

City of San Diego

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ADDRESS: 930 Boardwalk, Suite H, San Marcos, California 92078
TELEPHONE NO.: 951-216-4070 **FAX NO.:**
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F. Marquez / F. Kabro / L. Ambriz

BIDDING DOCUMENTS



FOR

MISSION BAY ATHLETIC AREA COMFORT STATION MODERNIZATION

BID NO.: K-23-2176-DBB-3
SAP NO. (WBS/IO/CC): B-17179
CLIENT DEPARTMENT: 1714
COUNCIL DISTRICT: 2
PROJECT TYPE: BT

THIS CONTRACT WILL BE SUBJECT TO THE FOLLOWING:

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM
- PREVAILING WAGE RATES: STATE FEDERAL
- APPRENTICESHIP

BID DUE DATE:

**2:00 PM
JUNE 5, 2023**

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

<http://www.sandiego.gov/cip/bidopps/index.shtml>

ENGINEER OF WORK

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

Sandra S. Gramley

April, 28, 2023

1) Registered Architect

Date

Seal:



04/28/2023

2) For City Engineer

Date

Seal:



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REQUIRED DOCUMENTS SCHEDULE DURING BIDDING AND AWARDING

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.

The specified Equal Opportunity Contracting Program (EOCP) forms are available for download from the City's web site at:

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

ITEM	DOCUMENT TO BE SUBMITTED	WHEN DUE	FROM
1.	Bid Bond (PDF via PlanetBids)	At Time of Bid	ALL BIDDERS
2.	Contractors Certification of Pending Actions	At Time of Bid	ALL BIDDERS
3.	Mandatory Disclosure of Business Interests	At Time of Bid	ALL BIDDERS
4.	Debarment and Suspension Certification for Prime Contractors	At Time of Bid	ALL BIDDERS
5.	Debarment and Suspension Certification for Subcontractors, Suppliers & Mfgs	At Time of Bid	ALL BIDDERS
6.	Bid Bond (Original)	By 5PM 1 working day after bid opening	ALL BIDDERS
7.	SLBE Good Faith Effort Documentation	By 5 PM 3 working days after bid opening	ALL BIDDERS
8.	Form AA60 – List of Work Made Available	By 5 PM 3 working days after bid opening with Good Faith Effort (GFE) documentation	ALL BIDDERS
9.	If the Contractor is a Joint Venture: <ul style="list-style-type: none"> • Joint Venture Agreement • Joint Venture License 	Within 10 working days of receipt by bidder of contract forms	AWARDED BIDDER
10.	Payment & Performance Bond; Certificates of Insurance & Endorsements; and Signed Contract Agreement Page	Within 10 working days of receipt by bidder of contract forms and NOI	AWARDED BIDDER
11.	Listing of "Other Than First Tier" Subcontractors	Within 10 working days of receipt by bidder of contract forms	AWARDED BIDDER

NOTICE INVITING BIDS

1. **SUMMARY OF WORK:** This is the City of San Diego's (City) solicitation process to acquire Construction services for **Mission Bay Athletic Area Comfort Station Modernization** . For additional information refer to Attachment A.
2. **FULL AND OPEN COMPETITION:** This solicitation is subject to full and open competition and may be bid by Contractors on the City's approved Prequalified Contractors List. For information regarding the Contractors Prequalified list visit the City's web site: <http://www.sandiego.gov>.
3. **ESTIMATED CONSTRUCTION COST:** The City's estimated construction cost for this project is **\$2,190,000**.
4. **BID DUE DATE AND TIME ARE: JUNE 5, 2023 at 2:00 PM.**
5. **PREVAILING WAGE RATES APPLY TO THIS CONTRACT:** Refer to Attachment D.
6. **LICENSE REQUIREMENT:** To be eligible for award of this contract, Prime contractor must possess the following licensing classification: **A**
7. **SUBCONTRACTING PARTICIPATION PERCENTAGES:** Subcontracting participation percentages apply to this contract.
 - 7.1. 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	10.0%
2. ELBE participation	11.2%
3. Total mandatory participation	21.2%
 - 7.2. The Bid may be declared non-responsive if the Bidder fails to meet the following requirements:
 - 7.2.1. Include SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; OR
 - 7.2.2. Submit Good Faith Effort (GFE) documentation, saved in searchable Portable Document Format (PDF), demonstrating the Bidder made a good faith effort to conduct outreach to and include SLBE-ELBE Subcontractors as required in this solicitation by 5 PM 3 Working Days after the Bid opening if the overall mandatory participation percentage is not met.

All submittals in searchable PDF shall be submitted electronically within the prescribed time identified in the contract documents via PlanetBids by invitation to the point of contact named in the bid provided by the Contract Specialist to all bidders.

8. AWARD PROCESS:

- 8.1. The Award of this contract is contingent upon the Contractor's compliance with all conditions of Award as stated within these documents and within the Notice of Intent to Award.
- 8.2. Upon acceptance of bids and determination of the apparent low bidder, the City will prepare the contract documents for execution within approximately 21 days of the date of the bid opening. The City will then award the contract upon receipt of properly signed Contract, bonds, and insurance documents.
- 8.3. This contract will be deemed executed and effective only upon the signing of the Contract by the Mayor or his designee and approval as to form by the City Attorney's Office.
- 8.4. The low Bid will be determined by the Base Bid.
- 8.5. Once the low bid has been determined, the City may, at its sole discretion, award the contract for the Base Bid alone.

9. SUBMISSION OF QUESTIONS:

- 9.1. The Director (or Designee) of the Purchasing & Contracting 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. Any questions related to this solicitation shall be submitted to:

RRiego@sandiego.gov
- 9.2. Questions received less than 14 days prior to the date for opening of Bids may not be considered.
- 9.3. Questions or clarifications deemed by the City to be material shall be answered via issuance of an addendum and posted to the City's online bidding service.
- 9.4. Only questions answered by formal written addenda shall be binding. Oral and other interpretations or clarifications shall be without legal effect. It is the Bidder's responsibility to be informed of any addenda that have been issued and to include all such information in its Bid.

INSTRUCTIONS TO BIDDERS

1. PREQUALIFICATION OF CONTRACTORS:

- 1.1. Contractors submitting a Bid must be pre-qualified for the total amount proposed, including 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 may be deemed **non-responsive** and ineligible for award.
- 1.2. The completed application must be submitted online no later than 2 weeks prior to the bid opening.
- 1.3. **Joint Venture Bidders Cumulative Maximum Bidding Capacity:** For projects with an engineer's estimate of \$30,000,000 or greater, Joint Ventures submitting bids may be deemed responsive and eligible for award if the cumulative maximum bidding capacity of the individual Joint Venture entities is equal to or greater than the total amount proposed.
 - 1.3.1. Each of the entities of the Joint Venture must have been previously prequalified at a minimum of \$15,000,000.
 - 1.3.2. Bids submitted with a total amount proposed of less than \$30,000,000 are not eligible for Cumulative Maximum Bidding Capacity prequalification. To be eligible for award in this scenario, the Joint Venture itself or at least one of the Joint Venture entities must have been prequalified for the total amount proposed.
 - 1.3.3. Bids submitted by Joint Ventures with a total amount proposed of \$30,000,000 or greater on a project with an engineer's estimate of less than \$30,000,000 are not eligible for Cumulative Maximum Bidding Capacity prequalification.
 - 1.3.4. The Joint Venture designated as the Apparent Low Bidder shall provide evidence of its corporate existence and furnish good and approved bonds in the name of the Joint Venture within 14 Calendar Days of receipt by the Bidder of a form of contract for execution.
- 1.4. Complete information and links to the on-line prequalification application are available at:

<http://www.sandiego.gov/cip/bidopps/prequalification>
- 1.5. Due to the City's responsibility to protect the confidentiality of the contractors' information, City staff will not be able to provide information regarding contractors' prequalification status over the telephone. Contractors may access real-time information about their prequalification status via their vendor profile on [PlanetBids.™](#)

2. **ELECTRONIC FORMAT RECEIPT AND OPENING OF BIDS:** Bids will be received in electronic format (eBids) EXCLUSIVELY at the City of San Diego's electronic bidding (eBidding) site, at: <http://www.sandiego.gov/cip/bidopps/index.shtml> and are due by the date, and time shown on the cover of this solicitation.
- 2.1. **BIDDERS MUST BE PRE-REGISTERED** with the City's bidding system and possess a system-assigned Digital ID in order to submit an electronic bid.
- 2.2. The City's bidding system will automatically track information submitted to the site including IP addresses, browsers being used and the URLs from which information was submitted. In addition, the City's bidding system will keep a history of every login instance including the time of login, and other information about the user's computer configuration such as the operating system, browser type, version, and more. Because of these security features, Contractors who disable their browsers' cookies will not be able to log in and use the City's bidding system.
- 2.3. The City's electronic bidding system is responsible for bid tabulations. Upon the bidder's or proposer's entry of their bid, the system will ensure that all required fields are entered. **The system will not accept a bid for which any required information is missing.** This includes all necessary pricing, subcontractor listing(s) and any other essential documentation and supporting materials and forms requested or contained in these solicitation documents.
- 2.4. **BIDS REMAIN SEALED UNTIL BID DEADLINE.** eBids are transmitted into the City's bidding system via hypertext transfer protocol secure (https) mechanism using SSL 128-256-bit security certificates issued from Verisign/Thawte which encrypts data being transferred from client to server. Bids submitted prior to the "Bid Due Date and Time" are not available for review by anyone other than the submitter who has until the "Bid Due Date and Time" to change, rescind, or retrieve its proposal should it desire to do so.
- 2.5. **BIDS MUST BE SUBMITTED BY BID DUE DATE AND TIME.** Once the bid deadline is reached, no further submissions are accepted into the system. Once the Bid Due Date and Time has lapsed, bidders, proposers, the general public, and City staff are able to immediately see the results online. City staff may then begin reviewing the submissions for responsiveness, EOCB compliance and other issues. The City may require any Bidder to furnish statement of experience, financial responsibility, technical ability, equipment, and references.
- 2.6. **RECAPITULATION OF THE WORK.** Bids shall not contain any recapitulation of the Work. Conditional Bids may be rejected as being non-responsive. Alternative proposals will not be considered unless called for.

2.7. BIDS MAY BE WITHDRAWN by the Bidder only up to the bid due date and time.

2.7.1. Important Note: Submission of the electronic bid into the system may not be instantaneous. Due to the speed and capabilities of the user's internet service provider (ISP), bandwidth, computer hardware and other variables, it may take time for the bidder's submission to upload and be received by the City's eBidding system. It is the bidder's sole responsibility to ensure their bids are received on time by the City's eBidding system. The City of San Diego is not responsible for bids that do not arrive by the required date and time.

2.8. ACCESSIBILITY AND AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE: To request a copy of this solicitation in an alternative format, contact the Purchasing & Contracting Department, Public Works Division Contract Specialist listed on the cover of this solicitation at least five (5) working days prior to the Bid/Proposal due date to ensure availability.

3. ELECTRONIC BID SUBMISSIONS CARRY FULL FORCE AND EFFECT:

3.1. The bidder, by submitting its electronic bid, acknowledges that doing so carries the same force and full legal effect as a paper submission with a longhand (wet) signature.

3.2. By submitting an electronic bid, the bidder certifies that the bidder has thoroughly examined and understands the entire Contract Documents (which consist of the plans and specifications, drawings, forms, affidavits and the solicitation documents), and that by submitting the eBid as its bid proposal, the bidder acknowledges, agrees to and is bound by the entire Contract Documents, including any addenda issued thereto, and incorporated by reference in the Contract Documents.

3.3. The Bidder, by submitting its electronic bid, agrees to and certifies under penalty of perjury under the laws of the State of California, that the certification, forms and affidavits submitted as part of this bid are true and correct.

3.4. The Bidder agrees to the construction of the project as described in Attachment "A-Scope of Work" for the City of San Diego, in accordance with the requirements set forth herein for the electronically submitted prices. The Bidder guarantees the Contract Price for a period of 120 days from the date of Bid opening. 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.

4. BIDS ARE PUBLIC RECORDS: Upon receipt by the City, Bids shall become public records subject to public disclosure. It is the responsibility of the respondent to clearly identify any confidential, proprietary, trade secret or otherwise legally privileged information contained within the Bid. General references to sections of the California Public Records Act (PRA) will not suffice. If the Contractor does not provide applicable case law that clearly establishes that the requested information is exempt from the disclosure requirements of the PRA, the City

shall be free to release the information when required in accordance with the PRA, pursuant to any other applicable law, or by order of any court or government agency, and the Contractor will hold the City harmless for release of this information.

5. CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM:

5.1. **Prior** to the Award of the Contract or Task Order, you and your Subcontractors and Suppliers must register with the City’s web-based vendor registration and bid management system. For additional information go to:

<http://www.sandiego.gov/purchasing/bids-contracts/vendorreg>

5.2. 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.

6. JOINT VENTURE CONTRACTORS: Provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 14 Calendar Days after receiving the Contract forms.

7. INSURANCE REQUIREMENTS:

7.1. 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.

7.2. Refer to sections 5-4, “INSURANCE” of the Supplementary Special Provisions (SSP) for the insurance requirements which must be met.

8. 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”) http://www.greenbookspecs.org/	2021	ECPI010122-01
City of San Diego Standard Specifications for Public Works Construction (“The WHITEBOOK”)* https://www.sandiego.gov/ecp/edocref/greenbook	2021	ECPI010122-02
City of San Diego Standard Drawings* https://www.sandiego.gov/ecp/edocref/standarddraw	2021	ECPI010122-03
Citywide Computer Aided Design and Drafting (CADD) Standards https://www.sandiego.gov/ecp/edocref/drawings	2018	PWPI010119-04
California Department of Transportation (CALTRANS) Standard Specifications https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications	2018	PWPI030119-05

Title	Edition	Document Number
CALTRANS Standard Plans https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications	2018	PWPI030119-06
California Manual on Uniform Traffic Control Devices Revision 6 (CA MUTCD Rev 6) https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files	2014	PWPI060121-10
<p>NOTE: *Available online under Engineering Documents and References at: https://www.sandiego.gov/ecp/edocref/</p> <p>*Electronic updates to the Standard Drawings may also be found in the link above</p>		

9. **CITY'S RESPONSES AND ADDENDA:** The City, at its discretion, may respond to any or all questions submitted in writing via the City's eBidding web site in the **form of an addendum**. No other responses to questions, oral or written, shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addenda are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda at the time of bid submission.
10. **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.
11. **CONTRACT PRICING:** This solicitation is for a Lump Sum contract with Unit Price provisions as set forth herein. The Bidder agrees to perform construction services for the City of San Diego in accordance with these contract documents for the prices listed below. The Bidder further agrees to guarantee the Contract Price for a period of 120 days from the date of Bid opening. The duration of the Contract Price guarantee may be extended, by mutual consent of the parties, by the number of days required for the City to obtain all items necessary to fulfill all contractual conditions.
12. **SUBCONTRACTOR INFORMATION:**
- 12.1. **LISTING OF SUBCONTRACTORS.** In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act" of the California Public Contract Code, the Bidder shall provide the **NAME** and **ADDRESS** of each Subcontractor who will perform work, labor, render services or who 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 state within the description, whether the subcontractor is a **CONSTRUCTOR, CONSULTANT** or **SUPPLIER**. The Bidder shall state the **DIR REGISTRATION NUMBER** for all subcontractors and shall further state within the description, the **PORTION** of the work which will be performed 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 may result in the Bid being rejected as **non-responsive** and ineligible for award. The

Bidder's attention is directed to the Special Provisions - Section 3-2, "Self-Performance", 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 for which Bidders are seeking recognition towards achieving any mandatory, voluntary (or both) subcontracting participation goals.

Additionally, pursuant to California Senate Bill 96 and in accordance with the requirements of Labor Code sections 1771.1 and 1725.5, by submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the California Department of Industrial Relations (DIR). **The Bidder shall provide the name, address, license number, DIR registration number of any Subcontractor - regardless of tier** - who will perform work, labor, render services or specially fabricate and install a portion [type] of the work or improvement pursuant to the contract.

12.2. LISTING OF SUPPLIERS. Any Bidder seeking the recognition of Suppliers of equipment, materials, or supplies obtained from third party Suppliers towards achieving any mandatory or voluntary (or both) subcontracting participation goals shall provide, at a minimum, the **NAME, LOCATION (CITY), DIR REGISTRATION NUMBER** and the **DOLLAR VALUE** of each supplier. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for materials and supplies unless vendor manufactures or substantially alters materials and supplies, in which case, 100% will be credited. The Bidder is to indicate within the description whether the listed firm is a supplier or manufacturer. If no indication is provided, the listed firm will be credited at 60% of the listed dollar value for the purposes of calculating the Subcontractor Participation Percentage.

12.3. LISTING OF SUBCONTRACTORS OR SUPPLIERS FOR ALTERNATES. For subcontractors or suppliers to be used on alternate items, bidder shall use the provided "**Subcontractors For Alternates**" form and shall indicate for each alternate subcontract whether it is an additive or deductive alternate; the subcontractor's name, location, phone number, email address, CA license number, and DIR registration number; whether the subcontractor is a designer, constructor or supplier; the type of work the subcontractor will be performing; and the dollar value of the subcontract for that alternate item. Failure to comply with this requirement may result in the bid being rejected as nonresponsive and ineligible for award.

13. SUBMITTAL OF "OR EQUAL" ITEMS: See Section 4-6, "Trade Names" in The WHITEBOOK and as amended in the SSP.

14. AWARD:

14.1. The Award of this contract is contingent upon the Contractor's compliance with all condition's precedent to Award.

14.2. 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.

- 14.3.** This contract will be deemed executed and effective only upon the signing of the Contract by the Mayor or his designee and approval as to form the City Attorney's Office.
- 15. SUBCONTRACT LIMITATIONS:** The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 3-2, "SELF-PERFORMANCE" in The GREENBOOK and as amended in the SSP which requires the Contractor to self-perform not less than the specified amount. Failure to comply with this requirement shall render the bid **non-responsive** and ineligible for award.
- 16. AVAILABILITY OF PLANS AND SPECIFICATIONS:** Contract Documents may be obtained by visiting the City's website: <http://www.sandiego.gov/cip/>. Plans and Specifications for this contract are also available for review in the office of the City Clerk or Purchasing & Contracting Department, Public Works Division.
- 17. ONLY ONE BID PER CONTRACTOR SHALL BE ACCEPTED:** 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.
- 18. 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 within these documents.
- 19. BIDDER'S GUARANTEE OF GOOD FAITH (BID SECURITY) FOR DESIGN-BID-BUILD CONTRACTS:**

 - 19.1.** For bids \$250,000 and above, bidders shall submit Bid Security at bid time. Bid Security shall be in one of the following forms: a cashier's check, or a properly certified check upon some responsible bank; or an approved corporate surety bond payable to the City of San Diego for an amount of not less than 10% of the total bid amount.
 - 19.2.** This check or bond, and the monies represented thereby, will be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into the contract and furnish the required final performance and payment bonds.
 - 19.3.** The Bidder agrees that in the event of the Bidder's failure to execute this contract and provide the required final bonds, the money represented by the cashier's or certified check will remain the property of the City; and the Surety agrees that it will pay to the City the damages, not exceeding the sum of 10% of the amount of the Bid, that the City may suffer as a result of such failure.
 - 19.4.** At the time of bid submission, bidders must upload and submit an electronic PDF copy of the aforementioned bid security. Whether in the form of a cashier's check, a

properly certified check or an approved corporate surety bond payable to the City of San Diego, the bid security must be uploaded to the City's eBidding system. By 5PM, 1 working day after the bid opening date, all bidders must provide the City with the original bid security.

- 19.5.** Failure to submit the electronic version of the bid security at the time of bid submission AND failure to provide the original by 5PM, 1 working day after the bid opening date shall cause the bid to be rejected and deemed **non-responsive**.

Original Bid Bond shall be submitted to:
Purchasing & Contracting Department, Public Works Division
1200 3rd Ave., Suite 200, MS 56P
San Diego, California, 92101

To the Attention of the Contract Specialist on the Front Page of this solicitation.

20. AWARD OF CONTRACT OR REJECTION OF BIDS:

- 20.1.** This contract may be awarded to the lowest responsible and reliable Bidder.
- 20.2.** Bidders shall complete ALL eBid forms as required by this solicitation. Incomplete eBids will not be accepted.
- 20.3.** The City reserves the right to reject any or all Bids, to waive any informality or technicality in Bids received, and to waive any requirements of these specifications as to bidding procedure.
- 20.4.** Bidders will not be released on account of their errors of judgment. Bidders may be released only upon receipt by the City within 3 Working Days of the bid opening, written notice from the Bidder which shows proof of honest, credible, clerical error of a material nature, free from fraud or fraudulent intent; and of evidence that reasonable care was observed in the preparation of the Bid.
- 20.5.** A bidder who is not selected for contract award may protest the award of a contract to another bidder by submitting a written protest in accordance with the San Diego Municipal Code.
- 20.6.** The City of San Diego will not discriminate in the award of contracts with regard to race, religion creed, color, national origin, ancestry, physical handicap, marital status, sex or age.
- 20.7.** Each Bid package properly signed as required by these specifications shall constitute a firm offer which may be accepted by the City within the time specified herein.
- 20.8.** The City reserves the right to evaluate all Bids and determine the lowest Bidder on the basis of the base bid and any proposed alternates or options as detailed herein.

21. BID RESULTS:

- 21.1.** The availability of the bids on the City's eBidding system 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 notation of such will be made on the eBidding system. The new ranking and apparent low bidder will be adjusted accordingly.

21.2. To obtain the bid results, view the results on the City's web site, or request the results by U.S. mail and provide a self-addressed, stamped envelope. If requesting by mail, be sure to reference the bid name and number. The bid tabulations will be mailed to you upon their completion. The results will not be given over the telephone.

22. THE CONTRACT:

22.1. 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.

22.2. 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.

22.3. 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.

22.4. 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.

22.5. 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 and approval as to form by the City Attorney's Office. 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.

23. 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 3-9, "TECHNICAL STUDIES AND SUBSURFACE DATA", 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.

24. CITY STANDARD PROVISIONS: This contract is subject to the following standard provisions. See The WHITEBOOK for details.

- 24.1.** The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.
- 24.2.** The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.
- 24.3.** The City of San Diego Municipal Code §22.3004 for Contractor Standards.
- 24.4.** The City of San Diego's Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.
- 24.5.** 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.
- 24.6.** The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).
- 24.7.** The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.

25. PRE-AWARD ACTIVITIES:

- 25.1.** The contractor selected by the City to execute a contract for this Work shall submit the required documentation as specified herein and in the Notice of Intent to Award. Failure to provide the information as specified may result in the Bid being rejected as **non-responsive**.
- 25.2.** The decision that bid is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND
FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

Dick Miller, Inc., a corporation, as principal, and
The Ohio Casualty Insurance Company, 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 **Two Million Two
Hundred Forty Two Thousand Seven Hundred Seventy Seven Dollars and Seventy Seven Cents
(\$2,242,777.77)** for the faithful performance of the annexed contract, and in the sum of **Two Million
Two Hundred Forty Two Thousand Seven Hundred Seventy Seven Dollars and Seventy Seven
Cents (\$2,242,777.77)** for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract with the City of 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 Article 2. Claimants, (iii) public works of improvement commencing with Civil Code Section 9100 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.

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

The Surety expressly agrees that the City of San Diego may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal.

The Surety shall not utilize the Principal in completing the improvements and work specified in the Agreement in the event the City terminates the Principal for default.

PERFORMANCE BOND, LABOR, AND MATERIALMEN'S BOND (continued)

THE CITY OF SAN DIEGO

By: *Stephen Samara*

Print Name: Stephen Samara
Principal Contract Specialist
Purchasing & Contracting Department

Date: 9/19/2023

APPROVED AS TO FORM

Mara W. Elliott, City Attorney
By: *Dana Fairchild*

Print Name: Dana Fairchild
Deputy City Attorney

Date: 9/25/2023

CONTRACTOR Dick Miller, Inc.

By: *Glen F. Bullock*

Print Name: Glen F. Bullock

Date: 09/19/2023

SURETY The Ohio Casualty Insurance Company

By: *Bart Stewart*
Attorney-In-Fact



Print Name: Bart Stewart

Date: August 4, 2023

790 The City Drive South, Ste. 200 Orange, CA 92868

Local Address of Sur

714-634-3311

Local Phone Number of Surety

\$17,890

Premium

024265836

Bond Number



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: 8206236 - 969556

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Bart Stewart.

all of the city of Encinitas state of CA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 3rd day of September, 2021.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: David M. Carey
David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY

On this 3rd day of September, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 26, 2025
Commission number 1128044
Member, Pennsylvania Association of Notaries

By: Teresa Pastella
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 4th day of August, 2023.



By: Renee C. Llewellyn
Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Diego)

On August 4, 2023 before me, Genevieve Sistar, Notary Public
Date Here Insert Name and Title of the Officer
personally appeared Bart Stewart
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 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.

WITNESS my hand and official seal.



Genevieve Sistar

Signature _____
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____ Document Date: _____
Number of Pages: _____ Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

ATTACHMENTS

ATTACHMENT A
SCOPE OF WORK

SCOPE OF WORK

1. **SCOPE OF WORK:** Work includes demolition of existing comfort station and it's foundation, and construction of a new foundation for a prefabricated comfort station and concession area. Work also includes accessibility improvements, utility work, electrical upgrades, and landscaping and parking lot resurfacing.
 - 1.1. The Work shall be performed in accordance with:
 - 1.1.1. The Notice Inviting Bids and Plans numbered **36160-01-D** through **36160-36-D**, inclusive and Traffic Control Plans **36160-T01-D** through **36160-T02-D**.
2. **LOCATION OF WORK:** The location of the Work is as follows:
See **Appendix E – Location Map**
3. **CONTRACT TIME:** The Contract Time for completion of the Work, including the Plant Establishment Period, shall be **200 Working Days**.

ATTACHMENT B

RESERVED

ATTACHMENT C

EQUAL OPPORTUNITY CONTRACTING PROGRAM

EQUAL OPPORTUNITY CONTRACTING PROGRAM (EOCP)

SECTION A - GENERAL REQUIREMENTS

A. INTRODUCTION.

1. This document sets forth the following specifications:
 - a) The City's general EOCP requirements for all Construction Contracts.
 - b) Special Provisions for Contracts subject to SLBE and ELBE requirements only.
2. Additional requirements may apply for state or federally funded projects.
3. These requirements shall be included as Contract provisions for all Subcontracts.
4. The City specified forms, instructions, and guides are available for download from the EOCP's web site at: <http://www.sandiego.gov/eoc/forms/index.shtml>

B. GENERAL.

1. The City of San Diego promotes equal employment and subcontracting opportunities.
2. The City is committed to ensuring that taxpayer dollars spent on public Contracts are not paid to businesses that practice discrimination in employment or subcontracting.
3. The City encourages all companies seeking to do business with the City to share this commitment.

C. DEFINITIONS.

1. For the purpose of these requirements: Terms "Bid" and "Proposal", "Bidder" and "Proposer", "Subcontractor" and "Subconsultant", "Contractor" and "Consultant", "Contractor" and "Prime Contractor", "Consultant" and "Professional Service Provider", "Suppliers" and "Vendors", "Suppliers" and "Dealers", and "Suppliers" and "Manufacturers" may have been used interchangeably.
2. The following definitions apply:
 - a) **Emerging Business Enterprise (EBE)** - A for-profit business that is independently owned and operated; that is not a subsidiary or franchise of another business and whose gross annual receipts do not exceed the amount set by the City Manager and that meets all other criteria set forth in regulations implementing Municipal Code Chapter 2, Article 2, Division 36. The City Manager shall review the threshold amount for EBEs on an annual basis and adjust as necessary to reflect changes in the marketplace.
 - b) **Emerging Local Business Enterprise (ELBE)** - A Local Business Enterprise that is also an Emerging Business Enterprise.

- c) **Minority Business Enterprise (MBE)** - A certified business that is at least fifty-one percent (51%) owned by one or more minority individuals, or, in the case of a publicly owned business at least fifty-one percent (51%) of the stock is owned by one or more minority individuals; and (2) whose daily business operations are managed and directed by one or more minorities owners. Minorities include the groups with the following ethnic origins: African, Asian Pacific, Asian Subcontinent, Hispanic, Native Alaskan, Native American, and Native Hawaiian.
- d) **Women Business Enterprise (WBE)** - A certified business that is at least fifty-one percent (51%) owned by a woman or women, or, in the case of a publicly owned business at least fifty-one percent (51%) of the stock is owned by one or more women; and (2) whose daily business operations are managed and directed by one or more women owners.
- e) **Disadvantaged Business Enterprise (DBE)** - a certified business that is at least fifty-one percent (51%) owned by socially and economically disadvantaged individuals, or, in the case of a publicly owned business at least fifty-one percent (51%) of the stock is owned by one or more socially and economically disadvantaged individuals; and (2) whose daily business operations are managed and directed by one or more socially and economically disadvantaged owners.
- f) **Disabled Veteran Business Enterprise (DVBE)** - A certified business that is at least fifty-one percent (51%) owned by one or more disabled veterans; and (2) business operations must be managed and controlled by one or more disabled veterans. Disabled Veteran is a veteran of the U.S. military, naval, or air service; the veteran must have a service-connected disability of at least 10% or more; and the veteran must reside in California.
- g) **Other Business Enterprise (OBE)** - Any business which does not otherwise qualify as a Minority, Woman, Disadvantaged, or Disabled Veteran Business Enterprise.
- h) **Small Business Enterprise (SBE)** - A for-profit business that is independently owned and operated; that is not a subsidiary or franchise of another business and whose gross annual receipts do not exceed the amount set by the City Manager and that meets all other criteria set forth in regulations implementing Municipal Code Chapter 2, Article 2, Division 36. The City Manager shall review the threshold amount for SBEs on an annual basis and adjust as necessary to reflect changes in the marketplace. A business certified as a Micro Business (MB) or a Disabled Veteran Business Enterprise (DVBE) by the State of California and that has provided proof of such certification to the City Manager shall be deemed to be an SBE.

- i) **Small Local Business Enterprise (SLBE)** - A Local Business Enterprise that is also a Small Business Enterprise.

D. CITY'S EQUAL OPPORTUNITY COMMITMENT.

1. Nondiscrimination in Contracting Ordinance.

- a) You, your Subcontractors, and Suppliers shall comply with the requirements of the City's Nondiscrimination in Contracting Ordinance, San Diego Municipal Code §§22.3501 through 22.3517.

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

You shall include the foregoing clause in all Contracts between you and your Subcontractors and Suppliers.

- b) **Disclosure of Discrimination Complaints.** As part of its Bid or Proposal, you shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against you in a legal or administrative proceeding alleging that you discriminated against your employees, Subcontractors, vendors, or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.
- c) Upon the City's request, You agree to provide to the City, within 60 Calendar Days, a truthful and complete list of the names of all Subcontractors and Suppliers that you have used in the past 5 years on any of your Contracts that were undertaken within the San Diego County, including the total dollar amount paid by you for each Subcontract or supply Contract.
- d) You further agree 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. You understand and agree that violation of this clause shall be considered a material breach of the Contract and may result in remedies being ordered against you up to and including contract termination, debarment, and other sanctions for the violation of the provisions of the Nondiscrimination in Contracting Ordinance. You further understand and agree that the procedures, remedies, and sanctions provided for in the Nondiscrimination in Contracting Ordinance apply only to violations of the Ordinance.

E. EQUAL EMPLOYMENT OPPORTUNITY OUTREACH PROGRAM.

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

You shall not discriminate against any employee or applicant for employment on any basis prohibited by law. You shall provide equal opportunity in all employment practices. You shall ensure that your Subcontractors comply with this program. Nothing in this section shall be interpreted to hold you liable for any discriminatory practices of your Subcontractors.

You shall include the foregoing clause in all Contracts between you and your 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 to the City for approval as specified in the Notice of Intent to Award letter.
3. The selected Bidder shall submit an Equal Employment Opportunity Plan if a Work Force Report is submitted and if the City determines that there are under-representations when compared to County Labor Force Availability data.
4. If the selected Bidder submits an Equal Employment Opportunity Plan, it shall include the following assurances:
 - a) You shall maintain a working environment free of discrimination, harassment, intimidation, and coercion at all Sites and in all facilities at which your employees are assigned to Work.
 - b) You shall review your EEO Policy annually with all on-Site supervisors involved in employment decisions.
 - c) You shall disseminate and review your EEO Policy with all employees at least once a year, post the policy statement and EEO posters on all company bulletin boards and job sites, and document every dissemination, review, and posting with a written record to identify the time, place, employees present, subject matter, and disposition of meetings.
 - d) You shall review, at least annually, all supervisors' adherence to and performance under the EEO Policy and maintain written documentation of these reviews.
 - e) You shall discuss your EEO Policy Statement with Subcontractors with whom you anticipate doing business, including the EEO Policy Statement in your Subcontracts, and provide such documentation to the City upon request.

- f) You shall document and maintain a record of all Bid solicitations and outreach efforts to and from Subcontractors, contractor associations, and other business associations.
- g) You shall disseminate your EEO Policy externally through various media, including the media of people of color and women, in advertisements to recruit. Maintain files documenting these efforts and provide copies of these advertisements to the City upon request.
- h) You shall disseminate your EEO Policy to union and community organizations.
- i) You shall provide immediate written notification to the City when any union referral process has impeded your efforts to maintain your EEO Policy.
- j) You shall maintain a current list of recruitment sources, including those outreaching to people of color and women, and provide written notification of employment opportunities to these recruitment sources with a record of the organizations' responses.
- k) You shall maintain 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.
- l) You shall encourage all present employees, including people of color and women employees, to recruit others.
- m) You shall maintain all employment selection process information with records of all tests and other selection criteria.
- n) You shall develop and maintain documentation for on-the-job training opportunities, participate in training programs, or both for all of your employees, including people of color and women, and establish apprenticeship, trainee, and upgrade programs relevant to your employment needs.
- o) You shall conduct, at least annually, an inventory and evaluation of all employees for promotional opportunities and encourage all employees to seek and prepare appropriately for such opportunities.
- p) You shall ensure that 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.

