROUGHT TO TH E PROCEEDING WITH ANY CHITECT AND THE OWNER	E ATTENTION OF WORK SO INVOL'	THE RESI
			10.	THE ARCHITECT IS NOT RE	SPONSIBLE FOR HAZARDO	us Materials A	ABATEMENT
			11.	PROVIDE BACKING AT ALL LOCATIONS.	INDICATED FIXTURES, TOIL	ET ACCESSORIES	3, SIGNS, H
			12.	DURING CONSTRUCTION PER ON FRAMED FLOORS OR RE EACH PARTICULAR LEVEL.	RIOD, MATERIALS OF CONS OOF. THE LOAD SHALL N	STRUCTION SHAL	L BE SPRE DESIGN LI
			13.	ITEMS SHOWN AS N.I.C. ON PERMITS. INSTALLING CON ITEMS.	N PLANS MAY REQUIRE SE ITRACTOR(S) IS RESPONSI	PARATE SUBMIT BLE FOR OBTAIN	TALS, APPI ING PERMI ⁻
			14.	CONTRACTOR SHALL VERIF OTHERWISE NOTED.	Y MINIMUM 1.5% SITE DRA	INAGE TO DRAIN	AGE INLET
			15.	CONTRACTOR SHALL ENSUI MATERIAL JOINS EXISTING			RE NEW FI
			16.	SAFETY GLAZING IN HAZAF SUCH DOORS AND GLAZINO C.B.C., APPLICABLE EDITION	G ADJACENT TO WALKWAY	AS GLASS DOORS SURFACES TO	3, GLAZING COMPLY WI
			17.	ALL ITEMS INDICATED ON	THE DRAWINGS ARE NEW U	JNLESS OTHERW	ISE NOTED.
SITE PROTE	CTION	NOTES		ALL WORK SHALL CONFORM			
ALLY SENSITIVE LANDS THAT A	RE OUTSIDE OF	THE ALLOWABLE	-19.	GRADING PLANS, DRAINAGE ENVIRONMENTAL HEALTH C	E IMPROVEMENTS, ROAD A CONSIDERATIONS SHALL CC	MPLY WITH ALL	LOCAL OR
AREA SHALL BE LEFT IN A NA E FROM THE CONSTRUCTION AN RECTED AWAY FROM ANY COAST BLIC STORM SYSTEM OR ONTO PUBLIC RIGHT-OF-WAY DESIGNA E FROM UNIMPROVED AREAS SH IN ORDER TO REDUCE, CONTROL	D PROJECT IMP TAL BLUFF AND A STREET DEVE TED TO CARRY IALL BE APPRO	EITHER INTO AN EXISTING OR LOPED WITH A GUTTER SURFACE DRAINAGE RUN-OFF. PRIATELY COLLECTED AND	20.	CONTRACTOR SHALL COND SUBCONTRACTORS, TO REV LIGHT FIXTURES, RECESSED MOUNTED ITEMS WITH ARC PIPES, WHERE VISUALLY EX THE SHORTEST DISTANCE/ CONTRACTOR WILL NOT BE REQUIRED TO ACHIEVE A V	VIEW AND COORDINATE RO D CHASES IN WOOD CEILIN CHITECT FOR APPROVAL PF XPOSED, SHALL BE NEATL ROUTING NOR THE MOST I ALLOWED TO REQUEST A	UTING AND LAYO G, AND OTHER RIOR TO START Y INSTALLED, WI EFFICIENT INSTAI DDITIONAL COMF	DUT OF PIF VISUALLY E OF WORK. HICH MAY LLATION/PF
CTOR SHALL SUBMIT A SCHEDUL R. THE SCHEDULE SHALL DETA			21.	WELDS SHALL BE GROUND STEEL) FABRICATIONS EXP		JRAL AND MISC.	STEEL (AI
MENT TO BE USED, ROUTES OF ICTION OF THE APPROVED PROJ TO MINIMIZE ANY ADVERSE IMPA	ACCESS, AND A	ANY ACTIVITY NECESSARY FOR TONS SHALL BE PLANNED AND	22.	ALL (EXPOSED AND CONCE INTERIOR) SHALL BE HOT-	EALED) STRUCTURAL AND DIP GALVANIZED UNLESS	MISCELLANEOUS OTHERWISE NOTE	STEEL (EX ED.
PROPERTIES AND THE SURROUN IY CHANGES TO THE APPROVED R.	DING AREAS TO	D THE GREATEST EXTENT	23.	ALL HOT-DIP GALVANIZED BARE AND UNTREATED (NO		E A HIGH-PERFO	RMANCE C
N SHALL BE PERMITTED PROVID NAGED SO AS TO PREVENT THI	ed that all (em from enter	CONSTRUCTION MATERIALS RING THE WATERS.	24.	ALL EXPOSED AND PARTIA HIGH-PERFORMANCE COAT		ALVANIZED STEE	L SHALL B
SHALL HAVE NO NET LOSS OF							
ARY STORAGE OF EQUIPMENT OF REVIEW BY THE STATE OF CAL				CC	ONSULTANT		
XCEEDS 1,000 CUBIC YARDS, P MENTS AND STANDARDS SET FC				CHITECTS CHITECTS	ROESLING NAKAMURA TERA		
		TEGO·ST		× ×	ARCHITECTS		

DIEGO S PROJECT



363 Fifth Avenue San Diego, California 92101 P619.233.1023

vww.rntarchitects.c

	LEGAL DESCRIPTION
IMENTS IS AN	THE PROJECT SITE IS LEGALLY DESCRIBED AS BLOCK 58, LA JOLLA PARK, MAP THEROF NO. 352, FILED MARCH 22, 1887.
ANSHIP, .e codes and	THE .05 ACRE PROJECT SITE IS LOCATED AT 1160 COAST BOULEVARD IN THE RS-1-7 ZONE, COASTAL OVERAL ZONE, SENSITIVE COASTAL OVERLAY ZONE, COASTAL HEIGHT
D SUBMITTING A	LIMITATION OVERLAY ZONE, COASTAL IMPACT AND BEACH IMPACT OVERLAY ZONE AND RESIDENTIAL TANEM PARKING OVERLAY ZONE WITHIN THE LA JOLLA COMMUNITY PLANNING AREA.
PERMITS. IS AND BE NOTIFIED	
ERVICES IN THE IRACTOR SHALL ED DURING	
AND STATE OF S AND	
CTIONS AND CAL NOTES AND	
KING DRAWINGS ENT ENGINEER HANGES ARE TO ND APPROVE	
NDRAILS, ETC.	
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SH SURFACE ADJACENT TO H SECTION 2406 CCR). AND NANCES. LL INVOLVED NG, CONDUITS, POSED CEILING CONDUITS AND OT RESULT IN ACTICE. OR EFFORTS	
SH SURFACE ADJACENT TO H SECTION 2406 CR). AND NANCES. L INVOLVED NG, CONDUITS, POSED CEILING CONDUITS AND DT RESULT IN ACTICE. OR EFFORTS D STAINLESS	SPEC NO. 5708 LA JOLLA COVE LIFEGUARD STATION
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ACCESSIBILITY NOTES - WHERE REQUIRED

DOORS & HARDWARE - WHERE REQUIRED

1. ALL ENTRANCES AND EXTERIOR GROUND-FLOOR EXIT DOORS TO BUILDINGS AND FACILITIES SHALL BE MADE ACCESSIBLE TO PERSONS WITH DISABILITIES. DOORWAYS SHALL HAVE A MINIMUM CLEAR OPENING OF 32 INCHES WITH THE DOOR OPEN 90 DEGREES, MEASURED BETWEEN THE FACE OF THE DOOR AND THE OPPOSITE STOP. (CBC 1133B.1.1)

2. HAND-ACTIVATED DOOR OPENING HARDWARE, HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE. HARDWARE SHALL BE CENTERED BETWEEN 30 INCHES (762MM) AND 44 INCHES (1118MM) ABOVE THE FLOOR. LATCHING AND LOCKING DOORS THAT ARE HAND-ACTIVATED AND WHICH ARE IN A PATH OF TRAVEL SHALL BE OPERABLE WITH A SINGLE EFFORT BY LEVER-TYPE HARDWARE, PANIC BARS, PUSH-PULL ACTIVATING BARS OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE. LOCKED EXIT DOORS SHALL OPERATE AS ABOVE IN EGRESS DIRECTION. (CBC 1133B.2.5.2)

3. WHERE PANIC AND FIRE EXIT HARDWARE IS INSTALLED, IT SHALL COMPLY WITH THE FOLLOWING: (CBC 1008.1.9)

1. THE ACTUATING PORTION OF THE RELEASING DEVICE SHALL EXTEND AT LEAST ONE-HALF OF THE DOOR LEAF WIDTH.

2. THE MAXIMUM UNLATCHING FORCE SHALL NOT EXCEED 15 POUNDS

WIDTH AND HEIGHTS: EVERY REQUIRED EXIT DOORWAY SHALL BE OF A SIZE AS TO PERMIT THE INSTALLATION OF A DOOR NOT LESS THAN 3 FEET IN WIDTH AND NOT LESS THAN 6 FEET, 8 INCHES IN HEIGHT. WHEN INSTALLED IN EXIT DOORWAYS, EXIT DOORS SHALL BE CAPABLE OF OPENING AT LEAST 90 DEGREES AND SHALL BE SO MOUNTED THAT THE CLEAR WIDTH OF THE EXIT WAY IS NOT LESS THAN 32 INCHES (813MM) MEASURED BETWEEN THE FACE OF THE DOOR AND THE OPPOSITE STOP. IN COMPUTING THE EXIT WIDTH THE NET DIMENSION OF THE EXITWAY SHALL BE USED. (CBC 1133B.2.2)

5. FOR HINGED DOORS, THE OPENING WIDTH SHALL BE MEASURED WITH THE DOOR POSITIONED AT AN ANGLE OF 90 DEGREES FROM ITS CLOSED POSITION. (CBC 1133B.2.3) WHERE A PAIR OF DOORS IS UTILIZED, AT LEAST ONE OF THE DOORS SHALL PROVIDE A CLEAR, UNOBSTRUCTED OPENING WIDTH OF 32 INCHES WITH THE LEAF POSITIONED AT AN ANGLES OF 90 DEGREES FROM ITS CLOSED POSITION. (CBC 1133B.2.3.1) REVOLVING DOORS SHALL NOT BE USED AS A REQUIRED ENTRANCE FOR THE PERSONS WITH DISABILITIES. (CBC 1133B.2.3.3)

6. THE MAXIMUM WIDTH OF A SWINGING DOOR LEAF SHALL BE 48 INCHES (1219MM) NOMINAL. (CBC 1008.1.1)

7. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 8.5 POUNDS FOR EXTERIOR DOORS AND 5 POUNDS FOR INTERIOR DOORS, SUCH PULL OR PUSH EFFORT BEING APPLIED AT RIGHT ANGLES TO HINGED DOORS AND AT THE CENTER PLANE OF SLIDING OR FOLDING DOORS. COMPENSATING DEVICES OR AUTOMATIC DOOR OPERATORS MAY BE UTILIZED TO MEET THE ABOVE STANDARDS. WHEN FIRE DOORS ARE REQUIRED, THE MAXIMUM EFFORT TO OPERATE THE DOOR MAY BE INCREASED NOT TO EXCEED 15 POUNDS. (CBC 1004.5.1)

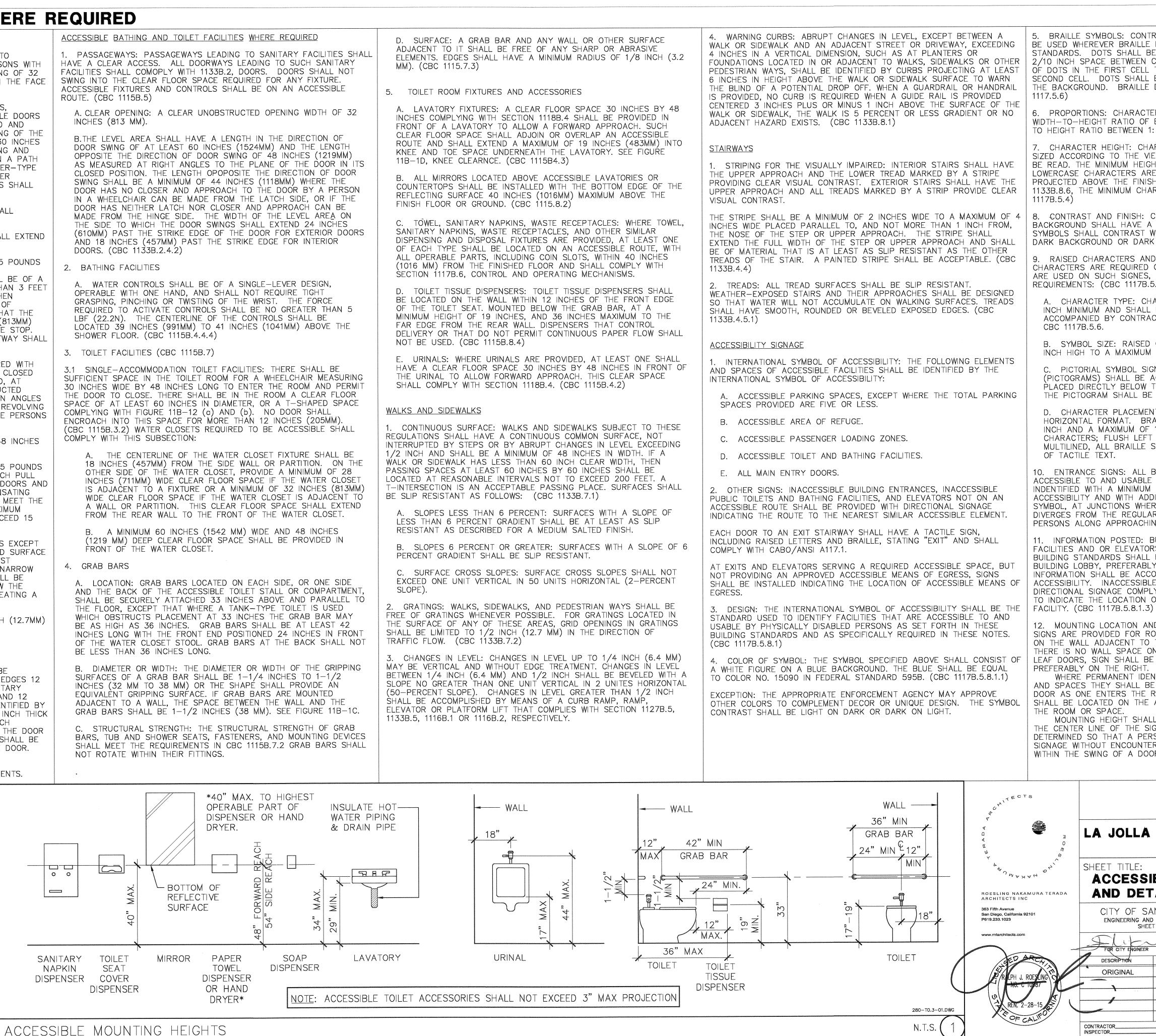
8. DOOR CONSTRUCTION: THE BOTTOM 10 INCHES OF ALL DOORS EXCEPT AUTOMATIC AND SLIDING SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE TO ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION. WHERE NARROW FRAME DOORS ARE USED, A 10-INCH HIGH SMOOTH PANEL SHALL BE INSTALLED ON THE PUSH SIDE OF THE DOOR, WHICH WILL ALLOW THE DOOR TO BE OPENED BY A WHEELCHAIR FOOTREST WITHOUT CREATING A TRAP OR HAZARDOUS CONDITION. (CBC 1004.8.1)

9. THE FLOOR OR LANDING SHALL NOT BE MORE THAN 1/2 INCH (12.7MM) LOWER THAN THE THRESHOLD OF THE DOORWAY.

SANITARY FACILITIES IDENTIFICATION - WHERE REQUIRED

1. DOORWAYS LEADING TO MEN'S SANITARY FACILITIES, SHALL BE IDENTIFIED BY AN EQUILATERAL TRIANGLE 1/4 INCH THICK WITH EDGES 12 INCHES LONG AND A VERTEX POINTING UPWARD, WOMEN'S SANITARY FACILITIFS SHALL BE IDENTIFIED BY A CIRCLE, 1/4 INCH THICK AND 12 INCHES IN DIAMETER. UNISEX SANITARY FACILITIES SHALL BE IDENTIFIED BY A CIRCLE 1/4 INCH THICK, 12 INCHES IN DIAMETER WITH A 1/4 INCH THICK TRIANGLE SUPERIMPOSED ON THE CIRCLE AND WITHIN THE 12 INCH DIAMETER. THESE GEOMETRIC SYMBOLS SHALL BE CENTERED ON THE DOOR AT A HEIGHT OF 60 INCHES AND THEIR COLOR AND CONTRAST SHALL BE DISTINCTLY DIFFERENT FROM THE COLOR AND CONTRAST OF THE DOOR. (CBC SECTION 1115B.6)

SEE ACCESSIBILITY SIGNAGE CRITERIA FOR ADDITIONAL REQUIREMENTS.



5. BRAILLE SYMBOLS: CONTRACTED (GRADE 2 CERTIFIED) BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. DOTS SHALL BE 1/10 INCH ON CENTER IN EACH CELL WITH FOUNDATIONS LOCATED IN OR ADJACENT TO WALKS, SIDEWALKS OR OTHER | 2/10 INCH SPACE BETWEEN CELLS, MEASURED FROM THE SECOND COLUMN PEDESTRIAN WAYS, SHALL BE IDENTIFIED BY CURBS PROJECTING AT LEAST | OF DOTS IN THE FIRST CELL TO THE FIRST COLUMN OF DOTS IN THE SECOND CELL. DOTS SHALL BE RAISED A MINIMUM OF 1/40 INCH ABOVE THE BACKGROUND. BRAILLE DOTS SHALL BE DOMED OR ROUNDED. (CBC 1117.5.6)

> 6. PROPORTIONS: CHARACTERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO OF BETWEEN 3:5 AND 1:1 AND A STROKE WIDTH TO HEIGHT RATIO BETWEEN 1:5 AND 1:10. (CBC 1117B.5.3)

7. CHARACTER HEIGHT: CHARACTERS AND NUMBERS ON SIGNS SHALL BE SIZED ACCORDING TO THE VIEWING DISTANCE FROM WHICH THEY ARE TO BE READ. THE MINIMUM HEIGHT IS MEASURED USING AN UPPERCASE X. LOWERCASE CHARACTERS ARE PERMITTED. FOR SIGNS SUSPENDED OR PROJECTED ABOVE THE FINISH FLOOR IN COMPLIANCE WITH SECTION 1133B.8.6, THE MINIMUM CHARACTER HEIGHT SHALL BE 3 INCHES. (CBC 1117B.5.4)

THE STRIPE SHALL BE A MINIMUM OF 2 INCHES WIDE TO A MAXIMUM OF 4 8. CONTRAST AND FINISH: CHARACTER, SYMBOLS, AND THEIR BACKGROUND SHALL HAVE A NONGLARE FINISH. CHARACTERS AND SYMBOLS SHALL CONTRAST WITH THEIR BACKGROUND, EITHER LIGHT ON A DARK BACKGROUND OR DARK ON A LIGHT BACKGROUND. (CBC 1117B.5.2)

> 9. RAISED CHARACTERS AND PICTORIAL SYMBOL SIGNS: WHEN RAISED CHARACTERS ARE REQUIRED OR WHEN PICTORIAL SYMBOLS (PICTOGRAMS) ARE USED ON SUCH SIGNES, THEY SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: (CBC 1117B.5.5)

A. CHARACTER TYPE: CHARACTER ON SIGNS SHALL BE RAISED 1/32 INCH MINIMUM AND SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY CONTRACTED (GRADE 2) BRAILLE COMPLYING WITH CBC 1117B.5.6.

B. SYMBOL SIZE: RAISED CHARACTERS SHALL BE A MINIMUM OF 5/8 INCH HIGH TO A MAXIMUM OF 2 INCHES HIGH.

C. PICTORIAL SYMBOL SIGNS (PICTOGRAMS): PICTORIAL SYMBOL SIGNS (PICTOGRAMS) SHALL BE ACCOMPANIED BY THE VERBAL DESCRIPTION PLACED DIRECTLY BELOW THE PICTOGRAM. THE OUTSIDE DIMENSION OF THE PICTOGRAM SHALL BE A MINIMUM OF 6 INCHES IN HEIGHT.

D. CHARACTER PLACEMENT: CHARACTER AND BRAILLE SHALL BE IN A HORIZONTAL FORMAT. BRAILLE SHALL BE PLACED A MINIMUM OF 3/8 INCH AND A MAXIMUM OF 1/2 INCH DIRECTLY BELOW THE TACTILE CHARACTERS; FLUSH LEFT OR CENTERED. WHEN TACTILE TEXT IS MULTILINED, ALL BRAILLE SHALL BE PLACED TOGETHER BELOW ALL LINES OF TACTILE TEXT.

10. ENTRANCE SIGNS: ALL BUILDING AND FACILITY ENTRANCES THAT ARE ACCESSIBLE TO AND USABLE BY PERSONS WITH DISABILITIES SHALL BE INDENTIFIED WITH A MINIMUM OF ONE INTERNATIONAL SYMBOL OF ACCESSIBILITY AND WITH ADDITIONAL DIRECTIONAL SIGNS, UTILIZING THE SYMBOL, AT JUNCTIONS WHERE THE ACCESSIBLE ROUTE OF TRAVEL DIVERGES FROM THE REGULAR CIRCULATION PATH, TO BE VISIBLE TO PERSONS ALONG APPROACHING CIRCULATIONS PATHS. (CBC 1117B.5.8.1.2)

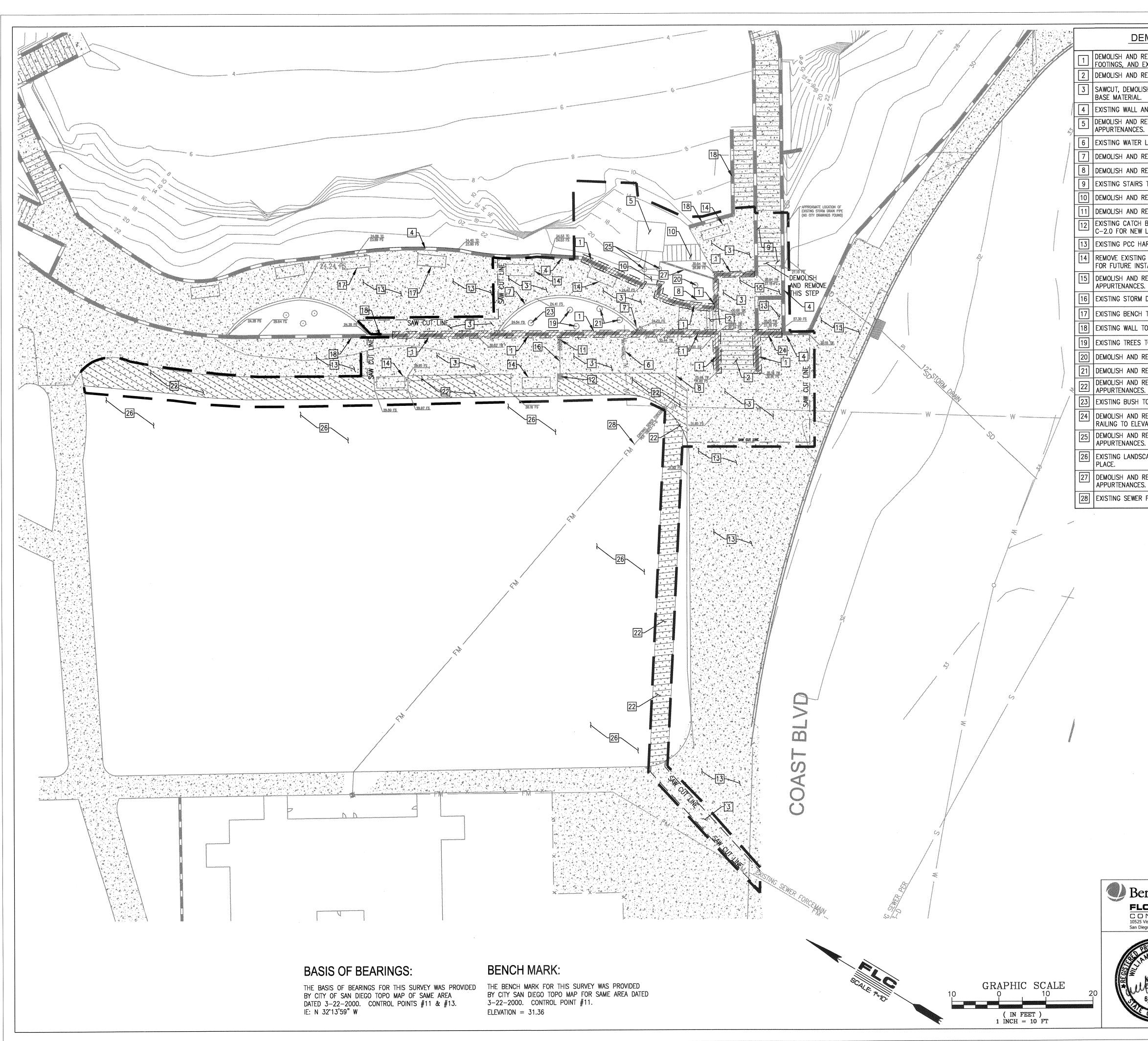
11. INFORMATION POSTED: BUILDING THAT PROVIDE SPECIFIC SANITARY FACILITIES AND OR ELEVATORS FOR PUBLIC USE THAT CONFORM TO THESE BUILDING STANDARDS SHALL HAVE THIS INFORMATION POSTED IN THE BUILDING LOBBY, PREFERABLY AS PART OF THE BUILDING DIRECTORY. THE INFORMATION SHALL BE ACCOMPANIED BY THE INTERNATIONAL SYMBOL OF SHALL BE INSTALLED INDICATING THE LOCATION OF ACCESSIBLE MEANS OF ACCESSIBILITY. INACCESSIBLE SANITARY FACILITIES SHALL HAVE DIRECTIONAL SIGNAGE COMPLYING WITH SECTION 1117B.5.1, ITEMS 2 AND 3, TO INDICATE THE LOCATION OF THE NEAREST ACCESSIBLE SANITARY

12. MOUNTING LOCATION AND HEIGHT: WHERE PERMANENT IDENTIFICATION SIGNS ARE PROVIDED FOR ROOMS AND SPACES, SIGN SHALL BE INSTALLED ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. WHERE THERE IS NO WALL SPACE ON THE LATCH SIDE, INCLUDING AT DOUBLE 4. COLOR OF SYMBOL: THE SYMBOL SPECIFIED ABOVE SHALL CONSIST OF | LEAF DOORS. SIGN SHALL BE PLACED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT

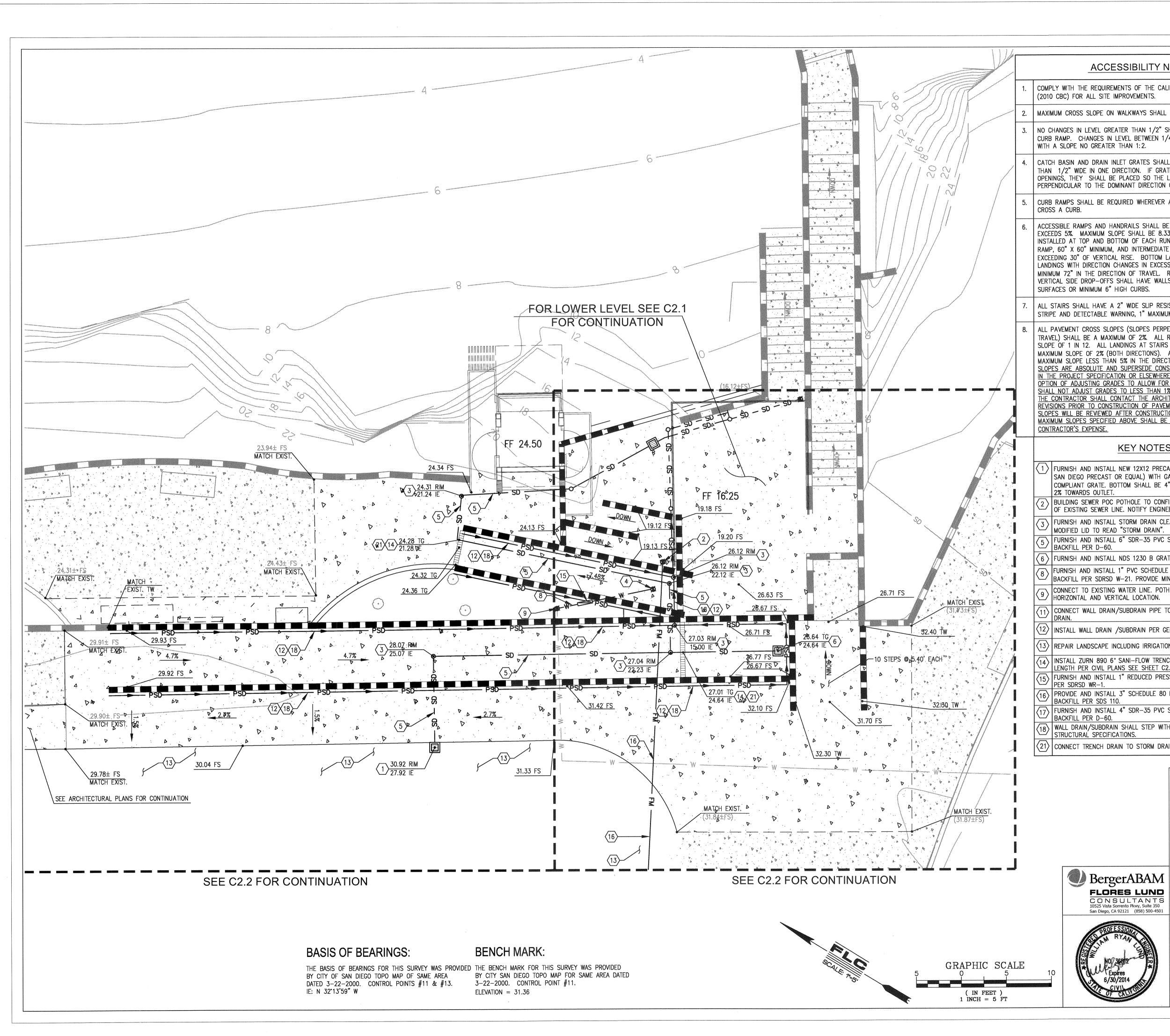
WHERE PERMANENT IDENTIFICATION SIGNAGE IS PROVIDED FOR ROOMS AND SPACES THEY SHALL BE LOCATED ON THE APPROACH SIDE OF THE DOOR AS ONE ENTERS THE ROOM OR SPACE. SIGNS THAT IDENTIFY EXITS SHALL BE LOCATED ON THE APPROACH SIDE OF THE DOOR AS ONE EXITS THE ROOM OR SPACE. MOUNTING HEIGHT SHALL BE 60 INCHES ABOVE THE FINISH FLOOR TO

THE CENTER LINE OF THE SIGN. MOUNTING LOCATION SHALL BE DETERMINED SO THAT A PERSON MAY APPROACH WITHIN 3 INCHES OF SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.

WALL	<i>P</i> CHITECTS	BID SUBMITTAL	
MIN B BAR IN ^C 12"		LA JOLLA COVE LIFEGUARD	STATION LA JOLLA, CALIFORNIA
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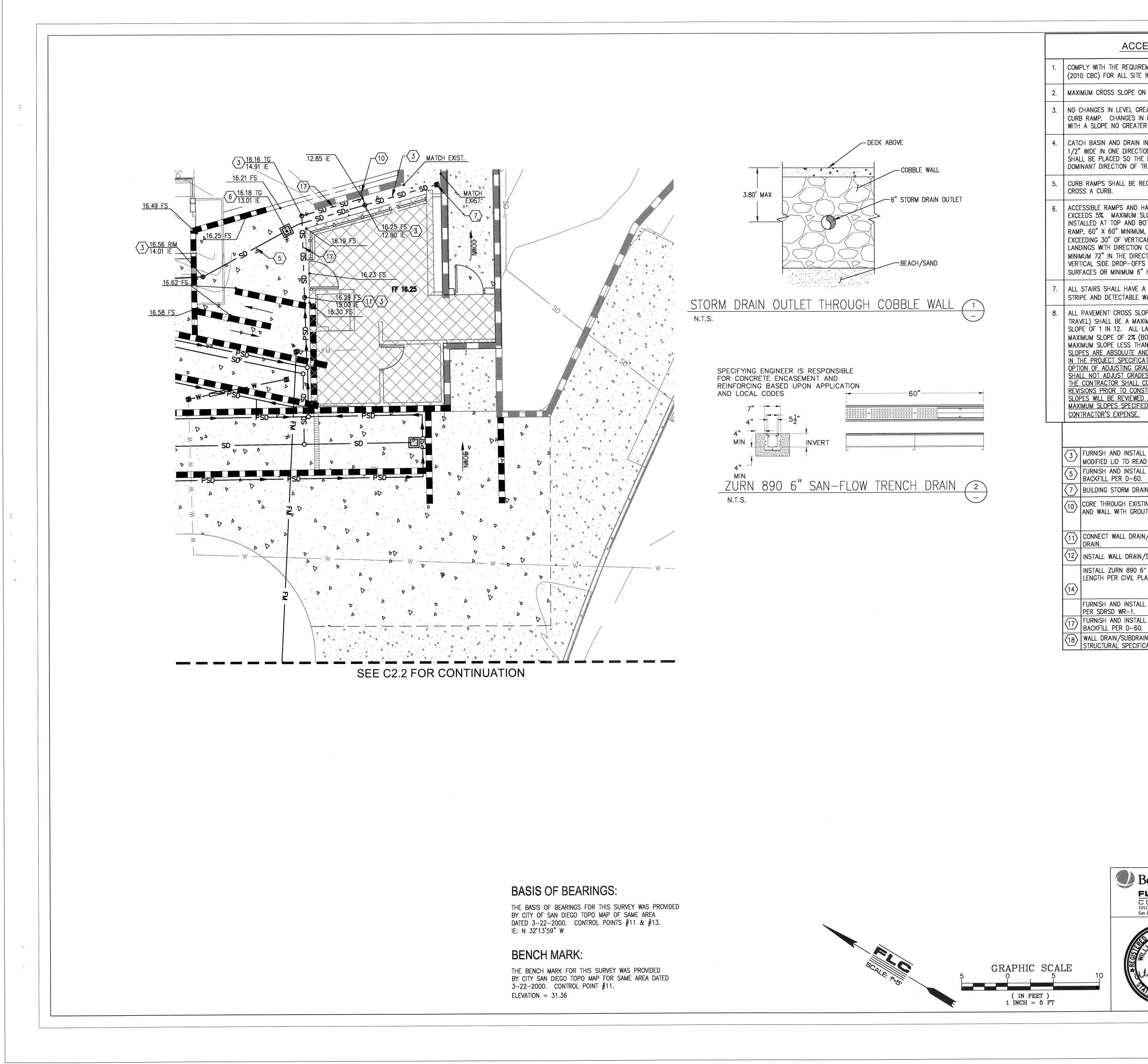


MOLITION KEY NOTES		LEGEN	<u>ND</u>
EMOVE EXISTING PORTION OF WALL INCLUDING	EXIST. WATI	ER LINE	
EXISTING RAILING. EMOVE EXISTING STAIRS.	EXIST. SEW		
SH AND REMOVE EXISTING P.C.C. HARDSCAPE INCUDING	EXIST. STO	RM DRAIN LINE	
ND RAILING TO REMAIN PROTECT IN PLACE.	EXIST. SEW	ER FORCE MAIN	
EMOVE EXISTING LIFE GUARD TOWER INCLUDING ALL	EXIST. FEN	CE	XXX
LINE TO REMAIN PROTECT IN PLACE.	EXIST. CON	TOUR	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
EINE TO REMAIN PROTECT IN PLACE.			······································
EMOVE EXISTING 2" SEWER FORCEMAIN.		C. PAVEMENT	
TO REMAIN PROTECT IN PLACE.	EXIST. WAL	-	
EMOVE EXISTING WOODEN STAIRS INCLUDING RAILING.	EXIST. TREI	-	\odot
EMOVE EXISTING STORM DRAIN. BASIN TO BE RELOCATED. SEE GRADING SHEET	LIMITS OF	WORK LINE	
LOCATION.		GENERAL NO	DTES
ARDSCAPE TO REMAIN PROTECT IN PLACE.			(1-800-422-4133) AT LEAST TWO
TALLATION.	(2) DAYS PRIOR UTILITY COMPANIES		SHALL COORDINATE ALL WORK WITH
EMOVE EXISTING BUILDING INCLUDING ALL			UNDERGROUND UTILITIES SHOWN ON EARCH OF AVAILABLE RECORD
DRAIN TO REMAIN PROTECT IN PLACE.	DRAWINGS. THE	CONTRACTOR SHALL TAKE	PRECAUTIONARY MEASURES TO I THE DRAWINGS, AND ANY OTHER
TO REMAIN PROTECT IN PLACE.	WHICH IS NOT OF CONTRACTOR SHA	RECORD OR NOT SHOWN	I ON THE DRAWINGS. THE LITIES AT POINTS OF CONNECTION
O REMAIN PROTECT IN PLACE.			EXACT LOCATION PRIOR TO
TO REMAIN PROTECT IN PLACE.		ICATIONS FOR ADDITIONAL	REQUIREMENTS.
EMOVE EXISTING TREE.	4. COORDINATE LOCA	TION OF ALL UNDERGROU	ND UTILITIES AND STORM DRAINS
EMOVE EXISTING LANDSCAPE IRRIGATION INCLUDING ALL	WITH NEW TREE L		AL/ELECTRICAL FACILITIES. REFER TO
O REMAIN PROTECT IN PLACE.	INFORMATION.		
EMOVE EXISTING PORTION OF WALL AND EXISTING		F SITE TO BE GRADED: <	
ATION OF BOTTOM OF PROPOSED DECK.		SLOPES ARE REQUIRED B	PATED EXCEPT AS RELATED TO
		DATIONS, UTILITIES, AND	
APE INCLUDING IRRIGATION TO REMAIN PROTECT IN	8. THE PROJECT LIE		BROWNING SCRIPPS PARK, LA JOLLA
EMOVE EXISTING WOOD RETAINING WALL INCLUDING ALL			N FOR CONSTRUCTION OF A NEW
FORCE MAIN TO BE ABANDONED IN PLACE.	LIFEGUARD STRUC MODIFICATIONS TO	TURE AT LA JOLLA COVE EXISTING COAST BOULE	, A SLOPING SIDEWALK, AND /ARD CURBLINE AND DRAINAGE
		LECTRIC UTILITY SERVICE,	
	AND SIDEWALK A	REAS ADJACENT TO THE	ERNS: RUNOFF FROM THE STREET
	BELOW. RESEAR	CH HAS FAILED TO LOCAT	CHARGES VIA PIPE TO BEACH E ORIGINAL CONSTRUCTION DRAWING
	THE PROJECT IS	DISCHARGED BY SURFACE	NAGE FROM THE LOWER PORTION OF FLOW TO THE BEACH. THESE
			INTAINED DURING CONSTRUCTION ANI NG THE CONSTRUCTION PERIOD,
	BMP'S WILL BE U	TILIZED TO PREVENT POLL	UTANTS FROM CONSTRUCTION IE BEACH AREA FROM THE SITE.
			OVEMENTS WITHIN LIMITS OF WORK
	UNLESS INDICATE		REFER TO TYPICAL ITEMS OF
	12. PROTECT IN PLAC	E ALL EXISTING IMPROVE	MENTS, STRUCTURES AND
	UNDERGROUND U	TILITIES TO REMAIN.	
	ON THE DRAWING	S WERE OBTAINED FROM	G UNDERGROUND FACILITIES SHOWN A SEARCH OF AVAILABLE RECORD
	DRAWINGS. THE OF CONNECTIONS	CONTRACTOR SHALL POT AND ALL UTILITY CROSSI	HOLE EXISTING UTILITIES AT POINTS NGS TO DETERMINE EXACT LOCATION
	PRIOR TO STARTI	NG ANY WORK.	
	WITH NEW TREE L	OCATIONS, MECHANICAL/	JND UTILITIES AND STORM DRAINS ELECTRICAL FACILITIES, AND OTHER
	INSTALLATIONS.		LUMBING, ARCHITECTURAL AND
			EON ARE FOR INFORMATION
		REFER TO ELECTRICAL P FOR ANY WORK ON OR N	LANS AND APPROPRIATE UTILITY WITH THESE UTILITIES.
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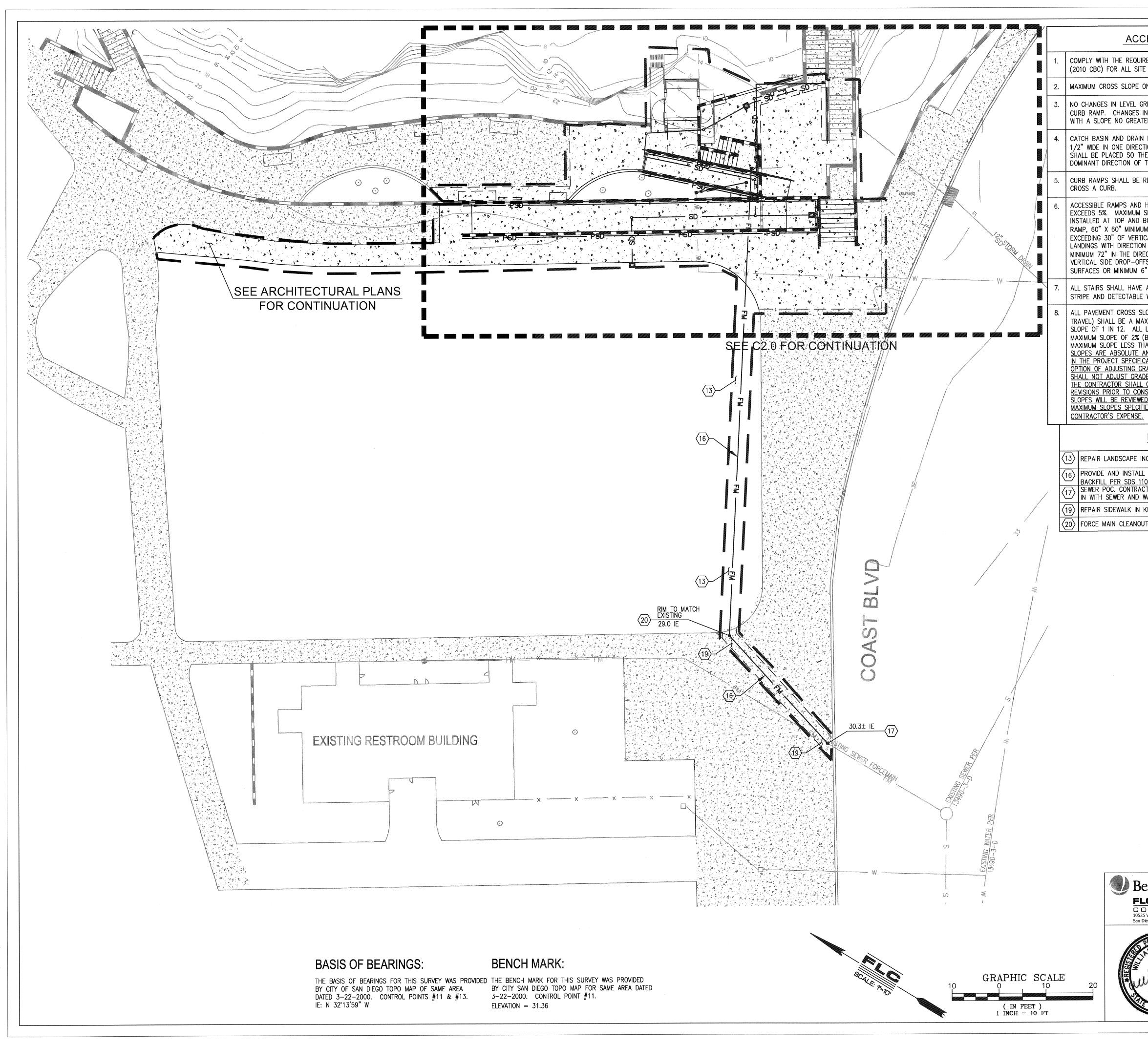


ACCESSIBILITY NOTES			<u></u>
REQUIREMENTS OF THE CALIFORNIA BUILDING CODE		EXIST. WATER LINE	
LL SITE IMPROVEMENTS.		EXIST. SEWER LINE	
LOPE ON WALKWAYS SHALL BE 1.5%.		EXIST. STORM DRAIN LINE	\$D
EVEL GREATER THAN 1/2" SHALL BE ALLOWED WITHOUT A NGES IN LEVEL BETWEEN 1/4" AND 1/2" SHALL BE BEVELED		EXIST. ELECT. LINES	E
GREATER THAN 1:2.	-	EXIST. TELEPHONE LINE EXIST. GAS LINES	TEL
DRAIN INLET GRATES SHALL HAVE SPACES NO GREATER IN ONE DIRECTION. IF GRATINGS HAVE ELONGATED SHALL BE PLACED SO THE LONG DIMENSION IS		EXIST. GAS LINES EXIST. FENCE	XX/
D THE DOMINANT DIRECTION OF TRAVEL.		EXIST. CONTOUR	~
		EXIST. P.C.C. PAVEMENT	A
S AND HANDRAILS SHALL BE REQUIRED WHEREVER SLOPE KIMUM SLOPE SHALL BE 8.33%. LEVEL LANDINGS SHALL BE		EXIST. WALL	
AND BOTTOM OF EACH RUN EQUAL TO THE WIDTH OF THE MINIMUM, AND INTERMEDIATE LANDINGS AT INTERVALS NOT		NEW WATER LINE	w
VERTICAL RISE. BOTTOM LANDINGS AND INTERMEDIATE RECTION CHANGES IN EXCESS OF 30 DEGREES SHALL BE		NEW STORM DRAIN LINE	SD
ECTION CHANGES IN EXCESS OF 30 DEGREES SHALL BE HE DIRECTION OF TRAVEL. RAMPS AND LANDINGS WITH DP-OFFS SHALL HAVE WALLS, RAILINGS, PROTECTIVE		NEW STORM DRAIN CB	
MUM 6" HIGH CURBS.		NEW TRENCH DRAIN	
HAVE A 2" WIDE SLIP RESISTANT, CONTRASTING COLOR		NEW WALL DRAIN LINE/ SUBDRAIN	PSD
TABLE WARNING, 1" MAXIMUM FROM NOSING ON ALL TREADS.	-	NEW SEWER FORCE MAIN	FM
OSS SLOPES (SLOPES PERPENDICULAR TO THE DIRECTION OF A MAXIMUM OF 2%. ALL RAMPS SHALL HAVE A MAXIMUM ALL LANDINGS AT STAIRS AND RAMPS SHALL HAVE A F 2% (BOTH DIRECTIONS). ALL WALKWAYS SHALL HAVE A		5" SLAB ON GRADE W/EPOXY COATED #3 BARS @ 18" OC BOTH WAYS SEE G—9 AND G—10 PER SDRSD FOR JOINT LOCATIONS AND DETAILS	
ESS THAN 5% IN THE DIRECTION OF TRAVEL. <u>ALL MAXIMUM</u> LUTE AND SUPERSEDE CONSTRUCTION TOLERANCES STATED PECIFICATION OR ELSEWHERE. THE CONTRACTOR HAS THE ING GRADES TO ALLOW FOR CONSTRUCTION TOLERANCE BUT		NEW WALL PER STRUCTURAL DWGS	
GRADES TO LESS THAN 1% SLOPE OR GREATER THAN 2%. SHALL CONTACT THE ARCHITECT REGARDING ANY GRADE O CONSTRUCTION OF PAVEMENT AREAS. THE PAVEMENT		GENERAL NOTES	
EVIEWED AFTER CONSTRUCTION AND PAVEMENT OVER THE SPECIFIED ABOVE SHALL BE REPLACED AT THE PENSE.	1.	THE CONTRACTOR SHALL NOTIFY DIG ALERT (1-8 (2) DAYS PRIOR TO STARTING WORK AND SHALL UTILITY COMPANIES.	
un de la constante de la consta		THE LOCATION AND EVICTENCE OF EVICTING LIND	EDODOLIND EACULITIES SHOWN
KEY NOTES	- 2.	THE LOCATION AND EXISTENCE OF EXISTING UND ON THE DRAWINGS WERE OBTAINED FROM A SEA DRAWINGS. THE CONTRACTOR SHALL TAKE PREC PROTECT ANY EXISTING FACILITY SHOWN ON THE	RCH OF AVAILABLE RECORD AUTIONARY MEASURES TO DRAWINGS, AND ANY OTHER
KEY NOTES INSTALL NEW 12X12 PRECAST CATCH BASIN (JENSEN, RECAST OR EQUAL) WITH GALVANIZED, BOLT DOWN, ADA RATE. BOTTOM SHALL BE 4" PCC PAVEMENT SLOPED AT	- 2.	ON THE DRAWINGS WERE OBTAINED FROM A SEA DRAWINGS. THE CONTRACTOR SHALL TAKE PREC	RCH OF AVAILABLE RECORD AUTIONARY MEASURES TO DRAWINGS, AND ANY OTHER THE DRAWINGS. THE AT POINTS OF CONNECTION
KEY NOTES D INSTALL NEW 12X12 PRECAST CATCH BASIN (JENSEN, PRECAST OR EQUAL) WITH GALVANIZED, BOLT DOWN, ADA SRATE. BOTTOM SHALL BE 4" PCC PAVEMENT SLOPED AT OUTLET. WER POC POTHOLE TO CONFIRM EXACT SIZE AND LOCATION	3.	ON THE DRAWINGS WERE OBTAINED FROM A SEA DRAWINGS. THE CONTRACTOR SHALL TAKE PREC PROTECT ANY EXISTING FACILITY SHOWN ON THE WHICH IS NOT OF RECORD OR NOT SHOWN ON CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AND ALL UTILITY CROSSINGS TO DETERMINE EXAC STARTING WORK.	RCH OF AVAILABLE RECORD AUTIONARY MEASURES TO DRAWINGS, AND ANY OTHER THE DRAWINGS. THE AT POINTS OF CONNECTION CT LOCATION PRIOR TO JIREMENTS.
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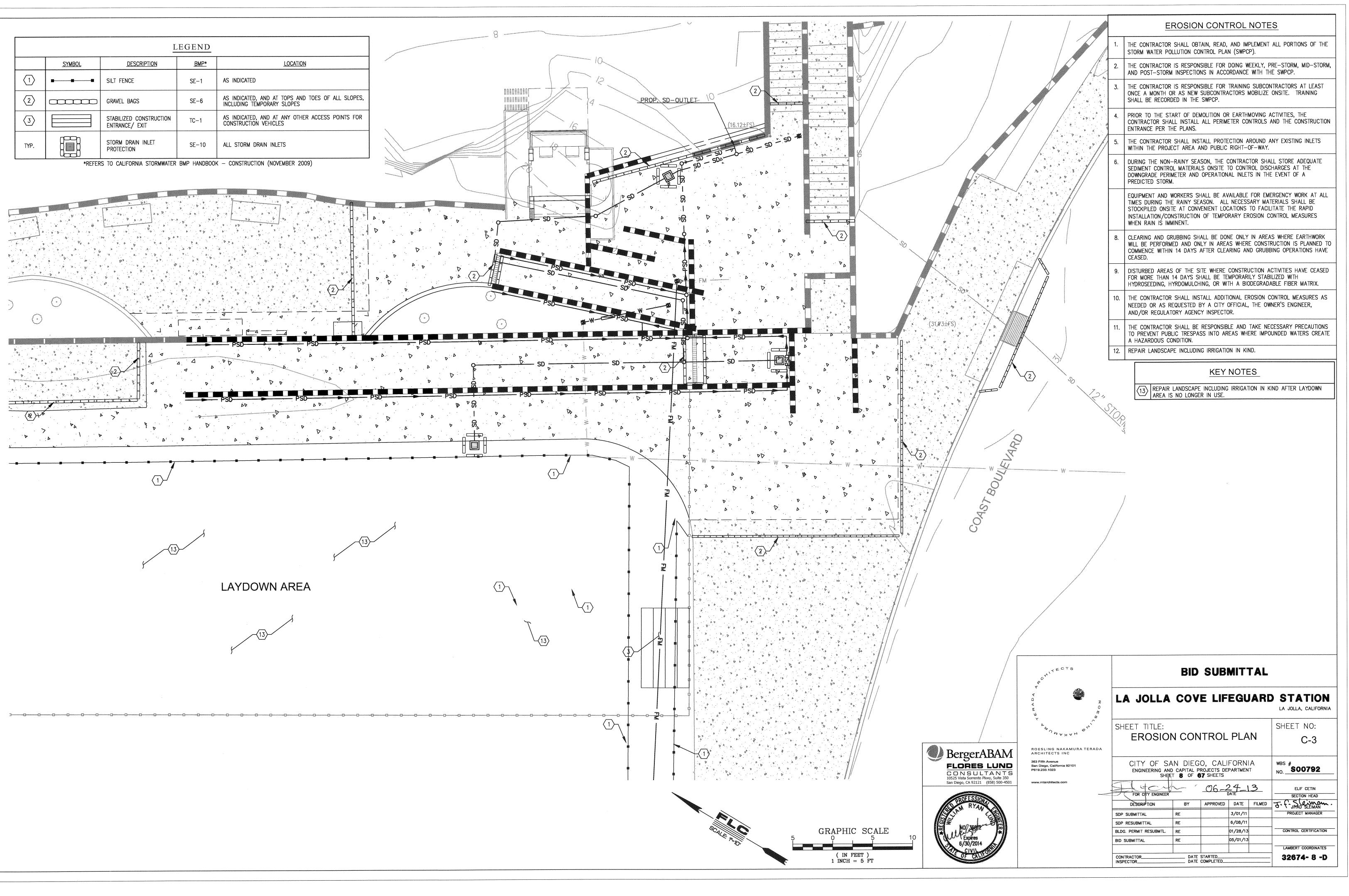
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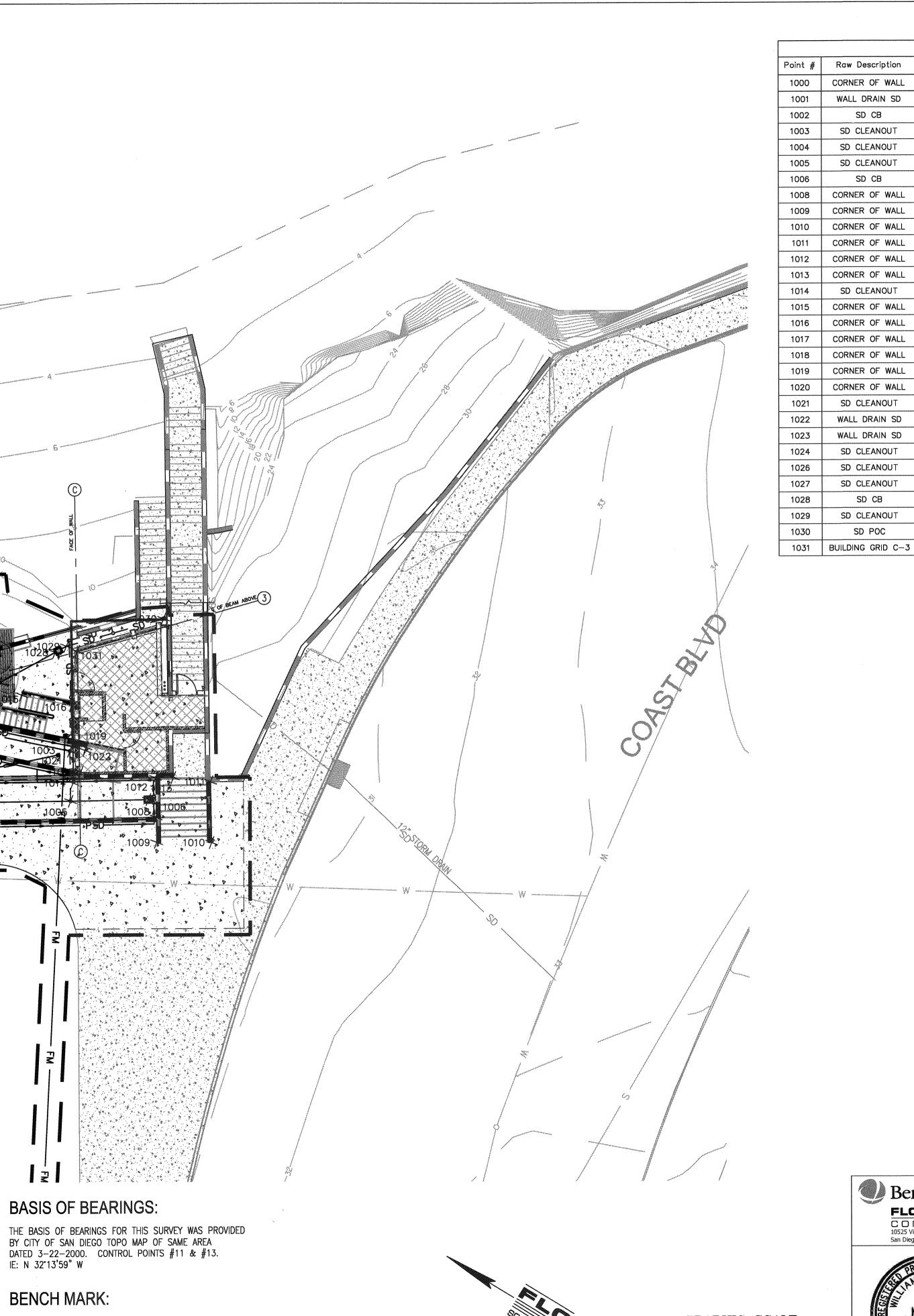
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ANS SEE $\begin{pmatrix} 2 \\ - \end{pmatrix}$		6.	NO CUT OR FILL SLOPES ARE REQUIRED BY THE	DESIGN.
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		LIFEGUARD STRUCTURE AT LA JOLLA COVE, A S MODIFICATIONS TO EXISTING COAST BOULEVARD FACILITIES. FOR ELECTRIC UTILITY SERVICE, SEE	SLOPING SIDEWALK, AND CURBLINE AND DRAINAGE			
		10. NOTE REGARDING EXISTING DRAINAGE PATTERNS				
		AND SIDEWALK AREAS ADJACENT TO THE UPPER COLLECTED IN AN EXISTING INLET, AND DISCHAR	R PORTIONS OF THE PROJECT IS RGES VIA PIPE TO BEACH			
		BELOW. RESEARCH HAS FAILED TO LOCATE OR FOR EITHER THE INLET OR THE PIPE. DRAINAG	IGINAL CONSTRUCTION DRAWINGS E FROM THE LOWER PORTION OF			
		THE PROJECT IS DISCHARGED BY SURFACE FLOW EXISTING DRAINAGE PATTERNS WILL BE MAINTAIL	N TO THE BEACH. THESE			
		AFTER CONSTRUCTION IS COMPLETE. DURING T BMP'S WILL BE UTILIZED TO PREVENT POLLUTAN	HE CONSTRUCTION PERIOD,			
		ACTIVITIES FROM BEING DISCHARGED TO THE BE	ACH AREA FROM THE SITE.			
[
	OHITECTS	BID SUBMIT	TAL			
	T.					
		LA JOLLA COVE LIFEG				
			LA JOLLA, CALIFOR			
	· · · · · · · · · · · · · · · · · · ·	SHEET TITLE:	SHEET NO:			
	AUWANAN OL	GRADING AND DRAINAG	GE/ C-2.2			
	ROESLING NAKAMURA TERADA ARCHITECTS INC	UTILITY PLAN				
rerABAM		CITY OF SAN DIEGO, CALIFOR				
ES LUND	363 Fifth Avenue San Diego, California 92101 P619.233.1023	ENGINEERING AND CAPITAL PROJECTS DEPARTM	INU			
RES LUND SULTANTS Forrento Pkwy, Suite 350	San Diego, California 92101	ENGINEERING AND CAPITAL PROJECTS DEPARTM SHEET 7 OF 67 SHEETS				
CERABAM RES LUND S U L T A N T S Sorrento Pkwy, Suite 350 A 92121 (858) 500-4501	San Diego, California 92101 P619.233.1023		-13 ELIF CETIN SECTION HEAD			
RES LUND SULTANTS Sorrento Pkwy, Suite 350	San Diego, California 92101 P619.233.1023	SHEEF 7 OF 67 SHEETS FOR CITY ENGINEER O6-24- DATE DESCRIPTION BY APPROVED DATE	FILMED F. C. Sleiman			
ES LUND ULTANTS prrento Pkwy, Suite 350	San Diego, California 92101 P619.233.1023	SHEEF 7 OF 67 SHEETS	SECTION HEAD FILMED F. C. SLEIMAN JIHAD SLEIMAN PROJECT MANAGER			
ES LUND ULTANTS rrento Pkwy, Suite 350	San Diego, California 92101 P619.233.1023	SHEEF 7 OF 67 SHEETS FOR CITY ENGINEER DESCRIPTION BY APPROVED DATE SDP SUBMITTAL RE 3/01/	SECTION HEAD FILMED F. SLEIMAN 11 PROJECT MANAGER			
RES LUND SULTANTS Forrento Pkwy, Suite 350	San Diego, California 92101 P619.233.1023	SHEEF 7 OF 67 SHEETS FOR CITY ENGINEER DESCRIPTION BY APPROVED DATE DESCRIPTION BY APPROVED DATE SDP SUBMITTAL RE 3/01/ SDP RESUBMITTAL RE 6/08/	SECTION HEAD FILMED F. S. S. C. MANAGER 11 PROJECT MANAGER 11 11 CONTROL CERTIFICATION 13 CONTROL CERTIFICATION			



