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STRUCTURAL NOTES

D. SUBMITTALS:

1. THE CONTRACTOR SHALL MAKE SUBMITTALS PRIOR TO FABRICATION AS REQUIRED BY THE WRITTEN SPECIFICATIONS AND SHALL INCLUDE AS A MINIMUM THE FOLLOWING SUBMITTALS:
   A. CONCRETE MIX DESIGNS.
   B. REINFORCING STEEL DRAWINGS.
   C. WELDED DEFORMED WIRE REINFORCING DRAWINGS, WITH CODE-BASED DEMONSTRATION OF EQUIVALENCY TO SPECIFIED BARS.
   D. POST-TENSION TENDON CERTIFICATION OF LOW RELAXATION.
   E. POST-TENSION TENDON DRAWINGS INDICATING TENDON LAYOUT, PROFILE, STRESSING DIRECTION AND ELONGATION. (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   F. POST-TENSION CALCULATIONS OF TENDON LOSSES, EFFECTIVE FORCE AND ELONGATION AND CALCULATIONS OF BURSTING ZONE REINFORCEMENT (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   G. POST-TENSION TENDON ENCAPSULATION SYSTEM.
   H. POST-TENSION TENDON MEASURED ELONGATION AT STRESSING.
   I. HEADED STUD REINFORCEMENT ASSEMBLIES
   J. CONTROL JOINT/CONSTRUCTION JOINT LOCATIONS.
   K. SHORING REMOVAL AND RE-SHORING PROCEDURE (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   L. PENETRATIONS THOUGH STRUCTURAL MEMBERS, INCLUDING SIZES AND LOCATIONS OF SLEEVES, FOR THE FIRE SUPPRESSION SYSTEM [AND OTHER UTILITY SYSTEMS].
   M. STRUCTURAL STEEL DRAWINGS
   N. DESIGN-BUILD STEEL STAIRS DRAWINGS AND CALCULATIONS (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   O. COLD-FORMED STEEL DECK DRAWINGS.
   P. DESIGN-BUILD EXTERIOR COLD-FORMED STEEL FRAMING DRAWINGS AND CALCULATIONS (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   Q. DESIGN-BUILD SOIL ANCHORS (FOUNDATION TIE-DOWNS) DRAWINGS AND CALCULATIONS (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   R. WELDING PROCEDURES (SHOP AND FIELD WELDING).
   S. COLD-FORMED STEEL FRAMING DRAWINGS AND CALCULATIONS (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   T. CURTAIN WALL DRAWINGS AND CALCULATIONS (SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER).
   U. MANUFACTURER'S CERTIFICATES OF COMPLIANCE FOR DESIGNATED SEISMIC EQUIPMENT SYSTEMS IN ACCORDANCE WITH SECTION 1708.5 OF THE BUILDING CODE, PRIOR TO INSTALLATION.

2. THE FOLLOWING SUBMITTALS ARE NOT REQUIRED FOR STRUCTURAL REVIEW:
   A. SHORING AND BRACING.
   B. WINDOW MULLIONS
   C. FORMWORK.
   D. STRUCTURAL STEEL MILL REPORTS.
   E. WELDER CERTIFICATIONS
   F. WWF FOR CONCRETE OVER STEEL DECK.

3. STEEL REINFORCING LISTS AND QUANTITIES AND LENGTHS OF ALL MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE COMPLIANCE WITH THE PLANS. ENGINEER WILL NOT REVIEW.

4. SUBMITTALS MADE TO THE ENGINEER FOR REVIEW SHALL BE STAMPED AND SIGNED BY THE CONTRACTOR INDICATING THE CONTRACTOR'S PRIOR REVIEW AND THAT THE SUBMITTAL IS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

5. AS AN ALTERNATE TO MULTIPLE PAPER COPIES, SUBMITTALS MAY BE MADE IN ELECTRONIC (PDF) FORMAT. WHERE SUBMITTED ELECTRONICALLY, SUBMITTALS WILL BE PROCESSED AND RETURNED ELECTRONICALLY.

E. GENERAL:

1. SPECIFIC NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

2. THE REQUIREMENTS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE STRUCTURAL BUILDING INFORMATION MODEL. THE STRUCTURAL BUILDING INFORMATION MODEL SHALL NOT BE RELIED ON FOR UNDERSTANDING CONSTRUCTION REQUIREMENTS.

3. WHERE NO DETAILS ARE SHOWN OR NOTED IN ANY PART OF THE WORK THE DETAILS FOR OTHER SIMILAR WORK SHALL APPLY

4. DETAILS IDENTIFIED AS TYPICAL, SHALL APPLY IN ESTIMATING AND CONSTRUCTION TO EVERY LIKE CONDITION WHETHER OR NOT THE REFERENCE IS REPEATED.

5. THE STRUCTURAL DRAWINGS AND STRUCTURAL BUILDING INFORMATION MODEL SHALL NOT BE SCALED. COORDINATE DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

6. COORDINATE ELEVATIONS, SLOPES AND DRAINAGE REQUIREMENTS WITH THE ARCHITECTURAL DRAWINGS.

7. STANDARDS REFERENCED ON THE STRUCTURAL DRAWINGS REFER TO THE EDITION APPLICABLE UNDER THE APPLICABLE BUILDING CODE.

8. THE RESPONSIBILITY FOR THE REVIEW AND COORDINATION OF DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF RELATED CONSTRUCTION SHALL BEAR ON THE CONTRACTOR. DISCREPANCIES THAT EXIST SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER, PRIOR TO START OF RELATED CONSTRUCTION.

9. WORK PERFORMED IN CONFLICT WITH THE STRUCTURAL DRAWINGS OR APPLICABLE BUILDING CODE REQUIREMENTS SHALL BE CORRECTED AT THE EXPENSE OF THE CONTRACTOR.

10. DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS SHALL BE VERIFIED BEFORE STARTING RELATED WORK AND THE ENGINEER NOTIFIED OF DISCREPANCIES IN A TIMELY MANNER.

11. SITE CONDITIONS THAT ARE NOT REFLECTED ON THE STRUCTURAL DRAWINGS OR THAT DEVIATE FROM THE MAXIMUM OR MINIMUM DIMENSIONS INDICATED SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN A TIMELY MANNER. SUCH CONDITIONS MAY INCLUDE CONFLICT IN GRADES, ADVERSE SOIL CONDITIONS, GROUND WATER PRESENT, DEEPENED FOOTINGS, UNCOVERED AND UNEXPECTED UTILITY LINES, ETC.

12. MATERIALS AND WORKMANSHIP SHALL CONFORM TO REQUIREMENTS OF APPLICABLE REGULATIONS AND THE BUILDING CODE AS AMENDED AND ADOPTED BY THE BUILDING OFFICIAL.

13. LOADS TO THE BUILDING EXCEEDING THE LOADS INDICATED ON THE PLANS, OR ANY LOADS EXCEEDING 400 POUNDS THAT ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE REPORTED TO THE ENGINEER.

A. BASIS OF DESIGN:

1. THE STRUCTURAL DESIGN HAS BEEN PERFORMED IN ACCORDANCE WITH THE 2013 CALIFORNIA BUILDING CODE (CBC).

2. LIVE LOADS (MAY BE REDUCED IN ACCORDANCE WITH THE BUILDING CODE)

ROOF	20 psf
ROOF MECHANICAL AREA	20 psf
FLOOR	100 psf
EXITS AND STAIRS	100 psf

3. SEISMIC DESIGN DATA

RISK CATEGORY	III
SEISMIC IMPORTANCE FACTOR	I_E = 1.25
MAPPED SPECTRAL ACCELERATION	S_S = 1.242
MAPPED SPECTRAL ACCELERATION	S_1 = 0.479
SITE CLASS	D
SITE COEFFICIENT	F_a = 1.003
SITE COEFFICIENT	F_v = 1.521
DESIGN SPECTRAL ACCELERATION	S_{DS} = 0.831
DESIGN SPECTRAL ACCELERATION	S_{D1} = 0.486
SEISMIC DESIGN CATEGORY	D
PARTITION LOADING AT FLOORS	10 psf
PARTITION LOADING AT ROOFS	5 psf
ANALYSIS PROCEDURE USED	MODAL RESPONSE SPECTRUM (SEE NOTE 4)
SEISMIC FORCE RESISTING SYSTEM	BEARING WALL SYSTEM: SPECIAL REINFORCED CONCRETE SHEAR WALLS
RESPONSE MODIFICATION FACTOR	R = 5.0
SYSTEM OVERSTRENGTH FACTOR	Ω = 2.5
DEFLECTION AMPLIFICATION FACTOR	C_d = 5.0
REDUNDANCY FACTOR	□ = 1.3
SEISMIC RESPONSE COEFFICIENT	C_S = 0.166
DESIGN BASE SHEAR	V = 1025 kips

4. THE MODAL RESPONSE SPECTRUM ANALYSIS IS BASED ON THE DESIGN RESPONSE SPECTRUM IN ASCE 7, FIGURE 11.4-1.

5. WIND DESIGN DATA

RISK CATEGORY	III
BASIC WIND SPEED	V = 115 mph
EXPOSURE CATEGORY	C
ENCLOSURE CATEGORY	ENCLOSED
GUST & INTERNAL PRESSURE COEFF	GC_{PI} = 0.18
DIRECTIONALITY FACTOR	K_d = 0.85
TOPOGRAPHIC FACTOR	K_{zt} = 1.00

B. DEFERRED APPROVALS:

1. COMPONENTS REQUIRING DEFERRED APPROVAL BY THE BUILDING OFFICIAL ARE LISTED ON A0.1. STRUCTURAL CALCULATIONS AND DRAWINGS SIGNED AND SEALED BY A CALIFORNIA REGISTERED CIVIL ENGINEER SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND TO THE BUILDING OFFICIAL FOR PERMIT.

2. IN ADDITION TO THE SEAL OF THE RESPONSIBLE ENGINEER, DEFERRED SUBMITTAL PACKAGES SHALL BEAR THE SHOP DRAWING APPROVAL STAMPS OF THE ARCHITECT, ENGINEER AND THE GENERAL CONTRACTOR PRIOR TO BUILDING DEPARTMENT SUBMITTAL.

3. PLANS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED IN A TIMELY MANNER THAT ALLOWS A MINIMUM OF 30 WORKING DAYS FOR INITIAL PLAN REVIEW BY THE BUILDING OFFICIAL. ALL COMMENTS RELATED TO THE DEFERRED SUBMITTAL MUST BE ADDRESSED TO THE SATISFACTION OF THE PLAN CHECK DIVISION PRIOR TO PERMIT APPROVAL OF THE SUBMITTAL ITEMS.

4. DEFERRED SUBMITTAL ITEMS SHALL NOT BE FABRICATED PRIOR TO APPROVAL BY THE BUILDING OFFICIAL OF THE CALCULATIONS AND DRAWINGS.

C. PRE-ENGINEERED ELEMENTS TO BE ANCHORED TO THE BUILDING:

1. PRE-ENGINEERED STRUCTURAL AND NONSTRUCTURAL ELEMENTS AND THEIR ATTACHMENTS SUPPORTED BY THE BUILDING WHICH ARE NOT DETAILED ON THESE DRAWINGS SHALL BE DESIGNED BY OTHER RESPONSIBLE PARTIES.

2. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

3. DESIGN CALCULATIONS AND DRAWINGS, SIGNED AND SEALED BY A CALIFORNIA REGISTERED CIVIL ENGINEER, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND TO THE BUILDING OFFICIAL FOR PERMIT, PRIOR TO FABRICATION AND INSTALLATION. CALCULATIONS SHALL CLEARLY IDENTIFY LOADS IMPOSED ON THE BUILDING STRUCTURE.

4. SUCH ELEMENTS AND THEIR ATTACHMENTS SHALL BE DESIGNED IN ACCORDANCE WITH ASCE 7, CHAPTER 13, SECTIONS OF THE AISI SPECIFICATIONS AND THE MSMA RECOMMENDED DESIGN PRACTICE MANUAL, AS ARE APPLICABLE.

5. EQUIPMENT WEIGHING IN EXCESS OF 400 POUNDS SHALL NOT EXCEED THE WEIGHT NOR DEVIATE FROM THE LOCATION AS IDENTIFIED ON THE STRUCTURAL DRAWINGS.

6. NONSTRUCTURAL ELEMENTS THAT CONTAIN OR TRANSMIT HAZARDOUS MATERIALS OR THAT ARE REQUIRED TO FUNCTION FOR LIFE-SAFETY PURPOSES FOLLOWING AN EARTHQUAKE ARE DEFINED AS "DESIGNATED SEISMIC EQUIPMENT SYSTEMS." THE FOLLOWING SHALL BE CONSIDERED AS COMPONENTS OF DESIGNATED SEISMIC EQUIPMENT SYSTEMS:
   A. FIRE SUPPRESSION SYSTEMS

7. EACH MANUFACTURER OF A COMPONENT OF A DESIGNATED SEISMIC EQUIPMENT SYSTEM SHALL QUALIFY THE COMPONENT AND ITS MOUNTING SYSTEM OR ANCHORAGE BY TESTING OR ANALYSIS IN ACCORDANCE WITH ASCE 7 SECTION 13.2. A CERTIFICATE OF COMPLIANCE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND TO THE BUILDING OFFICIAL FOR PERMIT. (WHERE CERTIFICATES ARE BASED ON ANALYSIS, THE ANALYSIS SHALL BE SIGNED BY A CALIFORNIA-REGISTERED CIVIL ENGINEER.)

8. AT CONNECTIONS TO STRUCTURE, PROVIDE STABILIZING ELEMENTS SUCH AS BRACES, STIFFENER PLATES, ETC., SO AS TO NOT IMPOSE ECCENTRIC LOADING, TWISTING, OR WARPING TO STRUCTURAL MEMBERS. PROVIDE MATERIAL AND INSTALL STABILIZING ELEMENTS.

9. ELEMENTS THAT ARE ATTACHED TO THE BUILDING SHALL BE DESIGNED TO ACCOMMODATE MOVEMENTS OF THE STRUCTURE BASED ON THE MAXIMUM INELASTIC RESPONSE DISPLACEMENT, δ_M PER IBC SECTION 1613.6.7. THE VALUES OF. δ_M ARE AS FOLLOWS:

	δ_M
UPPER ROOF	1.75 in
MAIN ROOF	0.75 in
LEVEL 03	0.5 in
LEVEL 02	0.25in

STATEMENT OF SPECIAL INSPECTIONS

No.	DESCRIPTION OF TYPE OF INSPECTION REQUIRED, REFERENCE DETAIL	CONTINUOUS	PERIODIC	
	HIGH-STRENGTH BOLTING			
	QUALITY ASSURANCE INSPECTIONS PRIOR TO BOLTING IN ACCORDANCE WITH AISC 360, SECTION N5.6 AND TABLE N5.6-1			
	QUALITY ASSURANCE INSPECTIONS DURING BOLTING IN ACCORDANCE WITH AISC 360, SECTION N5.6 AND TABLE N5.6-2			
	QUALITY ASSURANCE INSPECTIONS AFTER BOLTING IN ACCORDANCE WITH AISC 360, SECTION N5.6 AND TABLE N5.6-3			
	QUALITY ASSURANCE INSPECTIONS OF THE SEISMIC FORCE RESISTING SYSTEM PRIOR TO BOLTING IN ACCORDANCE WITH AISC 341, SECTION J7 AND TABLE J7-1			
	QUALITY ASSURANCE INSPECTIONS OF THE SEISMIC FORCE RESISTING SYSTEM DURING BOLTING IN ACCORDANCE WITH AISC 341, SECTION J7 AND TABLE J7-2			
	QUALITY ASSURANCE INSPECTIONS OF THE SEISMIC FORCE RESISTING SYSTEM AFTER BOLTING IN ACCORDANCE WITH AISC 341, SECTION J7 AND TABLE J7-3			
	COLD-FORMED STEEL DECK			
	COLD-FORMED STEEL DECK MATERIAL		×	
	WELDING PROCEDURES PRIOR TO THE START OF WORK		×	
	QUALIFICATIONS OF WELDERS PRIOR TO THE START OF WORK		×	
	WELDING OF COLD-FORMED STEEL FLOOR OR ROOF DECK		×	
	INSTALLATION OF WELDED STUDS AT COLD-FORMED STEEL DECK		×	
	POST-INSTALLED ANCHORS (FOOTNOTE 3)			
	INSTALLATION OF MECHANICAL ANCHORS (SEE FOOTNOTE 4)	×		
	INSTALLATION OF SCREW ANCHORS (SEE FOOTNOTE 4)	×		
	JOBSITE STORAGE OF ADHESIVE PRIOR TO INSTALLATION FOR CONFORMANCE WITH MANUFACTURER'S REQUIREMENTS		×	
	INITIAL INSTALLATION OF ADHESIVE ANCHORS (SEE FOOTNOTE 4)	FOOT NOTE 5		
	SUBSEQUENT INSTALLATION OF ADHESIVE ANCHORS (SEE FOOTNOTE 4)		FOOT NOTE 5	
	MECHANICAL AND ELECTRICAL COMPONENTS			
	THE FOLLOWING SYSTEMS ARE DESIGNATED SEISMIC SYSTEMS AS DEFINED IN SECTION 202 OF THE BUILDING CODE. REQUIRED CERTIFICATION AND INSPECTIONS APPLY TO EACH OF THESE SYSTEMS: A. FIRE SUPPRESSION SYSTEMS B. EMERGENCY OR STANDBY POWER SYSTEMS C. PIPING SYSTEMS INTENDED TO CARRY FLAMMABLE, COMBUSTIBLE OR HIGHLY TOXIC CONTENTS D. EQUIPMENT AND DUCTWORK CONTAINING HAZARDOUS MATERIALS E. VIBRATION ISOLATION SYSTEMS WHERE THE REQUIRED CLEARANCE BETWEEN EQUIPMENT SUPPORT FRAME AND RESTRAINT IS ¼ INCH OR LESS			
	MANUFACTURER'S CERTIFICATE OF COMPLIANCE FOR TESTING, ANALYSIS OR EXPERIENCE OF COMPONENTS, MOUNTING SYSTEMS OR ANCHORAGE		×	
	INSTALLED EQUIPMENT LABEL AND ANCHORAGE (OR MOUNTING) CONFORMS TO MANUFACTURER'S CERTIFICATE OF COMPLIANCE		×	
	OTHER			
	FIRE-RESISTANT PENETRATION FIRESTOPS IN ACCORDANCE WITH SECTION 1705.16 OF THE BUILDING CODE		×	
	FIRE-RESISTANT JOINT SYSTEMS IN ACCORDANCE WITH SECTION 1705.16 OF THE BUILDING CODE		×	
	ANCHORAGE OF STORAGE RACKS, 8 FEET IN HEIGHT OR TALLER		×	
	ERECTION AND FASTENING OF EXTERIOR CURTAINWALL SYSTEMS EXCEEDING 30 FT ABOVE ADJACENT GRADE		×	
	ERECTION AND FASTENING OF EXTERIOR CLADDING OR VENEER WEIGHING MORE THAN 5 PSF AND EXCEEDING 30 FT ABOVE ADJACENT GRADE		×	
	ERECTION AND FASTENING OF INTERIOR PARTITION SYSTEMS WEIGHING MORE THAN 15 PSF AND EXCEEDING 30 FEET IN HEIGHT		×	

FOOTNOTES FOR STATEMENT OF SPECIAL INSPECTIONS:

1. AT TIME OF CONCRETE SAMPLING:
   A. FABRICATE SPECIMENS FOR STRENGTH TESTS
   B. FABRICATE SPECIMENS FOR DRYING SHRINKAGE TESTS WHERE REQUIRED
   C. PERFORM SLUMP AND AIR CONTENT TESTS
   D. DETERMINE CONCRETE TEMPERATURE

2. SHOTCRETE TEST PANEL(S) SHALL BE CURED, INSPECTED, CORED AND/OR SAWN AND TESTED IN ACCORDANCE WITH ASTM C 1140. FOR PRE-CONSTRUCTION TEST PANELS, TESTING SHALL BE COMPLETE PRIOR TO THE START OF WORK.

3. SPECIAL INSPECTION FOR POST-INSTALLED ANCHORS SHALL COMPLY WITH THE REQUIREMENTS SPECIFIED IN THE EVALUATION APPROVAL FOR THE SPECIFIC PRODUCT. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTIONS SHALL CONFORM TO THE REQUIREMENTS SPECIFIED IN THIS STATEMENT OF SPECIAL INSPECTIONS.

4. VERIFY THE FOLLOWING RELATING TO THE INSTALLATION OF POST-INSTALLED ANCHORS:
   A. CONCRETE TYPE AND COMPRESSIVE STRENGTH AND THICKNESS.
   B. HOLE DIMENSIONS AND CLEANING PROCEDURES.
   C. ANCHOR TYPE, DIMENSIONS, EMBEDMENT, SPACING, EDGE DISTANCE AND TIGHTENING TORQUE.
   D. ADHESIVE TYPE, EXPIRATION DATE AND STORAGE PROCEDURES.

5. THE SPECIAL INSPECTOR SHALL CONTINUOUSLY INSPECT THE INITIAL INSTALLATION OF EACH TYPE AND SIZE OF ADHESIVE ANCHOR BY EACH INSTALLER. SUBSEQUENT INSTALLATIONS OF THE SAME TYPE AND SIZE OF ANCHOR BY THE SAME INSTALLER MAY BE PERFORMED ON A PERIODIC BASIS.