F. SUBCONTRACTING.

1. The City encourages all eligible business enterprises to participate in City contracts as a Contractor, Subcontractor, and joint venture partner with you, your Subcontractors, or your Suppliers. You are encouraged to take positive steps to diversify and expand your Subcontractor solicitation base and to offer

subcontracting opportunities to all eligible business firms including SLBEs, ELBEs, MBEs, WBEs, DBEs, DVBES, and OBEs.

2. For Subcontractor participation level requirements, see the Contract Documents where applicable.
3. For the purposes of achieving the mandatory Subcontractor participation percentages, City percentage calculations will not account for the following:
 - a) "Field Orders" and "City Contingency" Bid items.
 - b) Alternate Bid items.
 - c) Allowance Bid items designated as "EOC Type II".
4. Allowance Bid items designated as "EOC Type I" will be considered as part of the Base Bid and will be included in the percentage calculation.
5. Each joint venture partner shall be responsible for a clearly defined Scope of Work. In addition, an agreement shall be submitted and signed by all parties identifying the extent to which each joint venture partner shares in ownership, control, management, risk, and profits of the joint venture.

G. LISTS OF SUBCONTRACTORS AND SUPPLIERS.

1. You shall comply with the Subletting and Subcontracting Fair Practices Act, Public Contract Code §§4100 through 4113, inclusive.
2. You shall list all Subcontractors who will receive more than 0.5% of the total Bid amount or \$10,000, whichever is greater on the form provided in the Contract Documents (Subcontractors list).
3. The Subcontractors list shall include the Subcontractor's name, telephone number including area code, physical address, Scope of Work, the dollar amount of the proposed Subcontract, the California contractor license number, the Public Works contractor registration number issued pursuant to Section 1725.5 of the Labor Code, and the Subcontractor's certification status with the name of the certifying agency.
4. The listed Subcontractor shall be appropriately licensed pursuant to Contractor License Laws.
5. For Design-Build Contracts, refer to the RFQ and RFP for each Project or Task Order.

H. SUBCONTRACTOR AND SUPPLIER SUBSTITUTIONS.

1. Listed Subcontractors and Suppliers shall not be substituted without the Express authorization of the City or its duly authorized agent.
2. Request for Subcontractor or Supplier substitution shall be made in writing to Purchasing & Contracting Department, Public Works Division, Attention Contract Specialist, 1200 3rd Ave., Suite 200, MS 56P, San Diego, CA 92101 with a copy to the Engineer.

3. The request shall include a thorough explanation of the reason(s) for the substitution, including dollar amounts and a letter from each substituted Subcontractor or Supplier stating that they (the Subcontractors or Suppliers) release all interest in working on the Project and written confirmation from the new Subcontractor or Supplier stating that they agree to work on the Project along with the dollar value of the Work to be performed.
4. Written approval of the substitution request shall be received by you or from the City or its authorized officer prior to any unlisted Subcontractor or Supplier performing Work on the Project.
5. Substitution of Subcontractors and Suppliers without authorization shall subject you to those penalties set forth in Public Contract Code §4110.
6. Requests for Supplier substitution shall be made in writing at least 10 Days prior to the provision of materials, supplies, or services by the proposed Supplier and shall include proof of written notice to the originally listed Supplier of the proposed substitution.
7. A Contractor whose Bid is accepted shall not:
 - a) Substitute a person as Subcontractor or Supplier in place of the Subcontractor or Supplier listed in the original bid, except that the City, or its duly authorized officer, may consent to the substitution of another person as a Subcontractor or Supplier in any of the following situations:
 - i. When the Subcontractor or Supplier listed in the Bid, after having a reasonable opportunity to do so, fails or refuses to execute a written Contract for the scope of work specified in the subcontractor's bid and at the price specified in the subcontractor's bid, when that written contract, based upon the general terms, conditions, plans, and specifications for the project involved or the terms of the subcontractor's written bid, is presented to the subcontractor by the prime contractor.
 - ii. When the listed Subcontractor or Supplier becomes insolvent or the subject of an order for relief in bankruptcy.
 - iii. When the listed Subcontractor or Supplier fails or refuses to perform his or her subcontract.
 - iv. When the listed Subcontractor fails or refuses to meet bond requirements as set forth in Public Contract Code §4108.
 - v. When you demonstrate to the City or its duly authorized officer, subject to the provisions set forth in Public Contract Code §4107.5, that the name of the Subcontractor was listed as the result of an inadvertent clerical error.
 - vi. When the listed Subcontractor is not licensed pursuant to Contractor License Law.

- vii. When the City, or its duly authorized officer, determines that the Work performed by the listed Subcontractor or that the materials or supplies provided by the listed Supplier are substantially unsatisfactory and not in substantial accordance with the Plans and specifications or that the Subcontractor or Supplier is substantially delaying or disrupting the progress of the Work.
 - viii. When the listed Subcontractor is ineligible to work on a public works project pursuant to §§1777.1 or 1777.7 of the Labor Code.
 - ix. When the City or its duly authorized agent determines that the listed Subcontractor is not a responsible contractor.
- b) Permit a Contract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original Subcontractor, Supplier listed in the original Bid without the consent of the City, or its duly authorized officer.
 - c) Other than in the performance of "Change Orders" causing changes or deviations from the Contract, sublet or subcontract any portion of the Work, or contract for materials or supplies in excess of 0.5% of your total bid or \$10,000, whichever is greater, as to which his or her original Bid did not designate a Subcontractor or Supplier.
8. Following receipt of notice from you of the proposed substitution of a Subcontractor or Supplier, the listed Subcontractor or Supplier who has been so notified shall have 5 Working Days within which to submit written objections to the substitution to the Contract Specialist with a copy to the Engineer. Failure to file these written objections shall constitute the listed Subcontractor or Supplier's consent to the substitution. If written objections are filed, the City shall give notice in writing of at least 5 Working Days to the listed Subcontractor or Supplier of a hearing by the City on your request for substitution.

I. PROMPT PAYMENT.

- 1. You or your Subcontractors shall pay to any subcontractor, not later than 7 Calendar Days of receipt of each progress payment, unless otherwise agreed to in writing, the respective amounts allowed you on account of the Work performed by the Subcontractors, to the extent of each Subcontractor's interest therein. In cases of Subcontractor performance deficiencies, you shall make written notice of any withholding to the Subcontractor with a copy to the Contracts Specialist. Upon correction of the deficiency, you shall pay the Subcontractor the amount previously withheld within 14 Calendar Days after payment by the City.
- 2. Any violation of California Business and Professions Code, §7108.5 concerning prompt payment to Subcontractors shall subject the violating Contractor or

Subcontractor to the penalties, sanctions, and other remedies of that section. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you or your Subcontractor in the event of a dispute involving late payment or nonpayment by the Prime Contractor, deficient subcontract performance, or noncompliance by a Subcontractor.

J. PROMPT PAYMENT OF FUNDS WITHHELD TO SUBCONTRACTORS.

1. The City will hold retention from you and will make prompt and regular incremental acceptances of portions, as determined by the Engineer, of the Work and pay retention to you based on these acceptances.
2. You or your Subcontractors shall return all monies withheld in retention from a Subcontractor within 30 Calendar Days after receiving payment for Work satisfactorily completed and accepted including incremental acceptances of portions of the Work by the City.
3. Federal law (49CFR26.29) requires that any delay or postponement of payment over 30 Calendar Days may take place only for good cause and with the City's prior written approval. Any violation of this provision by you or your Subcontractor shall subject you or your Subcontractor to the penalties, sanctions, and other remedies specified in §7108.5 of the Business and Professions Code.
4. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you or your Subcontractor in the event of a dispute involving late payment or nonpayment by you, deficient subcontract performance, or noncompliance by a Subcontractor.

K. CERTIFICATION.

1. The City accepts certifications of DBE, DVBE, MBE, SMBE, SWBE, or WBE by any of the following certifying agencies:
 - a) Current certification by the State of California Department of Transportation (CALTRANS) as DBE, SMBE, or SWBE.
 - b) Current MBE, WBE, or DVBE certification from the California Public Utilities Commission.
 - c) DVBE certification is received from the State of California's Department of General Services, Office of Small and Minority Business.
 - d) Current certification by the City of Los Angeles as DBE, WBE, or MBE.
 - e) Subcontractors' valid proof of certification status (copies of MBE, WBE, DBE, or DVBE certifications) shall be submitted as required.

L. CONTRACT RECORDS AND REPORTS.

1. You shall maintain records of all subcontracts and invoices from your Subcontractors and Suppliers for work on this project. Records shall show

name, telephone number including area code, and business address of each Subcontractor, Supplier, and joint venture partner, and the total amount actually paid to each firm. Project relevant records, regardless of tier, may be periodically reviewed by the City.

2. You shall retain all records, books, papers, and documents pertinent to the Contract for a period of not less than 5 years after Notice of Completion and allow access to said records by the City's authorized representatives.
3. You shall submit the following reports using the City's web-based contract compliance (Prism® portal):
 - a. **Monthly Payment.** You shall submit Monthly Payment Reporting by the 10th day of the subsequent month. Incomplete and/or delinquent reporting may cause payment delays, non-payment of invoices, or both.
4. The records maintained under item 1, described above, shall be consolidated into a Final Summary Report, certified as correct by an authorized representative of the Contractor. The Final Summary Report shall include all subcontracting activities and be sent to the EOCP Program Manager prior to Acceptance. Failure to comply may result in assessment of liquidated damages or withholding of retention. The City will review and verify 100% of subcontract participation reported in the Final Summary Report prior to approval and release of final retention to you. In the event your Subcontractors are owed money for completed Work, the City may authorize payment to subcontractor via a joint check from the withheld retention.

EQUAL OPPORTUNITY CONTRACTING PROGRAM (EOCP)

SECTION B - SLBE-ELBE SUBCONTRACTING REQUIREMENTS

THESE SPECIAL PROVISIONS SUPPLEMENT THE POLICIES AND REQUIREMENTS ESTABLISHED BY THE CITY OF SAN DIEGO EQUAL OPPORTUNITY CONTRACTING PROGRAM SPECIFIED IN THE CITY'S GENERAL EOCP REQUIREMENTS.

A. GENERAL.

1. It is the City's policy to encourage greater availability, capacity development, and contract participation by SLBE and ELBE firms in City contracts. This policy is, in part, intended to further the City's compelling interest to stimulate economic development through the support and empowerment of the local community, ensure that it is neither an active nor passive participant in marketplace discrimination, and promote equal opportunity for all segments of the contracting community.
2. The City is committed to maximizing subcontracting opportunities for all qualified and available firms.
3. This policy applies to City-funded construction contracts. Bidders shall be fully informed of this policy as set forth in these specifications. Mandatory or voluntary subcontracting percentages, Bid Discounts, and restricted competitions are specified in the Contract Documents.
4. You shall make subcontracting opportunities available to a broad base of qualified Subcontractors and shall achieve the minimum SLBE-ELBE Subcontractor participation identified for your project.
5. Failure to subcontract the specified minimum (mandatory) percentages of the Bid to qualified available SLBE-ELBE Subcontractors will cause a Bid to be rejected as non-responsive unless the Bidder has demonstrated compliance with the affirmative steps as specified in the City's document titled "Small Local Business (SLBE) Program, INSTRUCTIONS FOR BIDDERS COMPLETING THE GOOD FAITH EFFORT SUBMITTAL" and has submitted documentation showing that all required positive efforts were made prior to the Bid submittal due date. The required Good Faith Effort (GFE) documentation shall be submitted to the Contract Specialist. The instructions for completing the good faith effort submittal can be found on the City's website:
<https://www.sandiego.gov/sites/default/files/legacy/eoc/pdf/slbeinst.pdf>
6. The current list of certified SLBE-ELBE firms and information for completing the GFE submittal can be found on the City's EOC Department website:
<http://www.sandiego.gov/eoc/programs/slbe.shtml>
7. These requirements may be waived, at the City's sole discretion, on projects deemed inappropriate for subcontracting participation.

B.

DEFINITIONS.

1. The following definitions shall be used in conjunction with these specifications:

- a) **Bid Discount** – Additional inducements or enhancements in the bidding process that are designed to increase the chances for the selection of SLBE firms in competition with other firms.
- b) **Commercially Useful Function** – An SLBE-ELBE performs a commercially useful function when it is responsible for the execution of the Work and is carrying out its responsibilities by actually performing, managing, and supervising the Work involved. To perform a commercially useful function, the SLBE-ELBE shall also be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quantity and quality, ordering the material, and installing (where applicable) and paying for the material itself.

To determine whether an SLBE-ELBE is performing a commercially useful function, an evaluation will be performed of the amount of Work subcontracted, normal industry practices, whether the amount the SLBE-ELBE firm is to be paid under the contract is commensurate with the Work it is actually performing, and the SLBE-ELBE credit claimed for its performance of the Work, and other relevant factors. Specifically, an SLBE-ELBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of meaningful and useful SLBE-ELBE participation, when in similar transactions in which SLBE-ELBE firms do not participate, there is no such role performed.

- c) **Good Faith Efforts (GFE)** – Documentation of the Bidder's intent to comply with SLBE Program goals and procedures included in the City's SLBE Program, Instructions for Completing Good Faith Effort Submittal available from the City's EOCP website or the Contract Specialist.
- d) **Independently Owned, Managed, and Operated** – Ownership of a SLBE-ELBE firm shall be direct, independent, and by individuals only. Business firms that are owned by other businesses or by the principals or owners of other businesses that cannot themselves qualify under the SLBE-ELBE eligibility requirements shall not be eligible to participate in the Program. Moreover, the day-to-day management of the SLBE-ELBE firm shall be direct and independent of the influence of any other businesses that cannot themselves qualify under the SLBE-ELBE eligibility requirements.
- e) **Joint Venture** – An association of two or more persons or business entities that is formed for the single purpose of carrying out a single defined business enterprise for which purpose they combine their

capital, efforts, skills, knowledge, or property. Joint ventures shall be established by written agreement to qualify for this program.

- f) **Local Business Enterprise (“LBE”)** – A firm having a Principal Place of Business and a Significant Employment Presence in San Diego County, California that has been in operation for 12 consecutive months and a valid business tax certificate. This definition is subsumed within the definition of Small Local Business Enterprise.
- g) **Minor Construction Program** – A program developed for bidding exclusively among SLBE-ELBE Construction firms.
- h) **Principal Place of Business** – A location wherein a firm maintains a physical office and through which it obtains no less than 50% of its overall customers or sales dollars.
- i) **Protégé** – A firm that has been approved and is an active participant in the City’s Mentor-Protégé Program and that has signed the required program participation agreement and has been assigned a mentor.
- j) **Significant Employee Presence** – No less than 25% of a firm’s total number of employees are domiciled in San Diego County.

C. SUBCONTRACTOR PARTICIPATION.

- 1. For the purpose of satisfying subcontracting participation requirements, only 1st tier SLBE–ELBE Subcontractors will be recognized as participants in the Contract according to the following criteria:
 - a) For credit to be allowed toward a respective participation level, all listed SLBE-ELBE firms shall have been certified by the Bid due date.
 - b) The Subcontractor shall perform a commercially useful function for credit to be allowed toward subcontractor participation levels. The Subcontractor shall be required by you to be responsible for the execution of a distinct element of the Work and shall carry out its responsibility by actually performing and supervising its own workforce.
 - c) If the Bidder is seeking the recognition of materials, supplies, or both towards achieving any mandatory subcontracting participation level, the Bidder shall indicate on Form AA40 – Named Equipment/Material Supplier List with the Bid the following:
 - i. If the materials or supplies are obtained from a SLBE-ELBE manufacturer, the Bidder will receive 100% of the cost of the materials or supplies toward SLBE participation. For the purposes of counting SLBE-ELBE participation, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the Contract and of the general character described by the specifications.

- ii. If the materials or supplies are obtained from a SLBE-ELBE supplier, the Bidder will receive 60% of the cost of the materials or supplies toward SLBE participation. For the purposes of counting SLBE-ELBE participation a Supplier is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a supplier, the firm shall be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a supplier in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business if the person both owns and operates distribution equipment for the products. Any supplementing of the suppliers' own distribution equipment shall be by a long-term lease agreement and shall not be on an ad hoc or contract-by-contract basis.
 - iii. If the materials or supplies are obtained from a SLBE-ELBE, which is neither a manufacturer nor a supplier, the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, fees or transportation charges for the delivery of materials or supplies required on a job site will be counted toward SLBE-ELBE participation, provided the fees are reasonable and not excessive as compared with fees customarily allowed for similar services. No portion of the cost of the materials and supplies themselves will be counted toward SLBE-ELBE participation.
- d) If the Bidder is seeking the recognition of SLBE-ELBE Trucking towards achieving any mandatory subcontracting participation level, the Bidder shall indicate it on Form AA35 – List of Subcontractors with the Bid. The following factors will be evaluated in determining the credit to be allowed toward the respective participation level:
- i. The SLBE-ELBE shall be responsible for the management and supervision of the entire trucking operation for which it is getting credit on a particular Contract and there shall not be a contrived arrangement for the purpose of counting SLBE-ELBE participation.
 - ii. The SLBE-ELBE shall itself own and operate at least 1 fully licensed, insured, and operational truck used on the Contract.

- iii. The SLBE-ELBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures, and operates using drivers it employs.
- iv. The SLBE-ELBE may lease trucks from another SLBE-ELBE firm including an owner-operator who is certified as a SLBE-ELBE. The SLBE-ELBE who leases trucks from another SLBE-ELBE receives credit for the total value of the transportation services the lessee SLBE-ELBE provides on the contract.
- v. The SLBE-ELBE may also lease trucks from a non-SLBE-ELBE firm, including an owner-operator. The SLBE-ELBE who leases trucks from a non-SLBE-ELBE is entitled to credit for the total value of transportation services provided by non-SLBE-ELBE lessees not to exceed the value of transportation services provided by SLBE-ELBE owned trucks on the contract. Additional participation by non-SLBE-ELBE lessees receive credit only for the fee or commission it receives as a result of the lease arrangement.
- vi. A lease shall indicate that the SLBE-ELBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the SLBE-ELBE so long as the lease gives the SLBE-ELBE absolute priority for use of the leased truck.

D. SLBE-ELBE SUBCONTRACTOR PARTICIPATION PERCENTAGES.

1. Contracts valued at \$1,500,000 and above will be considered Major Public Works Contracts and will include a mandatory Subcontractor participation requirement for SLBE-ELBE firms.
 - a) The Bidder shall achieve the mandatory Subcontractor participation requirement or demonstrate GFE.
 - b) The Bidders shall indicate the participation on Forms AA35 - List of Subcontractors and AA40 - Named Equipment/Material Supplier List as applicable regardless of the dollar value.
 - c) An SLBE-ELBE Bidder may count its own participation toward achieving the mandatory goal as long as the SLBE-ELBE Bidder performs 51% of the Contract Price.
2. Contracts Valued over \$1,000,000 and under \$1,500,000 will also be considered Major Public Works Contracts and will include the mandatory subcontractor participation requirements described above and the following:
 - a) 5% bid discount for SLBE-ELBE firms.
 - b) Non-certified Contractor will receive 5% bid discount if they achieve the specified mandatory Subcontracting participations.

- c) Bid discounts shall not apply if the award will result in a total contract cost of \$50,000 in excess of the apparent lowest Bid.
 - d) In the event of a tie bid between a SLBE-ELBE Bidder and a non-SLBE-ELBE Bidder, the SLBE-ELBE Bidder will be awarded the Contract.
 - e) In the event of a tie bid between a discounted Bid and a non-discounted Bid, the discounted Bid will be awarded the Contract.
3. Contracts valued over \$500,000 up to \$1,000,000 will be considered Minor Public Works Contracts and will be awarded through a competitive Bid process open only to City certified SLBE-ELBE firms. If there are no bidders or no responsible bidders, the Contract will be made available to all Bidders and will be subject to requirements listed in items 1 and 2 for Major Public Works Contracts above.
4. Contracts valued at \$500,000 and below will also be considered Minor Public Works Contracts and will be awarded through a competitive bid process open only to City certified ELBEs unless there are less than 2 firms available at which it will be awarded through a competitive process open only to the City certified SLBE-ELBE firms. If there are no bidders or no responsible bidders, the Contract will be made available to all Bidders and subject to requirements listed in items 1 and 2 for Major Public Works Contracts above.

E. JOINT VENTURES.

1. The City may allow for Joint Venture bid discounts on some Contracts. Contracts that allow for Joint Venture bid discounts will be designated in Bid documents. A firm that is bidding or competing for City Contracts may partner with a certified SLBE or ELBE to compete for Contracts as a Joint Venture.
2. A Joint Venture shall be between two entities with the same discipline or license as required by the City. Joint ventures will receive bid discounts depending on the SLBE or ELBE percentage of participation. To be eligible for a discount, a Joint Venture Agreement shall be approved by the City at the time of Bid submittal. The maximum allowable discount shall be 5%. The parties shall agree to enter in the relationship for the life of the projects.
3. Joint Venture shall submit a Joint Venture Management Plan, a Joint Venture Agreement, or both at least 2 weeks prior to the Bid due date. Copies of the Joint Venture applications are available upon request to the Contract Specialist. Each agreement or management plan shall include the following:
- a) Detailed explanation of the financial contribution for each partner.
 - b) List of personnel and equipment used by each partner.
 - c) Detailed breakdown of the responsibilities of each partner.
 - d) Explanation of how the profits and losses will be distributed.
 - e) Description of the bonding capacity of each partner.
 - f) Management or incentive fees available for any one of the partners (if any).

4. Each Joint Venture partner shall perform a Commercially Useful Function. An SLBE or ELBE that relies on the resources and personnel of a non-SLBE or ELBE firm will not be deemed to perform a Commercially Useful Function.
5. Each Joint Venture partner shall possess licenses appropriate for the discipline for which a proposal is being submitted. If a Joint Venture is bidding on a single trade project, at the time of bid submittal, each Joint Venture partner shall possess the requisite specialty license for that trade bid.
6. The SLBE or ELBE partner shall clearly define the portion of the Work to be performed. This Work shall be of the similar type of Work the SLBE or ELBE partner performs in the normal course of its business. The Joint Venture Participation Form shall specify the Bid items to be performed by each individual Joint Venture partner. Lump sum Joint Venture participation shall not be acceptable.
7. Responsibilities of the SLBE or ELBE Joint Venture Partner:
 - a) The SLBE or ELBE partner shall share in the control, management responsibilities, risks and profits of the Joint Venture in proportion with the level of participation in the project.
 - b) The SLBE or ELBE partner shall perform Work that is commensurate with its experience.
 - c) The SLBE or ELBE partner shall use its own employees and equipment to perform its portion of the Work.
 - d) The Joint Venture as a whole shall perform Bid items that equal or exceed 50% of the Contract Price, excluding the cost of manufactured items, in order to be eligible for a Joint Venture discount.

F. MAINTAINING PARTICIPATION LEVELS.

1. Credit and preference points are earned based on the level of participation proposed prior to the award of the Contract. Once the Project begins you shall achieve and maintain the SLBE-ELBE participation levels for which credit and preference points were earned. You shall maintain the SLBE-ELBE percentages indicated at the Award of Contract and throughout the Contract Time.
2. If the City modifies the original Scope of Work, you shall make reasonable efforts to maintain the SLBE-ELBE participation for which creditor preference points were earned. If participation levels will be reduced, approval shall be received from the City prior to making changes.
3. You shall notify and obtain written approval from the City in advance of any reduction in subcontract scope, termination, or substitution for a designated SLBE-ELBE Subcontractor. Failure to do so shall constitute a material breach of the Contract.
4. If you fail to maintain the SLBE-ELBE participation listed at the time the Contract is awarded and have not received prior approval from the City, the

City may declare you in default and will be considered grounds for debarment under Chapter 2, Article 2, Division 8, of the San Diego Municipal Code.

G. SUBCONTRACTING EFFORTS REVIEW AND EVALUATION.

1. Documentation of your subcontracting efforts will be reviewed by EOCP to verify that you made subcontracting opportunities available to a broad base of qualified Subcontractors, negotiated in good faith with interested Subcontractors, and did not reject any bid for unlawful discriminatory reasons. The EOCP review is based on the federal “Six Good Faith Efforts” model.
2. The GFEs are required methods to ensure that all ELBE and SLBE firms have had the opportunity to compete for the City’s Public Works procurements. The Six Good Faith Efforts, also known as affirmative steps, attract and utilize ELBE and SLBE firms:
 - a) Ensure ELBE firms are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities.
 - b) Make information of forthcoming opportunities available to SLBE-ELBE firms and arrange time for Contracts and establish delivery schedules, where requirements permit, in a way that encourages and facilitates participation by SLBE-ELBE firms in the competitive process. This includes posting solicitations for Bids or proposals to SLBE-ELBE firms for a minimum of 10 Working Days before the Bid or Proposal due date.
 - c) Consider in the contracting process whether firms competing for large Contracts could subcontract with SLBE-ELBE firms.
 - d) Encourage contracting with a consortium of ELBE-SLBE firms when a Contract is too large for one of these firms to handle individually.
 - e) Use the services and assistance of the City’s EOC Office and the SLBE-ELBE Directory.
 - f) If you award subcontracts, require your Subcontractors to take the steps listed above.

H. GOOD FAITH EFFORT DOCUMENTATION.

1. If the specified SLBE-ELBE Subcontractor participation percentages are not met, you shall submit information necessary to establish that adequate GFEs were taken to meet the Contract Subcontractor participation percentages. See the City’s document titled “Small Local Business (SLBE) Program, INSTRUCTIONS FOR BIDDERS COMPLETING THE GOOD FAITH EFFORT SUBMITTAL.” The instructions for completing the good faith effort submittal can be found on the City’s website:

<https://www.sandiego.gov/sites/default/files/legacy/eoc/pdf/slbegfeinst.pdf>

I. SUBCONTRACTOR SUBSTITUTION.

1. Evidence of fraud or discrimination in the substitution of Subcontractors will result in sanctions including assessment of penalty fines, termination of Contract, or debarment. This section does not replace applicable California Public Contract Code.

J. FALSIFICATION OF SUB-AGREEMENT AND FRAUD.

1. Falsification or misrepresentation of a sub-agreement as to company name, Contract amount or actual Work performed by Subcontractors, or any falsification or fraud on the part your submission of documentation and forms pursuant to this program, will result in sanctions against you including assessment of penalty fines, termination of the Contract, or debarment. Instances of falsification or fraud which are indicative of an attempt by you to avoid subcontracting with certain categories of Subcontractors on the basis of race, gender, gender expression, gender identity, religion, national origin, ethnicity, sexual orientation, age, or disability shall be referred to the Equal Opportunity Contracting Program's Investigative Unit for possible violations of Article 2, Division 35 of the City Administrative Code, §§22.3501 et seq. (Nondiscrimination in Contracting).

K. RESOURCES.

1. The current list of certified SLBE-ELBE firms and information for completing the GFE submittal can be found on the City's EOC Department website:
<http://www.sandiego.gov/eoc/programs/slbe.shtml>
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ATTACHMENT D
PREVAILING WAGE

PREVAILING WAGE

1. **PREVAILING WAGE RATES:** Pursuant to San Diego Municipal Code section 22.3019, construction, alteration, demolition, repair, and maintenance work performed under this Contract is subject to State prevailing wage laws. For construction work performed under this Contract cumulatively exceeding \$25,000 and for alteration, demolition, repair and maintenance work performed under this Contract cumulatively exceeding \$15,000, the Contractor and its subcontractors shall comply with State prevailing wage laws including, but not limited to, the requirements listed below.
 - 1.1. **Compliance with Prevailing Wage Requirements.** Pursuant to sections 1720 through 1861 of the California Labor Code, the Contractor and its subcontractors shall ensure that all workers who perform work under this Contract are paid not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). This includes work performed during the design and preconstruction phases of construction including, but not limited to, inspection and land surveying work.
 - 1.1.1. Copies of such prevailing rate of per diem wages are on file at the City and are available for inspection to any interested party on request. Copies of the prevailing rate of per diem wages also may be found at <http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm>. Contractor and its subcontractors shall post a copy of the prevailing rate of per diem wages determination at each job site and shall make them available to any interested party upon request.
 - 1.1.2. The wage rates determined by the DIR refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, then the published rate of wage shall be in effect for the life of this Contract. If the published wage rate refers to a predetermined wage rate to become effective upon expiration of the published wage rate and the predetermined wage rate is on file with the DIR, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to this Contract in the same manner as if it had been published in said publication. If the predetermined wage rate refers to one or more additional expiration dates with additional predetermined wage rates, which expiration dates occur during the life of this Contract, each successive predetermined wage rate shall apply to this Contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this Contract, such wage rate shall apply to the balance of the Contract.
 - 1.2. **Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed. This shall be in addition to any other applicable penalties allowed under Labor Code sections 1720 – 1861.

- 1.3. Payroll Records.** Contractor and its subcontractors shall comply with California Labor Code section 1776, which generally requires keeping accurate payroll records, verifying and certifying payroll records, and making them available for inspection. Contractor shall require its subcontractors to also comply with section 1776. Contractor and its subcontractors shall submit weekly certified payroll records online via the City's web-based Labor Compliance Program. Contractor is responsible for ensuring its subcontractors submit certified payroll records to the City.
- 1.3.1.** Contractor and their subcontractors shall also furnish records specified in Labor Code section 1776 directly to the Labor Commissioner in the manner required by Labor Code section 1771.4.
- 1.4. Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor is held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.
- 1.5. Working Hours.** Contractor and their subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on contractors and subcontractors of \$25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections 1810 through 1815.
- 1.6. Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.
- 1.7. Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that "I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract."
- 1.8. Labor Compliance Program.** The City has its own Labor Compliance Program authorized in August 2011 by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred. For questions or assistance, please contact the City of San Diego's Prevailing Wage Unit at 858-627-3200.

- 1.9. Contractor and Subcontractor Registration Requirements.** This project is subject to compliance monitoring and enforcement by the DIR. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid or proposal, subject to the requirements of section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.
- 1.9.1.** A Contractor's inadvertent error in listing a subcontractor who is not registered pursuant to Labor Code section 1725.5 in response to a solicitation shall not be grounds for filing a bid protest or grounds for considering the bid non-responsive provided that any of the following apply: (1) the subcontractor is registered prior to bid opening; (2) within twenty-four hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5; or (3) the subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.
- 1.9.2.** By submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the DIR in compliance with Labor Code sections 1771.1 and 1725.5, and Contractor shall provide proof of registration for themselves and all listed subcontractors to the City at the time of bid or proposal due date or upon request.
- 1.10. Stop Order.** For Contractor or its subcontractors engaging in the performance of any public work contract without having been registered in violation of Labor Code sections 1725.5 or 1771.1, the Labor Commissioner shall issue and serve a stop order prohibiting the use of the unregistered contractors or unregistered subcontractor(s) on ALL public works until the unregistered contractor or unregistered subcontractor(s) is registered. Failure to observe a stop order is a misdemeanor.
- 1.11. List of all Subcontractors.** The Contractor shall provide the list of subcontractors (regardless of tier), along with their DIR registration numbers, utilized on this Contract prior to any work being performed; and the Contractor shall provide a complete list of all subcontractors with each invoice. Additionally, Contractor shall provide the City with a complete list of all subcontractors (regardless of tier) utilized on this contract within ten working days of the completion of the contract, along with their DIR registration numbers. The City shall withhold final payment to Construction Management Professional until at least thirty (30) days after this information is provided to the City.
- 1.12. Exemptions for Small Projects.** There are limited exemptions for installation, alteration, demolition, or repair work done on projects of \$25,000 or less. The Contractor shall still comply with Labor Code sections 1720 et. seq. The only recognized exemptions are listed below:

- 1.12.1.** Registration. The Contractor will not be required to register with the DIR for small projects. (Labor Code section 1771.1).
- 1.12.2.** Certified Payroll Records. The records required in Labor Code section 1776 shall be required to be kept and submitted to the City of San Diego but will not be required to be submitted online with the DIR directly. The Contractor will need to keep those records for at least three years following the completion of the Contract. (Labor Code section 1771.4).
- 1.12.3.** List of all Subcontractors. The Contractor shall not be required to hire only registered subcontractors and is exempt from submitting the list of all subcontractors that is required in section 1.11. above. (Labor code section 1773.3).

ATTACHMENT E
SUPPLEMENTARY SPECIAL PROVISIONS

SUPPLEMENTARY SPECIAL PROVISIONS

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

1. The **2021 Edition** of the Standard Specifications for Public Works Construction (The "GREENBOOK").
2. The **2021 Edition** of the City of San Diego Standard Specifications for Public Works Construction (The "WHITEBOOK"), including the following:
 - a) General Provisions (A) for all Construction Contracts.

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

1-2 TERMS AND DEFINITIONS. To the "WHITEBOOK":

To item 47, "Holiday", ADD the following:

Holiday	Observed On
Juneteenth	June 19

To item 55, "Normal Working Hours", DELETE in its entirety and SUBSTITUTE with the following:

Normal Working Hours: Normal Working Hours shall be **7:00 AM to 4:00 PM**, Monday through Friday, inclusive. Saturdays, Sundays, and City Holidays are excluded. Unless otherwise specified on the Traffic Control Permits.

SECTION 2 - SCOPE OF THE WORK

2-2 PERMITS, FEES, AND NOTICES. To the "WHITEBOOK", ADD the following:

2. The Contractor shall obtain, at no cost to you, the following permits:
 - a) Building Permit

SECTION 3 – CONTROL OF THE WORK

3-2 SELF-PERFORMANCE. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. You shall perform, with your own organization, Contract Work amounting to at least **50%** of the Base Bid.