THE COVE \bigcirc \odot \odot \odot · 🎽 🏕 1.5 GRADING TABULATIONS: FOR CITY OF SAN DIEGO USE ONLY. CONTRACTOR IS RESPONSIBLE TO DETERMINE THEIR OWN QUANTITIES. TOTAL AMOUNT OF SITE TO BE GRADED: <u>600 SF</u>, % OF TOTAL SITE <u>10</u>. AMOUNT OF CUT: <u>65</u> CUBIC YARDS AND MAXIMUM DEPTH OF CUT: <u>5.5</u> FEET. AMOUNT OF FILL: N/A CUBIC YARDS AND MAXIMUM DEPTH OF FILL: N/A FEET. MAXIMUM HEIGHT OF FILL SLOPE(S): <u>N/A</u> FEET _____ SLOPE RATIO. MAXIMUM HEIGHT OF CUT SLOPE(S): N/A FEET _____ SLOPE RATIO. AMOUNT OF IMPORT/EXPORT SOIL: 66 CUBIC YARDS. RETAINING/CRIB WALLS: LENGTH <u>118</u> FEET: MAXIMUM HEIGHT <u>5</u> FEET. E E BASIS OF BEARINGS: **BENCH MARK:** 3-22-2000. CONTROL POINT #11. ELEVATION = 31.36



THE BENCH MARK FOR THIS SURVEY WAS PROVIDED BY CITY SAN DIEGO TOPO MAP FOR SAME AREA DATED

GRAPHIC SCALE (IN FEET) 1 INCH = 10 FT



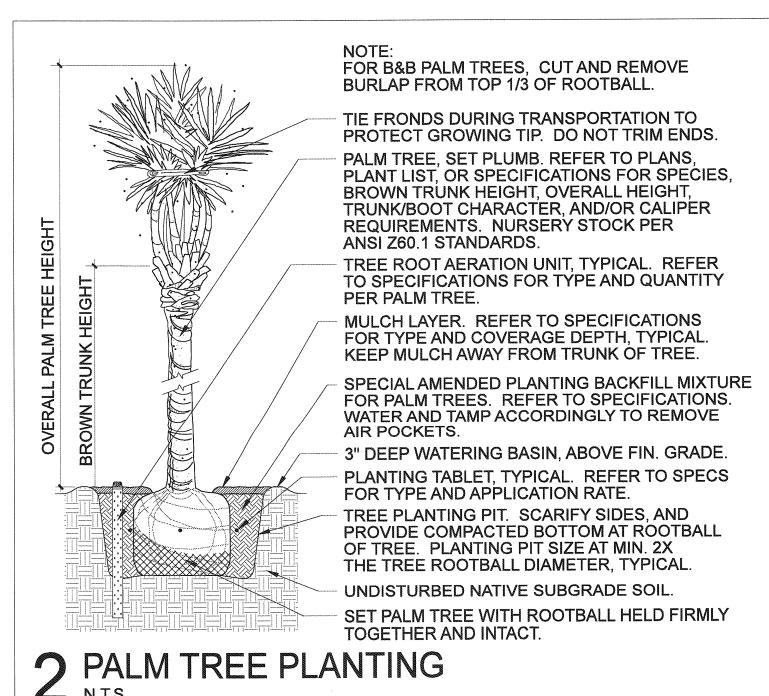
	Point Table		
	Elevation	Northing	Easting
	0.000	1890736.7277	6247437.5786
	0.000	1890736.4987	6247436.4862
	0.000	1890702.7000	6247451.3947
	0.000	1890689.8648	6247481.0530
	0.000	1890707.9011	6247459.4870
	0.000	1890685.7024	6247473.7126
	0.000	1890675.5589	6247480.2487
	0.000	1890673.0684	6247478.4943
	0.000	1890670.9653	6247475.2607
	0.000	1890663.7066	6247479.7237
	0.000	1890668.8217	6247487.6619
	0.000	1890676.4055	6247483.6864
	0.000	1890674.0646	6247485.1920
	0.000	1890686.8799	6247476.3135
	0.000	1890700.8236	6247483.6961
	0.000	1890693.3716	6247486.4094
	0.000	1890711.2211	6247469.4897
	0.000	1890686.7370	6247478.4037
	0.000	1890688.0572	6247482.0625
	0.000	1890712.5370	6247473.1476
	0.000	1890689.8913	6247480.2301
	0.000	1890687.8861	6247481.5927
	0.000	1890712.4662	6247473.0556
	0.000	1890712.8656	6247472.6493
	0.000	1890714.6965	6247476.3791
	0.000	1890704.7510	6247483.4909
	0.000	1890699.9353	6247492.0830
	0.000	1890698.9561	6247493.8301
	0.000	1890688.4292	6247505.4854
3	0.000	1890697.0731	6247494.0180

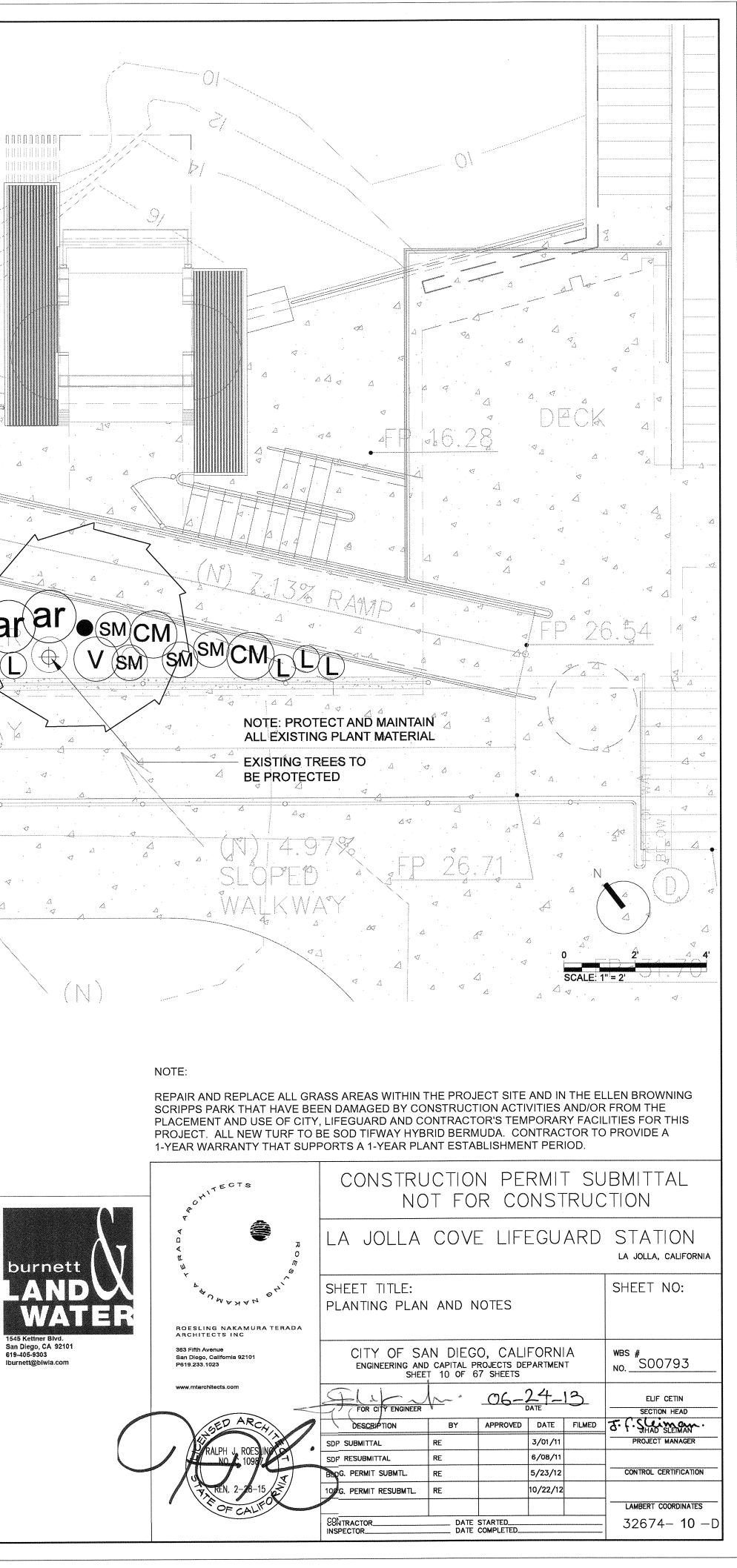
	GENERAL NOTES
1.	THE CONTRACTOR SHALL NOTIFY DIG ALERT (1-800-422-4133) AT LEAST TWO (2) DAYS PRIOR TO STARTING WORK AND SHALL COORDINATE ALL WORK WITH UTILITY COMPANIES.
2.	THE LOCATION AND EXISTENCE OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SEARCH OF AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING FACILITY SHOWN ON THE DRAWINGS, AND ANY OTHER WHICH IS NOT OF RECORD OR NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AT POINTS OF CONNECTION AND ALL UTILITY CROSSINGS TO DETERMINE EXACT LOCATION PRIOR TO STARTING WORK.
3.	REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
4.	COORDINATE LOCATION OF ALL UNDERGROUND UTILITIES AND STORM DRAINS WITH NEW TREE LOCATIONS AND MECHANICAL/ELECTRICAL FACILITIES. REFER TO LANDSCAPE, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
5.	TOTAL AMOUNT OF SITE TO BE GRADED: <1%
6.	THE PROJECT LIES ENTIRELY WITHIN ELLEN BROWNING SCRIPPS PARK, LA JOLLA COVE, AND COAST BOULEVARD.
7.	CIVIL SITE WORK CONSISTS OF PREPARATION FOR CONSTRUCTION OF A NEW LIFEGUARD STRUCTURE AT LA JOLLA COVE, A SLOPING SIDEWALK, AND MODIFICATIONS TO EXISTING COAST BOULEVARD CURBLINE AND DRAINAGE FACILITIES. FOR ELECTRIC UTILITY SERVICE, SEE ELECTRICAL PLANS.
8.	NOTE REGARDING EXISTING DRAINAGE PATTERNS: RUNOFF FROM THE STREET AND SIDEWALK AREAS ADJACENT TO THE UPPER PORTIONS OF THE PROJECT IS COLLECTED IN AN EXISTING INLET, AND DISCHARGES VIA PIPE TO BEACH BELOW. RESEARCH HAS FAILED TO LOCATE ORIGINAL CONSTRUCTION DRAWINGS FOR EITHER THE INLET OR THE PIPE. DRAINAGE FROM THE LOWER PORTION OF THE PROJECT IS DISCHARGED BY SURFACE FLOW TO THE BEACH. THESE EXISTING DRAINAGE PATTERNS WILL BE MAINTAINED DURING CONSTRUCTION AND AFTER CONSTRUCTION IS COMPLETE. DURING THE CONSTRUCTION PERIOD, BMP'S WILL BE UTILIZED TO PREVENT POLLUTANTS FROM CONSTRUCTION ACTIVITIES FROM BEING DISCHARGED TO THE BEACH AREA FROM THE SITE.

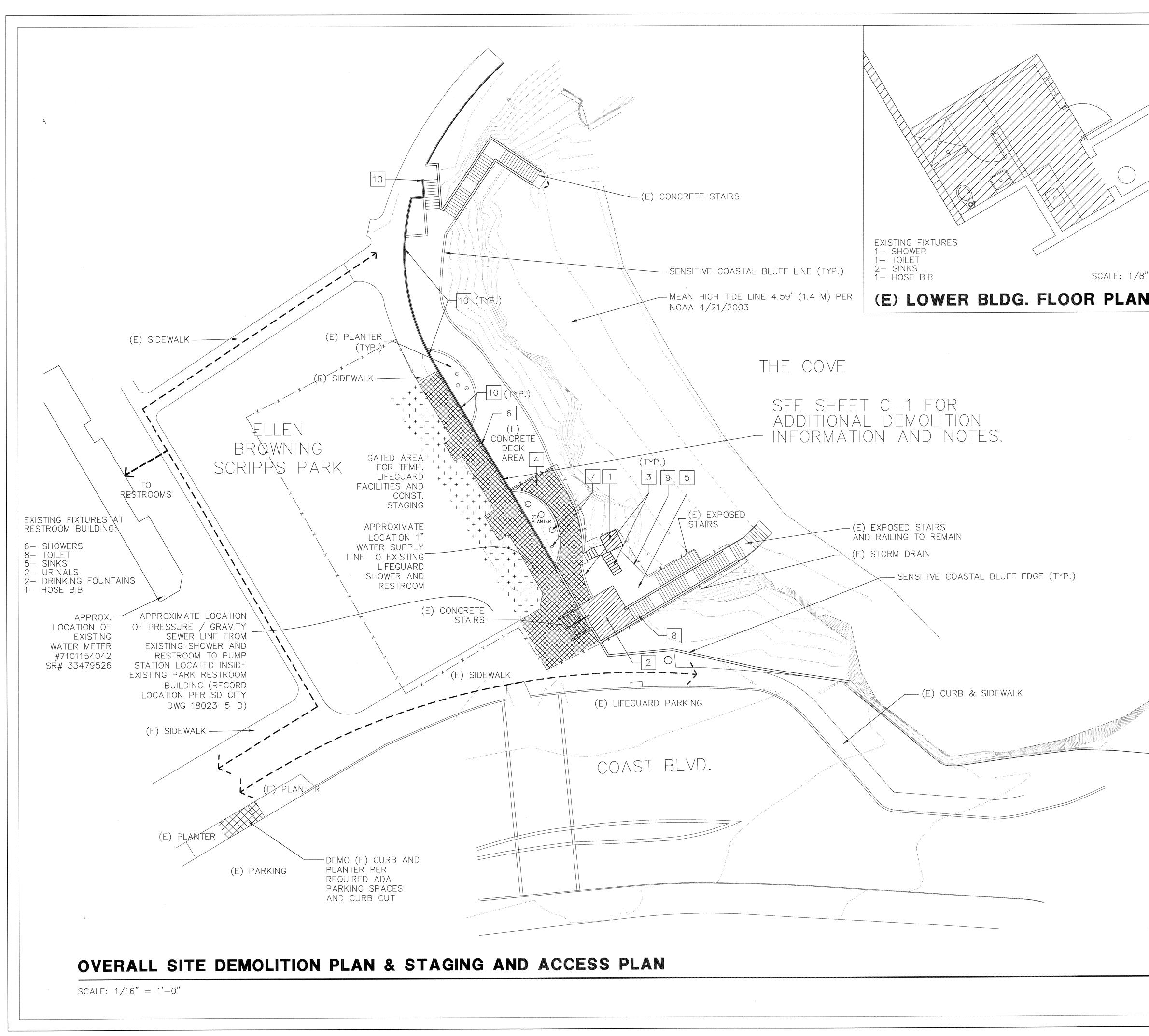
	A CHITECTS	BID SUBMITTAL						
	A A A A A A A A A A A A A A A A A A A	LA JOLLA	COV	'E LIF	EGU	JAR	D STATION LA JOLLA, CALIFORNIA	
	A U WAXAN OL	SHEET TITLE: HORIZONT	AL CO	ONTRO	DL PI	_AN	SHEET NO: C-4	
BAM LUND TANTS wy, Suite 350	ROESLING NAKAMURA TERADA ARCHITECTS INC 363 Fifth Avenue San Diego, California 92101 P619.233.1023	CITY OF SAN DIEGO, CALIFO ENGINEERING AND CAPITAL PROJECTS DEPA SHEET 9 OF 67 SHEETS					WBS # NO	
(858) 500-4501	www.mtarchitects.com	FOR CITY ENGINEER	h	-06-	24_ DATE	-13	ELIF CETIN SECTION HEAD	
		DESCRIPTION	BY	APPROVED	DATE	FILMED	J. F. Sleiman .	
		SDP SUBMITTAL	RE		3/01/11		PROJECT MANAGER	
。這個		SDP RESUBMITTAL	RE		6/08/11			
		BLDG. PERMIT RESUBMTL.	RE		01/28/13		CONTROL CERTIFICATION	
		BID SUBMITTAL	RE		05/01/13			
							LAMBERT COORDINATES	
		CONTRACTOR		STARTED COMPLETED			32674- 9 -D	

		PLANT	SCHEDULE		
	KEY	BOTANICAL NAME	COMMON NAME	NOTES	
	TREE/SH	HRUB/GROUNDCOVER			
	\mathbf{A}	EXISTING TREES		TO BE PROTECTED	
		Washingtonia Robusta	Mexican Fan Palm	12" BOX, 12' BTH SKIN TRUNK 6' ABOVE GRADE	
	ar	Arctostaphylos glandulosa spp. Crassifolia	Del Mar Manzanita	5 Gal	
	CM	Ceanothus maritimus	Maritime Ceanothus	1 Gal	E) MID LEVEL AREA
	Ĺ	Lotus scoparius	Coastal Deerweed	1 Gal	CMLLLV SM V A CMLLLV LSML
	SM	Salvia mellifera	Black Sage	1 Gal	(N) 4.97% SLOPED WALKWA
·	V	Viguiera lacinata	San Diego Sunflower	1 Gal	
TAKE SOLE RESPONSIBILI 2. CONTRACTOR SHALL NO AND/OR GRADE DIFFEREN THE ATTENTION OF CITY'S FAILURE TO GIVE SUCH NO 3. CONTRACTOR SHALL BE ADDITIONAL WORK REQUI 4. FINAL LOCATION OF ALL 5. ALL PLANT MATERIAL SH 6. CONTRACTOR SHALL NO PROJECT OBSERVATION S 7. SEE LANDSCAPE SPECIE 8. LANDSCAPE CONTRACT CONTRACTOR SHALL CON APPROVED SUBSTITUTION WILL BE ALLOWED WITHOU CITY'S REPRESENTATIVE. 9. IF DISCREPANCIES ARIS G AREA AND THE ACTUAL I CONTACT CITY'S REPRESE FAILURE TO MAKE SUCH O LIABILITY FOR MATERIAL R 10. TREE LOCATIONS MAY SITE REQUIREMENTS, AS I 11. ALL WORK TO BE PERF EXPERIENCED WORKERS. 12.REFER TO PLANTING LE 13. ALL PLANT MATERIALS	ITY FOR ANY COS DT WILLFULLY PRO ICES EXIST THAT S REPRESENTATIV OTIFICATION. E RESPONSIBLE FOR RED TO ACCOMPL PLANT MATERIAL IALL BE APPROVE DTIFY CITY'S REPR ICATIONS FOR AL TOR SHALL SECUR ITACT THE CITY'S IS NO SUBSTITU UT PRIOR WRITTE E BETWEEN THE PLANTING AREA, T ENTATIVE FOR RES CONFLICTS KNOW RELOCATION. BE ADJUSTED IN DIRECTED BY THE ORMED BY LICENT SHALL MATCH SP I Z60.1 "STANDARE	TIONS FOR PLANT MATERIALS EN APPROVAL BY THE NO PLAN-DEPICTED PLANTING THE CONTRACTOR SHALL LIE SOLUTION. N WILL RESULT IN CONTRACTOR'S OF THE FIELD TO SUIT SPECIFIC E CITY'S REPRESENTATIVE. SED (C27) CONTRACTORS AND T SPECIES AND PLANT SPACING. ECIFICATIONS PER SPECIES AND DS FOR NURSERY STOCK".	TES. NED WHEN IT IS OBVIOUS THAT DESIGN. SUCH CONDITIONS SHA ULL RESPONSIBILITY FOR ALL N ONTRACTORS AND GENERAL COID OF THIS PROJECT. OF THE CITY'S REPRESENTATIVE OF THE CITY'S REPRESENTATIVE R TO INSTALLATION. R TO COMMENCEMENT OF WORE MATERIALS, EXECUTION AND MATHE EVENT THAT PLANT MATERIAN THE EVENT THAT PLANT MATERIAN OF SOIL ODITIONING PLANTING EAS 3X ROOTBALL @ SHRUBS	UNKNOWN OBSTRUCTIONS ALL BE IMMEDIATELY BROUGHT IECESSARY REVISIONS DUE TO NTRACTORS FOR ANY /E. (, IN ORDER TO COORDINATE AINTENANCE. IALS ARE NOT AVAILABLE, MULCH LAYER TYP. REFEI SPECIFICATIONS. HOLD M BASE OF SHRUB. SHRUB, SET PLUMB. REFI AND SPECIFICATIONS FOR HEIGHT, AND/OR SPREAD PROVIDE POSITIVE DRAIN BOTTOM OF ROOTBALL, T SHRUB ROOT BALL (WELL ROOTBALL CROWN AT 2" A AMENDED PLANTING BAC TO SPECIFICATIONS. WAT ACCORDINGLY TO REMOV 3" DEEP WATERING BASIN PLANTING TABLET, TYPICA FOR TYPE AND APPLICATIO SHRUB PLANTING PIT. SC. PROVIDE COMPACTED BO OF SHRUB. PLANTING PIT THE SHRUB ROOTBALL DIA	THE TO NOTE: FOR B&B PALM TREES, CUT AND REMOVE BURLAP FROM TOP 1/3 OF ROOTBALL. THE FRONDS DURING TRANSPORTATION TO PROVIDEC T GROWING TIP. DO NOT TRIM ENDS. PALM TREES, SET PLUMB. REFER TO PLANS, PLANT ILST, OR SPECIES, BROWN TRUNK HEIGHT, OVERALL HEIGHT, TRUNKBOOT CHARACTER, AND/OR CALIPER REQUIREMENTS. INAGE AWAY FROM ILL ROOTED. SET TARDAY FROM LL ROOTED. SET ABOVE FIN. GRADE: CARIFY SIDES, AND DAMETER, TO SPECS ICON RATE. CARIFY SIDES, AND DAMETER, TYPICAL. IN ABOVE FIN. GRADE: CARIFY SIDES, AND DAMETER, TO SPECS ICON RATE. CARIFY SIDES, AND DAMETER, TYPICAL. CARIFY SIDES, AND DAMETER, TYPICAL. CARI
		1	SHRUB PLANTI	NG	2 PALM TREE PLANTING

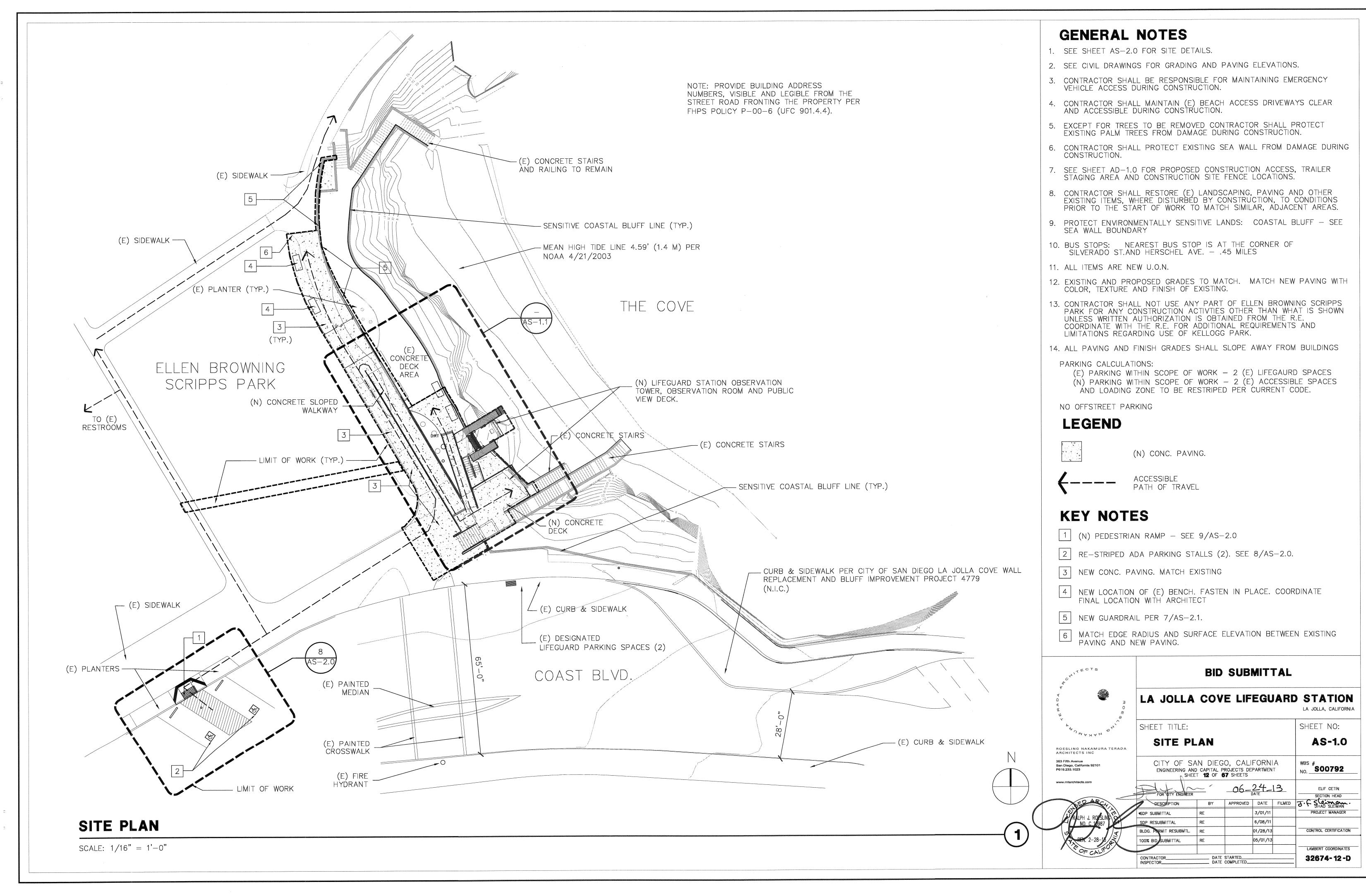
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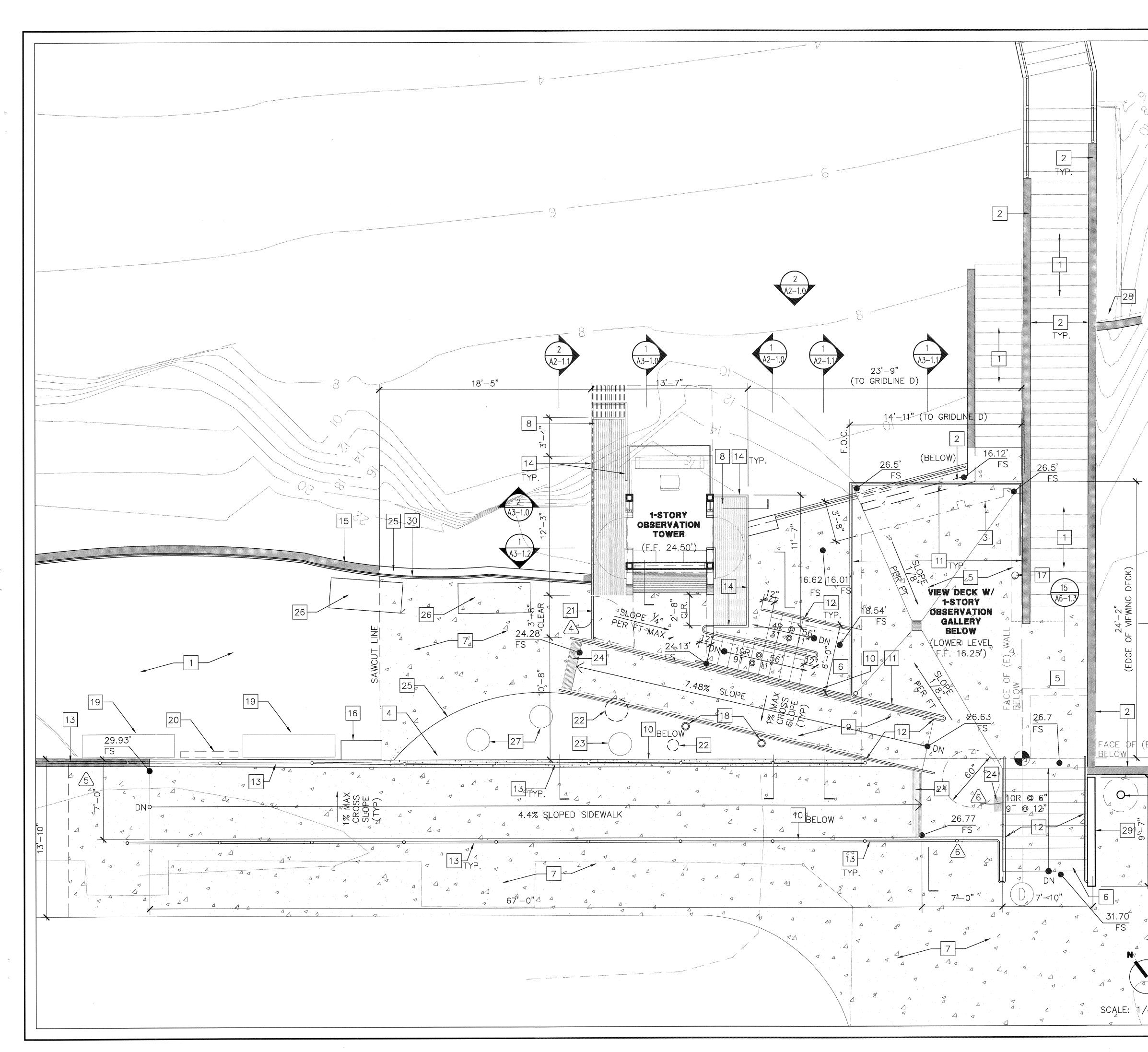




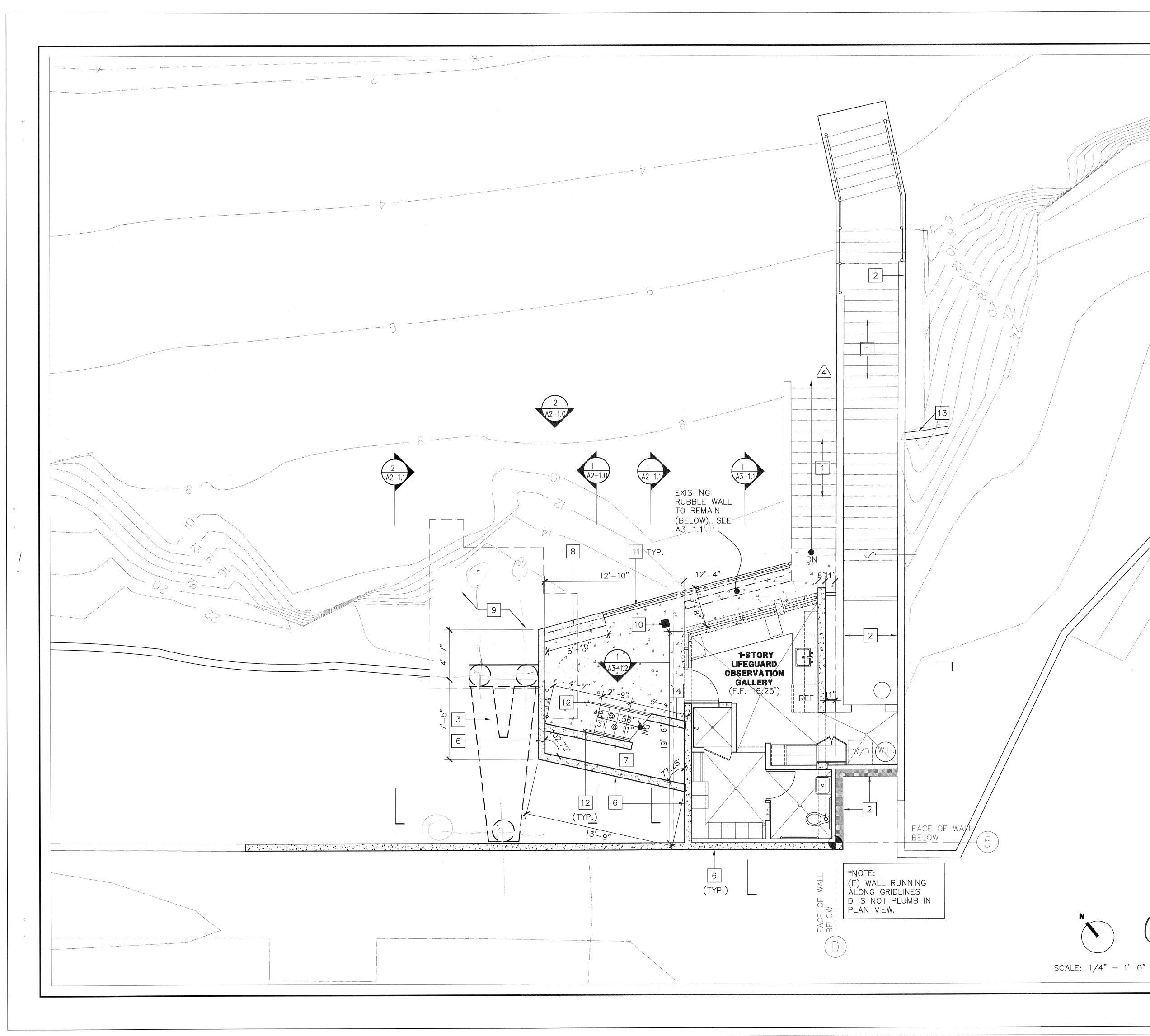


	GENERAL NOTES 1. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING FENCING AROUND
	PROJECT AREA AND AN ACCESSIBLE PATH OF TRAVEL AROUND THE PROJECT.
	2. THIS PLAN SHOWS GENERAL DEMOLITION AREA. CONTRACTOR MAY BE REQUIRED TO DEMOLISH ADDITIONAL IMPROVEMENTS TO COORDINATE WITH PROJECT IMPROVEMENT PLANS.
	3. BEACH ACCESS SHALL REMAIN ACCESSIBLE DURING CONSTRUCTION.
	4. CONTRACTOR SHALL BE RESPONSIBLE FOR EMERGENCY VEHICLE AND LIFEGUARD BEACH ACCESS DURING CONSTRUCTION.
	5. CONTRACTOR SHALL PROTECT EXISTING TREES AND LANDSCAPE IRRIGATION FROM CONSTRUCTION ACTIVITY U.O.N.
	6. CONSTRUCTION ACCESS, TRAILER STAGING AREA AND FENCE LOCATIONS SHOWN ON CONTRACT DOCUMENTS ARE CONCEPTUAL. CONTRACTOR SHALL EXAMINE EXISTING SITE CONDITIONS AND DETERMINE EXACT LOCATIONS. COORDINATE WITH CITY OF SAN DIEGO FOR ADDITIONAL REQUIREMENTS.
	7. CONTRACTOR SHALL RESTORE EXISTING LANDSCAPE, PAVING AND OTHER EXISTING SURFACES, WHERE DISTURBED BY CONTRACTOR, TO MATCH ORIGINAL, PRE-CONSTRUCTION CONDITIONS. SEE LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION.
" = 1' - 0"	8. SEE SHEET C-3 FOR PROPOSED EROSION CONTROL PLAN
(2)	9. CONTRACTOR SHALL NOT USE ANY PART OF SCRIPPS PARK, OTHER THAN WHAT IS SHOWN, FOR ANY CONSTRUCTION ACTIVITIES UNLESS WRITTEN AUTHORIZATION IS OBTAINED FROM THE CITY'S R.E.
	10. ALL DEMOLITION ITEMS SHALL BE REMOVED FROM THE SITE AND DISPOSED PER CITY AND CODE REQUIREMENTS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
	(E) BUILDING & FOUNDATION TO BE DEMOLISHED AND REMOVED
	(E) CONC. PAVING. TO BE DEMOLISHED AND REMOVED
	(E) LANDSCAPING TO BE DEMOLISHED
	> ACCESSIBLE PATH OF TRAVEL DURING CONSTRUCTION
	KEY NOTES
	DEMOLISH AND REMOVE EXISTING WOOD-FRAMED OBSERVATION TOWER & FOUNDATION
	2 DEMOLISH AND REMOVE EXISTING STORAGE BUILDING AND OBSERVATION DECK. SEE 2/
	3 DEMOLISH AND REMOVE (E) STAIRS AND PLANTER
	4 DEMOLISH AND REMOVE PORTION OF (E) HARDSCAPE
	 DEMOLISH AND REMOVE (E) PAVING.PROTECT (E) RETAINING WALL BELOW DEMOLISH AND REMOVE PORTION OF EXISTING SITE WALLS. COORDINATE WITH SITE PLAN
	7 DEMOLISH AND REMOVE ONE EXISTING PALM TREE AND ONE EXISTING PINE TREE
S	8 REMOVE STEP AS REQUIRED TO ALIGN EXISTING TOP OF STAIRS WITH NEW DECK ELEVATION. PATCH AND REPAIR EXISTING STAIRS AS NEEDED.
	9 (E) WALL PROTECT IN PLACE
	10 DEMOLISH AND REMOVE (E) GUARDRAIL. PROVIDE TEMPORARY CODE-COMPLIANT GUARDRAIL UNTIL NEW GUARDRAIL CAN BE INSTALLED
	BID SUBMITTAL
	LA JOLLA COVE LIFEGUARD STATION LA JOLLA, CALIFORNIA
	SHEET TITLE: SHEET TITLE: SHEET NO: AD-1.0
	ROESLING NAKAMURA TERADA DEMOLITION PLAN AD-I.O 363 Fifth Avenue CITY OF SAN DIEGO, CALIFORNIA WBS #
	P619.233.1023 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT NO. S00792
	FOR CITY ENGINEER O6_24_13 ELIF CETIN DESCRIPTION BY APPROVED DATE FILMED J.F. SLEIMON
	PALPH J. ROESUNG STATUS RE 3/01/11 PROJECT MANAGER
$-(1)^{-1}$	NO. C 1095/ SUP RESUBMITAL RE 0/00/11 BLDG. PERMIT RESUBMITAL RE 01/28/13 CONTROL CERTIFICATION 100% BID SUBMITTAL RE 05/01/13 05/01/13
\smile	CONTRACTORDATE STARTEDATE COMPLETED 32674-11-D