No.	DESCRIPTION OF TYPE OF INSPECTION REQUIRED, REFERENCE DETAIL	CONTINUOUS	PERIODIC	
	SOIL			
	SOIL MATERIAL BELOW FOUNDATIONS FOR ADEQUACY TO ACHIEVE DESIGN BEARING CAPACITY		×	
	EXCAVATIONS EXTEND TO PROPER DEPTH AND BEARING STRATA		×	
	CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIAL		×	
	SUBGRADE AND SITE PREPARATION PRIOR TO PLACEMENT OF CONTROLLED FILL		×	
	PLACEMENT AND COMPACTION OF CONTROLLED FILL: INCLUDING RELATIVE DENSITY	×		
	SOIL EXPANSION TEST RESULTS: INCLUDING EXPANSION INDEX, RECOMMENDATIONS FOR FOUNDATION AND FLOOR SLAB DESIGN.		×	
	SOIL ANCHORS (FOUNDATION TIE-DOWNS)			
	SOIL ANCHOR LAYOUT, LOCATION, LENGTH AND HOLE DIAMETER.		×	
	SOIL ANCHOR STEEL RODS AND GROUT MATERIALS, PRIOR TO START OF INSTALLATION.		×	
	GROUT/POST GROUT PROCEDURE FOR SOIL ANCHORS		×	
	SOIL ANCHOR LOADTESTING AND LOCK-OFF LOADS	×		
	CONCRETE			
	SHAPE, LOCATION AND DIMENSION OF CONCRETE FORMWORK PRIOR TO PLACEMENT OF REINFORCING		×	
	REINFORCING STEEL MATERIAL		×	
	CERTIFIED MILL TEST REPORTS FOR EACH SHIPMENT OF ASTM A 615 REINFORCING STEEL MATERIAL TO BE USED IN SHEAR WALLS (HOOPS AND CROSS-TIES EXEMPTED)		×	
	PLACEMENT OF REINFORCING STEEL PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE		×	
	IDENTIFICATION AND PLACEMENT OF HEADED SHEAR STUD REINFORCEMENT ASSEMBLIES PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE		×	
	POST-TENSIONING TENDON MATERIAL		×	
	PLACEMENT OF POST-TENSIONING TENDONS PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE		×	
	PLACEMENT OF INSERTS IN POST-TENSIONED CONCRETE PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE		×	
	MEASUREMENT OF FLOOR FLATNESS AND FLOOR LEVELNESS PRIOR TO REMOVAL OF SHORING OR APPLICATION OF PRESTRESSING FORCES.		×	
	PLACEMENT OF CAST-IN ANCHORS PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE		×	
	PLACEMENT OF CAST-IN STEEL ASSEMBLIES FOR STRUCTURAL CONNECTIONS PRIOR TO CLOSING OF FORMS OR DELIVERY OF CONCRETE		×	
	CONCRETE MIX VERIFICATION AT TIME OF DELIVERY		×	
	SAMPLING OF FRESH CONCRETE (SEE FOOTNOTE 1)	×		
	TESTING OF CONCRETE STRENGTH FOR CONFORMANCE WITH THE CONSTRUCTION DRAWING REQUIREMENTS		×	
	TESTING OF CONCRETE DRYING SHRINKAGE FOR CONFORMANCE WITH THE CONSTRUCTION DRAWING REQUIREMENTS		×	
	APPLICATION TECHNIQUES OF CONCRETE PLACEMENT	×		
	MAINTENANCE OF REQUIRED CURING TEMPERATURE AND TECHNIQUES		×	
	IN-PLACE CONCRETE STRENGTH TESTING PRIOR TO STRESSING OF POST-TENSIONED TENDONS		×	
	APPLICATION OF PRESTRESSING FORCES TO POST-TENSIONED CONCRETE	×		
	APPLICATION OF PRESTRESSING FORCES TO PRECAST CONCRETE MEMBERS	×		
	ERECTION OF PRECAST CONCRETE MEMBERS		×	
	WELDING OF REINFORCING STEEL			
	WELDING PROCEDURES PRIOR TO THE START OF WORK		×	
	QUALIFICATIONS OF WELDERS PRIOR TO THE START OF WORK		×	
	CERTIFIED MILL TEST REPORTS, IDENTIFYING CHEMICAL MAKE-UP AND CARBON EQUIVALENT, FOR EACH SHIPMENT OF REINFORCING STEEL MATERIAL TO BE WELDED, OTHER THAN ASTM A 706		×	
	MATERIAL OF WELD FILLER MATERIAL		×	
	WELDS OF REINFORCING STEEL IN BOUNDARY ZONES OF SHEAR WALLS	×		
	WELDS OF SHEAR REINFORCING STEEL	×		
	WELDS OF OTHER REINFORCING STEEL		×	
	REINFORCING STEEL COUPLERS AND TERMINATORS			
	IDENTIFICATION OF COUPLER OR TERMINATOR HARDWARE		×	
	REINFORCING BAR PENETRATION AND TIGHTENING IN COUPLER OR TERMINATOR		×	
	STRUCTURAL STEEL			
	STRUCTURAL STEEL MATERIAL		×	
	ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL IN ACCORDANCE WITH AISC 360, SECTION N5.7		×	
	STRUCTURAL STEEL FRAMING, BRACING AND CONNECTIONS CONFIGURATION IN ACCORDANCE WITH AISC 360, SECTION N5.7		×	
	WELDING OF STRUCTURAL STEEL			
	QUALITY ASSURANCE INSPECTIONS PRIOR TO WELDING IN ACCORDANCE WITH AISC 360, SECTION N5.4 AND TABLE N5.4-1			
	QUALITY ASSURANCE INSPECTIONS DURING WELDING IN ACCORDANCE WITH AISC 360, SECTION N5.4 AND TABLE N5.4-2			
	QUALITY ASSURANCE INSPECTIONS AFTER WELDING IN ACCORDANCE WITH AISC 360, SECTION N5.4 AND TABLE N5.4-3			
	NONDESTRUCTIVE TESTING AFTER WELDING IN ACCORDANCE WITH AISC 360, SECTION N5.5			
	QUALITY ASSURANCE INSPECTIONS OF THE SEISMIC FORCE RESISTING SYSTEM PRIOR TO WELDING IN ACCORDANCE WITH AISC 341, SECTION J6.1 AND TABLE J6-1			
	QUALITY ASSURANCE INSPECTIONS OF THE SEISMIC FORCE RESISTING SYSTEM DURING WELDING IN ACCORDANCE WITH AISC 341, SECTION J6.1 AND TABLE J6-2			
	QUALITY ASSURANCE INSPECTIONS OF THE SEISMIC FORCE RESISTING SYSTEM AFTER WELDING IN ACCORDANCE WITH AISC 341, SECTION J6.1 AND TABLE J6-3			
	NONDESTRUCTIVE TESTING OF THE SEISMIC FORCE RESISTING SYSTEM AFTER WELDING IN ACCORDANCE WITH AISC 341, SECTION J6.2			

D. OFF-SITE FABRICATION:

1. SPECIAL INSPECTION IS REQUIRED FOR THE OFF-SITE FABRICATION OF STRUCTURAL LOAD-BEARING MEMBERS, REINFORCING AND ASSEMBLIES, UNLESS THE FABRICATION IS PERFORMED BY AN APPROVED FABRICATOR.

2. AN APPLICATION FOR OFF-SITE FABRICATION MUST BE SUBMITTED TO THE BUILDING OFFICIAL FOR APPROVAL PRIOR TO COMMENCING ANY FABRICATION WORK REQUIRING SPECIAL INSPECTION.

3. A CERTIFICATE OF COMPLIANCE FOR OFF-SITE FABRICATION MUST BE COMPLETED BY THE SPECIAL INSPECTOR AND SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO ERECTION OF PREFABRICATED COMPONENTS.

4. SPECIAL INSPECTION SHALL INCLUDE VERIFICATION THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR INSPECTION CONTROL OF WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO THE APPROVED CONSTRUCTION DOCUMENTS AND REFERENCED STANDARDS.

5. SPECIAL INSPECTION SHALL INCLUDE REVIEW OF THE PROCEDURES FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE REQUIREMENTS OF THE BUILDING CODE.

E. STRUCTURAL OBSERVATIONS:

6. STRUCTURAL OBSERVATIONS ARE REQUIRED IN ACCORDANCE WITH SECTION 1710 OF THE BUILDING CODE.

7. THE OWNER SHALL EMPLOY THE ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN TO PERFORM VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS.

8. PRIOR TO COMMENCEMENT OF OBSERVATIONS, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT IDENTIFYING THE FREQUENCY AND EXTENT OF STRUCTURAL OBSERVATIONS.

9. CONTRACTOR SHALL NOTIFY THE STRUCTURAL OBSERVER AT THE CONSTRUCTION STAGES INDICATED AND AT COMPLETION OF THE STRUCTURAL SYSTEM.

10. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR SPECIAL INSPECTION NOR INSPECTION BY THE BUILDING OFFICIAL.

11. OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER, SPECIAL INSPECTION AGENCY, CONTRACTOR AND BUILDING OFFICIAL.

12. AT THE CONCLUSION OF WORK, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE STRUCTURAL OBSERVATIONS HAVE BEEN MADE AND IDENTIFYING AND REPORTED DEFICIENCIES, WHICH, TO THE BEST OF THE OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

13. THE FOLLOWING STRUCTURAL OBSERVATIONS ARE REQUIRED BY THE ENGINEER OF RECORD:
    A. WHEN FOUNDATION EXCAVATIONS ARE COMPLETE AND THE PLACEMENT OF REINFORCING STEEL FOR THE MAT FOUNDATION AND FOOTINGS AND THE PLACEMENT OF WALL AND COLUMN DOWELS IS SUBSTANTIALLY COMPLETE. AT LEAST ONE WORKING DAY PRIOR TO THE FIRST PLANNED PLACEMENT OF FOUNDATION CONCRETE.
    B. WHEN THE PLACEMENT OF REINFORCING STEEL AND EMBEDDED ITEMS IN COLUMNS AND WALLS IS SUBSTANTIALLY COMPLETE; PRIOR TO THE CLOSING OF FORMS.
    C. WHEN THE PLACEMENT OF REINFORCING STEEL AND EMBEDDED ITEMS IN ELEVATED SLABS AND BEAMS IS SUBSTANTIALLY COMPLETE. AT LEAST ONE WORKING DAY PRIOR TO THE PLANNED PLACEMENT OF CONCRETE.

SPECIAL INSPECTION PROGRAM

A. GENERAL:

1. NOTICE TO THE APPLICANT, OWNER, OWNER'S AGENT, ARCHITECT OR ENGINEER OF RECORD:
   BY USING THESE PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION OR INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF THE BUILDING OFFICIAL FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS AND AS REQUIRED BY CALIFORNIA CONSTRUCTION CODES.

2. NOTICE TO THE CONTRACTOR, BUILDER, INSTALLER, SUBCONTRACTOR OR OWNER-BUILDER:
   BY USING THESE PERMITTED CONSTRUCTION DRAWINGS FOR CONSTRUCTION OR INSTALLATION OF THE WORK SPECIFIED HEREIN, YOU ACKNOWLEDGE THAT YOU ARE AWARE OF THE REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS. YOU AGREE TO COMPLY WITH THE REQUIREMENTS OF THE BUILDING OFFICIAL FOR SPECIAL INSPECTIONS, STRUCTURAL OBSERVATIONS, CONSTRUCTION MATERIAL TESTING AND OFF-SITE FABRICATION OF BUILDING COMPONENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS AND AS REQUIRED BY CALIFORNIA CONSTRUCTION CODES.

3. THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL ACTING AS THE OWNER'S AGENT SHALL EMPLOY A SPECIAL INSPECTION AGENCY TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS.

4. SPECIAL INSPECTION SHALL BE PERFORMED IN ADDITION TO INSPECTION BY THE BUILDING OFFICIAL AS REQUIRED IN SECTION 110 OF THE BUILDING CODE. SPECIAL INSPECTION SHALL NOT BE A SUBSTITUTE FOR INSPECTION BY THE BUILDING OFFICIAL.

5. WHEN WORK IN MORE THAN ONE CATEGORY OF WORK REQUIRING SPECIAL INSPECTION IS TO BE PERFORMED SIMULTANEOUSLY, OR THE GEOGRAPHIC LOCATION OF THE WORK IS SUCH THAT IT CANNOT BE OBSERVED IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS AND SECTION 1704 OF THE BUILDING CODE, IT SHALL BE THE SPECIAL INSPECTION AGENCY'S RESPONSIBILITY TO EMPLOY A SUFFICIENT NUMBER OF INSPECTORS TO ASSURE THAT THE REQUIRED WORK IS INSPECTED.

6. THE SPECIAL INSPECTION AGENCY SHALL BE APPROVED BY THE BUILDING OFFICIAL FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
   EXCEPTIONS:
   A. SOILS INSPECTIONS SHALL BE PERFORMED BY THE GEOTECHNICAL ENGINEER OF RECORD.
   B. SMOKE CONTROL SYSTEM INSPECTIONS SHALL BE PERFORMED BY THE MECHANICAL ENGINEER OF RECORD.
   C. WHEN THIS REQUIREMENT IS WAIVED BY THE BUILDING OFFICIAL.

7. THE CONSTRUCTION MATERIALS TESTING LABORATORY SHALL BE APPROVED BY THE BUILDING OFFICIAL FOR THE TESTING OF MATERIALS, SYSTEMS, COMPONENTS AND EQUIPMENT.

8. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF THE MAIN WIND- OR SEISMIC-FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM, OR WIND- OR SEISMIC-RESISTING COMPONENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A STATEMENT OF RESPONSIBILITY TO THE OWNER AND BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.

9. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE SPECIAL INSPECTION AGENCY AT LEAST ONE WORKING DAY PRIOR TO PERFORMING ANY WORK THAT REQUIRES SPECIAL INSPECTION.

10. WORK REQUIRING SPECIAL INSPECTION THAT IS INSTALLED OR COVERED WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL IS SUBJECT TO REMOVAL OR EXPOSURE AT THE CONTRACTOR'S EXPENSE.

B. REQUIRED REPORTS:

1. A SOILS INSPECTION REPORT, SIGNED, STAMPED AND DATED BY THE GEOTECHNICAL ENGINEER OF RECORD, SHALL BE SUBMITTED TO AND APPROVED BY THE BUILDING OFFICIAL PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT FOUNDATION INSPECTION OR THE PLACEMENT OF FOUNDATION CONCRETE. THE REPORT SHALL STATE THAT:
   A. THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOILS REPORT.
   B. THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED.
   C. THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT.

2. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.

3. SPECIAL INSPECTION REPORTS SHALL INDICATE WHETHER THE WORK INSPECTED WAS, OR WAS NOT PERFORMED IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

4. THE TESTING LABORATORY SHALL FURNISH REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.

5. LABORATORY TESTING REPORTS SHALL INDICATE THAT THE TESTED MATERIALS CONFORM TO THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.

6. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.

7. IF DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO COMPLETION OF THAT PHASE OF WORK.

8. A FINAL REPORT DOCUMENTING THE REQUIRED SPECIAL INSPECTIONS, MATERIAL TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON BY THE PERMIT APPLICANT AND THE BUILDING OFFICIAL PRIOR TO THE START OF WORK.

C. CONTINUOUS AND PERIODIC INSPECTIONS:

1. WHERE CONTINUOUS SPECIAL INSPECTION IS REQUIRED, THE SPECIAL INSPECTOR SHALL CONTINUOUSLY PROVIDE FULL-TIME VERIFICATION OF THE WORK.

2. WHERE PERIODIC SPECIAL INSPECTION IS REQUIRED, THE SPECIAL INSPECTOR NEED NOT BE CONTINUOUSLY PRESENT DURING THE WORK WHERE PERIODIC INSPECTION IS INDICATED. AS A MINIMUM, PERIODIC SPECIAL INSPECTION SHALL OCCUR DAILY.

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03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:
03-06-15

TITLE:
STRUCTURAL NOTES

DRAWING NO:
S1.01

STRUCTURAL NOTES

F. TEMPORARY WORK AND SITE SAFETY:

1. THE STRUCTURAL DRAWINGS SHOW THE REQUIREMENTS FOR THE COMPLETED STRUCTURE ONLY. TEMPORARY WORKS REQUIRED TO COMPLETE THE CONSTRUCTION PROCESS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE DESIGN OR FIELD VERIFICATION OF TEMPORARY AND ANCILLARY WORK.

2. THE RESPONSIBILITY FOR SAFETY IN AND AROUND THE JOBSITE SHALL BEAR ON THE CONTRACTOR. PROPER AND SAFE METHODS OF CONSTRUCTION SHALL BE EMPLOYED AT ALL TIMES INCLUDING THE STABILIZING OF INCOMPLETE STRUCTURES, FORMWORK, SHORING, RESHORING, FALSEWORK, PLATFORMS, SCAFFOLDING, BARRIERS, WALKWAYS, ETC. AND INCLUDING CONTROL OF THE INTENSITY, DURATION AND LOCATION OF CONSTRUCTION LOADS.

3. THE RESPONSIBILITY FOR THE DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING, UNDERPINNING, AND SHORING REQUIRED TO SAFELY RETAIN ALL GRADES AND STRUCTURES SHALL BEAR ON THE CONTRACTOR.

4. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON A STRUCTURE. LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD INDICATED. WHERE THE STRUCTURE HAS NOT ATTAINED FINAL DESIGN STRENGTH, ADEQUATE SHORING AND OR BRACING SHALL BE INSTALLED.

G. DEMOLITION:

1. THE RESPONSIBILITY FOR NECESSARY SHORING OR BRACING OF THE EXISTING STRUCTURE DURING DEMOLITION PROCEDURES SHALL BEAR ON THE CONTRACTOR.

2. DEVIATIONS FROM EXISTING CONDITIONS AS INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE RESOLVED WITH THE ENGINEER PRIOR TO PROCEEDING WITH DEMOLITION WORK.

3. RESPONSIBILITY FOR COORDINATION OF DEMOLITION WORK WITH THE BUILDING OFFICIAL AND OTHER GOVERNING AUTHORITIES SHALL BEAR ON THE CONTRACTOR. EXITS SHALL BE MAINTAINED AS REQUIRED FOR SAFE LEGAL OPERATION OF THE FACILITY.

4. ELEMENTS THAT WILL NOT BE DEMOLISHED SHALL BE PROTECTED FROM DAMAGE.

5. SAW CUT LINES SHALL BE TRUE AND NEAT. CORNERS SHALL NOT BE OVER CUT.

6. THESE STRUCTURAL DRAWINGS DO NOT INDICATE THE PHASING OF DEMOLITION. THE RESPONSIBILITY FOR THE SCHEDULING AND COORDINATION OF THE WORK SHALL BEAR ON THE CONTRACTOR. WORK SHALL BE COORDINATED TO LEAST IMPACT THE OPERATION OF THE EXISTING FACILITY.

H. FOUNDATION:

1. THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL INVESTIGATION REPORT SHALL BE FOLLOWED:

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   DATED: 11/07/2014
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2. DEVIATIONS IN GEOTECHNICAL CONDITIONS FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE STRUCTURAL AND GEOTECHNICAL ENGINEERS IN A TIMELY MANNER.

3. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

4. THE MAXIMUM ALLOWABLE SOIL BEARING PRESSURE SHALL BE 6,000 psf AT THE BASEMENT MAT FOUNDATION AND AT ALL OTHER FOUNDATIONS. THE ALLOWABLE BEARING VALUE MAY BE INCREASED BY 1/3 FOR WIND AND SEISMIC LOAD CASES.

5. THE EXPANSION INDEX HAS BEEN DETERMINED TO BE 50 OR LESS AND NO SPECIAL DESIGN RECOMMENDATIONS ARE REQUIRED.

6. FOOTING AND UTILITY TRENCH BACKFILL SHALL BE MECHANICALLY COMPACTED IN LAYERS SUBJECT TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER. FLOODING WILL NOT BE PERMITTED.

7. LOOSE SOIL AND FILL MATERIAL SHALL BE COMPACTED ACCORDING TO THE REQUIREMENTS OF THE SOILS REPORT.

8. COMPACTION TEST REPORTS FOR FILL BY A QUALIFIED TESTING LAB SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER, GEOTECHNICAL ENGINEER AND BUILDING OFFICIAL PRIOR TO REQUESTING FOUNDATION INSPECTION.

9. FOOTING DEPTHS INDICATED ON THE STRUCTURAL DRAWINGS ARE BELIEVED TO BE IN SUITABLE BEARING MATERIALS AND ARE INDICATED FOR COST ESTIMATING PURPOSES ONLY. THE GEOTECHNICAL ENGINEER MAY REQUIRE FOUNDATION DEPTHS TO BE INCREASED. THE RESPONSIBILITY FOR CONFORMING TO THE GEOTECHNICAL REPORT RECOMMENDATIONS REGARDING DEPTH OF FOOTINGS SHALL BEAR ON THE CONTRACTOR.

10. FOOTING ELEVATIONS SHALL BE LOCATED SUCH THAT THEIR BEARING IS A MINIMUM HORIZONTAL DISTANCE OF 7'-0" FROM THE DAYLIGHT OF AN ADJACENT SLOPE OR AS RECOMMENDED WITHIN THE GEOTECHNICAL REPORT.

11. ANCHOR BOLTS, DOWELS AND HOLD-DOWN ANCHORS SHALL BE TIED IN PLACE PRIOR TO FOUNDATION INSPECTION.

12. WALLS RETAINING EARTH SHALL BE DRAINED AND BACKFILLED ACCORDING TO THE RECOMMENDATIONS WITHIN THE GEOTECHNICAL REPORT.

13. BACKFILLING BEHIND RETAINING WALLS SHALL NOT BEGIN UNTIL WALLS HAVE BEEN CURED FOR A MINIMUM OF 14 DAYS.

14. SHORING SHALL BE INSTALLED AT THE TOP OF RESTRAINED RETAINING WALLS PRIOR TO BACKFILLING. SHORING SHALL REMAIN IN PLACE UNTIL THE PERMANENT STRUCTURAL SUPPORTING MEMBERS ARE IN PLACE. FOR CONCRETE SUPPORTING MEMBERS, SHORING TO REMAIN IN PLACE FOR A MINIMUM OF 7 DAYS AFTER CONCRETE PLACEMENT.

15. SLABS ON GRADE THAT RESTRAIN THE BOTTOM OF RETAINING WALLS SHALL BE IN PLACE PRIOR TO BACKFILLING OF THE WALLS.

I. SOIL ANCHORS (FOUNDATION TIE-DOWNS), DESIGN-BUILD:

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

2. TESTING OF ANCHORS SHALL BE CARRIED OUT AS DIRECTED BY THE ENGINEER RESPONSIBLE FOR THE ANCHOR DESIGN.

3. DESIGN SOIL ANCHORS SHALL PROVIDE FOR THE UPLIFT RESTRAINT NOTED AND COMPLY WITH THE CONTRACT DOCUMENTS AND THE BUILDING CODE.

4. ANCHORS SHALL BE "DYWIDAG" THREADED ROD (150ksi), APPROVED STRAND ANCHORS OR EQUIVALENT. ALL ANCHORS SHALL BE DOUBLE CORROSION PROTECTED.

5. SHOP DRAWINGS SHALL INDICATE ANCHOR TYPE, SPACING, SIZE, ULTIMATE CAPACITY, WORKING CAPACITY, PROOF LOAD, LOCK-OFF LOAD, LENGTH, ORIENTATION, CORROSION PROTECTION, ANCHORAGE REQUIREMENTS AT THE STRUCTURE, PROTECTION OF STRESSING END, SETTING PLATE, NUT AND GROUT UNDER PLATES. PROVIDE DESIGN CRITERIA FOR THE BOND AND STRESSING LENGTHS.

6. STRUCTURAL DRAWINGS SHOW THE REQUIRED ANCHOR FORCE AND LOCATION ONLY. ANCHOR EMBEDMENT SHALL BE DESIGNED TO PROVIDE FOR THE ULTIMATE CAPACITY OF THE ANCHOR BAR/STRAND. PROOF LOAD SHALL BE AS REQUIRED FOR ANCHOR DESIGN, MINIMUM 80% OF ULTIMATE ANCHOR CAPACITY (0.8xFpu) OR 94% OF YIELD (0.94xFy). LOCK-OFF "TRANSFER LOAD SHALL BE 10% OF ULTIMATE UNLESS NOTED OTHERWISE.

7. SEE STRUCTURAL DRAWINGS FOR THE MINIMUM DESIGN FORCE AND REQUIRED LOCATION OF THE SOIL ANCHORS. FORCES ARE DERIVED FROM THE FACTOR LOADS AND REPRESENT THE VERTICAL COMPONENT OF REQUIRED ANCHOR CAPACITIES. FOR SPLAYED ANCHORS, INCREASE THE ANCHOR DESIGN FORCE FOR THE FORCE COMPONENTS.