3-9 TECHNICAL STUDIES AND SUBSURFACE DATA. To the "WHITEBOOK", ADD the following:

5. In preparation of the Contract Documents, the designer has relied upon the following reports of explorations and tests at the Work Site:
 - a) Report of Geotech dated December 22, 2010 by Ninyo & Moore and Associates.
 - b) Report of Geotech dated April 16, 2020 by Ninyo & Moore and Associates.
 - c) Report of ALMP Inspection dated May 4, 2020 by City of San Diego Environmental Services Department.
6. The reports listed above are available for review at the following link:
<https://drive.google.com/drive/folders/11x33vSBtfZ63MobGLbaVuH7b2g8sF4tg?usp=sharing>

SECTION 3 – CONTROL OF THE WORK

3-10 SURVEYING. To the "GREENBOOK" and "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

3-10 SURVEYING (DESIGN-BID-BUILD).

3-10.1 General.

1. You shall provide all required site layout and general grade checking work not specified in 3-10.2, "Survey Services Provided by City".
2. Notify the City, in writing, at least 2 Working Days prior to requesting survey services provided by the City.

3-10.2 Survey Services Provided by City.

1. Unless otherwise noted, monument perpetuation, including mark-outs, will be performed by the City. Coordination of these services will be your duty, through the Resident Engineer. If, at any time, an existing survey monument is, or will be, destroyed or disturbed during the course of construction you shall notify the Resident Engineer so that the monument is preserved or perpetuated in accordance with state law.
2. The following surveying services, as defined in Cal. Bus. & Prof. Code §8726, shall be provided by the City:
 - a) Locating or establishing a minimum of 4 project geodetic survey control points that provide horizontal and vertical reference values for site feature and structure layout reference locations.
 - b) Locating, establishing, or reestablishing project site boundary lines, survey monuments, right-of-way lines, or easement lines.

- c) Locating or establishing building design structure locations (building corners or envelope limits) sufficient for structure construction.

3-10.3 Payment.

1. The payment for site layout and general grade checking Work, coordination, and preservation of all survey related marks shall be included in the Contract Price.

3-13.3.1 Defective Work. To the "WHITEBOOK", item 6, DELETE in its entirety and SUBSTITUTE with the following:

6. For Building Projects which require a certificate of occupancy, not including sewer and water facilities, if you fail to correct the defective Work listed on the City's Punchlist within 45 Working Days after the Contract Time, you shall reimburse the City for all costs to provide inspection services required to monitor Work beyond the 45 Working Days. The City shall bill you for the additional inspection at the City's established rates.

SECTION 4 - CONTROL OF MATERIALS

4-6 TRADE NAMES. To the "WHITEBOOK", ADD the following:

11. You shall submit your list of proposed substitutions for an "equal" item **no later than 15 Working Days after the issuance of the Notice of Intent to Award** and on the City's Product Submittal Form available at:

<https://www.sandiego.gov/ecp/edocref/>

SECTION 5 – LEGAL RELATIONS AND RESPONSIBILITIES

5-4 INSURANCE. To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

5-4 INSURANCE.

1. The insurance provisions herein shall not be construed to limit your indemnity and defense duties set forth in the Contract.

5-4.1 Policies and Procedures.

1. You shall procure the insurance described below, at your 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 shall maintain this insurance as required by this Contract and at all times thereafter when you are correcting, removing, or replacing Work in

accordance with this Contract. Your duties under the Contract, including your indemnity obligations, are not limited to the insurance coverage required by this Contract.

4. If you maintain broader coverage or higher limits than the minimums shown below, City requires and shall be entitled to the broader coverage or the higher limits maintained by you. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to City.
5. Your payment for insurance shall be included in the Contract Price you bid. You are not entitled to any additional payment from the City to cover your insurance, unless the City specifically agrees to payment in writing. Do not begin any Work under this Contract or allow any Subcontractors to begin work, until you have provided, and the City has approved, all required insurance.
6. Policies of insurance shall provide that the City is entitled to 30 days advance written notice of cancellation or non-renewal of the policy or 10 days advance written notice for cancellation due to non-payment of premium. Maintenance of specified insurance coverage is a material element of the Contract. Your failure to maintain or renew coverage and to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

5-4.2 Types of Insurance.

5-4.2.1 General Liability Insurance.

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

<u>General Annual Aggregate Limit</u>	<u>Limits of Liability</u>
Other than Products/Completed Operations	\$10,000,000
Products/Completed Operations Aggregate Limit	\$10,000,000
Personal Injury Limit	\$5,000,000
Each Occurrence	\$5,000,000

5-4.2.2 Commercial Automobile Liability Insurance.

1. You shall 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 shall be outside the limits of the policy.

5-4.2.3 Workers' Compensation Insurance and Employers Liability Insurance.

1. In accordance with the provisions of California Labor Code section 3700, you shall 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 this requirement.
2. Statutory Limits shall be provided for Workers' Compensation Insurance as required by the state of California, and Employer's Liability Insurance with limits of no less than \$1,000,000 per accident for bodily injury or disease.
3. By signing and returning the Contract, you certify that you are aware of the provisions of California's Workers' Compensation laws, including Labor Code section 3700, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance, and that you will comply with these provisions before commencing the Work.

5-4.2.4 Contractors Pollution Liability Insurance.

1. You shall procure and maintain at your expense or require your Subcontractor, as described below, to procure and maintain Contractors Pollution Liability Insurance applicable to the Work being performed, with a limit no less than \$2,000,000 per claim or occurrence and \$4,000,000 aggregate per policy period of one year.
2. All costs of defense shall be outside the limits of the policy.
3. You shall obtain written approval from the City for any insurance provided by your Subcontractor instead of you.
4. For approval of a substitution of your Subcontractor's insurance, you shall 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 shall not exceed \$25,000 per claim unless the City has provided prior, written approval.
5. Occurrence based policies shall be procured before the Work commences. Claims Made policies shall be procured before the Work commences, shall be

maintained for the Contract Time, and shall include a 12-month extended Claims Discovery Period applicable to this contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work without advancing the retroactive date.

5-4.2.5 Contractors Hazardous Transporters Pollution Liability Insurance.

1. You shall procure and maintain at your expense or require your Subcontractor, as described below, to procure and maintain Contractors Hazardous Transporters Pollution Liability Insurance, including contractual liability coverage to cover liability arising out of transportation of hazardous or toxic, materials, substances, or any other pollutants by you or any Subcontractor in an amount no less than \$2,000,000 limit per occurrence and \$4,000,000 aggregate per policy period of one year.
2. All costs of defense shall be outside the limits of the policy.
3. You shall obtain written approval from the City from any insurance provided by a Subcontractor instead of you.
4. To obtain City approval of a Subcontractor's insurance coverage in lieu of the Contractor's insurance, the Contractor shall certify that all activities under the Contractor's Hazardous Transporters Pollution Liability Insurance will be performed exclusively by the Subcontractor providing the insurance. The deductible shall not exceed \$25,000 per claim without prior approval of the City
5. Occurrence based policies shall be procured before the Work commences. Claims Made policies shall be procured before the Work commences, shall be maintained for the duration of this contract, and shall include a 12-month extended Claims Discovery Period applicable to this Contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work under this Contract without advancing the retroactive date.

5-4.2.6 Contractors Builders Risk Property Insurance.

1. You shall provide at your expense, and maintain until Final Acceptance of the Work, a Special Form Builders Risk Policy or Policies. This insurance shall 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 shall be 100 percent of the value of the Work under this Contract, plus 15 percent to cover administrative costs, design costs, and the costs of inspections and construction management.
2. Insured property shall include material or portions of the Work located away from the Site but intended for use at the Site and shall cover material or portions of the Work in transit. The policy or policies shall include as insured property scaffolding, falsework, and temporary buildings located at the Site.

The policy or policies shall cover the cost of removing debris, including demolition.

3. The policy or policies shall provide that all proceeds shall be payable to the City as Trustee for the insured, and shall name the City, the Contractor, Subcontractors, and Suppliers of all tiers as named insured. The City, as Trustee, will collect, adjust, and receive all monies that become due and payable under the policy or policies, may compromise any and all claims, and will apply the proceeds of this insurance to the repair, reconstruction, or replacement of the Work.
4. Any deductible applicable to the insurance shall be identified in the policy or policies documents. The responsibility for paying the part of any loss not covered because of the deductibles shall 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 shall 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 shall be entitled to 100 percent of its loss. You shall pay the City any portion of the 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 shall be responsible for 100 percent of the loss not insured because of the deductible.

5-4.2.8 Architects and Engineers Professional Insurance (Errors and Omissions Insurance).

1. For Contracts with required engineering services, including Design-Build and preparation of engineered Traffic Control Plans (TCP) by you, you shall keep or require all of your employees and Subcontractors, who provide professional engineering services under Contract, to provide to the City proof of Professional Liability coverage with a limit of no less than **\$1,000,000** per claim and **\$2,000,000** aggregate per policy period of one year.
2. You shall ensure the following:
 - a) The policy retroactive date is on or before the date of commencement of the Project.
 - b) The policy will be maintained in force for a period of three years after completion of the Project or termination of the Contract, whichever occurs last. You agree that, for the time period specified above, there will be no changes or endorsements to the policy that affect the specified coverage.
3. If professional engineering services are to be provided solely by the Subcontractor, you shall:
 - a) Certify this to the City in writing, and

- b) Agree in writing to require the Subcontractor to procure Professional Liability coverage in accordance with the requirements set forth here.

5-4.3 Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this Contract shall 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 of California, and that have been approved by the City.

5-4.3.1 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 of California and is included on the List of Approved Surplus Lines Insurers (LASLI list).

All policies of insurance carried by non-admitted carriers shall be subject to all of the requirements for policies of insurance provided by admitted carriers described in this Contract.

5-4.4 Evidence of Insurance. You shall furnish the City with original Certificates of Insurance, including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause), prior to your commencement of Work under this Contract. In addition, The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

5-4.5 Policy Endorsements.

5-4.5.1 Commercial General Liability Insurance.

5-4.5.1.1 Additional Insured. To the fullest extent permitted by law and consistent with the limiting provisions set forth at California Civil Code section 2782, California Insurance Code section 11580.04, and any applicable successor statutes limiting indemnification of public agencies that bind the City, the policy or policies shall be endorsed to include as an Additional Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:

- i. Ongoing operations performed by you or on your behalf,
- ii. your products,
- iii. your work, e.g., your completed operations performed by you or on your behalf, or
- iv. premises owned, leased, controlled, or used by you.

5-4.5.1.2 Primary and Non-Contributory Coverage. The policy shall 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 shall provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

5-4.5.1.3 Project General Aggregate Limit. The policy or policies shall 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 shall reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit shall be in addition to the aggregate limit provided for the products-completed operations hazard.

5-4.5.2 Workers' Compensation Insurance and Employers Liability Insurance.

5-4.5.2.1 Waiver of Subrogation. The policy or policies shall 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.

5-4.5.3 Contractors Pollution Liability Insurance Endorsements.

5-4.5.3.1 Additional Insured. To the fullest extent permitted by law and consistent with the limiting provisions set forth at California Civil Code section 2782, California Insurance Code section 11580.04, and any applicable successor statutes limiting indemnification of public agencies that bind the City, the policy or policies shall be endorsed to include as an Additional 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.

5-4.5.3.2 Primary and Non-Contributory Coverage. The policy or policies shall 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 shall be in excess of your insurance and shall not contribute to it.

5-4.5.3.3 Severability of Interest. For Contractors Pollution Liability Insurance, the policy or policies shall provide that your insurance shall 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 shall provide cross-liability coverage.

5-4.5.4 Contractors Hazardous Transporters Pollution Liability Insurance Endorsements.

5-4.5.4.1 Additional Insured. To the fullest extent permitted by law and consistent with the limiting provisions set forth at California Civil Code section 2782, California Insurance Code section 11580.04, and any applicable successor statutes limiting indemnification of public agencies that bind the City, the policy or policies shall be endorsed to include as an Additional 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.

5-4.5.4.2 Primary and Non-Contributory Coverage. The policy or policies shall 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 shall be in excess of your insurance and shall not contribute to it.

5-4.5.4.3 Severability of Interest. For Contractors Hazardous Transporters Pollution Liability Insurance, the policy or policies shall provide that your insurance shall 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 shall provide cross-liability coverage.

5-4.5.5 Builders Risk Endorsements.

5-4.5.5.1 Waiver of Subrogation. The policy or policies shall 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 that arise from Work performed by the Named Insured for the City.

5-4.5.5.2 Builders Risk – Partial Utilization. If the City desires to occupy or use a portion or portions of the Work prior to Acceptance, the City will notify you, and you shall

immediately notify your Builder's Risk insurer and obtain an endorsement that the policy or policies shall not be cancelled or lapse on account of any use or occupancy. You shall obtain the endorsement prior to the City's occupation and use.

5-4.6 Deductibles and Self-Insured Retentions. You shall disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided. The City may require you to purchase coverage with a lower retention or provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or City.

5-4.7 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.

5-4.8 Notice of Changes to Insurance. You shall notify the City, in writing, 30 days prior to any material change to the policies of insurance provided under this Contract. This written notice is in addition to the requirements of paragraph 6 of Section 5-4.1.

5-4.9 Excess Insurance. Policies providing excess coverage shall follow the form of the primary policy or policies, including all endorsements.

SECTION 6 - PROSECUTION AND PROGRESS OF THE WORK

6-1.1 Construction Schedule. To the "WHITEBOOK", ADD the following:

3. Refer to the Sample City Invoice materials in **Appendix D - Sample City Invoice with Cash Flow Forecast** and use the format shown.
4. The **90 Calendar Day** Plant Establishment Period is included in the stipulated Contract Time and shall begin with the acceptance of installation of the vegetation plan in accordance with Section 801-6, "MAINTENANCE AND PLANT ESTABLISHMENT".
5. From issuance of Limited Notice to Proceed (LNTP), Contractor should prepare all submittals pertaining to permitting of the Prefabricated Comfort Station and Concession, concrete mix designs, and new electrical switchboard.
6. Contractor shall propose a construction schedule that will identify all the work that can be done while the Prefabricated Comfort Station is in the permitting and procurement process including but not limited to demolition of existing structure, installation of new switchboard, construction of underground utilities, hardscape, and other site work.

6-2.1 Moratoriums. To the "WHITEBOOK", ADD the following:

3. Do not Work in the areas where there is currently a moratorium issued by the City. The areas subject to moratorium are listed below:
 - a) **Summer Moratorium @ Beach from May 29th to September 4th** (inclusive).

ADD:

6-6.1.1 Environmental Document.

1. The City of San Diego has prepared a **Notice of Exemption for Mission Bay Athletic Area Comfort Station Modernization (Mission Bay Athletic Area Improvements)**, Project No. **B-17179**, as referenced in the Contract Appendix. You shall comply with all requirements of the **Notice of Exemption** as set forth in **Appendix A**.
2. Compliance with the City's environmental document shall be included in the Contract Price, unless separate bid items have been provided.

SECTION 7 – MEASUREMENT AND PAYMENT

7-3.1 General. To the "WHITEBOOK", ADD the following:

3. The Lump Sum Bid item for **"Construction of Comfort Station and all associated work and other improvements"** shall include, and not be limited to, demolition of existing comfort station and foundation, and construction of new foundation for prefabricated comfort station and concession area, accessibility improvements, utility work, electrical upgrades, landscaping, and parking lot resurfacing as specified in the Plans (36160-1-D thru 36160-36-D), Traffic Control Plans (36160-T01-D thru 36160-T02-D), Contract Documents, and Technicals Specification.

7-3.11 Compensation Adjustments for Price Index Fluctuations. To the "WHITEBOOK", ADD the following:

5. This Contract **is not** subject to the provisions of The "WHITEBOOK" for Compensation Adjustments for Price Index Fluctuations for paving asphalt.

SECTION 300 – EARTHWORK

300-1 CLEARING AND GRUBBING

300-1.1 General. To the "WHITEBOOK", ADD the following:

10. Prior to submittal of a Bid for this Work, the Contractor shall inspect the project site to verify the magnitude and cost of all Clearing and Grubbing required to accomplish the Work. Clearing and Grubbing shall also include saw cutting, demolition, removal and disposal of all existing improvements called out on

the Plans to be removed and/or disposed of, including, but not limited to, excess soil, pavement, fencing, sidewalk to nearest joint, asphalt concrete berm, curb & gutter, dirt walkway, log barriers, signs and signs posts, trees, waterlines, backflow device, sewer lines, sewer cleanouts, existing paint striping, drinking fountains, comfort station building, building slab, vegetation and all other existing improvements that are shown on the plans for removal or are in conflict with the installation of work shown on the plans, directed by the Resident Engineer to be removed, or otherwise required to perform the work which are not designated as separate bid items or which are not included in other bid items. Prior to submittal of a Bid for this Work, the Contractor shall inspect the project site to verify the magnitude and cost of Salvaging and/or Re-Installing/Relocating Existing Improvements, as called out on the Plans and necessary to accomplish the Work.

300-1.4 Payment. To the "WHITEBOOK", ADD the following:

Payment for clearing and grubbing shall be made at the contract lump sum price for "Construction of Comfort Station and all associated work and other improvements" and shall include full compensation for all work within the Project Site. No other payments shall be made therefore. Payment for preservation of property shall be included in the contract lump sum price for "Construction of Comfort Station and all associated work and other improvements". No other payments shall be made therefore. Payment for removing and salvaging and/or relocating/reinstalling existing improvements shall be included in the contract lump sum price for "Construction of Comfort Station and all associated work and other improvements". No other payments will be made, therefore.

306-15.1 General. To the "WHITEBOOK", item 1, ADD the following:

- q) saddled water service connections.
- r) sewer cleanouts per SDS-102

SECTION 402 – UTILITIES

402-2 PROTECTION. To the "WHITEBOOK", item 1, ADD the following:

- g) Refer to **Appendix G - Advanced Metering Infrastructure (AMI) Device Protection** for more information on the protection of AMI devices.

SECTION 1001 – CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs)

1001-1 GENERAL. To the "WHITEBOOK", ADD the following:

- 8. Based on a preliminary assessment by the City, this Contract is subject to **WPCP**.

TECHNICALS



PROJECT MANUAL FOR CONSTRUCTION

FOR

Mission Bay Athletic Area

COMFORT STATION ACCESSIBILITY IMPROVEMENTS

2639 GRAND AVENUE, SAN DIEGO CA. 92109

PREPARED FOR:

CITY OF SAN DIEGO PUBLIC WORKS DEPARTMENT

FINAL SUBMITTAL

APRIL 21, 2023

PLATT/WHITELOW ARCHITECTS, INC.
2051 SAN DIEGO AVE, SUITE B-250
SAN DIEGO, CALIFORNIA 92110
619 546-4326



MISSION BAY ATHLETIC AREA MODERNIZATION

Rev. 4.21.2023

DIVISION 01 – GENERAL REQUIREMENTS

11000 SUMMARY
17300 EXECUTION

DIVISION 02 – SITE CONDITIONS

24116 STRUCTURE DEMOLITION

DIVISION 10 – SPECIALTIES

101426 PANEL SIGNS
107500 FLAGPOLES

DIVISION 13 – SPECIAL CONSTRUCTION

133423 PREFABRICATED COMFORT STATION BUILDING

DIVISION 26 – ELECTRICAL

260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
260529 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
260533 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
260543 UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS
260544 SLEEVES AND SLEEVE SEALS FOR ELEC. RACEWAYS AND CABLING
260553 IDENTIFICATION FOR ELECTRICAL SYSTEMS
260573.13 SHORT-CIRCUIT STUDIES
260573.16 COORDINATION STUDIES
260573.19 ARC-FLASH HAZARD ANALYSIS
262413 SWITCHBOARDS
262416 PANELBOARDS
262816 ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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SECTION 01 10 00

SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Mission Bay Athletic Area Comfort Station Modernization.

1. Project Location: 2639 Grand Avenue, San Diego, CA 92109.

B. Owner: City of San Diego.

1. Owner's Representative: Francis S. Marquez, Engineering and Capital Projects, 619-533-4688

C. Architect: Sandra Gramley, Platt/Whitelaw Architects, 619-546-4326.

D. Resident Engineer: City of San Diego will appoint a Resident Engineer to manage the project during construction.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Voluntary ADA upgrades to the Athletic Area including accessible path of travel, sidewalks, and accessible parking in two locations.
2. Removal of existing Comfort Station/Concession Building and replacement with a new pre-fabricated building on prepared site. The building will be a separate permit issued by the City of San Diego after approval from State HCD.

SUMMARY

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3. Parking lot resurfacing and restriping as indicated on the Civil drawings
4. Fencing, Landscape and Irrigation as indicated on the drawings
5. New Electrical service and Switchboard, and new water service

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.4 WORK BY OWNER

- A. Preceding Work: Owner will perform the following construction operations at Project site. Those operations are scheduled to be substantially complete before work under this Contract begins.

1. Abatement of any hazardous materials.

1.5 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 areas indicated on the plans.
2. Driveways, Walkways and Entrances: Keep driveways 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.

1.6 COORDINATION WITH OCCUPANTS AND OTHER USERS

- A. Partial Owner Occupancy: Owner will occupy the premises, specifically adjacent playing fields, during entire construction period with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

SUMMARY

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1. Maintain access to existing walkways, and other adjacent facilities. Do not close or obstruct walkways, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than **72** hours' notice to Owner of activities that will affect Owner's operations.

1.7 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 in the existing building to normal business working hours of 7 a.m. to 5 p.m., Monday through Friday, unless otherwise indicated.
 1. Weekend Hours: Only with approval of Resident Engineer.
 2. Early Morning Hours: Only with approval of Resident Engineer.
 3. Hours for Utility Shutdowns: Coordinate with Resident Engineer.
- 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 Resident Engineer not less than **two** days in advance of proposed utility interruptions.
 2. Obtain Resident Engineer's written permission before proceeding with utility interruptions.
- D. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.8 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 certain situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

SUMMARY

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- 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.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SUMMARY

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SECTION 01 73 00

EXECUTION

PART 1 - GENERAL

1.1 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: shall include but not be limited to the following:
 - 1. Section 01 10 00 "Summary" for limits on use of Project site.
 - 2. Section 02 41 16 "Structure Demolition" for demolition and removal of the building.
 - 3. Green Book 2021 "Standard Specifications for Public Works Construction"
 - 4. White Book 2021 Edition, shall supersede the Green Book

1.2 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.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match the existing or in-place adjacent surfaces to the greatest extent possible.

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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 and clearly "mark-out" per Whitebook Section 400.
 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.
- C. 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 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 Resident Engineer.

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 Resident Engineer promptly.
- B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- C. Coordinate pre-fabricated building installation with manufacturer's requirements.
- 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 plumbing 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 Resident Engineer.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. 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 Resident Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Resident Engineer before proceeding.
- 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, and elevations 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 80" in occupied spaces and in 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 that may exceed 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 indicated on drawings or as 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. Provide sealant at any joint in excess of 1/8"
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous, and that meet the requirements of the Cal-Green building code.

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. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. 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.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.
- G. 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 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. 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.
- I. 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 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 per The White Book.
- 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.

3.8 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.

END OF SECTION 01 73 00

SECTION 024116
STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and abandoning in-place or removing site utilities.
4. Salvaging items for reuse by Owner.

1.2 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. Include fasteners or brackets needed for reattachment elsewhere.

1.3 MATERIALS OWNERSHIP

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

1.4 INFORMATIONAL SUBMITTALS

A. 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.

- B. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

- C. Predemolition: Photographs or Video showing existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before the Work begins.

STRUCTURE DEMOLITION

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- D. Landfill Records: Indicate receipt and acceptance of wastes by a recycling facility and landfill facility to show compliance with CalGreen and City requirements.

1.5 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 City of San Diego Information bulletin 710, CBC Chapter 33, 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 and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review and finalize protection requirements.
 - 4. Review items to be salvaged and returned to Owner.

1.6 PROJECT CONDITIONS

- A. Buildings, including foundations to be demolished will be vacated and their use discontinued before start of the Work.
- B. 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. Hazardous materials will be removed by Owner before start of the Work. Refer to Hazardous material report dated 4/27/2020 provided by the City of San Diego indicating the existence of Asbestos in the roof mastic. This report shall be presented to the Air Pollution Control District (APCD) when filling out the County Questionnaire, and obtain approval to obtain permit
 - 3. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Resident Engineer. Hazardous materials will be removed by Owner under a separate contract.
- C. On-site storage or sale of removed items or materials is not permitted

STRUCTURE DEMOLITION

PART 2 - PRODUCTS[(Not Used)]

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. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage 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.
 - 4. Water lines shall be capped at the point of connection to main service or trunk line, to eliminate dead end plumbing lines.
- B. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.
- C. All open plumbing and sewer lines must be capped in an approved manner, whether a demolition permit is required or not. A separate permit is not required for the capping of the sewer.
- D. 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.

STRUCTURE 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. 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.
 - 1. Protect adjacent buildings and facilities from damage due to demolition activities.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- 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 adequate ventilation when using cutting torches.
 - 3. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- 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.

STRUCTURE DEMOLITION

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 and other below-grade construction.

1. Remove below-grade construction, including foundation, and footings, completely.

D. Existing Utilities: Demolish and remove existing utilities and below-grade utility structures as indicated. Remove to a distance of 5' from structure and as coordinated with building manufacturer.

1. Piping: Disconnect piping at unions, flanges, valves, or fittings.
2. Wiring Ducts, conduit: Disassemble into unit lengths and remove plug-in and disconnecting devices.

3.6 SITE RESTORATION

A. Below-Grade Areas: Rough grade below-grade areas ready for further excavation or new construction.

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 site caused by demolition operations.

STRUCTURE DEMOLITION

3.8 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site. Comply with CBC CalGreen requirements for requirement to recycle 65% of project waste, and per Council Policy 900-16.

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. Provide waste diversion or transfer tickets to Resident Engineer
4. Comply with all regulation in the Greenbook and City of San Diego's Whitebook.

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 024116

STRUCTURE DEMOLITION

SECTION 101426
POST AND PANEL SIGNS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Post and panel signs.

1.3 PERFORMANCE REQUIREMENTS

- A. Design Criteria: Design, fabricate, and install exterior post and panel signs to withstand a wind velocity of 100 mph on the total sign area, in all directions.

1.4 SUBMITTALS

- A. Product Data: For each type of post and panel sign specified. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Shop Drawings: For each type of post and panel sign indicated.
 - 1. Provide plans and elevations. Show layout and installation details.
 - 2. Provide message list, including details of wording and lettering layout, at least half size.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Galvanized Steel Sheet: ASTM A653, G90 coating, mill phosphatized.
- B. Steel Tubing: Cold-formed steel tubing conforming to ASTM A 500, Grade B, hot-dip galvanized after fabrication with a minimum of 2.0 oz. of zinc/sq. ft. of surface area conforming to ASTM A 123.

POST AND PANEL SIGNS

- C. Vinyl Film: Opaque, non-reflective vinyl film, 0.0035-inch minimum thickness, with pressure-sensitive adhesive backing, suitable for exterior applications.
- D. Concrete for Post Holes: Mix portland cement complying with ASTM C 150, aggregates complying with ASTM C 33, and clean water to obtain concrete with a minimum 28-day compressive strength of 2500 psi. Use at least 4 sacks of cement/cu. yd., 1-inch maximum-size aggregate, maximum 3-inch slump, and 2 to 4 percent entrained air.

2.2 COMPONENTS

- A. Steel Posts: 0.120-inch-, galvanized, seamless, square steel posts in length adequate for mounting method specified. Include post caps, fillers, spacers, and related accessories required for a complete installation.
 - 1. Post Size: 2 by 2 inches square.
- B. Sign Panels: Provide smooth, even, level 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.
 - 1. Single-Sheet Panels: Provide single-sheet sign panels with edges mechanically and smoothly finished to conform to the following:
 - a. Panel Material: 16 gage galvanized steel sheet.
 - b. Edge Condition: Square cut.
 - c. Corner Condition: Corners rounded.
- C. Graphic Content and Style: Provide sign copy to comply with requirements indicated for sizes, styles, spacing, content, positions, materials, finishes, and colors of letters, numbers, symbols, and other graphic devices.
 - 1. Surface-Applied, Die-Cut Vinyl Copy: Provide die-cut characters from nonreflective vinyl film with pressure-sensitive adhesive backing. Apply copy to exposed face of sign panel.

2.3 ACCESSORIES

- A. Fasteners: Use exposed fasteners fabricated from non-corrosive metals that are non-corrosive to sign material.

2.4 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.
- B. Baked-Enamel Finish: Apply baked enamel complying with paint manufacturer's specifications for cleaning and painting.
 - 1. Color: As selected by Architect from manufacturer's full range of colors.

POST AND PANEL SIGNS

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Locate sign units where indicated, using mounting methods of type described and complying with manufacturer's written instructions.
- B. Excavation: In firm, undisturbed or compacted soil, drill or (using a post-hole digger) hand-excavate holes for posts to diameters and spacing indicated.
 - 1. Excavate hole depths approximately 3 inches lower than required post bottom, with bottom of posts set at least 36 inches below finished grade.
- C. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation.
 - 1. Protect portion of posts aboveground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. Check posts for vertical and top alignment and hold in position until concrete has achieved its initial set.
- D. Install signs level, plumb, and at height indicated, with surfaces free from distortion or other defects in appearance.

3.2 CLEANING AND PROTECTING

- A. At completion of installation, clean soiled surfaces of sign units according to manufacturer's written instructions.
- B. Protect installed sign units from damage until acceptance by Resident Engineer.

END OF SECTION 10 14 26

POST AND PANEL SIGNS

SECTION 107500

FLAGPOLE

PART 1 - GENERAL

1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing a tapered aluminum flagpole, complete with a 50-star U.S. Flag and all fittings, ropes, guys, top ornament, lighting, ground spike with plate, foundation, grounding facilities, and all appurtenant work.

1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.

1.3 SPECIFICATIONS AND STANDARDS

- A. Except as otherwise indicated, the current editions of the following apply to the WORK of this Section:
 - 1. Federal Specifications:

CCC-C-439	Cloth, Bunting, Mercerized
CCC-C-476	Cloth, Bunting, Nylon; Nylon and Wool

1.4 SHOP DRAWINGS AND SAMPLES

- A. The following shall be submitted:
 - 1. Manufacturer's catalogue containing technical data and application instructions.
 - 2. Shop drawings indicating erection and grounding details.
- B. Samples of all the materials and colors proposed for use on the WORK. The samples shall be clearly marked to show the manufacturer's name and product identification.

1.5 DESIGN CRITERIA

- A. Flagpole and related installation construction shall be designed to withstand a 90 mph wind velocity when flying a flag of indicated size.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Flagpole[s] shall be spiral wrapped with heavy kraft paper or other protective wrapping and shipped in hard fiber tube or other protective container.

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PART 2 - PRODUCTS

2.1 FLAGS

- A. A 4-foot by 6-foot, 50-star United States flag shall be furnished with each of the flagpole. Flag shall be heavy-weight nylon conforming to FS CCC-C-476.

2.2 FLAGPOLE

- A. General: The flagpole shall be a tapered aluminum section and shall be provided complete with all fittings, top ornament, lighting, and ground spike with plate.
- B. Fabrication: Pole shall be a machine made, cone tapered, seamless, extruded aluminum pole. Pole shall be made of 6063-T6 aluminum alloy and shall have a minimum wall thickness of 0.188 inches, 6-inch minimum diameter butt, 3-1/2-inch minimum diameter top, and a height of 30 feet above base. Pole and all exposed aluminum fittings shall have a clear anodized finish having a minimum thickness of 0.0008-inch and a minimum weight of 32 mg per square inch.
- C. The 6-inch diameter ball at top shall be 14-gauge aluminum.
- D. Truck shall be heat-treated aluminum non-fouling, stainless steel ball bearing revolving truck, with nylon-bushed bronze sheaves.
- E. Cleat shall be 8-inch minimum cast bronze or anodized aluminum, 2 per pole, matching pole color, with stainless steel fasteners.
- F. Halyard shall be 3/8-inch braided nylon with Dacron jacket rope, supplied with 4 bronze swivel snaps. Snaps shall have little or no movement between the swivel and the snap. The snap head opening diameter shall be larger than the area to be snapped to prevent wear between snap and grommets.
- G. Base shall be ground set base with aluminum ground protector and flash collar.
 - 1. A minimum 16-gauge galvanized, corrugated steel tube or a 12-gauge rolled steel tube, sized to suit flagpole and installation shall be provided. Tube shall be complete with welded steel bottom base and support plate, lightning ground spike, and steel centering wedges, all of welded construction.
 - 2. Loose hardwood wedges shall be provided at top of tube for plumbing pole after erection.
 - 3. All steel parts shall be galvanized after assembly, including foundation tube.
- H. Sleeve shall be 16-gauge galvanized corrugated steel foundation tube or 10-gauge galvanized steel tube.

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2.3 MANUFACTURERS

- A. Flag pole and flag shall be manufactured by one of the following (or equal):
 - 1. Acme Flagpole Co.
 - 2. Concord American Flagpole
 - 3. Postal Products Unlimited

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Flag pole, concrete base, and copper ground rod shall be provided as per manufacturer's published recommendations and specifications. Installation shall be secure, true, and plumb.
- B. Portions of ground-set flagpole which occur below grade shall be painted with a heavy coat of bituminous paint.
- C. Confirm foundation and soil compaction is coordinated with Soils Report and is reviewed by City Inspector.