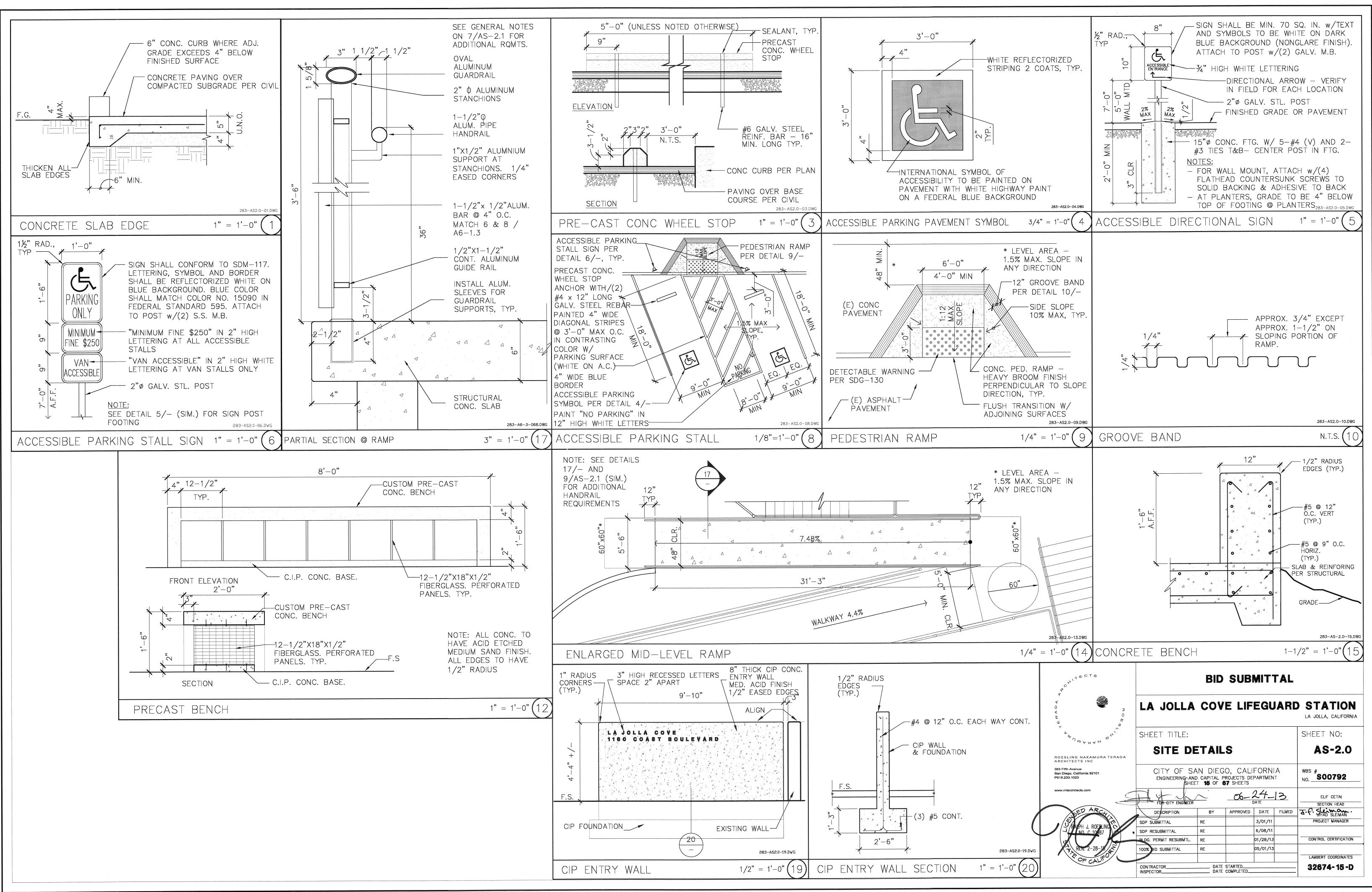


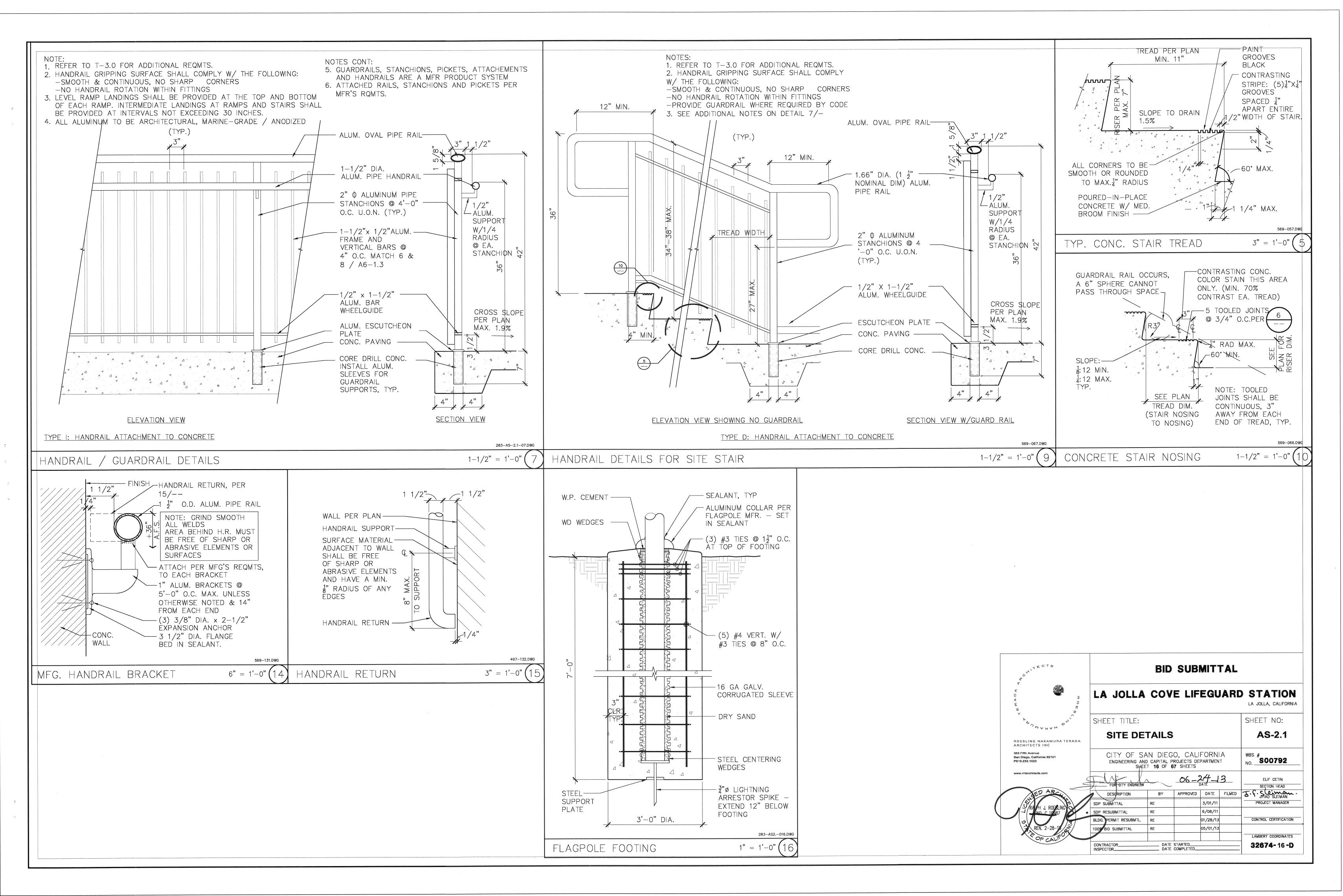


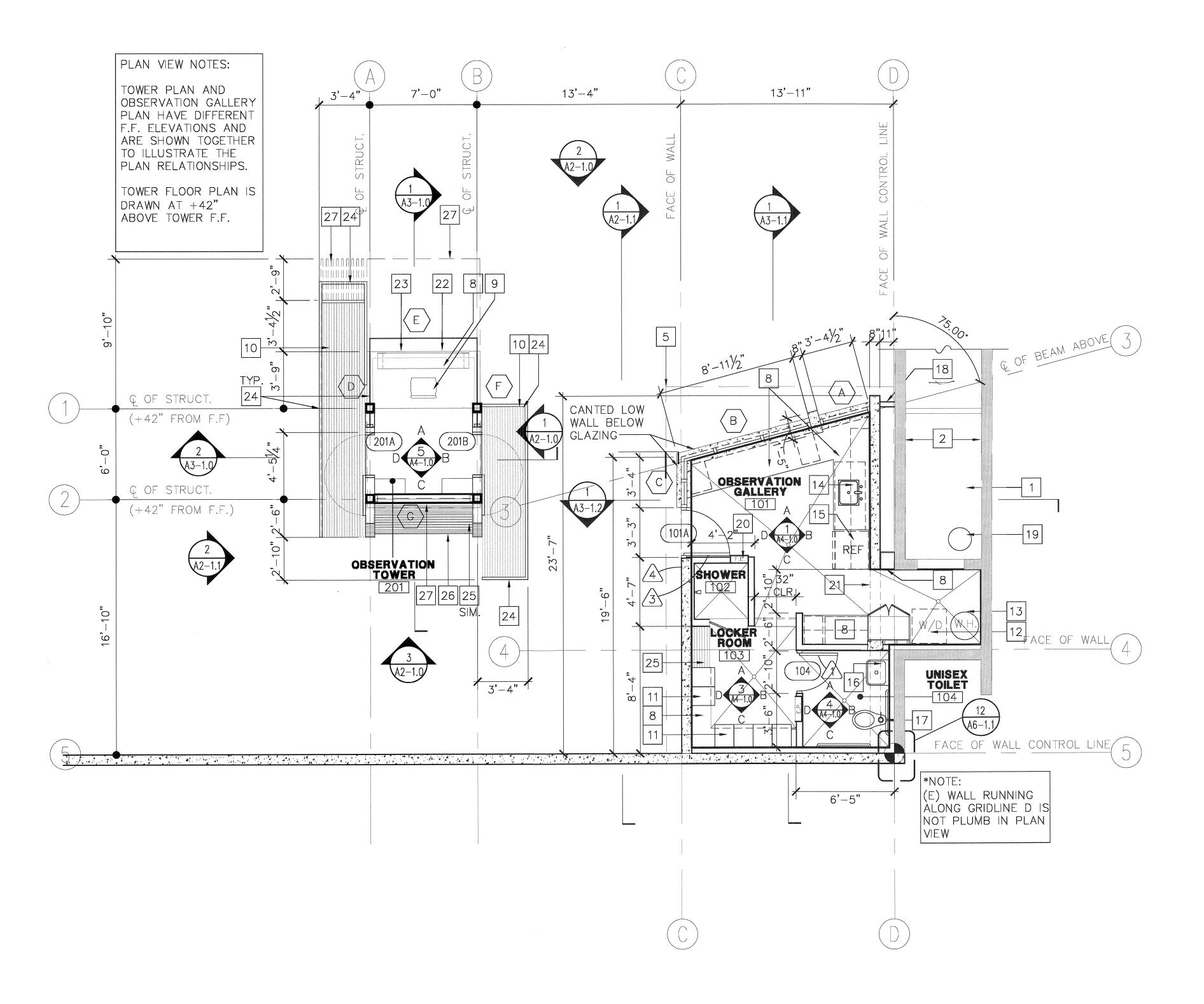
	GENERAL NOTES							
	1. HIGHEST POINT ON ROOF SHALL NOT EXCEED ELEVATION 35.0'							
×	 EXISTING AND PROPOSED GRADES TO MATCH SEE SHEETS AD-1.0 FOR SITE DEMOLITION PLANS 							
	4. SEE LOWER LEVEL SITE PLAN AND ROOF PLANS FOR ADDITIONAL INFO. 5. CONTRACTOR SHALL BE RESPONSIBLE FOR EMERGENCY VEHICLE ACCESS							
	DURING CONSTRUCTION. 6. CONTRACTOR SHALL PROTECT EXISTING PALM TREES FROM DAMAGE							
	DURING CONSTRUCTION. 7. CONTRACTOR SHALL PROTECT EXISTING CONC. SEA WALL FROM DAMAGE							
	DURING CONSTRUCTION. 8. ALL ITEMS ARE NEW U.O.N.							
	9. SEE CIVIL, LANDSCAPE, STRUCTURAL. ELECTRICAL MECHANICAL AND PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.							
	CONCRETE DECK - FINISH: RETARDER (CHEMICAL SURFACE							
	RETARDER, TOP-CAST "05 SANDBLAST FINISH", OR APPROVED EQUAL) COLOR: NATURAL. SEE A1-1.2							
	CONCRETE PAVING - SEE CIVIL DRAWINGS FOR ADDITIONAL INFO							
	(E) WALL TO REMAIN							
	\mathcal{A} SIGNAGE PER SIGN SCHEDULE. SEE A5-1.1							
	KEYNOTES							
	1 (E) CONCRETE STAIRS OR PAVING TO REMAIN							
	2 (E) CONCRETE WALLS TO REMAIN							
	3 LINE OF (N) BUILDING BELOW 4 PLANTER – SEE LANDSCAPE							
	5 C.I.P. CONCRETE VIEW DECK							
,	6 C.I.P. STAIRS. SEE 9/AS-2.1 7 C.I.P. PAVING MATCH EXISTING							
	8 OBSERVATION TOWER VIEW PLATFORM							
	9 ACCESSIBLE RAMP. SEE 14/AS-2.0 10 C.I.P. RETAINING WALL. SEE CIVIL							
	10 C.I.P. RETAINING WALL. SEE CIVIL 11 GUARDRAIL @ VIEW DECK. SEE 6&8/A6-1.3							
	12 GUARDRAIL W/HANDRAIL. SEE 7&9/AS-2.1							
	13 GUARDRAIL ONLY. SEE 7/AS-2.1 14 TOWER GUARDRAIL. SEE 3 & 5 /A6-1.4							
	15 (E) CONCRETE CURB TO REMAIN							
	16 ELEC. METER PEDESTAL W/ CONC PAD PER ELECTRICAL.							
	17 S.S. VERTICAL SIGN POST 18 BOLLARD FIXTURE PER ELECT. W/ CONC FTG. PER MFG.							
	19 (N) CONCRETE BENCH WITH OPEN STORAGE BELOW. SEE 12/AS-2.0							
]	20 INFORMATION BOARD (N.I.C.) 21 ALUM. GATE. MATCH GUARD RAIL PER DTL. 5/A6-1.4							
	22 (E) TREE TO BE REMOVED.							
	23 (N) PALM TREE. SEE LANDSCAPE DRAWINGS							
	24 DRAIN PER CIVIL 25 EDGE OF PLANTER / (N) CURB. MATCH (E)							
	26 (E) BENCH. FASTEN IN PLACE. COORDINATE WITH OWNER							
	27 (E) PALM TREE TO REMAIN 28 (E) STORM DRAIN							
$\frac{1}{2}$	29 (N) C.I.P. SIGNAGE WALL. SEE 19/AS-2.0							
	30 (N) ALUM. FLAG POLE - 30' MAX HT. FROM ADJACENT GRADE. SEE							
30	BID SUBMITTAL							
	Ч Т							
	LA JOLLA, CALIFORNIA							
	SHEET TITLE: SHEET NO: UPPER LEVEL SITE PLAN AS-1.1							
	ROESLING NAKAMURA TERADA ARCHITECTS INC							
	363 Fifth Avenue San Diego, California 92101 P619.233.1023CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 13 OF 67 SHEETSWBS # NO.0.\$00792							
	www.mtarchitects.com FOR CITY ENGINEER OG - 24 - 13 ELIF CETIN SECTION HEAD							
	DESCRIPTION BY APPROVED DATE FILMED Sterior JHAD SLEIMAN SDP SUBMITTAL RE 3/01/11 PROJECT MANAGER							
	Molection Sof Social field No. C 1098 Sof Social field							
	TREN. 2-28-15 TOOS BID SUBMITTAL RE 05/01/13							
4" = 1' - 0"/	CONTRACTOR DATE STARTED 32674-13-D							
/								



		459/240091-01-1420-01-10-01-10-01-10-01-00-01-00-00-00-00			
	 GENERAL NOTION 1. HIGHEST POINT ON 2. EXISTING AND PRO 3. SEE SHEETS AD-1 4. SEE LOWER LEVEL 5. CONTRACTOR SHALDURING CONSTRUC 6. CONTRACTOR SHALDURING CONSTRUC 7. CONTRACTOR SHALDURING CONSTRUC 8. ALL ITEMS ARE NE 9. SEE CIVIL, LANDSORDUMBING DRAWING 	A ROOF SHALL POSED GRADES .0 FOR SITE D SITE PLAN AN LL BE RESPONS TION. LL PROTECT EX CTION. LL PROTECT EX CTION. EW U.O.N. CAPE, STRUCTU	S TO MATCH EMOLITION PLA D ROOF PLANS SIBLE FOR EME KISTING PALM KISTING CONC.	NS 5 FOR ADDIT RGENCY VEH 5REES FROM SEA WALL FI AL MECHANIC	IONAL INFO. ICLE ACCESS DAMAGE ROM DAMAGE
	LEGEND				
		APPROVED E	OP-CAST "05 QUAL) COLOR:	SANDBLAST NATURAL	FINISH", OR
	FINISH: COLOR:	"05 SANDBLA Integral co	CHEMICAL SURF AST FINISH", OI	ACE RETARD	ER, TOP-CAST
	0	to remain Per sign sche			
	SHEET KEY1(E) STAIR TO R2(E) WALL TO R3C.I.P. CONCRETE4C.I.P. CONCRETE5NOT USED6C.I.P. CONCRETE7C.I.P. CONCRETE	EMAIN — PROT EMAIN — PROT E FOUNDATION. E STAIR & LAN E RETAINING W	ECT IN PLACE ECT IN PLACE SEE STRUCTU IDING. SEE 10	RAL 9/AS-2.1	TURAL
	8 C.I.P. BENCH. S 9 OBSERVATION T 10 DRAIN PER CIVI 11 GUARDRAIL 6/A 12 GUARD RAIL / 13 (E) STORM DRA 14 HOSE BIB IN S.	OWER ABOVE . L A6—1.3 (SIM.) HAND RAIL PE	SEE A1—1.0 R 9/AS—2.0 (
	CHITECTS		BID SUE	MITTAL	
		LA JOLLA	COVE LI	FEGUARD	STATION LA JOLLA, CALIFORNIA
	A WANAN OL	SHEET TITLE:			SHEET NO:
	ROESLING NAKAMURA TERADA ARCHITECTS INC 363 Fifth Avenue				AS-1.2
	San Diego, California 92101 P619.233.1023 www.rntarchitects.com	ENGINEERING A	AN DIEGO, CAI nd capital projects (eet 14 of 67 sheets	DEPARTMENT	WBS # NO
	6ED ARCH	FOR DITY ENGINEER	BY APPROVE	DATE FILMED	ELIF CETIN SECTION HEAD J.F. S.C. MON-
(URALPH J. ROESLING OF NO. C 10987	SDP SUBMITTAL	RE RE	3/01/11 6/08/11	JIHAD SLEIMAN PROJECT MANAGER
	REN. 2-28-5	BLDO: PERMIT RESUBMIL.	RE RE	01/28/13 05/01/13	
-0"	HOF CALIFO	CONTRACTOR	DATE STARTED DATE COMPLETED.		32674-14-D





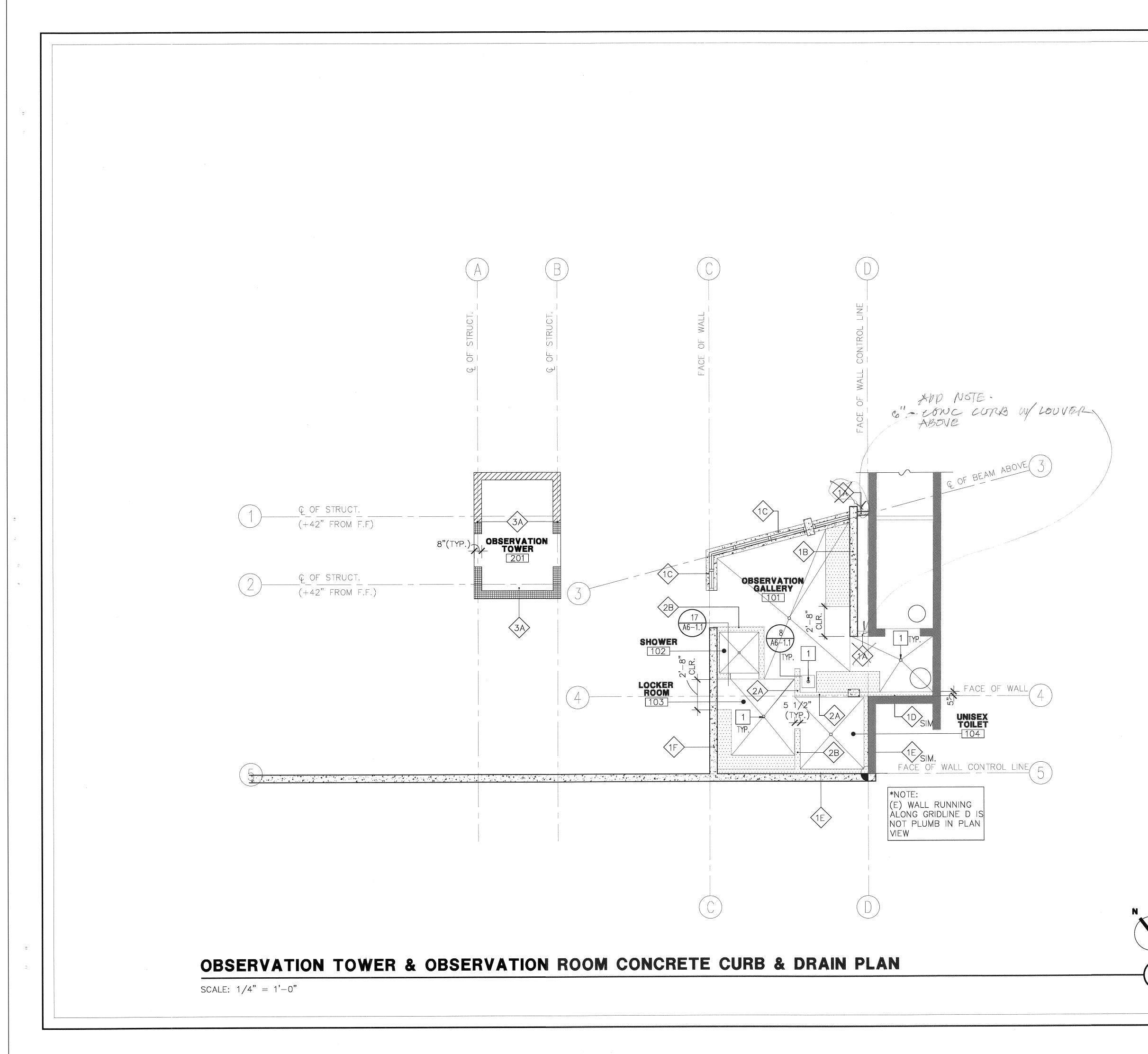


OBSERVATION TOWER & OBSERVATION ROOM FLOOR PLAN

SCALE: 1/4" = 1'-0"

1

	we and the sense transmiss structure of the
	L NOTES
	TURAL AND MISC. STEEL SHALL BE HOT-DIPPED GALVANIZED IED WITH A HIGH-PERFORMANCE COATING, U.O.N.
2. ALL ITEMS	ARE NEW U.O.N.
_	A6-1.1 FOR WALL TYPES
LEGEND	
(E) WA	ALL TO REMAIN
、 ,	I.P. CONCRETE WALL
	DOD STUD WALL ON TOP OF 4" HIGH CONCRETE CURB
	PER DOOR SCHEDULE - SEE SHEET A5-1.1
	W TYPE PER SCEDULE - SEE A5-1.0
X SIGN T	YPE
SHEET	KEY NOTES
1 (E) STAIR	R TO REMAIN
2 (E) WALL	TO REMAIN
3 C.I.P. CON	NCRETE WALL-SEE STRUCT.
4 FLOOR DF	RAIN
	NCRETE VIEWING PLATFORM ABOVE
	NCRETE STAIR
	INT GLAZING
	CASEWORK
	TION SEATING
10 2X REDWO	OOD PLATFORM DECK
11 PLASTIC	LOCKERS
12 STACKABI	LE WASHER/DRYER
13 WATER HI	EATER - SEE PLUMBING
14 KITCHEN	SINK - SEE PLUMBING
15 REFRIGER	ATOR
16 LAVATOR	Y – SEE PLUMBING
17 WATER CI	LOSET - SEE PLUMBING
18 LOUVER -	- SEE 14/A6-1.1
	STE COLLECTION TANK AND PUMP. SEE PLUMBING
	IGUISHER - SEE $5/A6-1.8$
	EAM ABOVE - SEE STRUCTURAL
22 EDGE OF	CONCRETE SLAB BELOW
23 LINE OF	GLASS @ FLOOR LEVEL
24 TOWER G	SUARDRAIL, SEE 3 & 5 / A6-1.4
25 WOOD BE	ENCH. SEE 19/A6-1.8
26 END OF S	STRUCTURE @ GROUND LEVEL
27 ROOF AB	OVE
& CHITECTS	BID SUBMITTAL
<	LA JOLLA COVE LIFEGUARD STATION
	D D D D D LA JOLLA COVL LII LOUAND OFATION LA JOLLA, CALIFORN
۲	SHEET TITLE: SHEET NO:
A UNANAN 84	OBSERV. TOWER & A1-1.0
ROESLING NAKAMURA TEI ARCHITECTS INC	
363 Eith A	CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 17 OF 67 SHEETS NO. SOO792
363 Fifth Avenue San Diego, California 92101 P619.233.1023	
San Diego, California 92101	HUT 06-24-13 ELIF CETIN
San Diego, California 92101 P619.233.1023 www.rntarchitects.com	FOR CITY ENGINEER OG -24-13 ELIF CETIN FOR CITY ENGINEER DATE EILMED T. C. S. CAMPAN
San Diego, California 92101 P619.233.1023 www.mtarchitects.com	FOR CITY ENGINEER
San Diego, California 92101 P619.233.1023 www.rntarchitects.com	FOR CITY ENGINEER OG - 24 - 13 FOR CITY ENGINEER OG - 24 - 13 DATE DATE ELLIF CETIN SECTION HEAD DESORIPTION BY APPROVED DATE FILMED J.F. S. C. J. MAD J.F. S. C. J. J.H.AD SLEIMAN



GENERAL NOTES

- 1. ALL CURBS TO HAVE 1/2" COVED FLOOR TO CURB CORNERS
- 2. ALL CURBS TO HAVE 1/4" EASED TOP EDGES 3. ALL EXPOSED CONCRETE TO BE SEALED
- 3. VERIFY DEPTHS OF CURBS PER CABINET DEPTH AT EA. LOCATION

LEGEND

(E) WALL TO REMAIN

(N) C.I.P. CONCRETE WALL

(N) 4" RAISED CONCRETE CURB

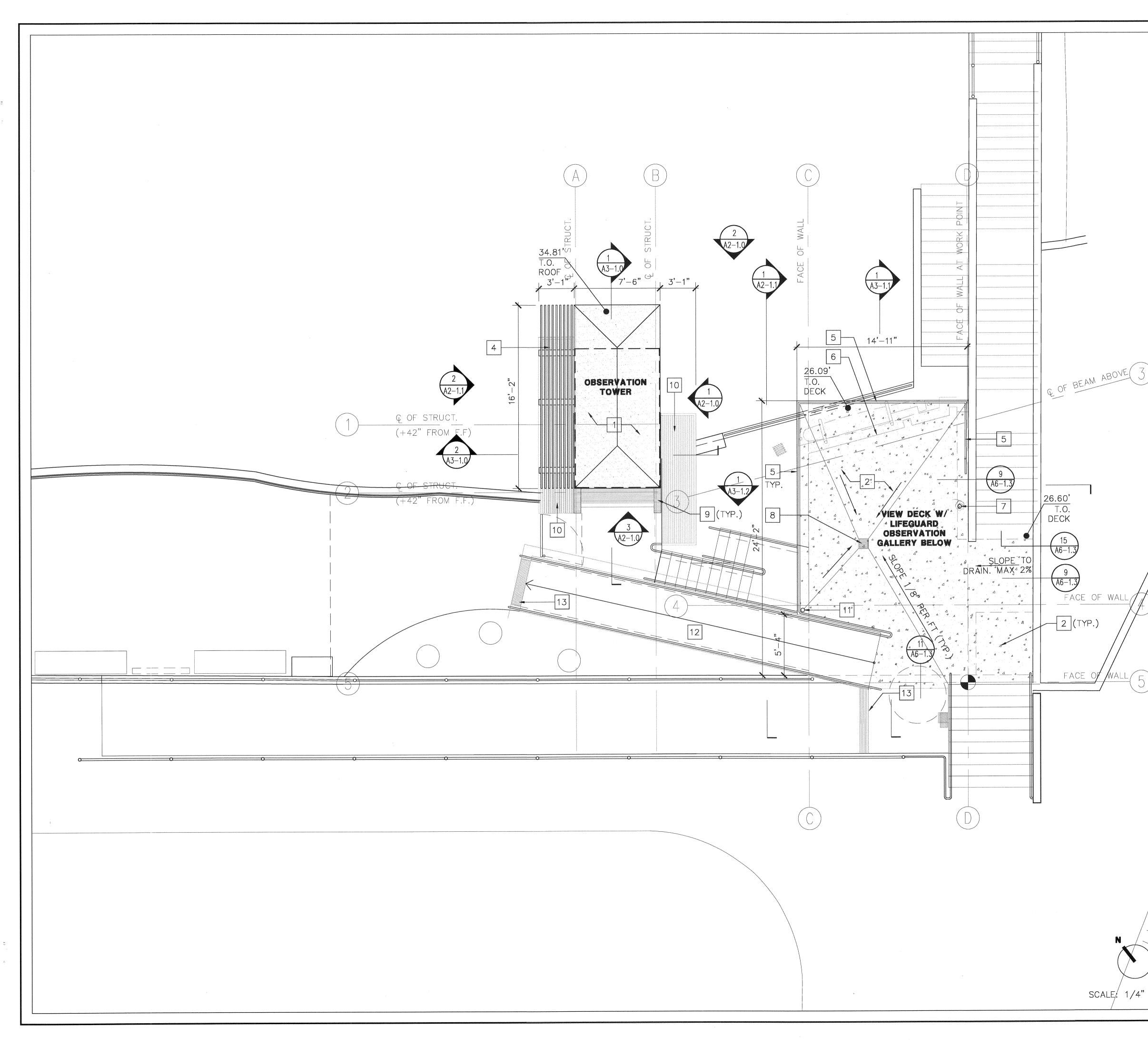
WALL TYPE - SEE SHEET A6-1.1 <#>

2" HIGH CURB - FULL HEIGHT GLAZING LOCATION - SEE 9 & 10 /A6-1.2

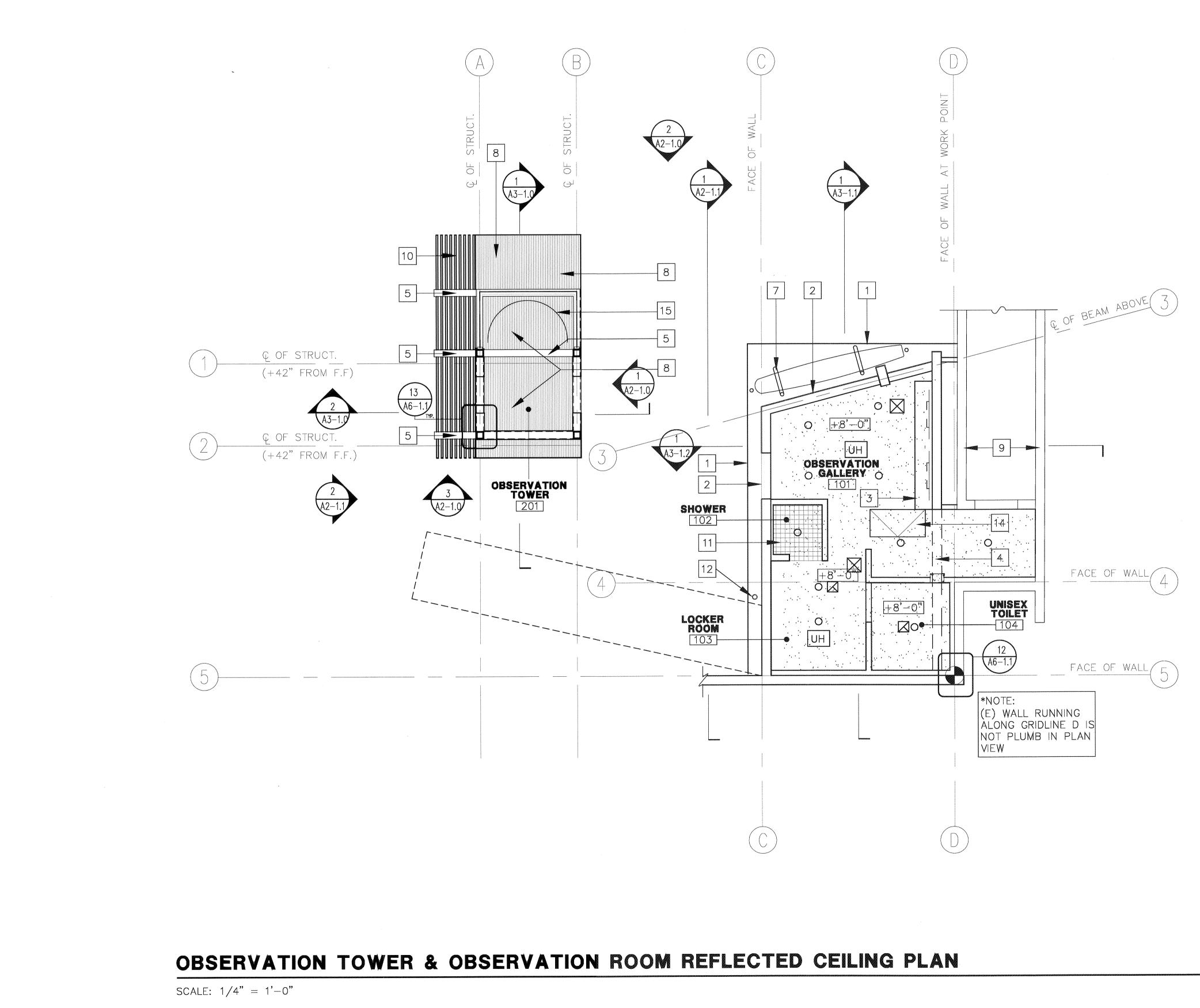
2" HIGH CURB - 2X6 STUD WALL LOCATION – SEE 7 /A6–1.2

1 DRAIN PER PLUMBING

	P T E C T S		BID	SUB	МПТ	FAL	
		LA JOLLA	COV	'E LIF	EGU	ARC	STATION LA JOLLA, CALIFORNIA
	ROESLING NAKAMURA TERADA	SHEET TITLE: CONCRET PLAN	E CU	IRB &	DR	AIN	SHEET NO: A1-1.1
	363 Fifth Avenue San Diego, California 92101 P619.233.1023	CITY OF SA ENGINEERING AND		PROJECTS DE			WBS # NO
	www.rntarchitects.com	FOR CITY ENGINEER	~	06-	24-	13	ELIF CETIN SECTION HEAD
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		SDP SUBMITTAL	RE		3/01/11		PROJECT MANAGER
\sim	RALPH J. ROESLING C	SDP RESUBMITTAL	RE		6/08/11		
4)	T KI KAT	BLDS. PERMIT RESUBMTL.	RE		01/28/13		CONTROL CERTIFICATION
	REN. 2-28 15	100% BID SUBMITTAL	RE		05/01/13		
	OF CALIFO						LAMBERT COORDINATES
		CONTRACTOR		STARTED COMPLETED			32674-18-D



	 GENERAL NOTES ALL STRUCTURAL AND MISC. STEEL SHALL BE HOT-DIPPE AND FINISHED WITH A HIGH-PERFORMANCE COATING, U.O. ALL ITEMS ARE NEW U.O.N. HIGHEST POINT OF ROOF SHALL NOT EXCEED 30' ABOVE SEE CIVIL, STRUCTURAL AND PLUMBING DRAWINGS FOR A REQUIREMENTS (N) SINGLE-PLY MEMBRANE ROOFING SYSTEM (N) C.I.P. CONCRETE WEARING SLAB O/ W.P. MEMBRA O/ STRUCTURAL SLAB (E) INTERIOR CORNER OF BUILDING SHEET KEY NOTES 	N. Mean high tide dditional
EJ	 SINGLE-PLY MEMBRANE ROOFING SYSTEM 3" CONCRETE WEARING SLAB O/ W.P. MEMBRANE O/ S SLAB C.I.P. CONCRETE DECK LATTICE SHADE STRUCTURE HAND/GUARD RAIL SEE 6/A6-1.3 AND 8/A6-1.3 FACE OF WALL BELOW SIGNAGE POLE / PLUMBING VENT. ROOF DECK DRAIN. SEE PLUMBING. ALUMINUM FLASHING 2X REDWOOD DECK BELOW 3" Φ OVERFLOW CORED AT CONCRETE DECK CONCRETE PED. RAMP. SEE 14/AS-2.0 LINEAR DRAIN. SEE CIVIL 	STRUCTURAL
L (5)	en ^{stects} BID SUBMITTAL	
	LA JOLLA COVE LIFEGUARI	D STATION
	SHEET TITLE: ROOF PLAN	LA JOLLA, CALIFORNIA SHEET NO: A1-1.2
	ROESLING NAKAMURA TERADA ARCHITECTS INC 363 Fifth Avenue San Diego, California 92101 P619.233.1023 CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 19 OF 67 SHEETS	WBS # NO
	www.mtarchitects.com	ELIF CETIN SECTION HEAD
	DESCRIPTION BY APPROVED DATE FILMED SDP SUBMITTAL RE 3/01/11 SDP SUBMITTAL RE 3/01/11	
	MO O10987 SDP RESUBMITTAL RE 6/08/11 SDP MO 01/28/13 01/28/13 01/28/13 01/28/13 V NEN. 2-28/15 105% BID SUBMITTAL RE 05/01/13	CONTROL CERTIFICATION
1/4" = 1'-0"	CONTRACTOR DATE STARTED INSPECTOR DATE COMPLETED	LAMBERT COORDINATES 32674-19-D
1/4" = 1'-0"	THEN, 2-28-15 DE TOR BID SUBMITTAL RE 05/01/13	LAMBERT COORDINATES



GENERAL NOTES

- BRAZILIAN REDWOOD SIDING TO BE COATED W/ CLEAR SEALER PRIOR TO INSTALLATION.
 ALL STRUCTURAL AND MISC. STEEL TO BE HOT-DIPPED GALVANIZED

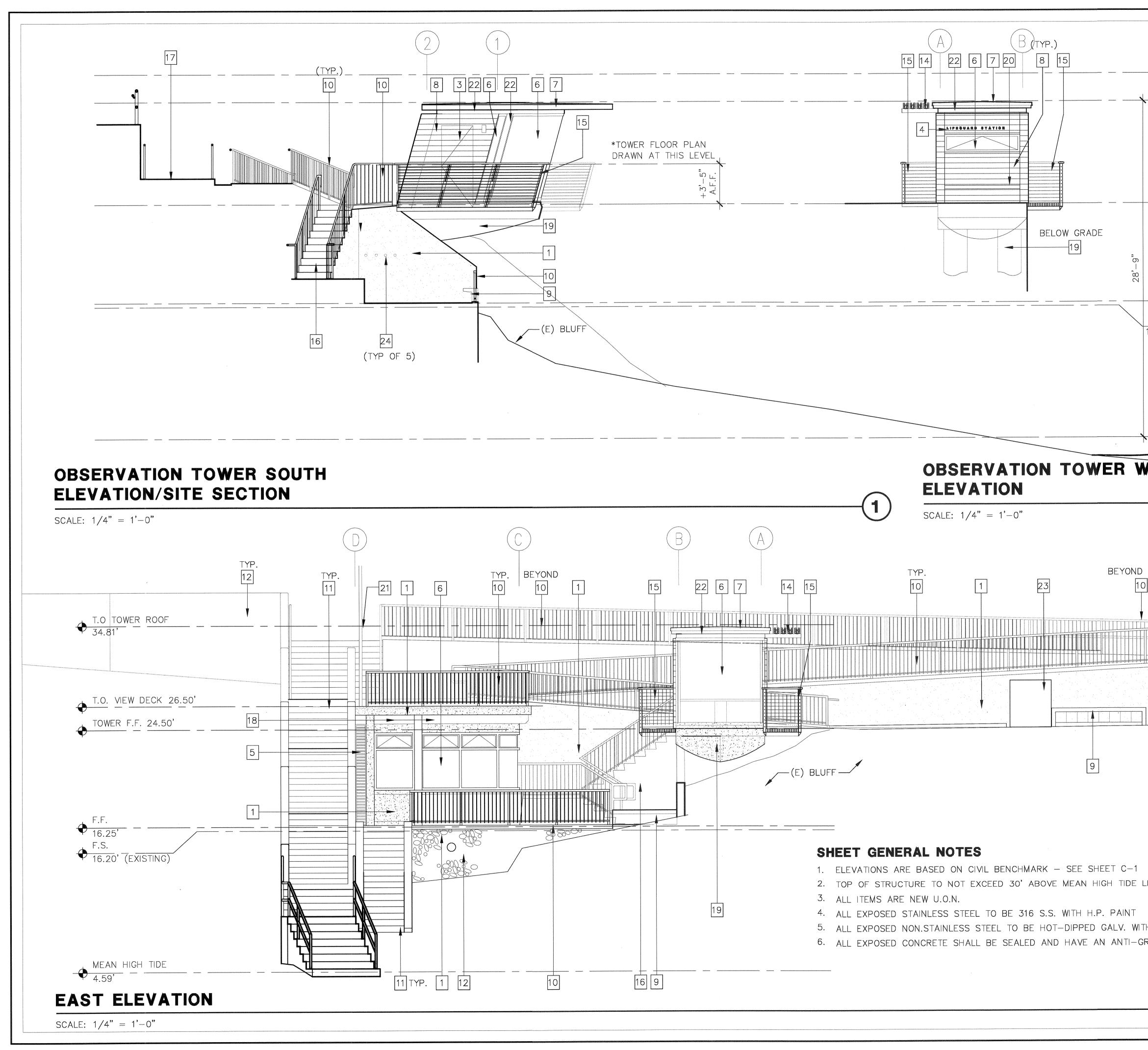
LEGEND

	(N) GYPSUM BOARD CEILING - SEE 1/A6-1.8
0	(N) RECESSED LIGHT FIXTURE PER ELECTRICAL
¢	(N) SURFACE MOUNTED LIGHT FIXTURE PER ELECTRICAL
bas and	(N) FLUOR. LIGHT FIXTURE MOUNTED UNDER CAB. PER ELECTRICAL
\square	(N) EXHAUST FAN PER MECHANICAL
UH	SURFACE MOUNTED UNIT HEATER
	(E) INTERIOR CORNER OF BUILDING

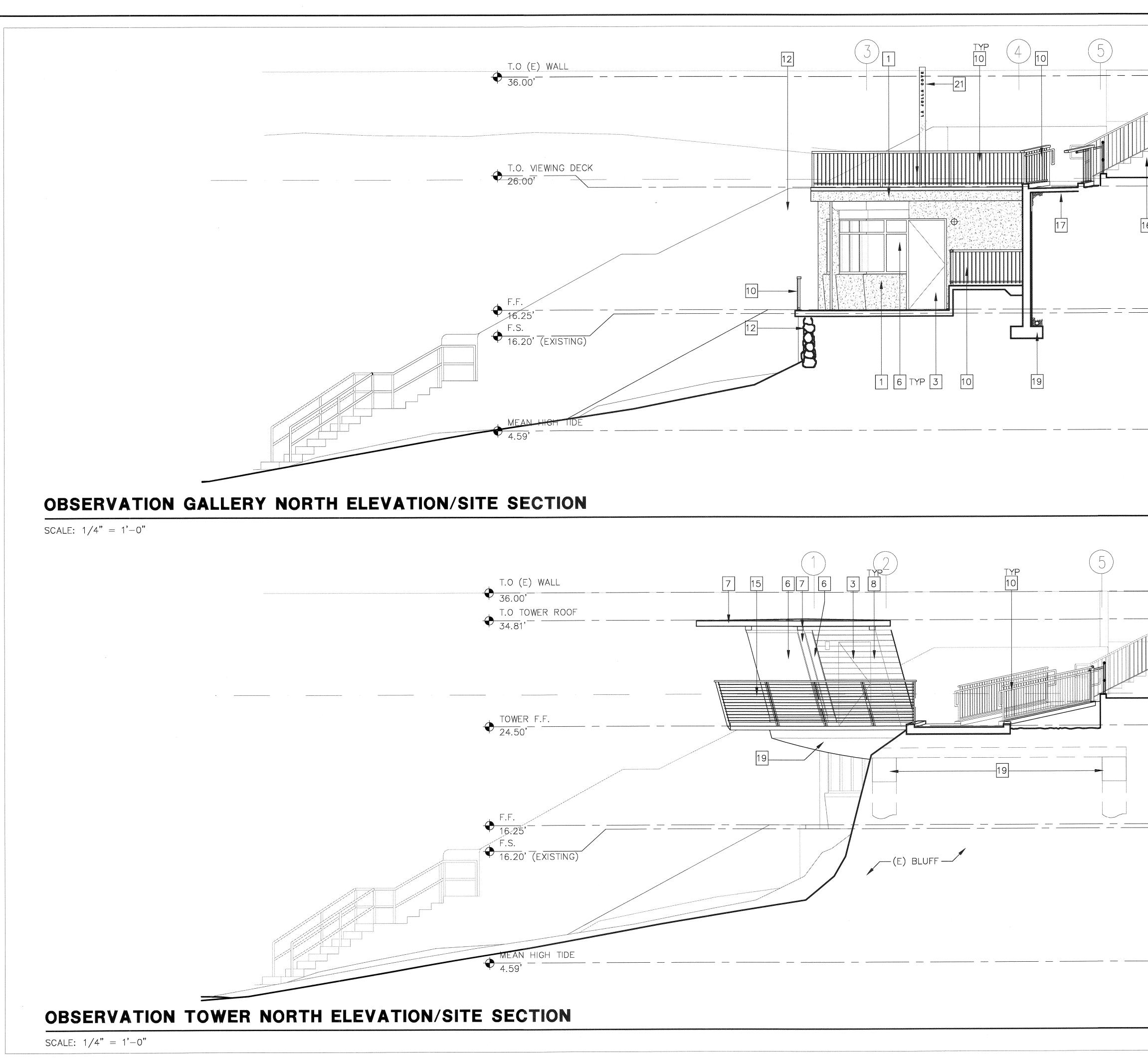
SHEET KEY NOTES

- 1 LINE OF C.I.P. CONC. DECK ABOVE
- 2 C.I.P. CONC. LINTEL SEE STRUCTURAL
- 3 UPPER CABINET
- 4 C.I.P. CONC. BEAM SEE STRUCTURAL
- 5 HSS FRAME SEE STRUCTURAL
- 6 EXTERIOR WALL BELOW
- 7 DOUBLE SURF BOARD RACK SEE DETAIL 10/A6-1.3
- 8 2X WOOD CEILING
- 9 (E) WALL TO REMAIN
- 10 SHADE TRELLIS STRUCTURE
- 11 CERAMIC TILE SHOWER CEILING
- 12 DECK OVERFLOW SEE 14/A6-1.3
- 13 ROLL DOWN SHUTTER
- 14 CLG. ACCESS PANEL
- 15 BIGEYE ALUM. BINOCULAR CLG. MOUNTED TRACK. COORDINATE LOCATION WITH CITY

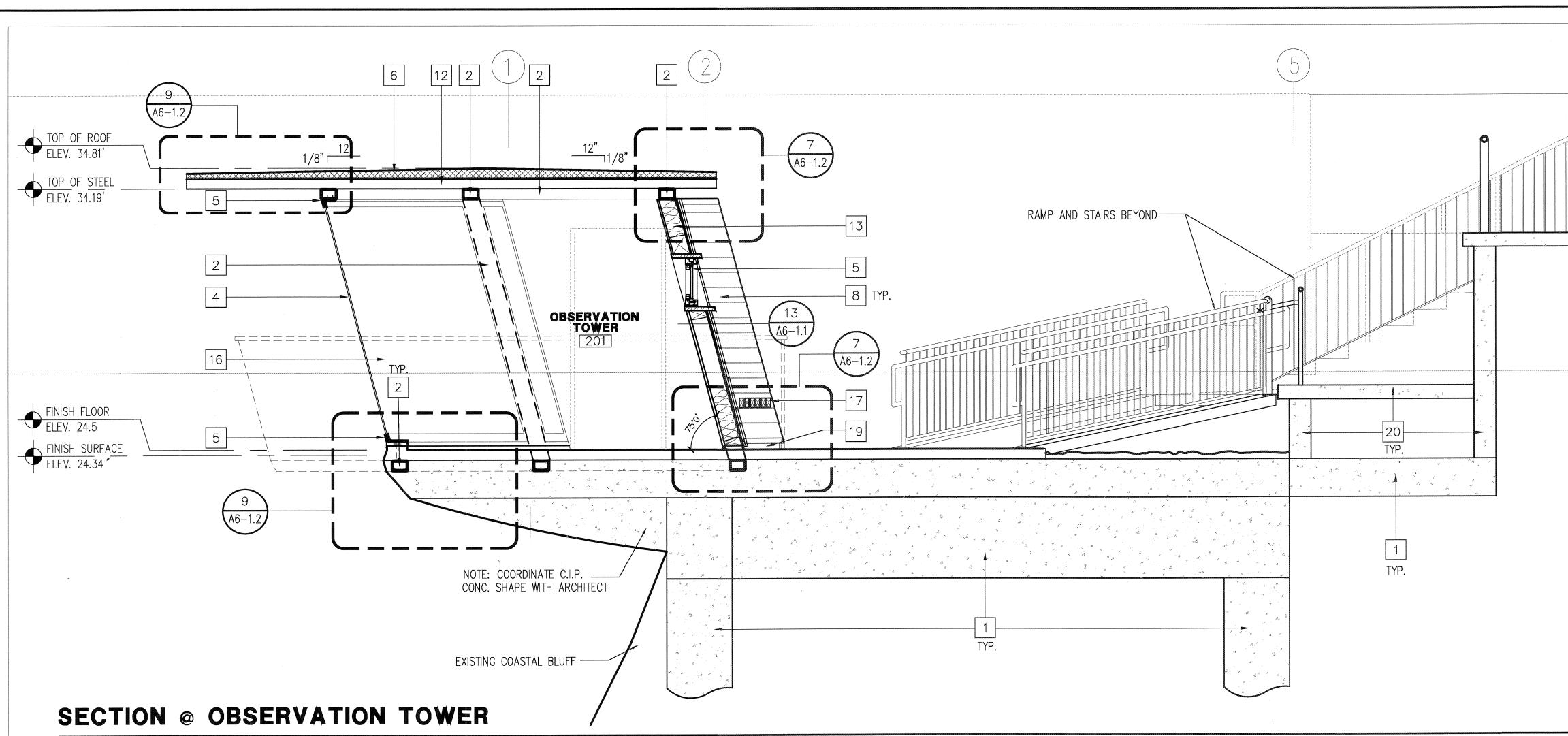
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	4 OWANAN OL	SHEET TITLE:	ED C	EILING	à PL	.AN	SHEET NO: A1-1.3			
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	TINIT	BLUG. PERMIT RESUBMTL.	RE		01/28/13		CONTROL CERTIFICATION			
/	REN. 2 28-15	100% BID SUBMITTAL	RE		05/01/13					
	FOF CALIFOR						LAMBERT COORDINATES			
		CONTRACTOR		STARTED			32674-20-D			



	KE	YNOTES						
T.O (E) WALL	#	MATERIAL	FINISH	COLOR				
	1	C.I.P. CONCRETE	ACID FINISH	NATURAL				
T.O TOWER ROOF 34.81'	2	ALUM. WINDOW FRAME	KYNAR PAINT	DARK GREY				
	3	DOOR PER SCHEDULE	FACTORY	PER SCHEDULE				
	4	ALUM. SIGNAGE LETTERS	FACTORY	NATURAL				
	5	ALUM. LOUVER	FACTORY	DK GRAY				
TOWER F.F.	6	WINDOW PER SCHEDULE	FACTORY	PER SPEC.				
24.50'	7	ALUM. FLASHING	PAINT	DK. GREY				
	8	BRAZILIAN REDWOOD SIDING	STAIN / SEAL	NATURAL				
	9	PRE-CAST. CONCRETE BENCH	ACID ETCHED SEAL	CLEAR				
F.F.	10	ALUMINUM HANDRAIL/ GUARDRAIL	FACTORY	N/A				
16.25' Ψ F.S.		(E) STAIRS	N/A	N/A				
F.S. 16.20' (EXISTING)	12	(E) WALL	N/A	N/A				
	13	(E) HANDRAIL	N/A	N/A				
	14	BRAZILIAN REDWOOD LOUVERS O/MTL FRAME	STAIN	NATURAL				
	15	S.S. CABLE GUARDRAIL W/ TEAK HANDRAIL	FACTORY	N/A				
MEAN HIGH TIDE	16	C.I.P. CONC. STAIRS	ACID FINISH	NATURAL				
1.59	17	C.I.P. RAMP	ACID FINISH	NATURAL				
VEST	18	ROLL DOWN SHUTTER	FACTORY	DK GRAY				
— (3)	19	C.I.P. CONC. FOUNDATION (SEE STRUCT.)	BOARD FORM NATURAL					
	20	2X REDWOOD BENCH	STAIN	CLEAR				
		S.S. 4X8 T.S. SIGNAGE	H.P. PAINT	DK GREY				
(TYP.)	22	STAINLESS STEEL FRAME	H.P. PAINT	DK. GREY				
	23	ELEC SERVICE PEDESTAL	N/A	N/A				
	24	1" DIA X 4" ALUM. DOWELS		NATURAL				
		10 TYP.						
9		12 TYP.						
	P CHITEC	s	BID SUBMIT	TAL				
				UARD STAT	ION			
	м Т Т			LA JOLLA, CA				
	\$ 0 W Y X	SHEET TITLE: EXTERIOR		IS / SHEET NO				
· · · · · · · · · · · · · · · · · · ·	ROESLING NAKAMURA TERADA ARCHITECTS INC AZTIO							
S F	San Diego, California S 2619.233.1023 vww.rntarchitects.com	ENGINEERING AND C	21 OF 67 SHEETS	ENT NO. S007	92			
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	REN. 2	BLDG. PERMIT RESUBMTL. R	E 01/28/	13 CONTROL CERTI				
—(2)	THE OF C	CONTRACTOR	DATE STARTED	LAMBERT COOF 32674- 2				
		INSPECTOR	DATE COMPLETED					



	KEYNOTE	S				
10	# MATERIA	۰.L	FINISH	COLOR		
	1 C.I.P. C	ONCRETE	ACID FINISH	NATURAL		
	2 ALUM. V	WINDOW FRAME	KYNAR PAINT	DARK GREY		
	3 DOOR P	ER SCHEDULE	FACTORY	PER SCHEDULE		
	4 ALUM. S	SIGNAGE LETTERS	FACTORY	NATURAL		
	5 ALUM. L	.ouver	FACTORY	DK GRAY		
	6 WINDOW	PER SCHEDULE	FACTORY	PER SPEC.		
	7 ALUM. F	LASHING	PAINT	DK. GREY		
	8 BRAZILIA SIDING	AN REDWOOD	STAIN / SEAL	NATURAL		
	9 C.I.P. C	ONCRETE BENCH	SEAL	CLEAR		
	10 ALUMINU GUARDR	JM HANDRAIL/	FACTORY	N/A		
	11 (E) STA		N/A	N/A		
	12 (E) WAL		N/A	N/A		
	13 (E) HAN	IDRAIL	N/A	N/A		
		AN REDWOOD S O/MTL FRAME	STAIN	NATURAL		
	IS S.S. CA	BLE GUARDRAIL K HANDRAIL	FACTORY	N/A		
	······	ONC. STAIRS	ACID FINISH	NATURAL		
	17 C.I.P. R	AMP	ACID FINISH	NATURAL		
	18 ROLL DO	OWN SHUTTER	FACTORY	DK GRAY		
	19 C.I.P. C. (SEE ST	ONC. FOUNDATION	BOARD FORM	NATURAL		
		WOOD BENCH	STAIN	CLEAR		
	21 S.S. 4X	8 T.S. SIGNAGE	H.P. PAINT	DK GREY		
	22 STAINLES	SS STEEL FRAME	H.P. PAINT	DK. GREY		
		RVICE PEDESTAL	N/A	N/A		
LLL	SHEET GENERA	L NOTES				
1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E N.STAINLESS STEEL	30' ABOVE MEAI Be 316 S.S. WITH TO BE HOT-DIPF	N HIGH TIDE LEVEL		
1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT 5. ALL EXPOSED CON COATING	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E N.STAINLESS STEEL	30' ABOVE MEAI Be 316 S.S. WITH TO BE HOT-DIPF	n high tide level h.p. paint ped galv. With h.p. 7e an anti-graffiti		
1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT 5. ALL EXPOSED CON	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E I.STAINLESS STEEL ICRETE SHALL BE S LA JOLLA	30' ABOVE MEA BE 316 S.S. WITH TO BE HOT-DIPF SEALED AND HAV	N HIGH TIDE LEVEL H.P. PAINT PED GALV. WITH H.P. TE AN ANTI-GRAFFITI TTAL IUARD STATION LA JOLLA, CALIFORNI		
1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT 5. ALL EXPOSED CON COATING 4. COATING	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E N.STAINLESS STEEL ICRETE SHALL BE S LA JOLLA SHEET TITLE:	30' ABOVE MEA BE 316 S.S. WITH TO BE HOT-DIPF SEALED AND HAV BID SUBMIT COVE LIFEG	N HIGH TIDE LEVEL H.P. PAINT PED GALV. WITH H.P. TE AN ANTI-GRAFFITI TTAL IVARD STATION LA JOLLA, CALIFORNI		
1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT 5. ALL EXPOSED CON COATING 4 4 4 5 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E INSTAINLESS STEEL ICRETE SHALL BE S ICRETE SHALL BE S SHEET TITLE: EXTERIOR SITE SEC CITY OF SAN ENGINEERING AND	30' ABOVE MEA BE 316 S.S. WITH TO BE HOT-DIPF SEALED AND HAV BID SUBMIT COVE LIFEG	N HIGH TIDE LEVEL H.P. PAINT PED GALV. WITH H.P. (E AN ANTI-GRAFFITI TTAL TTAL UARD STATION LA JOLLA, CALIFORNI NIA WBS #		
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1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT 5. ALL EXPOSED CON COATING 4 4 4 5 4 5 6 7 7 7 7 7 7 7 7 7 7 7 7 7	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E INSTAINLESS STEEL ICRETE SHALL BE SHEET TITLE: EXTERIOR SITE SEC CITY OF SAN ENGINEERING AND O SHEET CITY OF SAN ENGINEERING AND O SHEET	30' ABOVE MEAL BE 316 S.S. WITH TO BE HOT-DIPF SEALED AND HAV BID SUBMIT COVE LIFEG COVE COVE LIFEG COVE COVE COVE COVE COVE COVE COVE COVE	N HIGH TIDE LEVEL H.P. PAINT PED GALV. WITH H.P. YE AN ANTI-GRAFFITI TTAL TTAL SHEET NO: A2-1.1 NIA NIA NIA NIA NIA ENT SHEET NO: A2-1.1 NIA NIA ENT SHEET NO: A2-1.1 SHEET NO: A2-1.1 SHEET NO: A2-1.1 SHEET NO: A2-1.1 SIA SIA SIA SIA SIA SIA SIA SIA		
1 2 3 4 5	2. TOP OF STRUCTUR 3. ALL ITEMS ARE NE 4. ALL EXPOSED STA 5. ALL EXPOSED NON PAINT 5. ALL EXPOSED CON COATING 4. COATING 7. COATIN	BASED ON CIVIL BE RE TO NOT EXCEED EW U.O.N. INLESS STEEL TO E INSTAINLESS STEEL ICRETE SHALL BE SHEET TITLE: EXTERIOR SITE SEC CITY OF SAN ENGINEERING AND O SHEET FOR CITY ENGINEER DESCRIPTION SDP SUBMITTAL END RESUBMITTAL END RESUBMITTAL END PERMIT RESUBMTL	30' ABOVE MEAN BE 316 S.S. WITH TO BE HOT-DIPF SEALED AND HAV BID SUBMIT COVE LIFEG COVE DE COVE DE COVE COVE DE COVE DE COVE COVE DE COVE DE COVE COVE DE COVE DE COVE DE COVE COVE DE COVE DE	N HIGH TIDE LEVEL H.P. PAINT PED GALV. WITH H.P. (E AN ANTI-GRAFFITI IUARD STATION LA JOLLA, CALIFORNI LA JOLLA, CALIFORNI NS / SHEET NO: A2-1.1 NIA VBS # NO. SOO792 -13 ELIF CETIN SECTION HEAD E FILMED FILMED FILMED CONTROL CERTIFICATION		