8. ANCHOR DESIGN SHALL CONSIDER ANCHOR/SOIL INTERACTION AND GROUP EFFECTS OF CLOSELY SPACED ANCHORS.

9. ALL ANCHORS SHALL BE INSTALLED AND TESTED AS REQUIRED BY THE ANCHOR DESIGN ENGINEER. PRIOR TO SUBSTANTIAL COMPLETION THE ANCHOR DESIGN ENGINEER SHALL PROVIDE A LETTER OF ASSURANCE INDICATING THE DESIGN AND CONSTRUCTION OF THE ANCHORS MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

J. WELDING:

1. WELDING OF STRUCTURAL STEEL SHALL BE PERFORMED BY CERTIFIED WELDERS IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN WELDING SOCIETY (AWS) D1.1. ELECTRODE FILLER MATERIAL SHALL BE A MINIMUM OF E70XX U.O.N

2. WELDING OF COLD-FORMED STEEL DECK AND COLD-FORMED FRAMING SHALL BE PERFORMED BY WELDERS CERTIFIED FOR SHEET STEEL IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN WELDING SOCIETY (AWS) D1.3. E60XX ELECTRODES SHALL BE USED FOR WELDING OF COLD-FORMED STEEL DECK AND COLD-FORMED FRAMING.

3. WELDING OF REINFORCING BARS SHALL BE PERFORMED BY WELDERS CERTIFIED FOR REINFORCING BARS IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN WELDING SOCIETY (AWS) D1.4. E90XX ELECTRODES SHALL BE USED FOR WELDING OF REINFORCING BAR TO REINFORCING BAR. E70XX ELECTRODES SHALL BE USED FOR WELDING OF REINFORCING BAR TO ROLLED STEEL SHAPES AND PLATES.

4. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

5. WELDING ELECTRODE FOR THE SHIELDED METAL-ARC WELDING (S.M.A.W.) PROCESS AND WELDING ELECTRODE SHALL CONFORM TO AWS A5.1 "SPECIFICATION FOR CARBON STEEL ELECTRODES FOR SHIELDED METAL ARC WELDING."

6. WELDS SHALL HAVE A WELD CONTROLLED SEQUENCE AND TECHNIQUE IN ORDER TO MINIMIZE SHRINKAGE STRESSES AND DISTORTION.

K. REINFORCING STEEL:

1. DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS SHALL BE PREFORMED IN ACCORDANCE WITH ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."

2. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

3. REINFORCING BARS SHALL CONFORM TO ASTM A 615, GRADE 60, U.O.N.

4. LONGITUDINAL REINFORCING BARS FOR COLUMNS AND IN SHEAR WALL BOUNDARY ZONES SHALL CONFORM TO ASTM A 706, GRADE 60. BARS CONFORMING TO ASTM A 615, GRADE 60 MAY BE SUBSTITUTED AT THESE LOCATIONS PROVIDED THE FOLLOWING CONDITIONS ARE MET (BASED ON MILL TESTS):
   A. THE ACTUAL YIELD STRENGTH DOES NOT EXCEED THE SPECIFIED YIELD STRENGTH BY MORE THAN 18,000 psi.
   B. THE RATIO OF THE ACTUAL TENSILE STRENGTH TO ACTUAL YIELD STRENGTH IS NOT LESS THAN 1.25.

5. WELDED REINFORCING BARS SHALL CONFORM TO ASTM A 706, GRADE 60. BARS TO BE WELDED CONFORMING TO ASTM A 615, GRADE 60 MAY BE SUBSTITUTED PROVIDED THAT THE WELDING OF BARS COMPLIES WITH AWS D1.4 AND THE MINIMUM SPECIFICATIONS FOR WELDING OF REINFORCING STEEL INCLUDED HEREIN.

6. WELDED REINFORCEMENT GRIDS SHALL BE BAUGRID (ICC #ESR-2352). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.

7. REINFORCING BAR LAP SPLICES SHALL BE:
   CLASS B. (18" MIN.) FOR CONCRETE, U.O.N.
   65 BAR DIA. (24" MIN.) FOR MASONRY, U.O.N. .

8. DETAILS OF REINFORCEMENT SHALL COMPLY WITH ACI 318, CHAPTER 7.

9. WHERE HOOKS ARE ILLUSTRATED AS 90-DEGREE OR 135 DEGREE HOOKS, 180-DEGREE HOOKS MAY BE USED IN LIEU OF 90-DEGREE HOOKS.

10. WHERE CONVENTIONAL STIRRUPS, TIES, HOOPS OR CROSS-TIES ARE ILLUSTRATED, MACHINE-PREASSEMBLED, RESISTANCE-WELDED TRANSVERSE REINFORCEMENT MAY BE SUBSTITUTED, PROVIDED THAT:
    A. THE RESULTING CONFIGURATION PROVIDES FOR PROPER CONSOLIDATION OF CONCRETE.
    B. ASTM A 706 REINFORCING IS USED FOR TRANSVERSE REINFORCING, AND
    C. ¼ INCH ASSEMBLY WIRES ARE USED, CONFORMING TO ASTM A36.

11. IN AREAS OF CONFINED CONCRETE, SUCH AS COLUMN CORES AND SHEAR WALL BOUNDARY ZONES, BAR TERMINATORS OR HEADED REINFORCING BARS MAY BE SUBSTITUTED FOR HOOKS AT LONGITUDINAL REINFORCING OF BEAMS GIRDERS OR COLUMNS (INCLUDING MOMENT FRAME MEMBERS) OR AT HORIZONTAL REINFORCING IN WALLS. THE BAR TERMINATOR SHALL OCCUR WITHIN THE CONFINED CONCRETE CORE IN THE SAME POSITION AS THE REQUIRED HOOK.

12. REINFORCING BAR LAP SPLICES SHALL NOT BE PERMITTED IN SHEAR WALLS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER IN WRITING.

13. REINFORCING BARS FOR CONCRETE SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM COVER UNLESS OTHERWISE NOTED:

CONC. CAST AGAINST EARTH	3"
FORMED CONC. EXPOSED TO EARTH / WEATHER	
#5 OR SMALLER	1-1/2"
#6 OR LARGER	2"
SLABS (#11 AND SMALLER)	1"
BEAMS & GIRDERS	1-1/2"
C.I.P. WALLS	1-1/2"
COLUMN TIES	1-1/2"

14. VERTICAL WALL BARS SHALL BE ACCURATELY POSITIONED AT THE CENTER OF THE WALL, U.O.N., AND SHALL BE TIED IN PLACE AT THE TOP AND BOTTOM.

15. #3 SPACER TIES SHALL BE INSTALLED AT 30" ON CENTER IN BEAMS AND FOOTINGS TO SECURE REINFORCING BARS IN PLACE, U.O.N.

16. REINFORCEMENT SUPPORTS IN SLABS SHALL BE MANUFACTURED OF NONCORROSIVE MATERIAL

17. TYPE 1 AND TYPE 2 INTERNALLY-THREADED REINFORCING COUPLERS SHALL BE LENTON COUPLERS (IAPMO #ER-0129). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.

18. TYPE 1 AND TYPE 2 HEADED END REINFORCING COUPLERS SHALL BE HEADED REINFORCEMENT HRC 500/510 COUPLERS (ICC #ESR-2764). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.

19. TYPE 1 AND TYPE 2 SLEEVE COUPLERS WITH LOCK BOLTS. SHALL BE BAR LOCK COUPLERS (ICC #ESR-2495). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.

20. INTERNALLY-THREADED BAR TERMINATORS SHALL BE LENTON TERMINATORS (IAPMO #ER-0188). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.

21. HEADED REINFORCING BAR TERMINATIONS SHALL BE HEADED REINFORCEMENT HRC 555 HEADS, FORMED FROM REINFORCING CONFORMING TO ASTM A 706 (ICC #ESR-2935). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.

22. AN ALLOWANCE OF 5,000 POUNDS OF REINFORCEMENT SHALL BE PROVIDED FOR PLACEMENT IN STRUCTURAL SLABS AS DIRECTED BY THE ENGINEER DURING FIELD OBSERVATION.

L. MINIMUM SPECIFICATIONS FOR WELDING OF REINFORCING STEEL:

1. PRIOR TO WELDING, THE CHEMICAL ANALYSIS AND THE CARBON EQUIVALENT OF STEEL (C.E.) SHALL BE DETERMINED. THE CARBON EQUIVALENT OF REINFORCING STEEL OR SPLICE MATERIAL SHALL BE CALCULATED FROM ITS CHEMICAL COMPOSITION AND SHALL BE LESS THAN 0.55.

2. MILL REPORTS STATING THE CHEMICAL COMPOSITION AND THE CARBON EQUIVALENT DETERMINED BY HEAT ANALYSIS BY THE MANUFACTURER SHALL BE FURNISHED FOR REVIEW BY THE REGISTERED SPECIAL INSPECTOR. STEEL DELIVERED TO THE JOB SITE SHALL BE CLEARLY IDENTIFIED SO AGREEMENT WITH THE HEAT NUMBER(S) OF THE MILL REPORT(S) CAN BE VERIFIED.

3. JOINT WELDING PROCEDURES FOR REINFORCING BAR SPLICES, BAR CONNECTIONS, AND INSERT CONNECTIONS THAT ARE TO BE EMPLOYED SHALL BE ESTABLISHED IN A PROCEDURE SPECIFICATION AND SHALL BE QUALIFIED PRIOR TO USE BY TESTS AS PRESCRIBED IN AWS D1.4:
   A. WELDING PROCEDURES FOR FILLET WELDS WHICH CONFORM TO THE APPLICABLE PROVISIONS OF AWS D1.4 SHALL BE DEEMED AS PREQUALIFIED.
   B. THE BUILDING OFFICIAL MAY ACCEPT EVIDENCE OF PREVIOUS QUALIFICATION OF THE JOINT WELDING PROCEDURE.

4. PROCEDURE QUALIFICATION TESTS SHALL BE WITNESSED AND TESTED BY AN APPROVED TESTING AGENCY.

5. THE RESULTS OF THE PROCEDURE QUALIFICATION TESTS AND/OR THE PROCEDURE SPECIFICATION SHALL BE SUBMITTED TO AND APPROVED BY THE DESIGN ENGINEER AND THE BUILDING INSPECTION DEPARTMENT. APPROVED PROCEDURE SPECIFICATIONS SHALL BE AVAILABLE FOR REVIEW BY THE REGISTERED SPECIAL INSPECTOR AT THE SITE WHERE WELDING IS PERFORMED.

M. HEADED SHEAR STUD REINFORCEMENT ASSEMBLIES:

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

2. HEADED SHEAR STUD REINFORCEMENT ASSEMBLIES SHALL BE DECON STUDRAILS (ICC #ESR-2494). ALTERNATE PRODUCTS CONFORMING TO ASTM A 1044 SHALL CARRY AN EVALUATION APPROVAL AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO FABRICATION OR DELIVERY TO THE JOBSITE.

3. HEADED SHEAR STUD REINFORCEMENT ASSEMBLIES SHALL BE SECURED IN PLACE BY NAILING TO THE FORMWORK THROUGH PREFORMED HOLES IN THE STRIP.

4. CONCRETE COVER AND CLEARANCES SHALL BE MAINTAINED FOR HEADED SHEAR STUD REINFORCEMENT ASSEMBLIES AS REQUIRED FOR CONVENTIONAL BAR REINFORCEMENT.

N. REINFORCED CONCRETE - GENERAL:

1. CONCRETE CONSTRUCTION SHALL CONFORM WITH CHAPTER 19 OF THE BUILDING CODE AND TO THE PROVISIONS OF ACI 318.

2. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.

3. WATER MAY BE ADDED TO CONCRETE ON-SITE TO OBTAIN SPECIFIED SLUMPS PROVIDED THAT IT IS ADDED WITHIN ONE HOUR OF BATCHING AND SITE-ADDED WATER IS SPECIFIED ON THE BATCH REPORT. SITE-ADDED WATER SHALL NOT COMPROMISE THE STRENGTH OR SLUMP OF THE CONCRETE.

4. CONCRETE SHALL NOT BE PLACED BEYOND 1-1/2 HOURS FOLLOWING BATCHING.

5. PROJECTING CORNERS OF SLABS, BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH A 3/4" CHAMFER U.O.N.

6. CONSTRUCTION OR CONTROL JOINTS SHALL BE PROVIDED AS INDICATED. THE LOCATIONS OF JOINTS NOT SPECIFICALLY INDICATED SHALL BE REVIEWED BY THE ENGINEER AND APPROVED BY THE ARCHITECT. JOINTS SHALL ALIGN WITH RE-ENTRANT CORNERS OF THE SLAB OR TOPPING.

7. CONSTRUCTION JOINTS IN STRUCTURAL MEMBERS THAT ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. LONGITUDINAL REINFORCEMENT SHALL CONTINUE UNINTERRUPTED THROUGH CONSTRUCTION JOINTS. KEYWAYS SHALL BE PROVIDED PERPENDICULAR TO THE DIRECTION OF LOAD IN CONSTRUCTION JOINTS.

8. WHERE THE SPECIFIED COLUMN CONCRETE STRENGTH EXCEEDS THAT OF THE SPECIFIED CONCRETE STRENGTH OF THE SURROUNDING SLAB, CONCRETE OF SAME STRENGTH AS THE COLUMN SHALL BE PLACED IN THE SLAB WITHIN 24 INCHES OF THE COLUMN. SURROUNDING SLAB CONCRETE SHALL BE PLACED WHILE THE COLUMN-STRENGTH CONCRETE IS PLASTIC AND THE TWO CONCRETES SHALL BE INTEGRATED BY VIBRATION AT THE INTERFACE.

9. WHERE CONCRETE IS PLACED AGAINST EXISTING CONCRETE SURFACES, THE EXISTING CONCRETE SURFACES SHALL BE THOROUGHLY CLEANED AND ROUGHENED TO A MINIMUM AMPLITUDE OF ¼-INCH. A CONCRETE BONDING AGENT SHALL BE APPLIED TO THE EXISTING CONCRETE SURFACE.

10. PENETRATIONS THRU ELEVATED SLABS THAT ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS, NOT EXCEEDING 6 INCHES IN THEIR LARGEST DIMENSION, MAY BE INSTALLED IN ACCORDANCE WITH THE DETAILS ON THE STRUCTURAL DRAWINGS, PROVIDED THAT POST-TENSIONING TENDONS ARE NOT DISPLACED.

11. PENETRATIONS THRU ELEVATED SLABS THAT ARE NOT INDICATED ON THE STRUCTURAL DRAWINGS, LARGER THAN 6 INCHES BUT NOT EXCEEDING 18 INCHES IN THEIR LARGEST DIMENSION, MAY BE INSTALLED IN ACCORDANCE WITH THE DETAILS ON THE STRUCTURAL DRAWINGS, PROVIDED THAT:
    A. NO PART OF THE PENETRATION IS WITHIN 48" OF THE FACE OF ANY STRUCTURAL COLUMN OR WALL.
    B. NO PART OF THE PENETRATION IS WITHIN A PERIMETER DEFINED BY THE OUTERMOST EXTENTS OF ANY HEADED SHEAR STUD REINFORCEMENT ASSEMBLIES OR PRE-BENT STEEL STRIP REINFORCEMENT.
    C. POST-TENSIONING TENDONS ARE NOT DISPLACED.
    D. ANY DISPLACED MILD REINFORCEMENT IS SPREAD EQUALLY ON EACH SIDE OF THE PENETRATION WITH THE SAME NUMBER OF BARS, PLUS ONE.

12. CONDUIT, PIPES OR DUCTS SHALL NOT BE PLACED IN CONCRETE COLUMNS, WALLS, SLABS OR CONCRETE TOPPING FILLS UNLESS SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER. SLEEVES FOR OPENINGS IN CONCRETE SHALL BE INSTALLED BEFORE PLACING. REINFORCING WHICH MAY CONFLICT SHALL NOT BE CUT UNLESS APPROVED IN WRITING BY THE ENGINEER.

13. WHERE PERMITTED, CONDUITS AND SLEEVES WITHIN SLABS AND WALLS SHALL BE PLACED WITHIN THE MIDDLE THIRD OF THE THICKNESS OF THE SLAB OR WALL. THE MAXIMUM SIZE OF A CONDUIT IS 1/4 OF THE SLAB OR WALL THICKNESS. CONDUITS OR SLEEVES SHALL BE SPACED AT LEAST 3 TIMES THEIR DIAMETER CLEAR BETWEEN.

14. STAY-IN-PLACE FORMS SHALL HAVE MATERIAL STRENGTH AND STIFFNESS PROPERTIES SUFFICIENT FOR THE SUPPORT OF WET CONCRETE DURING CURING.

15. SURFACE PROFILE TOLERANCES OF FLOORS SHALL BE MEASURED, PRIOR TO APPLICATION OF POST-TENSIONING LOADS OR REMOVAL OF SHORING, IN ACCORDANCE WITH ASTM E 1155. IN NO CASE SHALL MEASUREMENTS OCCUR LATER THAN 72 HOURS AFTER CONCRETE FINISHING. FLOORS SHALL CONFORM TO THE FOLLOWING TOLERANCES:

F-NUMBER	SPECIFIED OVERALL VALUE	MINIMUM LOCAL VALUE
FLATNESS	SOF_F = [25] [35]	MLF_F = [15] [21]
LEVELNESS	SOF_L = [20] [25]	MLF_L = [12] [15]

16. THE SPECIFIED FLATNESS AND LEVELNESS VALUES ARE CONSISTENT WITH A ['MODERATELY FLAT'] ['FLAT'] CLASSIFICATION IN ACCORDANCE WITH ACI 117. IN FLOOR AREAS WHERE OCCUPANT PERCEPTION OR THE APPLICATION OF FINISHES DICTATES MORE STRINGENT PROFILES, A FLOOR-LEVELING AGENT MAY BE APPLIED (AVERAGE ALLOWABLE THICKNESS = ¾ INCH; MAXIMUM ALLOWABLE LOCAL THICKNESS = 1½ INCHES)

17. FORMWORK FOR COLUMNS SHALL NOT BE REMOVED UNTIL THE COLUMN CONCRETE HAS REACHED A MINIMUM STRENGTH OF 1500 PSI.

18. FORMWORK FOR SLABS SHALL NOT BE REMOVED UNTIL SLAB CONCRETE HAS REACHED A MINIMUM OF 75% OF THE SPECIFIED STRENGTH. SLABS SHALL BE RESHORED IMMEDIATELY AFTER FORMWORK REMOVAL UNTIL CONCRETE HAS REACHED DESIGN STRENGTH AND RE-SHORES ARE NO LONGER REQUIRED TO CARRY CONSTRUCTION LOADS ABOVE. THE SHORING REMOVAL AND RESHORING PROCEDURE SHALL BE DESIGNED. IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 347.2R. ALTERNATE DESIGN PROCEDURES SHALL DEMONSTRATE A MINIMUM HISTORY OF 10 YEARS OF SUCCESSFUL USE AND SHALL BE APPROVED FOR USE BY THE ENGINEER IN WRITING PRIOR TO SUBMITTAL.

19. CONCRETE COLUMNS SHALL ACHIEVE A MINIMUM OF 75 PERCENT OF THE DESIGN STRENGTH INDICATED PRIOR TO POURING ELEVATED CONCRETE SLABS.

20. CONCRETE SHALL BE MAINTAINED IN A MOIST CONDITION FOR A MINIMUM OF 7 DAYS AFTER ITS PLACEMENT. APPROVED CURING COMPOUNDS MAY BE USED IN LIEU OF MOIST CURING. [CURING MAY BE OMITTED AT VERTICAL SURFACES OF CAST-IN-PLACE COLUMNS IN PARKING STRUCTURES.]

O. CONCRETE MIX REQUIREMENTS:

1. READY MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C 94.

2. CEMENT SHALL CONFORM TO ASTM C 150 TYPE I OR II, LOW ALKALI.

3. FLYASH SHALL CONFORM TO ASTM C 618, CLASS F. FLYASH SHALL BE LIMITED TO NO MORE THAN THE FOLLOWING PERCENTAGES OF THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS IN THE CONCRETE, U.O.N.

SUSPENDED SLABS, BEAMS AND GIRDERS	15%
COLUMNS AND WALLS	20%
FOUNDATIONS	20%
THICK WALLS (EXCEEDING 3ft THICK)	25%-35%
SLABS ON GRADE	20%

4. CEMENT FOR SHRINKAGE-COMPENSATING CONCRETE SHALL CONFORM TO ASTM C 845.

5. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C 33.

6. NORMAL WEIGHT CONCRETE SHALL HAVE A MAXIMUM DRY DENSITY OF 150 pcf.

7. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE ENGINEER. MIX DESIGN METHODS (TEST HISTORY OR TRIAL BATCH METHOD) IN ACCORDANCE WITH ACI 318, SECTION 5.3 SHALL BE USED TO PROPORTION CONCRETE.

8. MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS, MAXIMUM SLUMPS, AND MAXIMUM WATER/CEMENT RATIOS SHALL BE AS FOLLOWS:

DESCRIPTION	MIN 28 DAY f'c	SLUMP	MAX.W/C RATIO
MAT FOUNDATION	4.0 KSI	4" +/- 1"	0.52
BASEMENT WALLS	5.0 KSI	4" +/- 1"	0.52
SHALLOW FOUNDATIONS	4.0 KSI	4" +/- 1"	0.64
SLAB ON GRADE	3.5 KSI	4" +/- 1"	0.45
CONC. COLUMNS	5.0 KSI	4" +/- 1"	0.45
ELEVATED SLABS AND BEAMS	5.0 KSI	4" +/- 1"	0.45
SHEAR WALLS	5.0 KSI	4" +/- 1"	0.52
OTHER CONCRETE	3.5 KSI	4" +/- 1"	0.50

9. ADMIXTURES SHALL BE APPROVED IN ADVANCE. ADMIXTURES CONTAINING CHLORIDE OR CHLORIDE SALTS SHALL NOT BE USED EXCEPT WHERE APPROVED IN WRITING BY THE ENGINEER. ADMIXTURES CONTAINING CHLORIDE OR CHLORIDE SALTS SHALL NOT BE USED IN POST-TENSIONED CONCRETE.

10. SLUMPS INDICATED ARE PRIOR TO PLASTICIZER ADDITIVES.

11. CONCRETE IN AREAS OF SHEARWALLS, COLUMNS, BEAMS OR SLABS WHERE REBAR IS CONGESTED OR DUCTS CREATE PLACING DIFFICULTIES, SHALL BE SELF CONSOLIDATING CONCRETE (SCC) OR SHALL INCLUDE A PLASTICIZER ADMIXTURE AND/OR SMALLER MAXIMUM AGGREGATE SIZE, WITH APPROPRIATE AIR AND CEMENT CONTENT ADJUSTMENTS.

12. DRYING SHRINKAGE OF CONCRETE IN ELEVATED SLABS, BEAMS, GIRDERS, STRUCTURAL WALLS AND COLUMNS SHALL BE LIMITED TO 0.05 PERCENT AS VERIFIED BY TEST IN ACCORDANCE WITH ASTM C 157. THE PROCEDURES OF ASTM C 157 SHALL BE MODIFIED AS FOLLOWS (BASED ON SEAOC SUPPLEMENTARY RECOMMENDATIONS):
    A. THE CURING PERIOD SHALL BE 7 DAYS.
    B. FOLLOWING CURING, SPECIMENS SHALL BE AIR-STORED.
    C. COMPARATIVE MEASUREMENTS OF SPECIMENS SHALL BE MADE AFTER 4, 7, 14, 21 AND 28 DAYS OF AIR-STORAGE.