END OF SECTION 10 75 00

SECTION 13 34 23

PREFABRICATED RESTROOM/CONCESSION BUILDING

A. General, Specifications and Clarification of Prefabricated Building and Site Installation

1. This portion of the bid specifications does not follow the CSI standard format as the prefabricated structure in this bid is an **offsite constructed "product"** and not "typical" general construction.
2. The **installation of the product on site is general construction**, which must be coordinated between the general contractor and the subcontractor. Specifications for the building foundation/pad shall be provided herein by the specified design/build subcontractor. Due to the responsibility of the specified building subcontractor for architecture, engineering and a five-year warranty, the site pad/foundation must meet the subcontractor's design so the pad and building can be considered from a single source for warranty purposes. The subcontractor must accept the pad and compactions tests before they take responsibility for the entire system under their warranty.

B. Architectural Design/Engineering and Insurance Responsibility

1. While the City of San Diego has provided bid outline specifications and a design layout for the building, the building Manufacturer remains legally responsible for architecture, engineering, and all applicable building, safety, health, fire, and accessibility code compliance. Since they hold professional design responsibility to the owner, the building subcontractor must furnish certification that they provide product liability insurance in the amounts required by the general specifications **to cover property damage and personal injury**. Final drawings shall be stamped by a California engineer and California Department of Housing and Community Development, suitable for local permitting.

C. General Contractor Coordination with Design/Build Subcontractor

1. The specified prefabricated public restroom building requires coordination between the General Contractor (who prepares the site subgrade and delivery access for the prefabricated building) and the prefabricated restroom building subcontractor (who completes the architectural design, engineering, off-site building construction, delivery and installation on site.) The specified prefabricated restroom building specifications include unique components/systems which are custom to the restroom building subcontractor. Since the restroom subcontractor is responsible for design, additional insurance requirements for errors and omissions is required.

D. General Contractor, General Scope of Work

1. The general contractor for this project is responsible for the site survey and staking the building locations, finished slab survey elevations and marking on site, construction and compaction of the required building pads; access to the site for a large crane and tractor trailers delivering the prefabricated building; providing water, sewer, and power at a point of connection (POC) within 6 feet of the building and at the depth required by the building subcontractor and local code; and the installation of any sidewalks outside the building footprint.
2. The general contractor is responsible for verification to the building subcontractor design/build firm that there are no unanticipated site delivery issues such as overhead wires, trees, tree roots, or existing grade changes and that prevent a clear path of travel

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between a roadway and the final site exists for a tractor trailer and crane to expedite delivery. The design/build subcontractor requires that the general contractor certify that the required delivery crane must be able to set the building modules within 35' distance from the center of the building to the center of the crane hoist.

- 3. The general contractor shall provide a 18" x 18" perimeter concrete (4000 PSI min) foundation as indicated on the Building Floor Plan. The dimensions and details shall be coordinated with the Prefabricated Restroom building manufacture.

E. Prefabricated Restroom Building, General Scope of Work:

- 1. The prefabricated restroom building specialist will provide to the general contractor final building design architectural drawings and engineering calculations under the responsibility of a licensed structural engineer, in compliance with all local, state and federal codes. The design/build subcontractor shall construct the building offsite as a permanently relocatable building, transport it to the final required destination, and install the building turnkey, on a general contractor prepared pad per the drawings included in this bid.

H. Licensing:

The subcontractor must comply with all the State of California; Department of Housing and Community Development, prefabricated "Commercial Modular Requirements" as follows:

- 1. The building *manufacturer* must be licensed by the State of California, Department of Housing and Community Development as a manufacturer.
- 2. The selling dealer (if applicable) must be a California licensed dealer and present their license for verification with the bid.
- 3. The licensed dealer must also possess a State of California Contractors License Board Class B License and present their license for verification with the bid.

I. Bid Standard for the Prefabricated Restroom Building

- 1. The City of San Diego understands that there are several firms who design and build various types of public restroom buildings in varying quality and architectural styles, using similar or different construction methods and materials. For the purpose of this bid, the owner has selected:

Public Restroom Company, 2587 Business Parkway, Minden, NV 89423 and specifies herein that this firm is the standard for architectural design (safety, green design, code compliance, and site-specific compatibility.) PRC is also the standard of building performance and quality for the 50-year building design-life with low-maintenance based upon the longevity of the materials selected. Other firms quoting "or approved equal" whose criteria and standards do not comply will be rejected.

Contact: Chad Kaufman, President
 Phone: 888-888-2060 ext. 109
 Fax: 888-888-1448
 Email: chad@publicrestroomcompany.com
 Web: www.publicrestroomcompany.com

Pre-cast structures are not acceptable

J. "Or Approved Equal Restroom Design/Build Subcontractors"

PREFABRICATED RESTROOM/CONCESSION BUILDING

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The City of San Diego may also allow other firms to become qualified to bid, but any firms so authorized to bid must fully comply with these bid specifications and plans or be subject to post bid rejection.

- a) Or Approved Equal applicant shall provide scaled floor plans and elevations, to show general architectural design criteria is met.
- b) Or Approved Equal applicant shall provide a written list of each and every deviation from the published bid specifications/plans. Lack of specificity to each deviation from the bid specifications will be cause for rejection.
- c) Or Approved Equal applicant shall provide a manufacturer's certification of concrete test compliance from a national independent testing laboratory. The written report must state the concrete compressive strength and absorption resistance per ASTM standard #C39 and #C642, respectively.
- d) Or Approved Equal applicant must provide a list of every building they designed and built utilizing the same building materials/systems design criteria as published in this bid. Provide date of building bid, date of completion, and most knowledgeable owner contact.
- e) Or Approved Equal applicant shall provide certification of the special insurance required in this bid.
- f) Or Approved Equal applicant shall be responsible for and bear all cost for architecture, plan checks, design and structural engineering and all fees in obtaining approvals and permits from applicable agencies.

The City of San Diego or their consultant will be solely responsible for the decision to accept or reject the "or equal" submission.

J. Certificate of Off-site Inspection and Construction Compliance, Provision for Maintenance Manuals, and Warranty

1. The off-site restroom construction requires that a licensed third-party inspection firm provide the owner and the local building official with certification and compliance for the building with the approved plans and specifications. A certificate of compliance shall be issued by this inspector to the local building official to provide certification that the building meet and or exceed the approved plans and applicable codes.
2. At the project conclusion, the building subcontractor shall furnish two sets of complete maintenance manuals including a trouble shooting guide, location of manufacturers of key components for replacement parts together with final as-built plans, and a **5-year component/20-year structural warranty** to the owner or general contractor.

K. Site Scope of Work by General Contractor

The general contractor shall prepare the restroom building subgrade to receive the prefabricated building in accordance with the bid subgrade preparation drawings or foundation plan.

1. The building subgrade/footings shall be constructed per the bid drawings
2. The General Contractor shall provide water point of service at 30" below finished building slabs; sewer at 24" below the finished building slabs; and electrical at 36" below the finished building slabs or other per bid plans.
3. General Contractor shall coordinate with restroom subcontractor to provide full site delivery access for a 70' tractor-trailer and hydro crane to the final building sites.
4. If the final site access is over existing sidewalks, utilities, or landscaping, the General Contractor shall be responsible for plating and or tree trimming, utility line removal, or

PREFABRICATED RESTROOM/CONCESSION BUILDING

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- other to protect any existing conditions.
5. The hydro crane must be able to locate no greater than 35' from the center point of the building to the center point of the crane.
 6. The utilities shall be furnished per bid site plans at specified points of connection (POC) nominally 6' from the building lines.
 7. General contractor shall furnish and install final grading, landscaping and sidewalks.

M. Connection to Utilities

1. The restroom subcontractor will stub-out: Electrical, Water, and Sewer at the proper POINT OF CONNECTION AND AT THE PROPER ELEVATION BELOW GRADE, for this project. Restroom subcontractor shall provide final hook up of the water from building to POC; sewer hookup to POC; and electrical sleeve from building panel to POC only. Final utility connections shall be by General Contractor or others. General contractor shall flush the water lines thoroughly before making final water connection to the building. General Contractor shall be responsible for the local building permit. **Thoroughly flushing the water lines for AT LEAST 30 MINUTES is critical to ensure that the new code required low-flow fixtures and flush valves that are extremely sensitive to particulate matter in the water will not malfunction.**

N. Concrete Slab, Required Independent Testing Laboratory Certification:

1. The prefabricated building slabs special concrete technology claims to be water and urine resistant for life due to special additive technology. The building subcontractor must furnish a test certification of compliance from a national independent testing laboratory to support the claim for absorption resistance. The written report must state the concrete compressive strength (minimum of 7,000 PSI) and absorption resistance (not greater than 3%) per ASTM standard #C642 and #C39 respectively. Since this non-absorbency capability is so significant, the design/build subcontractor must provide a general certification of compliance.

O. Prefabricated Restroom Building:

1. The City of San Diego has evaluated several prefabricated restroom building suppliers. This bid requires such building be used in lieu of site-built traditional construction because of the unique built-in advantages guaranteed by the design/build firm. This technology includes many new innovations such as non-absorbent concrete; anti-microbial components to reduce health risks; built in vandal resistance design; lowered maintenance and long-term warranties that reduce owner risk for failure. The specifications below are written around this new technology.

P. Mat Engineered Concrete Building Slab/Foundation:

1. The mat engineered 8" thick slab/foundation shall be engineered and constructed to withstand the transportation weight of the building without cracking and to resist absorption from any liquids deposited on the surface. The concrete slab shall be constructed inside a steel angle curb, reinforced with dual mats (tension and compression,) and poured with a custom concrete formula with special admixtures to create a finished slab that is water-resistant for life.
2. The building slab/foundation will include the area under the covered entry.
3. Perimeter Steel Curb: 5/16" 50,000 kip steel 6" X 6" welded continuous angle.
4. Rebar Steel Mat: Two layers of 40,000 tensile steel rebar in varying sizes per engineers requirements, including a perimeter structural continuous grade beam design inside the exterior steel angle and at any other location deemed by the engineer of record as required for the use intended. In coastal locations or when required for corrosion resistance rebar

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shall be epoxy coated or fiberglass to resist permanent corrosion. Rebar mats shall be wire tied to code with a minimum of three turns of the wire and overlaps shall be minimum of 15 diameters for any connection.

5. All slab openings shall be surrounded with two layers of steel collars as required by the engineer of record to stop corner cracking and to reinforce the openings for lifting.
6. 1" thick by 3" minimum length threaded nuts shall be welded to the steel perimeter frame with continuous ¼" fillet welds. Nuts shall be welded to common steel plates per the engineer of records design and attached to the interior steel rebar structural mats.
7. The engineer of record shall provide lifting locations with sufficient reinforcement to allow the safe lifting of the entire designed weight of the structure with dual 1" steel bolts and washers at each lifting location. The number of lifting locations with each location fitted with removable ¾" 8" X 8" 50,000 tensile strength steel angles shall be determined by the engineer of record.
8. The slab shall be poured over a 1" thick steel plate table. The concrete mix design shall not exceed a 3" slump and shall be stinger vibrated for maximum consolidation. All floors shall slope to any floor drains within each room and if no floor drain is present the floor should not slope. The surface shall be a very light broom that should meet a coefficient of friction on the surface of .06. Birdbaths shall be cause for rejection.
9. The steel perimeter angle will remain below the concrete surface by nominal two inches to prevent corrosion. After the site concrete sidewalks are poured, the joint shall be full flow sealed with self-leveling grey urethane caulk to prevent penetration of water into the joint.
10. The building shall be designed for future relocation and shall provide protection for the lifting openings in the mat slab so that the threaded openings will be available for future use if needed.
11. The building system shall be designed for placement on a general contractor site prepared class 2 building subgrade/and or footings as required by code, per the bid drawings, suitable for 1500 pounds soil bearing capacity minimum. Any soils survey (if necessary) shall be by owner or engineer of record.

Q. Exterior & Interior Masonry Block Walls

1. The block walls shall be nominal 8 x 16 CMU. The building corners shall have special corner return block for structural integrity. All CMU shall be custom-fabricated with an enlarged interior hole for placement of the grout and vertical rebar. The block walls shall be nominal 8 x 16 CMU. The building corners shall have special corner return block that matches the exterior finish and creates a uniform appearance. All CMU shall be custom fabricated with an enlarged interior hole for placement of the grout and vertical rebar. The exterior walls shall be 4" thickness per State of California codes or engineering for wind and seismic. The interior walls shall be 4" block to nominally 7'-4" above finished floor and wood-framed with applicable required finishes above for pony and gable walls. A structural steel tubular .188 wall cap beam shall be welded to 5/16" 40,000 kip steel plate embeds, at intervals per the engineer of record, within the masonry wall. Cap beam shall be ZRC primed and painted, color to be selected by owner.
2. The 8" mat engineered concrete slab shall be cured a minimum of 7 days. Holes for vertical dowels shall be drilled into the mat engineered slab avoiding any grade beams or other structural reinforcement. Once the holes are drilled, blow out the remaining material and using two-part structural epoxy, wet set the #3 or #4 vertical rebar (as specified on the engineering calculations into holes drilled to the depth per the engineer of record requirements. Each rebar shall be held vertical to allow equal epoxy support to each dowel during the drying period. Engineering calculations require that rebar shall be installed in each concrete block center void or every block hole. The engineered uplift on each rebar

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shall be sufficient to restrain any load imposed on the masonry block wall for vertical rebar pull out from the concrete mat engineered slab.

R. Roof System

1. The roof structure shall be 2 x 6 v-joint tongue and groove, kiln-dried decking over 4 x 6 wood rafters at 48" on center, nominal. Decking shall be covered with 5/8" OSB sheathing and ice and water shield membrane with dimensional architectural grade shingle with a minimum 30-year guarantee. Minimum 30-pound felt paper is applied on a new roof and the shingles are to be applied to a plywood substrate. All roof shingles will be nailed with galvanized roofing nails with a minimum 7/8 inch for new roofs and 1 1/4 inch for re-roof. Color to be selected by owner.
2. The roof design shall exceed compliance with local code at 20 PSF live load and wind load "C", and provide a class "A" fire Rating
3. The restroom ventilation screens (described in a following section) shall be anchored to the pony walls and vandal resistant. Roof color shall be determined by owner and selected from the color chart by restroom supplier.
4. Roof drainage scupper and downspout shall be custom-fabricated galvanized metal by restroom manufacturer.

S. Interior Wall Finish:

1. Interior precision CMU block masonry walls (Restroom Only) shall be smoothed to a pebble grain finish with 2-4 mil layers of 7-day curing block fillers and painted with two additional 4 mil layers of industrial high solids (white) industrial grade enamel. Walls shall be painted white with industrial high solids enamel. Utility chase and storage area shall be natural block finish. All vertical wall surfaces shall receive a non-sacrificial anti-graffiti coating per specification on sheet A.21
2. Ceiling shall be tongue and groove decking, stain color selected from the color chart by restroom supplier.

T. Exterior Wall Finish, Masonry and Upper Pony Walls

1. The building exterior finish shall be grey precision 4 x 16 CMU to wall height per the exterior elevations in the bid plans. The block shall be covered with 2-4 mil layers of 7-day curing block fillers and painted with two additional 4 mil layers of industrial high solids industrial grade enamel, color selected by Owner. The upper pony wall area finish shall be sheathed, waterproofed with wrapping, covered with fiber-reinforced cement backerboard, then finished with elastomeric acrylic stucco and painted with two 4 mil layers of industrial high solids, gloss enamel to a 4-mil thickness, painted in a color selected by owner. Drinking fountain alcove shall be covered with 4" x 12" porcelain tile with epoxy grout, color selected by owner from manufacturers brochure. All vertical wall surfaces shall receive a non-sacrificial anti-graffiti coating per specification on sheet A.21

U. Passive Ventilation System

1. Shall be woven 1/4" X 1" X 1", 316T, stainless steel wire mesh set in welded stainless-steel angles attached to the masonry wall with vandal resistant stainless-steel screws, per plans. There shall also be an 8" x 16" aluminum louvered vent in each restroom, located on the chase wall at 9' AFF, nominal, and one in the utility chase for ventilation. The storage room venting shall be a custom-fabricated aluminum louver with screening on the interior, with color to match exterior.

V. Doors and Gates

1. The restroom entry doors shall be custom fabricated, 7' 0" high (with 4" undercut at bottom

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of door for ventilation and security), 14-gauge steel; reinforced with 14-gauge steel ribs welded at 6" intervals on each face, concealed; reinforced with a welded plate for door closer mounting

2. Doors shall be hung on a single continuous, 1 million cycle, aluminum gear hinge with stainless steel vandal resistant screws at nominal 4" on center. The doors shall weigh nominally 176 lbs each for a 36" X 84" door. Custom fabricated 14-gauge steel door jambs with 4" steel heads shall be welded to the steel cap beam and be solid filled with 3000 psi masonry grout mix. Doors shall be primed and painted with two coats of industrial enamel; color selected by owner.
3. All exterior entry doors shall have a ¼" thick stainless steel "Z-shaped" anti-microbial pull handles with integral latch guard. The interior push-plate shall be anti-microbial for public safety and hygiene.
4. Doors should have two deadbolts. 1 Schlage deadbolt keyed on the outside and thumb latch on the inside with in use indicator. Schlage needs to be best Coremax compatible. second deadbolt to be Best brand Coremax, keyed on outside and blank plate on inside
5. The door closer (restroom entry doors only) shall be "LCN" heavy duty #4210 Series, fastened to a structural reinforced door plate per door manufacturer design.
6. Exterior meter box access door shall be custom-fabricated in the same manner as the entry doors with a dead bolt, per specifications above.
7. Stainless steel vandal resistant fasteners shall be used on all hardware.

W. Specialties

1. All specialty washroom equipment shall be commercial grade stainless steel, fastened securely to walls with vandal resistant stainless-steel screws to avoid removal by vandals as follows, provide per fixture and accessory schedule on drawings sheet A.21.
2. Toilet paper holders shall be multi-roll stainless steel per schedule. There shall be two holders installed per City's specification to meet code. Toilet paper holders shall be attached to block walls with 4 epoxy-bedded vandal resistant stainless-steel fasteners.
3. Stainless steel grab bars per code shall have 1 ¼" minimum exposed fastener vandal resistant design and installed at each accessible water closet.
4. There shall be a stainless-steel coat hook fastened to the block wall in each restroom.
5. Soap dispensers shall be vandal resistant through-the-wall valve mounted integral to lavatory with a stainless-steel tank with built-in soap level float, located inside the utility chase for easy maintenance.
6. Stainless steel grab bars to code shall be 1 ¼" minimum exposed fastener vandal resistant design and installed at each accessible water closet.
7. Cast Aluminum California Title-24 compliant signage shall be recessed into block surface flush with masonry/stucco exterior and door sign shall be blind fastened with epoxy adhesive and stainless-steel fasteners. Wall signs shall have raised pointed Braille tips. Signage shall comply with AB1732, identifying the restrooms as "All Gender Restrooms."
8. Baby-changing stations shall be recess-mounted in custom-fabricated 14-gauge stainless steel countertop, per plan with identifying signage on the exterior of the building.
9. Emergency Eye Wash Station: Shall be mounted in the utility chase.

X. Plumbing:

1. Building shall be fully compliant with current with the following codes:
 - a) All applicable State of California Building Codes. Latest edition applicable.
 - b) California Plumbing Code. Latest edition applicable.
 - c) Greenbook and The Greenbook City Supplement. Latest edition applicable.
 - d) Facilities standards and specifications guideline for new construction from facilities

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- services division. Latest edition applicable.
2. GENERAL: All components and fabrications shall be designed to reduce life cycle maintenance, be compatible with current maintenance spare parts, and shall be listed in a spare parts/maintenance manual (two copies) delivered in utility chase of building.
 3. WATER PIPING: Shall be type L copper soldered per code above grade and type K with silver solder below grade. All water piping shall be designed and constructed with high and low point drain fittings. All piping shall be mounted on Uni-strut wall brackets with neoprene isolators, to code.
 4. WATER PRESSURE GAUGE/VALVE COMBO: install three commercial grade industrial water pressure gauges (one on incoming line, one at pressure regulator valve and one after water filter), isolation ball valves, 150 PSI pressure regulator with wye strainer, 10-micron water filter with clear canister, and check valve.
 5. PLUMBING FAUCETS, ISOLATION VALVES AND ACTUATORS: All fixtures except those with flush valves shall be isolated with ball valves for each fixture, concealed hydraulic push-button flush valves, and metered push-button lavatory faucets.
 6. DWV PIPING: DWV piping shall be concealed behind the wall. DWV piping shall be PVC DWV, solvent welded, for all concealed piping. A cast iron no hub DWV vent pipe with a cast iron roof mounted vandal cap vent shall be required, through the roof.
 7. REMOVABLE PIPE TRAPS: all floor drain, sink drain, and waste traps shall be removable for maintenance. Floor drains shall be trapped behind the wall in the utility chase using a combination waste and vent system. Floor drains shall be increased two pipe sizes over standard to allow code use. Trap primers for restroom floor drains shall be located in the utility chase. All surface mounted utility chase piping shall be mounted on Uni-strut with plastic isolators to code. Sink drain traps shall be concealed behind the utility chase walls where maintenance staff can access all plumbing.
 8. PLUMBING FIXTURES: Plumbing fixtures shall be 14-gauge, 304 stainless steel manufactured by Acorn. Toilets shall be wall hung, rear discharge, with concealed, ADA-compliant, hydraulic push-button type, flush valves. Toilet seats shall be black solid core plastic, non-flammable construction with continuous stainless steel concealed self-checking hinges. Exterior Lavatories shall have concealed remote traps behind the mechanical wall. Refer to the Schedule of fixtures provided on drawings:
 9. FLOOR GRATES: Removable 350 lbs per square foot pultruded fiberglass non-skid floor grates shall be installed over every opening in the utility chase for OSHA compliance.
 10. HOSE BIB: There shall be one hose bib provided in the utility chase and one additional exterior hose bib with lockable box, located at each sink alcove.
 11. MOP SINK: Advance-Tabco 9-OP-20; with Chicago 631-GN2FCABCP faucet and a 3-mop holder mounted to wall.
 12. HOSE REEL: There shall be one commercial grade hose reel with a 75' commercial grade hose.
 13. HI-LO DRINKING FOUNTAIN: Shall be hi-lo type, 14-gauge, 316 stainless steel.
 14. BOTTLE FILLER: Shall be 14 gauge, 316 stainless with drip tray, mounted to drinking fountain.

Y. Electrical:

1. GENERAL: Electrical system and components shall be commercial grade or better and piping conduits shall be installed on commercial Uni-strut wall hangers. Interior lighting fixtures in public areas shall provide lifetime manufacturer's warranty.
2. PANEL/WIRING: One 200 amp, 120/240v, single-phase, industrial grade Panel Board, Square "D" QO series with 100 main circuit breaker, shall be mounted in the utility chase in the restroom building. All breakers shall be bolt-on type, minimum 10,000 A.I.C. RMS (Sym). Wiring shall be copper wire #12 min in EMT piping with compression fittings.

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3. PIPING: All piping shall be surface mounted to the masonry block walls with minimum of 2" fastener penetration. EMT conduit shall be compression type. Main panel shall maintain a 30" X 36" safety code required clear space, floor to 6' above finished floor.
4. HAND DRYER: Shall be concealed, low energy, remote located vandal resistant design. Dryer shall be mounted in the utility chase with only protruding cast metal air nozzles and start switch accessible to the public at exterior lavatory. Dryers shall be 840 watts, low energy consumption. One mounted adjacent to each exterior lavatory.
5. WATER HEATERS: Exterior lavatories shall have Steibel-Eltron DHC 3-2 located in the utility chase, one for each lavatory (Qty.2). The water to the lavatories shall be tempered. There shall be a Steibel-Eltron DHC 12-E located in the storage room, to service the mop sink.
6. EXTERIOR LIGHTING: Luminaire YWP610, 15 watt, LED, 3000K, vandal resistant, high-impact polycarbonate lens fixtures shall be installed per plans,
7. INTERIOR LIGHTING: Luminaire SWP1212, 15 watt, LED, vandal resistant high-impact polycarbonate lens fixtures shall be installed in the restrooms per plans (one in each restroom) and shall have integral occupancy sensors. The utility chase shall have three 4' single-tube, 18-watt LED fixture, suitable for wet locations, with a single switch at door entry. The storage room shall have one (1) 4' double-tube, 36-watt LED fixture, suitable for wet locations, with a single switch at door entry.
8. LIGHTING CONTROL: All interior restroom lighting shall be controlled by built-in fixture occupancy sensors and 2 bypass switches (one for interior lighting and one for exterior lighting), so maintenance staff can check operation during daylight hours. A single photocell, roof mounted, and shall control all exterior lighting.
ELECTRICAL OUTLETS: One (1) commercial spec grade duplex outlet shall be located in the utility chase adjacent to the panel and one in the storage room and electrical room, adjacent to the entry door switch.

Z. CONCESSION ROOM:

1. The food service area shall meet all requirements of the California Retail Food Code. This concession facility is classified as "food warming/heating only" and shall comply with the San Diego County Department of Environmental Health. Restroom/Concession supplier shall provide a "concession plan" for submittal to DEH as part of their scope of work during the construction document phase.
2. EQUIPMENT: The concession room shall be per plan with the following equipment included within the building upon delivery:
3. COUNTERS: 14-gauge 304T stainless steel counters, per plan.
4. 3-COMPARTMENT SINK: 1 (one) Advance-Tabco FC-3-1818-18RL, NSF-rated 3-compartment sink with two drain boards shall drain to floor sink and installed per plan. Faucet shall be Chicago 445-DJ18.
5. WATER HEATER (concession only): Shall be AO Smith DEN-30 5000/5000 with simultaneous operation and be mounted elevated on wall with custom-fabricated shelf with seismic strapping.
6. FLOOR SINK: Watts FS-753-P-128 (will connect to grease interceptor outside the building, by others)
7. HAND SINK: Kohler K-2007 with American Standard 7500.170.002 faucet.
8. SOAP DISPENSER: Bobrick B-2111
9. PAPER TOWEL DISPENSER: Bobrick B-262.
10. MOP SINK: Advance-Tabco 9-OP-20; with Chicago 631-GN2FCABCP faucet and a 3-mop holder mounted to wall.
11. INTERIOR LIGHTING: Double tube, wet-location, 36-watt LED fixture with a single switch at door entry. There shall be four (4) in the concession.

PREFABRICATED RESTROOM/CONCESSION BUILDING

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12. ELECTRICAL OUTLETS: Twelve (11) duplex commercial grade outlets with dedicated circuits shall be provided in the concession room wired to concession panel. Final location to be determined.
13. AIR CURTAIN: Mars NHV-42 with micro switch, located over entry door.
14. FLOORS: Shall be 6" x 6" quarry tile with 6" x 5" cove base, set with manufacturers recommended thin-set and grey epoxy grout. Color to be selected from manufacturer's brochure.
15. WALLS/CEILING: Shall be furred with wood studs and insulation to code, then covered with 24" tongue and groove PVC panels, and finished with PVC trim at each seam and every corner to maintain a washable surface.
16. CONCESSION WINDOWS: Shall be Ready Access #275 low profile single panel slider, mill finish with 19 x 39 service opening with restrictor plate. A lockable shutter door (same construction as exterior doors described above) shall cover the window and be able to lock open against the building during operating hours.
17. CONCESSION WINDOW SHUTTER DOOR: Shall be 4'-0" x 4'-0", custom fabricated, 14-gauge steel; reinforced with concealed 14-gauge steel ribs welded at 6" intervals on each face, reinforced with a welded plate for door closer mounting. Doors shall be hung on a single continuous, 1 million cycle, aluminum gear hinge with stainless steel vandal resistant screws at nominal 4" on center. Door shall lock with a Best 83T (IE7 series cylinder/IC7 series core) commercial series dead bolt and have a sweep at the bottom of the door. Door and frame paint color to be selected by owner.
18. HVAC SYSTEM: There shall be one (1) Friedrich PDH15K5SG PTAC, Packaged Air-Cooled system. Provide programmable thermostat. Exterior vandal-resistant louver shall be painted to match exterior.

AA. Shipping Protection

The building, while traveling over roads to the destination may encounter inclement weather or road grime that could require substantial cleaning when it arrives on site. The building shall be shrink-wrapped before transportation and sufficiently strong to arrive at the owner site intact for exterior finish protection. Materials removed on site shall be disposed of and recycled by restroom building install staff.

BB. Certifications

Building shall be certified in compliance with the plan approval by the State of California, Department of Housing and Community Development. The building shall be delivered with an applied insignia; in compliance with all State regulations. The local building authority shall provide site inspections for the underground mechanical piping and final connections, footings, and access issues outside the restroom footprint. Restroom building subcontractor shall also furnish 5-year component/20-year structural warranty and maintenance manuals for the building and components.

END OF SECTION

PREFABRICATED RESTROOM/CONCESSION BUILDING

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SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

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. Copper building wire rated 600 V or less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA.
 - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 2 - PRODUCTS

2.1 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alpha Wire Company.
 - 2. Belden Inc.
 - 3. Encore Wire Corporation.
 - 4. General Cable Technologies Corporation.
 - 5. Okonite Company (The).
 - 6. Southwire Company.
- C. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 - 2. RoHS compliant.
 - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- D. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.
- E. Conductor Insulation:
 - 1. Type THHN and Type THWN-2: Comply with UL 83.
 - 2. Type XHHW-2: Comply with UL 44.

2.2 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. 3M Electrical Products.
 - 2. AFC Cable Systems; a part of Atkore International.
 - 3. Gardner Bender.
 - 4. Hubbell Power Systems, Inc.
 - 5. Ideal Industries, Inc.
 - 6. ILSCO.
 - 7. NSi Industries LLC.

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8. O-Z/Gedney; a brand of Emerson Industrial Automation.
 9. Thomas & Betts Corporation; A Member of the ABB Group.
- C. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
1. Material: Copper.
 2. Type: One hole with long barrels.
 3. Termination: Compression.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper; Stranded for No. 12 AWG and larger.
- B. Branch Circuits: Copper. Stranded for No. 12 AWG and larger.
- C. Power-Limited Fire Alarm and Control: Solid for No. 12 AWG and smaller.

3.2 CONDUCTOR INSULATION APPLICATIONS AND WIRING METHODS

- A. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
- B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- C. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.
- D. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN/THWN-2, single conductors in raceway
- E. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway .
- F. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 26 05 33 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Section 26 05 29 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
 - 1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 26 05 53 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- D. Perform tests and inspections with the assistance of a factory-authorized service representative.
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 2. Perform each of the following visual and electrical tests:
 - a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
 - b. Test bolted connections for high resistance using one of the following:
 - 1) A low-resistance ohmmeter.
 - 2) Calibrated torque wrench.
 - 3) Thermographic survey.
 - c. Inspect compression-applied connectors for correct cable match and indentation.
 - d. Inspect for correct identification.
 - e. Inspect cable jacket and condition.
 - f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
 - g. Continuity test on each conductor and cable.
 - h. Uniform resistance of parallel conductors.
 - 3. Initial Infrared Scanning: After Substantial Completion, but before Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.
 - a. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - b. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
- E. Cables will be considered defective if they do not pass tests and inspections.
- F. Prepare test and inspection reports to record the following:
 - 1. Procedures used.
 - 2. Results that comply with requirements.

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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 grounding and bonding systems and equipment.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Plans showing dimensioned locations of grounding features specified in "Field Quality Control" Article, including the following:
 - 1. Test wells.
 - 2. Ground rods.
- B. Qualification Data: For testing agency and testing agency's field supervisor.
- C. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals.
 - 1. Include the following:
 - a. Plans showing as-built, dimensioned locations of system described in "Field Quality Control" Article, including the following:
 - 1) Test wells.
 - 2) Ground rods.

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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- b. Instructions for periodic testing and inspection of grounding features at test wells based on NETA MTS.
 - 1) Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
 - 2) Include recommended testing intervals.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Certified by NETA.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

- A. 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.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Dossert; AFL Telecommunications LLC.
 - 2. ERICO; a brand of nVent.
 - 3. Fushi Copperweld Inc.
 - 4. Galvan Industries, Inc.; Electrical Products Division, LLC.
 - 5. Harger Lightning & Grounding.
 - 6. Hubbell Incorporated (Construction and Energy Group).
 - 7. ILSCO.
 - 8. O-Z/Gedney; a brand of Emerson Industrial Automation.
 - 9. Thomas & Betts Corporation; A Member of the ABB Group.

2.3 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B3.
 - 2. Stranded Conductors: ASTM B8.
 - 3. Tinned Conductors: ASTM B33.

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
 5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V and shall be Lexan or PVC, impulse tested at 5000 V.

2.4 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Bus-Bar Connectors: Compression type, copper or copper alloy, with two wire terminals.
- E. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
- F. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- G. Cable Tray Ground Clamp: Mechanical type, zinc-plated malleable iron.
- H. Conduit Hubs: Mechanical type, terminal with threaded hub.
- I. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with hex head bolt.
- J. Lay-in Lug Connector: Mechanical type, copper rated for direct burial terminal with set screw.
- K. Service Post Connectors: Mechanical type, bronze alloy terminal, in short- and long-stud lengths, capable of single and double conductor connections.
- L. Straps: Solid copper, copper lugs. Rated for 600 A.
- M. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.
- N. Water Pipe Clamps:
 1. Mechanical type, two pieces with stainless-steel bolts.

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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- a. Material: Die-cast zinc alloy.
 - b. Listed for direct burial.
2. U-bolt type with malleable-iron clamp and copper ground connector.