LA JOLLA COVE LIFEGUARD STATION

4

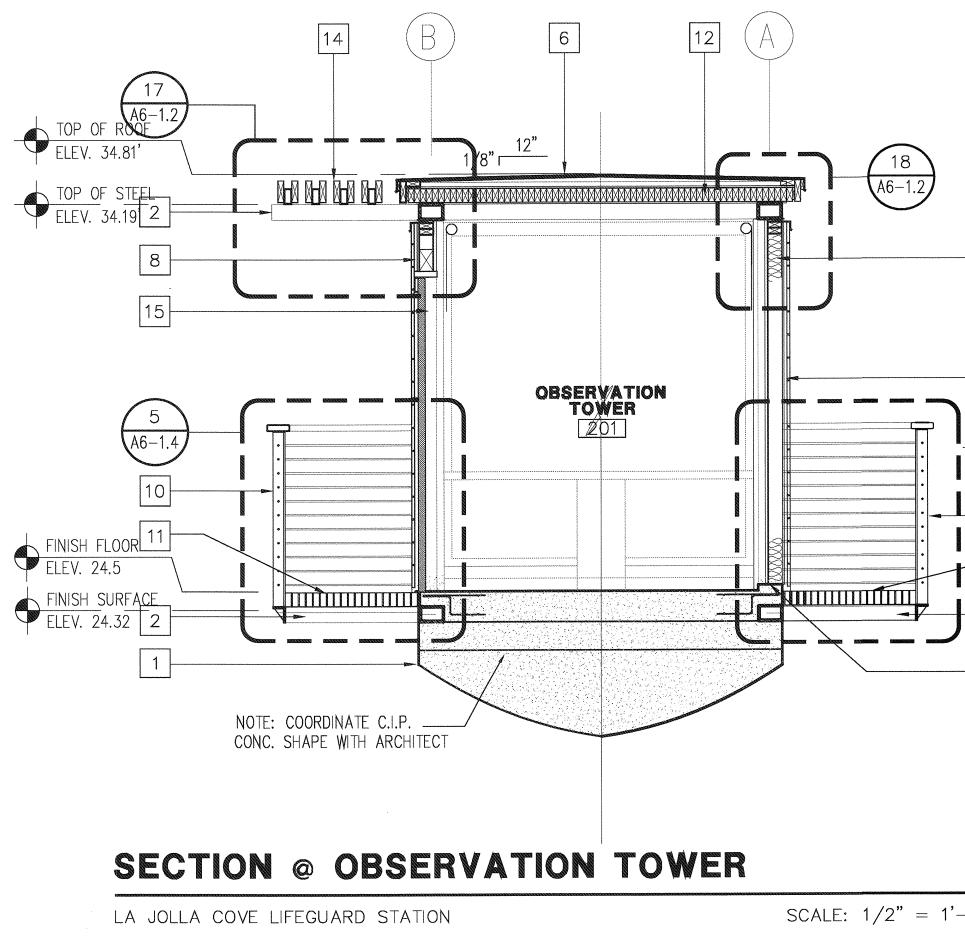
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SCALE: 1/2" = 1'-0"

-13



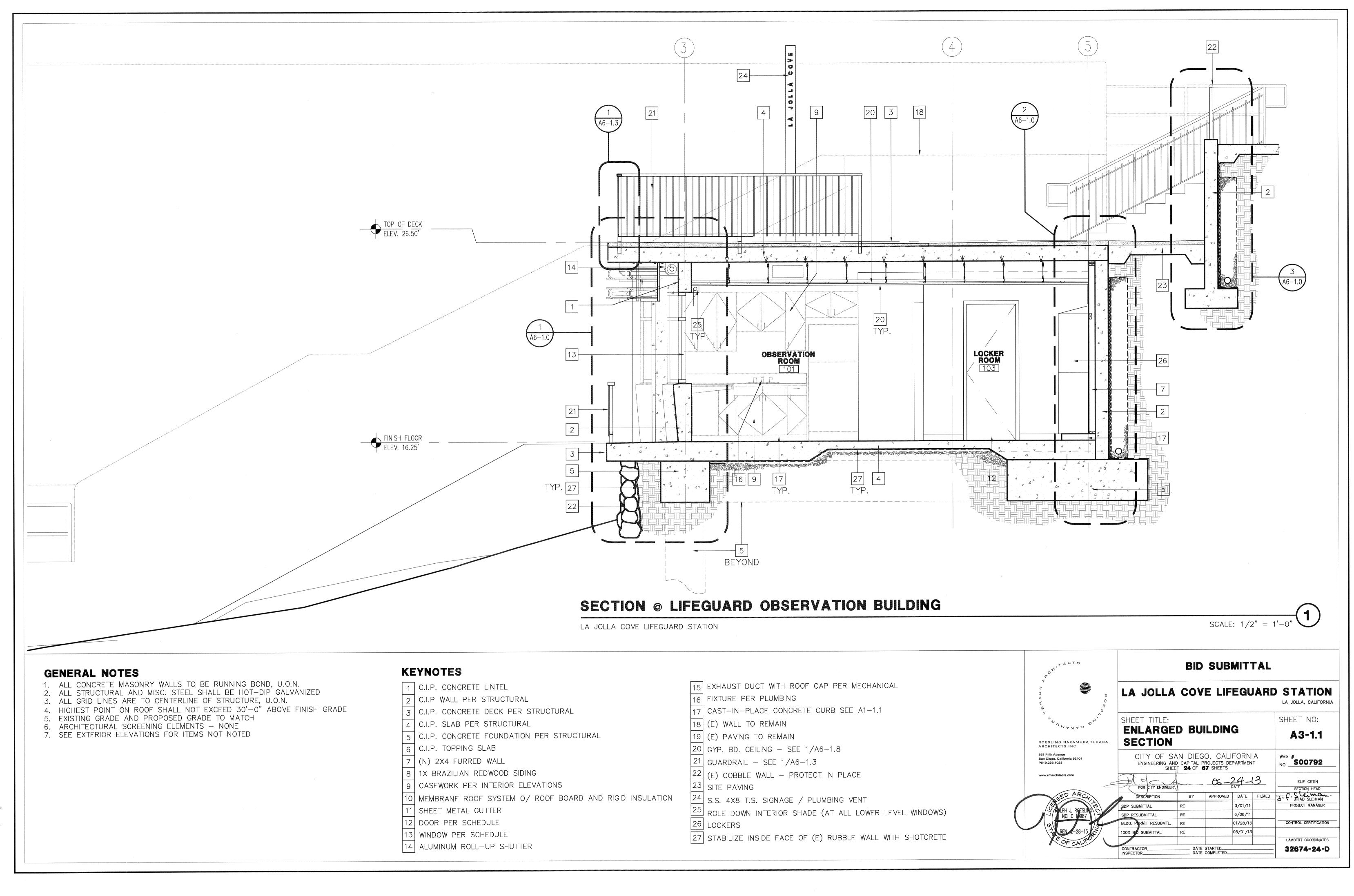
GENERAL NOTES

- ALL CONCRETE MASONRY WALLS TO BE RUNNING BOND, U.O.N.
- 2. ALL STRUCTURAL AND MISC. STEEL SHALL BE HOT-DIP GALVANIZED 3. ALL GRID LINES ARE TO CENTERLINE OF STRUCTURE, U.O.N.
- HIGHEST POINT ON ROOF SHALL NOT EXCEED 30'-0" ABOVE FINISH GRADE
- 5. EXISTING GRADE AND PROPOSED GRADE TO MATCH
 6. ARCHITECTURAL SCREENING ELEMENTS NONE
 7. SEE EXTERIOR ELEVATIONS FOR ITEMS NOT NOTED

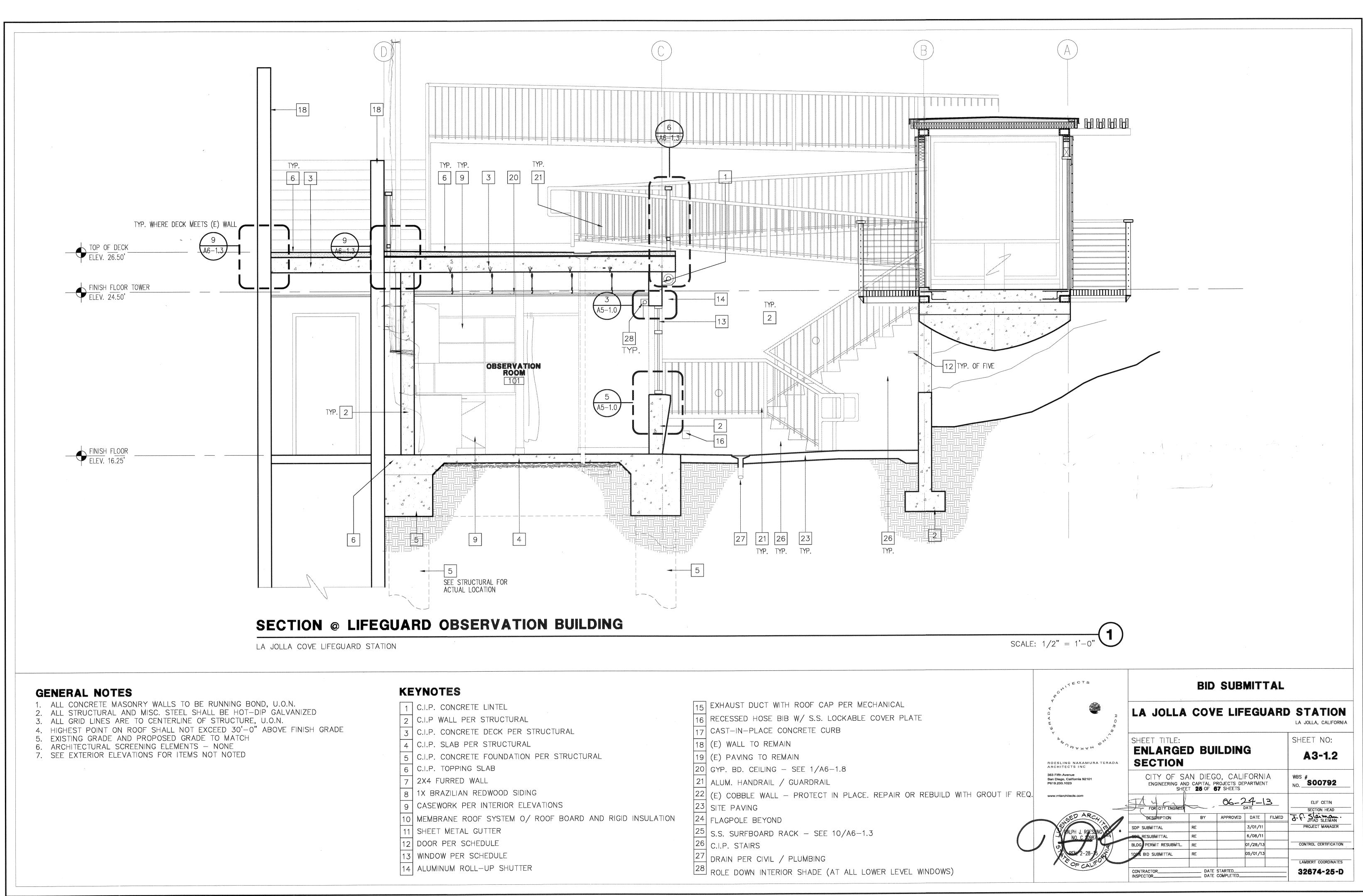
KEYNOTES

- 1 CAST-IN-PLACE CONCRETE PILE AND GRADE BEAM PER STRUCTURAL
- 2 FLAT 6X4 S.S TUBE BEAM/FRAME PER STRUCTURAL
- 3 CONCRETE SLAB PER STRUCTURAL
- 4 WINDOW PER SCHEDULE SEE A5-1.0
- 5 HOT-DIPPED GALV. WINDOW FRAME W/HIGH PERFORMANCE PAINT
- 6 SINGLE-PLY MEMBRANE ROOFING SYSTEM O/SHEATHING & RIGID INSUL.
- 7 2X STUD WALL SEE 12/A6-1.1
- 8 1X BRAZILIAN REDWOOD SIDING
- 9 CONCRETE FINISH SLAB PER SITE PLAN
- 10 S.S STANCHION & S.S. CABLE RAILING
- 11 2X4 BRAZILIAN REDWOOD DECK
- 12 2X4 ROOF JOIST PER STRUCTURAL
- 13 R-13 BATT INSULATION
- 14 BRAZILLAN REDWOOD LOUVER O/S.S. MTL. FRAME
- 15 DOOR PER SCHEDULE
- 16 SOLID SURFACE COUNTERTOP
- 17 2X WOOD BENCH
- 18 VENEER PLYWOOD SHEATHING
- 19 C.I.P. CONC. CURB O/CONC. TOPPING SLAB
- 20 C.I.P. RET. WALLS AND PAVING

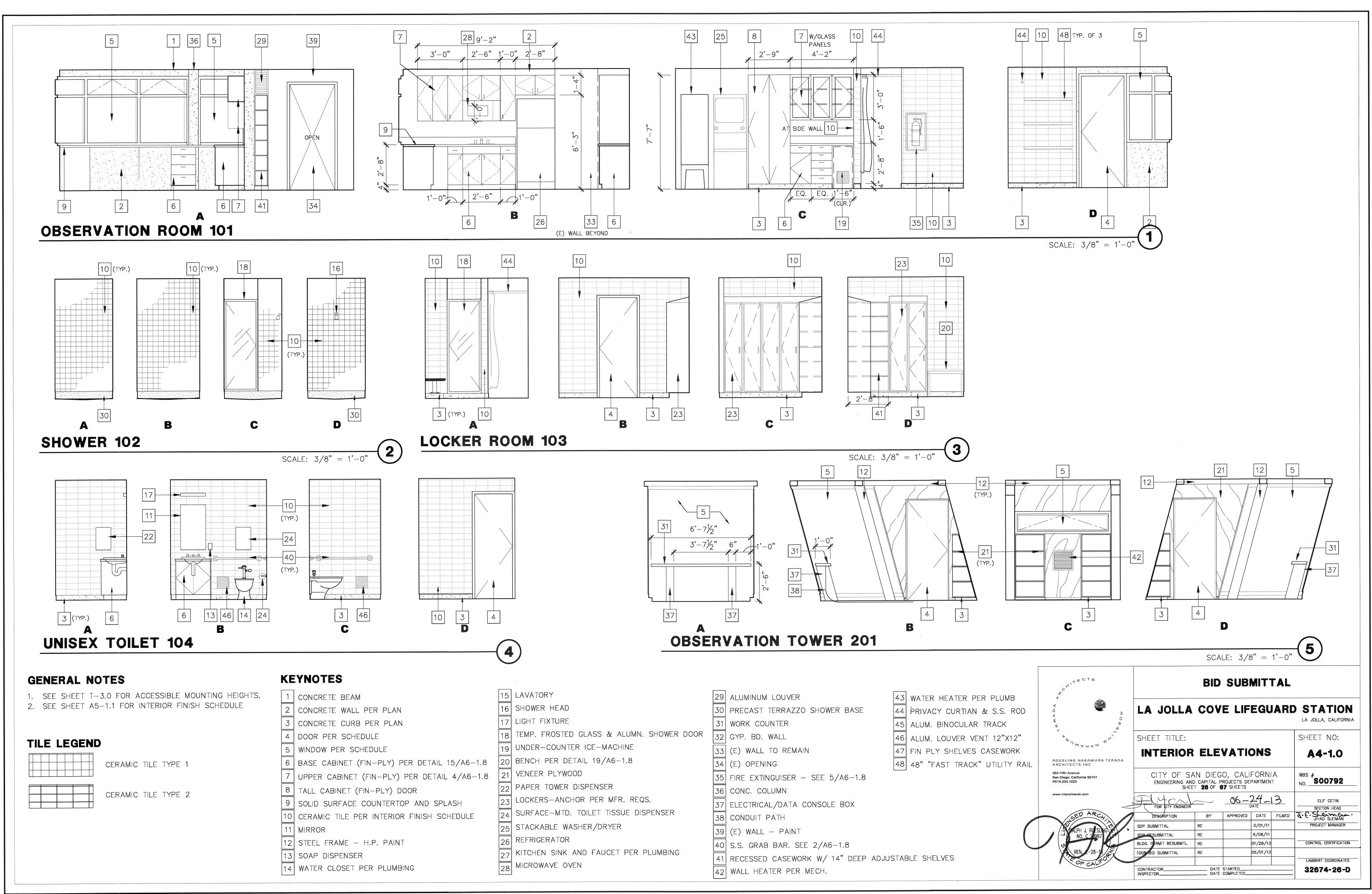
A6-1.4	e CHITECTS		BID	SUBN	IITTAL	-		
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19_TYP.	ARCHITECTS INC 363 Fifth Avenue San Diego, California 92101 P619.233.1023	CITY OF S ENGINEERING AN	CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 23 OF 67 SHEETS					
	www.mtarchitects.com	FOR CITY ENGINEER	<u> </u>	06-24 DAT	<u>+_13</u>	ELIF CETIN SECTION HEAD		
	SEED ARCH	DESCRIPTION	BY		DATE FILME	JIHAD SLEIMAN		
	RALPH IN ROETLING	SDP SUBMITTAL	RE		/01/11	PROJECT MANAGER		
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-(2)	REN. 2-28-15	100% BID SUBMITTAL	RE	05	5/01/13			



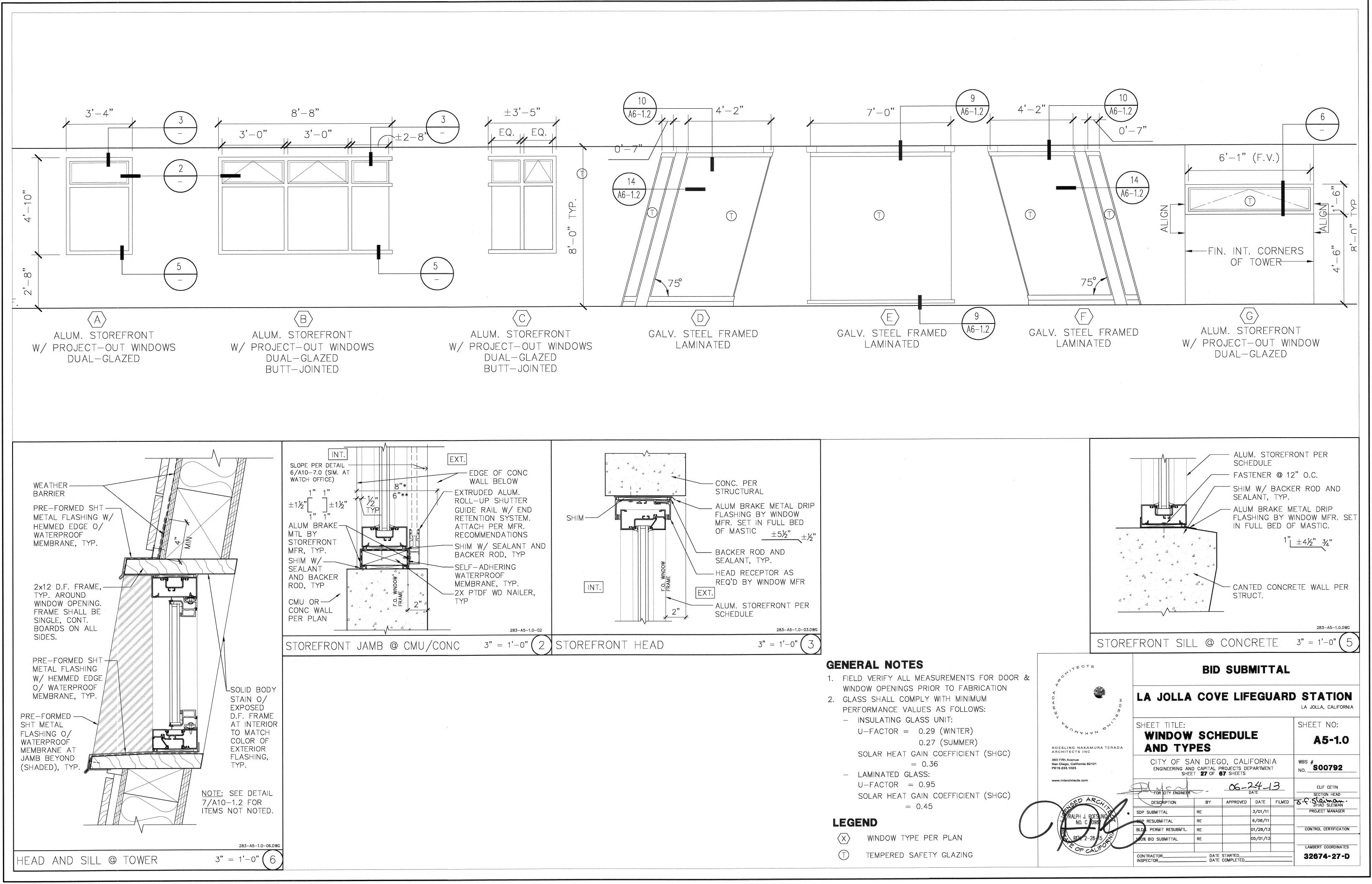
ETE LINTEL	15	EXHAUST DUCT WITH ROOF CAP PER MECHANICAL
ER STRUCTURAL	16	FIXTURE PER PLUMBING
ETE DECK PER STRUCTURAL	17	CAST-IN-PLACE CONCRETE CURB SEE A1-1.1
PER STRUCTURAL	18	(E) WALL TO REMAIN
ETE FOUNDATION PER STRUCTURAL	19	(E) PAVING TO REMAIN
G SLAB	20	GYP. BD. CEILING - SEE 1/A6-1.8
RED WALL	21	GUARDRAIL - SEE 1/A6-1.3
REDWOOD SIDING	22	(E) COBBLE WALL - PROTECT IN PLACE
ER INTERIOR ELEVATIONS		SITE PAVING
OOF SYSTEM O/ ROOF BOARD AND RIGID INSULATION		S.S. 4X8 T.S. SIGNAGE / PLUMBING VENT
GUTTER	25	ROLE DOWN INTERIOR SHADE (AT ALL LOWER LEVEL WINDOWS)
CHEDULE		LOCKERS
SCHEDULE	27	STABILIZE INSIDE FACE OF (E) RUBBLE WALL WITH SHOTCRETE
DLL-UP SHUTTER	l	



C	F	R	S	TF	21	J	С	Τ	U	F



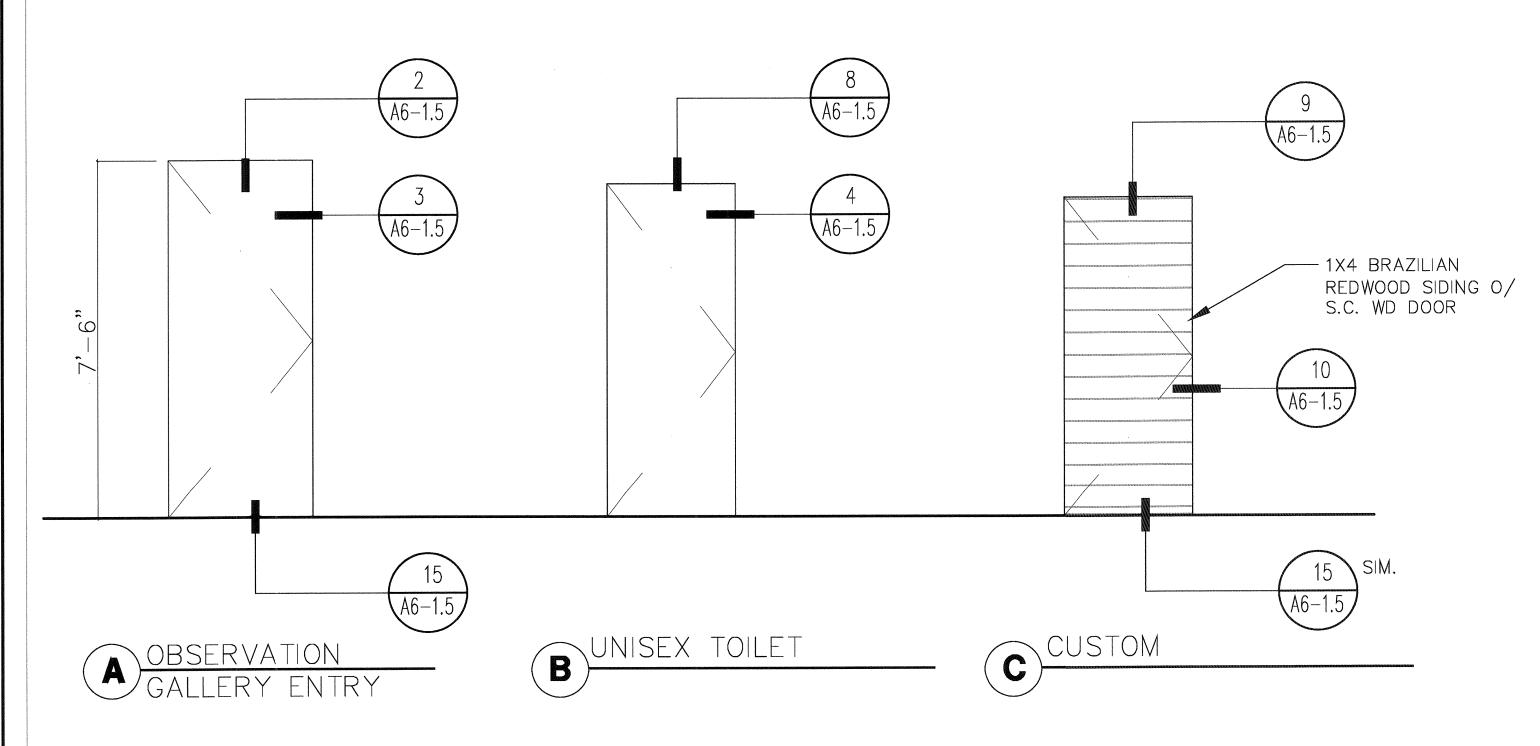
12	WALL	HEATER	PER	MECH.	
-	11				

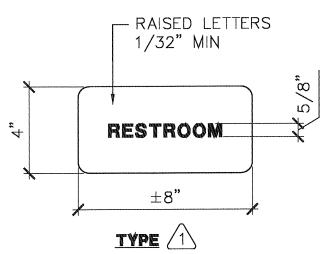


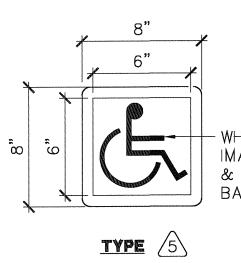
									\						\\/ A					CEILING			REMARKS
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		MAT'L	FINISH	COLOR	MAT'L	FINISH	COLOR	MATL	FINISH	COLOR	MAT'L	FINISH	COLOR	MATL	FINISH	COLOR	MATL	FINISH	COLOR	MAT'L	FINISH	COLOR	
OE	SERVATION BUILDING				n marine de la companya de la compa				stepting in the state of the st														
D1	OBSERVATION GALLERY	CONC	SM/CS	NT	CONC			CONC	SM/CS	NT	CONC	SM/CS	NT	CT/GYP	FA/PS	FA/WH	T CONC	SM/CS	NT	GYP	PS	WHT	
02	SHOWER	TZ	FA	NT	ΤZ	FA	NT	CT	FA/CS		CT	FA/CS		CT	FA/CS		CT	FA/CS		GYP	PS	WHT	_
)3	LOCKER ROOM	CONC	SM	NT	CONC			CT	FA/CS		СТ	FA/CS		СТ	FA/CS		СТ	FA/CS		GYP	PS	WHT	
)4	UNISEX TOILET	CONC	SM	NT	CONC			СТ	FA/CS	_	СТ	FA/CS		СТ	FA/CS		CT	FA/CS		GYP	PS	WHT	
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	DOOR							FRAME					ASSY.		
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101A OBSERVATION ROOM	3'-0"	7'-6"	1-3/4"	ALUM.	FA-1	A	003	2	3	15	ALUM.	FA-1		5	
104 UNISEX TOILET 104	2'-8"	7'-0"	1-3/4"	SC	PT	В	002				WD	CS			
LIFEGUARD OBSERVATION TOWER															
201A OBSERVATION TOWER	2'-8"	6'-8"	1-3/4"	SC	ST	С	001	9	10	15	SC	ST		125	
201B OBSERVATION TOWER	2'-8"	6'-8"	1-3/4"	SC	ST	С	001	9	10	15	WD	CS	_	125	
EXTERIOR GATES															
G-1 SERVICE VESTIBULE -SOUTH	4'-0"	4'-0"	2"	AL	FA-2	G1									

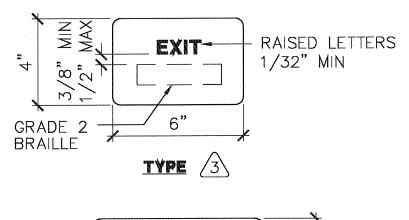
DOOR TYPES

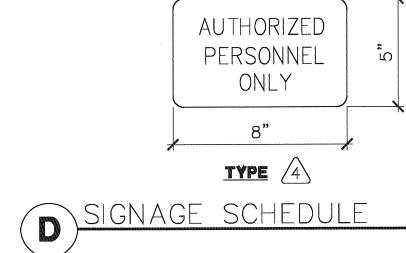




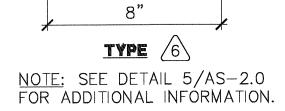


NOTE: SEE PLAN FOR LOCATION (TYP.)



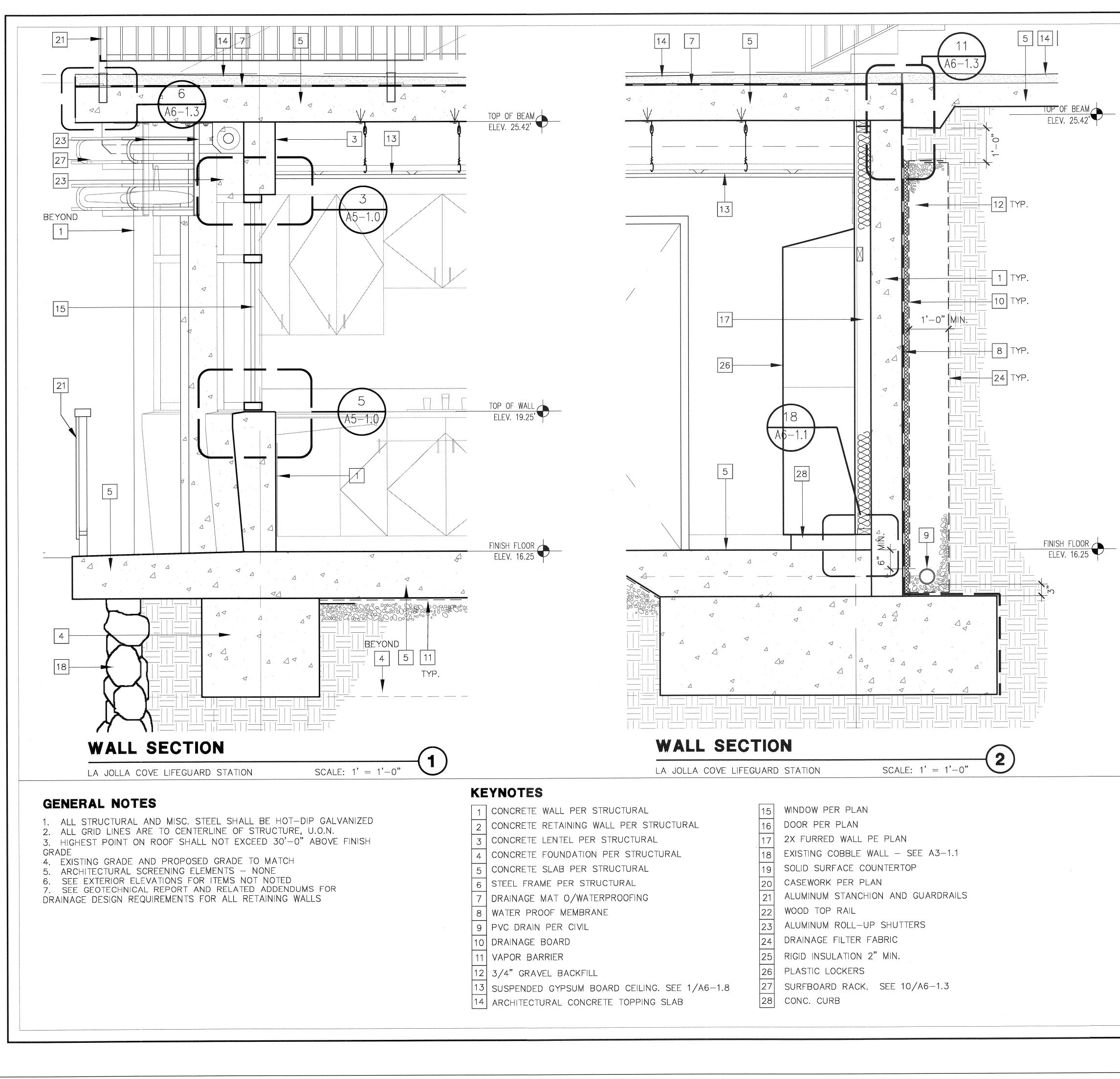


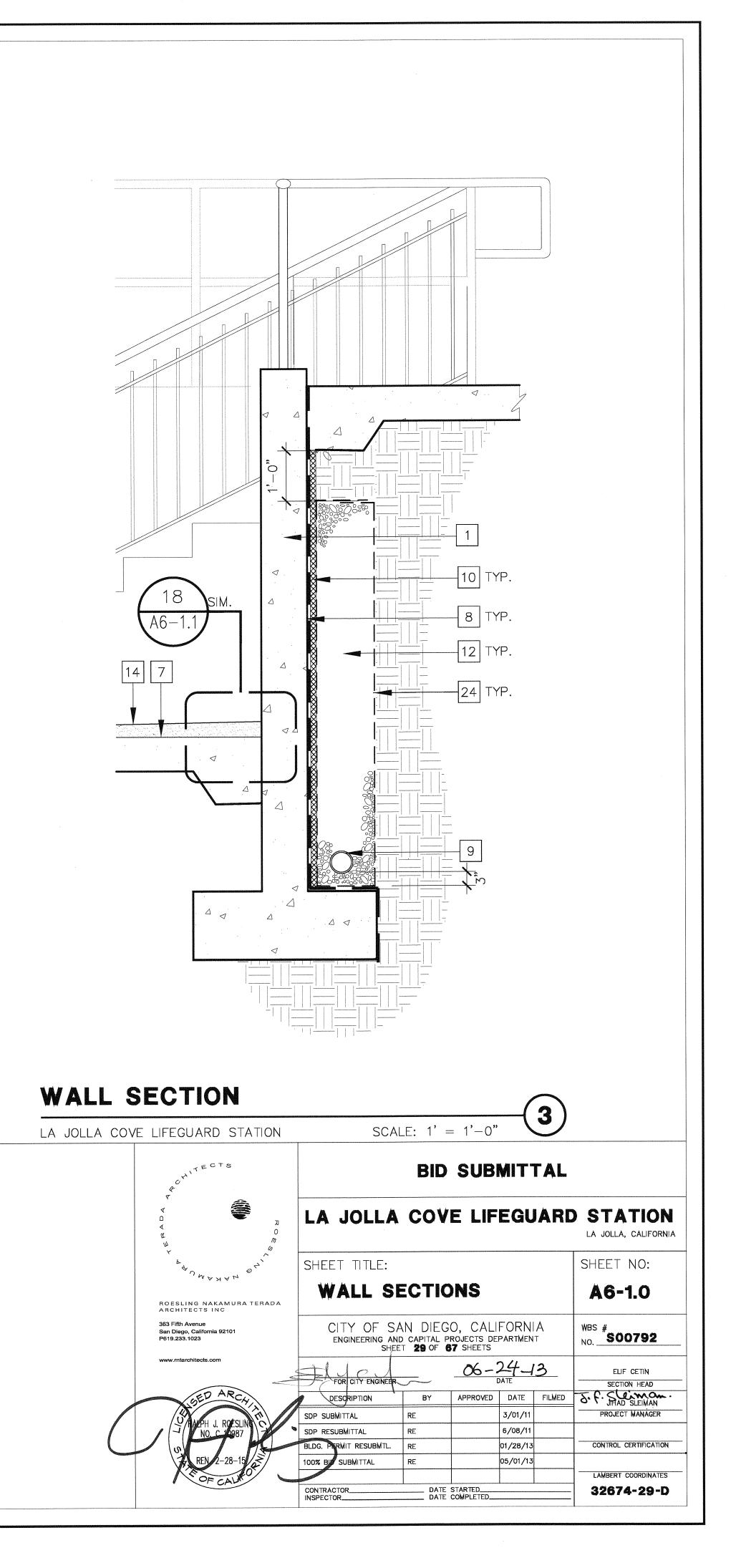
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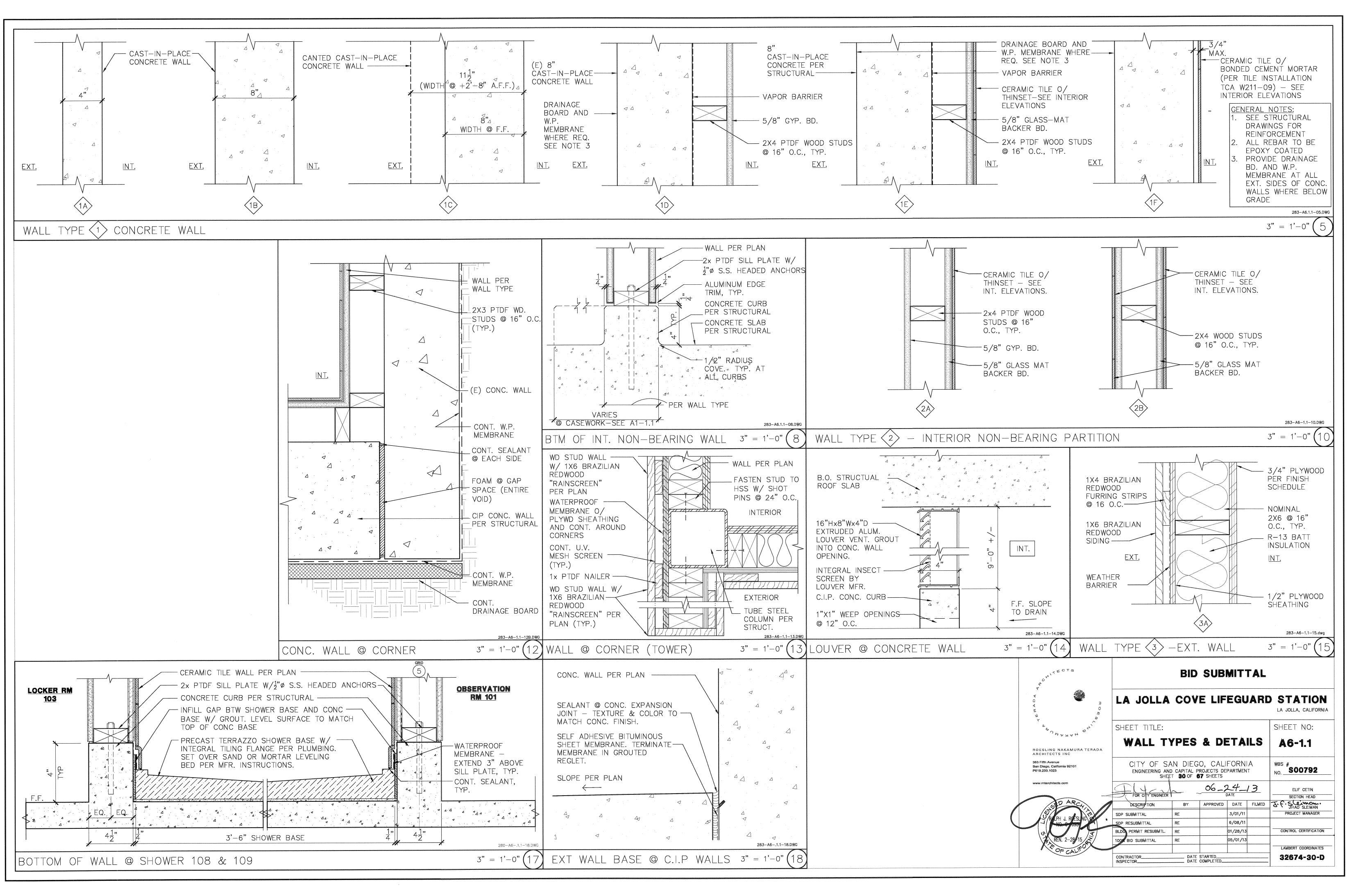


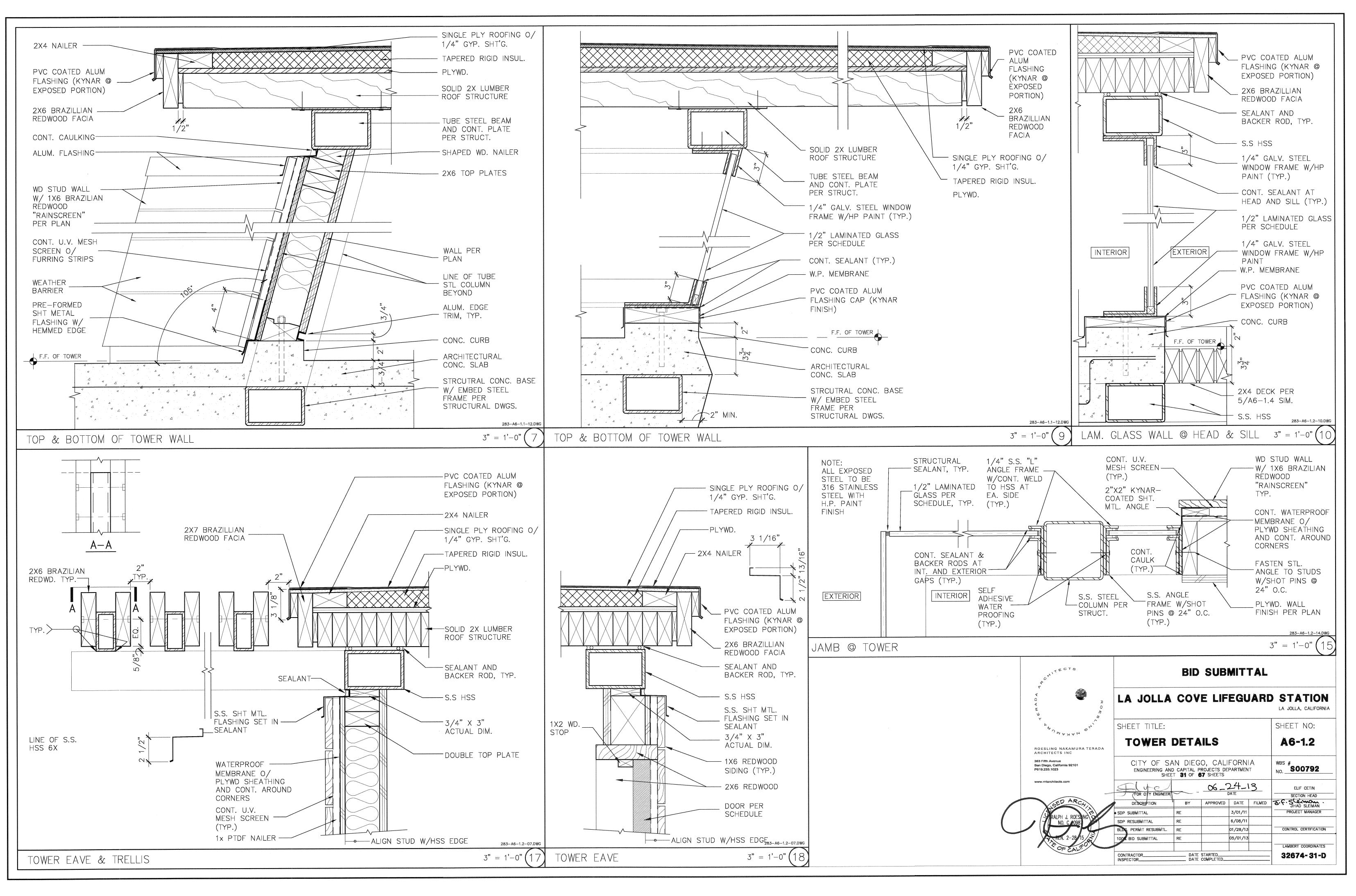
	GENERAL NOTES 1. All Interior CLG. AND WALL GYP. BOARD TO BE MOISTURE AND
	2. SEE INTERIOR ELEVATIONS AND WALL TYPES FOR ADDITONAL FINISH
	REQUIREMENTS 3. ALL EXPOSED STEEL TO HAVE HIGH PERFORMANCE PAINT FINISH
	MATERIALS LEGEND
	CONCCONCRETETZTERRAZZOCTCERAMIC TILEGYP.GYPBOARD SMOOTH FINISHEPEXTERIOR PLASTERWDBRAZILIAN REDWOODESEXPOSED STRUCTUREGLGLAZINGFPFIN-PLYFIN-PLYGLAZING
	FINISH LEGENDAGANTI-GRAFFITI COATINGBDBOARD-FORMEDBRBROOM FINISHCSCLEAR SEALANTFAFACTORY APPLIEDGALVHOT-DIPPED GALVANIZEDPSPAINTED - SEMI-GLOSSSMSMOOTH TROWELED W/ ACID WASH
	COLOR LEGEND CL CLEAR NT NATURAL WHT WHITE
	GENERAL NOTES
	 VERIFY REQUIRED FRAME THICKNESS FOR ALL WALL TYPES. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 LBS. PRESSURE FOR EXTERIOR AND INTERIOR DOORS.
	MATERIALS LEGEND AL ALUMINUM FRP FIBERGLASS REINFORCED POLYESTER STL STEEL WD HARDWOOD SC SOLID CORE WOOD
	FINISH LEGENDCSCLEAR SEALERFA-1FACTORY - PVDF KYNAR FINISHFA-2FACTORY - THROUGH COLORGAHOT-DIP GALVANIZEDHPCHIGH-PERFORMANCE COATINGPTPAINTSTSTAIN
	REMARKS
	 DOOR THICKNESS EXCLUDES EXT. WOOD SIDING STAIN S.C. WOOD DOOR PRIOR TO EXT. SIDING FINISH NOT USED ROOM NAME SIGN TEXT TO READ "OBSERVATION ROOM"
/BORDER JE GROUND	 KEYPAD PROVIDED BY OTHERS - SEE ELEC. FOR CONDUIT PROVIDE DOOR CONTACT
N	BID SUBMITTAL
	LA JOLLA COVE LIFEGUARD STATION
	SHEET TITLE: DOOR & INTERIOR FINISH SHEET NO:
	ROESLING NAKAMURA TERADA SCHEDULE & SIGNAGE ARCHITECTS INC 363 Fifth Avenue 363 Fifth Avenue CITY OF SAN DIEGO, CALIFORNIA San Diego, California 92101 WBS # # # # # # # # # # # # # # # # # # #
*	P619.233.1023 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT NO. S00792 www.mtarchitects.com 06-24-13 ELIF CETIN
	TOR OTY ENGINEER DATE SECTION HEAD
	ORALPH J. ROESLING P SDP SUBMITTAL RE 3/01/11 PROJECT MANAGER NO. C. 10987 SDP RESUBMITTAL RE 6/08/11 BLDG. PERMIT RESUBMTL. RE 01/28/13 CONTROL CERTIFICATION
	REM. 2-28/15 100% BID SUBMITTAL RE 05/01/13 Image: Contractor DATE STARTED Image: Contractor 32674-28-1 Image: Contractor DATE COMPLETED 32674-28-1