13. CONCRETE FOR ELEVATED SLABS EXPOSED TO DIRECT RAINFALL SHALL CONTAIN FIBROUS FIBRILLATED POLYPROPYLENE REINFORCEMENT. FIBROUS FIBRILLATED POLYPROPYLENE CONCRETE REINFORCEMENT SHALL BE MANUFACTURED BY W.R. GRACE OR FIBERMESH COMPANY. ALTERNATE PRODUCTS SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO SUBMISSION OF THE MIX DESIGN. THE VOLUME PER CUBIC YARD SHALL BE A MINIMUM OF 0.1% (1.5 POUNDS), FIBERS SHALL BE DISPERSED UNIFORMLY THROUGHOUT THE CONCRETE IN ACCORDANCE WITH ASTM C 1116.

P. CONCRETE SLAB-ON-GRADE:

1. CONSTRUCTION OR CONTROL JOINTS IN SLABS ON GRADE SHALL BE PROVIDED AS INDICATED. THE LOCATIONS OF JOINTS NOT SPECIFICALLY INDICATED SHALL BE REVIEWED BY THE ENGINEER AND APPROVED BY THE ARCHITECT. JOINTS SHALL ALIGN WITH RE-ENTRANT CORNERS OF THE SLAB.

2. THE CONCRETE SLAB-ON-GRADE THICKNESS SHOWN IS THE MINIMUM REQUIRED THICKNESS. FLOORS SHALL BE MONITORED BY TRANSIT LEVEL OR LASER DURING PLACEMENT TO MAINTAIN LEVEL FLOOR.

3. SURFACE PROFILE TOLERANCES OF SLABS-ON-GRADE SHALL BE MEASURED, PRIOR TO APPLICATION OF POST-TENSIONING LOADS OR REMOVAL OF SHORING, IN ACCORDANCE WITH ASTM E 1155. IN NO CASE SHALL MEASUREMENTS OCCUR LATER THAN 72 HOURS AFTER CONCRETE FINISHING. FLOORS SHALL CONFORM TO THE FOLLOWING TOLERANCES:

F-NUMBER	SPECIFIED OVERALL VALUE	MINIMUM LOCAL VALUE
FLATNESS	SOF_F = [25] [35] [45]	MLF_F = [15] [21] [27]
LEVELNESS	SOF_L = [20] [25] [35]	MLF_L = [12] [15] [21]

4. THE SPECIFIED FLATNESS AND LEVELNESS VALUES ARE CONSISTENT WITH A ['MODERATELY FLAT'] ['FLAT'] ['VERY FLAT'] CLASSIFICATION IN ACCORDANCE WITH ACI 117. IN FLOOR AREAS WHERE OCCUPANT PERCEPTION OR THE APPLICATION OF FINISHES DICTATES MORE STRINGENT PROFILES, A FLOOR-LEVELING AGENT MAY BE APPLIED (AVERAGE ALLOWABLE THICKNESS = ¾ INCH; MAXIMUM ALLOWABLE LOCAL THICKNESS = 1½ INCHES)

Q. POST-TENSIONED CONCRETE:

1. THE MANUFACTURE, HANDLING AND PLACING OF SINGLE STRAND UNBONDED POST-TENSIONING TENDONS SHALL CONFORM WITH THE POST-TENSIONING INSTITUTE SPECIFICATIONS FOR UNBONDED SINGLE STRAND TENDONS.

2. STRANDS SHALL CONFORM TO THE FOLLOWING:

SEVEN WIRE STRAND ASTM DESIGNATION	A 416
1/2" DIAM. TENDON AREA	0.153 SQ. IN.
ULTIMATE STRENGTH	270 KSI,
MAX. JACKING STRESS	216 KSI
MAX. ANCHORING STRESS	189 KSI
EFFECTIVE DESIGN STRESS: LOW RELAXATION	175 KSI

3. THE NUMBER OF TENDONS AND TENDON SPACINGS INDICATED ON THE STRUCTURAL DRAWINGS ARE BASED ON EFFECTIVE FORCE (Fe) OF NOT LESS THAN 26.8 KIPS PER TENDON AT ANY POINT IN THE TENDON LENGTH. WHERE CONSTRUCTION SEQUENCE AND/OR STRESSING LOCATIONS RESULT IN EFFECTIVE FORCES BELOW 26.8 KIPS PER TENDON, ADDITIONAL MATERIAL SHALL BE PROVIDED TO PRODUCE THE MINIMUM INTENDED TOTAL FORCE.

4. ANCHORAGES, COUPLERS, AND OTHER POST-TENSIONING HARDWARE SHALL COMPLY WITH ICC #ESR-2381.

5. CONSTRUCTION JOINTS ARE NOT PERMITTED IN POST-TENSIONED SLABS EXCEPT WHERE SPECIFICALLY INDICATED ON THE STRUCTURAL DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER.

6. POST-TENSIONED SLABS AND BEAMS SHALL NOT BE CAMBERED UNLESS INDICATED ON THE DRAWINGS.

7. POCKETS OR BLOCKOUTS REQUIRED FOR ANCHORAGE SHALL BE ADEQUATELY REINFORCED SUCH THAT THEY DO NOT DECREASE THE STRENGTH OF THE STRUCTURE. POCKETS SHALL BE WATERPROOFED SUCH THAT THEY ELIMINATE WATER LEAKAGE THROUGH OR INTO THE POCKET.

8. MINIMUM CONCRETE COVER FOR TENDONS IN POST-TENSIONED CONCRETE SHALL BE AS FOLLOWS:

	MINIMUM COVER	TOLERANCE
SLABS (INTERIOR SPANS)	3/4"	+ 1/8", - 0"
SLABS (END SPANS AND SUPPORTS)	1 1/2"	+ 1/8", - 0"
BEAMS	2"	+ 3/8", - 0"

9. TENDON PROFILES SHALL CONFORM TO CONTROL POINTS INDICATED ON THE STRUCTURAL DRAWINGS AND SHALL BE IN A PARABOLIC DRAPE BETWEEN SUPPORTS, U.O.N. HARPED TENDONS SHALL BE STRAIGHT BETWEEN THE CONTROL POINTS INDICATED.

10. LIVE END ANCHORS SHALL BE PLACED WITH 1/8" TOLERANCE. DEAD END ANCHORS SHALL BE PLACED WITH 1/8" TOLERANCE VERTICALLY AND 2" TOLERANCE HORIZONTALLY EXCEPT NEXT TO SLAB EDGES WHERE SPECIFIED COVER SHALL BE MAINTAINED.

11. TWISTING OR ENTWINING OF INDIVIDUAL WIRES OR TENDONS WITHIN A BUNDLE OR BEAM SHALL NOT BE PERMITTED.

12. THE POSITION OF THE POST-TENSIONING TENDONS SHALL TAKE PRIORITY IN PLACING OVER ANY OTHER EMBEDDED MATERIAL INCLUDING MILD REINFORCING, DUCTS, CONDUITS, ETC. WHERE SLEEVES ARE REQUIRED FOR MECHANICAL, CONFIRM LOCATIONS WITH THE ENGINEER PRIOR TO PLACING.

13. SLIGHT DEVIATIONS IN THE SPACING OF SLAB TENDONS MAY BE PERMITTED WHEN REQUIRED TO AVOID SLAB OPENINGS, INSERTS, AND DOWELS, WHICH ARE SPECIFICALLY LOCATED. WHERE LOCATIONS OF TENDONS INTERFERE WITH EACH OTHER, ONE TENDON MAY BE MOVED HORIZONTALLY IN ORDER TO AVOID THE INTERFERENCE.

14. THE POSITIONS OF SLAB TENDONS SHALL BE PERMANENTLY IDENTIFIED ON SLAB SOFFITS ALONG EACH LOW POINT IN THE TENDON DRAPES.

15. A RECORD SHALL BE KEPT OF ANY VARIATIONS FROM THE SHOP DRAWINGS IN THE PLACEMENT OF POST-TENSIONING MATERIALS, BY ANNOTATING A COPY OF THE SHOP DRAWINGS. COPIES OF THIS RECORD SHALL BE SUBMITTED TO THE ENGINEER AND BUILDING OWNER AT THE END OF THE POST-TENSIONING OPERATIONS.

16. TENDONS SHALL BE SECURED TO A SUFFICIENT NUMBER OF POSITIONING DEVICES TO ENSURE CORRECT LOCATION AND DRAPE DURING AND AFTER THE PLACING OF CONCRETE, AND SHALL BE SUPPORTED AT A MAXIMUM OF 3 FEET 6 INCHES ON CENTER..

17. INSERTS AND SLEEVES SHALL BE CAST-IN-PLACE WHEREVER POSSIBLE. DRILLED AND POWER-DRIVEN FASTENERS WILL BE PERMITTED ONLY WHEN IT CAN BE SHOWN THAT THEY WILL NOT SPALL THE CONCRETE AND ARE LOCATED SUCH THAT THEY DO NOT CONFLICT WITH THE TENDONS AND ANCHORAGES.

18. WHERE CONCRETE IS PLACED BY THE PUMP METHOD, SUPPORTS SHALL BE PROVIDED FOR THE HOSE, SUCH THAT THE HOSE SHALL NOT BE ALLOWED TO BE SUPPORTED BY THE TENDONS.

19. MEASURES TO ASSURE COMPLETE CONSOLIDATION AND DENSIFICATION OF CONCRETE BEHIND POST-TENSIONING ANCHORAGES SHALL BE TAKEN. CARE SHALL BE TAKEN TO AVOID HONEYCOMB, ROCK POCKETS, VOIDS OR THE DISPLACEMENT OF REBAR, TENDONS OR ACCESSORIES.

20. AT THE TIME OF TRANSFER OF PRESTRESS FORCE, THE CONCRETE STRENGTH SHALL BE A MINIMUM OF f'c = 3,000 PSI AS CONFIRMED BY THE AVERAGE OF 3 COMPRESSION CYLINDER TESTS, WITH NO CYLINDER TEST FALLING BELOW f'c = 2,750 PSI.

21. UNIFORMLY DISTRIBUTED TENDONS SHALL BE STRESSED PRIOR TO BANDED TENDONS, AND SLAB TENDONS SHALL BE STRESSED PRIOR TO BEAM TENDONS. SHORING SHALL BE CAPABLE OF RESISTING LOADS TRANSFERRED BY STRESSING SEQUENCE.

22. THE PRESTRESSING FORCE SHALL BE CONFIRMED BY BOTH OF THE FOLLOWING METHODS:
    E. MEASUREMENT OF TENDON ELONGATION. THE REQUIRED ELONGATION SHALL BE DETERMINED FROM AVERAGE LOAD ELONGATION CURVES FOR THE BRAND OF PRESTRESSING TENDONS USED.
    F. OBSERVATION OF JACKING FORCE ON A CALIBRATED GAUGE OR LOAD CELL OR BY USE OF A CALIBRATED DYNAMOMETER
    THE CAUSE OF ANY DIFFERENCE IN FORCE DETERMINATION IN EXCESS OF 7 PERCENT BETWEEN METHOD A AND B ABOVE SHALL BE DETERMINED AND CORRECTED.

23. THE STRESSING JACK AND ATTENDANT GAUGE USED SHALL HAVE BEEN CALIBRATED WITHIN (30) DAYS OF ANY USE. CALIBRATION DOCUMENTS SHALL BE MAINTAINED AT THE JOBSITE.

24. TENDON ENDS SHALL NOT BE TRIMMED UNTIL THE ENTIRE SLAB OR BEAM HAS BEEN SATISFACTORILY STRESSED.

25. THE STRESSING END ANCHORS AND WEDGES SHALL BE SPRAY PAINTED WITH A RUST-INHIBITING PRIMER PRIOR TO GROUTING OF THE RECESSES.

26. NON-SHRINK HIGH BOND MORTAR SHALL BE USED TO FILL AND SEAL ANCHORAGE RECESSES.

27. FORMWORK FOR SLABS SHALL NOT BE REMOVED UNTIL AFTER TENDONS HAVE BEEN STRESSED. SLABS SHALL BE RE-SHORED IMMEDIATELY AFTER FORMWORK REMOVAL UNTIL CONCRETE HAS REACHED DESIGN STRENGTH AND RE-SHORES ARE NO LONGER REQUIRED TO CARRY CONSTRUCTION LOADS ABOVE. THE SHORING REMOVAL AND RESHORING PROCEDURE SHALL BE DESIGNED. IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 347.2R. ALTERNATE DESIGN PROCEDURES SHALL DEMONSTRATE A MINIMUM HISTORY OF 10 YEARS OF SUCCESSFUL USE AND SHALL BE APPROVED FOR USE BY THE ENGINEER IN WRITING PRIOR TO SUBMITTAL.

28. CONNECTIONS TO A POST-TENSIONED SLAB SHALL BE MADE WITH INSERTS EMBEDDED IN THE CONCRETE. DRIVEN ANCHORS OR DRILLED ANCHORS SHALL NOT BE USED IN THE POST-TENSIONED ELEMENTS EXCEPT AS SPECIFICALLY APPROVED IN WRITING BY THE ENGINEER.

29. ALTHOUGH REASONABLE CRACK MITIGATING MEASURES ARE SPECIFIED, VISIBLE SHORTENING CRACKS ARE LIKELY TO DEVELOP OVER TIME. SUCH CRACKS DO NOT IMPAIR STRUCTURAL INTEGRITY.

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ISSUES:
03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT

REGISTERED PROFESSIONAL ENGINEER · JAMES A. AMUNDSON · No. 3332 · Exp. 12-31-15 · STRUCTURAL · STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
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PLOT DATE: 03-06-15
TITLE: STRUCTURAL NOTES
DRAWING NO: S1.02

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STRUCTURAL NOTES

BB. GLAZED CURTAIN WALLS, DESIGN-BUILD:

1. CURTAIN WALLS SHALL BE DESIGN-BUILD EXCEPT WHERE SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. DESIGN-BUILD CURTAIN WALLS SHALL COMPLY WITH ANY DETAILS PROVIDED.
2. DESIGN OF CURTAIN WALLS, INCLUDING FRAMING MEMBERS AND CONNECTIONS (INCLUDING THOSE TO BUILDING STRUCTURE), SHALL PROVIDE FOR LATERAL RESTRAINT AND COMPLY WITH THE CONTRACT DOCUMENTS AND THE BUILDING CODE.
3. CALCULATIONS SHALL CLEARLY IDENTIFY LOADS IMPOSED ON THE BUILDING STRUCTURE.
4. CURTAIN WALL AND CLADDING SYSTEM DESIGN SHALL ALLOW FOR 1/2 INCH LIVE LOAD DEFLECTION OF FLOOR OR ROOF BEAMS WITHOUT ADVERSELY IMPACTING CURTAIN WALL, CLADDING ELEMENTS OR CONNECTIONS.
5. CURTAIN WALL WEIGHT SHALL NOT EXCEED 20 PSF.
6. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
7. VERTICAL AND HORIZONTAL DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS PRIOR TO FABRICATION. THE ARCHITECT SHALL BE NOTIFIED OF ANY FIELD CONDITIONS NOT COVERED BY THE CONTRACT DOCUMENTS PRIOR TO FABRICATION.
8. CONNECTIONS TO THE STRUCTURE SHALL INCLUDE STABILIZING ELEMENTS SUCH AS BRACES, STIFFENER PLATES, ETC., SO AS TO NOT IMPOSE ECCENTRIC LOADING, TWISTING, OR WARPING TO STRUCTURAL MEMBERS. PROVIDE MATERIAL AND INSTALL STABILIZING ELEMENTS. NECESSARY STABILIZING ELEMENTS SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

CC. SHEAR CONNECTORS (WELDED STUDS):

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
2. SHEAR CONNECTORS SHALL COMPLY WITH ICC #ESR-2856, NELSON SHEAR CONNECTOR STUDS, OR EQUAL. SHEAR CONNECTORS SHALL BE MADE FROM COLD ROLLED STEEL CONFORMING TO ASTM A 108, GRADES 1015-1020 WITH A MINIMUM TENSILE STRENGTH 60,000 psi. STUD WELDING INSPECTING AND TESTING SHALL CONFORM TO AWS D1.1.
3. STUDS SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE END OF THE STUD AND THE PLATE. THERE SHOULD BE NO POROSITY OR EVIDENCE OF LACK OF FUSION BETWEEN THE WELDED END OF THE STUD AND THE PLATE. THE STUD SHALL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 5/8" DIAMETER AND UNDER, AND 3/16" FOR OVER 5/8" DIAMETER. WELDING SHALL BE DONE ONLY BY QUALIFIED WELDERS APPROVED BY THE WELDING INSPECTOR.

Y. POST-INSTALLED SCREW ANCHORS:

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
2. SCREW ANCHORS FOR INSTALLATION IN SOLID NORMAL-WEIGHT OR LIGHT-WEIGHT CONCRETE SHALL BE SIMPSON TITEN HD (ICC #ESR-2713). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC193 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
3. SCREW ANCHORS FOR INSTALLATION IN NORMAL-WEIGHT OR LIGHT-WEIGHT CONCRETE FILL OVER COLD-FORMED STEEL DECK SHALL BE SIMPSON TITEN HD (ICC #ESR-2713). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC193 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
4. SCREW ANCHORS FOR OVERHEAD INSTALLATION THRU COLD-FORMED STEEL DECK, INTO NORMAL-WEIGHT OR LIGHT-WEIGHT CONCRETE FILL SHALL BE SIMPSON TITEN HD (ICC #ESR-2713). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC193 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
5. ANCHORS SHALL BE OF THE TYPE, DIAMETER, AND MINIMUM DIMENSIONAL REQUIREMENTS (EMBEDMENT, SPACING AND EDGE DISTANCE) AS INDICATED ON THE DRAWINGS.
6. ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH DRILLING EQUIPMENT OF THE TYPE REQUIRED IN THE MANUFACTURER'S PUBLISHED EVALUATION REPORT. HOLES SHALL BE CLEANED IN CONFORMANCE WITH THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
7. WHEN INSTALLING ANCHORS IN EXISTING REINFORCED CONCRETE OR MASONRY, AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS.
8. WHEN INSTALLING ANCHORS INTO PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. AVOID CUTTING OR DAMAGING THE TENDONS.

Z. POST-INSTALLED ADHESIVE ANCHORS:

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
2. ADHESIVE ANCHOR INSTALLERS SHALL BE TRAINED BY A QUALIFIED REPRESENTATIVE OF THE ADHESIVE MANUFACTURER ON THE PROPER PROCEDURES AND TECHNIQUES FOR INSTALLATION.
3. ADHESIVE SHALL BE STORED ON THE JOBSITE IN A COOL, DRY LOCATION IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS.
4. ADHESIVE ANCHORS FOR INSTALLATION IN SOLID NORMAL-WEIGHT CONCRETE SHALL BE HILTI HIT RE500-SD (ICC #ESR-2322). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC308 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
5. ADHESIVE ANCHORS FOR INSTALLATION IN NORMAL-WEIGHT CONCRETE FILL OVER COLD-FORMED STEEL DECK SHALL BE(HILTI HIT RE500-SD (ICC #ESR-2322). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC308 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
6. ADHESIVE ANCHORS SHALL NOT BE USED FOR OVERHEAD INSTALLATION THRU COLD-FORMED STEEL DECK, INTO CONCRETE FILL.
7. ANCHORS SHALL BE OF THE TYPE, DIAMETER, AND MINIMUM DIMENSIONAL REQUIREMENTS (EMBEDMENT, SPACING AND EDGE DISTANCE) AS INDICATED ON THE DRAWINGS.
8. ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH DRILLING EQUIPMENT OF THE TYPE REQUIRED IN THE MANUFACTURER'S PUBLISHED EVALUATION REPORT. HOLES SHALL BE CLEANED IN CONFORMANCE WITH THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
9. WHEN INSTALLING ANCHORS IN EXISTING REINFORCED CONCRETE OR MASONRY, AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS.
10. WHEN INSTALLING ANCHORS INTO PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. AVOID CUTTING OR DAMAGING THE TENDONS.

AA. DRIVEN FASTENERS IN REINFORCED CONCRETE:

1. THE USE OF DRIVEN FASTENERS FOR TENSION LOADS IS LIMITED TO SUPPORT OF MINOR LOADS LIKE ACOUSTICAL CEILINGS, DUCT WORK, CONDUITS, ETC.
2. ALLOWABLE TENSION LOADS SHALL BE LIMITED TO LESS THAN 90 POUNDS.
3. THE USE OF DRIVEN FASTENERS FROM UNDERSIDE OF STEEL DECK WITH STRUCTURAL CONCRETE FILL REQUIRES PULL OUT TESTING AS SCHEDULED ON THE DRAWINGS. DRIVEN FASTENERS ARE NOT ALLOWED AT STEEL DECKS WITH INSULATING FILL.
4. FASTENERS SHALL HAVE AN EVALUATION APPROVAL FOR THE TYPE OF CONCRETE USED ON THE JOB.
5. WHEN INSTALLING DRIVEN FASTENERS, AVOID DAMAGING THE REINFORCING. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN ANY REINFORCEMENT AND THE FASTENER.

V. COLD-FORMED STEEL DECK:

1. COLD-FORMED STEEL DECK SHALL BE OF THE TYPE AND GAUGE AS INDICATED ON THE DRAWINGS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND PUBLISHED EVALUATION REPORT.
2. COLD-FORMED STEEL DECK AND ACCESSORIES SHALL BE FORMED FROM STEEL SHEETS CONFORMING TO ASTM A 653 SS DESIGNATION, GRADE 50 MINIMUM, WITH GALVANIZED COATING DESIGNATION G60 (G90).
3. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
4. COLD-FORMED STEEL FLOOR DECK SHALL BE FACTORY VENTED WHERE STRUCTURAL CONCRETE FILL OCCURS, AND AT ROOF DECK WHEN INSULATING CONCRETE FILL IS USED, U.O.N.
5. COLD-FORMED STEEL DECK SHALL BE CONTINUOUS OVER THREE SPANS WHEREVER POSSIBLE. SHORE DECK IF RECOMMENDED BY THE MANUFACTURER. MINIMUM BEARING AT ENDS IS 2".
6. WHERE 3/4" DIAMETER SHEAR STUDS ARE TO BE WELDED TO SUPPORTS, 18 GAUGE (OR THICKER) DECKING SHALL NOT BE LAPPED.
7. CONTRACTOR SHALL CUT DECK PER STRUCTURAL DETAILS AT ALL OPENINGS, COLUMNS, AND REQUIRED PENETRATIONS AND SHALL SUPPLY NECESSARY ACCESSORY ITEMS SUCH AS CLOSURES, CLIPS, ETC.
8. HANGERS SUPPORTED BY COLD-FORMED STEEL DECKING ONLY OR COLD-FORMED STEEL DECKING WITH INSULATING FILL SHALL BE ATTACHED TO STEEL BARS, 3/8" ROUND X 12" OR 1/8" X 12" FLAT, PLACED PERPENDICULAR TO FLUTES. ONLY LIGHT DUCTWORK (12" X 16" MAX.), (1-1/2" ROUND PIPING MAX.), OR CEILING MAY BE HUNG FROM SUCH INSTALLATIONS. MAXIMUM WEIGHT PER HANGER SHALL NOT EXCEED 75 LBS. HANGERS MUST BE AT LEAST TWO FLUTES APART ON THE SAME SPAN.
9. HANGERS SUPPORTED BY COLD-FORMED STEEL DECK WITH STRUCTURAL CONCRETE FILL SHALL BE INSTALLED USING ANCHORAGE SYSTEMS THAT CARRY AN INDEPENDENT EVALUATION APPROVAL. SUCH HANGERS SHALL BE USED TO SUPPORT DUCTWORK (15" X 16" MAX.), PIPING (4" ROUND MAX.), OR CEILINGS. MAXIMUM WEIGHT PER HANGER SHALL NOT EXCEED 250 LBS. HANGERS MUST BE AT LEAST TWO FLUTES APART ON THE SAME DECK SPAN. LARGER DUCTWORK AND PIPING SHALL BE SUPPORTED BY STRUCTURAL BEAMS OR COLUMNS.