2.5 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare copper conductor, No. 3/0 AWG minimum.
 1. Bury at least 30 inches below grade.
- C. Grounding Conductors: Green-colored insulation with continuous yellow stripe.
- D. Grounding Bus: Install in electrical equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 1. Install bus horizontally, on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
 2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down; connect to horizontal bus.
- E. Conductor Terminations and Connections:
 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
 3. Connections to Ground Rods at Test Wells: Bolted connectors.
 4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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3.3 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.4 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 26 05 43 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.
 - 1. Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.
- D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- E. Grounding and Bonding for Piping:

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1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- F. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- G. Concrete-Encased Grounding Electrode (Ufer Ground): Fabricate according to NFPA 70; using electrically conductive coated steel reinforcing bars or rods, at least 20 feet long. If reinforcing is in multiple pieces, connect together by the usual steel tie wires or exothermic welding to create the required length.
- H. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 2. Make connections with clean, bare metal at points of contact.
 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
 4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
 5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- D. Perform tests and inspections with the assistance of a factory-authorized service representative.
- E. Tests and Inspections:

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1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
 3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
 4. Prepare dimensioned Drawings locating each test well, ground rod and ground-rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.
- F. Grounding system will be considered defective if it does not pass tests and inspections.
- G. Prepare test and inspection reports.
- H. Report measured ground resistances that exceed the following values:
1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 25 ohms.
 2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 25 ohms.
 3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 25 ohms.
 4. Power Distribution Units or Panelboards Serving Electronic Equipment: 25 ohm(s).
- I. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

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SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

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 slotted support systems.
2. Aluminum slotted support systems.
3. Conduit and cable support devices.
4. Support for conductors in vertical conduit.
5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
6. Fabricated metal equipment support assemblies.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Slotted support systems, hardware, and accessories.
 - b. Clamps.
 - c. Hangers.
 - d. Sockets.
 - e. Eye nuts.
 - f. Fasteners.
 - g. Anchors.
 - h. Saddles.
 - i. Brackets.
2. Include rated capacities and furnished specialties and accessories.

- B. Shop Drawings: For fabrication and installation details for electrical hangers and support systems.

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

1. Hangers. Include product data for components.
2. Slotted support systems.
3. Equipment supports.

C. Delegated-Design Submittal: For hangers and supports for electrical systems.

1. Include design calculations and details of hangers.
2. Include design calculations for seismic restraints.

1.4 INFORMATIONAL SUBMITTALS

A. Seismic Qualification Data: Certificates, for hangers and supports for electrical equipment and 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.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Hangers and supports shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the supported equipment and systems will remain in place without separation of any parts when subjected to the seismic forces specified and the supported equipment and systems will be fully operational after the seismic event."
2. Component Importance Factor: 1.0.

B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame Rating: Class 1.
2. Self-extinguishing according to ASTM D635.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch-diameter holes at a maximum of 8 inches on centers (o.c.) in at least one surface.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

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- a. Allied Tube & Conduit; a part of Atkore International.
 - b. B-line, an Eaton business.
 - c. G-Strut.
 - d. Thomas & Betts Corporation; A Member of the ABB Group.
 - e. Unistrut; Part of Atkore International.
2. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
 3. Material for Channel, Fittings, and Accessories: Galvanized steel.
 4. Channel Width: Selected for applicable load criteria [
 5. Metallic Coatings: Outdoor or indoor damp locations shall be hot-dip galvanized after fabrication and applied according to MFMA-4. Indoor normally dry locations shall be electro-galvanized according to MFMA-4.
 6. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- C. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened Portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) B-line, an Eaton business.
 - 2) Hilti, Inc.
 - 3) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 4) MKT Fastening, LLC.
 2. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
 3. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
 4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM F3125/F3125M, Grade A325.
 5. Toggle Bolts: All-steel springhead type.
 6. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

1. NECA 1.
 2. NECA 101
 3. NECA 102.
 4. NECA 105.
 5. NECA 111.
- B. Comply with requirements for raceways and boxes specified in Section 26 05 33 "Raceways and Boxes for Electrical Systems."
- C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.
- D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.
- E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings, and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT may be supported by openings through structure members, according to NFPA 70.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
1. To Wood: Fasten with lag screws or through bolts.
 2. To New Concrete: Bolt to concrete inserts.
 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. To Steel: Beam clamps (MSS SP-58, Type 19, 21, 23, 25, or 27), complying with MSS SP-69.
 6. To Light Steel: Sheet metal screws.

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7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that comply with seismic-restraint strength and anchorage requirements.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated, but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified on Structural sheet S-03
- C. Anchor equipment to concrete base as follows:
 1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.
 1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.
- B. Touchup: Provide cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.

END OF SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

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. Metal conduits and fittings.
 - 2. Metal wireways and auxiliary gutters.
 - 3. Surface raceways.
 - 4. Boxes, enclosures, and cabinets.
- B. Related Requirements:
 - 1. Section 26 05 43 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks and underground utility construction.

1.3 DEFINITIONS

- A. GRC: Galvanized rigid steel conduit.
- B. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.5 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Data: Certificates, for enclosures, cabinets, and conduit racks and their mounting provisions, including those for internal components, from manufacturer.

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1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
4. Detailed description of conduit support devices and interconnections on which the certification is based and their installation requirements.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

A. Metal Conduit:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; a part of Atkore International.
 - b. Republic Conduit.
 - c. Southwire Company.
 - d. Western Tube and Conduit Corporation.
 - e. Wheatland Tube Company.
2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. GRC: Comply with ANSI C80.1 and UL 6.
4. IMC: Comply with ANSI C80.6 and UL 1242.
5. EMT: Comply with ANSI C80.3 and UL 797.
6. FMC: Comply with UL 1; zinc-coated steel.
7. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

B. Metal Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; a part of Atkore International.
 - b. Republic Conduit.
 - c. Western Tube and Conduit Corporation.
 - d. Wheatland Tube Company.
2. Comply with NEMA FB 1 and UL 514B.
3. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
4. Fittings, General: Listed and labeled for type of conduit, location, and use.
5. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
6. Fittings for EMT:
 - a. Material: Steel .

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- b. Type: Compression.
- 7. Expansion Fittings: Steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

2.2 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. B-line, an Eaton business.
 - 2. Hoffman; a brand of nVent.
 - 3. Square D.
- B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.
 - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Wireway Covers: Screw-cover type unless otherwise indicated.
- E. Finish: Manufacturer's standard enamel finish.

2.3 SURFACE RACEWAYS

- A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hubbell Incorporated (Commercial and Industrial Group - Wiring Device-Kellems).
 - b. Panduit Corp.
 - c. Wiremold / Legrand.

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2.4 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Hoffman; a brand of nVent.
 - 2. Hubbell Incorporated.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.
- E. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight. Cast outlet boxes for luminaires shall be cast iron or ferrous alloy. Cast aluminum is not acceptable.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.
- H. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- I. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.
- J. Gangable boxes are allowed.
- K. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- L. Cabinets:
 - 1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 - 2. Hinged door in front cover with flush latch and concealed hinge.
 - 3. Key latch to match panelboards.
 - 4. Metal barriers to separate wiring of different systems and voltage.
 - 5. Accessory feet where required for freestanding equipment.

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PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed Conduit: GRC.
 - 2. Concealed Conduit, Aboveground: GRC .
 - 3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC not over 6 feet in length.
 - 4. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
 - 1. Exposed, Above 8'-0", Not Subject to Physical Damage: EMT.
 - 2. Exposed, At 8'-0" or Below, Not Subject to Severe Physical Damage: GRC.
 - 3. Exposed and Subject to Severe Physical Damage: GRC.
 - a. Mechanical rooms.
 - 4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 - 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment) and light fixtures: FMC, except use LFMC in damp or wet locations; not over 6 feet in length.
 - 6. Damp or Wet Locations: GRC.
 - 7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings. Comply with NEMA FB 2.10.
 - 2. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.
 - 3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings.
- F. Install surface raceways only where indicated on Drawings.

3.2 INSTALLATION

- A. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for hangers and supports.
- B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter.

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- C. Do not install raceways or electrical items on any rotating equipment.
- D. Do not fasten conduits onto the bottom side of a metal deck roof.
- E. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- F. Complete raceway installation before starting conductor installation.
- G. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- H. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- I. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.
- J. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- K. Support conduit within 12 inches of enclosures to which attached.
- L. Do not install raceways embedded in slabs.
- M. Stub-Ups to Above Recessed Ceilings:
 - 1. Use EMT, IMC, or GRC for raceways.
 - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- N. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- O. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- P. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- Q. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- R. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

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- S. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- T. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- U. Surface Raceways:
 - 1. Install surface raceway with a minimum 2-inch radius control at bend points.
 - 2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
- V. Comply with manufacturer's written instructions for solvent welding RNC and fittings.
- W. Expansion-Joint Fittings:
 - 1. Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F and that has straight-run length that exceeds 100 feet.
 - 2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
 - d. Attics: 135 deg F temperature change.
 - e. .
 - 3. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
 - 4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
 - 5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- X. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 1. Use LFMC in damp or wet locations subject to severe physical damage.
 - 2. Use LFMC in damp or wet locations not subject to severe physical damage.

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- Y. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- Z. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- AA. Horizontally separate boxes mounted on opposite sides of walls, so they are not in the same vertical channel.
- BB. Locate boxes so that cover or plate will not span different building finishes.
- CC. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- DD. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- EE. The green insulated ground (bond) wires shall be spliced together within the outlet box. A green insulated bonding jumper shall be provided from the splice to the box body. Attachment to the box body shall be provided using a tapped #10-32 x 3/8" screw minimum. A green insulated bonding jumper shall be provided from the splice to the receptacle ground screw even with self-grounding receptacles.

3.3 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.4 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

END OF SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

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SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

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. Rigid nonmetallic duct.
 2. Duct accessories.
 3. Precast concrete handholes.
 4. Utility structure accessories.

1.3 DEFINITIONS

- A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.
- B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.
- C. Duct Bank:
 1. Two or more ducts installed in parallel, with or without additional casing materials.
 2. Multiple duct banks.
- D. GRC: Galvanized rigid (steel) conduit.
- E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 1. Include duct-bank materials, including spacers and miscellaneous components.
 2. Include duct, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.

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3. Include accessories for handholes, boxes, and other utility structures.

B. Shop Drawings:

1. Precast or Factory-Fabricated Underground Utility Structures:

- a. Include plans, elevations, sections, details, attachments to other work, and accessories.
- b. Include duct entry provisions, including locations and duct sizes.
- c. Include reinforcement details.
- d. Include frame and cover design
- e. Include grounding details.
- f. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
- g. Include joint details.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For duct and duct bank. Show duct profiles and coordination with other utilities and underground structures.

1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.
2. Drawings shall be signed and sealed by a qualified professional engineer.

B. Qualification Data: For professional engineer and testing agency responsible for testing nonconcrete handholes and boxes.

C. Product Certificates: For concrete and steel used in precast concrete handholes, as required by ASTM C858.

D. Source quality-control reports.

E. Field quality-control reports.

1.6 MAINTENANCE MATERIALS SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.

1.8 FIELD CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions, and then

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only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Engineer no fewer than five days in advance of proposed interruption of electrical service.
 2. Do not proceed with interruption of electrical service without Engineer's written permission.
- B. Ground Water: Assume ground-water level is 24inches below ground surface unless a higher water table is noted on Drawings.

PART 2 - PRODUCTS

2.1 RIGID NONMETALLIC DUCT

- A. Underground Plastic Utilities Duct: Type EPC-80-PVC and Type EPC-40-PVC RNC, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Cantex Inc.
 2. Condux International, Inc.
 3. Crown Line Plastics.
- C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

2.2 DUCT ACCESSORIES

- A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- a. Allied Tube & Conduit; a part of Atkore International.
 - b. Cantex Inc.
 - c. IPEX USA LLC.
- B. Underground-Line Warning Tape: Comply with requirements for underground-line warning tape specified in Section 26 05 53 "Identification for Electrical Systems."

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2.3 PRECAST CONCRETE HANDHOLES AND BOXES

- A. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Oldcastle Precast, Inc.
 - 2. Utility Concrete Products, LLC.
 - 3. Utility Vault Co.
- C. Comply with ASTM C858 for design and manufacturing processes.
- D. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
- E. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
- F. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
- G. Cover Legend: Molded lettering, "ELECTRIC." "TELEPHONE" "COMMUNICATIONS."
- H. Configuration: Units shall be designed for flush burial and have closed bottom unless otherwise indicated.
- I. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
 - 1. Extension shall provide increased depth of 12 inches.
 - 2. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.
- J. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.
- K. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus an additional 12 inches vertically and horizontally to accommodate alignment variations.
 - 1. Center window location.
 - 2. Knockout panels shall be located no less than 6 inches from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
 - 3. Knockout panel opening shall have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
 - 4. Knockout panels shall be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
 - 5. Knockout panels shall be 1-1/2 to 2 inches thick.

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- L. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
 - 1. Type and size shall match fittings to duct to be terminated.
 - 2. Fittings shall align with elevations of approaching duct and be located near interior corners of handholes to facilitate racking of cable.
- M. Handholes 24 inches wide by 36 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.4 SOURCE QUALITY CONTROL

- A. Test and inspect precast concrete utility structures according to ASTM C1037.

2.5 PREPARATION

- A. Coordinate layout and installation of duct, duct bank, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.
- B. Coordinate elevations of duct and duct-bank entrances into handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to handholes, and as approved by Architect.
- C. Clear and grub vegetation to be removed and protect vegetation to remain.

2.6 UNDERGROUND DUCT APPLICATION

- A. Duct for Electrical Feeders 600 V and Less: Type EPC-80-PVC for elbows and Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.
 - 1. Concrete encasement shall be two sack slurry with red dye and is required for all 600 V and less feeders under driveways and pathways designed for vehicular traffic, excluding emergency vehicles. Asphalt surfaced playgrounds and vehicle entry gates are not considered a path or driveway. Concrete encasement shall be a minimum of 3 inches of cover on all sides.
- B. Duct for Electrical Branch Circuits: Type EPC-80-PVC for elbows Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.
 - 1. All ducts for branch circuits shall have 2 inches of sand base and 3 inches of sand cover and compacted native soil on top.

2.7 UNDERGROUND ENCLOSURE APPLICATION

- A. Handholes and Boxes for 600 V and Less:

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1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-10 structural load rating.
2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Precast concrete, AASHTO HB 17, H-20 structural load rating.
3. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Precast concrete, AASHTO HB 17, H-10 structural load rating.
4. Cover design load shall not exceed the design load of the handhole or box.

2.8 EARTHWORK

- A. Restore surface features at areas disturbed by excavation and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.
- B. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.
- C. Cut and patch existing pavement in the path of underground duct, duct bank, and underground structures according to "Cutting and Patching" Article in Section 01 73 00 "Execution."

2.9 DUCT AND DUCT-BANK INSTALLATION

- A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.
- B. Install duct according to NEMA TCB 2.
- C. Slope: Pitch duct a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from a high point between two manholes, to drain in both directions.
- D. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches, both horizontally and vertically, at other locations unless otherwise indicated.
 1. Duct shall have maximum of two 90-degree bends or the total of all bends shall be no more 180 degrees between pull points.
- E. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.
- F. End Bell Entrances to Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch duct, and vary proportionately for other duct sizes.

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1. Begin change from regular spacing to end-bell spacing 10 feet from the end bell, without reducing duct slope and without forming a trap in the line.
 2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line direct-buried duct with calculated expansion of more than 3/4 inch.
 3. Grout end bells into structure walls from both sides to provide watertight entrances.
- G. Terminator Entrances to Concrete Handholes: Use manufactured, cast-in-place duct terminators, with entrances into structure spaced approximately 6 inches o.c. for 4-inch duct, and vary proportionately for other duct sizes.
1. Begin change from regular spacing to terminator spacing 10 feet from the terminator, without reducing duct line slope and without forming a trap in the line.
 2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line duct with calculated expansion of more than 3/4 inch.
- H. Building Wall Penetrations: Make a transition from underground duct to GRC at least 10 feet outside the building wall, without reducing duct line slope away from the building and without forming a trap in the line. Use fittings manufactured for RNC-to-GRC transition. Install GRC penetrations of building walls as specified in Section 26 05 44 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."
- I. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.
- J. Pulling Cord: Install 200-lbf-test nylon cord in empty ducts.
- K. Concrete-Encased Ducts and Duct Bank:
1. Excavate trench bottom to provide firm and uniform support for duct. Prepare trench bottoms for pipes less than 6 inches in nominal diameter.
 2. Width: Excavate trench 3 inches wider than duct on each side.
 3. Depth: Install so top of duct envelope is at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles unless otherwise indicated.
 4. Support duct on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
 5. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than four spacers per 20 feet of duct. Place spacers within 24 inches of duct ends. Stagger spacers approximately 6 inches between tiers. Secure spacers to earth and to duct to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.

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6. Minimum Space between Duct: 3 inches between edge of duct and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and communications ducts.
 7. Elbows: Use manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct unless otherwise indicated. Extend encasement throughout length of elbow.
 8. Reinforcement: Reinforce concrete-encased duct where crossing disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.
 9. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
 10. Concrete Cover: Install a minimum of 3 inches of concrete cover between edge of duct to exterior envelope wall, 2 inches between duct of like services, and 12 inches between power and communications ducts.
 11. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.
 - a. Start at one end and finish at the other, allowing for expansion and contraction of duct as its temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written instructions, or use other specific measures to prevent expansion-contraction damage.
 - b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing-rod dowels extending a minimum of 18 inches into concrete on both sides of joint near corners of envelope.
 12. Pouring Concrete: Comply with requirements on Structural Sheet S03, Place concrete carefully during pours to prevent voids under and between duct and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Allow concrete to flow around duct and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-installation application.
- L. Underground-Line Warning Tape: Bury nonconducting underground line specified in Section 26 05 53 "Identification for Electrical Systems" no less than 12 inches above all concrete-encased duct and duct banks and approximately 12 inches below grade. Align tape parallel to and within 3 inches of centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

2.10 INSTALLATION OF CONCRETE HANDHOLES AND BOXES

A. Precast Concrete Handhole Installation:

1. Comply with ASTM C891 unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting duct, to minimize bends and deflections required for proper entrances.

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3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- B. Elevations:
1. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
 2. Locate handhole such that cover elevation is below the elevation of building floor and equipment pads.
 3. Where indicated, cast handhole cover frame integrally with handhole structure.
- C. Drainage: Install drains in bottom of handholes where indicated. Coordinate with drainage provisions indicated.
- D. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, as required for installation and support of cables and conductors and as indicated.
- E. Field-Installed Bolting Anchors in Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.

2.11 GROUNDING

- A. Ground underground ducts and utility structures according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."
- B. For handholes that contain service, feeder or branch circuit conductors, metallic covers shall be bonded to equipment ground.

2.12 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
 2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch-long mandrel equal to duct size minus 1/4 inch. If obstructions are indicated, remove obstructions and retest.
 3. Test handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 26 05 26 "Grounding and Bonding for Electrical Systems."
- B. Correct deficiencies and retest as specified above to demonstrate compliance.
- C. Prepare test and inspection reports.

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2.13 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.
- B. Clean internal surfaces of handholes, including sump.
 - 1. Sweep floor, removing dirt and debris.
 - 2. Remove foreign material.

END OF SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

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SECTION 26 05 44

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

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. Round sleeves.
 - 2. Grout.
 - 3. Pourable sealants.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 ROUND SLEEVES

- A. Wall Sleeves, Steel:
 - 1. Description: ASTM A53/A53M, Type E, Grade B, Schedule 40, zinc coated, plain ends and integral waterstop.
- B. Wall Sleeves, Cast Iron:
 - 1. Description: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop.
- C. Pipe Sleeves, PVC:
 - 1. Description: ASTM D1785, Schedule 40.
- D. Molded Sleeves, PVC:
 - 1. Description: With nailing flange for attaching to wooden forms.

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E. Molded Sleeves, PE or PP:

1. Description: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

F. Sheet Metal Sleeves, Galvanized Steel, Round:

1. Description: Galvanized-steel sheet; thickness not less than 0.0239-inch; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

2.2 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

1. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
2. Design Mix: 5000-psi, 28-day compressive strength.
3. Packaging: Premixed and factory packaged.

2.3 POURABLE SEALANTS

A. Description: Single-component, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

PART 3 - EXECUTION

3.1 INSTALLATION OF SLEEVES FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Sleeves for Conduits Penetrating Above-Grade, Non-Fire-Rated, Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
 - a. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall or floor so no voids remain. Tool exposed surfaces smooth; protect material while curing.
 - b. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
 3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless sleeve seal system is to be installed.
 4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
 5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors.
- C. Sleeves for Conduits Penetrating Non-Fire-Rated Wall Assemblies:
1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
 2. Seal space outside of sleeves with approved joint compound for wall assemblies.
- D. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.
- E. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seal systems. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- F. Underground, Exterior-Wall and Floor Penetrations:
1. Install steel pipe sleeves with integral waterstops. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve seal system. Install sleeve during construction of floor or wall.
 2. Install steel pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve seal system. Grout sleeve into wall or floor opening.
- 3.2 INSTALLATION OF RECTANGULAR SLEEVES AND SLEEVE SEALS
- A. Install sleeves in existing walls without compromising structural integrity of walls. Do not cut structural elements without reinforcing the wall to maintain the designed weight bearing and wall stiffness.
 - B. Install conduits and cable with no crossings within the sleeve.
 - C. Fill opening around conduits and cables with expanding foam without leaving voids.
 - D. Provide metal sheet covering at both wall surfaces and finish to match surrounding surfaces. Metal sheet must be same material as sleeve.

END OF SECTION 26 05 44

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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. Identification for Raceways.
 - 2. Identification of power and control cables.
 - 3. Identification for conductors.
 - 4. Underground-line warning tape.
 - 5. Warning labels and signs.
 - 6. Instructional signs.
 - 7. Equipment identification labels, including arc-flash warning labels.
 - 8. Miscellaneous identification products.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.
- B. Samples: For each type of label and sign to illustrate composition, size, colors, lettering style, mounting provisions, and graphic features of identification products.
- C. Identification Schedule: For each piece of electrical equipment and electrical system components to be an index of nomenclature for electrical equipment and system components used in identification signs and labels. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For arc-flash hazard study.

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PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Comply with NFPA 70E and Section 26 05 73.19 "Arc-Flash Hazard Analysis" requirements for arc-flash warning labels.
- F. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 - 1. Black letters on an orange field.
 - 2. Legend: Indicate voltage and system or service type.
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.
 - 1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
 - 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - 3. Colors for 240-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - 4. Colors for 480/277-V Circuits:
 - a. Phase A: Brown.
 - b. Phase B: Orange.
 - c. Phase C: Yellow.

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5. Color for Neutral: White, with phase identification by colored stripe.
6. Color for Equipment Grounds: Green.

C. Warning Label Colors:

1. Identify system voltage with black letters on an orange background.

D. Warning labels and signs shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

E. Equipment Identification Labels:

1. Black letters on a white field.

2.3 LABELS

A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Panduit Corp.

B. Self-Adhesive Wraparound Labels: Write-on, 3-mil-thick, polyester flexible label with acrylic pressure-sensitive adhesive.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Panduit Corp.
2. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
3. Marker for Labels:

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- a. Permanent, waterproof, black ink marker recommended by tag manufacturer.
 - b. Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.
- C. Self-Adhesive Labels: Vinyl, thermal, transfer-printed, 3-mil-thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Panduit Corp.
 2. Minimum Nominal Size:
 - a. 1-1/2 by 6 inches for raceway and conductors.
 - b. 3-1/2 by 5 inches for equipment.
 - c. As required by authorities having jurisdiction.

2.4 BANDS AND TUBES

- A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches long, with diameters sized to suit diameters and that stay in place by gripping action.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Marking Services, Inc.
 - c. Panduit Corp.
- B. Heat-Shrink Preprinted Tubes: Flame-retardant polyolefin tubes with machine-printed identification labels, sized to suit diameter and shrunk to fit firmly. Full shrink recovery occurs at a maximum of 200 deg F. Comply with UL 224.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Panduit Corp.

2.5 TAPES AND STENCILS

- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

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1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Ideal Industries, Inc.
 - b. Marking Services, Inc.
 - c. Panduit Corp.

- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils thick by 1 to 2 inches wide; compounded for outdoor use.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Marking Services, Inc.
 - d. Or Equal.

- C. Floor Marking Tape: 2-inch-wide, 5-mil pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlton Industries, LP.
 - b. emedco.
 - c. Seton Identification Products; a Brady Corporation company.
 - d. Or Equal.

- D. Underground-Line Warning Tape:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Ideal Industries, Inc.
 - c. Marking Services, Inc.

 2. Tape:
 - a. Detectable type, 6-inch width, recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - b. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.

 3. Color and Printing:

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- a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
- b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE".
- c. Inscriptions for Orange-Colored Tapes: "TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE".

2.6 TAGS

- A. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.
 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Seton Identification Products; a Brady Corporation company.
 - d. Or Equal.

2.7 SIGNS

- A. Baked-Enamel Signs:
 1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. Carlton Industries, LP.
 - b. emedco.
 - c. Marking Services, Inc.
 - d. Or Equal.
 2. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
 3. 1/4-inch grommets in corners for mounting.
 4. Nominal Size: 7 by 10 inches.
- B. Metal-Backed Butyrate Signs:
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Marking Services, Inc.
 2. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs, with 0.0396-inch galvanized-steel backing, punched and drilled for fasteners, and with colors, legend, and size required for application.

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3. 1/4-inch grommets in corners for mounting.
4. Nominal Size: 10 by 14 inches.

C. Laminated Acrylic or Melamine Plastic Nameplates:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. emedco.
 - c. Marking Services, Inc.
 - d. Or Equal.
2. Engraved legend.
3. Thickness:
 - a. For signs up to 20 sq. in., minimum 1 inch high by 3/32inch thick.
 - b. For signs larger than 20 sq. in., 1/8 inch thick.
 - c. Engraved legend with black letters on white face. Minimum ¼ inch character height.
 - d. Punched or drilled for mechanical fasteners .
 - e. Nameplates of punch strip tape in any form, with or without card holders, are prohibited.

2.8 CABLE TIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Ideal Industries, Inc.
 2. Marking Services, Inc.
 3. Panduit Corp.
 4. Or Equal.
- B. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 1. Minimum Width: 3/16 inch.
 2. Tensile Strength at 73 Deg F according to ASTM D638: 12,000 psi.
 3. Temperature Range: Minus 40 to plus 185 deg F.
 4. Color: Black, except where used for color-coding.
- C. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.
 1. Minimum Width: 3/16 inch.
 2. Tensile Strength at 73 Deg F according to ASTM D638: 12,000 psi.
 3. Temperature Range: Minus 40 to plus 185 deg F.
 4. Color: Black.

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- D. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.
 - 1. Minimum Width: 3/16 inch.
 - 2. Tensile Strength at 73 Deg F according to ASTM D638: 7000 psi.
 - 3. UL 94 Flame Rating: 94V-0.
 - 4. Temperature Range: Minus 50 to plus 284 deg F.
 - 5. Color: Black.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Nameplates and Signs: Self-tapping, cadmium-plated steel screws or cadmium-plated steel machine screws with nuts and flat and lock washers. Adhesive attachment is not acceptable.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.

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- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
 - 2. Fire alarm raceways and junction boxes shall be identified with red painted finish or with red colored band applied at not greater than 10-foot spacing.
- H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- I. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch-high letters for emergency instructions at equipment used for power transfer.
- J. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- K. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:
 - 1. "POWER."
 - 2. "COMMUNICATIONS."
 - 3. "FIRE ALARM."
- L. Vinyl Wraparound Labels:
 - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
 - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- M. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.
- N. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- O. Self-Adhesive Labels:
 - 1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high label; where two lines of text are required, use labels 2 inches high.
- P. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.

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- Q. Heat-Shrink, Preprinted Tubes: Secure tight to surface at a location with high visibility and accessibility.
- R. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.
- S. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
 - 1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- T. Tape and Stencil: Comply with requirements in painting Sections for surface preparation and paint application.
- U. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- V. Underground Line Warning Tape:
 - 1. During backfilling of trenches, install continuous underground-line warning tape directly above duct bank or raceway at 12 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.
 - 2. Install underground-line warning tape for all underground raceways.
- W. Metal Tags:
 - 1. Place in a location with high visibility and accessibility.
 - 2. Secure using UV-stabilized plenum-rated cable ties.
- X. Baked-Enamel Signs:
 - 1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on minimum 1-1/2-inch-high sign; where two lines of text are required, use signs minimum 2 inches high.
- Y. Metal-Backed Butyrate Signs:
 - 1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high sign; where two lines of text are required, use labels 2 inches high.
- Z. Laminated Acrylic or Melamine Plastic Nameplates:
 - 1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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2. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high sign; where two lines of text are required, use labels 2 inches high.

AA. Cable Ties: General purpose, for attaching tags, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in panel and disconnect switch enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation. If more than one neutral conductor is present mark each related panel and circuit number.
- C. Accessible Raceways, 600 V or Less, for Service, Feeder, and Branch Circuits: Identify with self-adhesive vinyl tape applied in bands.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 15-foot maximum intervals in congested areas.
- D. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. System legends shall be as follows:
 1. "POWER."
 2. "COMMUNICATIONS."
 3. "FIRE ALARM."
- E. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.
- F. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive labels with the conductor or cable designation, origin, and destination.
- G. Control-Circuit Conductor Termination Identification: For identification at terminations, provide heat-shrink preprinted tubes with the conductor designation.

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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- H. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.
- I. Auxiliary Electrical Systems Conductor Identification: Self-adhesive vinyl tape that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
- J. Branch Circuit Conductor Identification: For conductors in pull and junction boxes use heat shrink preprinted tubes with the conductor branch circuit number and panel designation.
- K. Receptacle and Light switch cover plates: For all receptacles and local light switch plates, occupancy sensors and other lighting control devices, the cover plates shall be engraved, or silk screened with the panel and circuit number identified.
- L. Locations of Underground Lines: Underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.
- M. Workspace Indication: Apply floor marking tape to finished surfaces. Show working clearances in the direction of access to live parts. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- N. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.
- O. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.
 - 1. Apply to exterior of door, cover, or other access.
 - 2. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:
 - a. Power-transfer switches.
 - b. Controls with external control power connections.
- P. Arc Flash Warning Labeling: Self-adhesive labels.
- Q. Operating Instruction Signs: Laminated acrylic or melamine plastic signs.
- R. Emergency Operating Instruction Signs: Baked-enamel warning signs with white legend on a red background with minimum 3/8-inch-high letters for emergency instructions at equipment used for power transfer.
- S. Equipment Identification Labels:
 - 1. Indoor Equipment: Laminated acrylic or melamine plastic nameplate.
 - 2. Outdoor Equipment: Engraved Laminated acrylic or melamine nameplate.

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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3. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a engraved, laminated acrylic or melamine nameplate.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Switchboards.
 - e. Enclosed switches.
 - f. Enclosed circuit breakers.
 - g. Enclosed controllers.
 - h. Feeder circuit breakers.
 - i. Contactors.
 - j. Remote-controlled switches, dimmer modules, and control devices.
 - k. Monitoring and control equipment.
 - l. Exposed pull boxes and junction boxes.

END OF SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

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SECTION 26 05 73.13
SHORT-CIRCUIT STUDIES

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 a computer-based, fault-current study to determine the minimum interrupting capacity of circuit protective devices.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled. Existing to remain items shall remain functional throughout the construction period.
- B. Field Adjusting Agency: An independent electrical testing agency with full-time employees and the capability to adjust devices and conduct testing indicated and that is a member company of NETA.
- C. One-Line Diagram: A diagram that shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- D. Power System Analysis Software Developer: An entity that commercially develops, maintains, and distributes computer software used for power system studies.
- E. Power Systems Analysis Specialist: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located.
- F. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion of the circuit from the system.
- G. SCCR: Short-circuit current rating.
- H. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.
- I. Single-Line Diagram: See "One-Line Diagram."

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1.4 ACTION SUBMITTALS

A. Product Data:

1. For computer software program to be used for studies.
2. Submit the following after the approval of system protective devices submittals. Submittals may be in digital form.
 - a. Short-circuit study input data, including completed computer program input data sheets.
 - b. Short-circuit study and equipment evaluation report; signed, dated, and sealed by a qualified professional engineer.
 - 1) Submit study report for action prior to receiving final approval of distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that selection of devices and associated characteristics is satisfactory.
 - 2) Revised one-line diagram, reflecting field investigation results and results of short-circuit study.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data:

1. For Short-Circuit Study Specialist.

B. Product Certificates: For short-circuit study software, certifying compliance with IEEE 399.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data:

1. For overcurrent protective devices to include in emergency, operation, and maintenance manuals.
2. The following are from the Short-Circuit Study Report:
 - a. Final one-line diagram.
 - b. Final Short-Circuit Study Report.
 - c. Short-circuit study data files.
 - d. Power system data.

1.7 QUALITY ASSURANCE

- ##### A. Study shall be performed using commercially developed and distributed software designed specifically for power system analysis.

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- B. Software algorithms shall comply with requirements of standards and guides specified in this Section.
- C. Manual calculations are unacceptable.
 - 1. Power System Analysis Software Qualifications: Computer program shall be designed to perform short-circuit studies or have a function, component, or add-on module designed to perform short-circuit studies.
 - 2. Computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- D. Power Systems Analysis Specialist Qualifications: Professional engineer licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.

PART 2 - PRODUCTS

2.1 POWER SYSTEM ANALYSIS SOFTWARE DEVELOPERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. EDSA Micro Corporation.
 - 2. Power Analytics, Corporation.
 - 3. SKM Systems Analysis, Inc.
- B. Comply with IEEE 399 and IEEE 551.
 - 1. Analytical features of power systems analysis software program shall have capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- C. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output.

2.2 SHORT-CIRCUIT STUDY REPORT CONTENTS

- A. Executive summary of study findings.
- B. Study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpretation of results.
- C. One-line diagram of modeled power system, showing the following:
 - 1. Protective device designations and ampere ratings.
 - 2. Conductor types, sizes, and lengths.
 - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
 - 4. Motor and generator designations and kVA ratings.