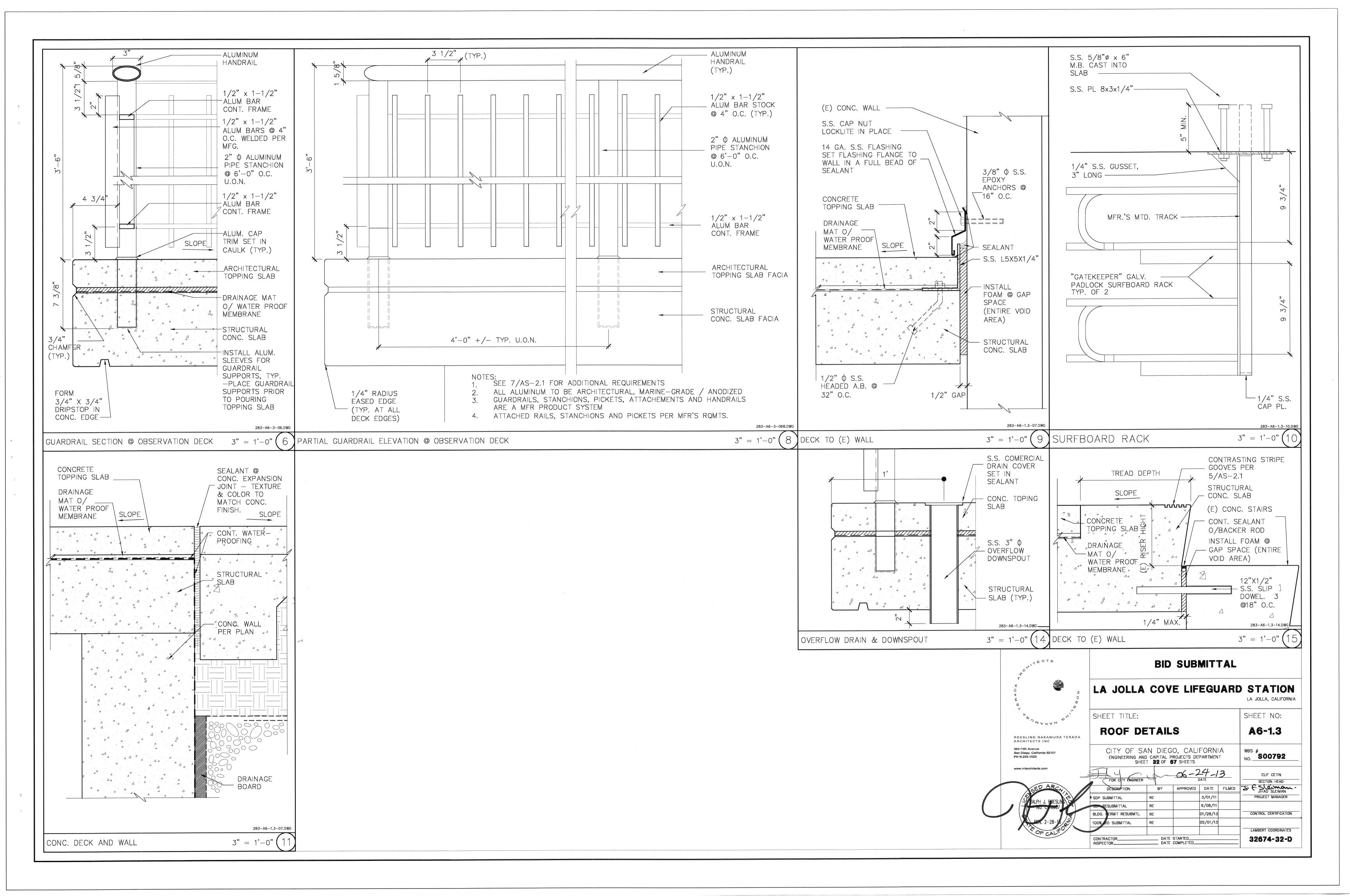
- WHITE IMAGE/BORE & BLUE BACKGROUN

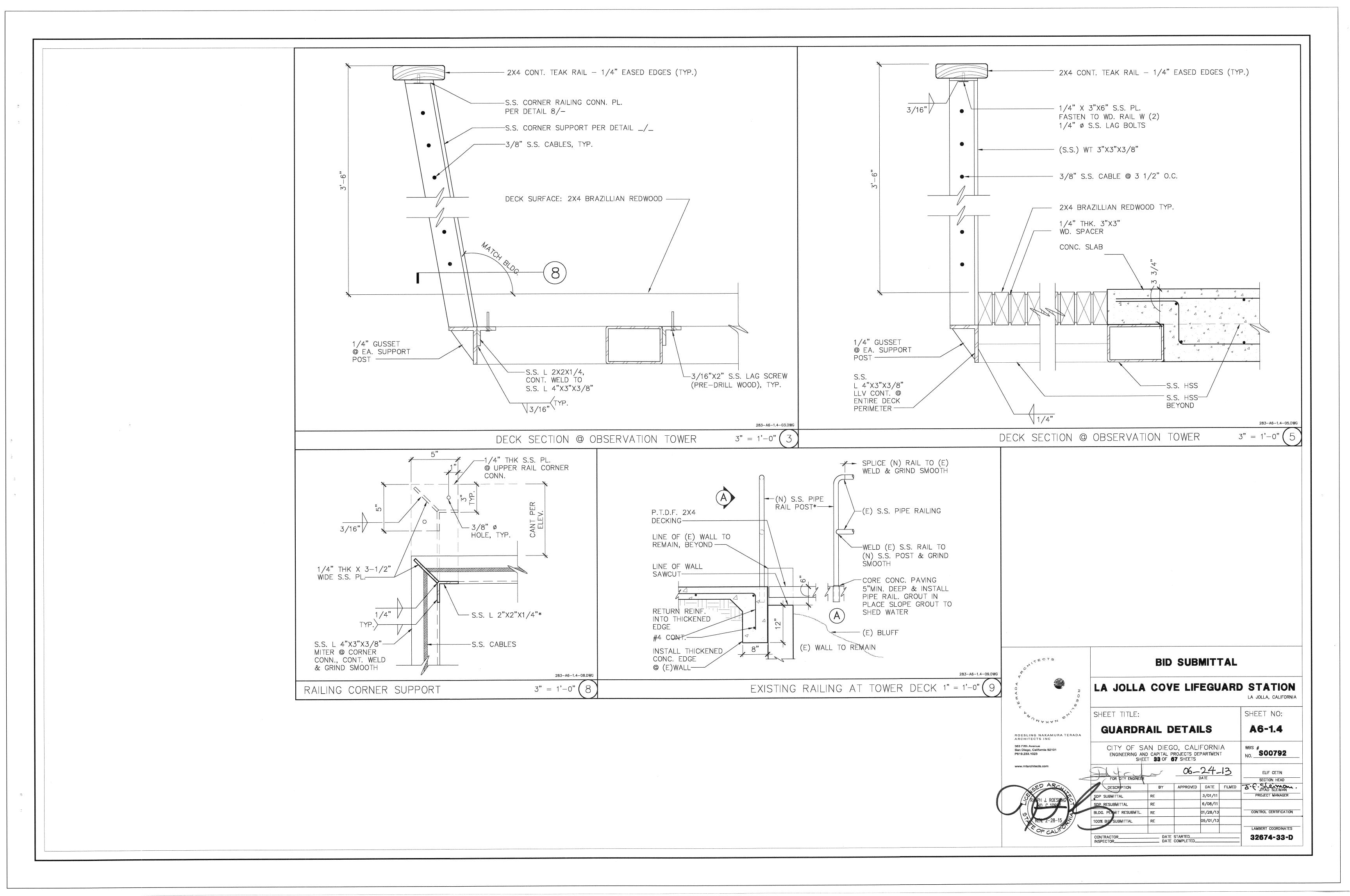


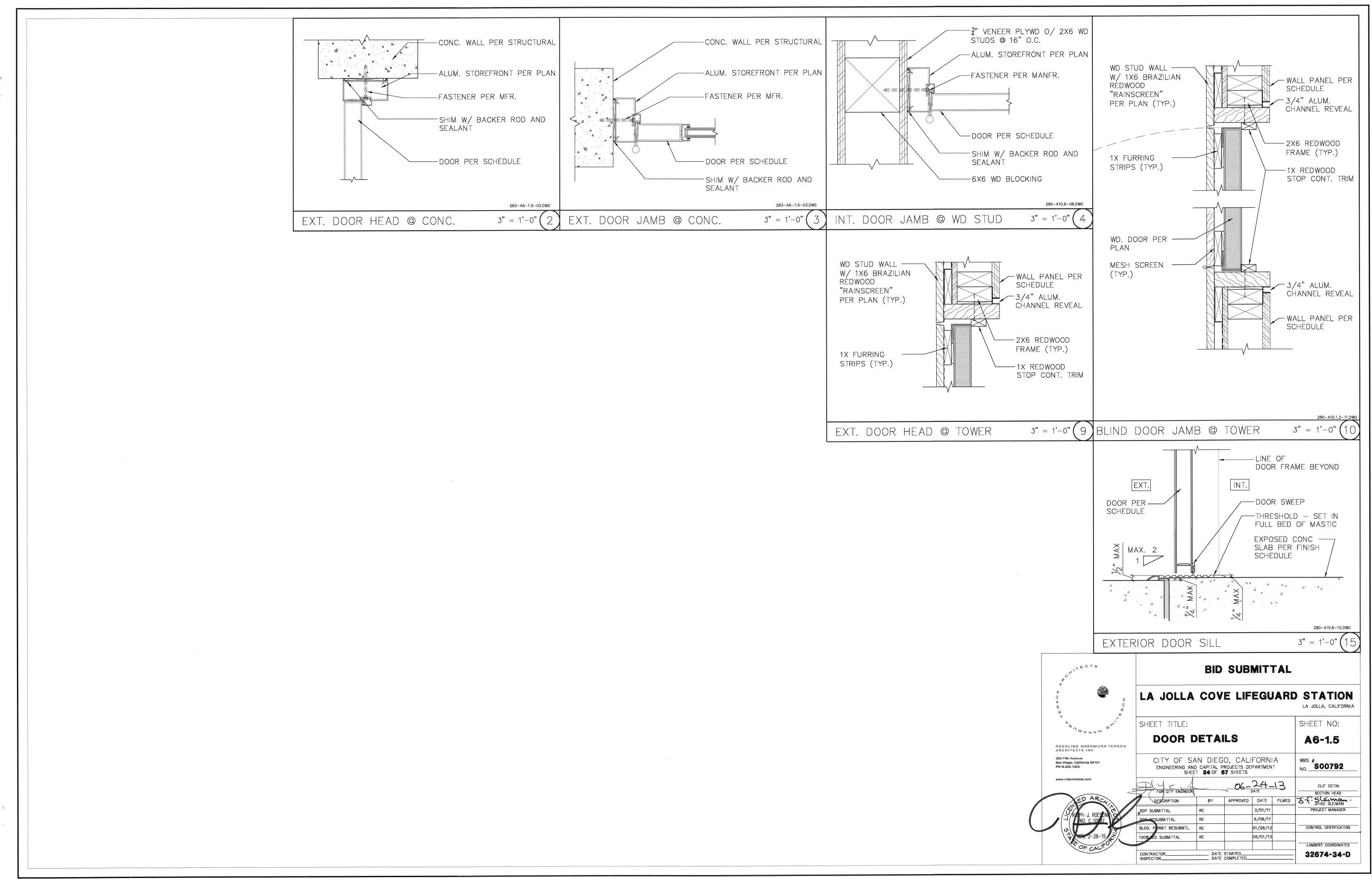


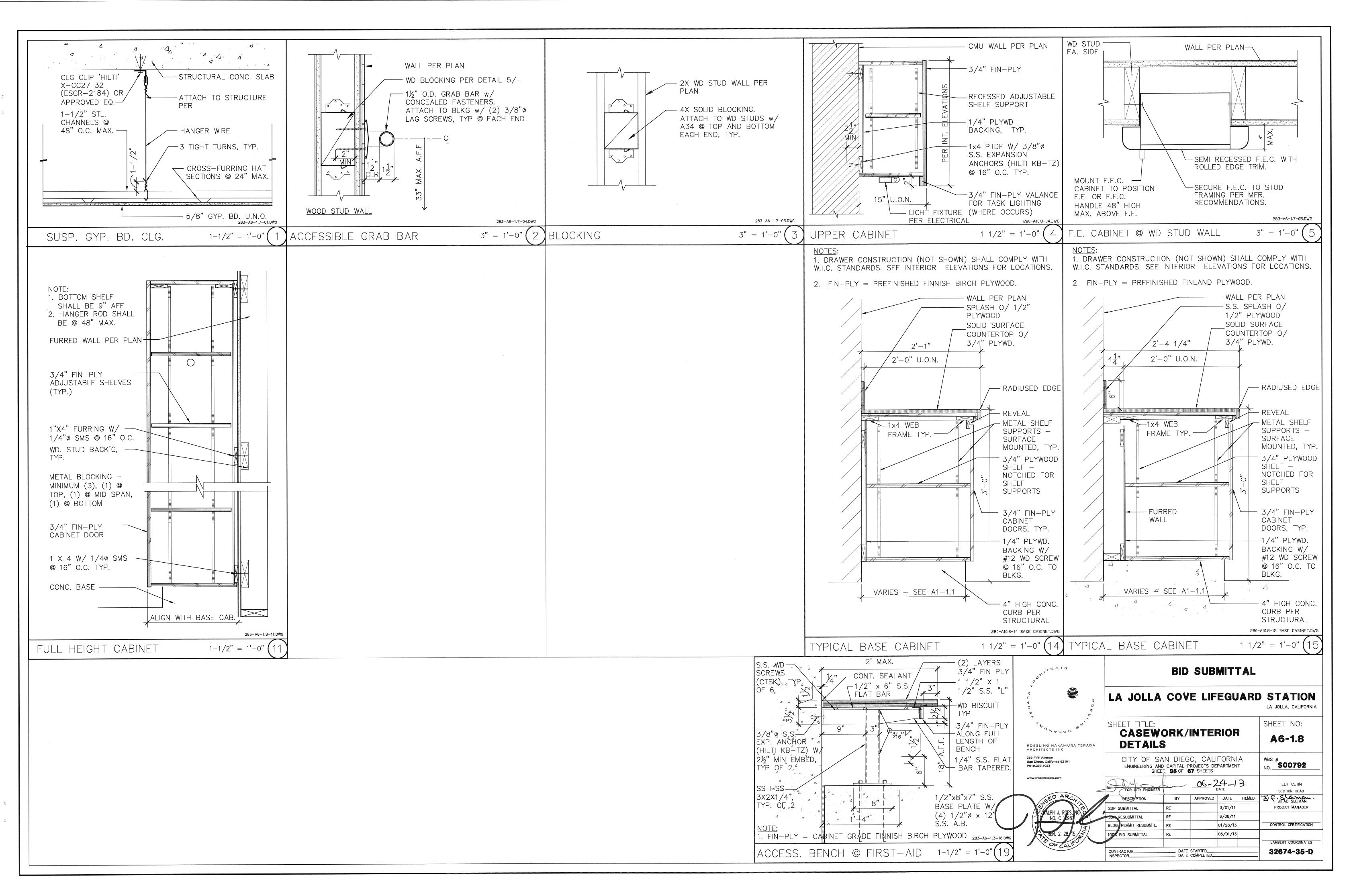












STRUCTURAL STEEL:

- WORK SHALL BE IN ACCORDANCE WITH THE STEEL CONSTRUCTION MANUAL, 13TH EDITION AND SPECIFICATION FOR STRUCTURAL AISC 360-05.
- 2. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE A.W.S. STANDARD AWS D1.6 2010 "STRUCTURAL WELDING CODE - STAINLESS STEEL".
- 3. RECTANGULAR HSS (HOLLOW STRUCTURAL SECTION) AND ANGLES: ASTM PASSIVATED STAINLESS STEEL 316.
- 4. MACHINE BOLTS AND THREADED RODS: ASTM 312 STAINLESS STEEL
- 5. STEEL SHALL BE IDENTIFIED BY MILL CERTIFICATES.
- 6. BOLT HOLES: STANDARD BOLT HOLES. FOR BEAM AND GIRDERS: $\frac{1}{16}$ " LARGER THAN BOLT SIZE FOR BASE PLATES: 1/8" OVERSIZE BOLT HOLES FOR BOLTS LESS THAN OR EQUAL TO 1" DIAMETER. 1/2" OVERSIZE BOLT HOLES FOR BOLTS GREATER 1" DIAMETER.
- 7. WELDING: "TIE S.S." USING CERTIFIED WELDERS.
- 8. BASE PLATES: BEDDED ON 11/2" MINIMUM NON-SHRINK NON-METALLIC GROUT, U.O.N.
- 9. FIELD WELDING AND HIGH STRENGTH BOLTING SHALL BE INSPECTED BY A REGISTERED SPECIAL INSPECTOR BEFORE FINISHES ARE INSTALLED.
- 10. FILLER METAL USED IN WELDING SHALL BE 70 KSI MIN. & IN ACCORDANCE WITH AWS D1.6.
- 11. ALL FULL PENETRATION BUTT WELDS ARE REQUIRED TO HAVE ULTRASONIC TESTING (UT) PERFORMED BY A CERTIFIED TESTING INSPECTION LABORATORY.
- 12. WELDS IDENTIFIED AS REQUIRING CONTINUOUS OR PERIODIC SPECIAL INSPECTION NEED NOT HAVE A SPECIAL INSPECTION WHEN WELDING IS DONE IN AN APPROVED FABRICATORS SHOP. HOWEVER, THE APPROVED FABRICATOR MUST SUBMIT A WELDER CERTIFICATE OF COMPLIANCE IN ACCORDANCE WITH IBC.
- 13. STRUCTURAL STEEL SHOP DRAWINGS: TO BE REVIEWED BY THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE FABRICATION.
- 14. ALL EXPOSED STRUCTURAL STEEL THAT IS NOT STAINLESS STEEL TO BE HOT DIPPED GALVANIZED.

CONCRETE (cont.)

IS THE MAXIMUM .

ITEM OF CONSTRUCTION

- 1) HARD ROCK CONCRETE AVERAGE) TYPE V CEN A. FOOTINGS & GRADE BE
- B. SLAB ON GRADE
- C. WALLS, STAIRS & RAN
- 2) CONC. TOPPING REG. W PCF AVERAGE) CEMENT FIBERMESH MESH
- 1) CAST-IN-PLACE CONCRETE:
- NO. 6 THRU NO. 11 BAR NO. 5 BAR. AND SMALLER.
- GROUND: SLABS, WALLS, JOISTS: NO. 11 BAR AND SMALLER..
- PROVIDED IN ACCORDANCE WITH THE TYPICAL DETAIL 2/S501
- OF THE SAME SIZE AND SPACING.
- 9. STAGGER SPLICE ALL REINFORCING.
- THE TYPICAL DETAIL.
- OPENINGS.
- PLACING CONCRETE.
- 13. CHAMFER: 3/4" ON ALL EXPOSED CORNERS.
- CONCRETE.

REINFORCING STEEL

- AND FOOTINGS.
- WITH THE TYPICAL SCHEDULE.
- REINFORCING STEEL INSTITUTE (CRSI).

GENERAL NOTES

THE FOLLOWING GENERAL NOTES ARE A SUMMARY OF THE SPECIFICATIONS FOR THE CONVENIENCE OF THE CONTRACTOR. REFER TO THE SPECIFICATIONS.

SLAB-ON-GRADE

4. CONCRETE STRENGTHS: THE CONCRETE STRENGTH SHOWN IN THE FOLLOWING TABLE IS MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, THE AGGREGATE SHOWN IS THE MAXIMUM SIZE, AND THE SLUMP SHOWN

	STRENGTH AG PSI (MIN.)	GREGATE	SLUMF IN	° MAX ₩/C RATIO
(145 PC Ment	F			
EAMS	4000 PSI	1 1/2"	4"	0.38
MPS	4000 PSI 4000 PSI	1 1/2" 3/4" 3/4"	4" 4" 4"	0.38 0.38
VT. (145 ⊤ W∕				
	4000 PSI	3/4"	4"	0.38

6. MINIMUM CONCRETE PROTECTIVE COVER OF REINFORCING:

A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO

B. CONCRETE EXPOSED TO EARTH OR WEATHER:

C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH

7. NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE COLUMNS, WALLS OR SLABS UNLESS SPECIFICALLY DETAILED OR UNLESS SLEEVES ARE

8. WALLS AND COLUMNS SHALL BE DOWELED FROM SUPPORTS WITH BARS

10. PROVIDE MINIMUM EMBEDMENT OF REINFORCING IN CONFORMANCE WITH

11. REFER TO THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF PIPES, DUCTS, VENTS AND SIMILAR

12. REINFORCING, ANCHOR BOLTS AND ALL OTHER EMBEDDED ITEMS SHALL BE SECURELY HELD IN POSITION AND SHALL BE INSPECTED PRIOR TO

14. ALL ANCHOR BOLTS SHALL BE TIED IN PLACE PRIOR TO PLACING

1. ALL REINFORCING STEEL SHALL BE EPOXY COATED.

2. DETAILS OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH CHAPTER 7 OF "AMERICAN CONCRETE INSTITUTE 318-08" UNLESS OTHERWISE NOTED. REINFORCING STEEL DETAILING, BENDING AND PLACING SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE", LATEST EDITION.

3. WELDING OF REINFORCING STEEL, IF PERMITTED BY THE ARCHITECT AND STRUCTURAL ENGINEER, SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE- REINFORCING STEEL" OF THE AMERICAN WELDING SOCIETY, AWS D1.4, AND SHALL BE PERFORMED BY WELDERS QUALIFIED UNDER THE PROCEDURES CONTAINED THEREIN.

4. ALL REINFORCING STEEL SHOP DRAWINGS SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER AND THE ARCHITECT PRIOR TO FABRICATION.

5. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A-615M, GRADE 60 FOR NO. 4 AND LARGER, OTHERWISE GRADE 40. WELDED REINFORCING SHALL CONFORM TO ASTM 706 OR VERIFIED EQUIVALENT.

6. SPACER TIES: PROVIDE A MINIMUM OF #3 TIES AT 24" IN ALL BEAMS

7. FOR REG. WT. CONC. PROVIDE MINIMUM SPLICE LENGTH IN ACCORDANCE

8. BAR SUPPORTS SHALL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF "BAR SUPPORT SPECIFICATION" BY THE CONCRETE

- 1. THE PURPOSE OF THESE NOTES IS TO ACHIEVE THE BEST POSSIBLE FLOOR FINISH UTILIZING THE EXPERIENCE OF THE CONTRACTOR SINCE THE CONTRACTOR'S MEANS AND METHODS SIGNIFICANTLY AFFECT THE QUALITY AND THEREFORE THE SUCCESS OR FAILURE OF THE DESIGN.
- 2. THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE SCHEDULE FOR REVIEW BY THE CITY AND STRUCTURAL ENGINEER PRIOR TO CASTING ANY SLAB-ON-GRADE. THE SUBMITTAL MUST CONTAIN THE FOLLOWING: AMOUNT OF CEMENT, STRENGTH OF CONCRETE, AGGREGATE SIZE, SLUMP AMOUNT AND THE CONTRACTOR'S ENDORSEMENT THAT HE CAN PRODUCE A SUCCESSFUL SLAB-ON-GRADE.
- 3. IF A PUMP MIX IS PROPOSED, IT SHOULD BE PROPORTIONED TO MINIMIZE SHRINKAGE IN ADDITION TO CONFORMING TO ALL OTHER REQUIREMENTS.
- 4. AS A GUIDELINE TO THE CONTRACTOR, THE SLAB-ON-GRADE SHALL BF CAST IN SQUARE OR RECTANGULAR SECTIONS APPROXIMATELY 250 SQUARE FEET MAXIMUM IN AREA WITH MAXIMUM DISTANCE OF 16 FEET BETWEEN CONSTRUCTION OR WEAKENED JOINTS.
- 5. AS A FURTHER GUIDELINE TO THE CONTRACTOR, THE DRAWINGS MAY CONTAIN SUGGESTED LOCATIONS FOR CONSTRUCTION JOINTS (C.J.) AND WEAKENED JOINTS (W.J.).

FOUNDATION

- 1. THE ALLOWABLE SOIL BEARING PRESSURE FOR SPREAD FOOTINGS AND CONTINUOUS FOOTINGS IS 2,500 PSF FOR FOUNDATIONS MEASURING 15" IN WIDTH. THE ALLOWABLE BEARING VALUE MAY BE INCREASED BY 250 PSF FOR EACH ADDITIONAL 6" OF EMBEDMENT, UP TO A MAXIMUM VALUE OF 3,000 PSF. A ONE-THIRD INCREASE IN THESE VALUES CAN NOT BE CONSIDERED FOR TRANSIENT LOADS. FOOTINGS SHALL EXTEND A MINIMUM DEPTH OF 18" BELOW LOWEST ADJACENT GRADE OR FINISHED FLOOR, WHICHEVER IS DEEPER.
- 2. AN EXPLORATION OF THE SOIL UNDERLYING THIS SITE WAS MADE BY NINYO & MOORE GEOTECHNICAL & ENVIRONMENTAL SCIENCES CONSULTANTS, AND IS DESCRIBED IN A REPORT DATED JULY 18, 2003 & LETTERS DATED JUNE 3RD, 2001 AND JUNE 6TH, 2011. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE INFORMATION CONTAINED THEREIN BEFORE COMMENCING ANY WORK.
- 3. CAST-IN-DRILLED-HOLE PILES ARE RECOMMENDED AT THE FOUNDATION FOR THE OBSERVATION FACILITY. THE MINIMUM PILE DIAMETER SHALL BE 12" DEIGNED FOR AN ALLOWABLE AXIAL LOAD OF 2000LB/FT EMBEDMENT INTO POINT LOMA FORMATION, WITH 2 FEET OR MORE FMEBEDMENT INTO THE FORMATION. THE ALLOWABLE AXIAL LOAD IS BASED ON SIDE FRICTION AND MAY BE INCREASED ACCPRDINGLY WITH EMBEDMENT AND PILE DIAMETER. THE LATERAL BEARING OF THE PILE SHALL BE 350 PCF PER THE CBC.
- 4. FOOTING ELEVATIONS AND TYPE OF SUB-GRADE SHOWN ARE FOR INFORMATION PURPOSES ONLY AND ARE ASSUMED TO BE IN SUITABLE BEARING MATERIALS. THE ACTUAL ADEQUACY OF THE BEARING MATERIAL SHALL BE DETERMINED BY A REPRESENTATIVE OF NINYO & MOORF GFOTFCHNICAL & ENVIRONMENTAL SCIENCES CONSULTANTS PRIOR TO PLACING OF REINFORCING OR POURING OF CONCRETE, AND FOOTING ELEVATIONS SHALL BE ADJUSTED, OR OTHER REMEDIAL ACTION TAKEN, AS DIRECTED BY THIS REPRESENTATIVE AND APPROVED BY THE FNGINFFR. THE EFFORT REQUIRED TO EXCAVATE AND DRILL FOR FOUNDATIONS SHALL BE DETERMINED BY A REPRESENTATIVE OF NINYO & MOORE GEOTECHNICAL & ENVIRONMENTAL SCIENCES CONSULTANTS PRIOR TO COMMENCING ANY WORK.
- 4. ALL ANCHORS AND DOWELS SHALL BE TIED IN PLACE PRIOR TO CALLING FOR FOUNDATION INSPECTION.

CONCRETE

- 1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS FOR REINFORCED CONCRETE ACI 318-08 AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS ACI 30.01, LATEST APPROVED EDITIONS, WITH MODIFICATIONS AS NOTED IN THESE DRAWINGS AND SPECIFICATIONS.
- 2. FOR FOR INSPECTIONS SEE S1.1.
- 3. PROVIDE DESIGN MIX PER PROJECT SPECIFICATION. ALL CONCRETE TO CONTAIN XYPEX C-500, A SET RETARDING ADMIXTURE & A CALCIUM NITRITE BASE CORROSION INHIBITOR. MIX DESIGNED STAMPED AND SIGNED BY LICENSED CA. ENGINEER SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW.



GENERAL NOTES

- 1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND NOTIFY THE CITY IMMEDIATELY OF ANY DISCREPANCIES FOUND.
- 2. SPECIFIC CODES AND DETAILS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES AND THE TYPICAL DETAILS. IN CASE OF CONFLICT, NOTIFY ENGINEER FOR CLARIFICATION.
- 3. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK. THE DETAILS USED SHALL BE THE SAME AS FOR OTHER SIMILAR WORK. PROVIDED THAT PRIOR APPROVAL IS OBTAINED FROM THE ARCHITECT OR ENGINEER.
- 4. THE DESIGN IS BASED ON THE 2010 CALIFORNIA BUILDING CODE (CBC)
- 5. NEITHER THE OWNER NOR THE ARCHITECT WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS, SAFETY PLAN.

	e CHITECTS		BID SUBMITTAL									
		LA JOLLA	COV	E LIF	EGU	ARC	STÁTION LA JOLLA, CALIFORNIA					
	ROESLING NAKAMURA TERADA	SHEET TITLE: GENERAL	NOT	ES			SHEET NO: S1.0					
	363 Fifth Avenue San Diego, California 92101 P619.233.1023	CITY OF SA ENGINEERING AND SHEE	A r	W.O. NO. \$00792								
N B L L TA N T S ista Sorrento Pkwy, Suite 350 jo, CA 92121 (858) 500-4501	www.rntarchitects.com	FOR CITY ENGINEER	4-	- 06-	24- DATE	13	ELIF CETIN SECTION HEAD					
FESSIONA		DESCRIPTION	BY	APPROVED	DATE	FILMED	J.F. Sleiman.					
JE. CL		SDP SUBMITTAL	RE		3/01/11		PROJECT MANAGER					
72097		SDP RESUBMITTAL	RE		6/08/11		-					
ß		BLDG, PERMIT RESUBMTL,	RE		01/28/13		CONTROL CERTIFICATION					
P. 6/30/14		BID SUBMITTAL	RE		05/01/13		_					
CIVIL BOBILITY							LAMBERT COORDINATES					
CALILOUN		CONTRACTOR		STARTED COMPLETED			32674-36-D					

2'-5" 1'-10" 2'-8" 2'-1" 3'-1" 2'-4" # 4 3'-0" 2'-4" # 5 3'-10" 3'-0" 3'-4" | 2'-7" 4'-8" | 3'-7" 4'-0" | 3'-1" 3'-7" 2'-9" #6 5'-10" 4'-6" 5'-3" | 4'-0" 6'-9" 5'-2" #7 6'-8" 5'-2" 6'-0" 4'-7" 7'-9" |5'-11" #8 # 9 8'-8" | 6'-8" | 7'-6" | 5'-9" | 6'-9" | 5'-2"

TENSION LAP SPLICES - CLASS B FOR

TOP & BOTTOM BARS

(GRADE 60 UNCOATED BARS - NORMAL WEIGHT CONCRETE)

TOP

f'c=3000 psi

2'-4" | 1'-9"

BOT.

TOP

f'c=4000 psi

2'-0" | 1'-6"

BOT.

f'c=5000 psi

1'-10" 1'-5"

7'-7" 5'-10"

BOT.

TOP

10'-11" | 8'-4" | 9'-5" | 7'-3" | 8'-5" | 6'-6" # 11 🛛 NOTE: FOR CLASS 'A' SPLICE (PERMITTED ONLY WHEN NOT MORE THAN HALF THE BARS SPLICED & SPLICES STAGGERED BY THE DISTANCE OF SPLICE LENGTH), USE SAME AS 'ld' = TENSION DEVELOPMENT LENGTH TABLE.

BAR

SIZE

#3

LAP SPLICE SCHEDULE S1.1 SCALE: N.T.S.

10 9'-10" | 7'-6" | 8'-6" | 6'-6"

	<i>ld</i> ' TENSION DEVELOPMENT LENGTH FOR BEAM, SLAB & WALL REBARS (grade 60 uncoated bars-normal weight concrete)										
BAR	f'c=30	00 psi	f'c=40	00 psi	f'c=50	00 psi					
SIZE	<i>ld</i> top	<i>ld</i> BOT.	<i>ld</i> top	<i>ld</i> BOT.	<i>ld</i> top	ld BOT.					
#3	1'-9"	1'-4"	1'-6"	1'-2"	1'-5"	1'-1"					
#4	2'-4"	1'-10"	2'-1"	1'-7"	1'-10"	1'-5"					
#5	3'-0"	2'-3"	2'-7"	2'-0"	2'-4"	1'-9"					
#6	3'-7"	2'-9"	3'-1"	2'-4"	2'-9"	2'-1"					
#7	5'-2"	4'-0"	4'-6"	3'-6"	4'-0"	3'-1"					
# 8	5'-11"	4'-7"	5'-2"	3'-11"	4'-7"	3'-6"					
# 9	6'-8"	5'-2"	5'-9"	4'-5"	5'-2"	4' -0"					
# 10	7'-6"	5'-10"	6'-6"	5'-0"	5'-10"	4'-6"					
# 11	8'-4"	6'-5"	7'-3"	5'-7"	6'-6"	5'-0"					

NOTES:

1. 'TOP' BARS ARE HORIZ. REBARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS AT THE DEVELOPMENT LENGTH.

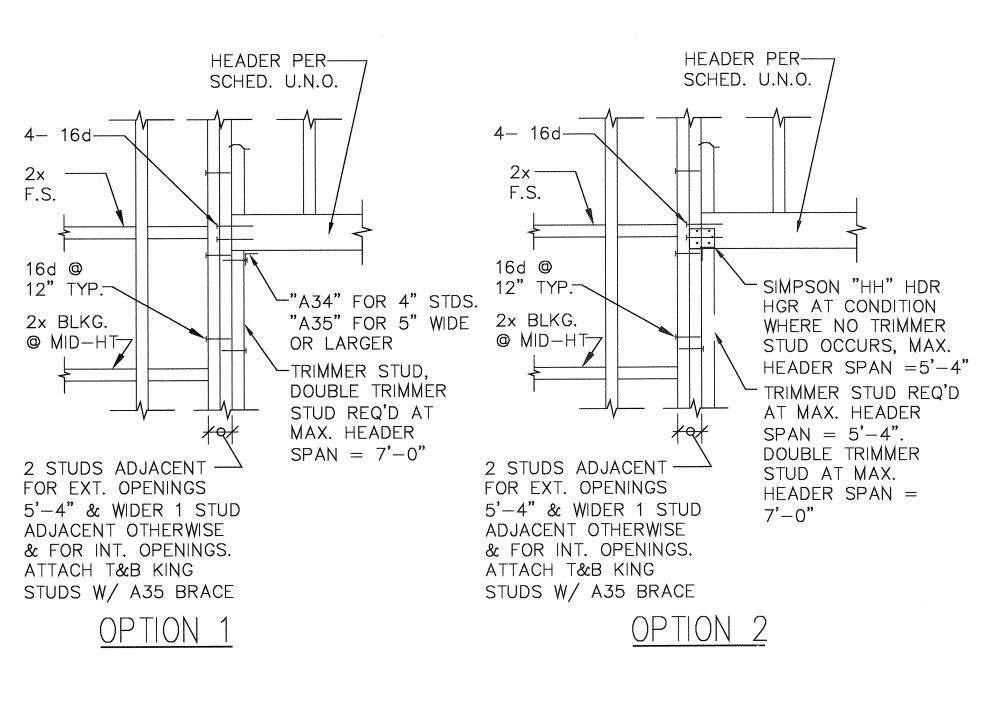
2. '*ld*' FOR #3 & #4 BARS IN SLAB OR WALL ARE CONSERVATIVE & MAY BE REDUCED TO 0.75 TIMES (FOR #3 BARS) AND 0.94 TIMES (FOR #4 BARS) THE TABULATED VALUES.

3. FOR LIGHT-WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.

4. 'ld' FOR ABOVE TABLE IS BASED ON MIN. CLEAR CONC. COVER ONE BAR DIAMETER

5. 'ld' FOR GRADE 40 BARS MAY BE 2/3 OF ABOVE TABLE VALUES, BUT NOT LESS THAN 12".





BEAM -	HEADER
ROOF	
SPAN	SIZE
0 TO 3'-6"	4x4
3'-6" TO 5'-0"	4x6
5'-0" TO 7'-0"	4x8
NOTES	

(2) 2x OR (3) 2x.

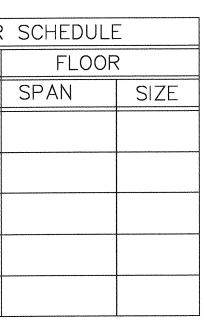
S1.1 / SCALE: N.T.S.

3

′4 `

S1.1

SCALE: N.T.S.



1. REFER TO $\begin{pmatrix} 4 \\ - \end{pmatrix}$ FOR HEADER FRAMING.

2. THIS SCHEDULE APPLIES UNLESS OTHERWISE NOTED ON DRAWINGS. 3. FOR 2x6 STUD WALLS USE (3) 2x OR 6x SAME DEPTH AS SCHEDULED ABOVE. 4. FOR FLUSH BEAM CONDITION DO NOT USE

lyp beam header

TYP HEADER FRAMING

SOILS - VERIFICATION AND INSP

VERIFICATION AND INSPECTIC

- . VERIFY MATERIALS BELOW SHALLOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN 2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER
- 3. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.
- 4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACE

5. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SI

CAST-IN-PLACE DEEP FOUNDATION ELEMENTS - N

VERIFICATION AND INSPECTIC

- OBSERVE DRILLING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR 2. VERIFY PLACEMENT LOCATIONS & PLUMBNESS, CONFIRM ELEMENT DIAMETERS, BELL DIA
- EMBEDMENT INTO BEDROCK (IF APPLICABLE) AND ADEQUATE END-BEARING STRATA CA

3. FOR CONCRETE ELEMENTS, PERFORM ADDITIONAL INSPECTIONS IN ACCORDANCE WITH S

CONCRETE CONSTRUCTION - VERIFICATIO

VERIFICATION AND INSPECTION

- 1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS, AND PLACE 2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3, IT 3. INSPECT BOLTS TO BE INSTALLED IN CONC. PRIOR TO AND DURING PLACEMENT OF WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS 4. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE. 5. VERIFYING USE OF REQUIRED DESIGN MIX. 6. AT THE TIME FRESH CONC. IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF 7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION 8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUE 9. INSPECTION OF PRESTRESSED CONCRETE: A. APPLICATION OF PRESTRESSING FORCES. B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC-FORCE-RESISTING 10. ERECTION OF PRECAST CONCRETE MEMBERS. 11. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS I POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM AND STRUCTURAL SLABS.
- 12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEN FORMED.

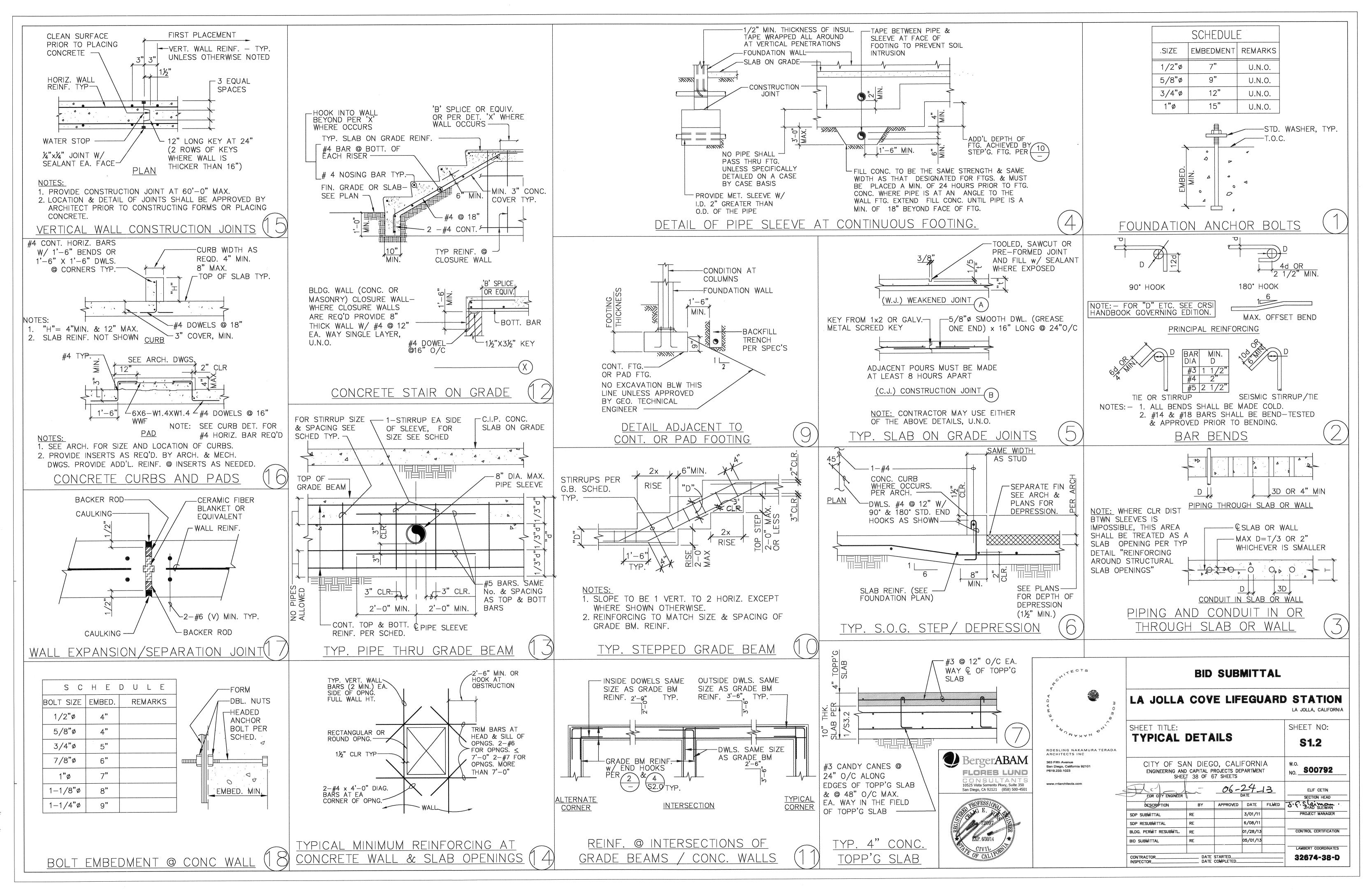
PECTION	REQUIREMENTS ((IBC	2009	T−1704.7)
		•		

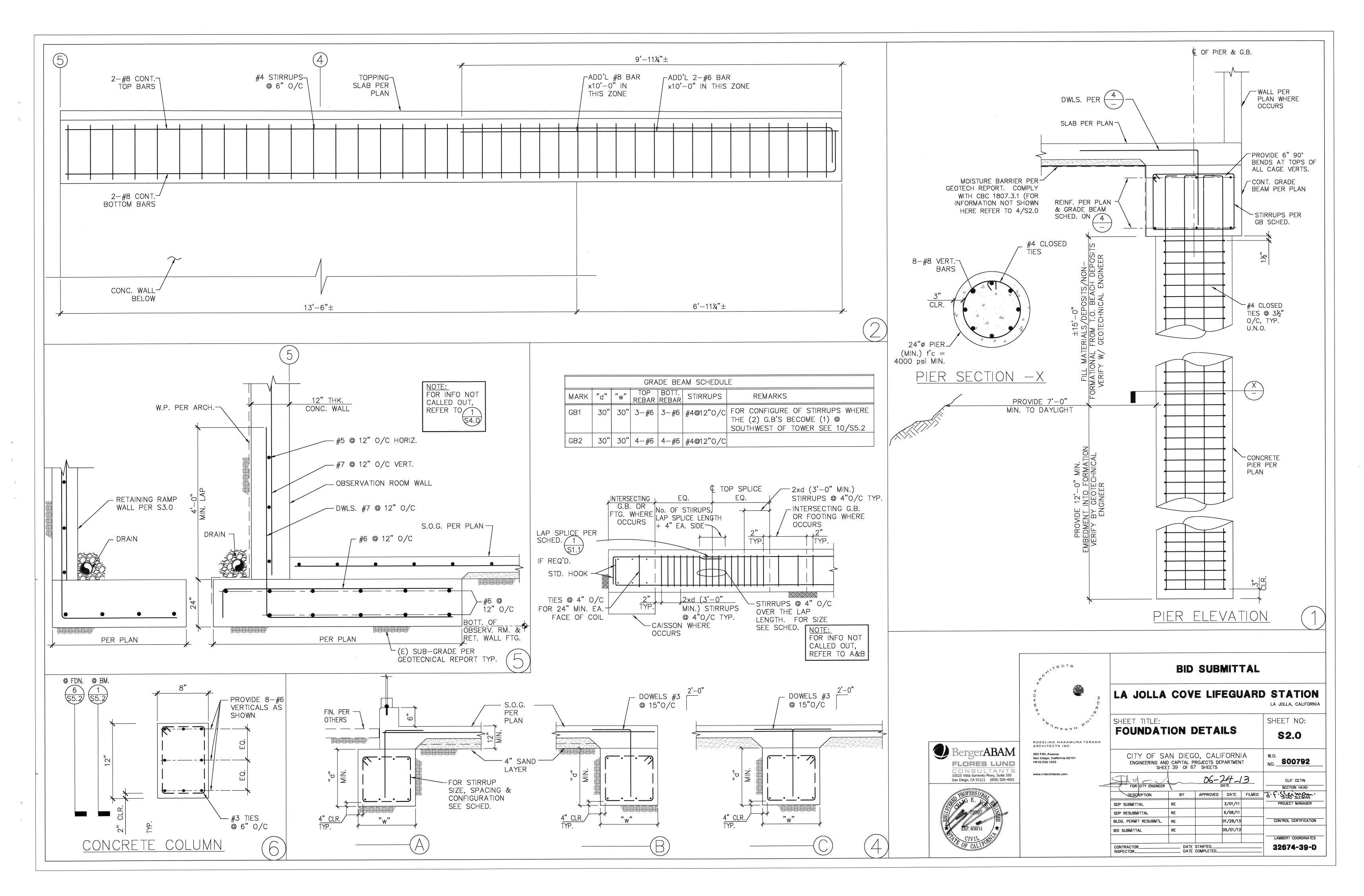
ON	CONTINUOUS	PERIODIC	PROJECT SPECIFIC REFERENCE
GN BEARING CAPACITY.		X	REFER TO GEOTECHNICAL REPORT
R MATERIAL.		X	BY: NINYO & MOORE DATED: 7/18/03 & LETTERS
		X	DATED 6/3/01 & 6/3/11
EMENT AND COMPACTION OF CONTROLLED FILL.	x		MAX SOIL PRESSURE
SITE HAS BEEN PREPARED PROPERLY.		X	2,500 PSF

VERIFICATION & INSPECTION REG	QUIREMENTS	(IBC 20	009 T-1704A.9)
ON	CONTINUOUS	PERIODIC	PROJECT SPECIFIC REFERENCE
FOR EACH ELEMENT.	Х		-
DIAMETERS(IF APPLICABLE), LENGTHS, CAPACITY. RECORD CONC. OR GROUT VOLUMES.	Х	_	
SECTION 1704A.4	—	· _	

ON AND	INSPECTION	REQUI	REMENTS (IBC 2009	9 ⊤−1704	
	CONTINUOUS	PERIODIC	REFERENCED STANDARD	CBC REFERENCE	PROJ. SPECIFIC REF.
EMENT.		х	ACI 318: 3.5, 7.1-7.7	1913.4	
ITEM 5B.	_		AWS D1.4 ACI 318: 3.5.2		
CONC. USED.	X	—	ACI 318: 8.1.3, 21.2.8	1911.5 1912.1	
		Х	ACI 318: 3.8.6, 8.1.3, 21.2.8	1912.1	
		х	ACI 318: CH. 4, 5.2-5.4	1904.2.2, 1913.2,1913.3	
TESTS, THE CONC.	×	-	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1913.10	
TECHNIQUES.	X		ACI 318: 5.9, 5.10	1913.6, 1913.7, 1913.8	
ES.	-	х	ACI 318: 5.11, 5.13	1913.9	
g systeM.	×××		ACI 318: 18.20 ACI 318: 18.18.4	_	
		Х	ACI 318: CH.16		
IN M BEAMS		×	ACI 318: 6.2	_	
MBER BEING		х	ACI 318: 6.1.1		

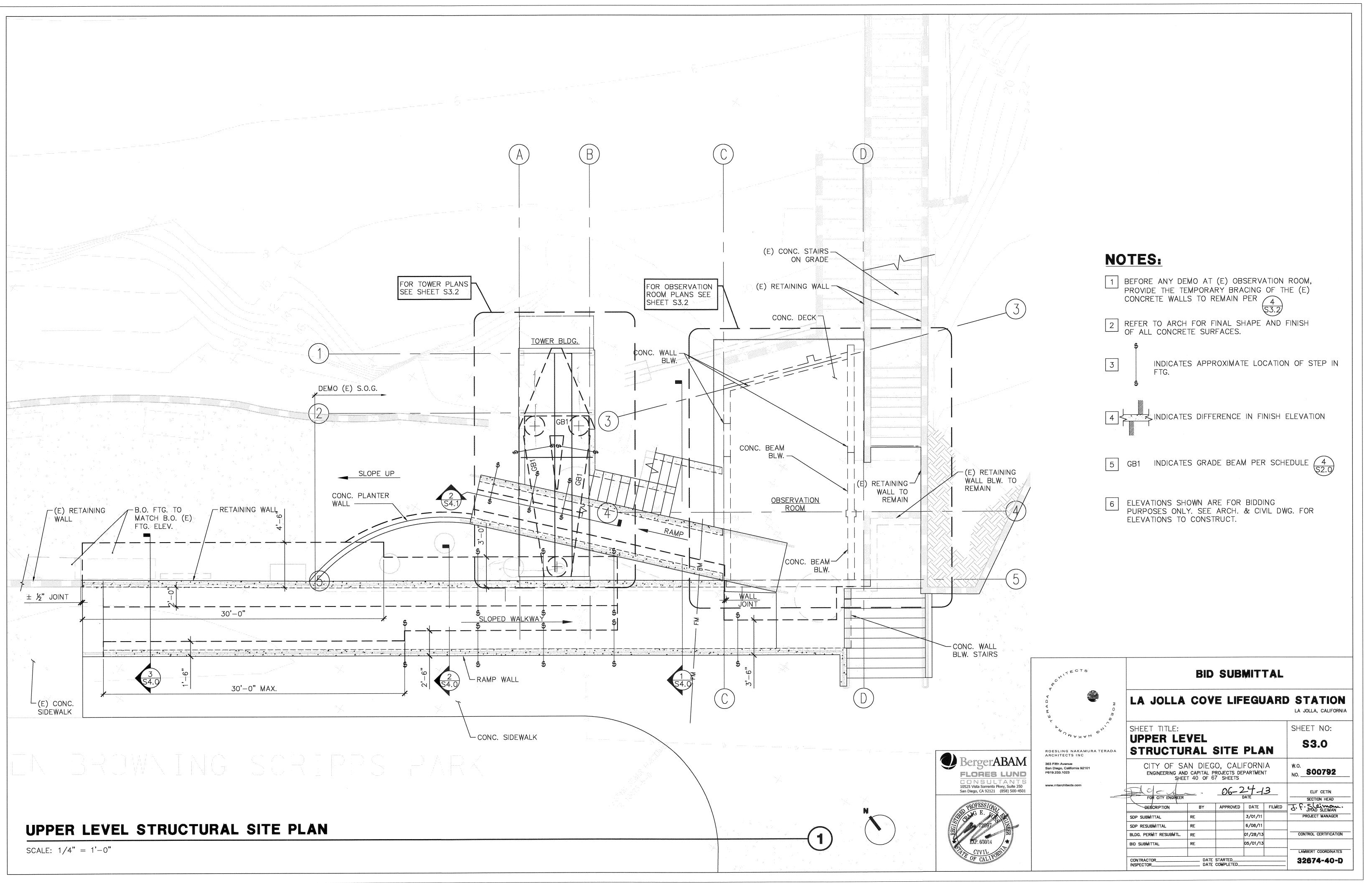
		LA JOLLA	BID : Cove				STATION LA JOLLA, CALIFORNIA
	ROESLING NAKAMURA TERADA ARCHITECTS INC	SHEET TITLE: SPECIAL I TABLES 8					SHEET NO: S1.1
BergerABAM ELOPES LUND CONSULTANTS 10525 Vista Sorrento Pkwy, Suite 350	363 Fifth Avenue San Diego, California 92101 P619.233.1023 www.mtarchitects.com	CITY OF SA ENGINEERING AND SHEE		SHEETS	PARTMEN	т	W.O. NO. \$00792
San Diego, CA 92121 (858) 500-4501	~	FOR CITY ENGINEER		00-1	24 <u>1</u>	3	ELIF CETIN SECTION HEAD
NUM PROFESSION		DESCRIPTION	BY	APPROVED	DATE	FILMED	J. F. Sleiman.
		SDP SUBMITTAL	RE		3/01/11		PROJECT MANAGER
S 72097		SDP RESUBMITTAL	RE		6/08/11		
		BLDG. PERMIT RESUBMTL.	RE		01/28/13		CONTROL CERTIFICATION
EXP. 6/30/14		BID SUBMITTAL	RE		05/01/13		
CIVIL CIVIL							LAMBERT COORDINATES
With & OF CALLFORM		CONTRACTOR	DATE ST	ARTED			32674-37-D

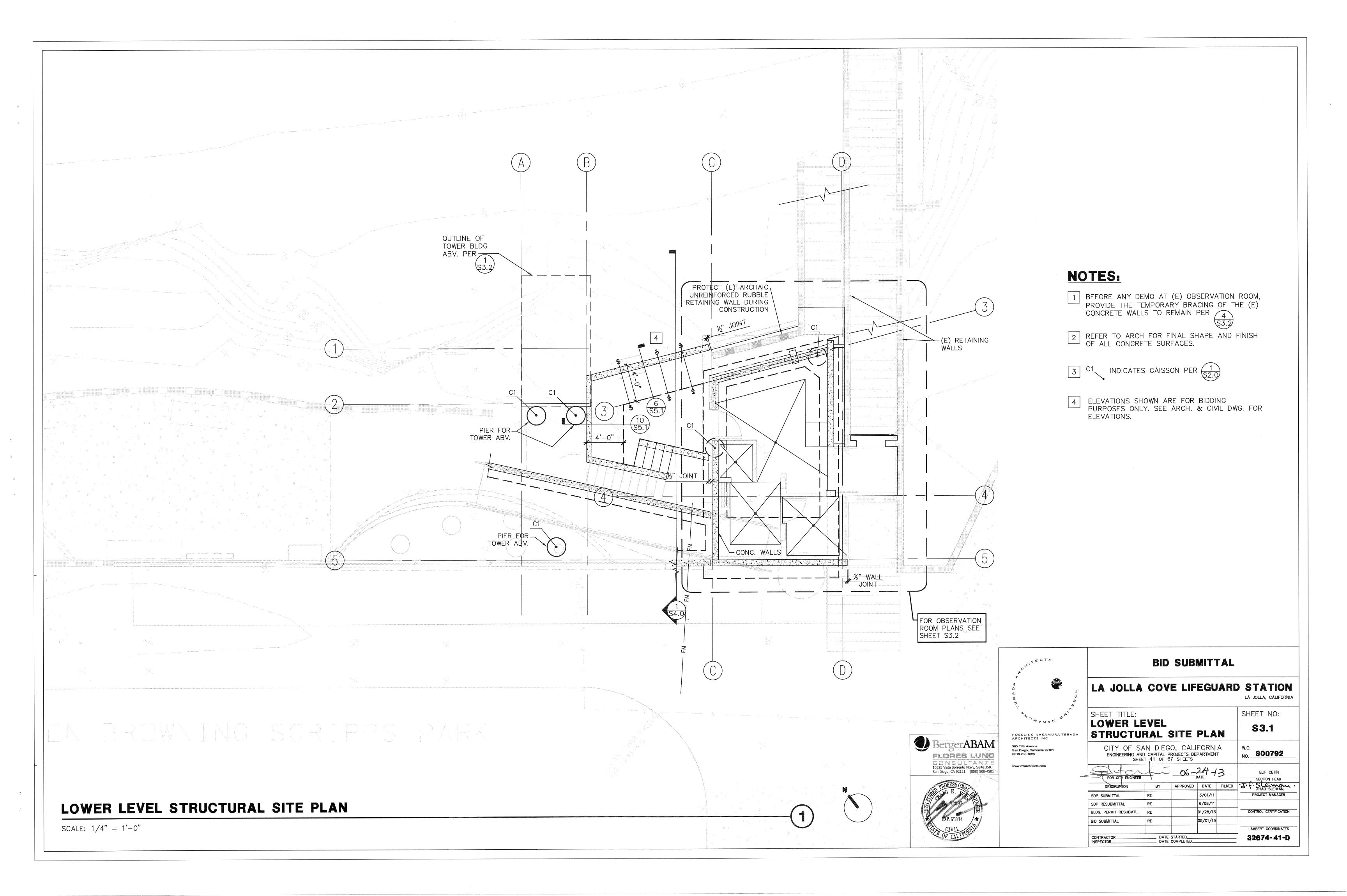


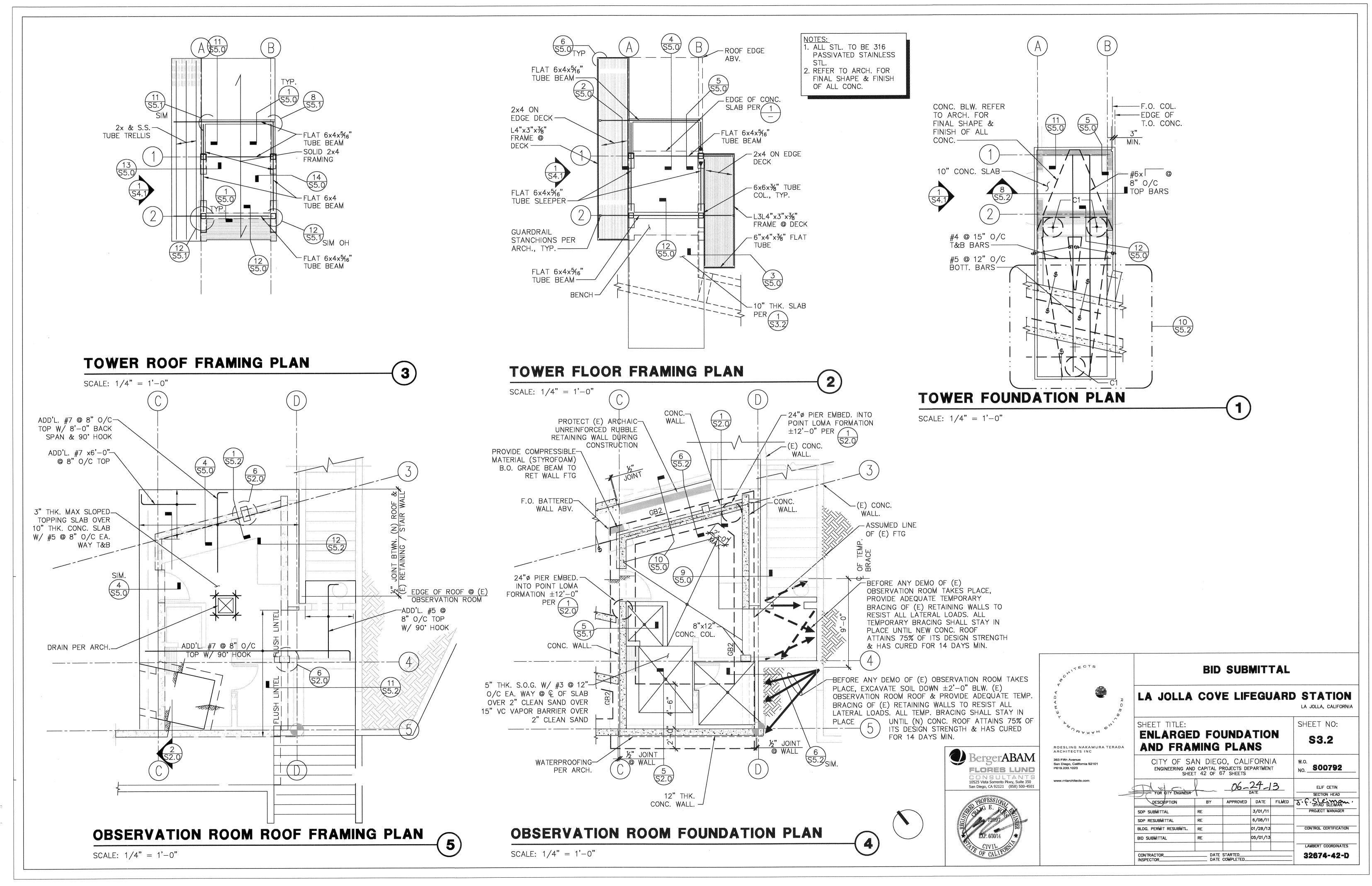


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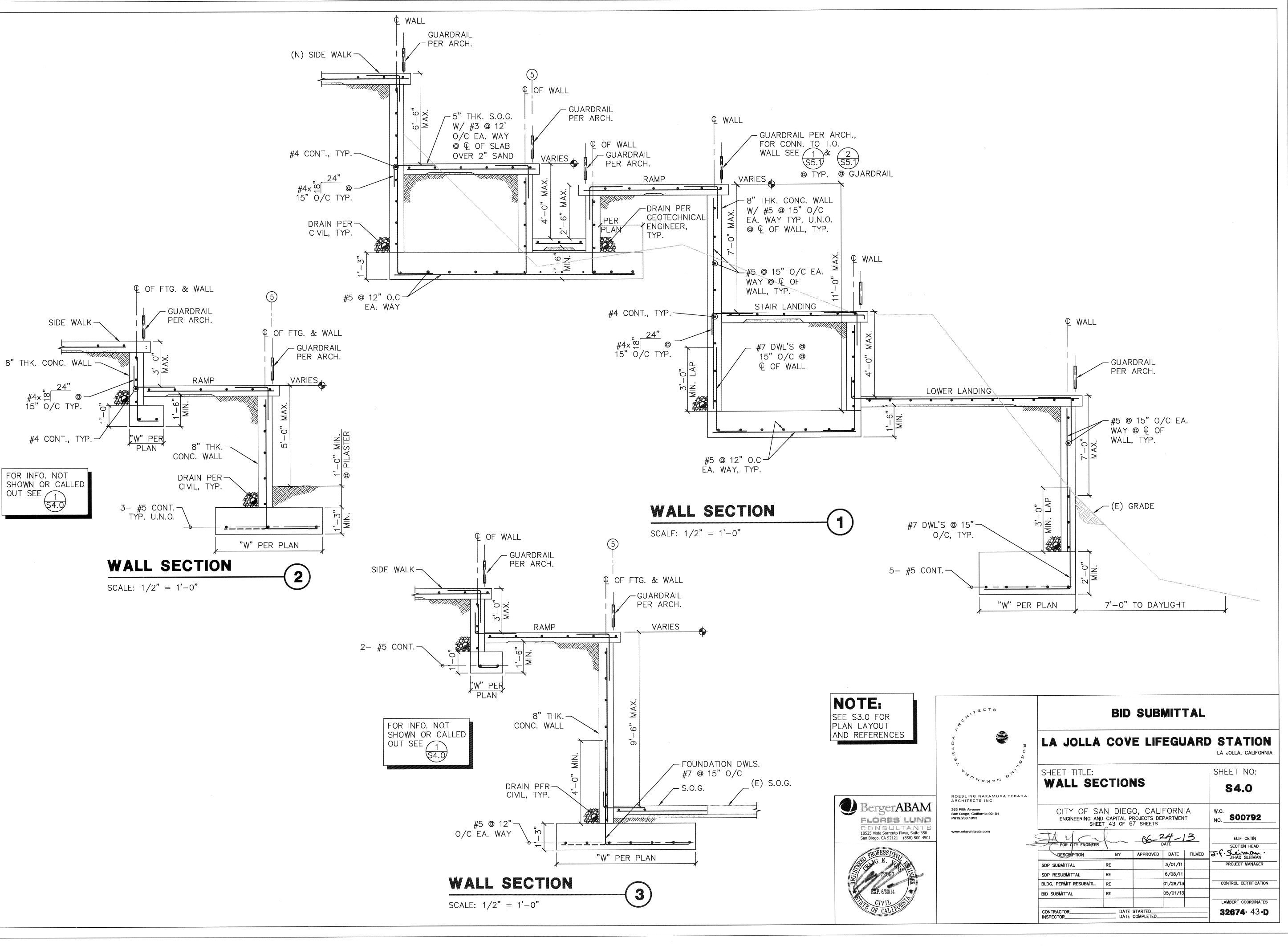