W. COLD-FORMED STEEL FRAMING, DESIGN-BUILD:

1. COLD-FORMED STEEL FRAMING SHALL BE DESIGN-BUILD EXCEPT WHERE SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. DESIGN-BUILD COLD-FORMED STEEL FRAMING SHALL COMPLY WITH ANY DETAILS PROVIDED. NOTES BELOW APPLY TO DESIGN-BUILD COLD-FORMED STEEL FRAMING ONLY.
2. DESIGN OF COLD-FORMED STEEL FRAMING, INCLUDING FRAMING MEMBERS AND CONNECTIONS (INCLUDING THOSE TO BUILDING STRUCTURE), SHALL PROVIDE FOR LATERAL RESTRAINT AND COMPLY WITH THE CONTRACT DOCUMENTS AND THE BUILDING CODE.
3. CALCULATIONS SHALL CLEARLY IDENTIFY LOADS IMPOSED ON THE BUILDING STRUCTURE.
4. COLD-FORMED STEEL FRAMING SHALL BE FROM A STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) APPROVED SUPPLIER, AND CONFORM TO ICC #ER-3064P.
5. COLD-FORMED STEEL FRAMING SHALL BE GALVANIZED (G60), AND CONFORM TO ASTM A 653.
6. COLD-FORMED STEEL FRAMING SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISI SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS.
7. STRUCTURAL STEEL COMPONENTS SHALL COMPLY WITH THE APPLICABLE NOTES UNDER "STRUCTURAL STEEL."
8. WELDING SHALL COMPLY WITH THE APPLICABLE NOTES UNDER "WELDING."
9. POST-INSTALLED ANCHORS SHALL COMPLY WITH THE APPLICABLE NOTES UNDER "POST-INSTALLED MECHANICAL ANCHORS" OR "POST-INSTALLED ADHESIVE ANCHORS."
10. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
11. VERTICAL AND HORIZONTAL DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS PRIOR TO FABRICATION. THE ARCHITECT SHALL BE NOTIFIED OF ANY FIELD CONDITIONS NOT COVERED BY THE CONTRACT DOCUMENTS PRIOR TO FABRICATION.
12. CONNECTIONS TO THE STRUCTURE SHALL INCLUDE STABILIZING ELEMENTS SUCH AS BRACES, STIFFENER PLATES, ETC., SO AS TO NOT IMPOSE ECCENTRIC LOADING, TWISTING, OR WARPING TO STRUCTURAL MEMBERS. PROVIDE MATERIAL AND INSTALL STABILIZING ELEMENTS. NECESSARY STABILIZING ELEMENTS SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

X. POST-INSTALLED MECHANICAL ANCHORS:

1. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
2. MECHANICAL ANCHORS FOR INSTALLATION IN SOLID NORMAL-WEIGHT OR LIGHT-WEIGHT CONCRETE SHALL BE HILTI KB-TZ (ICC #ESR-1917). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC193 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
3. MECHANICAL ANCHORS FOR INSTALLATION IN NORMAL-WEIGHT OR LIGHT-WEIGHT CONCRETE FILL OVER COLD-FORMED STEEL DECK SHALL BE HILTI KB-TZ (ICC #ESR-1917). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC193 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
4. MECHANICAL ANCHORS FOR OVERHEAD INSTALLATION THRU COLD-FORMED STEEL DECK, INTO NORMAL-WEIGHT OR LIGHT-WEIGHT CONCRETE FILL SHALL BE HILTI KB-TZ (ICC #ESR-1917). ALTERNATE PRODUCTS SHALL CARRY AN EVALUATION APPROVAL THAT IS BASED ON TESTING IN ACCORDANCE WITH ICC ACCEPTANCE CRITERIA AC193 AND SHALL BE APPROVED BY THE ENGINEER IN WRITING PRIOR TO DELIVERY TO THE JOBSITE.
5. ANCHORS SHALL BE OF THE TYPE, DIAMETER, AND MINIMUM DIMENSIONAL REQUIREMENTS (EMBEDMENT, SPACING AND EDGE DISTANCE) AS INDICATED ON THE DRAWINGS.
6. ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH DRILLING EQUIPMENT OF THE TYPE REQUIRED IN THE MANUFACTURER'S PUBLISHED EVALUATION REPORT. HOLES SHALL BE CLEANED IN CONFORMANCE WITH THE ANCHOR MANUFACTURER'S INSTRUCTIONS.
7. WHEN INSTALLING ANCHORS IN EXISTING REINFORCED CONCRETE OR MASONRY, AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS.
8. WHEN INSTALLING ANCHORS INTO PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. AVOID CUTTING OR DAMAGING THE TENDONS.

R. POST-TENSIONING ENCAPSULATION:

1. VARIATIONS FROM THE FOLLOWING REQUIREMENTS WILL BE ACCEPTED ONLY WHEN RESPONSIBILITY FOR CORROSION PROTECTION IS ASSUMED BY A CALIFORNIA REGISTERED CIVIL ENGINEER. APPROPRIATE SITE SUPERVISION SHALL BE PROVIDED BY THAT ENGINEER FOR ANY VARIATIONS.
2. ENCAPSULATED ANCHORS SHALL BE USED FOR LIVE END, DEAD END AND INTERMEDIATE ANCHORS THROUGHOUT.
3. THE POST-TENSIONING ASSEMBLIES SHALL BE PROTECTED AGAINST THE INGRESS OF MOISTURE OR SALTS THROUGHOUT TRANSPORTATION, HANDLING, STORAGE AND INSTALLATION. APPLY ENCAPSULATED DEAD END ANCHORS IN THE SHOP AND PROTECT LIVE ENDS BY WRAPPING UNTIL TRIMMED ON SITE. GREASE USED FOR CORROSION PROTECTION SHALL BE APPROPRIATE FOR THE APPLICATION. EVIDENCE OF SALTS OR OTHER CHEMICALS WHICH COULD HASTEN CORROSION WITHIN THE ENCAPSULATION WILL BE CAUSE TO REJECT THE TENDON AND REQUIRE COMPLETE REPLACEMENT.
4. ENCAPSULATION PROCEDURES SHALL BE THE RESPONSIBILITY OF THE SUPPLIER AND FABRICATOR. MATERIALS, DIRECTIONS, GUIDANCE AND ON-SITE CHECKING SHALL BE PROVIDED TO ENSURE THAT PLACERS PROPERLY INSTALL THE ENCAPSULATED ASSEMBLIES, INCLUDING WATERPROOF TAPE SUPPLIED WITH THE POST-TENSIONING MATERIALS.
5. THE TENDONS NEAR THE ENCAPSULATED ANCHORS SHALL BE FULLY ENCASED WITH RUST INHIBITIVE GREASE AND WRAPPING. OPENINGS, TEARS AND SPLITS IN THE POLYETHYLENE TUBING SHALL BE WRAPPED WITH WATERPROOF TAPE. .
6. TENDON TAILS SHALL BE PROTECTED FROM RAIN FOLLOWING INSTALLATION BY COVERING WITH PLASTIC TUBING. THE TUBING SHALL BE KEPT TIGHT TO THE ANCHOR BY TAPING AND EXTRA GREASE. STRESSING, CUTTING AND CAPPING SHALL OPERATIONS SHALL BE PERFORMED UNDER THE SUPERVISION OF THE SPECIAL INSPECTOR IN ONE OPERATION. STRANDS SHALL NOT REMAIN UNCAPPED BETWEEN WORK SHIFTS.

S. STRUCTURAL STEEL:

1. STRUCTURAL STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH CHAPTER 22 OF THE BUILDING CODE, AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
2. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
3. STRUCTURAL STEEL STRENGTHS AND GRADES SHALL BE AS FOLLOWS, U.O.N.

DESCRIPTION	YIELD Fy,ksi	ASTM GRADE
WF AND WT SHAPES, U.O.N.	50 ksi	A992, GR 50
ANGLES, CHANNELS & OTHER SHAPES	36 ksi	A36
HSS SECTIONS	46 ksi	A500, GR B
STRUCTURAL PIPE SECTIONS	35 ksi	A53, GR B
BASE PLATES, CONNECTION PLATES & MISC., U.O.N.	36 ksi	A36
CONNECTION PLATES & BASE PLATES AT FRAMES	50 ksi	A572, GR 50

4. HOLLOW STRUCTURAL STEEL (HSS) MEMBERS SHALL BE SEAL WELDED IN DRY CONDITION IN THE SHOP. PROVIDE WEEP HOLES AT THE LOW END OF ALL HOLLOW MEMBERS IN EXTERIOR CONDITIONS, AND SEAL WELD AROUND ALL MATING SURFACES IN EXTERIOR CONDITIONS WHETHER COVERED OR OPEN. CONCEAL WELD SEAM FROM VIEW WHERE PRACTICAL.
5. ANCHOR RODS SHALL CONFORM TO ASTM F 1554, GRADE 36, UNLESS OTHERWISE NOTED. NUTS FOR ANCHOR RODS SHALL CONFORM TO ASTM A 563, GRADE A HEX (HEAVY HEX WHERE ANCHOR ROD DIAMETER IS GREATER THAN 1 1/2").
6. MAIN MEMBERS SHALL HAVE HIGH STRENGTH BOLTS CONFORMING TO AISC SPECS FOR ASTM A 325N BOLTS, U.O.N. OTHER BOLTS SHALL CONFORM TO ASTM A 307. NUTS FOR HIGH STRENGTH BOLTS SHALL BE HEAVY HEX GRADE C CONFORMING TO ASTM A 563.
7. EXTERIOR STRUCTURAL STEEL PERMANENTLY EXPOSED TO THE WEATHER SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION. ZINC COATING SHALL CONFORM TO ASTM A 123 (G60, U.O.N.).
8. TIGHTEN ASTM A 325N BOLTS TO "SNUG-TIGHT" CONDITION PER AISC SPECIFICATION FOR STRUCTURAL JOINTS. TEST ASTM A 325SC BOLTS WITH A CALIBRATED WRENCH UNLESS LOAD INDICATOR BOLTS ARE USED.
9. WELDING DONE AFTER GALVANIZING SHALL BE PROTECTED WITH TWO COATS OF "GALVANIZED", "GALVALOY", OR EQUAL.

T. STEEL STAIRS, DESIGN-BUILD:

1. STEEL STAIRS SHALL BE DESIGN-BUILD EXCEPT WHERE SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. DESIGN-BUILD STEEL STAIRS SHALL COMPLY WITH ANY DETAILS PROVIDED. NOTES BELOW APPLY TO DESIGN-BUILD STEEL STAIRS ONLY.
2. DESIGN OF STAIRS, INCLUDING FRAMING MEMBERS, CONNECTIONS (INCLUDING THOSE TO BUILDING STRUCTURE), CHECKERED PLATES, STEPS, HANDRAILS, ETC., SHALL PROVIDE FOR LATERAL RESTRAINT AND COMPLY WITH THE CONTRACT DOCUMENTS AND THE BUILDING CODE.
3. CALCULATIONS SHALL CLEARLY IDENTIFY LOADS IMPOSED ON THE BUILDING STRUCTURE.
4. STEEL COMPONENTS SHALL COMPLY WITH THE APPLICABLE NOTES UNDER "STRUCTURAL STEEL."
5. WELDING SHALL COMPLY WITH THE APPLICABLE NOTES UNDER "WELDING."
6. POST-INSTALLED ANCHORS SHALL COMPLY WITH THE APPLICABLE NOTES UNDER "POST-INSTALLED MECHANICAL ANCHORS" OR "POST-INSTALLED ADHESIVE ANCHORS."
7. SPECIAL INSPECTION AND TESTING IS REQUIRED IN ACCORDANCE WITH SECTIONS 1704 AND 1705 OF THE BUILDING CODE AND THE "STATEMENT OF SPECIAL INSPECTIONS" ON THESE CONSTRUCTION DOCUMENTS.
8. VERTICAL AND HORIZONTAL DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS AND EXISTING CONDITIONS PRIOR TO FABRICATION. THE ARCHITECT SHALL BE NOTIFIED OF ANY FIELD CONDITIONS NOT COVERED BY THE CONTRACT DOCUMENTS PRIOR TO FABRICATION.
9. CONNECTIONS TO THE STRUCTURE SHALL INCLUDE STABILIZING ELEMENTS SUCH AS BRACES, STIFFENER PLATES, ETC., SO AS TO NOT IMPOSE ECCENTRIC LOADING, TWISTING, OR WARPING TO STRUCTURAL MEMBERS. PROVIDE MATERIAL AND INSTALL STABILIZING ELEMENTS. NECESSARY STABILIZING ELEMENTS SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

U. DRYPACK / NON-SHRINK GROUT:

1. NON-SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 6,000 psi IN ACCORDANCE WITH ASTM C 109.
2. NON-SHRINK GROUT SHALL BE INSTALLED UNDER A COLUMN BASE PLATE AFTER THE COLUMN HAS BEEN PLUMBED AND PRIOR TO PLACING CONCRETE FILL ON THE STRUCTURE.

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03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT

ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE: 03-06-15

TITLE: STRUCTURAL NOTES

DRAWING NO: S1.03

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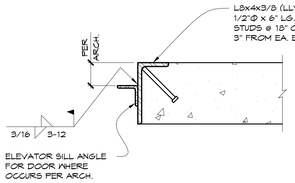
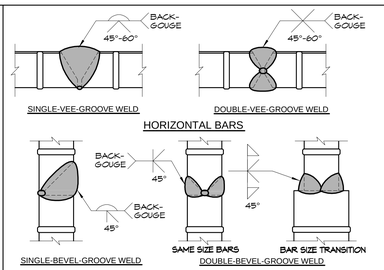


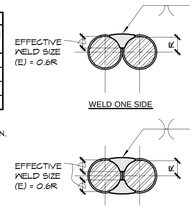
TYP. SLAB EDGE ANGLE AT ELEVATOR DOOR OPENING (26)



NOTES:
1. Fy OF REBAR SHALL BE 60 ksi MIN.
2. WELD METAL SHALL BE E90.

TYPICAL REBAR WELDED BUTT JOINT (21)
1200-14

WELD LENGTH		
BAR SIZE	WELD ONE SIDE	WELD BOTH SIDES
#3	2 1/2"	1 1/4"
#4	3"	1 1/2"
#5	4"	2"
#6	4 1/2"	2 1/4"

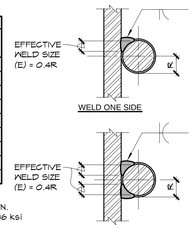


NOTES:
1. Fy OF REBAR SHALL BE 60 ksi MIN.
2. WELD METAL SHALL BE E90.
3. REBAR SHALL BE A706 OR EQUIVALENT

FLARE-VEE-GROOVE WELD

TYPICAL REBAR WELDED LAP JOINT (16)
1200-09

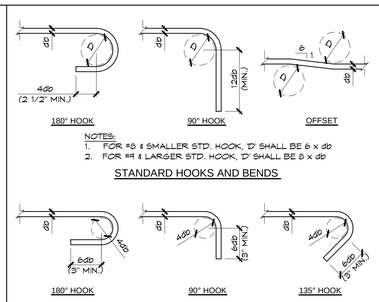
WELD LENGTH		
BAR SIZE	WELD ONE SIDE	WELD BOTH SIDES
#3	4 1/2"	2 1/4"
#4	6"	3"
#5	7 1/2"	3 3/4"
#6	9 1/2"	4 1/4"
#7	10"	5"
#8	11 1/2"	5 3/4"
#9	13"	6 1/2"
#10	14 1/2"	7 1/4"
#11	15 1/2"	7 3/4"



NOTES:
1. Fy OF REBAR SHALL BE 60 ksi MIN.
2. Fy OF STRUCT. STEEL SHALL BE 36 ksi MIN.
3. WELD METAL SHALL BE E70.
4. REBAR SHALL BE A706 OR EQUIVALENT

FLARE-BEVEL-GROOVE WELD

TYPICAL REBAR WELDED TO STRUCTURAL STEEL JOINT (11)
1200-04

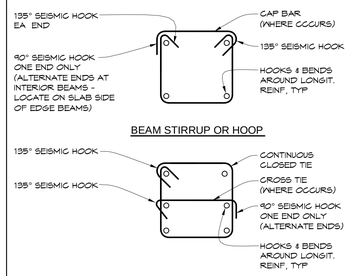


NOTES:
1. FOR #3 & SMALLER STD. HOOK, 'D' SHALL BE 6 x db
2. FOR #4 & LARGER STD. HOOK, 'D' SHALL BE 8 x db

STANDARD HOOKS AND BENDS

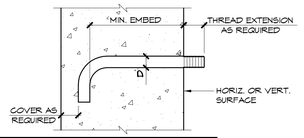
SEISMIC HOOKS

TYPICAL REINF. BAR BENDS AND HOOKS (6)
1200-08



TYPICAL STIRRUP TIE, HOOP OR CROSS-TIE (1)
1200-03

NOT USED (27)



BOLT DIA. "D"	MINIMUM EMBEDMENT	
	HORIZONTAL ANCHOR RODS	VERTICAL ANCHOR RODS
1/2"	4"	7"
5/8"	4 1/2"	7"
3/4"	5"	7"
7/8"	6"	7"
1"	7"	7"
1 1/8"	8"	8"

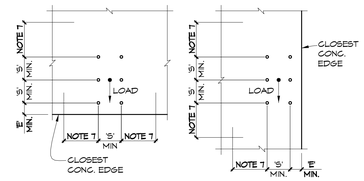
NOTE:
WHERE BENT-BAR ANCHOR RODS ARE INDICATED ANCHOR ROD MAY BE BENT-BAR OR HEADED. WHERE HEADED ANCHOR RODS ARE INDICATED, BENT-BAR ANCHOR RODS SHALL NOT BE USED.

TYPICAL ANCHOR ROD IN CONCRETE (22)
1200-11

ANCHOR SIZE	REBAR SIZE	EMBED DEPTH (UON)	MINIMUM CONC THICK, 'T' (UON)	MINIMUM EDGE DIST, 'E' (UON)	MINIMUM SPACING, 'S' (UON)
3/8" DIA.	#3	3"	4 1/4"	2 1/4"	4 1/2"
1/2" DIA.	#4	4"	5 1/4"	3"	6"
5/8" DIA.	#5	5"	6 1/4"	3 3/4"	7 1/2"
3/4" DIA.	#6	6"	7 1/2"	4 1/2"	9"
7/8" DIA.	#7	7"	8 3/4"	5 1/4"	10 1/2"
1" DIA.	#8	8"	10"	6"	12"
N/A	#9	9"	11 1/4"	6 3/4"	13 1/2"
1 1/4" DIA.	#10	10"	12 1/2"	7 1/2"	15"

NOTES:
1. SPECIAL INSPECTION IS REQ'D FOR INSTALLATION OF ANCHORS, U.O.N.
2. ADHESIVE SHALL BE HILTI HIT-RE-500-SD (ICC #ESR-2322)
3. THREADED ROD ANCHORS SHALL BE ISO 898-1 CLASS 5.8, ASTM A193 B7 OR ASTM F593, CW STAINLESS
4. REINF. STEEL ANCHORS SHALL BE ASTM A615 OR ASTM A706 GRADE 60
5. HOLES SHALL BE DRILLED INTO DRY CONCRETE WITH A HAMMER DRILL AND CARBIDE BIT
6. CONCRETE SHALL BE NORMAL WEIGHT, F'c SHALL BE 3000 PSI, MIN.
7. UNLESS OTHERWISE NOTED, THE ANCHOR (OR ANCHOR GROUP) SHALL BE NO CLOSER TO THE CONCRETE EDGE ON THREE SIDES THAN THE LARGER OF:
   A) 12 ANCHOR DIAMETERS, OR
   B) 1.5 TIMES THE ACTUAL DISTANCE TO THE CLOSEST EDGE
8. ANCHORS SHALL BE INSTALLED IN TEMPERATURE RANGE 'A', AS DEFINED BY THE ICC APPROVAL:
   MAX. SHORT-TERM TEMP = 110°F;
   MAX LONG TERM TEMP = 80°F

ADHESIVE ANCHOR SCHEDULE (12)
1200-02

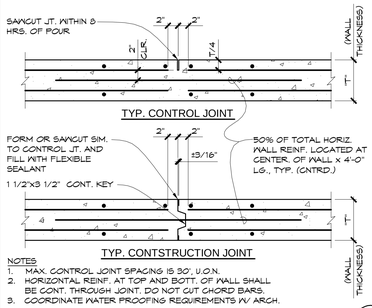


REBAR SPLICE AND DEVELOPMENT IN NORMAL WEIGHT CONCRETE, U.O.N. (2)
1200-01

BAR SIZE	CONC. f'c=3000 PSI					BAR SIZE	CONC. f'c=4000 PSI					BAR SIZE	CONC. f'c=5000 PSI				
	SPLICE		DEVELOPMENT				SPLICE		DEVELOPMENT				SPLICE		DEVELOPMENT		
	TOP	OTHER	TOP	OTHER	HOOKED		TOP	OTHER	TOP	OTHER	HOOKED		TOP	OTHER	TOP	OTHER	HOOKED
3	29	22	22	17	8	3	25	20	19	15	7	3	22	17	17	13	6
4	38	29	29	22	11	4	33	25	25	19	9	4	30	22	23	17	8
5	47	36	36	28	14	5	40	31	31	24	12	5	36	29	28	22	11
6	56	43	43	33	16	6	48	38	37	29	14	6	44	34	34	26	13
7	82	62	63	48	19	7	70	55	54	42	17	7	64	49	49	38	15
8	94	72	72	55	22	8	81	62	62	48	19	8	73	56	56	43	17
9	105	81	81	62	25	9	91	70	70	54	21	9	82	62	63	48	19
10	118	91	91	70	28	10	103	79	79	61	24	10	92	70	71	54	22
11	131	101	101	78	31	11	113	87	87	67	27	11	101	78	78	60	24

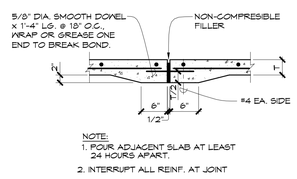
NOTES:
1. SCHEDULE VALUES FOR DEVELOPMENT ARE BASED ON ACI 318, SECTION 12.2.2 AND 12.5 FOR GRADE 60 BARS.
2. SCHEDULE VALUES FOR SPLICES ARE BASED ON ACI 318, SECTION 12.15 FOR CLASS B SPLICES
3. CLEAR SPACING BETWEEN BARS BEING SPLICED OR DEVELOPED SHALL BE 2 BAR DIAMETERS (MIN.)
4. CONCRETE CLEAR COVER OVER BARS BEING DEVELOPED SHALL BE 1 BAR DIAMETER (MIN.)
5. DEVELOPMENT AND SPLICE LENGTHS ARE GIVEN IN INCHES.
6. TOP BARS ARE STRAIGHT HORIZONTAL BARS LOCATED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS PLACED BELOW.
7. OTHER BARS ARE STRAIGHT HORIZONTAL BARS LOCATED SUCH THAT 12 INCHES OR LESS OF FRESH CONCRETE IS PLACED BELOW OR STRAIGHT VERTICAL BARS.
8. HOOKED BARS ARE VERTICAL OR HORIZONTAL BARS TERMINATING WITH STANDARD HOOKS THAT COMPLY WITH DETAIL 6/-

NOT USED (28)



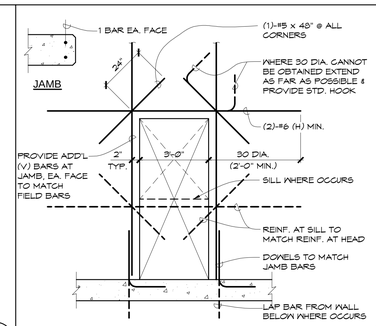
NOTES
1. MAX. CONTROL JOINT SPACING IS 30', U.O.N.
2. HORIZONTAL REINF. AT TOP AND BOTT. OF WALL SHALL BE CONT. THROUGH JOINT. DO NOT CUT CHORD BARS.
3. COORDINATE WATER PROOFING REQUIREMENTS W/ ARCH.