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5. Switchgear, switchboard, motor-control center, and panelboard designations and ratings.
 6. Derating factors and environmental conditions.
 7. Any revisions to electrical equipment required by the study.
- D. Comments and recommendations for system improvements or revisions in a written document, separate from one-line diagram.
- E. Protective Device Evaluation:
1. Evaluate equipment and protective devices and compare to available short-circuit currents. Verify that equipment withstand ratings exceed available short-circuit current at equipment installation locations.
 2. Tabulations of circuit breaker, fuse, and other protective device ratings versus calculated short-circuit duties.
 3. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
 4. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in standards to 1/2-cycle symmetrical fault current.
 5. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
- F. Short-Circuit Study Input Data:
1. One-line diagram of system being studied.
 2. Power sources available.
 3. Manufacturer, model, and interrupting rating of protective devices.
 4. Conductors.
 5. Transformer data.
- G. Short-Circuit Study Output Reports:
1. Low-Voltage Fault Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:
 - a. Voltage.
 - b. Calculated fault-current magnitude and angle.
 - c. Fault-point X/R ratio.
 - d. Equivalent impedance.

PART 3 - EXECUTION

3.1 POWER SYSTEM DATA

- A. Obtain all data necessary for conduct of the study.

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1. Verify completeness of data supplied on one-line diagram. Call any discrepancies to Architect's attention.
 2. For equipment included as Work of this Project, use characteristics submitted under provisions of action submittals and information submittals for this Project.
 3. For equipment that is existing to remain, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. Qualifications of technicians and engineers shall be as defined by NFPA 70E.
- B. Gather and tabulate the required input data to support the short-circuit study. Comply with requirements in Section 01 78 39 "Project Record Documents" for recording circuit protective device characteristics. Record data on a Record Document copy of one-line diagram. Comply with recommendations in IEEE 551 as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under direct supervision and control of the engineer in charge of performing the study and shall be by the engineer or its representative who holds NETA ETT-Certified Technician Level III or NICET Electrical Power Testing Level III certification. Data include, but are not limited to, the following:
1. Product Data for Project's overcurrent protective devices involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 2. Obtain electrical power utility fault current contribution at the service. Use SDG&E published maximum fault current values based on service voltage and the combined ampere rating of all underground services supplied from the transformer.
 3. Power sources and ties.
 4. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
 5. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip, SCCR, current rating, and breaker settings.
 6. Motor horsepower and NEMA MG 1 code letter designation.
 7. Conductor sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).
 8. Derating factors.

3.2 SHORT-CIRCUIT STUDY

- A. Perform study following the general study procedures contained in IEEE 399.
- B. Calculate short-circuit currents according to IEEE 551.
- C. Base study on device characteristics supplied by device manufacturer.
- D. Extent of electrical power system to be studied is indicated on Drawings.
- E. Begin short-circuit current analysis at the service, extending down to system overcurrent protective devices as follows:

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1. To normal system low-voltage load buses where fault current is 5 kA or less.
 2. To control panels for HVAC, plumbing, elevator and building equipment.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. Include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and apply to low- and medium-voltage, three-phase ac systems. Also account for the fault-current dc decrement to address asymmetrical requirements of interrupting equipment.
- H. Include in the report identification of any protective device applied outside its capacity.

END OF SECTION 26 05 73.13

SHORT-CIRCUIT STUDIES

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SECTION 26 05 73.16
COORDINATION STUDIES

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 computer-based, overcurrent protective device coordination studies to determine overcurrent protective devices and to determine overcurrent protective device settings for selective tripping.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled. Existing to remain items shall remain functional throughout the construction period.
- B. Field Adjusting Agency: An independent electrical testing agency with full-time employees and the capability to adjust devices and conduct testing indicated and that is a member company of NETA.
- C. One-Line Diagram: A diagram that shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- D. Power System Analysis Software Developer: An entity that commercially develops, maintains, and distributes computer software used for power system studies.
- E. Power System Analysis Specialist: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located.
- F. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion of the circuit from the system.
- G. SCCR: Short-circuit current rating.
- H. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

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- I. Single-Line Diagram: See "One-Line Diagram."

1.4 ACTION SUBMITTALS

A. Product Data:

1. For computer software program to be used for studies.
2. Submit the following after the approval of system protective devices submittals. Submittals shall be in digital form.
 - a. Coordination-study input data, including completed computer program input data sheets.
 - b. Study and equipment evaluation reports.
3. Overcurrent protective device coordination study report; signed, dated, and sealed by a qualified professional engineer.
 - a. Submit study report for action prior to receiving final approval of distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data:

- B. Product Certificates: For overcurrent protective device coordination study software, certifying compliance with IEEE 399.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For overcurrent protective devices to include in emergency, operation, and maintenance manuals.

1. The following are from the Coordination Study Report:
 - a. Final one-line diagram.
 - b. Final protective device coordination study.
 - c. Coordination study data files.
 - d. List of all protective device settings.
 - e. Time-current coordination curves.
 - f. Power system data.

1.7 QUALITY ASSURANCE

- A. Studies shall be performed using commercially developed and distributed software designed specifically for power system analysis.

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- B. Software algorithms shall comply with requirements of standards and guides specified in this Section.
- C. Manual calculations are unacceptable.
- D. Power System Analysis Software Qualifications:
 - 1. Computer program shall be designed to perform coordination studies or have a function, component, or add-on module designed to perform coordination studies.
 - 2. Computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- E. Power Systems Analysis Specialist Qualifications: Professional engineer licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- F. Field Adjusting Agency Qualifications:
 - 1. Employer of a NETA ETT-Certified Technician Level III responsible for all field adjusting of the Work.
 - 2. A member company of NETA.
 - 3. Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 POWER SYSTEM ANALYSIS SOFTWARE DEVELOPERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Operation Technology, Inc.
 - 2. Power Analytics, Corporation.
 - 3. SKM Systems Analysis, Inc.
- B. Comply with IEEE 242 and IEEE 399.
- C. Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.
- D. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.
 - 1. Optional Features:
 - a. Arcing faults.

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- b. Simultaneous faults.
- c. Explicit negative sequence.
- d. Mutual coupling in zero sequence.

2.2 COORDINATION STUDY REPORT CONTENTS

- A. Executive summary of study findings.
- B. Study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpretation of results.
- C. One-line diagram of modeled power system, showing the following:
 - 1. Protective device designations and ampere ratings.
 - 2. Conductor types, sizes, and lengths.
 - 3. Transformer kilovolt ampere (kVA) and voltage ratings.
 - 4. Motor and generator designations and kVA ratings.
 - 5. Switchboard and panelboard designations.
 - 6. Any revisions to electrical equipment required by the study.
 - 7. Study Input Data: As described in "Power System Data" Article.
 - a. Short-Circuit Study Output: As specified in "Short-Circuit Study Output Reports" Paragraph in "Short-Circuit Study Report Contents" Article in Section 26 05 73.13 "Short-Circuit Studies."
- D. Protective Device Coordination Study:
 - 1. Report recommended settings of protective devices, ready to be applied in the field. Use manufacturer's data sheets for recording the recommended setting of overcurrent protective devices when available.
 - a. Circuit Breakers:
 - 1) Adjustable pickups and time delays (long time, short time, and ground).
 - 2) Adjustable time-current characteristic.
 - 3) Adjustable instantaneous pickup.
 - 4) Recommendations on improved trip systems, if applicable.
 - b. Fuses: Show current rating, voltage, and class.
- E. Time-Current Coordination Curves: Determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:
 - 1. Device tag and title, one-line diagram with legend identifying the portion of the system covered.

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2. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which the device is exposed.
3. Identify the device associated with each curve by manufacturer type, function, and, if applicable, tap, time delay, and instantaneous settings recommended.
4. Plot the following listed characteristic curves, as applicable:
 - a. Power utility's overcurrent protective device.
 - b. Low-voltage equipment circuit-breaker trip devices, including manufacturer's tolerance bands.
 - c. Transformer full-load current, magnetizing inrush current, and ANSI through-fault protection curves.
 - d. Cables and conductors damage curves.
 - e. Ground-fault protective devices.
 - f. Motor-starting characteristics and motor damage points.
 - g. The largest feeder circuit breaker in each panelboard.
5. Provide adequate time margins between device characteristics such that selective operation is achieved.
6. Comments and recommendations for system improvements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance of the Work. Devices to be coordinated are indicated on Drawings.
 1. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

3.2 POWER SYSTEM DATA

- A. Obtain all data necessary for conduct of the overcurrent protective device study.
 1. Verify completeness of data supplied in one-line diagram on Drawings. Call any discrepancies to Architect's attention.
 2. For equipment included as Work of this Project, use characteristics submitted under provisions of action submittals and information submittals for this Project.
 3. For equipment that is existing to remain, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. Qualifications of technicians and engineers shall be as defined by NFPA 70E.
 4. Proceed with coordination study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to coordination study may not be used in study.

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26 05 73.16 - 5

- B. Gather and tabulate all required input data to support the coordination study. List below is a guide. Comply with recommendations in IEEE 551 for the amount of detail required to be acquired in the field. Field data gathering shall be under direct supervision and control of the engineer in charge of performing the study and shall be by the engineer or its representative who holds NETA ETT-Certified Technician Level III or NICET Electrical Power Testing Level III certification. Data include, but are not limited to, the following:
1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 2. Electrical power utility impedance at the service.
 3. Power sources and ties.
 4. Short-circuit current at each system bus (three phase and line to ground).
 5. Full-load current of all loads.
 6. Voltage level at each bus.
 7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
 8. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
 9. Maximum demands from service meters.
 10. Motor horsepower and NEMA MG 1 code letter designation.
 11. Low-voltage cable sizes, lengths, number, conductor material, and conduit material (magnetic or nonmagnetic).
 12. Data sheets to supplement electrical distribution system one-line diagram, cross-referenced with tag numbers on diagram, showing the following:
 - a. Special load considerations, including starting inrush currents and frequent starting and stopping.
 - b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
 - c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
 - d. Ratings, types, and settings of utility company's overcurrent protective devices.
 - e. Special overcurrent protective device settings or types stipulated by utility company.
 - f. Time-current-characteristic curves of devices indicated to be coordinated.
 - g. Manufacturer, frame size, interrupting rating in amperes root mean square (rms) symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.
 - h. Switchgear, switchboards, motor-control centers, and panelboards ampacity, and SCCR in amperes rms symmetrical.

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3.3 COORDINATION STUDY

- A. Comply with IEEE 242 for calculating short-circuit currents and determining coordination time intervals.
- B. Comply with IEEE 399 for general study procedures.
- C. Base study on device characteristics supplied by device manufacturer.
- D. Extent of electrical power system to be studied is indicated on Drawings. Include all new equipment and any equipment existing to remain.
- E. Begin analysis at the service, extending down to system overcurrent protective devices as follows:
 - 1. To normal system low-voltage load buses where fault current is 5 kA or less.
- F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.
- G. Motor Protection:
 - 1. Select protection for low-voltage motors according to IEEE 242 and NFPA 70.
- H. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and protection recommendations in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.
- I. Include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and apply to low-voltage, three-phase ac systems. Also account for fault-current dc decrement, to address asymmetrical requirements of interrupting equipment.
- J. Protective Device Evaluation:
 - 1. Evaluate equipment and protective devices and compare to short-circuit ratings.
 - 2. Adequacy of switchgear, motor-control centers, and panelboard bus bars to withstand short-circuit stresses.
 - 3. Include in the report identification of any protective device applied outside its capacity.

3.4 FIELD ADJUSTING

- A. Adjust relay and protective device settings according to recommended settings provided by the coordination study. Field adjustments shall be completed by the

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engineering service division of equipment manufacturer under the "Startup and Acceptance Testing" contract portion.

- B. Make minor modifications to equipment as required to accomplish compliance with short-circuit and protective device coordination studies.
- C. Testing and adjusting shall be by a full-time employee of the Field Adjusting Agency, who holds NETA ETT-Certified Technician Level III or NICET Electrical Power Testing Level III certification.
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS. Certify compliance with test parameters. Perform NETA tests and inspections for all adjustable overcurrent protective devices.

3.5 DEMONSTRATION

- A. Engage Power Systems Analysis Specialist to train Owner's maintenance personnel in the following:
 - 1. Acquaint personnel in fundamentals of operating the power system in normal and emergency modes.
 - 2. Hand-out and explain the coordination study objectives, study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpreting time-current coordination curves.
 - 3. For Owner's maintenance staff certified as NETA ETT-Certified Technicians Level III or NICET Electrical Power Testing Level III Technicians, teach how to adjust, operate, and maintain overcurrent protective device settings.

END OF SECTION 26 05 73.16

COORDINATION STUDIES

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SECTION 26 05 73.19
ARC-FLASH HAZARD ANALYSIS

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 a computer-based, arc-flash study to determine the arc-flash hazard distance and the incident energy to which personnel could be exposed during work on or near electrical equipment.

1.3 DEFINITIONS

- A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- B. Field Adjusting Agency: An independent electrical testing agency with full-time employees and the capability to adjust devices and conduct testing indicated and that is a member company of NETA.
- C. One-Line Diagram: A diagram that shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.
- D. Power System Analysis Software Developer: An entity that commercially develops, maintains, and distributes computer software used for power system studies.
- E. Power Systems Analysis Specialist: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located.
- F. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.
- G. SCCR: Short-circuit current rating.
- H. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

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- I. Single-Line Diagram: See "One-Line Diagram."

1.4 ACTION SUBMITTALS

- A. Product Data: For computer software program to be used for studies.
- B. Study Submittals: Submit the following submittals after the approval of system protective devices submittals. Submittals shall be in digital form:
 - 1. Arc-flash study input data, including completed computer program input data sheets.
 - 2. Arc-flash study report; signed, dated, and sealed by Power Systems Analysis Specialist.
 - 3. Submit study report for action prior to receiving final approval of distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Architect for preliminary submittal of sufficient study data to ensure that selection of devices and associated characteristics is satisfactory.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data:
 - 1. For Arc-Flash Study Specialist.
- B. Product Certificates: For arc-flash hazard analysis software, certifying compliance with IEEE 1584 and NFPA 70E.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data:
 - 1. Provide maintenance procedures in equipment manuals according to requirements in NFPA 70E.
 - 2. Operation and Maintenance Procedures: Provide maintenance procedures for use by Owner's personnel that comply with requirements in NFPA 70E.

1.7 QUALITY ASSURANCE

- A. Study shall be performed using commercially developed and distributed software designed specifically for power system analysis.
- B. Software algorithms shall comply with requirements of standards and guides specified in this Section.
- C. Manual calculations are unacceptable.

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- D. Power System Analysis Software Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.
 - 1. Computer program shall be designed to perform arc-flash analysis or have a function, component, or add-on module designed to perform arc-flash analysis.
 - 2. Computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.
- E. Power Systems Analysis Specialist Qualifications: Professional engineer in charge of performing the arc-flash study, analyzing the arc flash, and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.
- F. Arc-Flash Study Certification: Arc-Flash Study Report shall be signed and sealed by Power Systems Analysis Specialist.
- G. Field Adjusting Agency Qualifications:
 - 1. Employer of a NETA ETT-Certified Technician Level III or NICET Electrical Power Testing Level III certification responsible for all field adjusting of the Work.
 - 2. A member company of NETA.
 - 3. Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ESA Inc.
 - 2. Operation Technology, Inc.
 - 3. SKM Systems Analysis, Inc.
- B. Comply with IEEE 1584 and NFPA 70E.
- C. Analytical features of device coordination study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

2.2 ARC-FLASH STUDY REPORT CONTENT

- A. Executive summary of study findings.
- B. Study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpretation of results.

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- C. One-line diagram, showing the following:
 - 1. Protective device designations and ampere ratings.
 - 2. Conductor types, sizes, and lengths.
 - 3. Transformer kilovolt ampere (kVA) and voltage ratings, including derating factors and environmental conditions.
 - 4. Motor and generator designations and kVA ratings.
 - 5. Switchgear, switchboard, motor-control center, panelboard designations, and ratings.
- D. Study Input Data: As described in "Power System Data" Article.
- E. Short-Circuit Study Output Data: As specified in "Short-Circuit Study Output Reports" Paragraph in "Short-Circuit Study Report Contents" Article in Section 26 05 73.13 "Short-Circuit Studies."
- F. Protective Device Coordination Study Report Contents: As specified in "Coordination Study Report Contents" Article in Section 26 05 73.16 "Coordination Studies."
- G. Incident Energy and Flash Protection Boundary Calculations:
 - 1. Arcing fault magnitude.
 - 2. Protective device clearing time.
 - 3. Duration of arc.
 - 4. Arc-flash boundary.
 - 5. Restricted approach boundary.
 - 6. Limited approach boundary.
 - 7. Working distance.
 - 8. Incident energy.
 - 9. Hazard risk category.
 - 10. Recommendations for arc-flash energy reduction.
- H. Fault study input data, case descriptions, and fault-current calculations including a definition of terms and guide for interpretation of computer printout.

2.3 ARC-FLASH WARNING LABELS

- A. Comply with requirements in Section 26 05 53 "Identification for Electrical Systems" for self-adhesive equipment labels. Produce a 3.5-by-5-inch self-adhesive equipment label for each work location included in the analysis.
- B. Label shall have an orange header with the wording, "WARNING, ARC-FLASH HAZARD," and shall include the following information taken directly from the arc-flash hazard analysis:
 - 1. Location designation.
 - 2. Nominal voltage.
 - 3. Protection boundaries.
 - a. Arc-flash boundary.

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- b. Restricted approach boundary.
- c. Limited approach boundary.

- 4. Arc flash PPE category.
- 5. Required minimum arc rating of PPE in Cal/cm squared.
- 6. Available incident energy.
- 7. Working distance.
- 8. Engineering report number, revision number, and issue date.

- C. Labels shall be machine printed, with no field-applied markings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine Project overcurrent protective device submittals. Proceed with arc-flash study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to arc-flash study may not be used in study.

3.2 ARC-FLASH HAZARD ANALYSIS

- A. Comply with NFPA 70E and its Annex D for hazard analysis study.

- B. Preparatory Studies: Perform the Short-Circuit and Protective Device Coordination studies prior to starting the Arc-Flash Hazard Analysis.
 - 1. Short-Circuit Study Output: As specified in "Short-Circuit Study Output Reports" Paragraph in "Short-Circuit Study Report Contents" Article in Section 26 05 73.13 "Short-Circuit Studies."
 - 2. Coordination Study Report Contents: As specified in "Coordination Study Report Contents" Article in Section 26 05 73.16 "Coordination Studies."

- C. Calculate maximum and minimum contributions of fault-current size.
 - 1. The minimum calculation shall assume that the utility contribution is at a minimum and shall assume no motor load.
 - 2. Maximum calculation shall assume a maximum contribution from the utility and shall assume motors to be operating under full-load conditions.

- D. Calculate the arc-flash protection boundary and incident energy at locations in electrical distribution system where personnel could perform work on energized parts.

- E. Include low-voltage equipment locations, except equipment rated 240 V ac or less fed from transformers less than 125 kVA.

- F. Incident energy calculations shall consider the accumulation of energy over time when performing arc-flash calculations on buses with multiple sources. Iterative calculations shall take into account the changing current contributions, as the sources are

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interrupted or decremented with time. Fault contribution from motors and generators shall be decremented as follows:

1. Fault contribution from induction motors shall not be considered beyond three to five cycles.
 2. Fault contribution from synchronous motors and generators shall be decayed to match the actual decrement of each as closely as possible (for example, contributions from permanent magnet generators will typically decay from 10 per unit to three per unit after 10 cycles).
- G. Arc-flash energy shall generally be reported for the maximum of line or load side of a circuit breaker. However, arc-flash computation shall be performed and reported for both line and load side of a circuit breaker as follows:
1. When the circuit breaker is in a separate enclosure.
 2. When the line terminals of the circuit breaker are separate from the work location.
- H. Base arc-flash calculations on actual overcurrent protective device clearing time. Cap maximum clearing time at two seconds based on IEEE 1584, Section B.1.2.

3.3 POWER SYSTEM DATA

- A. Obtain all data necessary for conduct of the arc-flash hazard analysis.
1. Verify completeness of data supplied on one-line diagram on Drawings and under "Preparatory Studies" Paragraph in "Arc-Flash Hazard Analysis" Article. Call discrepancies to Architect's attention.
 2. For new equipment, use characteristics from approved submittals under provisions of action submittals and information submittals for this Project.
 3. For existing equipment, whether or not relocated, obtain required electrical distribution system data by field investigation and surveys conducted by qualified technicians and engineers.
- B. Electrical Survey Data: Gather and tabulate the following input data to support study. Comply with recommendations in IEEE 1584 and NFPA 70E as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT-Certified Technician Level III or NICET Electrical Power Testing Level III certification. Data include, but are not limited to, the following:
1. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.
 2. Obtain electrical power utility impedance or available short circuit current at the service.
 3. Power sources and ties.

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4. Short-circuit current at each system bus (three phase and line to ground).
5. Full-load current of all loads.
6. Voltage level at each bus.
7. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.
8. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.
9. Motor horsepower and NEMA MG 1 code letter designation.
10. Low-voltage conductor sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).

3.4 LABELING

- A. Apply one arc-flash label on the front cover of each section of the equipment for each equipment included in the study. Base arc-flash label data on highest values calculated at each location.
- B. Each piece of equipment listed below shall have an arc-flash label applied to it:
 1. Low-voltage switchboard.
 2. Panelboard and safety switch.
 3. Control panel.
- C. Note on record Drawings the location of equipment where the personnel could be exposed to arc-flash hazard during their work.
 1. Indicate arc-flash energy.
 2. Indicate protection level required.

3.5 APPLICATION OF WARNING LABELS

- A. Install arc-flash warning labels under the direct supervision and control of Power System Analysis Specialist.

3.6 DEMONSTRATION

- A. Engage Power Systems Analysis Specialist to train Owner's maintenance personnel in potential arc-flash hazards associated with working on energized equipment and the significance of arc-flash warning labels.

END OF SECTION 26 05 73.19

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SECTION 26 24 13

SWITCHBOARDS

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. Service and distribution switchboards rated 600 V and less.
2. Surge protection devices.
3. Disconnecting and overcurrent protective devices.
4. Instrumentation.
5. Control power.
6. Accessory components and features.
7. Identification.

- B. Related Requirements

1. Section 26 05 73.19 "Arc-Flash Hazard Analysis" for arc-flash analysis and arc-flash label requirements.

1.3 ACTION SUBMITTALS

- A. Product Data: For each switchboard, overcurrent protective device, surge protection device, ground-fault protector, accessory, and component.

1. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

- B. Shop Drawings: For each switchboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Detail short-circuit current rating of switchboards and overcurrent protective devices.
5. Include descriptive documentation of optional barriers specified for electrical insulation and isolation.

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6. Detail utility company's metering provisions with indication of approval by utility company.
 7. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
 8. Include time-current coordination curves for each type and rating of overcurrent protective device included in switchboards. Submit on translucent log-log graph paper; include selectable ranges for each type of overcurrent protective device.
 9. Include schematic and wiring diagrams for power, signal, and control wiring.
- C. Samples: Representative portion of mimic bus with specified material and finish, for color selection.
- D. Delegated Design Submittal:
1. For arc-flash hazard analysis.
 2. For arc-flash labels.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and testing agency.
- B. Seismic Qualification Data: Certificates, for switchboards, overcurrent protective devices, accessories, and components, from manufacturer.
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- C. Field Quality-Control Reports:
1. Test procedures used.
 2. Test results that comply with requirements.
 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For switchboards and components to include in emergency, operation, and maintenance manuals.
1. Include the following:
 - a. Routine maintenance requirements for switchboards and all installed components.
 - b. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.

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- c. Time-current coordination curves for each type and rating of overcurrent protective device included in switchboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers qualified as defined in NEMA PB 2.1 and trained in electrical safety as required by NFPA 70E.
- B. Testing Agency Qualifications: Accredited by NETA.
 - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver switchboards in sections or lengths that can be moved past obstructions in delivery path.
- B. Remove loose packing and flammable materials from inside switchboards and to prevent condensation.
- C. Handle and prepare switchboards for installation according to NEMA PB 2.1.

1.8 FIELD CONDITIONS

- A. Installation Pathway: Remove and replace access fencing, doors, lift-out panels, and structures to provide pathway for moving switchboards into place.
- B. Environmental Limitations:
 - 1. Do not deliver or install switchboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above switchboards is complete, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
 - 2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding 104 deg F.
 - b. Altitude: Not exceeding 6600 feet.
- C. Unusual Service Conditions: NEMA PB 2, as follows:
 - 1. Ambient temperatures within limits specified.
 - 2. Altitude not exceeding 6600 feet.

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- D. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 - 1. Notify Owner no fewer than seven days in advance of proposed interruption of electric service.
 - 2. Indicate method of providing temporary electric service.
 - 3. Do not proceed with interruption of electric service without Owner's written permission.
 - 4. Comply with NFPA 70E.

1.9 COORDINATION

- A. Coordinate layout and installation of switchboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace switchboard enclosures, buswork, overcurrent protective devices, accessories, and factory installed interconnection wiring that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Three years from date of Substantial Completion.
- B. Manufacturer's Warranty: Manufacturer's agrees to repair or replace surge protection devices that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Switchboards shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation. Shake-table testing shall comply with ICC-ES AC156.

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2. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.2 SWITCHBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton
 2. Schneider Electric Square D
 3. Siemens Electric
 4. General Electric Company; GE Consumer & Industrial – Electrical Distribution
- B. Source Limitations: Obtain switchboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.
- C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for switchboards including clearances between switchboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- D. 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.
- E. Comply with NEMA PB 2.
- F. Comply with NFPA 70.
- G. Comply with UL 891.
- H. Front-Connected, Front-Accessible Switchboards:
 1. Main Devices: Fixed, individually mounted.
 2. Branch Devices: Panel mounted.
 3. Sections front and rear aligned.
- I. Nominal System Voltage: 208Y/120 V.
- J. Main-Bus Continuous: 800 A.
- K. Seismic Requirements: Fabricate and test switchboards according to IEEE 344 to withstand seismic forces.
 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation. Shake-table testing shall comply with ICC-ES AC156.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

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- b. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
- L. Indoor Enclosures: Steel, NEMA 250, Type 1.
 - M. Enclosure Finish for Indoor Units: Factory-applied finish in manufacturer's standard gray finish over a rust-inhibiting primer on treated metal surface.
 - N. Outdoor Enclosures: Type 3R.
 1. Finish: Factory-applied finish in manufacturer's standard color; undersurfaces treated with corrosion-resistant undercoating.
 2. Enclosure: Downward, rearward sloping roof; bolt-on rear covers; front hinged doors for each section, with provisions for padlocking.
 3. Power for Space Heaters, Ventilation, Lighting, and Receptacle: Include a control-power transformer, with spare capacity of 25 percent, within the switchboard. Supply voltage shall be 120 V ac.
 - O. Barriers: Between adjacent switchboard sections.
 - P. Insulation and isolation for main bus of main section and main and vertical buses of feeder sections.
 - Q. Space Heaters: Factory-installed electric space heaters of sufficient wattage in each vertical section to maintain enclosure temperature above expected dew point.
 - R. Customer Metering Compartment: A separate customer metering compartment and section with front hinged door, and section with front hinged door, for indicated metering, and current transformers for each meter. Current transformer secondary wiring shall be terminated on shorting-type terminal blocks. Include potential transformers having primary and secondary fuses with disconnecting means and secondary wiring terminated on terminal blocks.
 - S. Bus Transition and Incoming Pull Sections: Matched and aligned with basic switchboard. Where applicable, designed to accommodate existing underground conduits.
 - T. Buses and Connections: Three phase, four wire unless otherwise indicated.
 1. Provide phase bus arrangement A, B, C from front to back, top to bottom, and left to right when viewed from the front of the switchboard.
 2. Phase- and Neutral-Bus Material: Hard-drawn copper of 98 percent conductivity,.
 3. Copper feeder circuit-breaker line connections.
 4. Load Terminals: Insulated, rigidly braced, runback bus extensions, of same material as through buses, equipped with mechanical connectors for outgoing circuit conductors. Provide load terminals for future circuit-breaker positions at full-ampere rating of circuit-breaker position.

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5. Ground Bus: 1/4-by-2-inch-hard-drawn copper of 98 percent conductivity, equipped with mechanical connectors for feeder and branch-circuit ground conductors.
 6. Main-Phase Buses and Equipment-Ground Buses: Uniform capacity for entire length of switchboard's main and distribution sections. Disconnect Links:
 - a. Isolate neutral bus from incoming neutral conductors.
 - b. Bond neutral bus to equipment-ground bus for switchboards utilized as service equipment or separately derived systems.
 7. Neutral Buses: 100 percent of the ampacity of phase buses unless otherwise indicated, equipped with mechanical connectors for outgoing circuit neutral cables. Brace bus extensions for busway feeder neutral bus.
 8. Isolation Barrier Access Provisions: Permit checking of bus-bolt tightness.
- U. Future Devices: Equip compartments with mounting brackets, supports, bus connections, and appurtenances at full rating of circuit-breaker compartment.
- V. Bus-Bar Insulation: Factory-applied, flame-retardant, tape wrapping of individual bus bars or flame-retardant, spray-applied insulation. Minimum insulation temperature rating of 105 deg C.
- W. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components including instruments and instrument transformers.

2.3 SAN DIEGO GAS & ELECTRIC METERING

- A. Underground Pull Section: Underground pull section shall meet the requirements of "Switchboards" Article above. The size and physical location of the pull section will be subject to approval by SDG&E. Pull Section requiring 5 inch conduit must allow a minimum of 6 feet clear and level working space in front of the section. All removable panels and covers to compartments used for routing un-metered conductors will be sealed by SDG&E. The size of the pull section shall be as required by SDG&E.
- B. The enclosure of the Meter Section shall meet the requirements of "Switchboards" Article above. The Meter Socket shall be mounted at a height not more than 75 inches or less than 36 inches above the standing surface. These heights are measured to the center-line of the meter. All buses shall be copper and the bus size and arrangements shall meet the requirements of SDG&E, as detailed in SDG&E Service Guide. The current transformer shall be located on the upstream (line) side of the main circuit breaker and shall be sized per SDG&E requirements.
- C. The manufacturer shall obtain approval from the meter shop at SDG&E prior to any fabrication of the metering section and switchboard.

2.4 TITLE 24 RESETTABLE CUSTOMER SERVICE METER

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton Electrical Sector; Eaton Corporation.

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2. National Meter Industries.
3. Square D; by Schneider Electric.
4. Electro Industries/GaugeTech
5. Or equal.

B. Meter Characteristics:

1. Meter shall be designed for Multifunction Electrical Measurement on 3 phase power systems. The Meter shall support 3-Element Wye, 2.5 Element Wye, 2 Element Delta, 4 wire Delta systems.
2. Meter surge withstand shall conform to IEEE C37.90.1 and ANSI C62.41 (6KV).
3. Meter shall be user programmable for voltage range to any PT ratio.
4. Meter shall have a burden of up to .36VA per phase, Max at 600V, 0.014VA at 120 Volts.
5. Meter shall accept a direct voltage input range of up to 576 Volts Line to Neutral, and a range of up to 721 Volts Line to Line.
6. Meter shall accept a current input of up to 10 amps continuous. Startup current for a 5 Amp input shall be no greater than .005 Amps.
7. Meters shall provide voltage per phase, amperes, instantaneous kW demand, historical peak kW demand, kWh, kWh per rate period, PF, and kVAR. The kWh shall be resettable by the user.
8. Provide current transformers consistent with the system voltage and with the ratio indicated on the Drawings.

2.5 SURGE PROTECTION DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton.Cutler Hammer
2. Schneider Electric Square D
3. Siemens Electric

B. SPDs: Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 1449, Type 2.

C. Features and Accessories:

1. Integral disconnect switch.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
3. Indicator light display for protection status.
4. Form-C contacts rated at 2 A and 250-V ac, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.
5. Surge counter.

D. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 250kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

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- E. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V for 208Y/120 V.
 - 2. Line to Ground: 1200 V for 208Y/120 V.
 - 3. Line to Line: 1000 V for 208Y/120 V.
- F. SCCR: Equal or exceed 100 kA.
- G. Nominal Rating: 20 kA.

2.6 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits.
 - 2. Electronic trip circuit breakers, required for circuit breaker frame sizes 250 A and larger, with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:
 - a. Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long- and short-time adjustments.
 - d. Ground-fault pickup level, time delay, and I squared t response. Ground fault function shall be provided on breakers only where indicated on the drawings or required by code.
 - 3. The requirement for electronic trip shall be based on the circuit breaker frame size indicated on the drawings. If the breaker frame size is voluntarily increased above what is indicated on the drawings, from a frame size less than 250 amperes to a frame size 250 amperes or greater for the purpose of terminating oversized feeder conductors due to voltage drop, electronic trip breakers shall not be required but shall meet the requirements for thermal magnetic breakers for frame sizes 125 A to 225 A.
 - 4. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Lugs: Compression style, suitable for number, size, trip ratings, and conductor material.
 - c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
 - d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.

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2.7 CONTROL POWER

- A. Control Circuits: 120-V ac, supplied through secondary disconnecting devices from integral control-power.
- B. Control-Power Fuses: Fuses for current-limiting and protection of control circuits.
- C. Control Wiring: Factory installed, with bundling, lacing, and protection included. Provide flexible conductors for No. 8 AWG and smaller, for conductors across hinges, and for conductors for interconnections between shipping units.

2.8 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.
- B. Portable Test Set: For testing functions of solid-state trip devices without removing from switchboard. Include relay and meter test plugs suitable for testing switchboard meters and switchboard class relays.