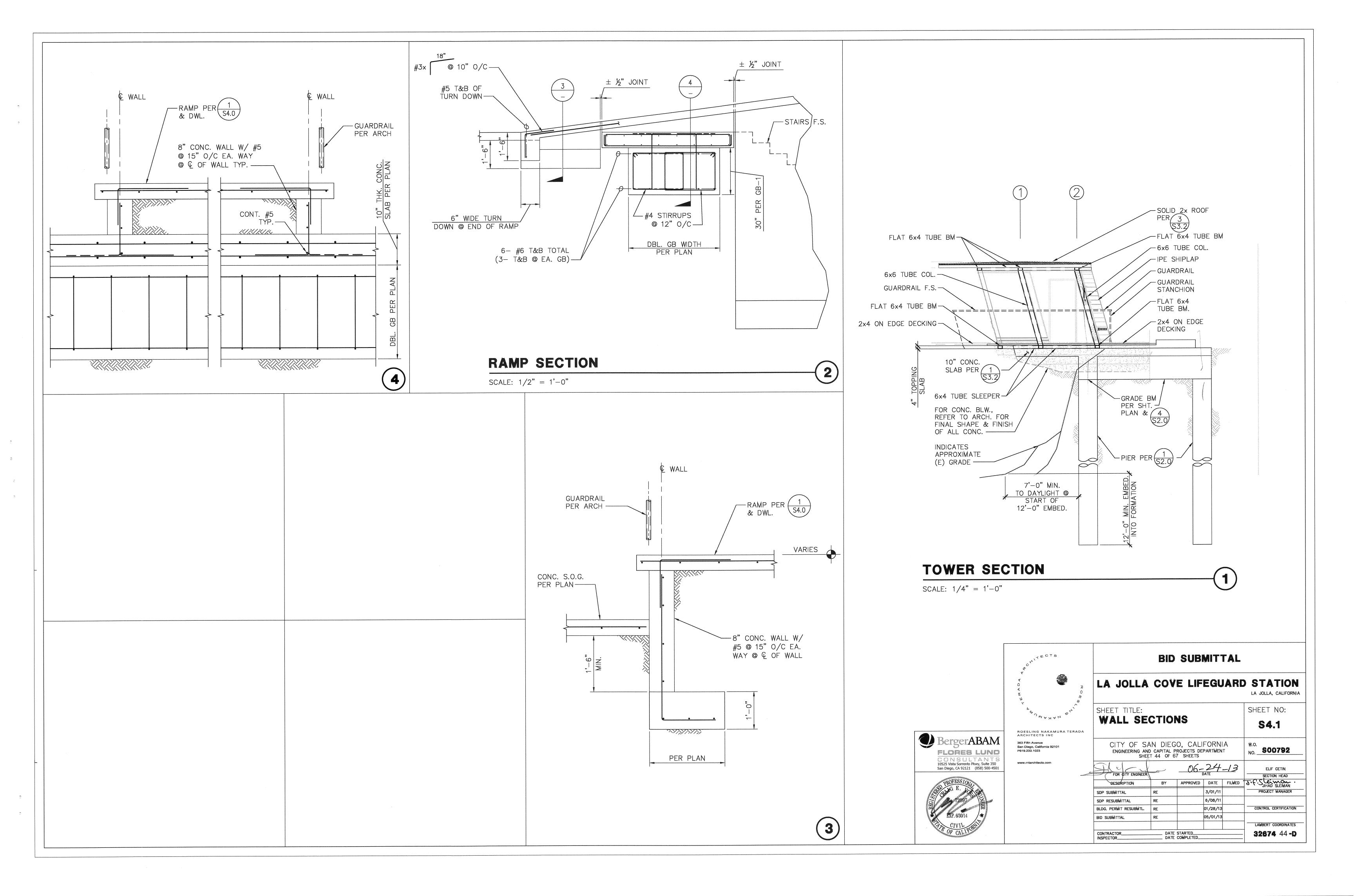


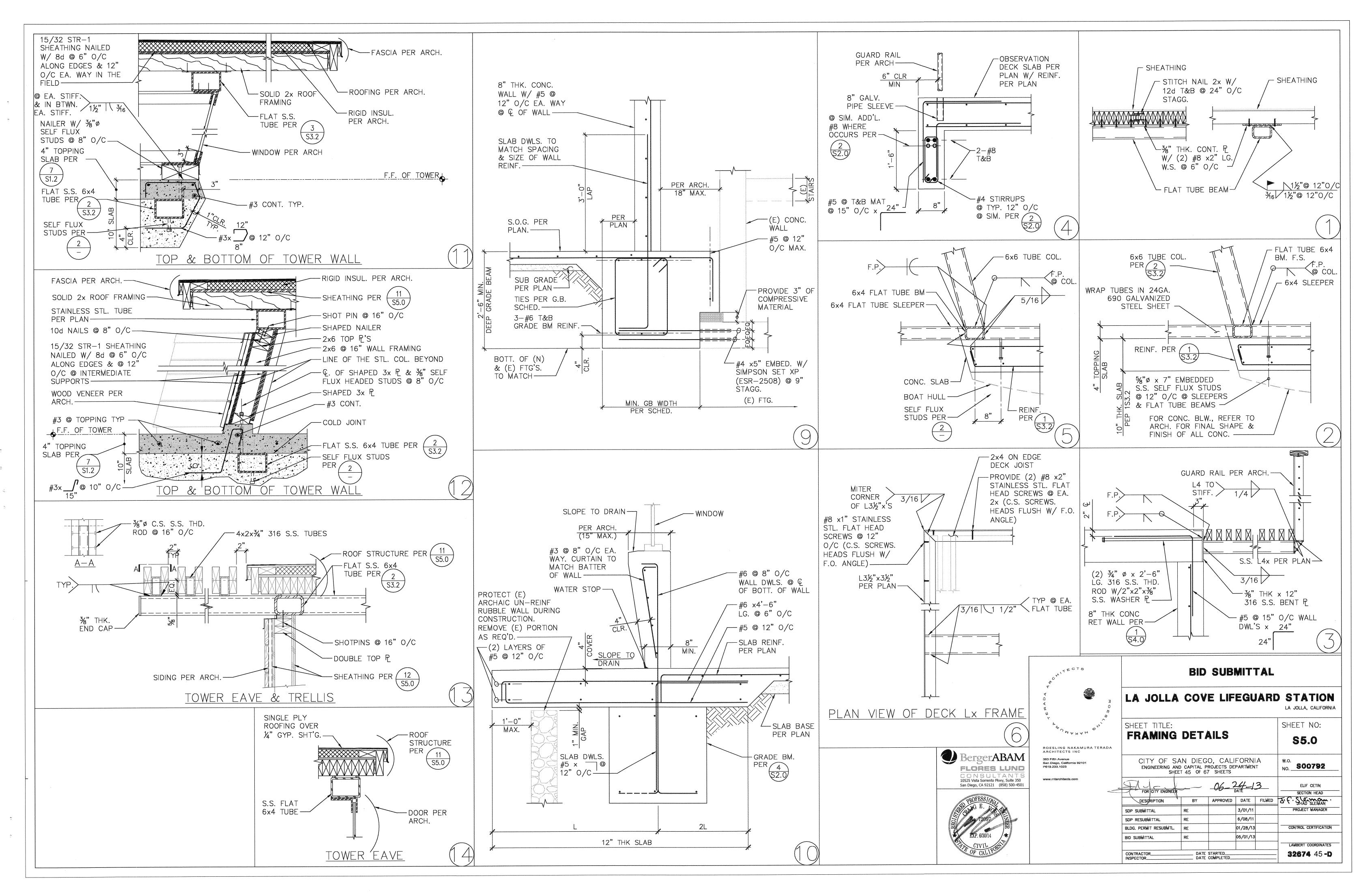


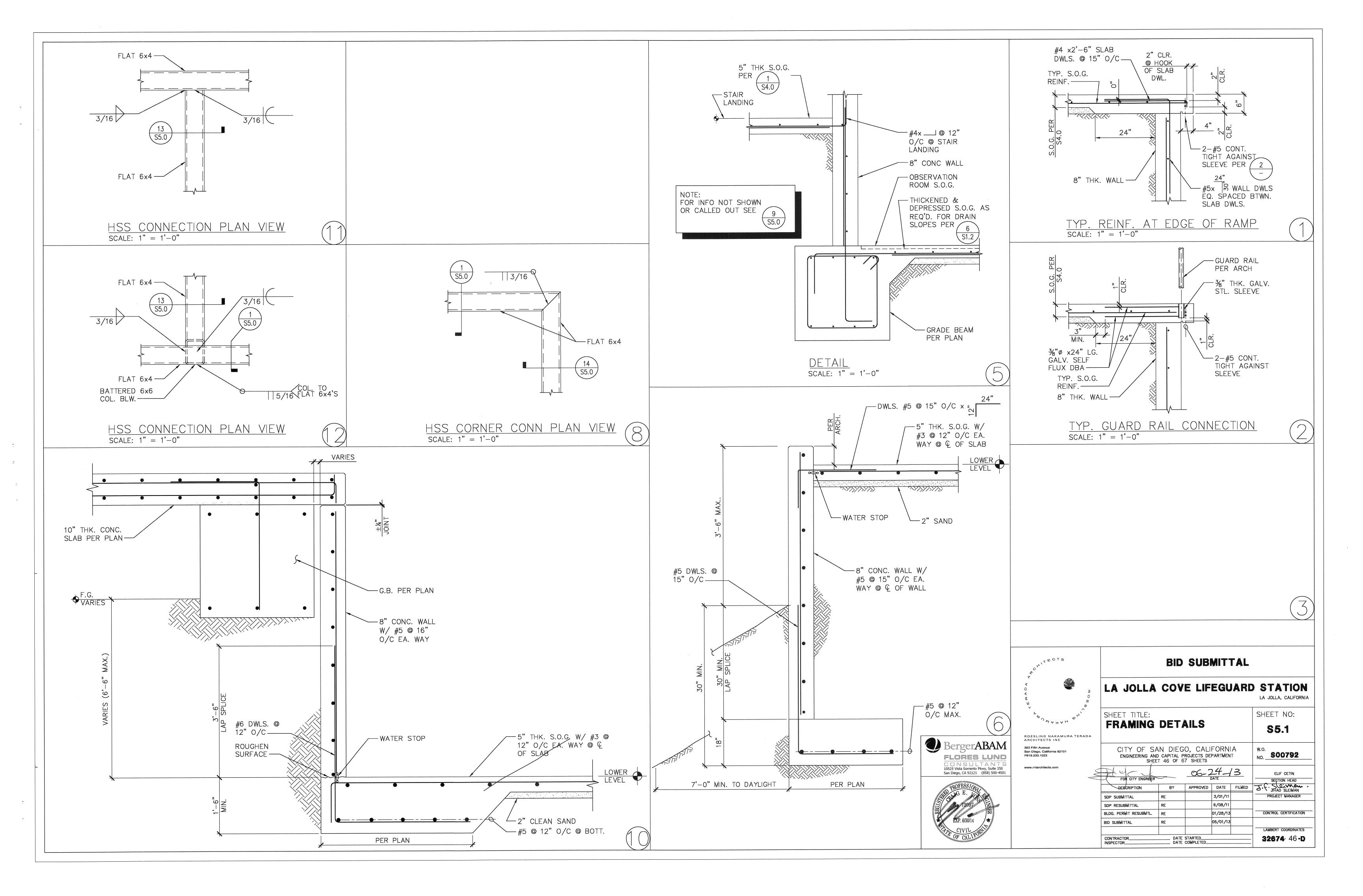


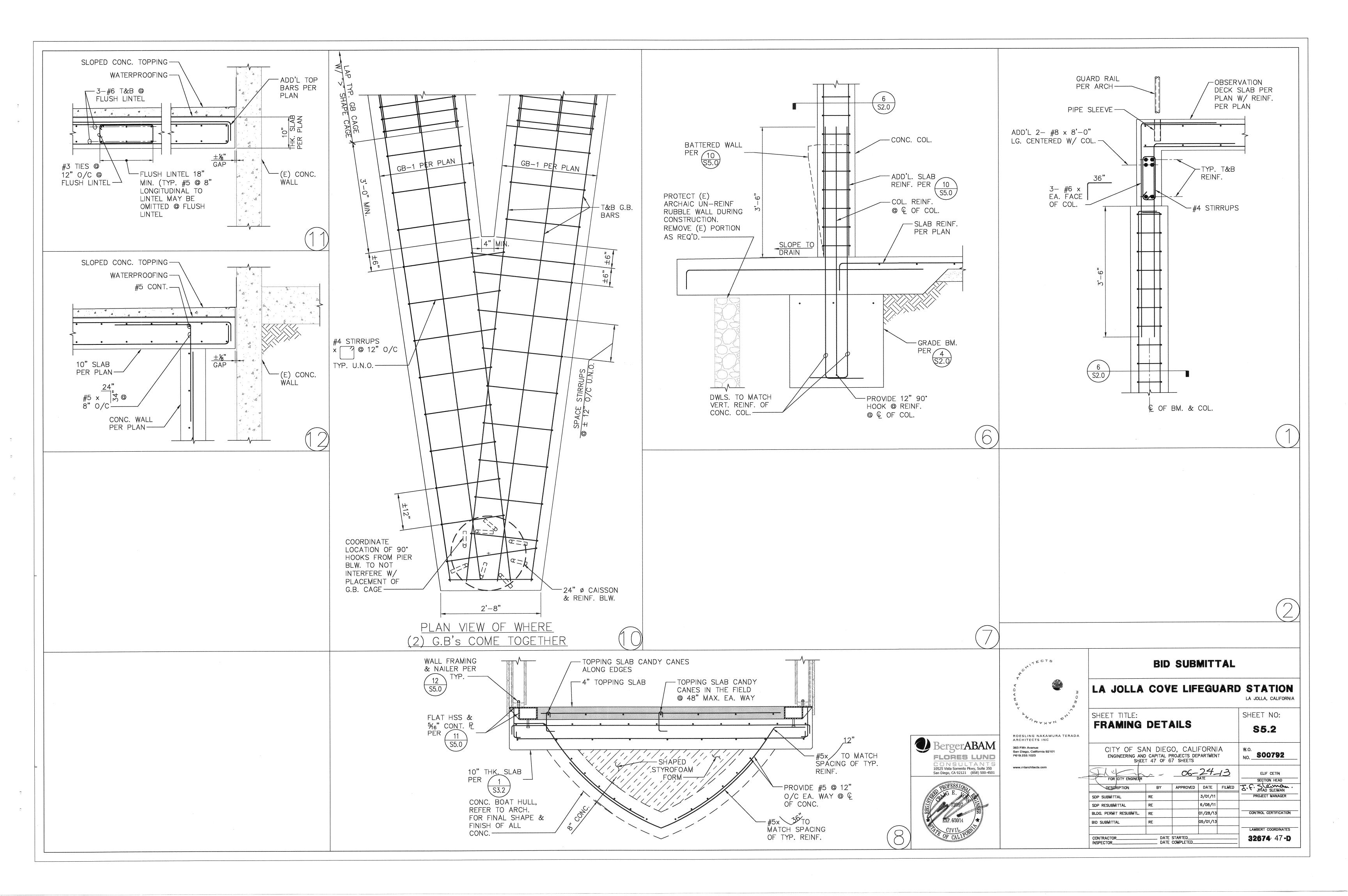












LWIA	SCHE	U U LL'
T T BT A		

FAN	SCHEDULE]									
MARK	SERVICE	MANUFACTURER & MODEL NO.	CFM	E.S.P.	FRPM	0.H.P.	HP	VOLT/PH	SONES	WEIGHT	REMARKS
$\left\langle \frac{EF}{1} \right\rangle$	LOCKER/ RESTROOMS	GREENHECK SQ-70-D	140	0.25	1,550	0.03	1/30	115/1	3.9	28	PROVIDE WITH NEMA-1 TOGGLE DISCONNECT SWITCH WITH JUNCTION BOX MOUNTED AND WIRED, PERMATECTOR COATING, ALUMINUM HOUSING, UL-705 LISTING, INTERLOCK WITH SF-1 AND LIGHT SWITCH, SO THAT WHEN SPACE IS OCCUPIED BOTH THE SUPPLY AND EXHAUST FAN ARE ON.
SF 1	COMMON AREA	GREENHECK SQ-75-d	140	0.25	1,550	0.03	1/30	115/1	4.5	42	PROVIDE WITH NEMA-1 TOGGLE DISCONNECT SWITCH WITH JUNCTION BOX MOUNTED AND WIRED, PERMATECTOR COATING, ALUMINUM HOUSING, 1' ALUMINUM FILTER WITH FILTER BOX, UL705 LISTING, LEFT HAND AND RIGHT HAD DISCHARGE CONNECTIONS. INTERLOCK WITH EF-1 AND LIGHT SWITCH, WHEN SPACE IS OCCUPIED BOTH THE SUPPLY AND EXHAUST FAN ARE ON.

UN	T HEATER	S								
MARK	MANUFACTURER & MODEL NO.	WATTS	BTUH	VOLTS	AMPS	CFM	RPM	WEIGHT (LBS)	ROUGH IN DIMENSIONS WIDTH X HEIGHT X DEPTH	REMARKS
	TPI TF3386D-RP	4000	13600	208/1	19.2	175	700	22	14-3/16 X 19-5/16 X 4	SURFACE MOUNT WALL HEATER. PROVIDE: DISCONNECT SWITCH, POWDER COATING, MANUAL RESET THERMAL LIMIT, TAMPER RESISTANT THERMOSTAT. PROVIDE WITH SURFACE MOUNTING ADAPTER.
	TPI TF3386D-RP	4000	13600	208/1	19.2	175	700	22	14-3/16 X 19-5/16 X 4	SURFACE MOUNT WALL HEATER. PROVIDE: DISCONNECT SWITCH, POWDER COATING, MANUAL RESET THERMAL LIMIT, TAMPER RESISTANT THERMOSTAT. PROVIDE WITH SURFACE MOUNTING ADAPTER.
	TPI E3323TD-RP	1500	5120	120/1	12.5	175	600	26	14-3/16 X 19-15/16 X 4	WALL HEATER. PROVIDE: DISCONNECT SWITCH, BUILT IN TAMPER PROOF THERMOSTAT, AUTOMATIC FAN DELAY CIRCUIT, POWDER COATING, EXTRUDED ALUMINUM FRAME.

GENERAL NOTES:

- 1. CONTRACTOR IS REQUIRED TO VERIFY ALL EQUIPMENT MODEL NUMBERS, CAPACITIES, SIZES, VOLTAGES, AND ALL OTHER SCHEDULED INFORMATION WITH OTHER APPLICABLE TRADES AND WITH THE MANUFACTURER PRIOR TO INSTALLATION.
- CONTRACTOR IS REQUIRED TO CAREFULLY REVIEW THESE PLANS AND SPECIFICATIONS PRIOR TO BID. CONTRACTOR IS REQUIRED TO ALSO REVIEW PLANS AND SPECIFICATIONS OF OTHER RELATED TRADES (INCLUDING CIVIL, STRUCTURAL, AND ELECTRICAL) PRIOR TO BID TO INSURE AN ACCURATE UNDERSTANDING OF EXACT SCOPE OF WORK. ANY ITEMS REQUIRING CLARIFICATION SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN SUFFICIENT TIME TO BE INCORPORATED INTO THE BID.
- 3. THESE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, AND ARE NOT INTENDED TO INDICATE ALL DETAILS AND NECESSARY OFFSETS OF PIPING. THE CONTRACTOR IS REQUIRED TO INSTALL MATERIAL AND EQUIPMENT IN A MANNER AS TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM, AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. ALL INSTALLATIONS SHALL BE CONSISTENT WITH NORMALLY ACCEPTABLE INDUSTRY STANDARDS. THE CONTRACTOR IS REQUIRED TO NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR CONFLICTS THAT WOULD AFFECT THE SYSTEM PERFORMANCE OR INCUR ADDITIONAL COSTS. THIS NOTIFICATION SHALL BE SUBMITTED PRIOR TO INSTALLATION OF THE ITEMS CONCERNED.
- 4. NEW AND/OR EXISTING EQUIPMENT INDICATED ON THIS DRAWING IS SHOWN IN APPROXIMATE POSITION(S). CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS, INCLUDING EQUIPMENT LOCATIONS, P.O.C.'S AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION. IN ALL CASES, ADEQUATE ACCESS (PER MANUFACTURER'S RECOMMENDATIONS AND CODE COMPLIANCE) FOR MAINTENANCE AND REPLACEMENT OF EQUIPMENT SHALL BE PROVIDED.
- CONTRACTOR IS RESPONSIBLE TO CUT AND PATCH WALLS. CEILINGS AND FLOORS AS REQUIRED TO MAKE CONNECTIONS TO EXISTING SURFACE. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOCATION AND MATERIALS.
- 6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES. NOTHING SHOWN ON THE PLANS OR STATED IN THE SPECIFICATIONS IS INTENDED TO INDICATE THAT THE INSTALLATIONS OR CONNECTIONS OF ANY ITEM OR DEVICE SHOULD BE DONE CONTRARY TO MANUFACTURER'S INSTRUCTIONS AND ALL APPLICABLE CODES AND REGULATIONS.
- 7. IF THE CONTRACTORS' USE OF SUBSTITUTE MATERIALS, EQUIPMENT OR METHODS OF INSTALLATION REQUIRES ANY CHANGES IN OTHER TRADES' WORK FROM THAT SHOWN ON THE DRAWINGS, THE EXTRA COST OF THE OTHER TRADES WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INITIATING THE SUBSTITUTION.
- SUBMITTALS: APPROVAL OF THE SUBMITTALS DOES NOT RELEASE THE CONTRACTOR FROM OBLIGATIONS TO FULLY COMPLY WITH ALL REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS OR APPLICABLE CODE REGULATIONS. CONTRACTOR IS RESPONSIBLE TO CUT AND PATCH WALLS, CEILINGS AND FLOORS AS REQUIRED TO MAKE CONNECTIONS TO EXISTING SURFACE. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR LOCATION AND MATERIALS.
- 9. ALL WORK SHALL CONFORM TO 2007 C.B.C. PART 5, TITLE 24 C.C.R. REFER TO SMACNA FOR DUCT & PIPE BRACING.
- 10. AIR FILTERS SHALL BE A STATE FIRE MARSHAL APPROVED AND LISTED TYPE. PREFORMED FILTERS HAVING COMBUSTIBLE FRAMING SHALL BE TESTED AS A COMPLETE ASSEMBLY. AIR FILTERS IN ALL OCCUPANCIES SHALL BE CLASS 2 OR BETTER (AS SHOWN IN THE STATE FIRE MARSHAL LISTING). AIR FILTERS SHALL BE ACCESSIBLE FOR CLEANING OR REPLACEMENT.
- 11. ALL DUCTWORK AND PIPING SHALL BE SUPPORTED AND BRACED IN ACCORDANCE WITH SMACNA GUIDELINES CONFORMING TO SEISMIC HAZARD LEVEL "AA" TYPICAL.
- 12. PENETRATIONS OF FIRE-RESISTIVE WALLS, FLOORS-CEILINGS AND ROOF-CEILINGS SHALL BE PROTECTED AS REQUIRED BY CBC SECTIONS 712 AND 713.
- 13. EXHAUST DUCTS AND DRYER VENTS SHALL BE EQUIPPED WITH BACK-DRAFT DAMPERS (SECTION 504.0 CMC).
- 14. TYPE II CLOTHES DRYERS SHALL BE EQUIPPED OR INSTALLED WITH LINT CONTROLLING MEANS.

DECLARATION OF RESPONSIBLE CHARGE

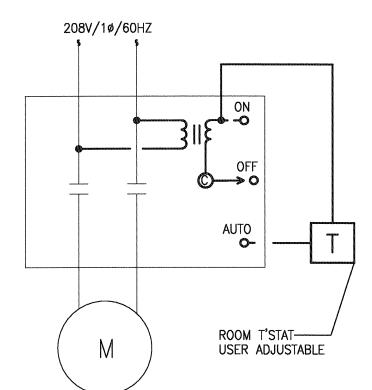
I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THE PROJECT, THAT I EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

MARK BENDER, P.E.

#24209

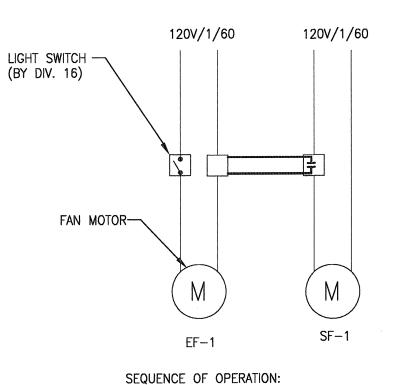
9/30/14 EXPIRES



UNIT HEATERS (UH-1, UH-2, & UH-3)

UNIT HEATER CONTROL DIAGRAM

2

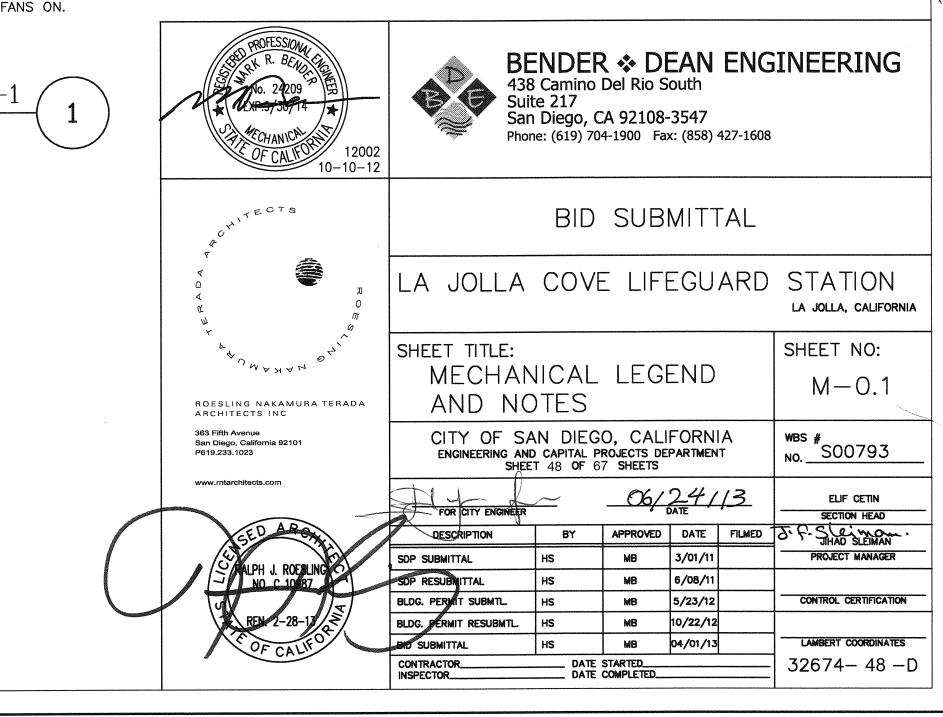


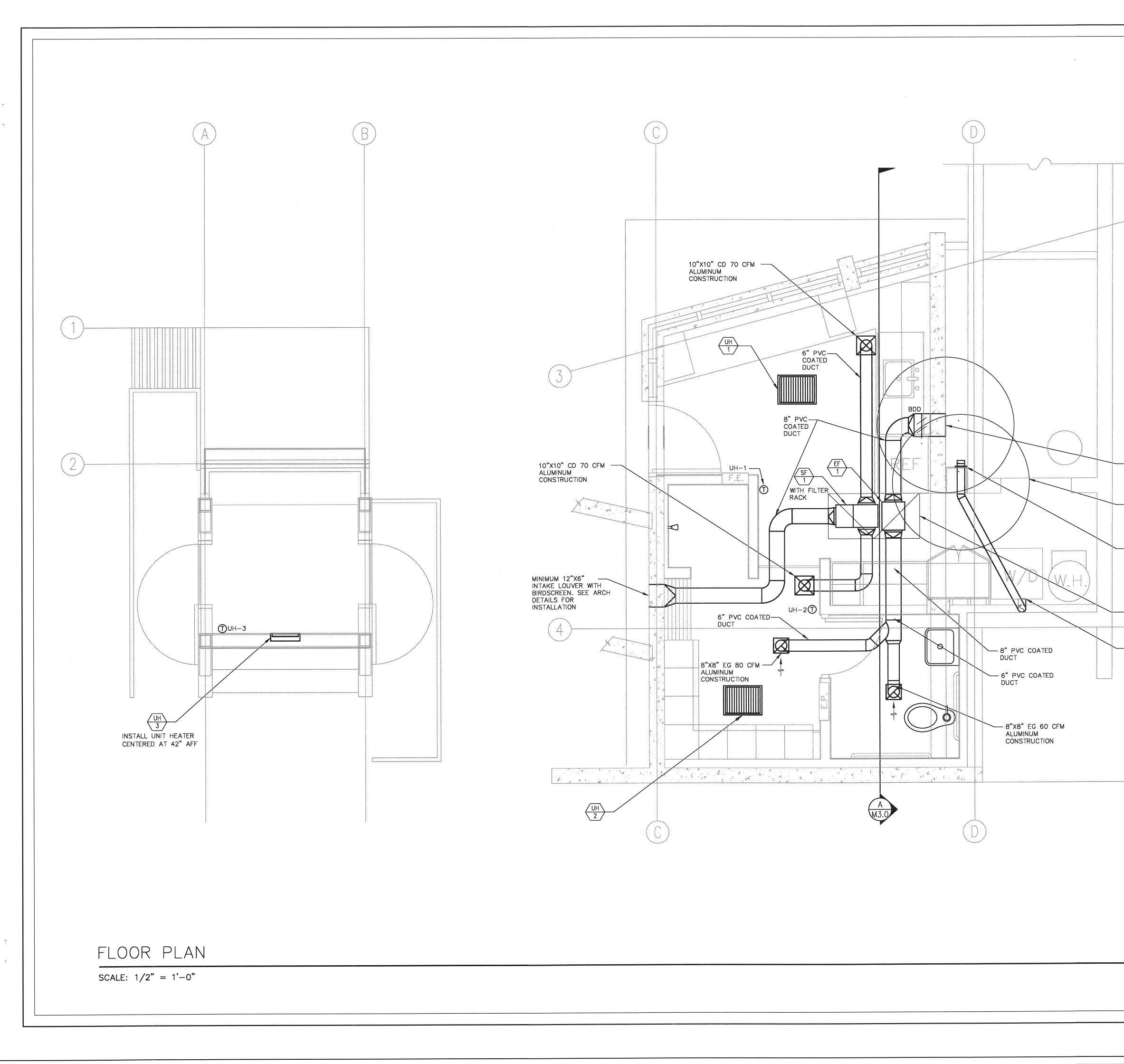
1. EF-1 INTERLOCKED WITH LIGHT SWITCH. 2. WHEN LIGHTS ON (BLDG OCCUPIED) FANS ON. 3. INTERLOCK EF-1 WITH SF-1.

CONTROL	DIAGRAM	EF-1	&	SF-
NOT TO SCALE				

NOT TO SCALE

MECH	ANICAL	LEGEND
SYMBOL	ABBREV.	DESCRIPTION
(E)	EXIST	DENOTES EXISTING
\bullet	POC	POINT OF CONNECTION
	8"ø/10X	4 NEW DUCTWORK (1ST NUMBER INDICATES SIDE SHOWN)
	MVD	MANUAL VOLUME DAMPER
\boxtimes	CD	CEILING DIFFUSER
	EA	EXHAUST AIR DUCT UP
<u>N</u> ex	ER	CEILING EXHAUST REGISTER
<u> </u>	TG	TRANSFER GRILLE (WALL)
	BDD	BACKDRAFT DAMPER
	ABV	ABOVE
	AD	ACCESS DOOR
	BEL	BELOW
	CONN	CONNECT OR CONNECTION
	CONT	CONTINUATION
	CLG	CEILING
	CFM	CUBIC FEET PER MINUTE
	DN	DOWN
	EXH	EXHAUST
	EXIST	EXISTING
	FFE	FINISHED FLOOR ELEVATION
	FIN	FINISH
	FLR	FLOOR
	GPM	GALLONS PER MINUTE
	LAV	LAVATORY
	MAX	MAXIMUM
	MIN	MINIMUM
	OA	OUTSIDE AIR
	PLBG	PLUMBING
	TYP	TYPICAL
	U.N.O.	UNLESS NOTED OTHERWISE





GENERAL NOTES

1. LOUVERS SHALL BE RUSKIN ELBD COMBINATION LOUVER DAMPER OF EXTRUDED ALUMINUM CONSTRUCTION, OR APPROVED EQUAL.

EXHAUST CALCULATIONS RESTROOM

ROOM TYPE: PRIVATE TOILET EXH CFM = 50 PER CMC 2010 TABLE 4-4

LOCKER/SHOWER ROOM TYPE: LOCKER AREA = 73

EXH CFM = 0.50 CFM/SQFT EXH CFM = 73*0.50 = 37 PER CMC 2010 TABLE 4-4

TOTAL EXH = RESTROOM + LOCKER TOTAL EXH = 50+37 = 87 CFM REQUIRED TOTAL EXH PROVIDED: 140 CFM

VENTILATION CALCULATIONS

COMMON AREA ROOM TYPE: OFFICE AREA AREA=170 SQFT CFM/PERSON=5 CFM/SQFT=0.06 OCCUPANCY=4 OSA CFM = 5*4 + 170*0.06 = 30.2 PER CMC 2010 TABLE 4-1

MINIMUM 12"X6"
 EXHAUST LOUVER WITH
 BIRDSCREEN. SEE
 ARCH DETAILS FOR
 INSTALLATION

 – 3' CLEARANCE FROM EXHAUST LOUVER TO OSA INTAKES OR OPENINGS

4" DRYER EXHAUST DUCT AND MANUFACTURED DRYER EXHAUST CAP WITH BACKBRAFT DAMPER. TERMINATE A MINIMUM OF 12" ABOVE GROUND.

__ ACCESS PANEL

(4)

4" DRYER EXHAUST SET AT 37-1/2" A.F.F. VERIFY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

· · · · · · · · · · · · · · · · · · ·	PROFESSION4 PROFE	BENDER DEAN ENGINEERING 438 Camino Del Rio South Suite 217 San Diego, CA 92108-3547 Phone: (619) 704-1900 Fax: (858) 427-1608
(5)	P CHITECTS	BID SUBMITTAL
		LA JOLLA COVE LIFEGUARD STATION la jolla, california
	ROESLING NAKAMURA TERADA	SHEET TITLE: MECHANICAL PLAN M1.0
4	ARCHITECTS INC 363 Fifth Avenue San Diego, California 92101 P619.233.1023	CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 49 OF 67 SHEETS NONO
	www.rntarchitects.com	FOR CITY ENGINEER DATE ELIF CETIN SECTION HEAD
	ALPH J. ROEALING	DESCRIPTION BY APPROVED DATE FILMED J. F. S. O. M. OMALA SOP SUBMITTAL HS MB 3/01/11 PROJECT MANAGER SOP RESUBMITTAL HS MB 6/08/11
	NO. C 1087	BLDG. PERMIT SUBMTL. HS MB 5/23/12 CONTROL CERTIFICATION BLDG. PERMIT RESUBMTL. HS MB 10/22/12
	OF CALIFO	BHD SUBMITTAL HS MB 04/01/13 LAMBERT COORDINATES CONTRACTOR DATE STARTED 32674-49-D INSPECTOR DATE COMPLETED
	+	

ERFORMANCE CERTIFICATE OF COMPLIANCE (Part 1 of 3) PERF-1C	PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 2 of 3) PERF-1C	PERFORMANCE CERTIFICATE OF COMPLIANCE (Part 3 of 3) PERF-1C	CERTIFICATE OF COMPLIANCE (Part 1 of 3) AND FIELD INSPECTION ENERGY CHECKLIST
Jolie Cove Lifeguerd Station Bit Address Gimeia Zone Total Cond. Floor Area Address Floor Area	La Jolla Cove Lifeguard Station 6/22/2012 ANNUAL TOV ENERGY USE SUMMARY (KBtu/sqtt-yr)	La Jolia Cove Lifeguard Station 8/22/2012 ZONE INFORMATION	Project Name La Jolla Cove LNeguard Station
30 Coast Bivd Le Jolle CA Climate Zone 07 400 n/e ENERAL INFORMATION	Energy Component Design Design Margin Space Heating 57.69 \$2.69 -12.59 Heating	Picor Inst. Ctrl. <u>Allowed LPD</u> Proc. Area LPD Credita Area Tallored Loada Bystem Name Zone Name Cocupancy Type (soft.) (W/st) ⁴ (W/st) ⁴ (W/st) ⁴ (W/st) ⁴	Project Activets Const Divor La Jolla Cirnete Zone Total Cond. Picor Area 1130 Coast Bivor La Jolla 7 400 GENERAL INFORMATION
ulding Type: El Nonreeldential El High-Rise Residential El Hote/Motel Guest Room El Relocatable - indicate El apecific climate zone El all climates naze of Construction: El New Construction El Addition El Alteration	Space Cooling 119.63 166.61 4.12 Cooling Indoor Fans 173.69 173.69 166.31 4.12	Observation Room Office > 160 soft 210 *0.800 Lookers Lookers Office > 160 soft 110 *0.800	Building Type: Monrealdenties D High-Rise Residenties D Hotel/Motel B Schools (Public School) D Reloceiable Public School D Conditioned Spaces D Unco
FATEMENT OF COMPLIANCE nis certificate of compliance lists the building features and specifications needed to imply with Title 24, Parts 1 and 5 of the California Code of Regulations. This	Heat Rejection 0.00 0.00 0.00 Heat Rej	Lifeguard Towar Lifeguard Towar Office == 280 soft 80 4.100	☐ Skylight Area for Large Enclosed Space ≥ 8000 ft ² (if checked include the ENV-4C with submittel) Press of Construction; Bit New Construction ☐ Addition ☐ Attension
nply with Title 24, Parts 1 and 5 of the California Code of Regulations. This titloats applies only to a Building using the performance compliance approach. a documentation author hereby certifies that the documentation is accurate and complete.	Domestic Hot Water 17.09 17.38 -0.28 DHW Lighting 63.94 53.94 6.69 Lighting		Appresch of Compliance: C Component Provide Contraction Appresch of Compliance: Front Orientation: N, E, S, W or In Degrees: 45 (seg
wmentation Author	Receptable 78.47 76.47 9.00 Receptable Process 0.00 0.00 0.00 Process		FIELD INSPECTION ENERGY CHECKLIST OPAQUE SUMPACE DETAILS INSULATION
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s Principal Designer hareby certifies that the proposed building design represented in this set of	Parcent better than Standard 11.4% (11.4% excluding process) BUILDING COMPLIES		Tau/10' Assembly Type' A D' D D D D D D D D D D D D D D D D D
struction documents is consistent with the other compliance forms and worksheets, with the specifications, and with other calculations submitted with this permit application. The proposed building has been designed to meet the energy stency requirements contained in sections 110, 116 through 118, and 140 through 148 of Title 24, Part 6. Please	GENERAL INFORMATION		1 Wait 30 (H) 0.520 Mone 4.3.8-A10 2 Wait 82 (2W) 0.520 None 4.3.8-A10
xx ons: V. LTG. Mech.	Building Orientation (NE) 45 day Conditioned Floor Area 460 sqlt. Number of Stories 1 Unconditioned Floor Area 0 aqlt.		3 Wail 81 (NW) 0.670 Name 4.3.8-F2 4 4 Wail 160 (86) 0.670 Name 4.3.8-F2 4
I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer, mechanical engineer, electrical engineer, or I am a loaneed excitized.	Number of Systems 3 Conditioned Footprint Area 60 sqit. Number of Zones \$ Natural Gas Available On Site No		S Stab 290 (H) 0.730 None 4.4.7.4.7 B Wait 4.7 (H) 0.880 tiona 4.3.5.4.10
I affirm that I am eligible under the provisions of Division 3 of the Susiness and Professions Code by section SS37.2 or S737.3 to sign this document as the person responsible for its preparation;; and that I am a licensed contractor performing this work.	Orientation Gross Area Glazing Area Glazing Ratio	Nature: 1. Sons LTG-1C Annue: 1. Sons LTG-1C Annue: regular with antafick, and LTG-1-C by official Annue: regular with antafick, and LTG-1-C by official Annue: regular with antafick, and LTG-1-C by official	7 Real 290 (H) 0.086 None 19.0 None 4.2.8-A6 8 Wall 30 (H) 0.086 None 4.3.8-A10
I affirm that I am eligible under Division 3 of the Business and Professions Code to sign this document: because it pertains to a structure or type of work described as exampt pursuant to Business and Professions Code Sections 6537, 5538 and 6737.1.	Front Elevation (NE) 70 sqft. 23 sqft. 23.0 %	EXCEPTIONAL CONDITIONS COMPLIANCE CHECKLIST The local enterviewent specty should pay special standon to the items specified in this checklist. These items regular special unition justification and documentation, and special verification to the items specified in this partomenes approach. The tool enforcement agency	
Noipal Envelope Designer Reich J. Roseling Signature	Rest Elevation (SW) 270 sqft. 0 sqft. 0.0 % Right Elevation (NW) 680 sqft. 203 sqft. 39.8 %	justitionian and documentation, and opecks verification to be used with the partormance approach. The local enforcement againsy determines the adequacy of the partitionizer, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation automitted.	 See instructions in the Nonresidential Compliance Manual, page 8-46. If Fail, itsen tesselbe an Page 2 of the inspection Checklet Form and take appropriate solien to correct. A fail does not mad FENESTRATION SURFACE DETAILS
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18/20 San Glayo, CA 52136 Phone 819-734-1800	Prescriptive Envelope TDV Energy 36,781 21,889 LTG-1C for allowed LPD. Remarks:		3 Window 88 (NB) 0.930 MFRC 0.480 MFRC E5 4 Window 21 (BE) 0.380 MFRC 0.480 MFRC E5
per Lighting Designer Side in The America of This Sciences in Contract Designations			5 Window 21 (NM) 0.560 NFRC 0.480 NFRC 0
Number of the stress			
IUCTIONS TO APPLICANT COMPLIANCE & WORKSHEETS (check box if worksheets are individed) ENV-1C Certificate of Compliance. Required on plane.		The exceptional technical in the performance opproach application have excellently have reviewed. Adequate whiten justification and documentation for their use have been provided by the applicant.	
LTG-1C Centificate of Compliance, Required on plans. MECH-SC All/Water StderBarvice Hot Weiter & Pool Requirements. LTG-2C Lighting Controls Credit Workshood. MECH-SC Mechanics Ventilation and Rehast.		Authonizzed Bigrature of Bizmp	 See instructions in the Nonresistential Compliance Manual, page 3-86. If Fail then describe on Page 2 of the Inspection Checklet Form and take appropriate solion to correct. Varial building plat
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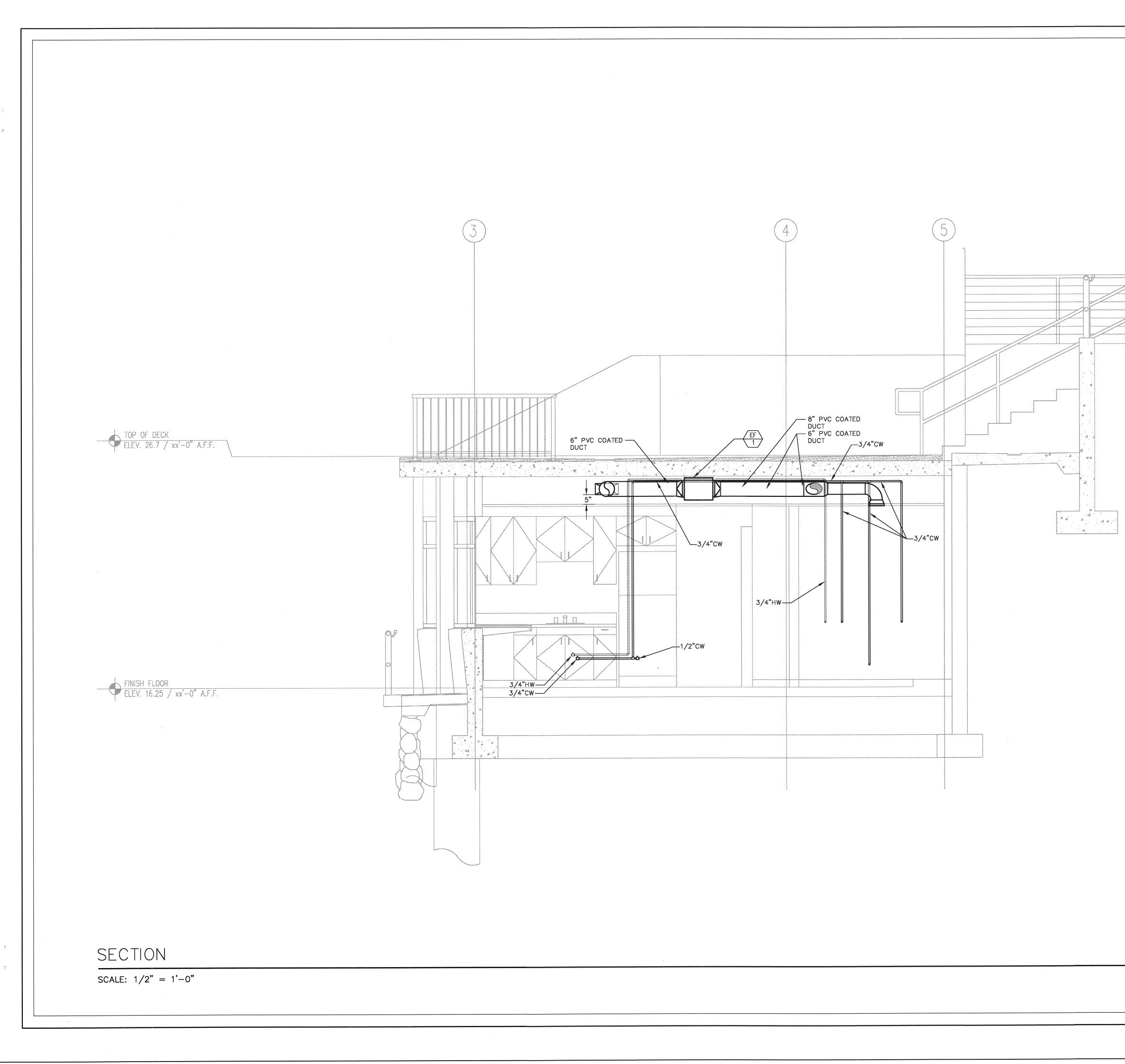
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Paga 6 of 24	2. If Fail then describe on Page 2 of the Inspection Checkles Form and take appropriate action to correct. Verify Culting plans it indestably. EnergyPro 5. I by EnergySoft User Number: 8288 RunCode: 2019-08-13711:20:47 iD: 12002 Page 7 of 24
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\$118(c): All insulating Materials shall be installed in 0 \$118(c): Sections 2602 and 707 of Title 24, Part 2. \$118(f): The opaque portions of framed demising we of no less than R-13 between framing members.	certified by the manufasturer to comply with th hapter 4, Article 3. compliance with the flame spread rating and sm dis in nonresidential buildings shell have insulat bers.	oke density requirements of Ion with an installed R-value	
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PROFESSION RN R. ØFAD No. 24209 No. 24200 No. 24200 No. 24200 No. 24200 No. 24200 No. 2420	
¢ CT S	BID SUBMITTAL
	LA JOLLA COVE LIFEGUARD STATION la jolla, california
ROESLING NAKAMURA TERADA	SHEET TITLE: MECHANICAL SECTION M3.0
ARCHITECTS INC 363 Fifth Avenue San Diego, California 92101 P619.233.1023	CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 52 OF 67 SHEETS NO. SOO793
www.rntarchitects.com	Description BY APPROVED Date Filmed Stephing
RAPH J. ROESLINE	SDP SUBMITTAL HS MB 3/01/11 PROJECT MANAGER
(A)	SDP RESUBMITTAL HS MB 6/08/11 BLDG PERMIT SUBMTL. HS MB 5/23/12 CONTROL CERTIFICATION
REN. 2-28-13	BLDS. PERMIT RESUBMTL. HS MB 10/22/12
OF CALIFOI	BID SUBMITTAL HS MB 04/01/13 LAMBERT COORDINATES CONTRACTOR DATE STARTED 32674-52-D INSPECTOR DATE COMPLETED

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		MIN. BRA	NCH SIZE		TRAP			
MARK	C.W.	H. W .	VENT	WASTE	OR ARM	FIXTURE		
<u>WC-1</u>	1-1/4"		2"	4"	INTEGRAL	WATER CLOSET: KOHLER K-3519 PRESSURE-LITE ELONGATED, HIGH EFFICIE ELONGATED BOWL, SLOAN FLUSHMATE SYSTEM, FULLY GLAZED 2-1/8" TRAI TOILET. PROVIDE WITH K-4650 LUSTRA ELONGATED OPEN-FRONT TOILET S 6 REQUIREMENTS).		
<u>L-1</u>	1/2"	1/2"	1-1/2"	2"	1-1/4"	LAVATORY: KOHLER K-2035-4 PINOIR WALL-MOUNT ADA LAVATORY. VITREWITH K-8998 P-TRAP AND K-7605-P LAVATORY SUPPLIES 3/8" PAIRS. LAVATORY ADA FAUCET WITH GRID STRAINER DRAIN ASSEMBLY. FAUCET PROG GPM FLOW RESISTOR. MOUNT AT ADA COMPLIANT HEIGHT.		
<u>S-1</u>	1/2"	1/2"	1-1/2"	2"	1-1/4"	SINK: ELKAY LRAD1919 LUSTERTONE SINGLE BOWL ADA COMPLIANT SINK. SINK, 16"L X 13-1/2"W X 6-1/2"D INSIDE BOWL DIMENSIONS. OFF-CENT WITH LKLFD2439 HI-ARC DUAL HANDLE KITCHEN ADA CA AB1953 COMPLIAI MAXIMUM FLOW RATE 1.5 GPM PROVIDE LK36 BASKET STRAINER, P-TRAF		
<u>SH-1</u>	1/2"	1/2"	_	_	_	SHOWER: SYMMONS 4-231-1.5-VP SUPER SHOWERHEAD WITH ADJUSTABLE RESISTANT. PROVIDE SYMMONS 4700-X ADA SHOWER VALVE SYSTEM WITH SERVICE STOPS TO ALLOW WATER SHUT-OFF FOR SERVICE. ALL PRODUCTS		
<u>FD1</u>	_		2"	2"	2"	FLOOR DRAIN: ZURN ZN-415B-2-IP-P-VP 2" DURA-COATED CAST IRON BODY WITH BUCLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS, TYPE B POLISHED NICKEL BRON SECURED TOP.		
<u>FD-2</u>	-	_	2"	2"	2"	FLOOR DRAIN: ZURN ZN-415B-2-IP-P-VP-Y 2" DURA-COATED CAST IRON BODY WITH CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS, TYPE B POLISHED NICKEL BRON SECURED TOP, AND SEDIMENT BUCKET.		
<u>FS-1</u>	_		2"	3"	3"	FLOOR SINK: ZURN FD-2375-NH3-F 3" CONNECTION, 12X12X6 FLOOR SINK, CAST IR PRIMER CONNECTION.		
<u>HB-1</u>	3/4"	_	_			HOSE BIBB: ACORN 8121 CARTRIDGE-OPERATED HOSE VALVE WITH LOCK S INTERIOR WALL HOSE VALVE SHALL BE POLISHED CHROME FINISH. EXTERIO		
<u>HB-2</u>	3/4"	_	_	_	_	HOSE BIBB: ACORN 8151 RECESSED HOSE BOX WITH WALL FLANGE, 304 S TYPE WITH VANDAL RESISTANT LOCKSHIELD, REMOVABLE LOOSE KEY WHEEL		
<u>DD-1</u>	_			2"	2"	DECK DRAIN: ZURN Z158-ZB-IP-Z-AR-VP-Y 10" SQUARE TOP PROM-DECK DRAIN, D SEEPAGE OPENINGS, FRAME CLAMPS AND LIGHT DUTY HEEL-PROOF GRATE. 2" THREADED COATED FINISH, VANDAL-PROOF SECURED TOP AND SEDIMENT BUCKET.		