TYP. WALL CONTROL/CONST. JOINT (23)
3000-02UC

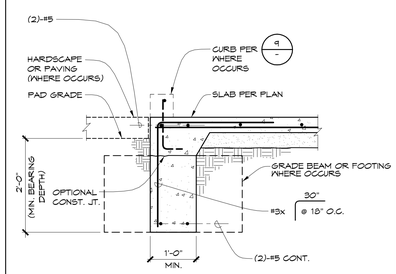


NOTE:
1. POUR ADJACENT SLAB AT LEAST 24 HOURS APART.
2. INTERRUPT ALL REINF. AT JOINT

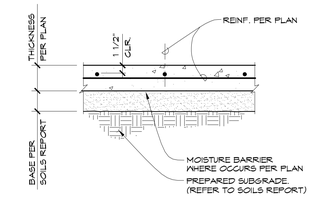
TYP. ISOLATION JOINT AT SLAB-ON-GRADE (18)
2100-02UC



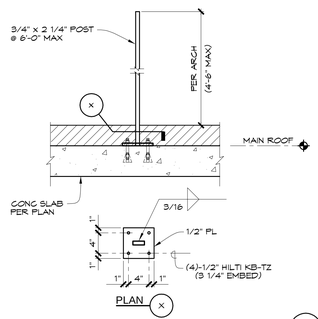
TYP. CONCRETE WALL OPENING (13)
3000-01UC



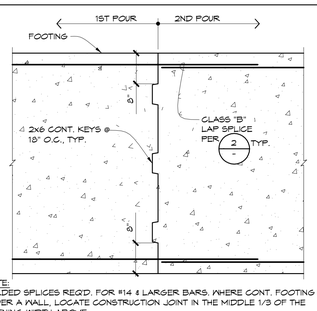
TYPICAL SLAB EDGE (8)
2100-09UC



TYP. CONC SLAB ON GRADE (3)
2100-07

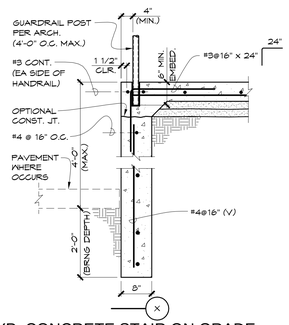


TYPICAL GUARDRAIL AT ROOF (29)

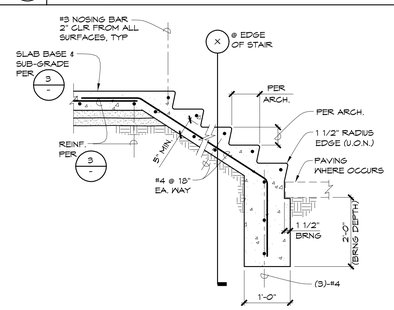


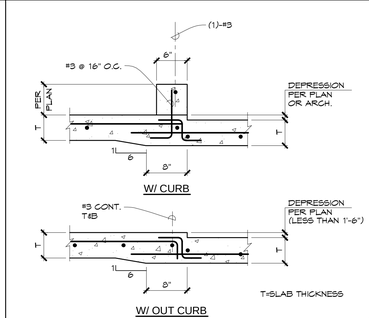
NOTE:
WELDED SPLICES REQ'D. FOR #14 & LARGER BARS. WHERE CONT. FOOTING IS UNDER A WALL, LOCATE CONSTRUCTION JOINT IN THE MIDDLE 1/3 OF THE OPENING WIDTH ABOVE.

CONT. FOOTING CONSTRUCTION JT. (24)

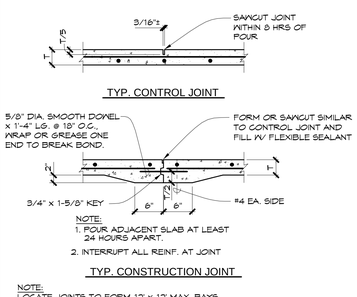


TYP. CONCRETE STAIR ON GRADE (14)
2100-08





TYP. DEPRESSED SLAB ON GRADE (9)
2100-03UC

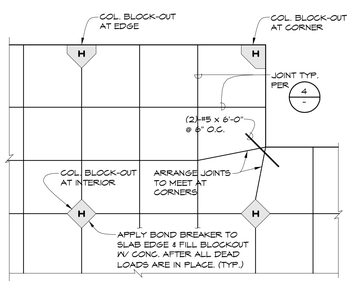


NOTE:
1. POUR ADJACENT SLAB AT LEAST 24 HOURS APART.
2. INTERRUPT ALL REINF. AT JOINT

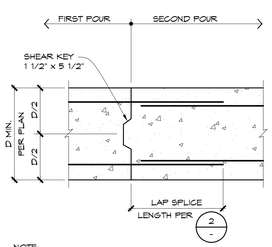
TYP. CONSTRUCTION JOINT

NOTE:
LOCATE JOINTS TO FORM 12' x 12' MAX. BAYS. COORDINATE JOINT LOCATIONS WITH ARCH.

TYP. CONTROL/CONSTRUCTION JOINT (4)
2100-02UC

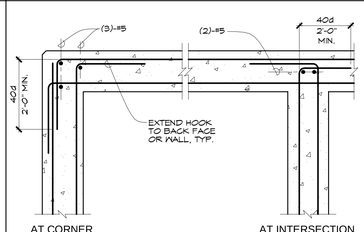


TYPICAL SLAB-ON-GRADE (30)



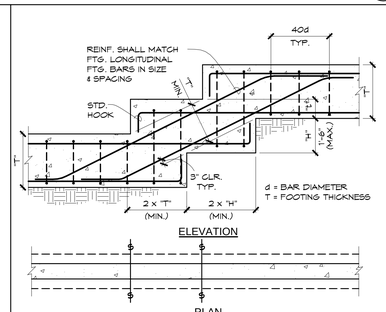
NOTE:
1. CONTRACTORS OPTION TO USE MECHANICAL BAR SPLICER IN LIEU OF LAP SPLICE. MECHANICAL SPLICE SHALL DEVELOP 125% OF THE SPECIFIED REBAR YIELD STRENGTH.

TYP. FOOTING CONSTRUCTION JOINT (25)
2200-04

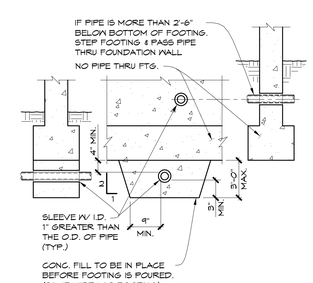


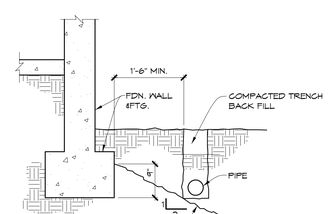
NOTE:
1. WHERE SINGLE LAYER OF REINF. OCCURS, BEND REINF. AS SHOWN FOR OUTSIDE BARS.
2. DETAIL APPLIES TO FOOTINGS, BEAMS AND CONCRETE WALLS
3. d = BAR DIAMETER

TYP. REINF. AT INTERSECTION (20)
2200-01UC



TYP. STEPPED GRADE BEAM (15)
2200-07UC





TYP. PIPE ADJACENT TO FOOTING (5)
2200-02UC

carrierjohnson + CULTURE
architecture + environments + brand strategy + graphics
1301 third avenue, san diego ca 92101
phone 619.239.2353 fax 619.239.6227

HOPE-AMUNDSON Structural Engineers

AIRBORNE SAN DIEGO
1401 IMPERIAL AVENUE
SAN DIEGO, CA 92101

03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER JAMES A. AMUNDSON No. 3332 Exp. 12-31-15 STRUCTURAL STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE: TYPICAL DETAILS

DRAWING NO: S1.11

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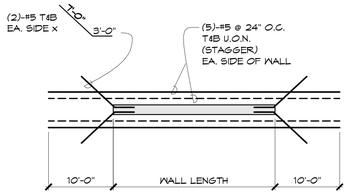
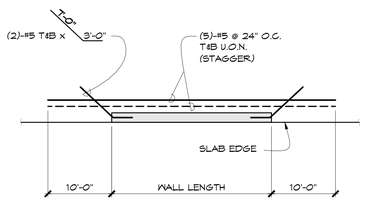


PLAN

TRIM BARS AT INTERIOR WALLS 26

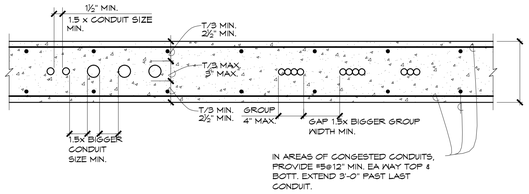
3300-69



PLAN

TRIM BARS AT PERIMETER WALLS 27

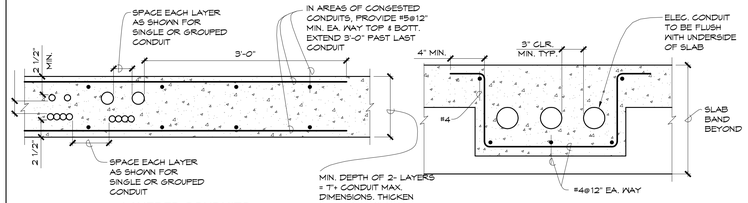
3300-68



SINGLE CONDUITS
- FOR MORE THAN 4 CONDUITS

GROUPED CONDUITS
- FOR MORE THAN 2 GROUPS OF CONDUITS

CONDUIT	SPACE
3/4"	1 1/2"
1"	1 1/2"
1 1/2"	2 1/4"
2"	3"
3"	4 1/2"

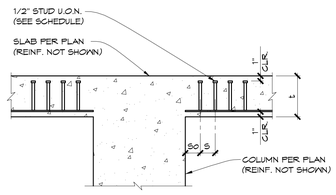


LAYERED CONDUITS
- FOR CONDUITS PLACED IN 2 LAYERS

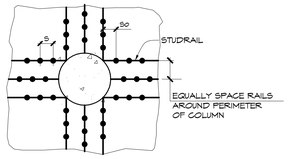
CONDUITS OVER 3" DIA.

NOTES:
1. CONDUITS PLACED CLOSER THAN SHOWN HERE MAY REQUIRE RELOCATION.
2. CONFIRM LOCATIONS ON SITE WITH THE ENGINEER.

ELEC. CONDUIT SPACING 17



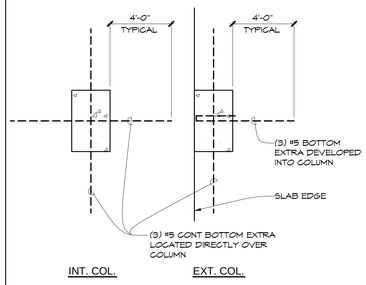
SECTION AT STUDRAIL



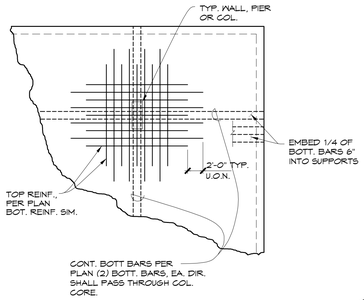
PLAN AT STUDRAIL

LABEL	SLAB THICK (IN.)	NO.OF RAILS PER COL.	NO.OF STUDS PER RAIL	STUD DIAM. (IN.)	STUD SPAC. (S)	DIST.TO FIRST STUD (So)
S1	12	4	6	1/2	4	4
S2	12	6	6	1/2	4	4
S3	12	4	5	1/2	4	4
S4	12	8	5	1/2	4	4

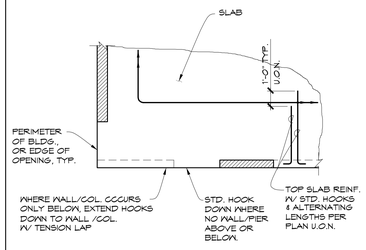
12



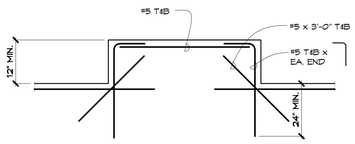
TYPICAL FLAT SLAB FLOORS 6



TYP. SLAB LAYOUT 1

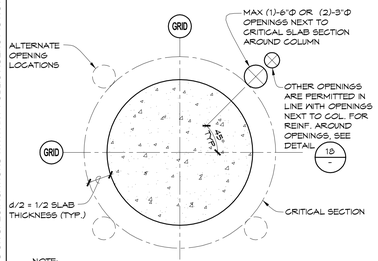


TYP. SLAB EDGE REINF. 7



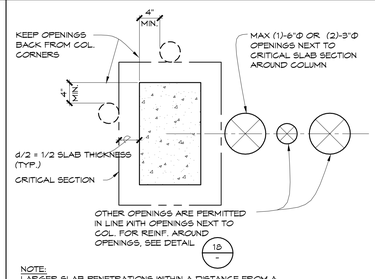
TRIM BARS AT CANTILEVERED SLAB 2

3300-65



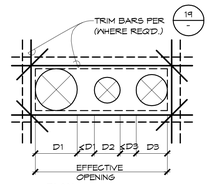
NOTE:
LARGER SLAB PENETRATIONS WITHIN A DISTANCE FROM A COLUMN EQUAL TO TEN TIMES THE SLAB THICKNESS TO BE PROVIDED AND APPROVED BY ENGINEER.

TYP. SLAB PENETRATIONS AT CIRCULAR COLUMNS (6" DIA. OR LESS) 28



NOTE:
LARGER SLAB PENETRATIONS WITHIN A DISTANCE FROM A COLUMN EQUAL TO TEN TIMES THE SLAB THICKNESS TO BE PROVIDED AND APPROVED BY ENGINEER.

TYP. SLAB PENETRATIONS AT RECT. COLUMNS (6" DIA. OR LESS) 23



PLAN

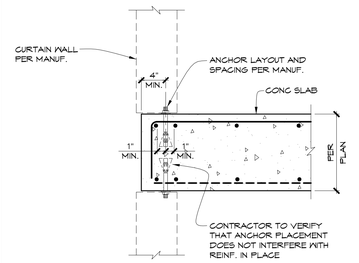
PENETRATIONS WHICH ARE CLOSER TO ONE ANOTHER THAN THE DIAMETER OF THE LARGER OF THE TWO ARE CONSIDERED TO FORM A SINGLE EFFECTIVE OPENING:

-IF THE EFFECTIVE OPENING IS 12" OR LESS: NO TRIM BARS ARE REQUIRED.

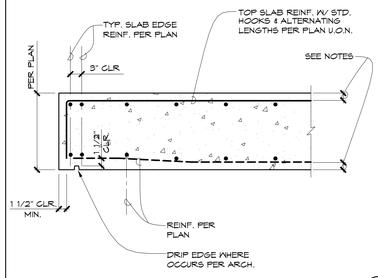
-IF THE EFFECTIVE OPENING IS MORE THAN 12": TRIM BARS ARE REQUIRED PER 19

TRIM REINFORCING FOR MULTIPLE SLAB PENETRATIONS 18

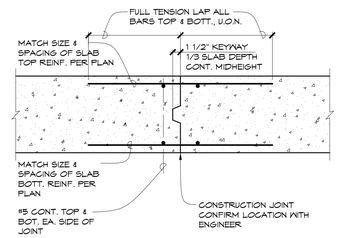
3300-63



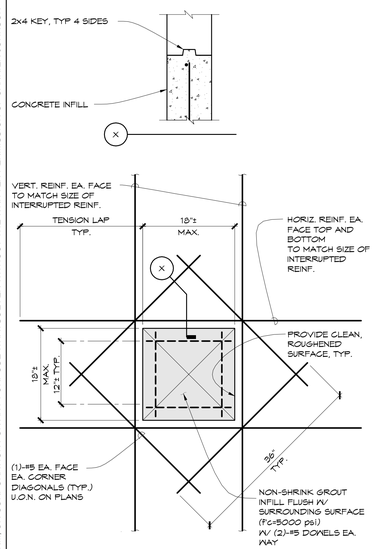
TYP. CURTAIN WALL AT SLAB EDGE 13



TYP. EDGE DETAIL 8

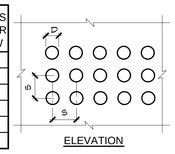


SLAB CONSTRUCTION JOINT 3



TYP. TIEBACK BLOCKOUT DETAIL 30

CORE DIA. (D)	MIN. SPACING (S)	MAX. CORES IN HORIZ. OR VERT. ROW
1/2" TO 2"	4"	12
2 1/2" TO 4"	8"	6
4 1/2" TO 6"	12"	4
6 1/2" TO 8"	16"	3
8 1/2" TO 10"	1'-8"	3
10 1/2" TO 12"	2'-0"	2

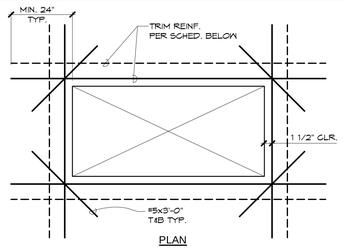


ELEVATION

NOTES:
1. WHERE CORES OR GROUPS OF CORES NOT INDICATED ON THE STRUCTURAL DRAWINGS EXCEED 12" IN EITHER HORIZONTAL OR VERTICAL DIMENSION OR WILL INTERRUPT EXISTING REINFORCING BARS, OBTAIN WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH WORK.
2. NO CORES OF ANY SIZE SHALL BE MADE IN WALL BOUNDARY ZONES OR HEADERS WITHOUT PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER.

TYPICAL CORED OPENINGS IN EXISTING CONC. WALL 24

1200-13

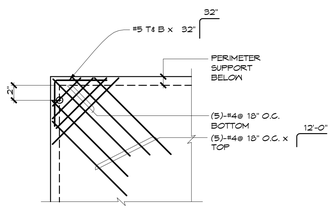


PLAN

MAX. DIMENSION	TRIM REINF.
TO 12"	NONE
TO 2'-6"	1-#5 T&B, EA. SIDE
2'-6" & LARGER	2-#5 @ 3" O.C. T&B, EA. SIDE

TRIM REINFORCING FOR INTERIOR SLAB PENETRATIONS 19

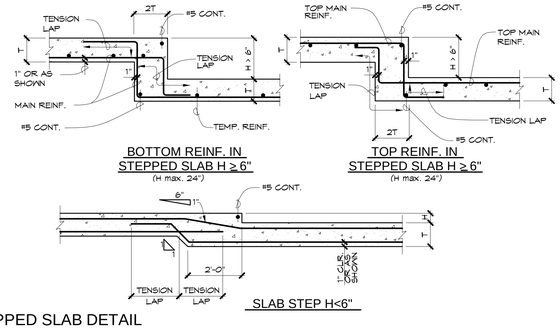
3300-62



PLAN

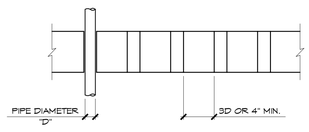
TRIM BARS AT SLAB CORNERS 14

3300-61



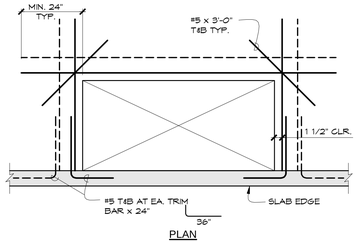
SLAB STEP H<6"

TYP. STEPPED SLAB DETAIL 4



NOTE:
WHERE CLEAR DISTANCE BETWEEN SLEEVES IS IMPOSSIBLE, THIS AREA IS TREATED AS A SLAB OPENING PER TYPICAL DETAIL 10

SERIES OF PIPES OR CONDUITS THROUGH SLAB OR WALL 25

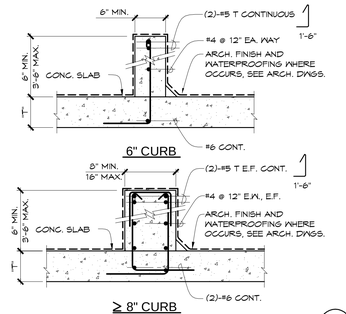


PLAN

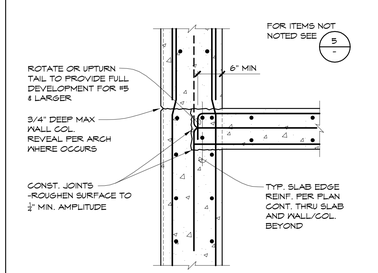
MAX. DIMENSION	TRIM REINF.
TO 12"	NONE
TO 2'-6"	1-#5 T&B, EA. SIDE
2'-6" & LARGER	2-#5 @ 3" O.C. T&B, EA. SIDE

TRIM BARS FOR OPENINGS AT SLAB EDGE 20

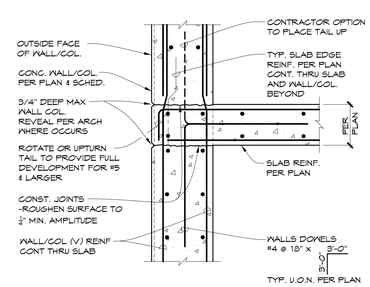
3300-64



CURB AT SUSPENDED SLAB 15



TYP. SLAB EDGE AT PERIMETER WALL / COLUMN (SGL REVEAL) 10



TYP. SLAB EDGE AT PERIMETER WALL / COLUMN (DBL REVEAL) 5

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AIRBORNE SAN DIEGO
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03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE: TYPICAL DETAILS
DRAWING NO: S1.12

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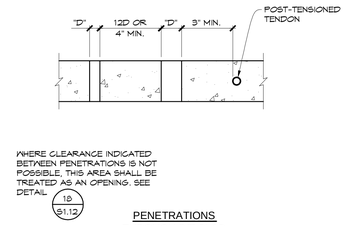
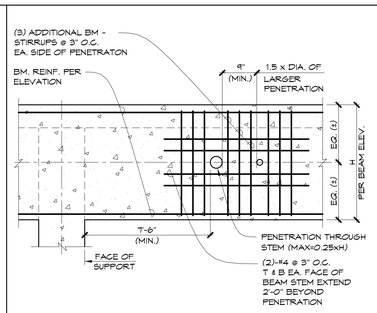
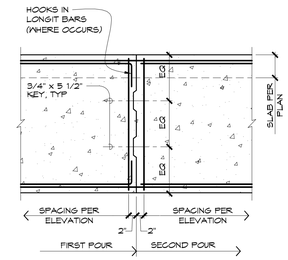


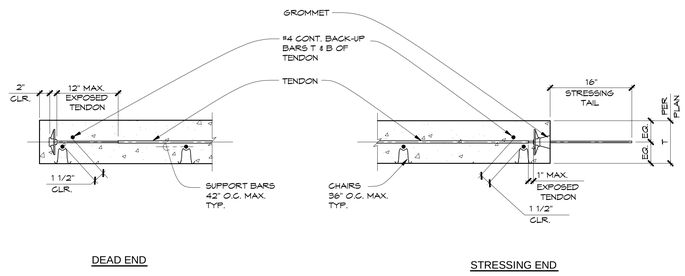
PENETRATIONS, CONDUITS AND FASTENERS NEAR TENDONS
3300-24
11



TYP. PENETRATIONS THROUGH BEAM STEM
3300-45
6

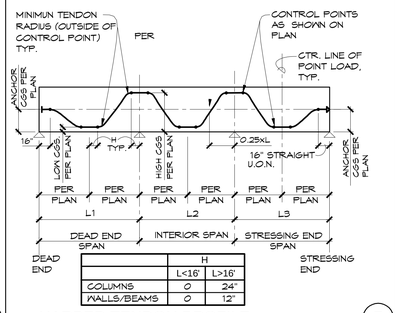


BEAM CONSTRUCTION JOINT
1



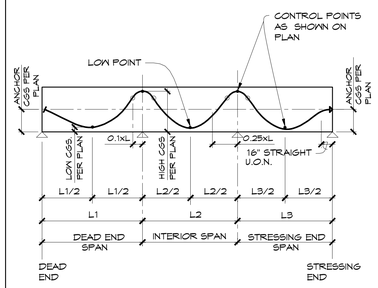
DISTRIBUTED SLAB TENDONS
3300-11
17

NOT USED
12



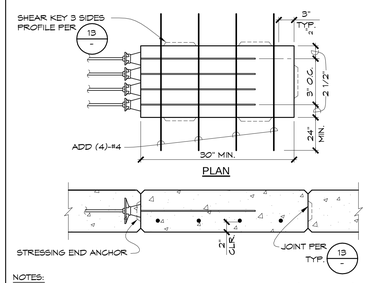
	H	
	L<16'	L>16'
COLUMNS	0	24"
WALLS/BEAMS	0	12"

HARPED TENDON PROFILE
3300-03
7



REVERSED PARABOLA TENDON PROFILE
3300-01
2

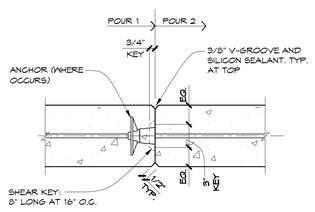
NOT USED
13



NOTES:
1. CONTINUE MILD REINF. PER PLAN THROUGH THE BLOCKOUT. (NOT SHOWN)
2. BLOCKOUT SHALL BE POURED WITH SHRINKAGE COMPENSATING CONCRETE OF SAME STRENGTH (MIN.) AS SURROUNDING SLAB.