2.9 IDENTIFICATION

- A. Service Equipment Label: NRTL labeled for use as service equipment for switchboards with one or more service disconnecting and overcurrent protective devices.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Receive, inspect, handle, and store switchboards according to NEMA PB 2.1.
 - 1. Lift or move panelboards with spreader bars and manufacturer-supplied lifting straps following manufacturer's instructions.
 - 2. Use rollers, slings, or other manufacturer-approved methods if lifting straps are not furnished.
 - 3. Protect from moisture, dust, dirt, and debris during storage and installation.
 - 4. Install temporary heating during storage per manufacturer's instructions.
- B. Examine switchboards before installation. Reject switchboards that are moisture damaged or physically damaged.
- C. Examine elements and surfaces to receive switchboards for compliance with installation tolerances and other conditions affecting performance of the Work or that affect the performance of the equipment.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

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3.2 INSTALLATION

- A. Install switchboards and accessories according to NEMA PB 2.1.
- B. Equipment Mounting: Install switchboards on concrete base, 4-inch nominal thickness. Exception: Concrete base for switchboards with utility metering shall be 1-1/2-inch nominal thickness above standing surface to comply with SDG&E meter height requirements. Comply with requirements for concrete base specified on Structural Drawing S03.
 - 1. Install conduits entering underneath the switchboard, entering under the vertical section where the conductors will terminate. Install with couplings flush with the concrete base. Extend 2 inches above concrete base after switchboard is anchored in place.
 - 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
 - 3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
 - 4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 5. Install anchor bolts to elevations required for proper attachment to switchboards.
 - 6. Anchor switchboard to building structure at the top of the switchboard if required or recommended by the manufacturer.
- C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, straps and brackets, and temporary blocking of moving parts from switchboard units and components.
- D. Comply with mounting and anchoring requirements specified in Section 26 05 29 "Hangers and Supports for Electrical Systems."
- E. Operating Instructions: Frame and mount the printed basic operating instructions for switchboards, including control and key interlocking sequences and emergency procedures. Fabricate frame of finished wood or metal and cover instructions with clear acrylic plastic. Mount on front of switchboards.
- F. Install filler plates in unused spaces of panel-mounted sections.
- G. Install overcurrent protective devices, surge protection devices, and instrumentation.
- H. Comply with NECA 1.

3.3 CONNECTIONS

- A. Bond metallic conduits entering underneath the switchboard to the equipment ground bus with a bonding conductor sized per NFPA 70.
- B. Support and secure conductors within the switchboard according to NFPA 70.

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- C. Extend insulated equipment grounding cable to busway ground connection and support cable at intervals in vertical run.

3.4 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."
- B. Switchboard Nameplates: Label each switchboard compartment with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."
- C. Device Nameplates: Label each disconnecting and overcurrent protective device and each meter and control device mounted in compartment doors with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections with the assistance of a factory-authorized service representative.
- D. Tests and Inspections:
 - 1. Acceptance Testing:
 - a. Test insulation resistance for each switchboard bus, component, connecting supply, feeder, and control circuit. Open control and metering circuits within the switchboard and remove neutral connection to surge protection and other electronic devices prior to insulation test. Reconnect after test.
 - b. Test continuity of each circuit.
 - c. Test neutral-ground isolation with all feeder and branch circuits connected.
 - 2. Test ground-fault protection of equipment for service equipment per NFPA 70.
 - 3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. In accordance with NETA all acceptance testing shall be performed after switchboards are installed and anchored in their final locations. Certify compliance with test parameters.
 - 4. Correct malfunctioning units on-site where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

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5. Perform the following infrared scan tests and inspections, and prepare reports:
 - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switchboard. Remove front panels so joints and connections are accessible to portable scanner.
 - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switchboard 11 months after date of Substantial Completion.
 - c. Instruments and Equipment:
 - 1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 6. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Switchboard will be considered defective if it does not pass tests and inspections.
- F. Prepare test and inspection reports, including a certified report that identifies switchboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.6 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges as specified in Section 26 05 73.16 "Coordination Studies."

3.7 PROTECTION

- A. Temporary Heating: Apply temporary heat, to maintain temperature according to manufacturer's written instructions, until switchboard is ready to be energized and placed into service.

3.8 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain switchboards, overcurrent protective devices, instrumentation, and accessories.

END OF SECTION 26 24 13

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SECTION 26 24 16

PANELBOARDS

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. Distribution panelboards.
 - 2. Lighting and appliance branch-circuit panelboards.
 - 3. Electronic-grade panelboards.

1.3 DEFINITIONS

- A. ATS: Acceptance testing specification.
- B. GFCI: Ground-fault circuit interrupter.
- C. GFEP: Ground-fault equipment protection.
- D. HID: High-intensity discharge.
- E. MCCB: Molded-case circuit breaker.
- F. SPD: Surge protective device.
- G. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of panelboard.
 - 1. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.
 - 2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.

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1. Include dimensioned plans, elevations, sections, and details.
2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
4. Detail bus configuration, current, and voltage ratings.
5. Short-circuit current rating of panelboards and overcurrent protective devices.
6. Include evidence of NRTL listing for SPD as installed in panelboard.
7. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
8. Include wiring diagrams for power, signal, and control wiring.
9. Key interlock scheme drawing and sequence of operations.
10. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graph paper; include selectable ranges for each type of overcurrent protective device. Include an Internet link for electronic access to downloadable PDF of the coordination curves.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Panelboard Schedules: For installation in panelboards.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Keys: Two spares for each type of panelboard cabinet lock.
 2. Circuit Breakers Including GFCI Types: Two spares for each panelboard.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: ISO 9001 or ISO 9002 certified.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.
- B. Handle and prepare panelboards for installation according to NEMA PB 1.

1.9 FIELD CONDITIONS

- A. Environmental Limitations:

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1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding 23 deg F to plus 104 deg F.
 - b. Altitude: Not exceeding 6600 feet.

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet.

C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Owner no fewer than five days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without Owner's written permission.
3. Comply with NFPA 70E.

1.10 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.

1. Panelboard Warranty Period: 18 months from date of Substantial Completion.

B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace SPD that fails in materials or workmanship within specified warranty period.

1. SPD Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANELBOARDS COMMON REQUIREMENTS

A. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

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- 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.
- C. Comply with NEMA PB 1.
- D. Comply with CEC.
- E. Enclosures: Flush and Surface-mounted, dead-front cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
 - c. Wash-Down Areas: NEMA 250, Type 4X.
 - d. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
 - 2. Height: 84 inches maximum.
 - 3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims shall cover all live parts and shall have no exposed hardware.
 - 4. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.
 - 5. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
 - 6. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
 - 7. Finishes:
 - a. Panels and Trim: galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - b. Back Boxes: Galvanized steel.
 - c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.
- F. Incoming Mains:
 - 1. Location: Top or Bottom, as required to facilitate feeder conductor installation.
 - 2. Main Breaker: Main lug interiors up to 400 amperes shall be field convertible to main breaker.
- G. Phase, Neutral, and Ground Buses:
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - a. Plating shall run entire length of bus.
 - b. Bus shall be fully rated the entire length.

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2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
 3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
 4. Full-Sized Neutral: Equipped with full-capacity bonding strap for service entrance applications. Mount electrically isolated from enclosure. Do not mount neutral bus in gutter.
- H. Conductor Connectors: Suitable for use with conductor material and sizes.
1. Material: Hard-drawn copper, 98 percent conductivity.
 2. Terminations shall allow use of 75 deg C rated conductors without derating.
 3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
 4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
 5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.
 6. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
 7. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
- I. NRTL Label: Panelboards or load centers shall be labeled by an NRTL acceptable to authority having jurisdiction for use as service equipment with one or more main service disconnecting and overcurrent protective devices. Panelboards or load centers shall have meter enclosures, wiring, connections, and other provisions for utility metering. Coordinate with utility company for exact requirements.
- J. Future Devices: Panelboards or load centers shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
1. Supply a minimum 10% spare breaker space in all panels.
 2. Provide 10% more ampacity for electrical panel above calculated load requirements.
- K. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity. Series rated overcurrent devices are not acceptable or permitted.
1. Panelboards and overcurrent protective devices rated 240 V or less shall have short-circuit ratings as shown on Drawings, but not less than 10,000 A rms symmetrical.
 2. Panelboards and overcurrent protective devices rated above 240 V and less than 600 V shall have short-circuit ratings as shown on Drawings, but not less than 14,000 A rms symmetrical.

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2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
- B. Surge Suppression: Factory installed as an integral part of indicated panelboards, complying with UL 1449 SPD Type 2.

2.3 POWER PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton.
 - 2. Siemens Industry, Inc., Energy Management Division.
 - 3. Square D; by Schneider Electric.
 - 4. General Electric Company; GE Consumer & Industrial – Electrical Distribution
- B. Panelboards: NEMA PB 1, distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
 - 1. For doors more than 36 inches high, provide two latches, keyed alike.
- D. Mains: Circuit breaker.
- E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers.

2.4 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton.
 - 2. Siemens Industry, Inc., Energy Management Division.
 - 3. Square D; by Schneider Electric.
 - 4. General Electric Company; GE Consumer & Industrial – Electrical Distribution
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- C. Mains: Circuit breaker.

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- D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- E. Doors: Door-in-door construction with concealed hinges; secured with multipoint latch with tumbler lock; keyed alike. Outer door shall permit full access to the panel interior. Inner door shall permit access to breaker operating handles and labeling, but current carrying terminals and bus shall remain concealed.

2.5 ELECTRONIC-GRADE PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton.
 - 2. Siemens Industry, Inc., Energy Management Division.
 - 3. Square D; by Schneider Electric.
 - 4. General Electric Company; GE Consumer & Industrial – Electrical Distribution
- B. Panelboards: NEMA PB 1; with factory-installed, integral SPD; labeled by an NRTL for compliance with UL 67 and UL 1449 after installing SPD.
- C. Doors: Door-in-door construction with concealed hinges; secured with multipoint latch with tumbler lock; keyed alike. Outer door shall permit full access to the panel interior. Inner door shall permit access to breaker operating handles and labeling, but current carrying terminals and bus shall remain concealed. Main Overcurrent Protective Devices: Bolt-on thermal-magnetic circuit breakers.
- D. Branch Overcurrent Protective Devices: Bolt-on thermal-magnetic circuit breakers.
- E. SPD.
 - 1. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.
 - 2. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
 - a. Line to Neutral: 700 V for 208Y/120 V.
 - b. Line to Ground: 700 V for 208Y/120 V.
 - c. Neutral to Ground: 700 V for 208Y/120 V.
 - d. Line to Line: 1200 V for 208Y/120 V.
 - 3. Protection modes and UL 1449 VPR for 240/120-V, single-phase, three-wire circuits shall not exceed the following:
 - a. Line to Neutral: 700 V.
 - b. Line to Ground: 700 V.
 - c. Neutral to Ground: 700 V.
 - d. Line to Line: 1200 V.

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4. SCCR: Equal to or exceed 100 kA.
5. I-nominal Rating: 20 kA.

F. Buses:

1. Copper phase and neutral buses; 200 percent capacity neutral bus and lugs.
2. Copper equipment ground buses.

2.6 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton.
2. Siemens Industry, Inc., Energy Management Division.
3. Square D; by Schneider Electric.
4. General Electric Company; GE Consumer & Industrial – Electrical Distribution

B. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers:
 - a. Inverse time-current element for low-level overloads.
 - b. Instantaneous magnetic trip element for short circuits.
2. Electronic Trip Circuit Breakers, required for circuit-breaker frame sizes 250 A and larger:
 - a. RMS sensing.
 - b. Field-replaceable rating plug or electronic trip.
 - c. Digital display of settings, trip targets, and indicated metering displays.
 - d. Multi-button keypad to access programmable functions and monitored data.
 - e. Ten-event, trip-history log. Each trip event shall be recorded with type, phase, and magnitude of fault that caused the trip.
 - f. Integral test jack for connection to portable test set or laptop computer.
 - g. Field-Adjustable Settings:
 - 1) Instantaneous trip.
 - 2) Long- and short-time pickup levels.
 - 3) Long- and short-time adjustments.
 - 4) Ground-fault pickup level, time delay, and I squared T response. Ground fault function shall be provided on breakers required only where indicated on the drawings or required by code.
3. The requirement for electronic trip shall be based on the circuit breaker frame size indicated on the drawings. If the breaker frame size is voluntarily increased above what is indicated on the drawings, from a frame size less than 250 amperes to a frame size 250 amperes or greater for the purpose of terminating oversized feeder conductors due to voltage drop, electronic trip breakers shall

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not be required but shall meet the requirements for thermal magnetic breakers for frame sizes 125 A to 225 A.

4. Subfeed Circuit Breakers: Vertically mounted.
5. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Breaker handle indicates tripped status.
 - c. UL listed for reverse connection without restrictive line or load ratings.
 - d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.
 - f. Rating Plugs: Three-pole breakers with ampere ratings greater than 225 amperes shall have interchangeable rating plugs or electronic adjustable trip units.
 - g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in off position.
 - h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.

2.7 IDENTIFICATION

- A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.
- B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.
- C. Circuit Directory: Directory card inside panelboard door, mounted in transparent card holder.
 1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.
- D. Circuit Directory: Computer-generated circuit directory mounted inside panelboard door with transparent plastic protective cover.
 1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

2.8 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.
- B. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.
- B. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.
- C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.
- D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Comply with NECA 1.
- C. Install panelboards and accessories according to NEMA PB 1.1.
- D. Equipment Mounting:
 - 1. Attach panelboard to the vertical finished or structural surface behind the panelboard.
- E. Mount top of trim 90 inches above finished floor unless otherwise indicated.
- F. Mount panelboard cabinet plumb and rigid without distortion of box.
- G. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.
- H. Mount surface-mounted panelboards to steel slotted supports 5/8 inch in depth. Orient steel slotted supports vertically.
- I. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Set field-adjustable, circuit-breaker trip ranges.
 - 2. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.

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- J. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
- K. Install filler plates in unused spaces.
- L. Provide one ¾ inch conduit for every three spares or spaces in all flush mounted power or lighting panel boards. Routed conduits to accessible space above ceiling.
- M. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 26 05 53 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 26 05 53 "Identification for Electrical Systems."
- E. Install warning signs complying with requirements in Section 26 05 53 "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- C. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.

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D. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test for low-voltage air circuit breakers and low-voltage surge arrestors stated in NETA ATS, Paragraph 7.6 Circuit Breakers.. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Perform the following infrared scan tests and inspections and prepare reports:
 - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
 - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
 - c. Instruments and Equipment:
 - 1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

E. Panelboards will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.

3.6 PROTECTION

A. Temporary Heating: Prior to energizing panelboards, apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 26 24 16

PANELBOARDS

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SECTION 26 28 16

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Fusible switches.
 - 2. Nonfusible switches.
 - 3. Molded-case circuit breakers (MCCBs).
 - 4. Enclosures.

1.3 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include nameplate ratings, dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
 - 1. Enclosure types and details for types other than NEMA 250, Type 1.
 - 2. Current and voltage ratings.
 - 3. Short-circuit current ratings (interrupting and withstand, as appropriate).
 - 4. Include evidence of a nationally recognized testing laboratory (NRTL) listing for series rating of installed devices.
 - 5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
- B. Shop Drawings: For enclosed switches and circuit breakers.

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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1. Include plans, elevations, sections, details, and attachments to other work.
2. Include wiring diagrams for power, signal, and control wiring.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Seismic Qualification Data: Certificates, for enclosed switches and circuit breakers, accessories, and components, from manufacturer.
 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- C. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals.
 1. Include the following:
 - a. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.
 - b. Time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device. Provide in PDF electronic format.

1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Accredited by NETA.
 1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 1. Ambient Temperature: Not less than minus 22 deg F and not exceeding 104 deg F.
 2. Altitude: Not exceeding 6600 feet.

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1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: One year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.2 GENERAL REQUIREMENTS

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single manufacturer.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.
- D. Comply with NFPA 70.

2.3 FUSIBLE SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ABB (Electrification Products Division).
 - 2. Eaton.
 - 3. Siemens Industry, Inc., Energy Management Division.
 - 4. Square D; by Schneider Electric.
 - 5. General Electric Company; GE Consumer & Industrial – Electrical Distribution
- B. Type HD, Heavy Duty:
 - 1. Single throw.
 - 2. Three pole.

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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3. 240-V ac.
4. 1200 A and smaller.
5. UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate specified fuses.
6. Lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
3. Lugs: Mechanical type, suitable for number, size, and conductor material.

2.4 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ABB (Electrification Products Division).
2. Eaton.
3. Siemens Industry, Inc., Energy Management Division.
4. Square D; by Schneider Electric.
5. General Electric Company; GE Consumer & Industrial – Electrical Distribution

B. Type HD, Heavy Duty, Three Pole, Single Throw, 240-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Lugs: Mechanical type, suitable for number, size, and conductor material.

2.5 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton.
2. Siemens Industry, Inc., Energy Management Division.
3. Square D; by Schneider Electric.
4. General Electric Company; GE Consumer & Industrial – Electrical Distribution

B. Circuit breakers shall be constructed using glass-reinforced insulating material. Current carrying components shall be completely isolated from the handle and the accessory mounting area.

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- C. Circuit breakers shall have a toggle operating mechanism with common tripping of all poles, which provides quick-make, quick-break contact action. The circuit-breaker handle shall be over center, be trip free, and reside in a tripped position between on and off to provide local trip indication. Circuit-breaker escutcheon shall be clearly marked on and off in addition to providing international I/O markings. Equip circuit breaker with a push-to-trip button, located on the face of the circuit breaker to mechanically operate the circuit-breaker tripping mechanism for maintenance and testing purposes.
- D. The maximum ampere rating and UL, IEC, or other certification standards with applicable voltage systems and corresponding interrupting ratings shall be clearly marked on face of circuit breaker. MCCBs shall be equipped with a device for locking in the isolated position.
- E. Lugs shall be suitable for 75 degree C rated wire, sized according to the 75 degree C temperature rating in CEC.
- F. Standard: Comply with UL 489 with interrupting capacity to comply with available fault currents.
- G. Thermal-Magnetic Circuit Breakers: Inverse time-current thermal element for low-level overloads and instantaneous magnetic trip element for short circuits. Electronic Trip Circuit Breakers: required for circuit breaker frame sizes 250 A and larger. Field-replaceable rating plug, rms sensing, with the following field-adjustable settings:
 - 1. Instantaneous trip.
 - 2. Long- and short-time pickup levels.
 - 3. Long- and short-time time adjustments.
 - 4. Ground-fault pickup level, time delay, and I-squared t response. Ground fault function shall be provided on breakers only where indicated on the drawings or required by code.
 - 5. The requirement for electronic trip shall be based on the circuit breaker frame size indicated on the drawings. If the breaker frame size is voluntarily increased above what is indicated on the drawings, from a frame size less than 250 amperes to a frame size 250 amperes or greater for the purpose of terminating oversized feeder conductors due to voltage drop, electronic trip breakers shall not be required but shall meet the requirements for thermal magnetic breakers for frame sizes 125 A to 225 A.
- H. Features and Accessories:
 - 1. Standard frame sizes, trip ratings, and number of poles.
 - 2. Lugs: Mechanical type, suitable for number, size, trip ratings, and conductor material.
 - 3. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge lighting circuits.
 - 4. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.

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5. Communication Capability: Circuit-breaker-mounted communication module with functions and features compatible with power monitoring and control system, specified in Section 26 09 13 "Electrical Power Monitoring and Control."

2.6 ENCLOSURES

- A. Enclosed Switches and Circuit Breakers: UL 489, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.
- B. Enclosure Finish: The enclosure shall be finished with gray baked enamel paint, electrodeposited on cleaned, phosphatized steel (NEMA 250 Type 1), or gray baked enamel paint, electrodeposited on cleaned, phosphatized galvanized steel (NEMA 250 Type 3R), or a brushed finish on Type 304 stainless steel (NEMA 250 Types 4-4X).
- C. Conduit Entry: NEMA 250 Types 4 and 4X enclosures shall contain no knockouts.
- D. Operating Mechanism: The circuit-breaker operating handle shall be directly operable through the front cover of the enclosure (NEMA 250 Type 1); directly operable through the dead front trim of the enclosure (NEMA 250 Type 3R); externally operable with the operating mechanism being an integral part of the cover (NEMA 250 Types 4, 4X). The cover interlock mechanism shall have an externally operated override. The override shall not permanently disable the interlock mechanism, which shall return to the locked position once the override is released. The tool used to override the cover interlock mechanism shall not be required to enter the enclosure in order to override the interlock.
- E. Enclosures designated as NEMA 250 Type 4 or 4X shall have a dual cover interlock mechanism to prevent unintentional opening of the enclosure cover when the circuit breaker is ON and to prevent turning the circuit breaker ON when the enclosure cover is open.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 1. Commencement of work shall indicate Installer's acceptance of the areas and conditions as satisfactory.

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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3.2 PREPARATION

- A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
1. Notify Owner no fewer than seven days in advance of proposed interruption of electric service.
 2. Indicate method of providing temporary electric service.
 3. Do not proceed with interruption of electric service without Owner's written permission.
 4. Comply with NFPA 70E.

3.3 ENCLOSURE ENVIRONMENTAL RATING APPLICATIONS

- A. Enclosed Switches and Circuit Breakers: Provide enclosures at installed locations with the following environmental ratings.
1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
 2. Outdoor Locations: NEMA 250, Type 4X.
 3. Wash-Down Areas: NEMA 250, Type 4X.
 4. Other Wet or Damp, Indoor Locations: NEMA 250, Type 4.

3.4 INSTALLATION

- A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- C. Comply with mounting and anchoring requirements specified in Section 26 05 29 "Hangers and Supports for Electrical Systems."
- D. Temporary Lifting Provisions: Remove temporary lifting of eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- E. Install fuses in fusible devices.
- F. Comply with NFPA 70 and NECA 1.

3.5 IDENTIFICATION

- A. Comply with requirements in Section 26 05 53 "Identification for Electrical Systems."
1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.

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2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- D. Perform tests and inspections with the assistance of a factory-authorized service representative.
- E. Tests and Inspections for Switches:
 1. Visual and Mechanical Inspection:
 - a. Inspect physical and mechanical condition.
 - b. Inspect anchorage, alignment, grounding, and clearances.
 - c. Verify that the unit is clean.
 - d. Verify blade alignment, blade penetration, travel stops, and mechanical operation.
 - e. Verify that fuse sizes and types match the Specifications and Drawings.
 - f. Verify that each fuse has adequate mechanical support and contact integrity.
 - g. Inspect bolted electrical connections for high resistance using one of the two following methods:
 - 1) Use a low-resistance ohmmeter.
 - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.
 - a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
 - h. Verify that operation and sequencing of interlocking systems is as described in the Specifications and shown on the Drawings.
 - i. Verify correct phase barrier installation.

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- j. Verify lubrication of moving current-carrying parts and moving and sliding surfaces.

2. Electrical Tests:

- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
- b. Measure contact resistance across each switchblade fuseholder. Drop values shall not exceed the high level of the manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
- c. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with switch closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
- d. Measure fuse resistance. Investigate fuse-resistance values that deviate from each other by more than 15 percent.
- e. Perform ground fault test according to NETA ATS 7.14 "Ground Fault Protection Systems, Low-Voltage."

F. Tests and Inspections for Molded Case Circuit Breakers:

1. Visual and Mechanical Inspection:

- a. Verify that equipment nameplate data are as described in the Specifications and shown on the Drawings.
- b. Inspect physical and mechanical condition.
- c. Inspect anchorage, alignment, grounding, and clearances.
- d. Verify that the unit is clean.
- e. Operate the circuit breaker to ensure smooth operation.
- f. Inspect bolted electrical connections for high resistance using one of the two following methods:
 - 1) Use a low-resistance ohmmeter.
 - a) Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer's published data or NETA ATS Table 100.12.

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- a) Bolt-torque levels shall be in accordance with manufacturer's published data. In the absence of manufacturer's published data, use NETA ATS Table 100.12.
 - g. Inspect operating mechanism, contacts, and chutes in unsealed units.
 - h. Perform adjustments for final protective device settings in accordance with the coordination study.
2. Electrical Tests:
- a. Perform resistance measurements through bolted connections with a low-resistance ohmmeter. Compare bolted connection resistance values to values of similar connections. Investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
 - b. Perform insulation-resistance tests for one minute on each pole, phase-to-phase and phase-to-ground with circuit breaker closed, and across each open pole. Apply voltage in accordance with manufacturer's published data. In the absence of manufacturer's published data, use Table 100.1 from the NETA ATS. Investigate values of insulation resistance less than those published in Table 100.1 or as recommended in manufacturer's published data.
 - c. Perform a contact/pole resistance test. Drop values shall not exceed the high level of the manufacturer's published data. If manufacturer's published data are not available, investigate values that deviate from adjacent poles or similar switches by more than 50 percent of the lowest value.
 - d. Perform insulation resistance tests on all control wiring with respect to ground. Applied potential shall be 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable. Test duration shall be one minute. For units with solid state components, follow manufacturer's recommendation. Insulation resistance values shall be no less than two megohms.
 - e. Determine the following by primary current injection:
 - 1) Long-time pickup and delay. Pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - 2) Short-time pickup and delay. Short-time pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - 3) Ground-fault pickup and time delay. Ground-fault pickup values shall be as specified. Trip characteristics shall not exceed manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - 4) Instantaneous pickup. Instantaneous pickup values shall be as specified and within manufacturer's published tolerances.
 - f. Test functionality of the trip unit by means of primary current injection. Pickup values and trip characteristics shall be as specified and within manufacturer's published tolerances.

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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- g. Perform minimum pickup voltage tests on shunt trip and close coils in accordance with manufacturer's published data. Minimum pickup voltage of the shunt trip and close coils shall be as indicated by manufacturer.
 - h. Verify correct operation of auxiliary features such as trip and pickup indicators; zone interlocking; electrical close and trip operation; trip-free, anti-pump function; and trip unit battery condition. Reset all trip logs and indicators. Investigate units that do not function as designed.
 - i. Verify operation of charging mechanism. Investigate units that do not function as designed.
 - 3. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
 - 4. Perform the following infrared scan tests and inspections and prepare reports:
 - a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each enclosed switch and circuit breaker. Remove front panels so joints and connections are accessible to portable scanner.
 - b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each enclosed switch and circuit breaker 11 months after date of Substantial Completion.
 - c. Instruments and Equipment: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - 5. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
 - G. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
 - H. Prepare test and inspection reports.
 - 1. Test procedures used.
 - 2. Include identification of each enclosed switch and circuit breaker tested and describe test results.
 - 3. List deficiencies detected, remedial action taken, and observations after remedial action.
- 3.7 ADJUSTING
- A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.
 - B. Set field-adjustable circuit-breaker trip ranges as specified in Section 26 05 73.16 "Coordination Studies."

END OF SECTION 26 28 16

ENCLOSED SWITCHES AND CIRCUIT BREAKERS

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APPENDIX A
NOTICE OF EXEMPTION

NOTICE OF EXEMPTION

(Check one or both)

TO: X 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.: WBS # S-10021 PROJECT TITLE: Mission Bay Athletic Area Improvements

PROJECT LOCATION-SPECIFIC: The Mission Bay Athletic Area is located on the south side of Grand Avenue at Bond Street within the Pacific Beach Community.

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

DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT: This project will replace an existing comfort station and concession stand located in an asphalt area in the center of four existing ball fields. Improvements include a new ADA compliant pre-fabricated structure, a new accessible path of travel from the parking lot to the comfort station, and parking lot improvements to comply with accessibility requirements. Parking lot improvements include new curb ramps and restriping.

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of San Diego

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: City of San Diego, E&CP Dept/Jason Grani
600 B Street, Suite 800 (MS 908A)
San Diego, CA 92101
619 533-7525

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 EXEMPTION: 15301(A) (EXISTING FACILITIES) AND 15302(B) (REPLACEMENT OR RECONSTRUCTION)
() STATUTORY EXEMPTIONS:

REASONS WHY PROJECT IS EXEMPT: The City of San Diego conducted an Initial Study which determined that this project is located entirely within developed parkland and would not result in any impacts to biological or archaeological resources. The project will replace an existing structure and only entail minor alteration to the parking lot to provide an ADA barrier-free facility and path of travel. This project meets the criteria set forth in CEQA Section 15301 and 15302 which allow for minor alteration and replacement of structures involving a negligible expansion of use and capacity and the exceptions listed in 15300.2 would not apply.

LEAD AGENCY CONTACT PERSON: JEAN CAMERON

TELEPHONE: (619) 446-5379

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 IS HEREBY CERTIFIED THAT THE CITY OF SAN DIEGO HAS DETERMINED THE ABOVE ACTIVITY TO BE EXEMPT FROM CEQA

Jean Cameron signature
JEAN CAMERON/SENIOR PLANNER

APRIL 14, 2011
DATE

CHECK ONE:

(X) SIGNED BY LEAD AGENCY

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:

APPENDIX B
FIRE HYDRANT METER PROGRAM

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

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. **POLICY**

- 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 ½" 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 re-installation.
 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 shall be forwarded to the Meter Shop Supervisor. If an 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

CITY OF SAN DIEGO CALIFORNIA DEPARTMENT INSTRUCTIONS	NUMBER DI 55.27	DEPARTMENT Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 7 OF 10	EFFECTIVE DATE October 15, 2002
	SUPERSEDES DI 55.27	DATED April 21, 2000

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

CITY OF SAN DIEGO CALIFORNIA DEPARTMENT INSTRUCTIONS	NUMBER DI 55.27	DEPARTMENT Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 8 OF 10	EFFECTIVE DATE October 15, 2002
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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 DEPARTMENT INSTRUCTIONS	NUMBER DI 55.27	DEPARTMENT Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 9 OF 10	EFFECTIVE DATE October 15, 2002
	SUPERSEDES DI 55.27	DATED April 21, 2000

7. **FEE AND DEPOSIT SCHEDULES**

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. These 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. **UNAUTHORIZED USE OF WATER FROM A HYDRANT**

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 DEPARTMENT INSTRUCTIONS	NUMBER DI 55.27	DEPARTMENT Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 10 OF 10	EFFECTIVE DATE October 15, 2002
	SUPERSEDES DI 55.27	DATED 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).

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



Application for Fire Hydrant Meter (EXHIBIT A)

(For Office Use Only)

NS REQ	FAC#
DATE	BY

METER SHOP (619) 527-7449

Meter Information

Application Date	Requested Install Date:
------------------	-------------------------

Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) <u>Zip:</u>	T.B.	G.B. (CITY USE)
Specific Use of Water:		
Any Return to Sewer or Storm Drain, if so, explain:		
Estimated Duration of Meter Use: <input type="text"/>	<input type="checkbox"/>	Check Box if Reclaimed 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: <small>(PERSON IN ACCOUNTS PAYABLE)</small>			Phone: ()
Site Contact Name and Title:			Phone: ()
Responsible Party Name:			Title:
Cal ID#			Phone: ()
Signature:		Date:	
<small>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</small>			

Fire Hydrant Meter Removal Request	Requested Removal Date:
Provide Current Meter Location if Different from Above:	
Signature:	Title: Date:
Phone: ()	Pager: ()

<input type="checkbox"/> City Meter	<input type="checkbox"/> Private Meter	
Contract Acct #:	Deposit Amount: \$ 936.00	Fees Amount: \$ 62.00
Meter Serial #	Meter Size: 05	Meter Make and Style: 6-7
Backflow #	Backflow Size:	Backflow Make and Style:
Name:	Signature:	Date:

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 16inch 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. Water stops (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 down drains, 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 WITH CASH FLOW FORECAST

City of San Diego, CM&FS Div., 9753 Chesapeake Drive, SD CA 92123

Project Name:
 Work Order No or Job Order No.
 City Purchase Order No.
 Resident Engineer (RE):
 RE Phone#: Fax#:

Contractor's Name:
 Contractor's Address:

 Contractor's Phone #:
 Contractor's fax #:
 Contact Name:

Invoice No.
Invoice Date:
 Billing Period: (To)

Item #	Item Description	Contract Authorization				Previous Totals To Date		This Estimate		Totals to Date	
		Unit	Price	Qty	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount
1					\$ -		\$ -		\$ -	0.00%	\$ -
2					\$ -		\$ -		\$ -	0.00%	\$ -
3					\$ -		\$ -		\$ -	0.00%	\$ -
4					\$ -		\$ -		\$ -	0.00%	\$ -
5					\$ -		\$ -		\$ -	0.00%	\$ -
6					\$ -		\$ -		\$ -	0.00%	\$ -
7					\$ -		\$ -		\$ -	0.00%	\$ -
8					\$ -		\$ -		\$ -	0.00%	\$ -
5					\$ -		\$ -		\$ -	0.00%	\$ -
6					\$ -		\$ -		\$ -	0.00%	\$ -
7					\$ -		\$ -		\$ -	0.00%	\$ -
8					\$ -		\$ -		\$ -	0.00%	\$ -
9					\$ -		\$ -		\$ -	0.00%	\$ -
10					\$ -		\$ -		\$ -	0.00%	\$ -
11					\$ -		\$ -		\$ -	0.00%	\$ -
12					\$ -		\$ -		\$ -	0.00%	\$ -
13					\$ -		\$ -		\$ -	0.00%	\$ -
14					\$ -		\$ -		\$ -	0.00%	\$ -
15					\$ -		\$ -		\$ -	0.00%	\$ -
16					\$ -		\$ -		\$ -	0.00%	\$ -
17	Field Orders				\$ -		\$ -		\$ -	0.00%	\$ -
					\$ -		\$ -		\$ -	0.00%	\$ -
	CHANGE ORDER No.				\$ -		\$ -		\$ -	0.00%	\$ -
					\$ -		\$ -		\$ -	0.00%	\$ -
	Total Authorized Amount (including approved Change Order)				\$ -		\$ -		\$ -	Total Billed	\$ -

SUMMARY

A. Original Contract Amount	\$ -
B. Approved Change Order #00 Thru #00	\$ -
C. Total Authorized Amount (A+B)	\$ -
D. Total Billed to Date	\$ -
E. Less Total Retention (5% of D)	\$ -
F. Less Total Previous Payments	\$ -
G. Payment Due Less Retention	\$0.00
H. Remaining Authorized Amount	\$0.00

I certify that the materials
 have been received by me in
 the quality and quantity specified

 Resident Engineer

 Construction Engineer

Retention and/or Escrow Payment Schedule

Total Retention Required as of this billing (Item E)	\$0.00
Previous Retention Withheld in PO or in Escrow	\$0.00
Add'l Amt to Withhold in PO/Transfer in Escrow:	\$0.00
Amt to Release to Contractor from PO/Escrow:	

Contractor Signature and Date: _____

NOTE: CONTRACTOR TO CALCULATE TO THE 2ND DECIMAL PLACE.