ELEC	TRIC WATE	RΗ	EATE	R SC	HEDU	ILE					
MARK	MANUFACTURER & MODEL NO.	KW	BTUH	VOLTS	FLA	TANK CAPACITY (GALLONS)	INLET	OUTLET	WEIGHT (LBS)	DIMENSIONS WIDTH X HEIGHT X DEPTH	
WH 1	AO SMITH DVE-52-9	9	30717	208/1	43.3	50	1-1/4"	1-1/4"	640	21-3/4 X 55-3/4 X 27	SE

SUMF	PUMP	SCHEDUL	.E	*****							
MARK	SERVICE	TYPE	GPM	T.D.H.	DISCHARGE	RPM	HP	FLA	VOLTS/PH	MANUFACTURER & MODEL NO.	
SP 1	WASTE SYSTEM	SEWAGE	20	26	2"	1750	6/10	12	115/1	HYDROMATIC SK60	PL 12 12

SUMF	P BASIN	SCHEDUL	E					
MARK	SERVICE	TYPE	DIA	HEIGHT	CAPACITY	WEIGHT	MANUFACTURER & MODEL NO.	REMARKS
SB 1	WASTE SYSTEM	SEWAGE	36"	48"	211 GAL	58	AK INSDUSTRIES GB-36-200	FIBERGLASS BASIN WITH ANTI-FLOAT (TWO 3" DISCHARGE AND ONE 2" VEN

BUILDING A WATER CALCULA	TIO	NS
TOTAL DEVELOPED LENGTH TO LAST FIXTURE = FITTINGS TOTAL LENGTH	_ 20 _	FT FT. FT.
<u>PSI_LOSS</u> RISE 10 FT x 0.43 PSI/FT FIXTURE	4.3 15	PSI PSI
TOTAL LOSS	19.3	PSI
REQUIRED WATER PRESSURE LOSS DIFFERENCE	25 19.3 5.7	PSI PSI PSI
<u>5.7 PSI DIFFERENCE X 100</u> = <u>4.75</u> P.S.I MAXIMUM P – FEET TOTAL LENGTH ALLOWABLE /100		

WATER	PIPE S	IZE TA	BLE					
			LD WATER MAX. VELOCITY)		HOT WATER (5 FPS MAX. VELOCITY)			
PIPE SIZE	GPM	VELOCITY (FPS)	FLUSH TANK FU	FLUSH VALVE FU	GPM	VELOCITY (FPS)	FIXTURE UNITS	
1/2"	2	2.99	1	0	2	2.75	1	
3/4"	6	3.98	6	0	6	3.89	7	
1"	12	4.67	16	0	12	4.67	16	
1-1/4"	20	5.10	21	0	20	5.00	30	
1-1/2"	35	6.31	66	20	30	5.00	54	
2"	70	7.25	225	108	50	5.00	127	

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THE PROJECT, THAT I EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

MARK BENDER, P.E.

#24209

IENCY, ULTRA LOW CONSUMPTIUON 1.0 GPF TOILET. VITREOUS CHINA, APWAY, 11-1/2X9-1/2" WATER SURFACE AREA. HANDLE ON LEFT SIDE OF SEAT. ADA COMPLIANT (TO MEET CA TITLE 24 CBC PART 2 AND CPC PART EOUS CHINA WITH OVER FLOW, 4" CENTERS, 22"L X 18"W X 34"H. PROVIDE PROVIDE SYMMONS S-6080-AC-G-FR ULTRA-SENSE SENSOR ACTIVATED OVIDED WITH VANDAL-RESISTANT AERATOR, PLUG-IN POWER SUPPLY, AND 0.5

304 NICKEL BEARING STAINLESS STEEL SELF-RIMMING 19-1/2"L X 19"W ITERED REAR DRAIN LOCATION. 3 FAUCET HOLES WITH 4" CENTERS. PROVIDE ANT FAUCET, THREE HOLE, DUAL HANDLE CONCEALED MOUNT, WING HANDLES, AP AND SUPPLIES. E FLOOD OR MIST SPRAY WITH 1.5 GPM FLOW RESTRICTOR, AND VANDAL SYMMONS TEMPTROL PRESSURE BALANCING MIXING VALVE, WITH INTEGRAL TS TO HAVE POLISHED CHROME FINISH.

BOTTOM OUTLET, POLISHED NICKEL BRONZE TOP, COMBINATION INVERTIBLE MEMBRANE NZE, LIGHT DUTY STRAINER. PROVIDE WITH TRAP PRIMER CONNECTION AND VANDAL-PROOF

TH BOTTOM OUTLET. POLISHED NICKEL BRONZE TOP, COMBINATION INVERTIBLE MEMBRANE NZE, LIGHT DUTY STRAINER. PROVIDE WITH TRAP PRIMER CONNECTION, VANDAL-PROOF

RON ENAMELED WITH FULL GRATE, ABS DOME STRAINER, BOTTOM OUTLET WITH TRAP

SHIELD BONNET AND REMOVABLE KEY HANDLE WITH VACUUM BREAKER. IOR VALVES SHALL BE ROUGH CHROME-PLATED.

SS WITH SATIN FINISH EXTERIOR, VALVE SHALL BE CARTRIDGE-OPERATED L HANDLE AND SCREWDRIVER OPERATED STOP.

DURA-COATED CAST IRON BODY WITH ROATATABLE SQUARE PROMENADE FRAME WITH ED PIPE CONNECTIONS. PROVIDE WITH POLISHED BRONZE TOP, ACID RESISTANT EPOXY

REMARKS

SEE DETAIL 2/P4.0 FOR INSTALLATION DETAIL

RFMARKS

PUMP HAS 10' POWER CORD STANDARD. PROVIDE WITH SLE RHOMBUS TAXT-01H 120VAC W/15' SJE SIGNALMASTER HIGH LEVEL TANK ALARM AND SJE RHOMBUS 1221W914H6A-3B4AD8AC912A11D14B17A19BU CONTROL PANEL. SEE DETAIL 1/P4.0

COLLAR. PROVIDE WITH SPLIT STEEL ROUND COVER WITH WITH ADAPTAFLEX OPENINGS.

9/30/14 EXPIRES

PLUMBING GENERAL NOTES:

- . CONTRACTOR SHALL CAREFULLY REVIEW THESE PLANS AND SPECIFICATIONS PRIOR TO BID. CONT ALSO REVIEW PLANS AND SPECIFICATIONS OF OTHER RELATED TRADES (INCLUDING CIVIL, STRUCT ELECTRICAL) PRIOR TO BID TO INSURE AN ACCURATE UNDERSTANDING OF EXACT SCOPE OF WORL
- 2. CONTRACTOR SHALL VERIFY ALL EQUIPMENT MODEL NUMBERS, CAPACITIES, SIZES, VOLTAGES, AND SCHEDULED INFORMATION WITH OTHER APPLICABLE TRADES AND WITH THE MANUFACTURER PRIOR
- 3. CONTRACTOR SHALL VERIFY ALL LOCATIONS, SIZES, P.O.C.'S, INVERT ELEVATIONS, AND AVAILABILITY OF ALL EXISTING UTILITIES PRIOR TO INSTALLATION OF ANY MATERIAL OR EQUIPMENT.
- 4. THESE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, AND ARE NOT INTENDED TO INDICATE ALL DETAILS AND NECESSARY OFFSETS OF PIPING. THE CONTRACTOR SHALL INSTALL MATERIAL AND EQUIPMENT IN A MANNER AS TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM, AND KEEP OPENINGS AND ACCESS CLEAR. CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES OR CONFLICTS THAT WOULD AFFECT THE SYSTEM PERFORMANCE OR INCUR ADDITIONAL COSTS. THIS NOTIFICATION SHALL BE SUBMITTED PRIOR TO INSTALLATION OF THE ITEMS CONCERNED.
- 5. NEW EQUIPMENT INDICATED ON THESE DRAWINGS IS SHOWN IN APPROXIMATE LOCATIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, INCLUDING EQUIPMENT LOCATIONS, P.O.C.'S AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION. IN ALL CASES, ADEQUATE ACCESS (PER MANUFACTURER'S RECOMMENDATIONS AND CODE COMPLIANCE) FOR MAINTENANCE AND REPLACEMENT OF EQUIPMENT SHALL BE PROVIDED.
- 6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES. NOTHING SHOWN ON THE PLANS OR STATED IN THE SPECIFICATIONS IS INTENDED TO INDICATE THAT THE INSTALLATIONS OR CONNECTIONS OF ANY ITEM OR DEVICE SHOULD BE DONE CONTRARY TO MANUFACTURER'S INSTRUCTIONS AND ALL APPLICABLE CODES AND REGULATIONS.
- 7. ALL PLUMBING EQUIPMENT, MATERIAL, AND ALL CONNECTIONS THERETO SHALL BE INSTALLED COMPLETE PER MANUFACTURER'S INSTRUCTIONS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL SYSTEM.
- 8. SOIL, SEWER AND WASTE PIPING SHALL SLOPE AT 1/4" PER FOOT MINIMUM, UNLESS OTHERWISE NOTED. 9. ALL PLUMBING SOLDER SHALL BE LEAD FREE AND SHALL CONFORM TO IAPMO IS 3-2003 AND THE INSTALLATION STANDARD FOR COPPER PLUMBING TUBE, PIPE AND FITTINGS. NON-METALLIC PIPING IS NOT APPROVED.
- 10. IF THE CONTRACTORS' USE OF SUBSTITUTE MATERIALS, EQUIPMENT OR METHODS OF INSTALLATION REQUIRES ANY CHANGES IN OTHER TRADES' WORK FROM THAT SHOWN ON THE DRAWINGS, THE EXTRA COST OF THE OTHER TRADES' WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INITIATING THE SUBSTITUTION.
- . SUBMITTALS: APPROVAL OF THE SUBMITTALS DOES NOT RELEASE THE CONTRACTOR FROM OBLIGATIONS TO FULLY COMPLY WITH ALL REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS OR APPLICABLE CODE REGULATIONS.
- 12. NON-METALLIC PIPING NOT ALLOWED.
- 13. CROSS CONNECTION PROTECTION SHALL BE PROVIDED AT ALL POTABLE WATER SUPPLIED APPLIANCES AND EQUIPMENT. BACKFLOW PREVENTERS SHOWN ON THESE PLANS, WHICH ARE USED FOR EQUIPMENT (I.E. MEDICAL, PROCESS, AIR CONDITIONING, KITCHEN EQUIPMENT, LANDSCAPE, ETC.) SHALL BE APPROVED BY THE FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH (FCCCHR) AT THE UNIVERSITY OF SOUTHERN CALIFORNIA
- 4. PLUMBING EQUIPMENT SHALL BE CERTIFIED BY, AND COMPLY WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS (E.E.S.) SECTION 113. COMPLIANCE CERTIFICATES SHALL BE PROVIDED WITH EQUIPMENT SUBMITTALS.
- 15. ALL VENT-THROUGH-ROOF PIPES SHALL TERMINATE NO LESS THAN 10'-0" MINIMUM FROM ALL OUTSIDE AIR AND BUILDING OPENINGS. SHALL CONFORM TO SECTION 906.2 OF THE 2007 CPC.
- 16. A WATER HAMMER ARRESTOR SHALL BE INSTALLED AT LOCATIONS OF SELF-CLOSING VALVES PER UPC 609.10. PROVIDE 8X8 ACCESS PANEL.
- 17. INSTALL FLUSH VALVE HANDLES ON WIDE SIDE OF HANDICAP ACCESSIBLE TOILETS PER ADA STANDARDS.
- 18. USE ONLY CAST IRON FOR SOIL, WASTE AND VENT PIPING. PEX PIPING SHALL BE USED FOR HOT AND COLD DOMESTIC WATER INSIDE THE BUILDING. COLD WATER SUPPLY TO BUILDING SHALL BE COPPER.
- PLUMBING CODE.
- 20. ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.
- 21. DOMESTIC WATER PIPING INSIDE BLDG: SHALL BE PEX-A.
- 22. DOMESTIC WATER PIPING: WHERE BELOW GRADE AND WITHIN 5' OF BUILDING LINE, SHALL BE TYPE "K" COPPER TUBING IN SINGLE CONTINOUS LENGTH WITH POLYETHYLENE OUTER TUBING. ALL UNDERGROUND COPPER TUBING SHALL BE BRAZED EXCEPT RISERS, WHICH SHALL BE SOFT SOLDERED.
- 23. ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED AGENCY.
- 24. BUILDING DRAIN AND VENT PIPING MATERIALS SHALL COMPLY WITH SECTIONS 701.0 AND 903.0 OF THE CALIFORNIA PLUMBING CODE.
- 25. CLEANOUTS FOR DRAINS THAT PASS THROUGH A BACKWATER VALVE SHALL BE CLEARLY IDENTIFIED WITH A PERMANENT LABEL STATING "BACKWATER VALVE DOWNSTREAM" PER SECTION 701.1 CPC.
- 26. SHOWERS SHALL BE PROVIDED WITH MIXING VALVES PER SECTION 418 CPC.
- 27. THE CONTRACTOR/PLUMBING CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION AT THE TIME OF PERMITTING THAT THE FLUSHING REQUIRMENTS/PROCEDURES OF THE CALIFORNIA PLUMBING CODE SECTION 604 SHALL BE COMPLIED WITH FOR PEX INSTALLATIONS.
- 28. A WATER HEATER PRESSURE AND TEMPERATURE RELIEF DRAIN THAT TERMINATES OUTSIDE THE BUILDING SHALL COMPLY WITH SECTION 608.5 CPC.
- 29. PROVIDE EXPANSION TANK OR OTHER APPROVED METHOD OF RELIEVING PRESSURE PER SECTION 608.3 CPC.
- 30. WATER SHALL BE ANCHORED OR STRAPPED TO RESIST HORIZONTAL DISPLACEMENT DUE TO EARTHQUAKE MOTION PER SECTION 508.2 CPC.

ENERGY CONSERVATION NOTES:

- WATER HEATER / BOILER WILL COMPLY WITH SECTION 608.3(C) C.P.C. THERMAL EXPANSION
- REQUIREMENTS. 2. LAVATORY FAUCETS IN RESTROOMS SHALL BE 0.5 GPM MAX.
- 3. PROVIDE VACUUM BREAKERS AT DOMESTIC WATER HOSE BIBBS. 4. SINK FAUCETS TO BE 1.5 GALLONS PER MINUTE MAX.
- 5. TOILETS SHALL BE ULTRA LOW FLUSH TYPE (1.28 GPF MAX)
- 6. EACH SHOWERHEAD SHALL NOT EXCEED A WATER FLOW OF 1.5 GPM MAX.
- 7. PLUMBING FIXTURES (WATER CLOSETS AND URINALS) AND FITTINGS (FAUCETS AND SHOWERHEADS) SHALL MEET THE STANDARDS REFERENCE IN TABLE 5.303.6 OF THE 2010 CAL GREEN CODE. SEE DETAIL 5/P-4.0 FOR CALCULATIONS OF 20% REDUCED FLOW.
- 8. ALL PIPING SHALL BE INSULATED CONSISTENT WITH THE REQUIREMENTS OF SECTION 118, 123 AND 124 E.E.S. INSULATION SHALL HAVE THE FLAME SPREAD RATING OF 25 OR LESS AND, A SMOKE DEVELOPED RATING OF 50 OR LESS.
- SHOULD CONTRACTOR PROPOSE AND/OR INSTALL ALTERNATIVE EQUIPMENT OR SYSTEMS, IT WILL BE HIS RESPONSIBILITY TO SECURE APPROVALS OF ALL REVIEWING AGENCIES AS REGARDS TO PLANCHECK, CODE COMPLIANCE AND TITLE 24 COMPLIANCE.

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ID ALL OTHER R TO INSTALLATION.

19. BUILDING DRAIN AND VENT PIPING MATERAILS SHALL COMPLY WITH SECTION 710.0 AND 903.0 OF THE CALIFORNIA

SYMBOL	ABBREVIATIONS	DESCRIPTION
	S OR W	SOIL, WASTE OR DRAIN ABOVE SLAB
	S OR W	SOIL, WASTE OR DRAIN BELOW SLAB
PSD	PSD	PUMPED SANITARY DISCHARGE
	V	SANITARY VENT
	CW	COLD WATER
9 - 11 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	HW	HOT WATER
	HWR	HOT WATER RETURN
CD	CD	PRIMARY CONDENSATE DRAIN
	BV	BALL VALVE
t. ځ	PRV	TEMPERATURE & PRESSURE RELIEF VALVE
	CL	CAPPED LINE
<u>ф</u>	GCO	CLEAN-OUT TO GRADE
1	FCO	FLOOR CLEAN-OUT
φ		
	WCO	WALL CLEAN-OUT
cⅠ - 1≎Ⅰ -	DN	DOWN OR DROP
0++0+-	UP	RISE OR RISER
	HB	HOSE BIB
	AFF	ABOVE FINISH FLOOR
	AP	ACCESS PANEL
	AVG.	AVERAGE
	BF	BELOW FLOOR
	BLDG	BUILDING
	CLG	CEILING
	CONT	CONTINUATION
	(E)	EXISTING
	FLR	FLOOR
	FIX.	FIXTURE
	GPM	GALLONS PER MINUTE
	HDR	HEADER
	IE	INVERT ELEVATION
	LAV	LAVATORY
	NIC	NOT IN CONTRACT
	NTS	NOT TO SCALE
	PSI	POUNDS PER SQUARE INCH
	SRCC	SOLAR RATING AND CERTIFICATION CORPORATION
	TYP	TYPICAL

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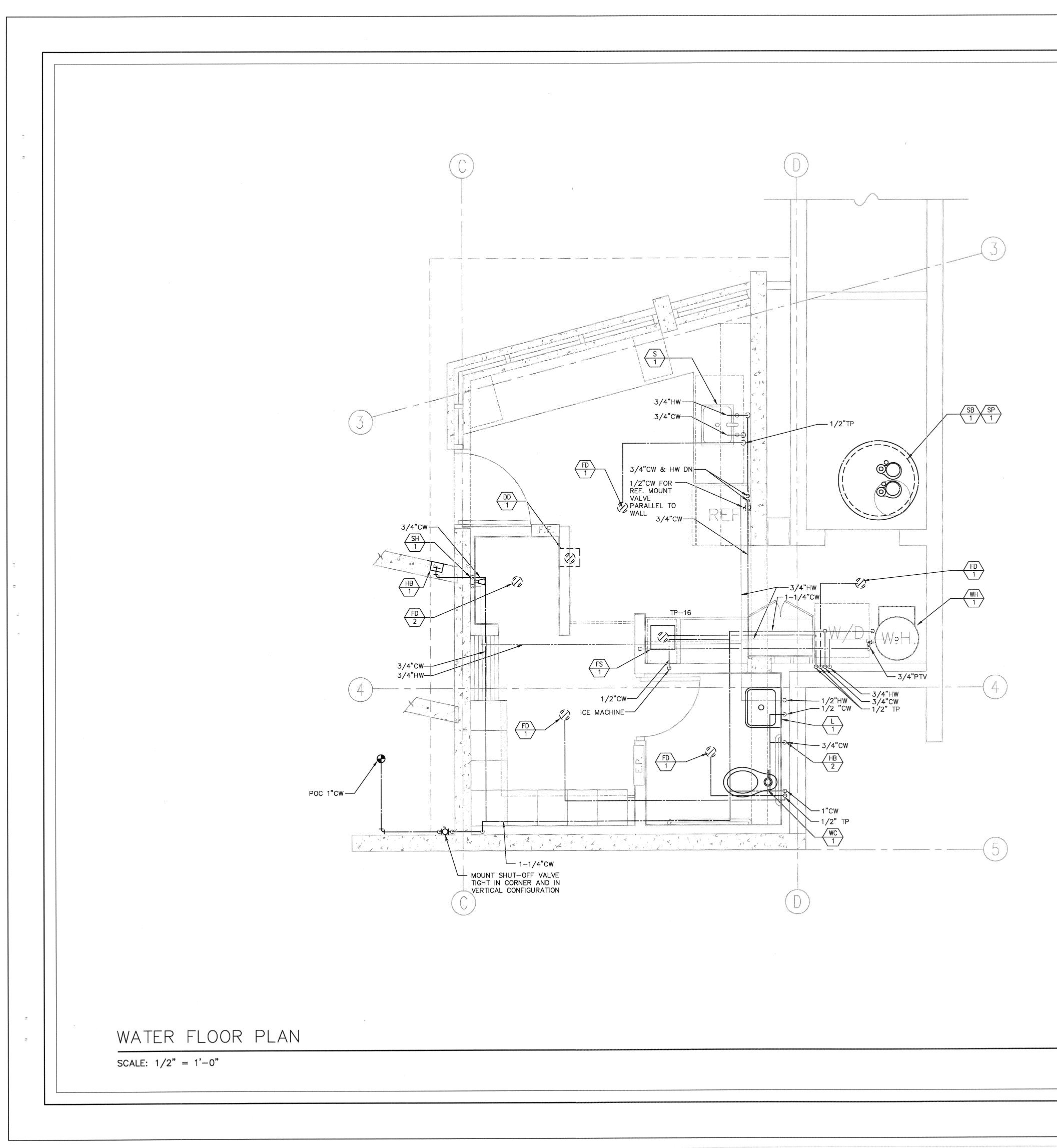
TECTS

BENDER DEAN ENGINEERING 438 Camino Del Rio South Suite 217 San Diego, CA 92108-3547

Phone: (619) 704-1900 Fax: (858) 427-1608

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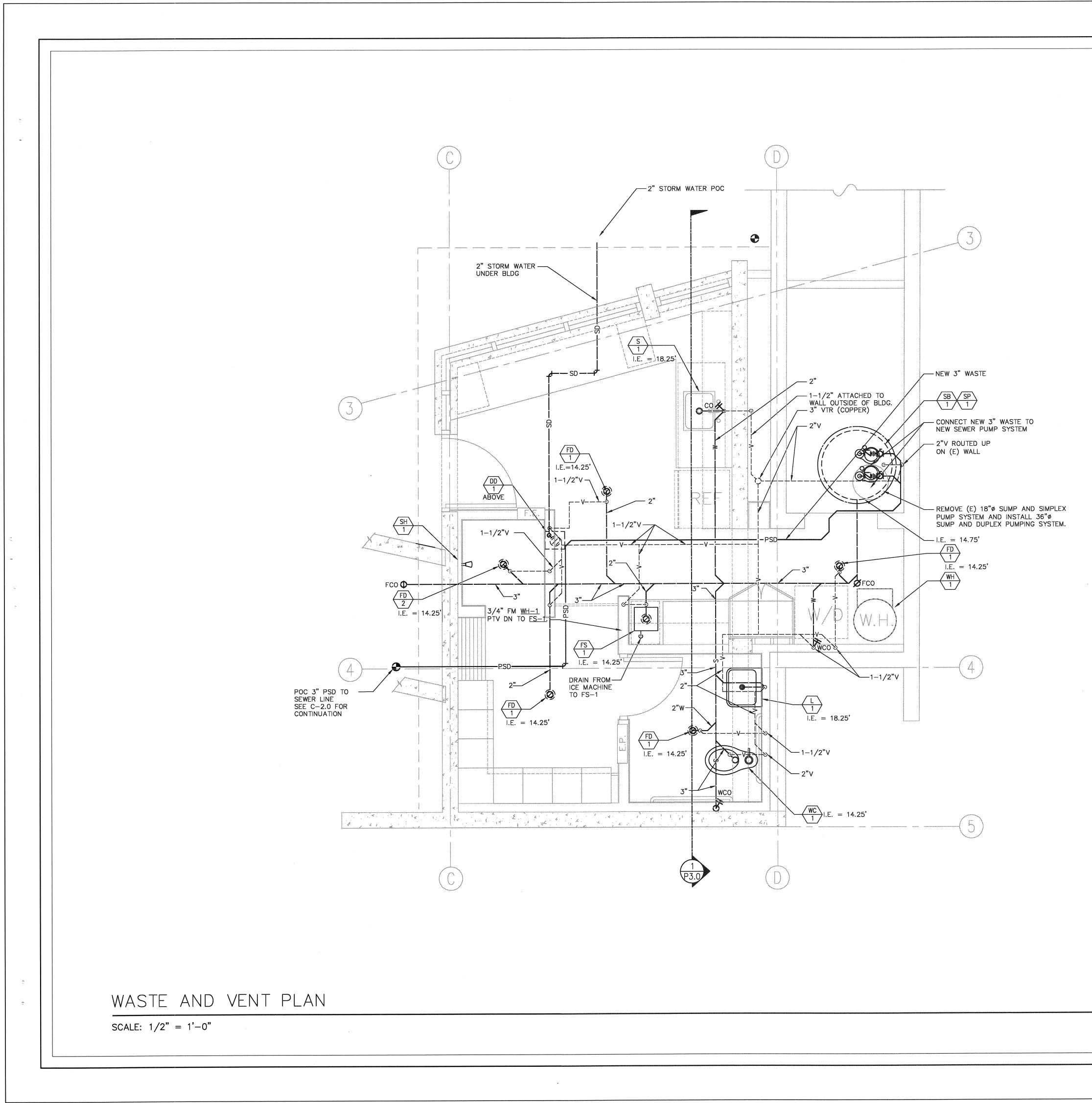
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	BLDG, PERMIT SUBMTL.	HS	MB	5/23/12		CONTROL CERTIFICATION
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NOTES:

1. ALL COLD AND HOT WATER PIPING INSIDE BUILDING TO BE PEX-A. UNDERGROUND CW PIPE WITHING 5' OF BLDG LINE SHALL BE TYPE "K" COPPER WITH SINGLE CONTINUOUS LENGTH POLYETHYLENE OUTER TUBING

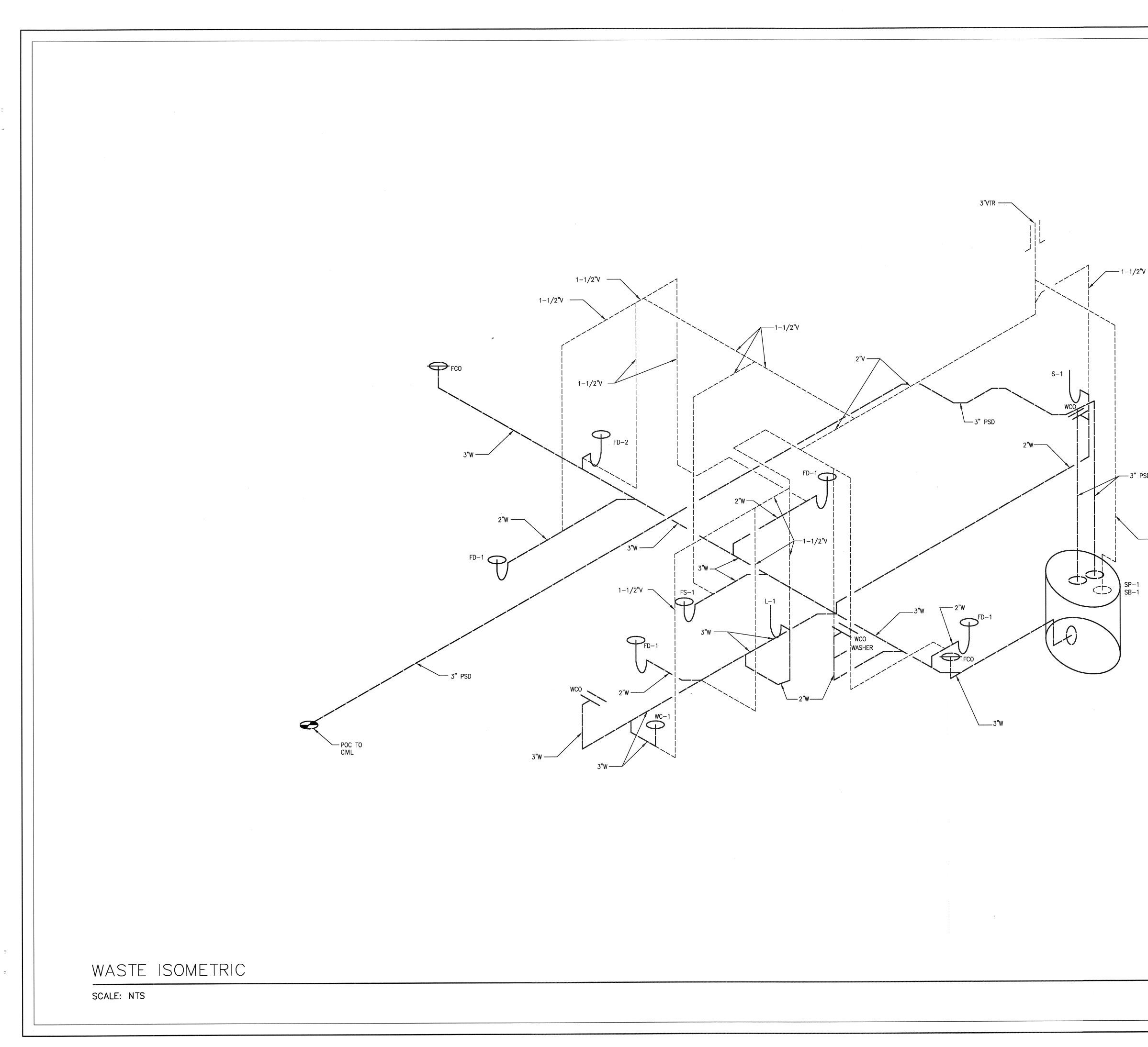
	PROFESSION4 RN R. BENDER No. 29209 MCXPH3/30714 CHANICA 12002 10-10-12	BENDER & DEAN ENGIN 438 Camino Del Rio South Suite 217 San Diego, CA 92108-3547 Phone: (619) 704-1900 Fax: (858) 427-1608	EERING
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	ROESLING NAKAMURA TERADA	SHEET TITLE: SH PLUMBING WATER FLOOR PLAN	eet no: P1.0
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1. UNDERGROUND WASTE PIPE WITHING 5' OF BLDG LINE SHALL BE TYPE NO HUB SERVICE WEIGHT CAST IRON SOIL PIPE

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TECTS

4 A K A M C & ROESLING NAKAMURA TERADA ARCHITECTS INC 363 Fifth Avenue San Diego, California 92101 P619.233.1023

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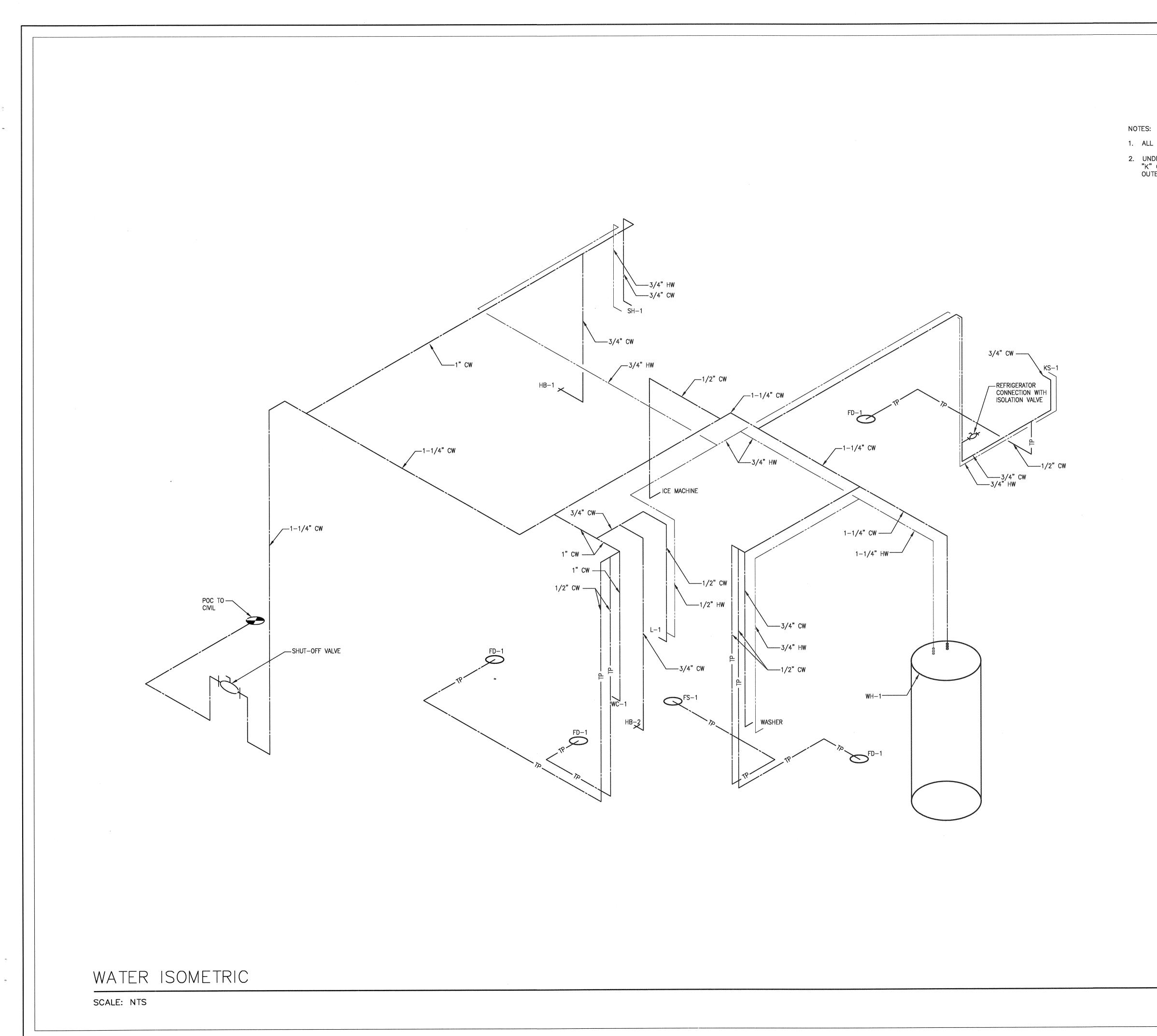


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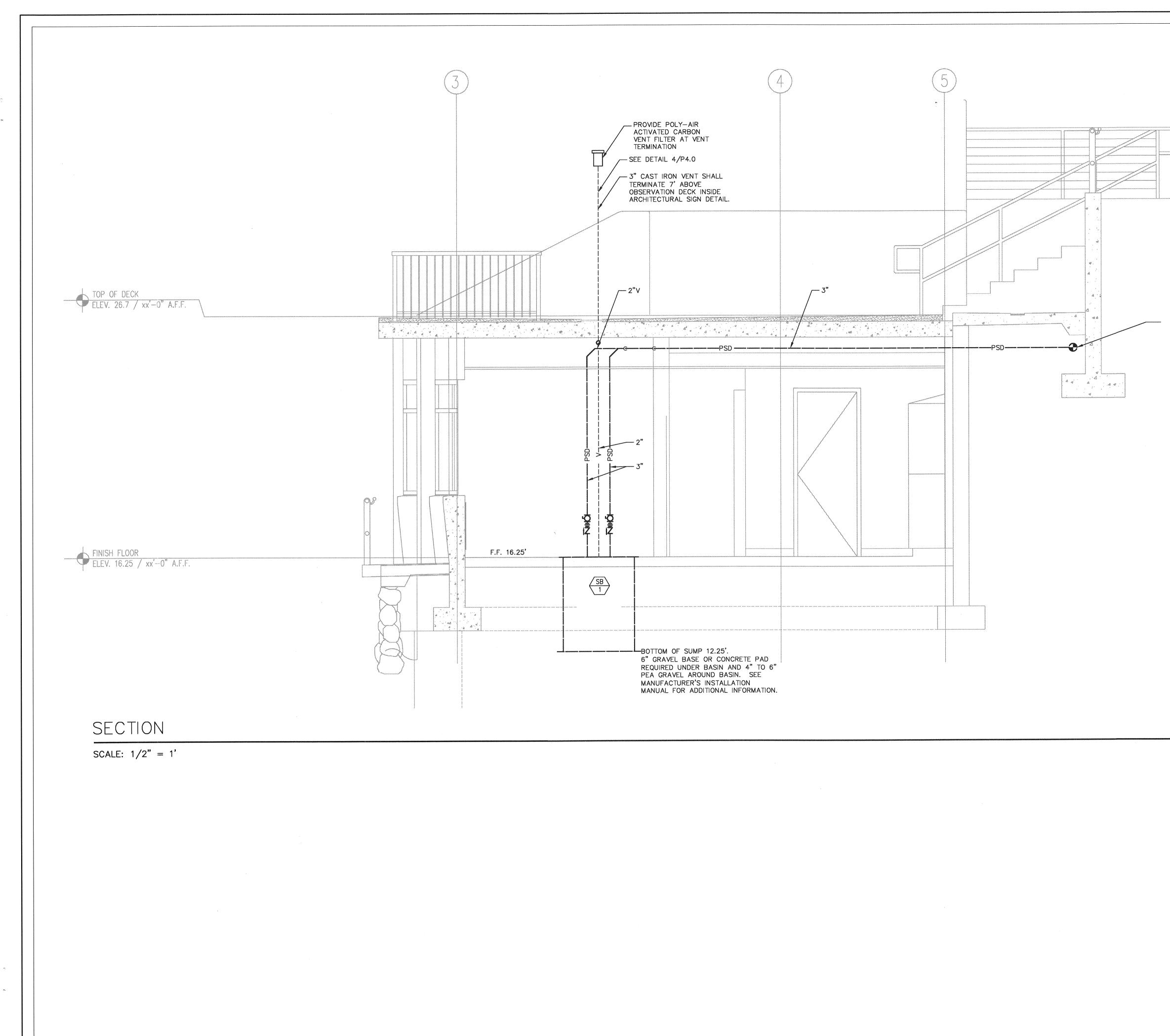
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 ALL COLD AND HOT WATER PIPING INSIDE BUILDING TO BE PEX-A.
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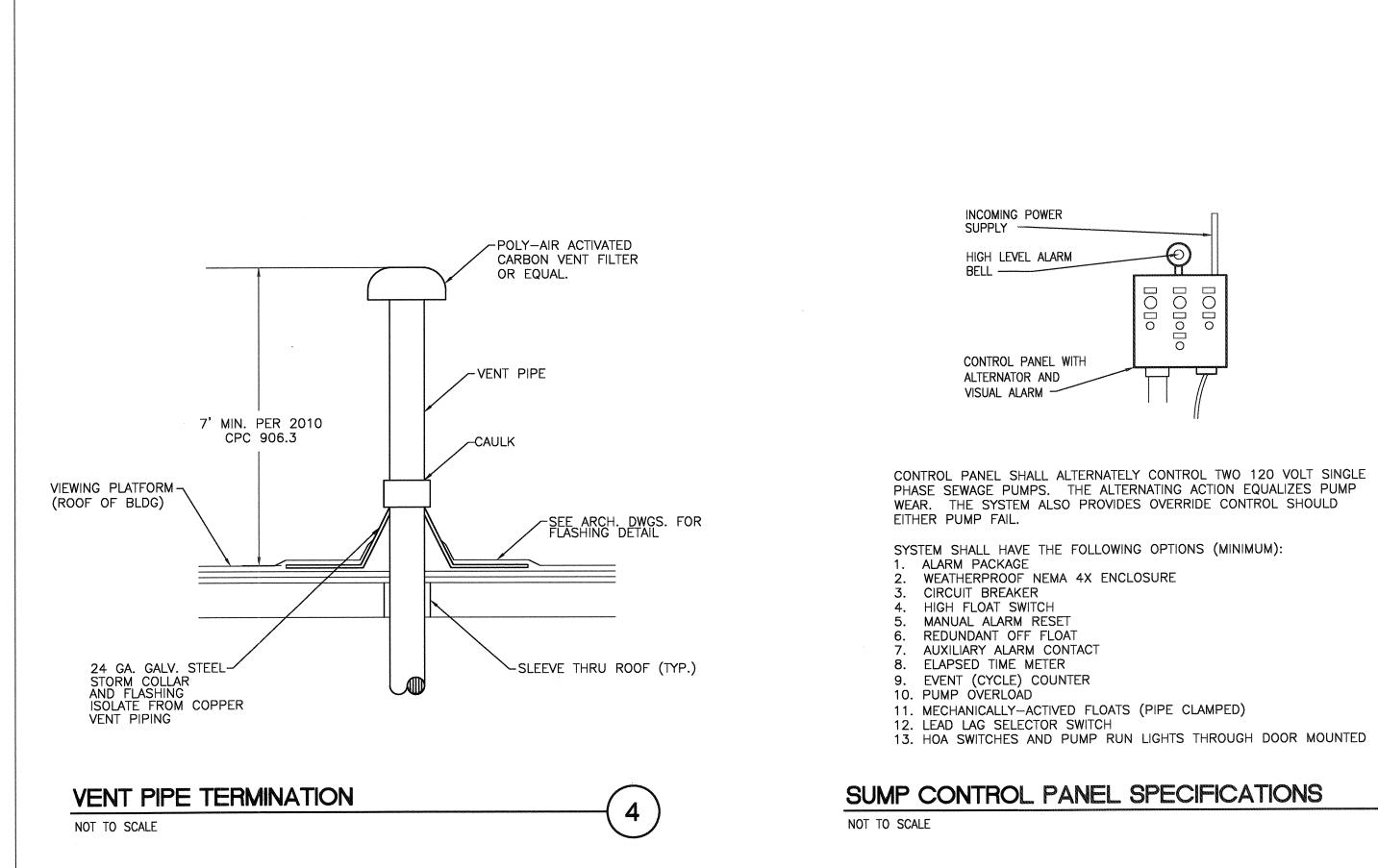
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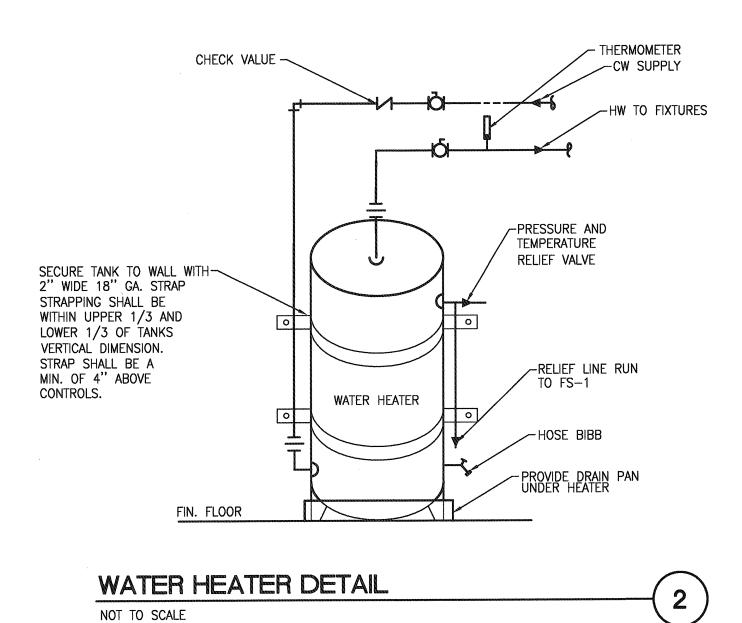


POC 3" PCD TO SEWER LINE I.E. = 25.0'

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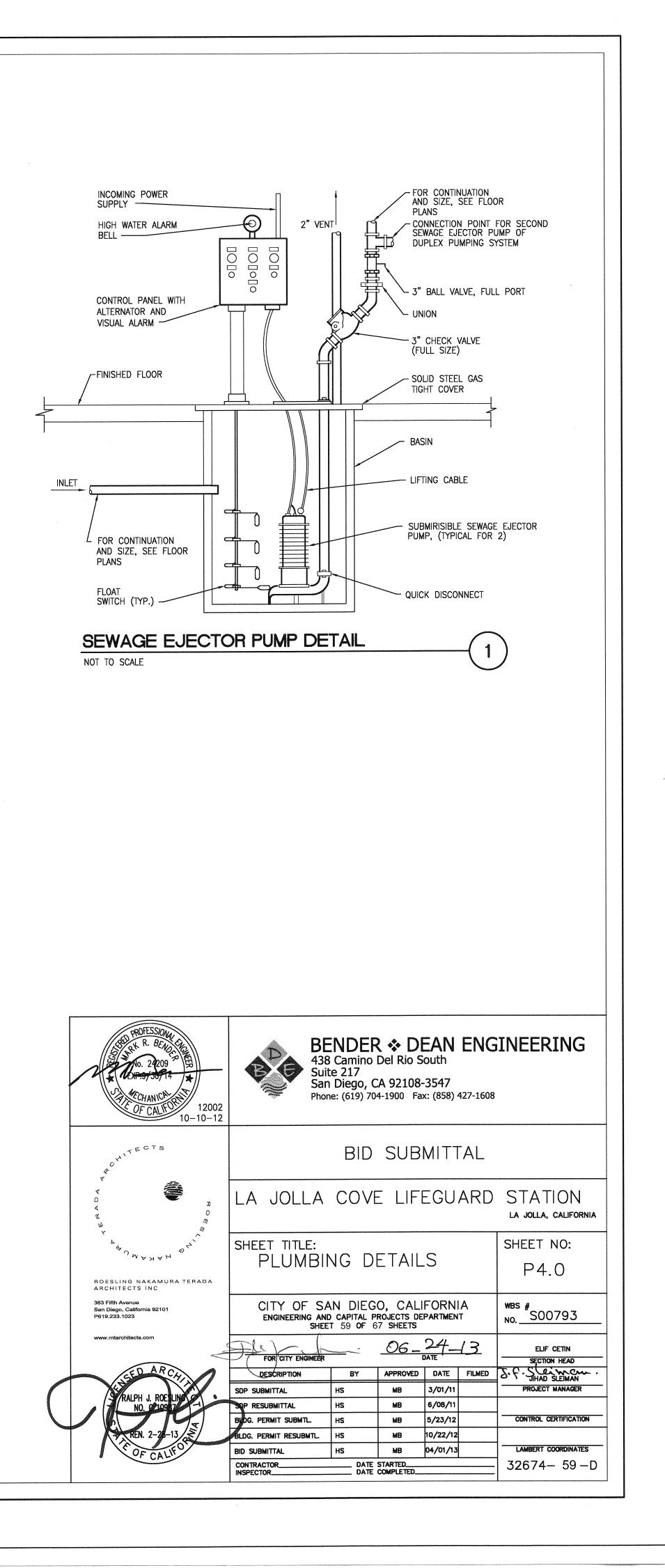
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Showerhe ads	2.5	x	5	×	1	х	1	Ħ	12.500
Kitchen faucets	2.2	x	4	X	1	X	1		8.800
Metering faucets	0.25	x	0.25	x	3	x	1	#	0.188
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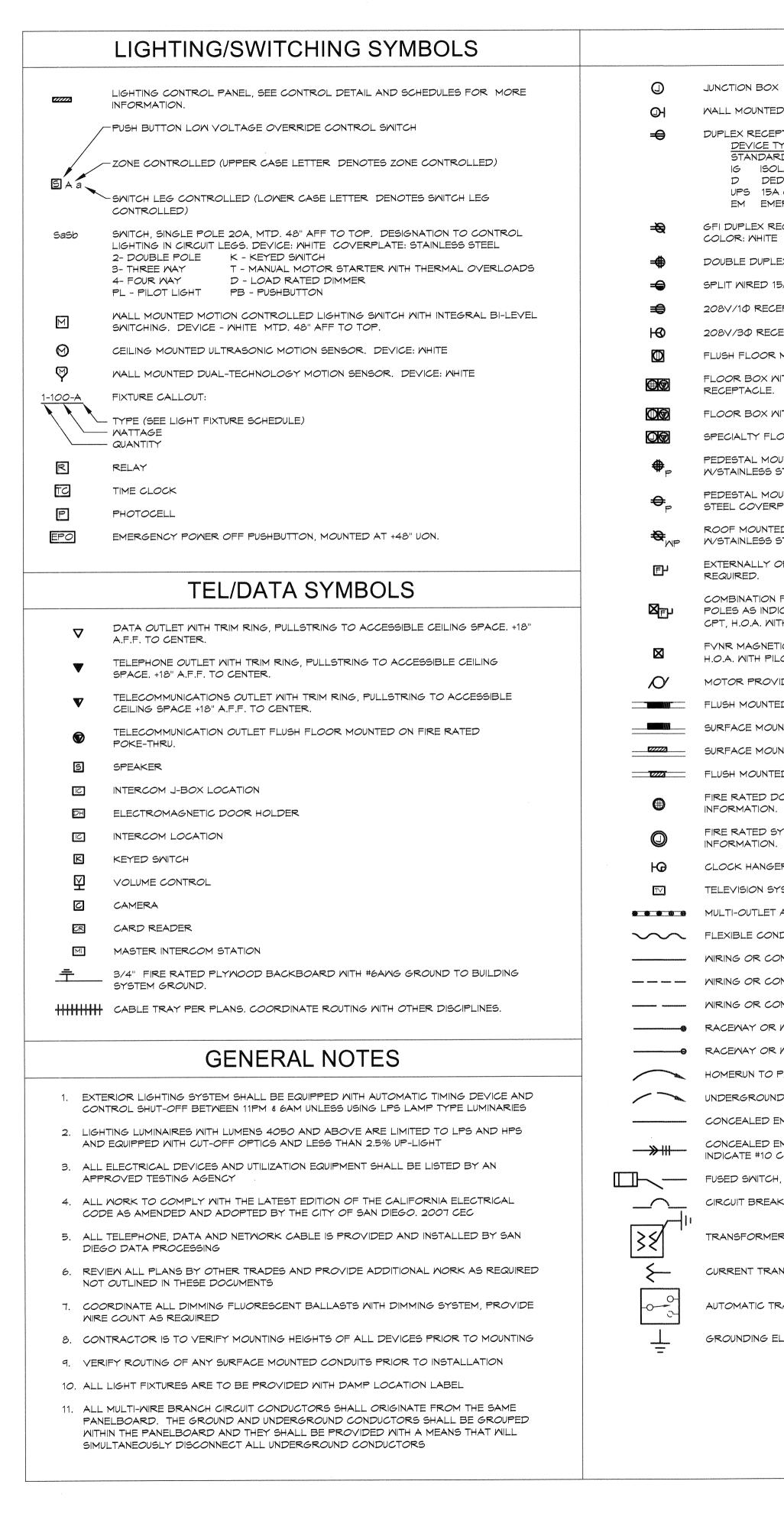
26.288 (BWU from WS-1) X.80 = 21.03 Allowable water use

WATER USE CALCULATIONS

NOT TO SCALE

5





POWER SYMBOLS

JUNCTION BOX

WALL MOUNTED JUNCTION BOX.

EM EMERGENCY

DUPLEX RECEPTACLE MTD 18" AFF TO CENTER COVERPLATE COLOR: WHITE DEVICE TYPE DEVICE COLOR

STANDARD MHITE IG ISOLATED GROUND D DEDICATED 20A RATED UPS 15A OR 20A UPS

ORANGE GRAY GRAY RED

GFI DUPLEX RECEPTACLE MTD 18" AFF TO CENTER OR AS INDICATED, COVERPLATE COLOR: WHITE

DOUBLE DUPLEX RECEPTACLE MTD 18" AFF TO CENTER, SCHEDULE AS NOTED ABOVE. SPLIT WIRED 15A 1/2 HOT, 1/2 SWITCHED OUTLET COLOR: WHITE

208V/10 RECEPTACLE, NEMA CONFIGURATION AS NOTED.

208V/30 RECEPTACLE, NEMA CONFIGURATION AS NOTED.