STRESSING BLOCKOUT
3300-76
8

NOT USED
3



NOTE:
1. PRIOR TO PLACING POUR 2, CLEAN SURFACE OF POUR 1 AND WET TO SATURATED, SURFACE-DRY STANDARD (SSD)

3300-10
13

NOT USED
14

NOT USED
9

NOT USED
4

NOT USED
15

NOT USED
10

NOT USED
5

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PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:
03-06-15

TITLE:
TYPICAL DETAILS

DRAWING NO:
S1.13

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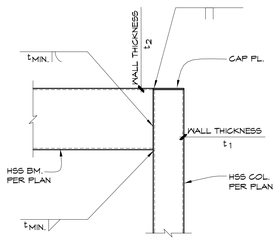
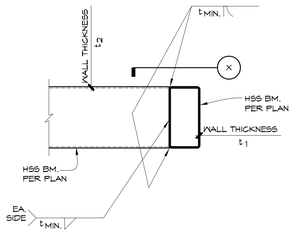
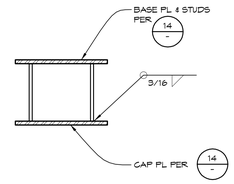
NOT USED (26)

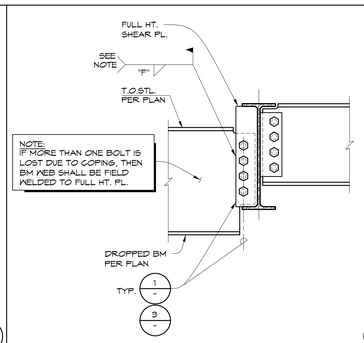


TYP. HSS BM. TO HSS COL. CONN. (21)





HSS BASE PL AT CONT COLUMN (11)

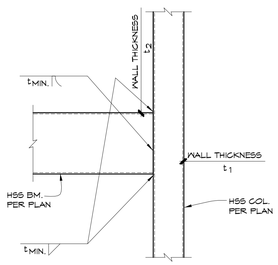


(6)

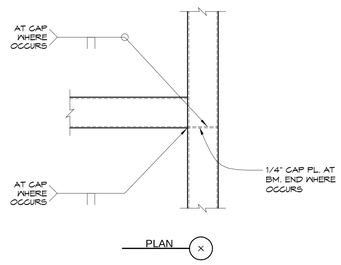
BEAM SIZE	SHEAR PLATE		# OF 1"Ø A325N BOLTS	# OF ROWS
	THICK.	WELD 'F'		
W8, W10	3/8	5/16	2	1
W12, W14	3/8	5/16	3	1
W16	3/8	5/16	4	1
W18, W21	3/8	5/16	5	1
W24	3/8	5/16	6	1
W27	3/8	5/16	7	1
W30	1/2	5/16	8	1
W33,W36	1/2	5/16	9	1

TYP. SHEAR PLATE CONN. SCHEDULE (1)
5050-01

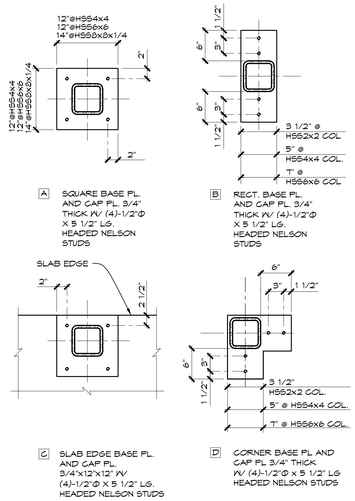
NOT USED (27)



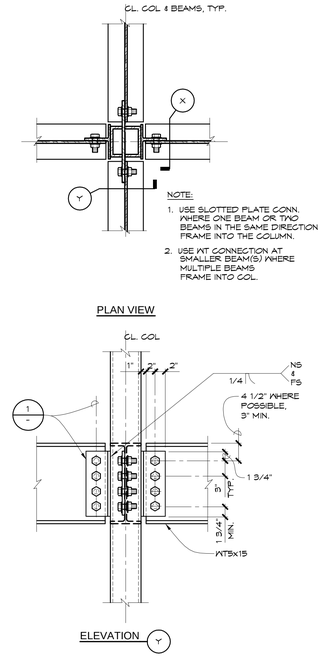
TYP. HSS BM. TO HSS COL. CONN. (22)



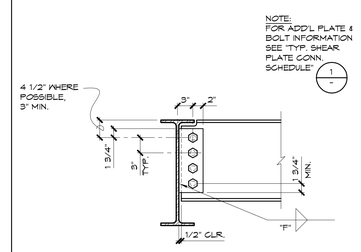
TYP. HSS BM. TO HSS BM. CONN. (17)



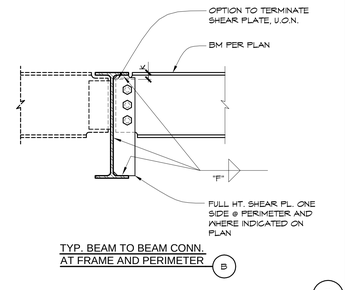
BASE AND CAP PLATE TYPES



(9)

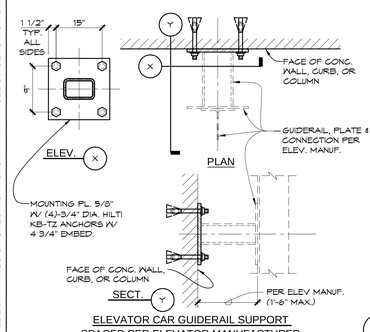


TYP. BEAM TO BEAM CONT. (A)

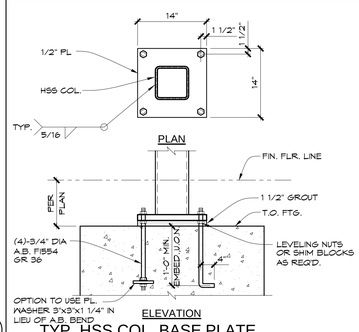


TYP. BEAM TO BEAM CONN. AT FRAME AND PERIMETER (B)

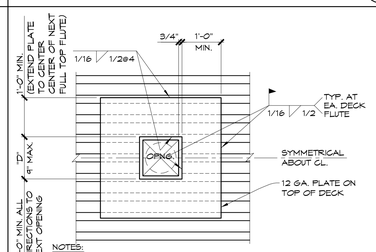
(3)



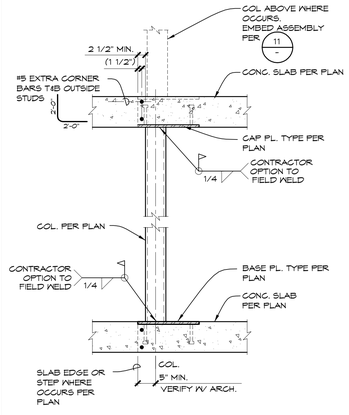
ELEVATOR CAR GUIDERAIL SUPPORT SPACED PER ELEVATOR MANUFACTURER (28)



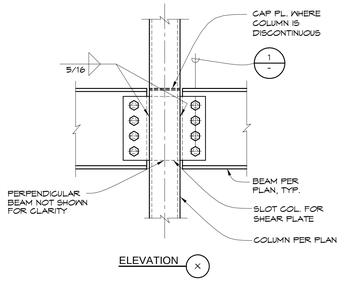
TYP. HSS COL. BASE PLATE
5000-03 (23)



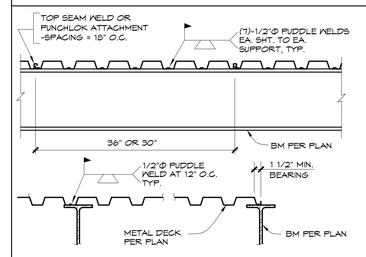
TYP. REINF. FOR SMALL OPENINGS IN ROOF DECK
5300-24 (18)



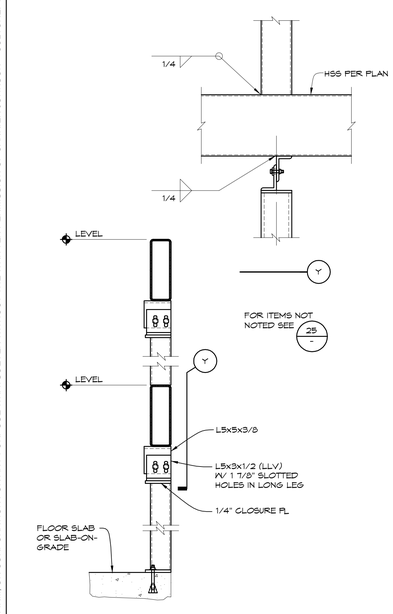
HSS GRAVITY COLUMN (14)



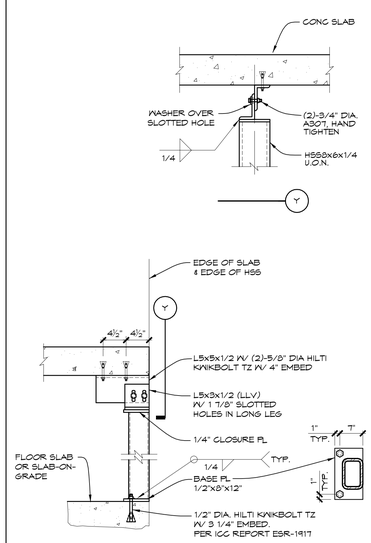
TYP. BEAM TO HSS COL. CONN.
5050-05 (9)



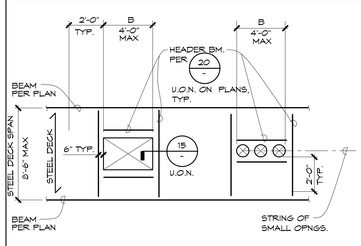
TYP. 1 1/2" METAL DECK WELDING PATTERN
5300-02 (4)



TYP. ELEVATOR RAIL SUPPORT (30)

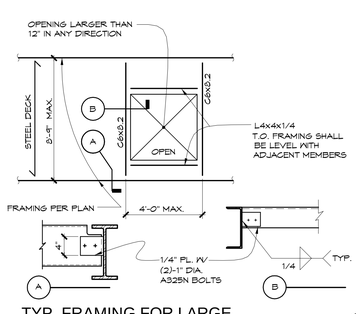


TYP. ELEVATOR RAIL SUPPORT (25)

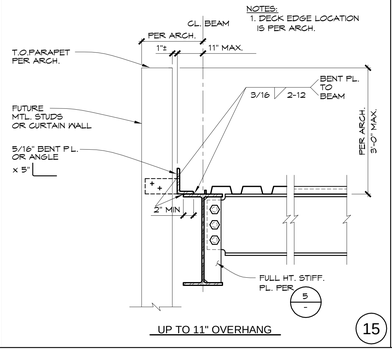


NOTES:
FOR OPENING OF B=2'-0" OR SMALLER SEE 18 -

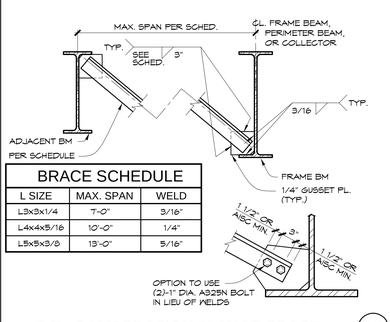
FRAMING FOR LARGE OPENINGS IN FLOOR METAL DECK
5300-14 (19)



TYP. FRAMING FOR LARGE OPENINGS IN ROOF DECK
5300-22 (20)

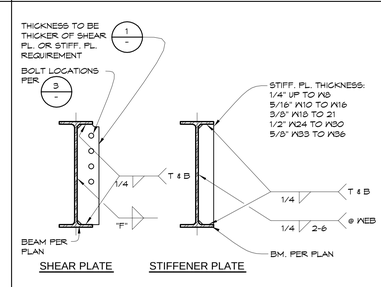


UP TO 11" OVERHANG (15)



BRACE SCHEDULE		
L SIZE	MAX. SPAN	WELD
L3x3x1/4	7'-0"	3/16"
L4x4x5/16	10'-0"	1/4"
L5x5x3/8	13'-0"	5/16"

TYP. COMPRESSION FLANGE BRACE
5000-06 (10)



TYP. FULL HEIGHT SHEAR PLATE OR STIFFENER PLATE
5000-01 (5)

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10-01-14 DESIGN DEVELOPMENT
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REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE: TYPICAL DETAILS
DRAWING NO: S1.14

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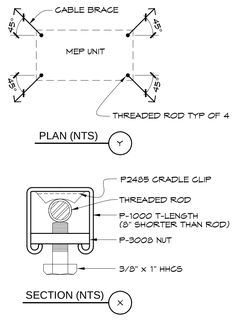
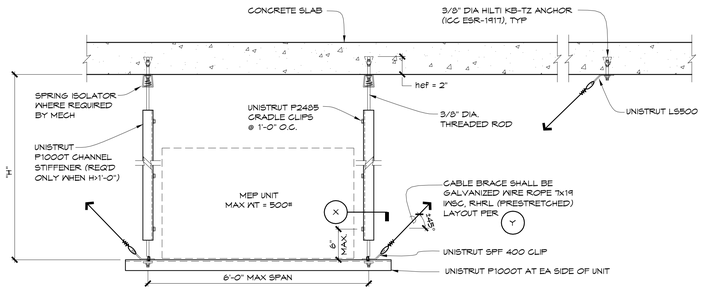
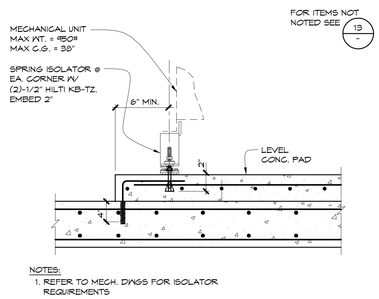


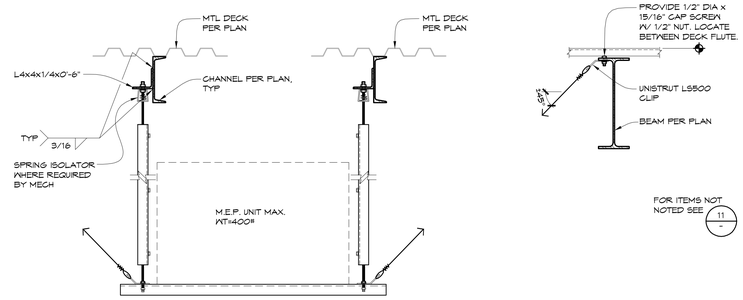


TYPICAL SUSPENDED MEP UNIT FROM CONCRETE SLAB (11)

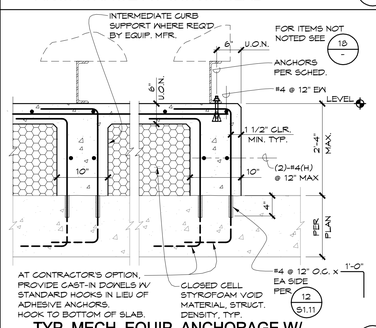


NOTES:
1. REFER TO MECH. DWGS FOR ISOLATOR REQUIREMENTS

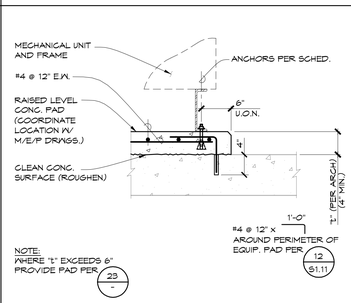
TYP. SPRING ISOLATED EQUIPMENT ANCHORAGE AT CONC. SLAB (22)



TYPICAL SUSPENDED MEP UNIT FROM METAL DECK (12)



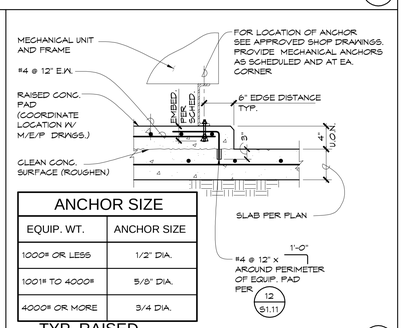
TYP. MECH. EQUIP. ANCHORAGE W/ CONC. PAD OVER VOID FORM AT ROOF (23)



NOTE:
WHERE "t" EXCEEDS 6" PROVIDE PAD PER 23 -

TYP. MECHANICAL EQUIPMENT ANCHORAGE WITH CONC. PAD (18)

5380-01

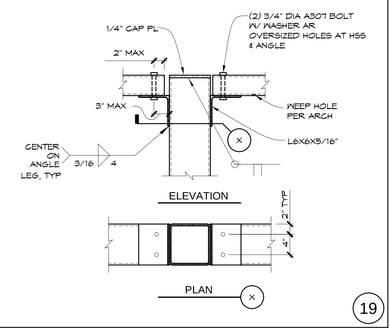


ANCHOR SIZE	
EQUIP. WT.	ANCHOR SIZE
1000# OR LESS	1/2" DIA.
1001# TO 4000#	5/8" DIA.
4000# OR MORE	3/4 DIA.

TYP. RAISED EQUIPMENT PAD AND ANCHORAGE (13)

2280-01LC

NOT USED (24)



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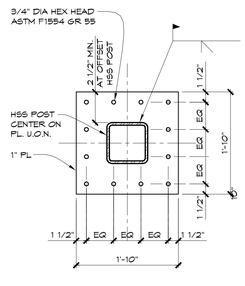
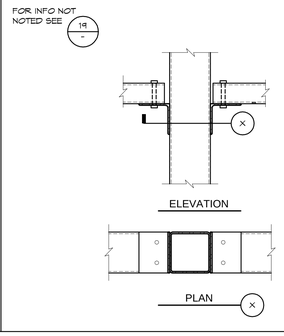
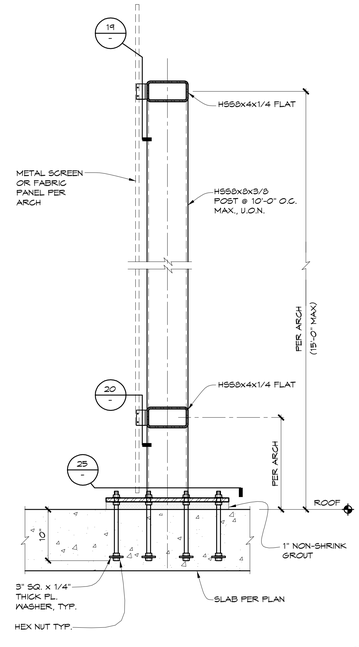


(25)



(20)



TYP ROOF SCREEN (15)

EQUIPMENT ANCHORAGE SCHEDULE

EQUIP. CALLOUT	MAX. OPER. WT. (LBS)	LOCATION	ANCHORAGE	DETAIL	COMMENTS
GH 1	26,000	MAIN ROOF	(10) 3/4" DIA. ANCHORS EMBED 4 3/4"	23/-	
BT 1	5,600	MAIN ROOF	(4) 5/8" DIA. ANCHORS EMBED 3 1/8"	18/-	
P 1	750	MAIN ROOF	(8) 1/2" DIA. ANCHORS EMBED 2"	22/-	(2) ANCHORS PER SPRING ISOLATOR
P 2	750	MAIN ROOF	(8) 1/2" DIA. ANCHORS EMBED 2"	22/-	(2) ANCHORS PER SPRING ISOLATOR
EX 1	1,500	MAIN ROOF	(3) 5/8" DIA. ANCHORS EMBED 3 1/8"	18/-	
RF 1	140	MAIN ROOF	(4) 1/2" DIA. ANCHORS EMBED 2"	18/-	
SCF 1-1	2,400	MAIN ROOF	(4) 5/8" DIA. ANCHORS EMBED 3 1/8"	18/-	
SCF 1-2	2,400	MAIN ROOF	(4) 5/8" DIA. ANCHORS EMBED 3 1/8"	18/-	
EG 1	6,500	LEVEL 1	(10)-3/4" DIA. ANCHORS EMBED 4 3/4"	18/-	APPROXIMATE DIMENSIONS & WEIGHT
EG 3	5,600	LEVEL 3	(8)-3/4" DIA. ANCHORS EMBED 4 3/4"	18/-	APPROXIMATE DIMENSIONS & WEIGHT
HP X	2,200	MAIN ROOF	(4)-1/2" DIA. ANCHORS EMBED 2"	23/-	
CU X-X	150	MAIN ROOF	(4)-1/2" DIA. ANCHORS EMBED 2"	22/-	
EF 4-X	375	UPPER ROOF		12/-	
EF X-X	60	LEVEL 1-3		11/-	
MUA X-X	375	LEVEL 1-3		11/-	
FC X-X	240	LEVEL 1-3		11/-	
EXH 1	800	LEVEL 1	(3)-1/2" DIA. ANCHORS EMBED 2"	18/-	
VFD 1	20,300	MAIN ROOF	(12)-3/4" DIA. ANCHORS EMBED 4 3/4"	18/-	APPROXIMATE DIMENSIONS & WEIGHT
VFD 2	20,300	MAIN ROOF	(12)-3/4" DIA. ANCHORS EMBED 4 3/4"	18/-	APPROXIMATE DIMENSIONS & WEIGHT
- -					
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NOTES:
1. ALL MECHANICAL ANCHORS TO BE HILTI KB-TZ. ANCHORAGE EMBED LISTED IS THE EFFECTIVE EMBED PER HILTI KB-TZ ICC ESR-1917.
2. MINIMUM ANCHORAGE SHOWN, ANCHOR SIZE AND LAYOUT SHOULD BE VERIFIED & COORDINATED WITH MANUFACTURER REQUIREMENT.
2. SEE ARCH. AND MEP DRAWINGS FOR COMPLETE EQUIPMENT LIST, LAYOUT AND LOCATIONS.