WBS #:	B18108
Date Submitted:	10/10/2018
NTP Date:	3/23/2018
Final Statement of WD Date:	5/23/2020
Contract #:	K-XX-XXXX-XXX-X
Contract Amount:	\$5,617,000

Construction Cash Flow Forecast

"Sewer and Water Group Job 965 (W)"

Year	January	February	March	April	May	June	July	August	September	October	November	December
2018				15,000	25,000	52,000	52,000	100,000	10,000	100,000	100,000	100,000
2019	10,000	10,000	85,000	58,000	100,000	100,000	100,000	100,000	100,000	100,000	1,000,000	1,000,000
2020	100,000	100,000	100,000	1,000,000	1,000,000							
2021												
2022												
2023												
2024												
2025												

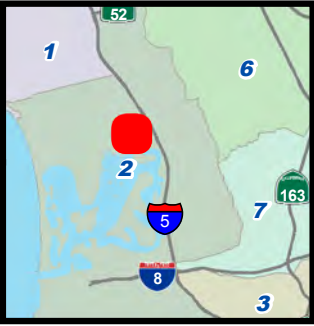
SAMPLE REFERENCE

APPENDIX E
LOCATION MAP

The City of
SAN DIEGO Public Works
MISSION BAY ATHLETIC AREA COMFORT STATION
IMPROVEMENT

SENIOR ENGINEER	PROJECT MANAGER	PROJECT ENGINEER	FOR QUESTIONS ABOUT THIS PROJECT
JENNIFER SCOTT	FRANCIS MARQUEZ	SHANG AHMAD	Call: (619) 533-4207
619-533-5414	619-533-4688	619-533-3111	Email: engineering@sanidiego.gov

LOCATION MAP



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Legend

 **Project Location**

Community Name: Mission Bay

Park Date: 2/7/2022



SAP ID: B17179

No Scale

Council District: 2

APPENDIX F
SAMPLE OF PUBLIC NOTICE



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
• Streets where trenching takes place will be resurfaced and curb ramps will be upgraded to facilitate access for persons with disabilities where required.
• This work is anticipated to be complete in your community by December 2016.

How your neighborhood may be impacted:

- Water service to some properties during construction will be provided by a two-inch highline pipe that will run along the curb. To report a highline leak call 619-515-3525.
• Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
• Parking restrictions will exist because of the presence of construction equipment and materials.
• "No Parking" signs will be displayed 72 hours in advance of the work.
• Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:

Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:

Company Name, XXX-XXX-XXXX



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
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• Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
• Parking restrictions will exist because of the presence of construction equipment and materials.
• "No Parking" signs will be displayed 72 hours in advance of the work.
• Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:

Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:

Company Name, XXX-XXX-XXXX

APPENDIX G

ADVANCED METERING INFRASTRUCTURE (AMI) DEVICE PROTECTION

Protecting AMI Devices in Meter Boxes and on Street Lights

The Public Utilities Department (PUD) has begun the installation of the Advanced Metering Infrastructure (AMI) technology as a new tool to enhance water meter reading accuracy and efficiency, customer service and billing, and to be used by individual accounts to better manage the efficient use of water. **All AMI devices shall be protected per Section 402-2, "Protection", of the 2021 Whitebook.**

AMI technology allows water meters to be read electronically rather than through direct visual inspection by PUD field staff. This will assist PUD staff and customers in managing unusual consumption patterns which could indicate leaks or meter tampering on a customer's property.

Three of the main components of an AMI system are the:

- A. Endpoints, see Photo 1:

Photo 1



B. AMI Antenna attached to Endpoint (antenna not always required), see Photo 2:



Network Devices, see Photo 3:

Photo 3



AMI endpoints transmit meter information to the AMI system and will soon be on the vast majority of meters in San Diego. These AMI devices provide interval consumption data to the PUD's Customer Support Division. If these devices are damaged or communication is interrupted, this Division will be alerted of the situation. The endpoints are installed in water meter boxes, coffins, and vaults adjacent to the meter. A separate flat round antenna may also be installed through the meter box lid. This antenna is connected to the endpoint via cable. The following proper installation shall be implemented when removing the lid to avoid damaging the antenna, cable, and/or endpoint. Photo 4 below demonstrates a diagram of the connection:

Photo 4



The AMI device ERT/Endpoint/Transmitter shall be positioned and installed as discussed in this Appendix. If the ERT/Endpoint/Transmitter is disturbed, it shall be re-installed and returned to its original installation with the end points pointed upwards as shown below in Photo 5.

The PUD's code compliance staff will issue citations and invoices to you for any damaged AMI devices that are not re-installed as discussed in the Contract Document

Photo 5 below shows a typical installation of an AMI endpoint on a water meter.

Photo 5

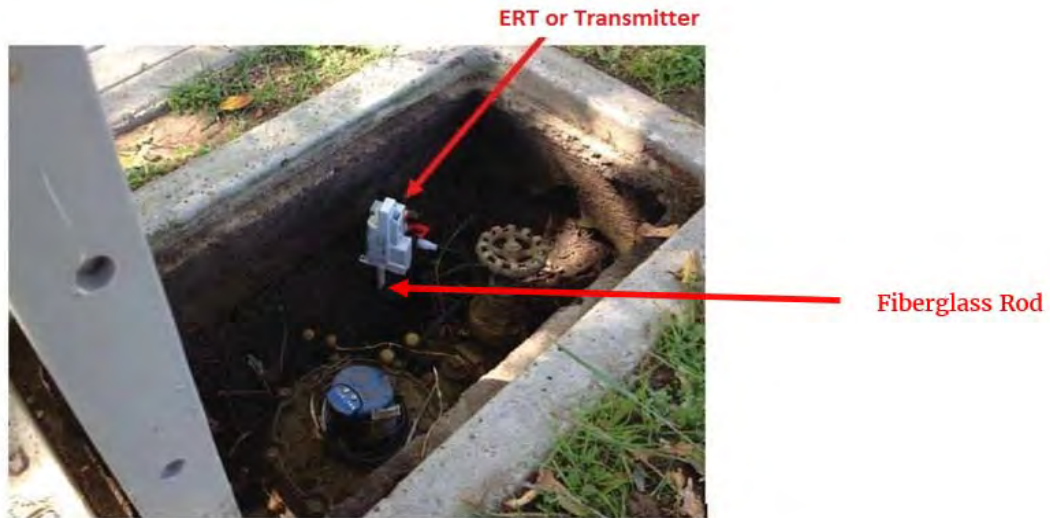


Photo 6 below is an example of disturbance that shall be avoided:

Photo 6



You are responsible when working in and around meter boxes. If you encounter these endpoints, use proper care and do not disconnect them from the registers on top of the water meter. If the lid has an antenna drilled through, do not change or tamper with the lid and inform the Resident Engineer immediately about the location of that lid. Refer to Photo 7 below:

Photo 7



Another component of the AMI system are the Network Devices. The Network Devices are strategically placed units (mainly on street light poles) that collect interval meter reading data from multiple meters for transmission to the Department Control Computer. **If you come across any of these devices on street lights that will be removed or replaced (refer to Photos 8 and 9 below), notify AMI Project Manager Arwa Sayed at (619) 362-0121 immediately.**

Photo 8 shows an installed network device on a street light. On the back of each Network Device is a sticker with contact information. See Photo 9. **Call PUD Water Emergency Repairs at 619-515-3525 if your work will impact these street lights.** These are assets that belong to the City of San Diego and you shall be responsible for any costs of disruption of this network.

Photo 8



Network Device

Photo 9



If you encounter any bad installations, disconnected/broken/buried endpoints, or inadvertently damage any AMI devices or cables, notify the Resident Engineer immediately. The Resident Engineer will then immediately contact the AMI Project Manager, Arwa Sayed, at (619) 362-0121.

APPENDIX H
PROPOSED STAGING AREA AND ACCESS

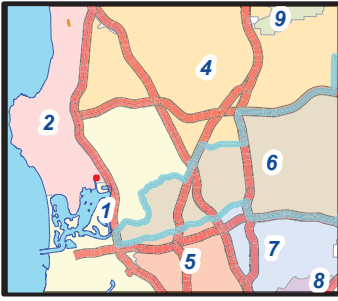
Mission Bay Athletic Area Comfort Station Modernization
Proposed Staging Area and Access

PROJECT OFFICER
DARREN GENOVA

PROJECT MANAGER
FRANCIS MARQUEZ

PROJECT ENGINEER
SHANG AHMAD

FOR QUESTIONS ABOUT THIS PROJECT
 Call: (619) 533-4207
 Email: engineering@sandiego.gov



NOTE

Contractor to coordinate with the Resident Engineer for changes with this proposed staging area at the Pre-construction meeting.



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ATTACHMENT F

RESERVED

ATTACHMENT G
CONTRACT AGREEMENT

ATTACHMENT G
CONTRACT AGREEMENT

CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and Dick Miller, Inc., herein called "Contractor" for construction of **Mission Bay Athletic Area Comfort Station Modernization**; Bid No. **K-23-2176-DBB-3**; in the total amount **Two Million Two Hundred Forty Two Thousand Seven Hundred Seventy Seven Dollars and Seventy Seven Cents (\$2,242,777.77)**.

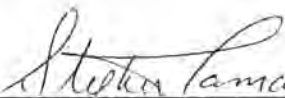
IN CONSIDERATION of the payments to be made hereunder and the mutual undertakings of the parties hereto, City and Contractor agree as follows:

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 Instruction to Bidders and the Supplementary Special Provisions (SSP).
 - (d) That certain documents entitled **Mission Bay Athletic Area Comfort Station Modernization**, on file in the office of the Purchasing & Contracting Department as Document No. **B-17179** 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 **Mission Bay Athletic Area Comfort Station Modernization**, Bid Number **K-23-2176-DBB-3**, 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 claim's 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 and is approved by the City Attorney in accordance with San Diego Charter Section 40.

CONTRACT AGREEMENT (continued)

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

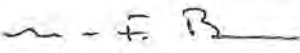
By 

Print Name: Stephen Samara
Principal Contract Specialist

Purchasing & Contracting Department

Date: 9/19/2023

CONTRACTOR

By 

Print Name: Glen F Bullock

Title: President

Date: 08/07/2023

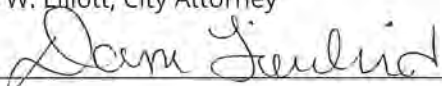
City of San Diego License No.: B20140044558

State Contractor's License No.: 380204

DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) REGISTRATION NUMBER: 1000004547

APPROVED AS TO FORM

Mara W. Elliott, City Attorney

By 

Print Name: Dana Fairchild
Deputy City Attorney

Date: 9/25/2023

CERTIFICATIONS AND FORMS

The Bidder, by submitting its electronic bid, agrees to and certifies under penalty of perjury under the laws of the State of California, that the certifications, forms, and affidavits submitted as part of this bid are true and correct.

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.

**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

County of San Diego

The bidder, being first duly sworn, deposes and says that he or she is authorized by the party making the foregoing 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.

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

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 5-1.3, "Drug-Free Workplace", of the project specifications, and that;

This company 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.

CONTRACTOR CERTIFICATION

AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the Americans With Disabilities Act (ADA) outlined in the WHITEBOOK, Section 5-1.2, "California Building Code, California Code of Regulations Title 24 and Americans with Disabilities Act". of the project specifications, and that:

This company has in place 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.

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

I declare under penalty of perjury that I am authorized to make this certification on behalf of the company submitting this bid/proposal, that as Contractor, I am familiar with the requirements of City of San Diego Municipal Code § 22.3004 regarding Contractor Standards as outlined in the WHITEBOOK, Section 5-1.4, ("Contractor Standards and Pledge of Compliance"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3004.

CONTRACTOR CERTIFICATION

EQUAL BENEFITS ORDINANCE CERTIFICATION

I declare under penalty of perjury that I am familiar with the requirements of and in compliance with the City of San Diego Municipal Code § 22.4300 regarding Equal Benefits Ordinance.

CONTRACTOR CERTIFICATION

EQUAL PAY ORDINANCE CERTIFICATION

Contractor shall comply with the Equal Pay Ordinance (EPO) codified in the San Diego Municipal Code (SDMC) at section 22.4801 through 22.4809, unless compliance is not required based on an exception listed in SDMC section 22.4804.

Contractor shall require all of its subcontractors to certify compliance with the EPO in their written subcontracts.

Contractor must post a notice informing its employees of their rights under the EPO in the workplace or job site.

By signing this Contract with the City of San Diego, Contractor acknowledges the EPO requirements and pledges ongoing compliance with the requirements of SDMC Division 48, section 22.4801 et seq., throughout the duration of this Contract.

CONTRACTOR CERTIFICATION

PRODUCT ENDORSEMENT

I declare under penalty of perjury that I acknowledge and agree to comply with the provisions of City of San Diego Administrative Regulation 95.65, concerning product endorsement. Any advertisement identifying or referring to the City as the user of a product or service requires the prior written approval of the City.

AFFIDAVIT OF DISPOSAL

(To be submitted upon completion of Construction pursuant to the contracts Certificate of Completion)

WHEREAS, on the _____ DAY OF _____, 2____ the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

Mission Bay Athletic Area Comfort Station Modernization

(Project Title)

as particularly described in said contract and identified as Bid No. **K-23-2176-DBB-3**; SAP No. (WBS) **B-17179**; 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 _____, _____.

By: _____
Contractor

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

COMPANY LETTERHEAD

CERTIFICATE OF COMPLIANCE

Materials and Workmanship Compliance

For Contract or Task _____

I certify that the material listed below complies with the materials and workmanship requirements of the Caltrans Contract Plans, Special Provisions, Standard Specifications, and Standard Plans for the contract listed above.

I also certify that I am an official representative for _____, the manufacturer of the material listed above. Furthermore, I certify that where California test methods, physical or chemical test requirements are part of the specifications, that the manufacturer has performed the necessary quality control to substantiate this certification.

Material Description:

Manufacturer: _____
Model: _____
Serial Number (if applicable) _____
Quantity to be supplied: _____
Remarks: _____

Signed by: _____

Printed Name: _____

Title: _____

Company: _____

Date: _____

City of San Diego

Engineering & Capital Projects Department, CMFE Division

NOTICE OF MATERIALS TO BE USED

To: _____
Resident Engineer

Date: _____, 20____

You are hereby notified that the materials required for use under Contract No. _____
for construction of _____

in the City of San Diego, will be obtained from sources herein designated.

CONTRACT ITEM NO. (Bid Item)	KIND OF MATERIAL (Category)	NAME AND ADDRESS WHERE MATERIAL CAN BE INSPECTED (At Source)

It is requested that you arrange for a sampling, testing, and inspection of the materials prior to delivery, in accordance with Section 4 - CONTROL OF MATERIALS of the WHITEBOOK, where it is practicable, and in accordance with your policy. It is understood that source inspection does not relieve the Contractor of full responsibility for incorporating in the work, materials that comply in all respects with the contract plans and specifications, nor does it preclude subsequent rejection of materials found to be undesirable or unsuitable.

Distribution:

Supplier

Signature of Supplier

Address

LIST OF SUBCONTRACTORS

***** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY*** SEE INSTRUCTIONS TO BIDDERS, FOR FURTHER INFORMATION**

In accordance with the requirements of the "Subletting and Subcontracting Fair Practices Act", Section 4100, of the California Public Contract Code (PCC), the Bidder is to list below the name, address and license number of each Subcontractor who will perform work, labor, render services or specially fabricate and install a portion [type] of the work or improvement, in an amount of or in excess of 0.5% of the Contractor's total Bid. Failure to comply with this requirement may result in the Bid being rejected as non-responsive. The Contractor is to list only one Subcontractor for each portion of the Work. The Bidder's attention is directed to the Special Provisions – General; Paragraph 2-3 Subcontracts, which stipulates the percentage of the Work to be performed with the Bidder's own forces. The Bidder is to also list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors for which the Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	SUBCONTRACTOR LICENSE NUMBER	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: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____							

- 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 | | |
- ② 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 | | |
| 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.

NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

***** PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY *** TO BE SUBMITTED IN ELECTRONIC FORMAT ONLY *** SEE INSTRUCTIONS TO BIDDERS FOR FURTHER INFORMATION**

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 SDVOSB ^①	WHERE CERTIFIED ^②
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____						
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____ Email: _____						

- 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 | | |
| 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.

ELECTRONICALLY SUBMITTED FORMS

FAILURE TO FULLY COMPLETE AND SUBMIT ANY OF THE FOLLOWING FORMS WILL DEEM YOUR BID NON-RESPONSIVE.

PLANETBIDS WILL NOT ALLOW FOR BID SUBMISSIONS WITHOUT THE ATTACHMENT OF THESE FORMS

The following forms are to be completed by the bidder and submitted (uploaded) electronically with the bid in PlanetBids.

- A. BID BOND – See Instructions to Bidders, Bidders Guarantee of Good Faith (Bid Security) for further instructions**
- B. CONTRACTOR’S CERTIFICATION OF PENDING ACTIONS**
- C. MANDATORY DISCLOSURE OF BUSINESS INTERESTS FORM**
- D. DEBARMENT AND SUSPENSION CERTIFICATION FOR PRIME CONTRACTOR**
- E. DEBARMENT AND SUSPENSION CERTIFICATION FOR SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS**

BID BOND

**See Instructions to Bidders, Bidder Guarantee of Good Faith
(Bid Security)**

KNOW ALL MEN BY THESE PRESENTS,

That Dick Miller, Inc. as Principal,
and The Ohio Casualty Insurance 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

K-23-2176-DBB-3 Mission Bay Athletic Area Comfort Station Moderization

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 30th day of May, 2023

Dick Miller, Inc. (SEAL)
(Principal)

The Ohio Casualty Insurance Company(SEAL)
(Surety)

By: [Signature]
(Signature)

By: [Signature]
(Signature)
Bart Stewart - Attorney-in-Fact



(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

CALIFORNIA ALL-PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California

County of San Diego

On 06/01/2023 before me, Hamid Emadian Naeini, Notary Public
(Here insert name and title of the officer)

personally appeared GLEN F. BULLOCK

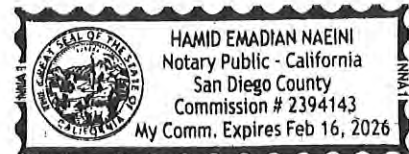
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of 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.

WITNESS my hand and official seal.

Hamid Emadian Naeini
Signature of Notary Public

(Notary Seal)



ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

BID BOND

(Title or description of attached document)

(Title or description of attached document continued)

Number of Pages 1 Document Date 6/1/23

(Additional information)

CAPACITY CLAIMED BY THE SIGNER

Individual (s)

Corporate Officer

CONTRACTOR
(Title)

Partner(s)

Attorney-in-Fact

Trustee(s)

Other _____

INSTRUCTIONS FOR COMPLETING THIS FORM

Any acknowledgment completed in California must contain verbiage exactly as appears above in the notary section or a separate acknowledgment form must be properly completed and attached to that document. The only exception is if a document is to be recorded outside of California. In such instances, any alternative acknowledgment verbiage as may be printed on such a document so long as the verbiage does not require the notary to do something that is illegal for a notary in California (i.e. certifying the authorized capacity of the signer). Please check the document carefully for proper notarial wording and attach this form if required.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he/she/they~~ is /are) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
 - ❖ Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
 - ❖ Indicate title or type of attached document, number of pages and date.
 - ❖ Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: 8206236 - 969556

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Bart Stewart

all of the city of Encinitas state of CA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 3rd day of September, 2021.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: David M. Carey, Assistant Secretary

State of PENNSYLVANIA
County of MONTGOMERY ss

On this 3rd day of September, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1128044
Member, Pennsylvania Association of Notaries

By: Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 30th day of May, 2023.



By: Renee C. Llewellyn, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of San Diego)

On May 30, 2023 before me, Genevieve Sistar, Notary Public,
Date Here Insert Name and Title of the Officer
personally appeared Bart Stewart
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 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.

WITNESS my hand and official seal.



Genevieve Sistar

Signature _____
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: _____ Document Date: _____
Number of Pages: _____ Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

Signer's Name: _____
 Corporate Officer — Title(s): _____
 Partner — Limited General
 Individual Attorney in Fact
 Trustee Guardian or Conservator
 Other: _____
Signer Is Representing: _____

CONTRACTOR'S 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:

DATE OF CLAIM	LOCATION	DESCRIPTION OF CLAIM	LITIGATION (Y/N)	STATUS	RESOLUTION/REMEDIAL ACTION TAKEN
/					

Contractor Name: DICK MILLER INC.

Certified By JOHN MARTINEZ Title SR. ESTIMATOR


 Name
 Signature

Date 6/04/2023

USE ADDITIONAL FORMS AS NECESSARY

Mandatory Disclosure of Business Interests Form

BIDDER/PROPOSER INFORMATION

Legal Name		DBA	
GLEN F. BULLOCK		DICK MILLER INC.	
Street Address	City	State	Zip
930 BOARDWALK STE. H	SAN MARCOS	CA.	92078
Contact Person, Title		Phone	Fax
JOHN MARTINEZ		951-216-4070	760-471-6178

Provide the name, identity, and precise nature of the interest* of all persons who are directly or indirectly involved** in this proposed transaction (SDMC § 21.0103).

* The precise nature of the interest includes:

- the percentage ownership interest in a party to the transaction,
- the percentage ownership interest in any firm, corporation, or partnership that will receive funds from the transaction, the value of any financial interest in the transaction,
- any contingent interest in the transaction and the value of such interest should the contingency be satisfied, and any philanthropic, scientific, artistic, or property interest in the transaction.

** Directly or indirectly involved means pursuing the transaction by:

- communicating or negotiating with City officers or employees,
- submitting or preparing applications, bids, proposals or other documents for purposes of contracting with the City,
- or directing or supervising the actions of persons engaged in the above activity.

Name	Title/Position
GLEN F. BULLOCK	PRESIDENT
City and State of Residence	Employer (if different than Bidder/Proposer)
SAN MARCOD, CA.	
Interest in the transaction	
100%	

Name	Title/Position
City and State of Residence	Employer (if different than Bidder/Proposer)
Interest in the transaction	

* Use Additional Pages if Necessary *

Under penalty of perjury under the laws of the State of California, I certify that I am responsible for the completeness and accuracy of the responses contained herein, and that all information provided is true, full and complete to the best of my knowledge and belief. I agree to provide written notice to the Mayor or Designee within five (5) business days if, at any time, I learn that any portion of this Mandatory Disclosure of Business Interests Form requires an updated response. Failure to timely provide the Mayor or Designee with written notice is grounds for Contract termination.

JOHN MARTINEZ SR. ESTIMATOR



6/04/2023

Print Name, Title

Signature

Date

Failure to sign and submit this form with the bid/proposal shall make the bid/proposal non-responsive. In the case of an informal solicitation, the contract will not be awarded unless a signed and completed Mandatory Disclosure of Business Interests Form is submitted.

DEBARMENT AND SUSPENSION CERTIFICATION
PRIME CONTRACTOR
FAILURE TO COMPLETE AND SUBMIT AT TIME OF BID SHALL RENDER BID NON-RESPONSIVE

EFFECT OF DEBARMENT OR SUSPENSION
To promote integrity in the City's contracting processes and to protect the public interest, the City shall only enter into contracts with responsible- bidders and contractors. In accordance with San Diego Municipal Code §22.0814 (a): <i>Bidders and contractors</i> who have been <i>debarred</i> or <i>suspended</i> are excluded from submitting bids, submitting responses to requests for proposal or qualifications, receiving <i>contract</i> awards, executing <i>contracts</i> , participating as a <i>subcontractor</i> , employee, agent or representative of another <i>person</i> contracting with the City.

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 Names of the Principal Individual owner(s).

The names of all persons interested in the foregoing proposal as Principals are as follows:

NAME	TITLE
GLEN F. BULLOCK	PRESIDENT

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.

The Bidder, under penalty of perjury, certifies that, except as noted below, he/she or any person associated therewith in the capacity of owner, partner, director, officer, manager:

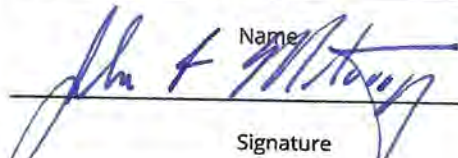
- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal, State or local agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal, State or local agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Contractor Name: DICK MILLER INC

Certified By JOHN R. MARTINEZ Title SR. ESTIMATOR


 Name _____
 Signature _____ Date 6/4/2023

NOTE: Providing false information may result in criminal prosecution or administrative sanctions.

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
TO BE COMPLETED BY BIDDER
FAILURE TO COMPLETE AND SUBMIT AT TIME OF BID SHALL RENDER BID NON-RESPONSIVE

Names of the Principal individual owner(s)

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 Names of the Principal Individual owner(s) for their subcontractor/supplier/manufacturers.

Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier**, and/or **manufacturer**:

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE
<u>BRIAN PRATT</u>	<u>OWNER</u>

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER


NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

Contractor Name: PRATT EQUIPMENT

Certified By JOHN MARTINEZ Title SR. ESTIMATOR

Name

 Signature

Date 6/5/2023

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
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Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier**, and/or **manufacturer**:

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE
Charles E. Kaufman IV, Public Restroom Company	President

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

Contractor Name: Public Restroom Company

Certified By Charles E. Kaufman IV Title President

Name

 Date 6/5/2023

Signature

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION

SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS

TO BE COMPLETED BY BIDDER

FAILURE TO COMPLETE AND SUBMIT AT TIME OF BID SHALL RENDER BID NON-RESPONSIVE

Names of the Principal individual owner(s)

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Please indicate if principal owner is serving in the capacity of subcontractor, supplier, and/or manufacturer:

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE
Nelson Ferreira	CEO

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

Contractor Name: Ferreira Construction Co. Inc., dba: Ferreira Coastal Construction Co.

Certified By Robert Cargeeg Title Estimator

Name _____

Signature _____ Date 06-05-2023

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS

TO BE COMPLETED BY BIDDER
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Please indicate if principal owner is serving in the capacity of **subcontractor, supplier, and/or manufacturer:**

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE
DWAYNE HENRY	PRESIDENT

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

Contractor Name: MOOR Electric Inc

Certified By DWAYNE HENRY Title President

Name

 Signature

Date 6/5/2023

*USE ADDITIONAL FORMS AS NECESSARY**

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
TO BE COMPLETED BY BIDDER
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Names of the Principal individual owner(s)

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Please indicate if principal owner is serving in the capacity of **subcontractor, supplier, and/or manufacturer:**

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE
Tim Martin	President
Jason Gable	Vice President
Cesar Rodriguez	Treasurer

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

Contractor Name: Precision Striping, Inc.

Certified By Timothy Martin Title President/ Owner


 Name _____ Date 12/01/2022
 Signature

USE ADDITIONAL FORMS AS NECESSARY

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
TO BE COMPLETED BY BIDDER
FAILURE TO COMPLETE AND SUBMIT AT TIME OF BID SHALL RENDER BID NON-RESPONSIVE

Names of the Principal individual owner(s)

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 Names of the Principal Individual owner(s) for their subcontractor/supplier/manufacturers.

Please indicate if principal owner is serving in the capacity of subcontractor, supplier, and/or manufacturer:

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE
Scott Nelson	Estimator

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

SUBCONTRACTOR SUPPLIER MANUFACTURER

NAME	TITLE

Contractor Name: Seal Right Paving Inc

Certified By Monique Vasquez Title V.P

Name
Monique Vasquez
 Signature

Date 6/5/23

*USE ADDITIONAL FORMS AS NECESSARY**

City of San Diego

CITY CONTACT: Rosa Riego, Senior Contract Specialist, Email: RRiego@sandiego.gov
Phone No. (619) 533-3426

ADDENDUM A



FOR

MISSION BAY ATHLETIC AREA COMFORT STATION MODERNIZATION

BID NO.:	<u>K-23-2176-DBB-3</u>
SAP NO. (WBS/IO/CC):	<u>B-17179</u>
CLIENT DEPARTMENT:	<u>1714</u>
COUNCIL DISTRICT:	<u>2</u>
PROJECT TYPE:	<u>BT</u>

BID DUE DATE:

**2:00 PM
JUNE 5, 2023**

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

<http://www.sandiego.gov/cip/bidopps/index.shtml>

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. ADDITIONAL CHANGES

1. The following are additional changes to the Line Items in the PlanetBids Tab:

For clarity where applicable, **ADDITIONS**, if any, have been **Underlined** and **DELETIONS**, if any, have been **~~Stricken out.~~**

Section	Item Code	Description	UoM	Quantity	Payment Reference	Extension
Main Bid		Field Orders (EOC Type II)	AL	1	7-3.9	120,000 <u>125,000</u>
Main Bid	238210	SDG&E Service Orders	LS	4	701-2	

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *May 8, 2023*
San Diego, California

RA/MJN/rs/la

Bid Results

Bidder Details

Vendor Name Dick Miller Inc.
Address 930 Boardwalk, Suite H
San Marcos, California 92078
United States
Respondee John Martinez
Respondee Title Sr. Estimator
Phone 951-216-4070
Email JMartinez@dmiusa.net
Vendor Type DVBE, CADIR, SLBE, MALE, SDVSB, CAU
License # 380204
CADIR 1000004547

Bid Detail

Bid Format Electronic
Submitted 06/05/2023 1:47 PM (PDT)
Delivery Method
Bid Responsive
Bid Status Submitted
Confirmation # 333912

Respondee Comment

Buyer Comment

Attachments

File Title	File Name	File Type
pending actions.pdf	pending actions.pdf	Contractor's Certification of Pending Actions
MDOBI.pdf	MDOBI.pdf	Mandatory Disclosure of Business Interests Form
DEBAR PRIME.pdf	DEBAR PRIME.pdf	Prime - Debarment and Suspension Certification
DEBAR SUBS ALL.pdf	DEBAR SUBS ALL.pdf	Subcontractor - Debarment and Suspension Certification
BID BOND.pdf	BID BOND.pdf	Bid Bond

Subcontractors

Showing 6 Subcontractors

Name & Address	Desc	License Num	CADIR	Amount	Type
Ferreira Construction Co, Inc dba Fei 10370 Commerce Center Drive, Suite ferreiraconstruction.com Rancho Cucamonga, California 9173	FENCING , CONTRACTOR	985180	1000001634	\$\$51,068.00	MBE, MALE, LAT, CADIR
Moor Electric, Inc. 1244 Manchester Street National City, California 91950	ELECTRICAL & LIGHTING ELBE CONTRACTOR	797985	1000002598	\$\$187,693.00	DBE, MBE, CADIR, SDB, ELBE, AFR, MALE, HUBZ, Local
Pratt Equipment Corp. PO Box 2546 Vista, California 92085	DEMO, GRADING, SAWCUT, TREE REMOVAL, SLBE CONTRACTOR	847624	1000016735	\$\$205,200.00	SDB, SLBE, Local
Precision Striping, Inc. 545 W. Bradley Avenue El Cajon, California 92020	striping & signs SLBE Contractor	1026547	1000051515	\$\$9,900.00	CADIR, SDB, ELBE, MALE, LAT, Local
Public Restroom Company 2587 Business Parkway Minden, Nevada 89423	INSTALL PREFAB RESTROOM, CONTRACTOR	822966	1000005303	\$\$39,425.00	CADIR
SealRight Paving, Inc. 9053 Olive Dr. Spring Valley, California 91977	asphalt paving, seal coat, grinding SLBE Contractor	364113	1000039542	\$\$79,415.00	DBE, MBE, MALE, PQUAL, LAT, CADIR, Local

Line Items

Discount Terms No Discount

Item #	Item Code	Type	Item Description	UOM	QTY	Unit Price	Line Total	Response	Comment
							\$2,242,777.77		
Main Bid									
1	524126		Bonds (Payment and Performance)	LS	1	\$44,829.77	\$44,829.77	Yes	
2	236220		Building Permits (EOC Type I)	AL	1	\$10,000.00	\$10,000.00	Yes	
3	562910		Hazardous Waste Operations and Emergency Response (HAZWOPER) Certification (EOC Type I)	AL	1	\$5,000.00	\$5,000.00	Yes	
4	238990		Construction of Comfort Station and All Associated Work and Other Improvements	LS	1	\$1,840,709.00	\$1,840,709.00	Yes	
5	238990		Mobilization	LS	1	\$125,239.00	\$125,239.00	Yes	
6			Field Orders (EOC Type II)	AL	1	\$125,000.00	\$125,000.00	Yes	
7	238210		SDG&E Fee Allowance (EOC Type I)	AL	1	\$65,000.00	\$65,000.00	Yes	
8	541330		WPCP Development	LS	1	\$3,000.00	\$3,000.00	Yes	
9	237310		WPCP Implementation	LS	1	\$24,000.00	\$24,000.00	Yes	

Line Item Subtotals

Section Title	Line Total
Main Bid	\$2,242,777.77
Grand Total	\$2,242,777.77