FLUSH FLOOR MOUNTED DUPLEX RECEPTACLE.

FLOOR BOX WITH DOUBLE DUPLEX RECEPTACLE AND SINGLE GANG TEL/DATA RECEPTACLE.

FLOOR BOX WITH DUPLEX RECEPTACLE AND SINGLE GANG TEL/DATA RECEPTACLE. SPECIALTY FLOOR BOX PER PLANS MULTIPLE GANG BOX, SEE SPECS.

PEDESTAL MOUNTED DOUBLE DUPLEX RECEPTACLE MANUF: HUBBELL SA6688

W/STAINLESS STEEL COVERPLATES

PEDESTAL MOUNTED DUPLEX RECEPTACLE MANUF: HUBBELL#SA6686 W/STAINLESS STEEL COVERPLATES

ROOF MOUNTED WEATHERPROOF GFI WORK OUTLET. PROVIDE CAST BOX W/STAINLESS STEEL WP COVER.

EXTERNALLY OPERATED FUSED DISCONNECT SWITCH. PROVIDE PER NEMA RATING REQUIRED.

COMBINATION FVNR MAGNETIC MOTOR STARTER AND DISCONNECT RATING AND POLES AS INDICATED. PROVIDE WITH OVERLOAD PER HORSEPOWER REQUIREMENTS, CPT, H.O.A. WITH PILOT LIGHTS, PROVIDE WITH (1) EACH N.O. AND N.C. AUX CONTACTS.

FVNR MAGNETIC STARTER WITH OVERLOAD PER HORSEPOWER REQUIREMENTS, CPT, H.O.A. WITH PILOT LIGHTS, PROVIDE WITH (1) EACH N.O. AND N.C. AUX CONTACTS.

MOTOR PROVIDED BY OTHERS.

FLUSH MOUNTED PANELBOARD

SURFACE MOUNTED PANELBOARD

SURFACE MOUNTED LIGHTING CONTROL PANEL, U.O.N.

FLUSH MOUNTED LIGHTING DIMMING PANEL, U.O.N.

FIRE RATED DOUBLE DUPLEX POKE THROUGH, SEE DETAILS FOR MORE

FIRE RATED SYSTEMS FURNITURE FEED POKE THROUGH, SEE DETAILS FOR MORE INFORMATION.

CLOCK HANGER OUTLET ONLY, MOUNTED AT +__ U.O.N.

TELEVISION SYSTEM OUTLET WITH JACK, WALL MOUNTED AT +12" U.O.N.

MULTI-OUTLET ASSEMBLY, LENGTH AS INDICATED ON PLANS.

FLEXIBLE CONDUIT

WIRING OR CONDUIT CONCEALED IN WALL OR CEILING

WIRING OR CONDUIT EXPOSED

------ WIRING OR CONDUIT CONCEALED UNDERGROUND

RACEWAY OR WIREWAY ASSEMBLY DOWN

RACEWAY OR WIREWAY ASSEMBLY UP

HOMERUN TO PANEL, CIRCUITS AS INDICATED.

UNDERGROUND HOMERUN TO PANEL, CIRCUITS AS INDICATED.

CONCEALED EMT CONDUIT WITH THHN WIRE 2#12 AWG 3/4" C. MINIMUM

CONCEALED EMT CONDUIT WITH THHN WIRE 3#12 AWG 3/4" MINIMUM. CHEVRONS INDICATE #10 CONDUCTORS

FUSED SWITCH, SEE SINGLE LINE DIAGRAM FOR MORE INFORMATION.

CIRCUIT BREAKER, SEE SINGLE LINE DIAGRAM FOR MORE INFORMATION.

TRANSFORMER, SEE SINGLE LINE DIAGRAM FOR MORE INFORMATION.

CURRENT TRANSFORMER

AUTOMATIC TRANSFER SWITCH

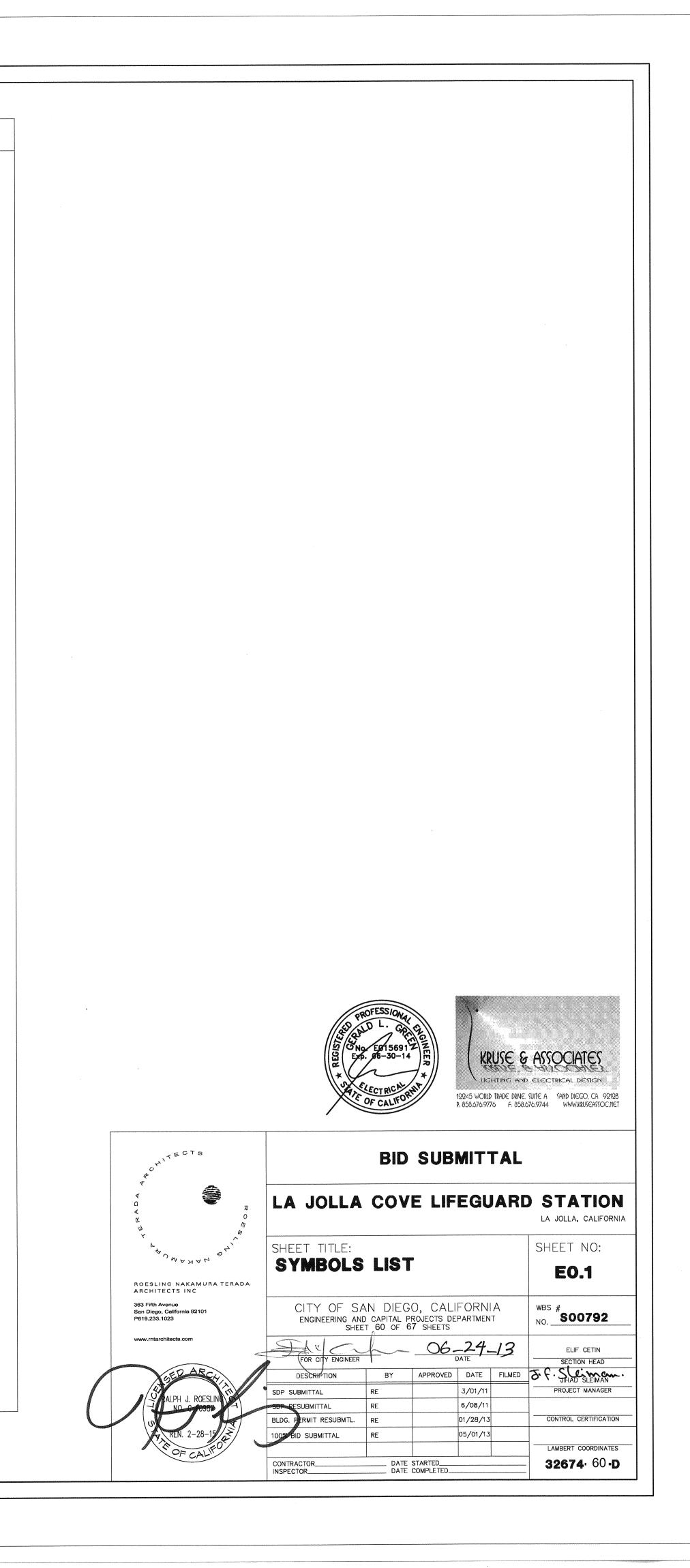
GROUNDING ELECTRODE

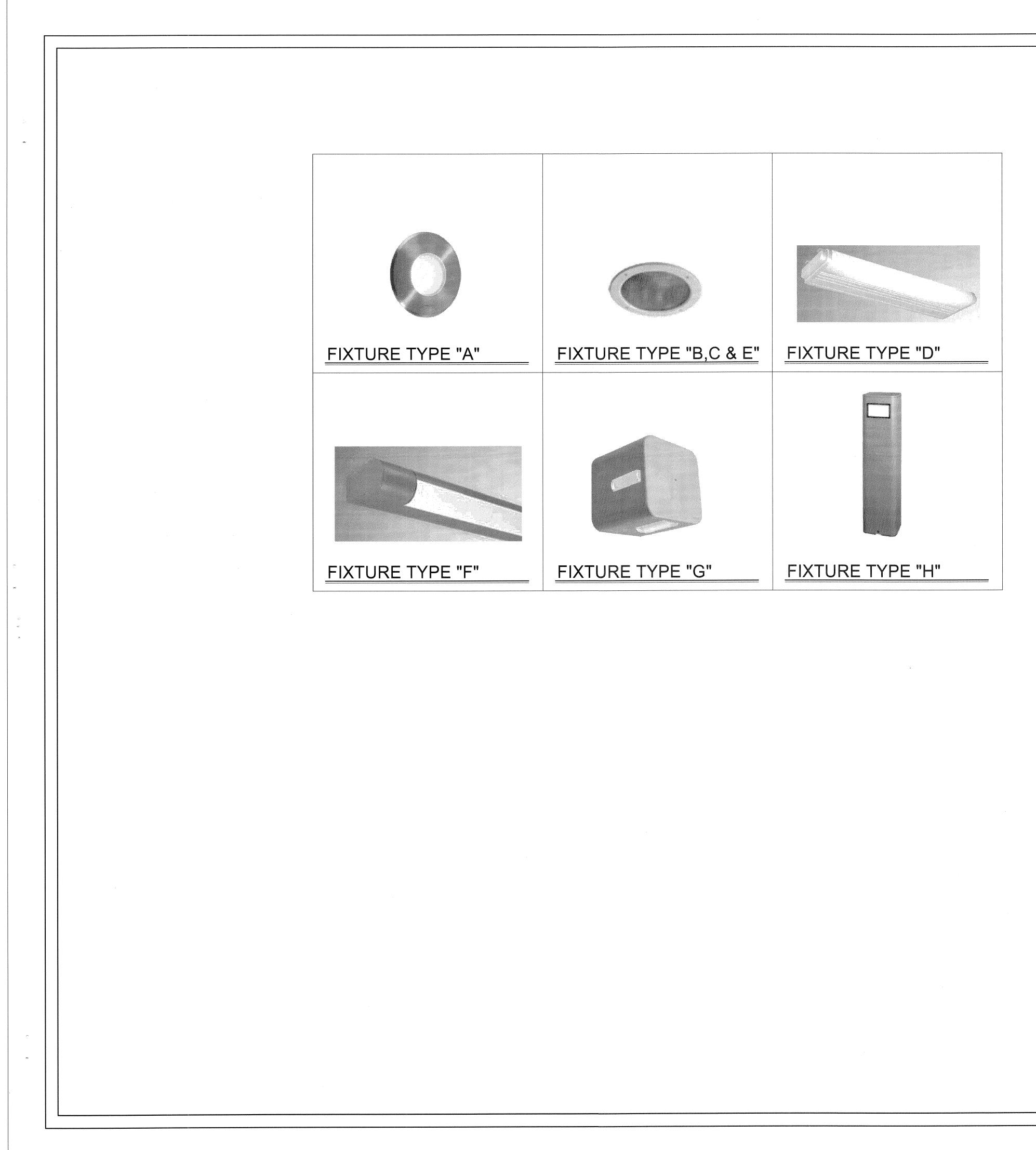
A	AMPERES
AC AIC	ALTERNATING CURRENT AMPERES INTERRUPTING CAPACITY
AFF	ABOVE FINISHED FLOOR
AFG	
AF AL	AMP FRAME/AMP FUSE ALUMINUM
ARCH	ARCHITECT OR ARCHITECTURAL
AS AT	AMP SWITCH AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
ANG BKBD	AMERICAN WIRE GAUGE BACKBOARD
C	CONDUIT WITH WIRE
CATV	CABLE TELEVISION
CCTV CB	CLOSED CIRCUIT TELEVISION CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
C.O.	CONDUIT ONLY WITH NYLON PULL CORD CONTRACTOR
CONTR CU	COPPER
CT	CURRENT TRANSFORMER
CM D	COLD WATER DEDICATED OUTLET
DC	DIRECT CURRENT
DF	DRINKING FOUNTAIN
DIA DISC	DIAMETER DISCONNECT
DIST	DISTRIBUTION
DNGS	DRAWINGS
EA EB	EACH 90-MINUTE BATTERY CONNECTED TO UNIT
EC	ELECTRICAL CONTRACTOR
EG EF	EMERGENCY GENERATOR CONNECTION EXHAUST FAN
ELECT	ELECTRICAL
ELEV	ELEVATION/ELEVATOR
EMT EXIST	ELECTRO-METALLIC TUBING EXISTING
FA	FIRE ALARM
FC	FOOT CANDLE
FIXT FLUOR	FIXTURE FLUORESCENT
FT.	FEET OR FOOT
GC	GENERAL CONTRACTOR GARBAGE DISPOSAL
GD GEN	GARBAGE DISFOSAL GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFR GRD	GROUND FAULT RELAY GROUND
H	HORIZONTAL
HID	HIGH INTENSITY DISCHARGE
HP HPS	HORSEPOWER HIGH PRESSURE SODIUM
HR	HOUR
HT HZ	HEIGHT HERTZ
IG	ISOLATED GROUND BUS OR WIRE
IMC	INTERMEDIATE METAL CONDUIT
INCAND J-BOX	INCANDESCENT JUNCTION BOX
KVA	KILO-VOLTAMPERE
KM KMH	KILO-WATT KILOWATT-HOUR
LF	LINEAL FEET
LTG	
LV MANUF	LOW VOLTAGE MANUFACTURER
MAX	MAXIMUM
MC MCC	MECHANICAL CONTRACTOR MOTOR CONTROL CENTER
MECH	MECHANICAL
MIN	MINIMUM
MH MLO	METAL HALIDE MAIN LUGS ONLY
MTG	MOUNTING
M∨ N	MERCURY VAPOR NEUTRAL
NEC	NATIONAL ELECTRIC CODE
NIC	
NL NTS	NIGHT LIGHT NOT TO SCALE
00	ON CENTER
OFCI OFOI	OWNER FURNISHED CONTRACTOR INSTALLED OWNER FURNISHED OWNER INSTALLED
p	PEDESTAL MOUNT
PB	PULL BOX
PC PCTC	PHOTOCELL CONTROL PHOTOCELL/TIMECLOCK CONTROL
PH	PHASE
	POST INDICATING VALVE PILOT LIGHT
PL PVC	POLYVINYL CHLORIDE
PWR	POWER
PP QR	POWER POLE FIXTURE WITH QUARTZ RESTRIKE
QTY	QUANTITY
	RECEPTACLE REFRIGERATOR
REF RGS	REFRIGERATOR RIGID GALVANIZED STEEL
SD	SMOKE DETECTOR
SPEC SQ FT	SPECIFICATION SQUARE FEET OR SQUARE FOOT
SW	SWITCH
SWBD	SWITCHBOARD TEMPERATURE OR TEMPORARY
TEMP TV	TEMPERATURE OR TEMPORARY TELEVISION
TEL, TELE	TELEPHONE
TC TRANSF	TIME CLOCK TRANSFORMER
TYP	TYPICAL
UGPS	UNDERGROUND PULL SECTION UNDERWRITERS LABORATORIES
UL UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V VA	VOLTS VOLT-AMPERE

ABBREVIATIONS

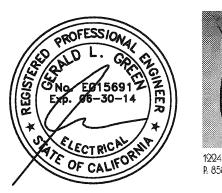
MH

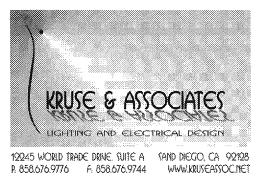
WATER HEATER WP XFMR WEATHER PROOF TRANSFORMER





FIXT	URE							
TYPE	PE SYMBOL MANUFACTURER		CATALOG NUMBER	WATIS	VOLTS	MTG	LAMP TYPE	REMARKS
		titi () (fi fandenanden seranden sjore som						
A	۵	GHIDINI	820.529615D25.A	З	120	MR	FURNISHED WITH FIXTURE	
в	¢	KENALL	HADL6VF-142RS-120-5BR-PAH- CS-T	46	120	CS	1-42W TRT 35K FLUORESCENT	
с	Ø	KENALL	HADL6VF-118RS-120-5BR-PAH- CS-T	21	120	CR	1-18W TRT 35K FLÜORESCENT	
D	0	ALKCO	LINCS100F523/E5/RSW	18	120	UC	1-F14T5 35K FLUORESCENT	
E	0	KENALL	HADL6VF-132RS-120-5BR-PAH- CS-T	35	120	CR	1-32M TRT 35K FLUORESCENT	
F		ALKCO	TAB117-SYM-120-PC-LS	22	120	WS	1-17W T8 35K FLUORESCENT	
G	오	GHIDINI	830.1341-G1F.T05	21	120	MS	1-18M TRT 35K FLUORESCENT	
н	¢	GHIDINI	830.1553-G1F.A05	21	120	WS	1-18M TRT 35K FLUORESCENT	

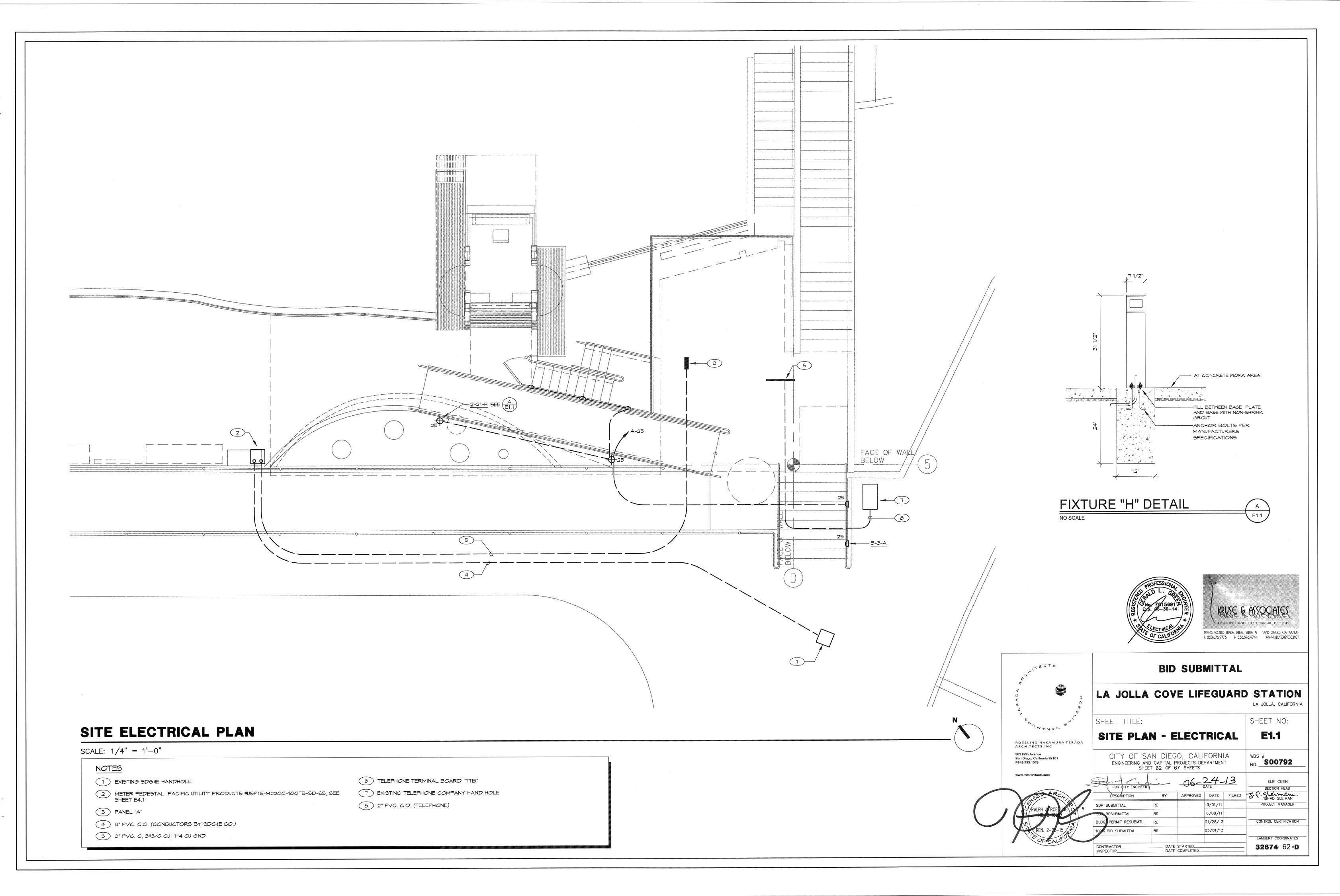


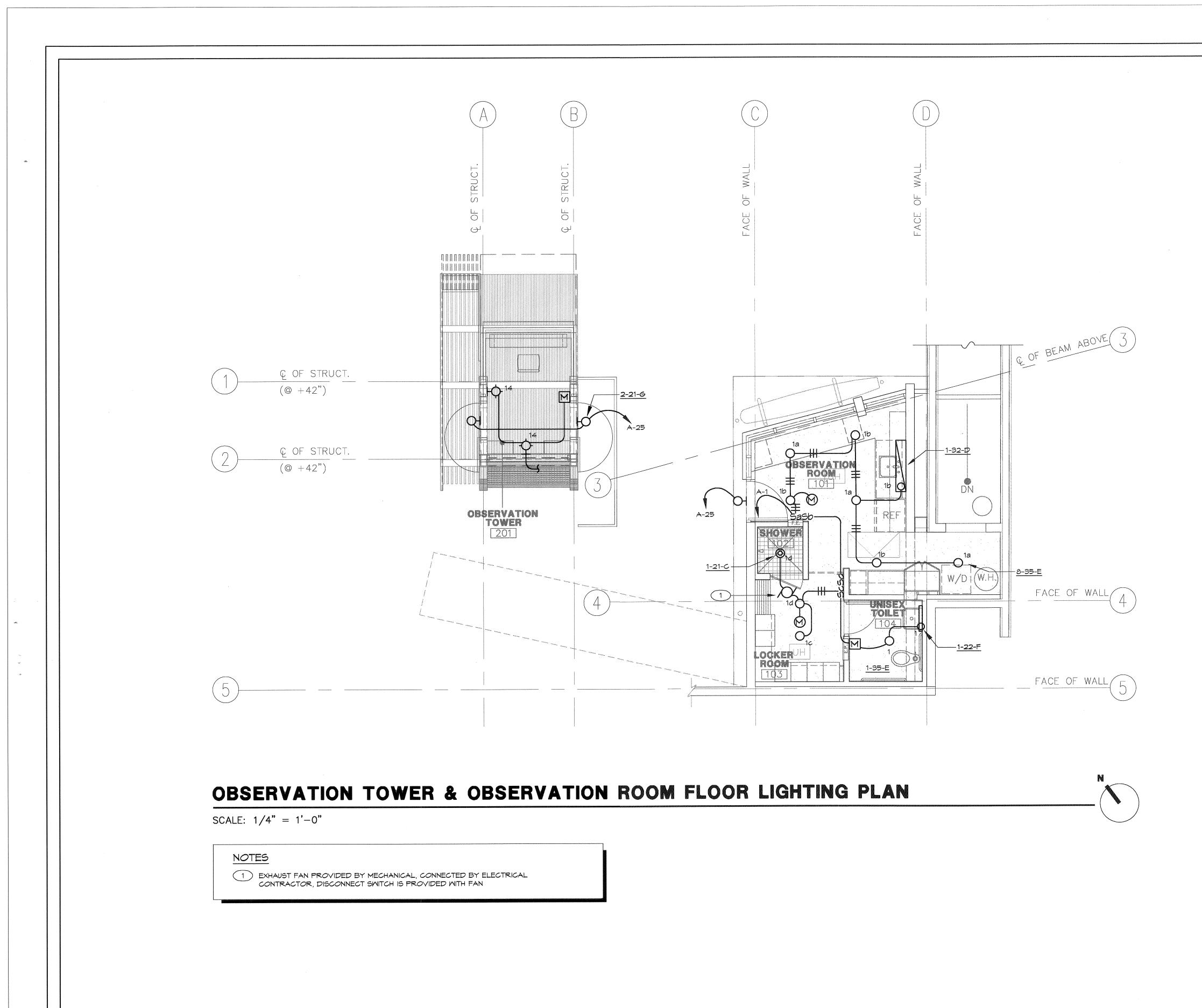


BID SUBMITTAL TECTS LA JOLLA COVE LIFEGUARD STATION LA JOLLA, CALIFORNIA SHEET NO: SHEET TITLE: A N A M OA FIXTURE SCHEDULE E0.2 ROESLING NAKAMURA TERADA ARCHITECTS INC CITY OF SAN DIEGO, CALIFORNIA engineering and capital projects department sheet 61 of 67 sheets 363 Fifth Avenue San Diego, California 92101 P619.233.1023 WBS # NO. **\$00792** www.mtarchitects.com FOR GITY ENGINEER 06/24/13
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 BY
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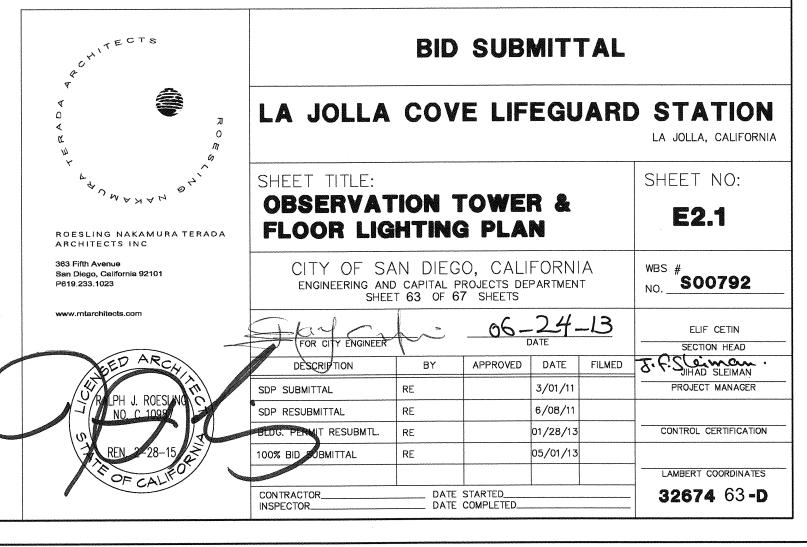
 RE
 3/01/11
 PROJECT MANAGER
 DESCRIPTION SDP SUBMITTAL RE 6/08/11 RE BABMITTAL 01/28/13 CONTROL CERTIFICATION BLDG. PER AIT RESUBMTL. RE 05/01/13 D SUBMITTAL RE 100% LAMBERT COORDINATES 32674 61-D CONTRACTOR____ INSPECTOR_____ ____ DATE_STARTED_____ ___ DATE_COMPLETED____

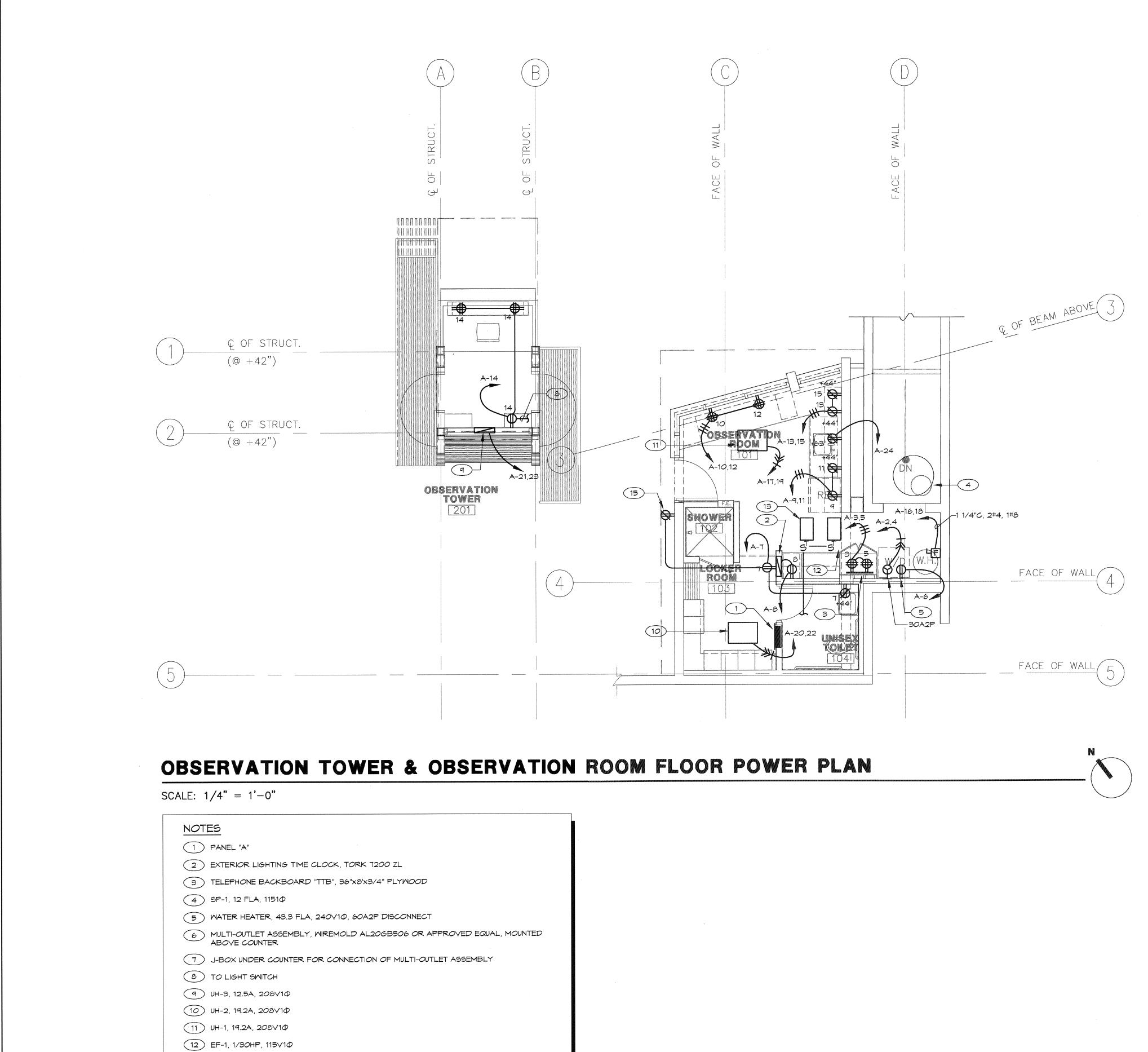










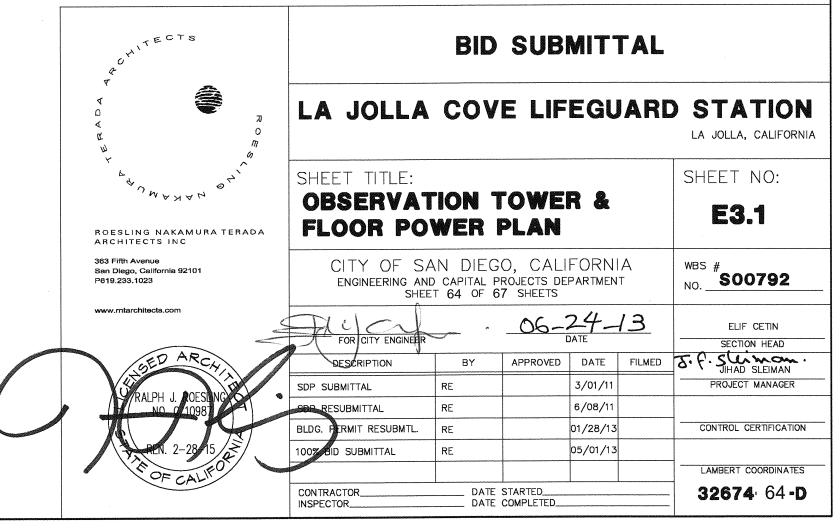


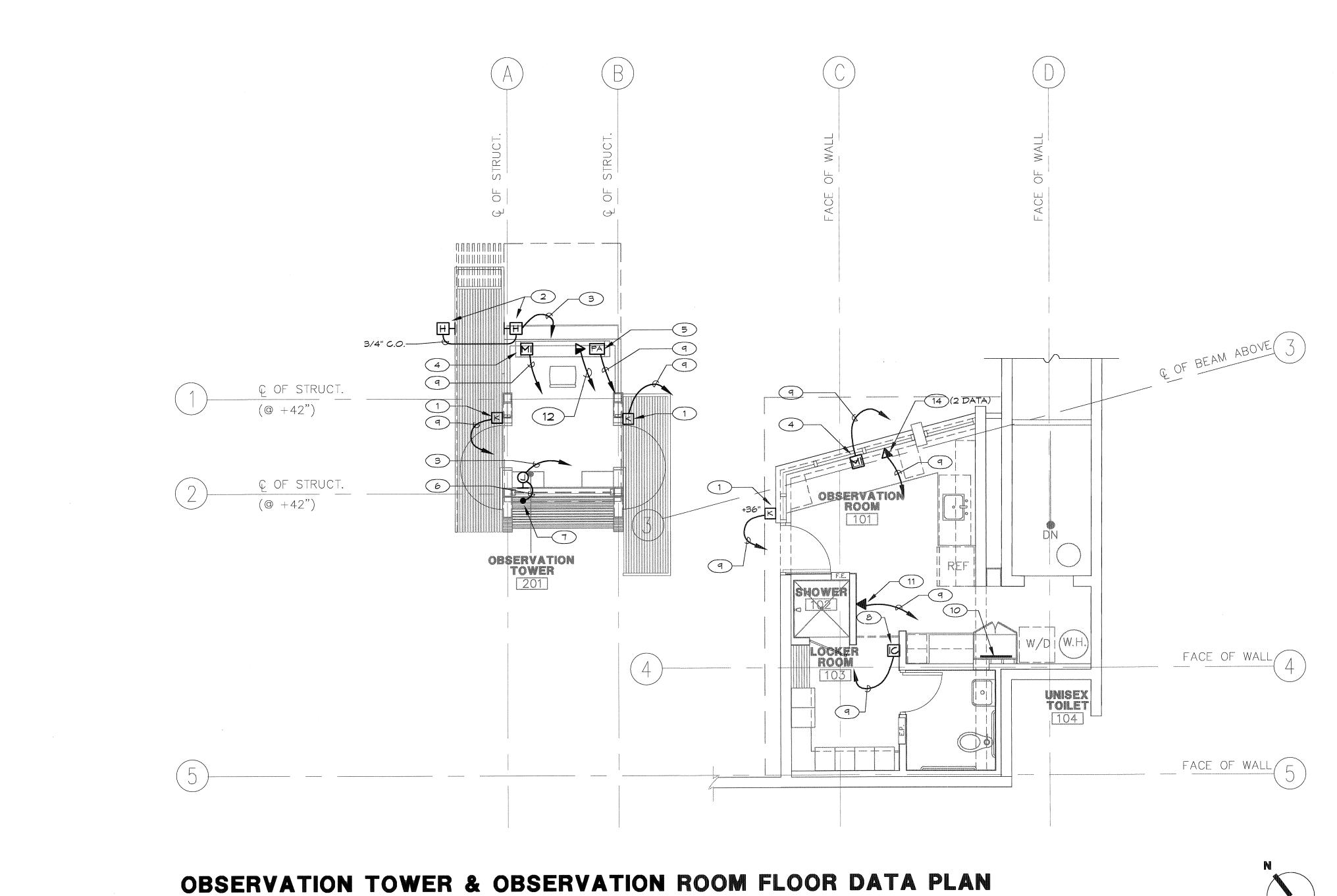
(13) SF-1, 1/30 HP, 115∨1Φ

- (14) CONNECT TO TOILET LIGHT SWITCH
- (15) WEATHERPROOF RECEPTACLE WITH LOCKABLE COVER









SCALE: 1/4" = 1'-0"

NOTES
1 KEYLESS ENTRY STATION (OFCI)
2 PA HORN MOUNTED ON UNDERSIDE OF DECK (OFCI)
3 1" C.O. TO 10 CABLE (OFCI)
4 MASTER INTERCOM STATION (OFCI)
5 PUBLIC ADDRESS MASTER STATION (OFCI)
6 1"C.O. TO ROOF FOR RADIO ANTENNA
7 RADIO ANTENNA ON ROOF (OFCI)
8 INTERCOM SUB-STATION AT +68", PROVIDED BY CITY. PROVIDE 2"X4" J-BOX (OFCI)
9 3/4" C.O. TO 10 (CABLE OFCI)
10 TELEPHONE/COMMUNICATIONS BACKBOARD, 30"x8'-0"x3/4"
11) TELEPHONE OUTLET AT +5'-0" (OFCI)
12 TELEPHONE/DATA OUTLET (OFCI)

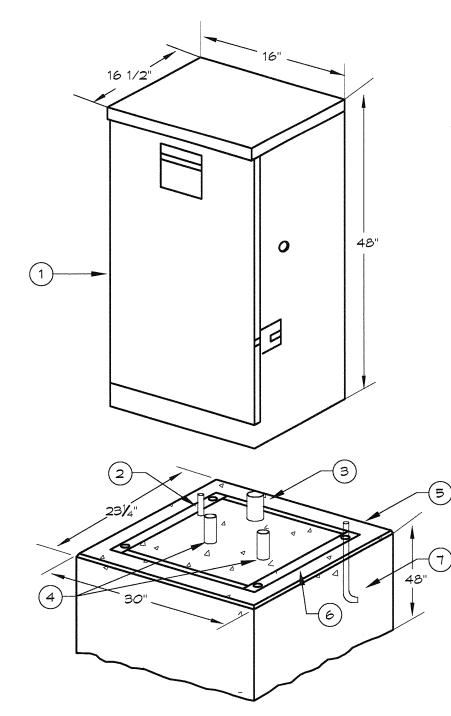






LA JOLLA COVE LIFEGUARD STATION LA JOLLA, CALIFORNIA SHEET NO: SHEET TITLE: **OBSERVATION TOWER &** E3.2 FLOOR DATA PLAN CITY OF SAN DIEGO, CALIFORNIA Engineering and capital projects department sheet 65 of 67 sheets WBS # NO. **\$00792** 06-24-13 DATE ELIF CETIN SECTION HEAD BY APPROVED DATE FILMED J. F. S. G. M. G. DESCRIPTION PROJECT MANAGER 3/01/11 SDP SUBMITTAL 6/08/11 SUBMITTAL RF 01/28/13 CONTROL CERTIFICATION PERMIT RESUBMTL. 05/01/13 BID SUBMITTAL LAMBERT COORDINATES DATE STARTED_____ DATE COMPLETED____ **32674** 65-D CONTRACTOR_____

BID SUBMITTAL



NOTES:

- (1) METER/PANEL PEDESTAL, 12 GAUGE STAINLESS
- (2) 3/4" DIA X 10'-0" COPPER CLAD GROUND ROD.
- (3) INCOMING POWER SUPPLY (120/240V, 1 \oplus 3 WIRE)

- 6 PEDESTAL BASE INSTALLATION BRACKET.
- (7) 1/2" DIA X 6" LONG STAINLESS STEEL ANCHOR BOLTS, TYP OF 4

METER/PANEL PEDESTAL DETAIL NO SCALE

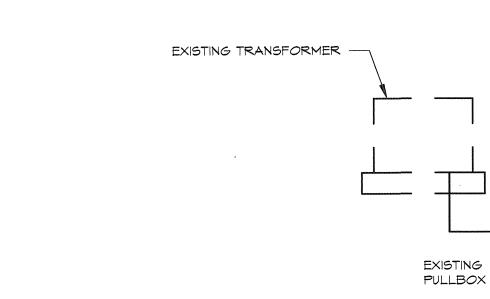
VOLTAGE <u>120/240</u> PHASE 1		ж 000		LOCA					<u>א"</u> ודא/	ON F	200	<u>л</u>	-		NTING JSH	MAINS <u>200A 2P</u> BUSSING <u>200A</u>
WRE 3					EDER					LEL		- 1	-	ţ 4444		FED BOTTOM
								C STOOM STOOM STOOM							***********	*****
	r avv	TAGE													TAGE	
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TELEPHONE		1500		2		20	3	B	4	/ 2		-			2250	
COMPUTER	1500		ļ	2		20	5	A	6	20		1		1500		WASHER
TOILET, LOCKER		1000		2		20	7	В	8	15	1				500	LTG. CONTROL
REFRIGERATOR	1300			1		20	9	A	10	20		2	ļ	1000		OBSERVATION
OBSERVATION		1500		1		20	11	В	12	20		2			1000	OBSERVATION
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un. nor mr		1997			-	2	19	в	20	30/	1				1997	UH-2
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																DATE 10/12/2012

* = ROUTE CIRCUIT THROUGH TIME CLOCK

(4) BRANCH CIRCUIT CONDUITS, SEE PLANS FOR QUANTITY.

5 CONCRETE PAD BASE, SHOWN FOR REFERENCE ONLY, SEE STRUCTURAL DRAWINGS FOR PAD DETAIL

200A BUS BRACED FOR 42000 AIC. -

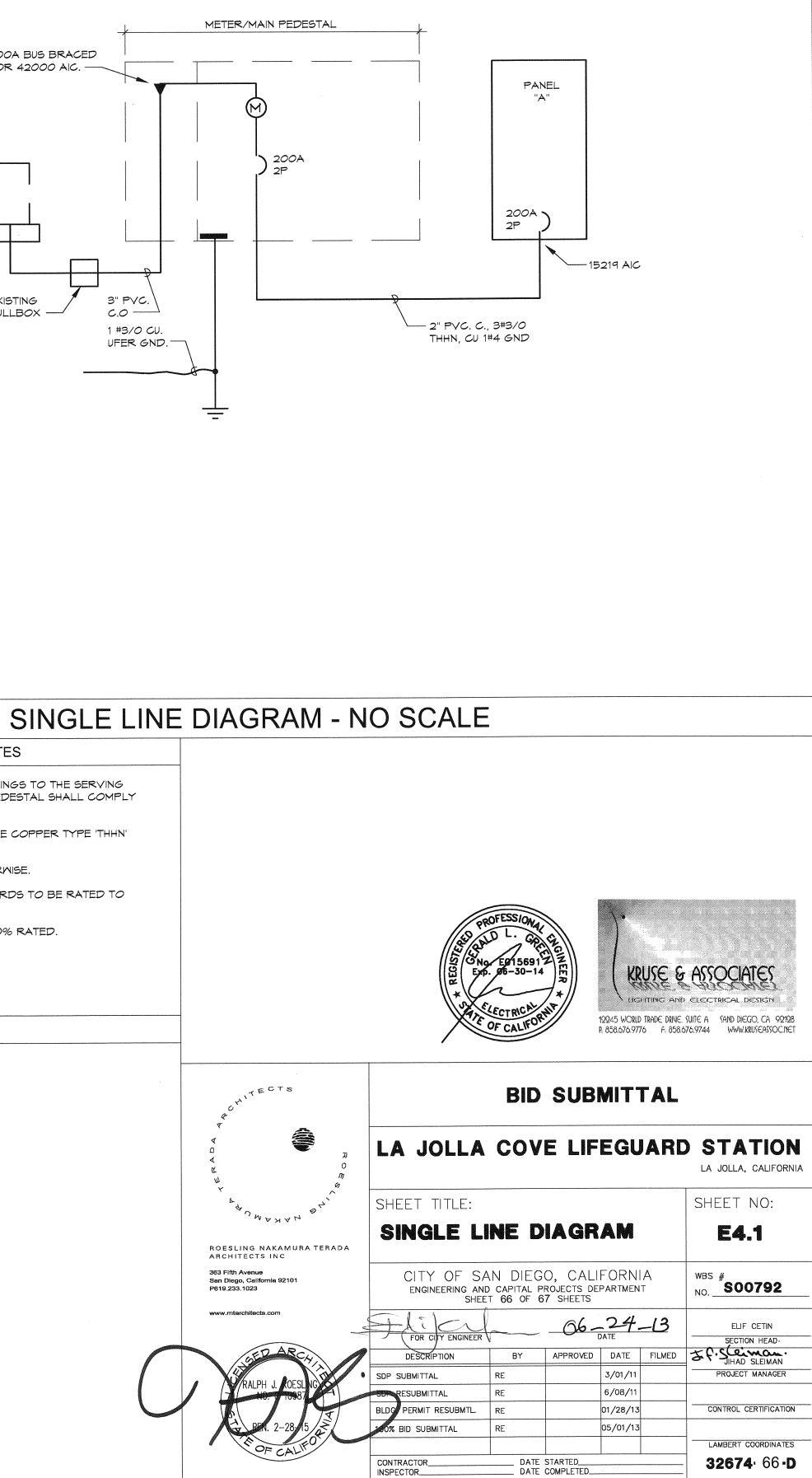


E4.1

1.	CONTRACTOR SHA UTILITY FOR APPRO WITH SDG & REQUIN

TED.

	SINGLE LINE DIAGRAM NOTES
1.	CONTRACTOR SHALL SUBMIT PEDESTAL SHOP DRAWINGS T UTILITY FOR APPROVAL PRIOR TO FABRICATION. PEDESTA WITH SDG & REQUIREMENTS.
2.	ALL CONDUCTORS FEEDING PANELBOARDS SHALL BE COP WITH PVC CONDUIT.
З.	ALL EQUIPMENT SHOWN IS NEW UNLESS NOTED OTHERWISE.
4.	ALL TERMINATION LUGS OF PANELS AND SWITCHBOARDS TO ACCEPT 75 DEGREE CONDUCTORS.
5.	ALL MAIN SERVICE CIRCUIT BREAKERS SHALL BE 100% RAT
	LOAD SUMMARY
-	



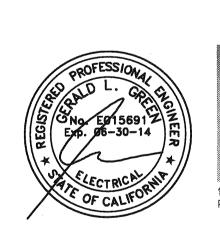
CERTIFICATE OF COMPLIANCE			(Part	1 of 4)		LTG-1C
Project Name							Date
La Jolla Cove Lifeguard Station Project Address Cliv	mate	Zone	Tota	I Cond. F	loor Area L	Inconditi	3/15/2012 oned Floor Area
La Jolla		14		408			0
GENERAL INFORMATION							
Building Type: Nonresidential		High-Rise Resid	lential		Hotel/Mote	el Gues	t Room
School Relocatable Public School	Ø	Conditioned Spa	aces		Unconditio	ned Sp	aces
Phase of Construction: New Construction		Addition			Alteration		
Method of Compliance: Complete Building	Ø	Area Category		C	Tailored		
Documentation Author's Declaration State			olete.	Signatu	· Kath	-N ·	huse
Company Kruse & Associates				Date	3/15/2012		
Address 12245 World Trade Dr.				CEA #			
City/State/Zip				CEPE #			
San Diego CA, California 92128					(858) 676-9	9776	
to document this design on the other applicab specifications submitted to the enforcement applicab Name Gerry Green				building			
Company			Phone	iorh	676-9779		
Kruse & Associates Address			License	#			
12245 World Trade Dr. City/State/Zip			Date		15691		
San Diego, California 92128			Duit	03	/15/12		
Lighting Mandatory Measures Indicate location on building plans of Mandatory Measures Note Blo	ock:	SHEET E5.	1				
LIGHTING COMPLIANCE FORMS & WORKSHEETS							
For detailed instructions on the use of this and all Energy Efficiency by the California Energy Commission.	Stan	dards compliance for	rms; plea	se refer t	to the Nonresi	dential M	anual publishe
LTG-1C Pages 1 through 4 Certificate of Compliance	ce. Al	Pages required on	plans for	all subm	ittals.		
LTG-2C Lighting Controls Credi							
LTG-3C Indoor Lighting Power A		INCE			****		adama di bayang ang sa sang mang ng n
LTG-4C Pages 1 through 4 Tailored Method Works LTG-5C Pages 1 and 2 Line Voltage Track Ligh		Vorksheet					
	any v						
EnergyPro 5.1 by EnergySoft User Number: 5335 RunC	ode; .	2012-03-15715;26:2	4	ID:			Page 1 of
	No. of Concession, name						
CERTIFICATE OF COMPLIANCE				(Part	4 of 4)		LTG-10

CERTIFICATE OF	COMPLIANCE		(Pa	irt 4 of 4)	LTG-1C
roject Name a <i>Jolla Cove Lifeguard</i>	Station				Date 3/15/2012
ONDITIONED AND UN			UST NOT BE COMBIN	ED FOR COM	and the second
	ower for Conditioned Sp		Indoor Lighting Po		
		Watts			Watts
nstalled Lighting rom Conditioned LTG-1C, Pag	e 2)	396	Installed Lighting (from Unconditioned LTG-10	C, Page 2)	a
ighting Control Credit onditioned Spaces (from LTG-		0	Lighting Control Credit Unconditioned Spaces (from		- 0
djusted installed ighting Power	×	396	Adjusted Installed Lighting Power		≂ 0
omplies if Installed ≤ Allo	wed	\$	Complies if Installed $\leq I$	Allowed	\$
Ilowed Lighting Power onditioned Spaces (from L	TG-3C or PERF-1)	401	Allowed Lighting Power Unconditioned Spaces (f	rom LTG-3C)	C
stems Acceptance. Befo tem with controls is instal a LTG-2A and LTG-3A for	re Occupancy Permit is gr led in the building or spac rms are not considered co	e shall be certif	ied as meeting the Accepta and are not to be accepted	ance Requiremen by the enforceme	ts. ent agency unless
Enforcement Agenc systems Acceptance. Befor ystem with controls is instal he LTG-2A and LTG-3A for be boxes are checked and/or gency that certifies plans, s f §10-103(b) of Title 24 Par acceive final occupancy. A co wher of the building for their	re Occupancy Permit is guided in the building or space rms are not considered correct or silled and signed. In adorect or filled and signed, in adorect fications, installation of t 6. The field inspector muticopy of the LTG-2A and Line records.	e shall be certific omplete forms a dition, a Certific certificates, and ist receive the p TG-3A for each	ied as meeting the Accepta and are not to be accepted ate of Acceptance forms sl operating and maintenanc roperly filled out and signe different lighting luminaire	ance Requiremen by the enforceme hall be submitted ce information me ed forms before th	ts. ent agency unless to the enforcement et the requirements e building can be provided to the LTG-2A and
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RTIFICATE OF COMPLIANCE	(Par	t 2 of 4)	LTG-1C	CERTIFICATE O	F COMPLIANC	E	(P	art 3 of 4)	LTG
ort Name Colla Cove Lifeguard Station		anna ann an Anna ann an Anna ann an Anna ann ann	Date 3/15/2012	Project Name La Jolla Cove Lifeguar	rd Station				Date 3/15/2
DOOR LIGHTING SCHEDULE and FIELD INSP	ECTION ENERGY CH	ECKLIST		INDOOR LIGHTING SC	HEDULE and FIELD			******	
allation Certificate, LTG-1- INST (Retain a copy and verify form is o	completed and signed.)	Field	nspector	Fill in controls for all spaces automatic daylighting contr	ols for davlit areas > 2.	500 ft². d) shut-of	f controls, e) display lightin	a controls, f) tailored	l lighting cont
ificate of Acceptance, LTG-2A and LTG-3A (Retain a copy and parate Lighting Schedule Must Be Filled Out for Conditioned and	verify form is completed and signe	d.) Field	Inspector	general lighting controlled s controls for retail stores > 5	separately from display, 50,000 ft ² , in accordance	ornamental and e with Section 13	display case lighting and g 1.) demand responsiv	e automatic
Lighting Schedule is only for:				MANDATORY LIGHTIN	IG CONTROLS - FIE	LD INSPECTIO	ON ENERGY CHECKLIS	ST	Fiel Inspec
The actual indoor lighting power listed below includes all int	UNCONDITIONED SP stalled permanent and portable		s in accordance	Type/ Desc	cription	Number of Units	Location in Building	Special Features	s Pass
With §146(a). Only for offices: Up to the first 0.2 watts per square foot of r	portable lighting shall not be re	quired to be inclu	ided in the	SaSb			Entire Space		
calculation of actual indoor lighting power density in accord 0.2 watts per square foot is totaled below.	ance with the Exception to §14	i6(a). All portable	lighting in excess of	Motion Sensors			Entire Space		
Luminaire (Type, Lamps, Ballasts)	Ins	talled Watts							
В		E F	G H Field						
		termined	Inspector						
		d ar e)	X F)						
	Default	According To §130 (d Number of Luminaires	Pass Fait						
Complete Luminaire Description ¹ (i.e., 3 lamp fluorescent troffer, F325, one dimmable electronic ballasts)	te di la constanti br>constanti di la constanti di constanti di constanti di la constanti di la constanti di la c	Acco To { Num Lum	Pass Pass						
(1) 26w Compact Fluorescent Triple 4 Pin Elec	28.0								
(1) 18w Compact Fluorescent Quad 4 Pin Elec (1) 4 ft Fluorescent T8 Rapid Start Elec	21.0 🗹 32.0 🗹		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						
(1) 32w Compact Fluorescent Triple 4 Pin Elec	35.0 ਈ								
				·					
				SPECIAL FEATURES I	NSPECTION CHECK	LIST (See Par	ge 2 of 4 of LTG-1C)		
				The local enforcement age	ncy should pay special	attention to the it	ems specified in this check	klist. These items rec	uire specia
				justification and documenta and may reject a building o	auon, and special verific or design that otherwise	complies based	on the adequacy of the spe	ecial justification and	document
				submitted.					
		Vatts Page Total:							
	Installed Wa	tts Building Total Sum of all pages)		Field Inspector's Notes o	r Discrepancies:				
Building total number of pages:		3-1C Page 4 of 4	200						
age shall be determined according to Section 130 (d and e). Wattage then describe on Page 2 of the Inspection Checklist Form and take a	shall be rating of light fixture, not r	ating of bulb.							
	012-03-15T15:26:24 ID:		Page 2 of 6						
		NC 1997 NO 1997	ดดสารต่องสรรรมของของสรรรมสรรรมสรรรมสรรรมสรรมสรรมสรรมสรรมสรร	EnergyPro 5.1 by EnergySoft	User Number: 5335	RunCode: 20	12-03-15T15:26:24 ID:		l Pé
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NOTES

CERTIFICATE OF ACCEPTANCE (LTG-2A) AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FILED INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED.





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