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No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

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PLOT DATE: 03-06-15
TITLE: TYPICAL DETAILS
DRAWING NO: S1.15

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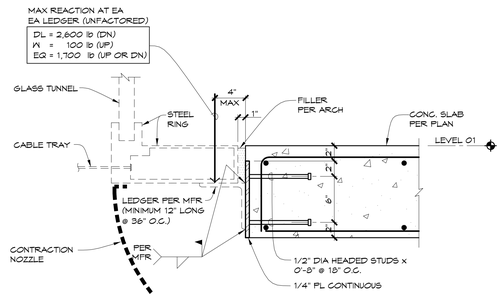
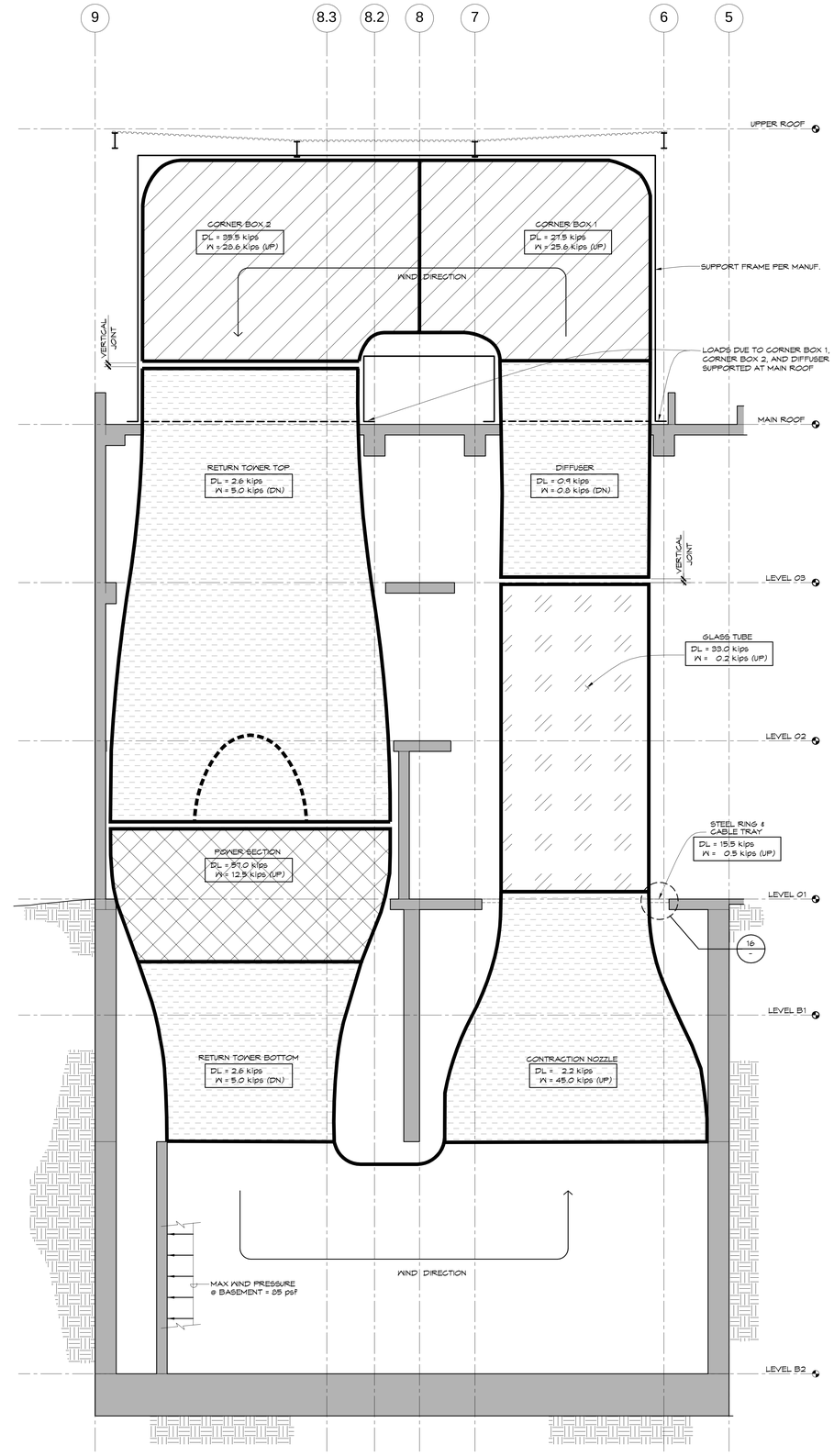


16



5 **WIND TUNNEL SUMMARY AND DESIGN LOADS**

3/16" =1'-0"

NOTES/LEGEND:

1. WIND TUNNEL COMPONENTS AND ANCHORAGE TO STRUCTURE ARE PER MANUFACTURER. COORDINATE TUNNEL LOCATION, ANCHORAGE AND BRACING WITH ARCH.
2. "DL" INDICATES OVERALL WEIGHT OF COMPONENT USED IN STRUCTURAL DESIGN.
3. "W" INDICATES OVERALL WIND FORCE ON COMPONENT DUE TO TUNNEL IN OPERATION, USED IN STRUCTURAL DESIGN.

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PLOT DATE:
03-06-15

TITLE:

WIND TUNNEL COMPONENTS

DRAWING NO:

S1.16

5

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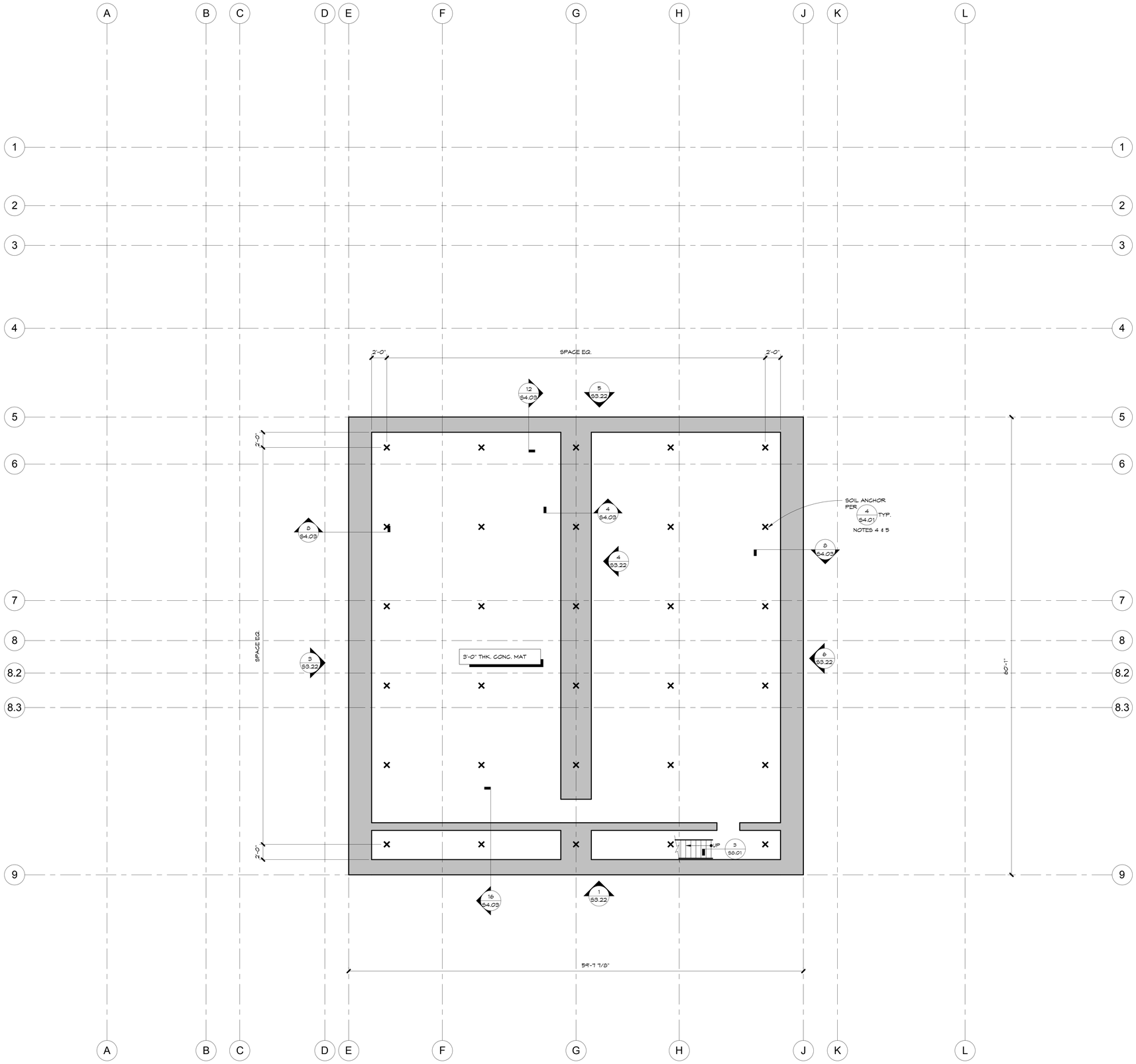

1 LEVEL B2 - CONCRETE OUTLINE
3/16" = 1'-0"

FOUNDATION NOTES:

1. FOR LEGEND, SEE SHEET S2.1.A
2. FOR FOUNDATION NOTES, SEE SHEET S2.1.A
3. FOR SLAB REINFORCEMENT NOT SHOWN, SEE SHEET S2.B2.B
4. SOIL ANCHOR QUANTITY SHOWN ASSUMES DEWATERING IS PROVIDED AT SITE UNTIL BASEMENT WALL CONSTRUCTION HAS REACHED GRADE LEVEL.
5. SOIL ANCHOR CAPACITY AS DESIGNED BY MANUF SHALL BE 105 KIPS MINIMUM.

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DRAWN BY: CHECKED BY:

PLOT DATE:

TITLE:
LEVEL B2 - CONCRETE OUTLINE

DRAWING NO:
S2.B2.A

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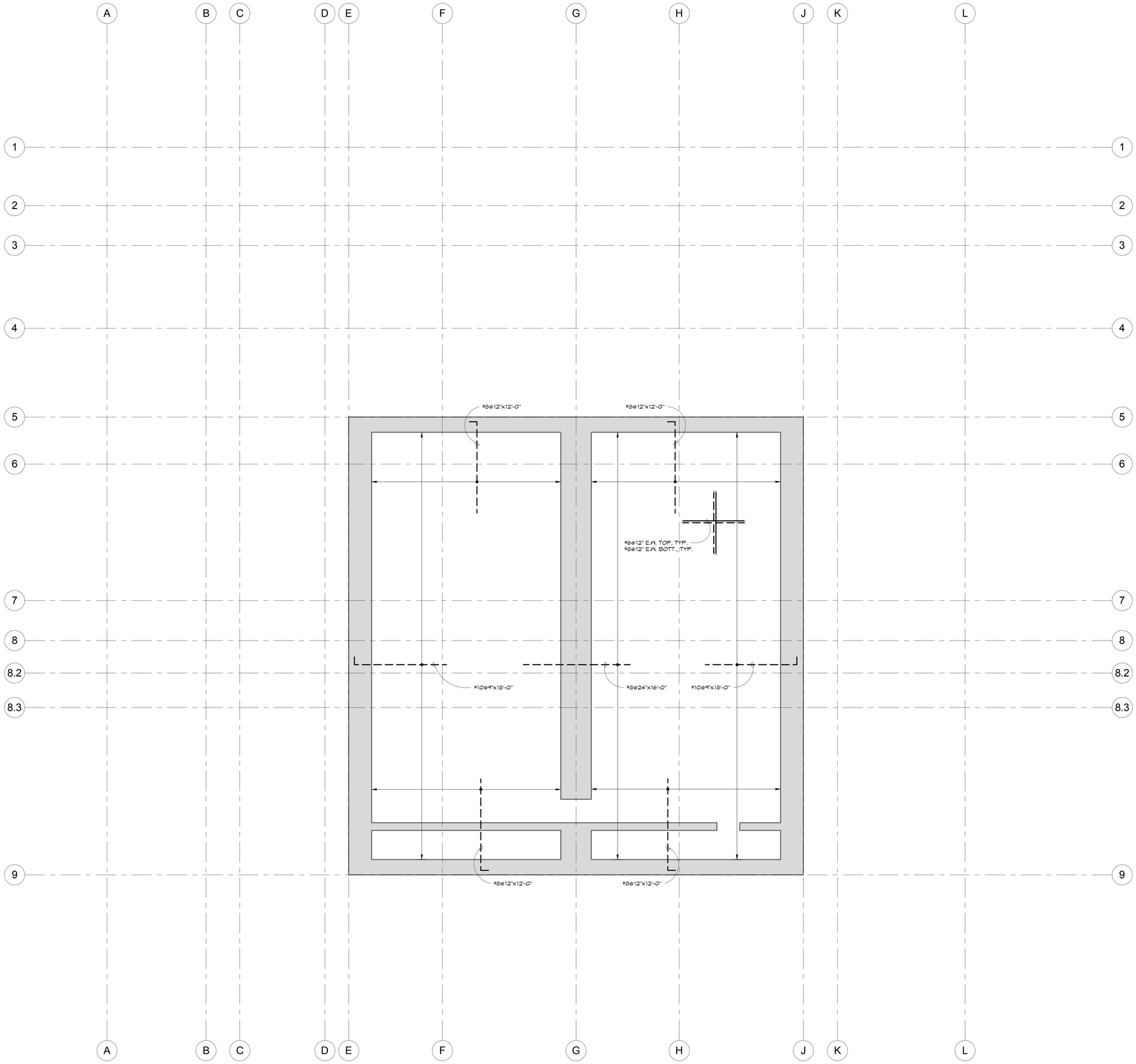

1 LEVEL B2 - REINFORCEMENT PLAN
3/16" = 1'-0"

N

FOUNDATION NOTES:

1. FOR ADDITIONAL NOTES SEE S2.B2.A

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STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: Author
CHECKED BY: Checker

PLOT DATE:

TITLE:
LEVEL B2 - REINFORCEMENT PLAN

DRAWING NO:
S2.B2.B

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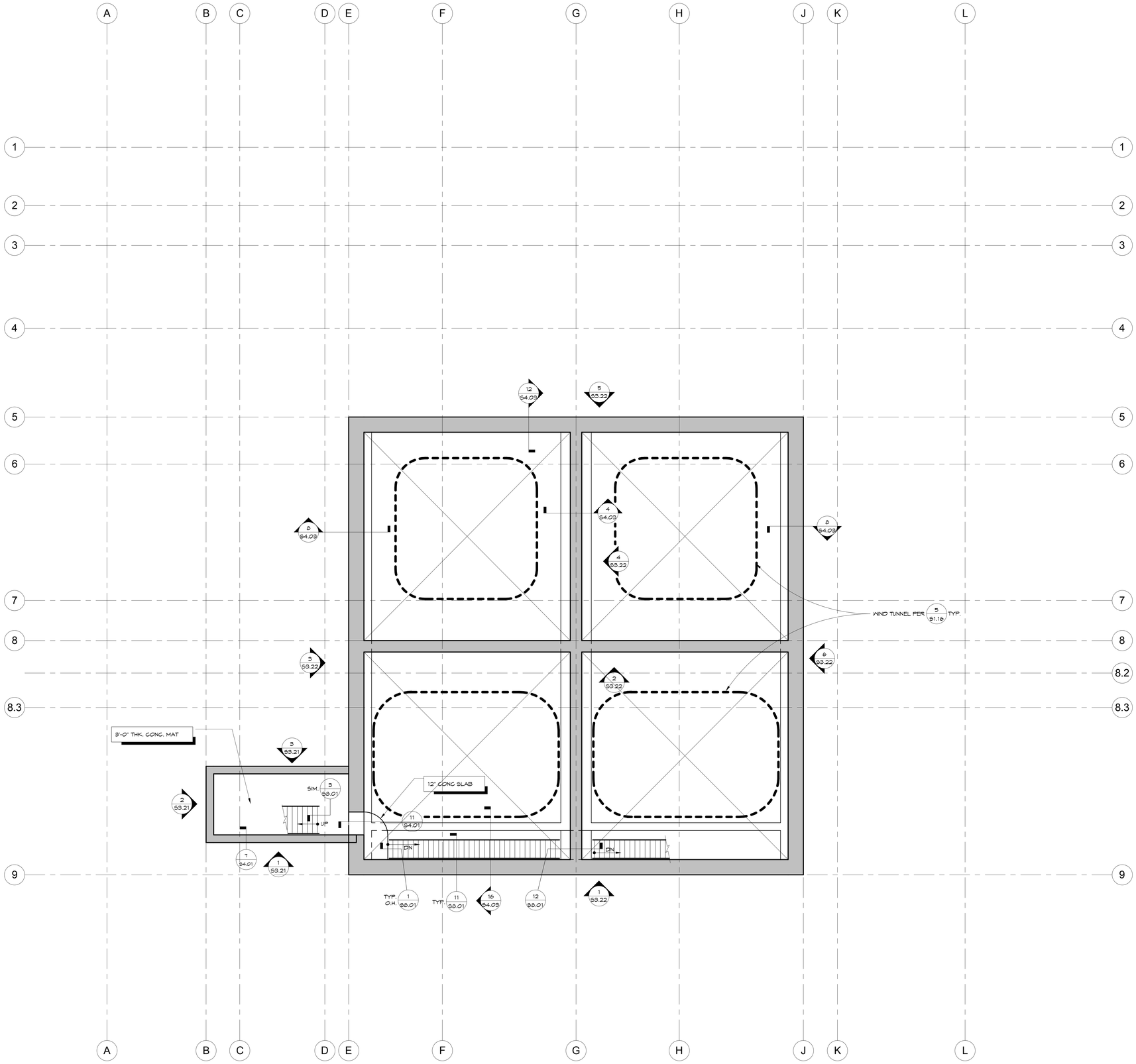

1 LEVEL B1 - CONCRETE OUTLINE
3/16" = 1'-0"

N

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.1A
2. FOR FRAMING NOTES AND LEGEND SEE S2.2A

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PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:

TITLE:

LEVEL B1 - CONCRETE OUTLINE

DRAWING NO:

S2.B1.A

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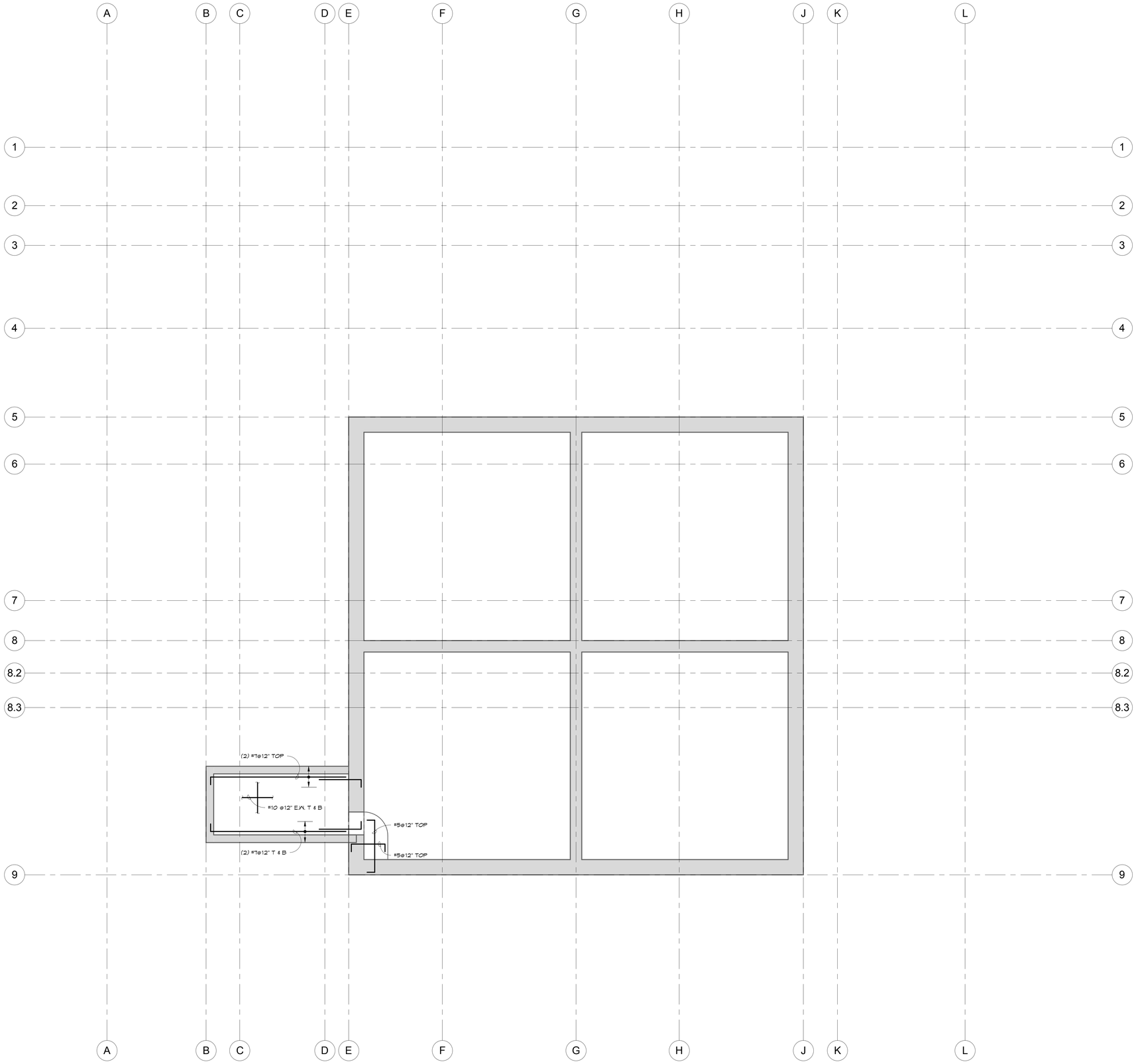

1 LEVEL B1 - REINFORCEMENT PLAN
3/16" = 1'-0"

N

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.B1.A

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03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00

FILE NAME:

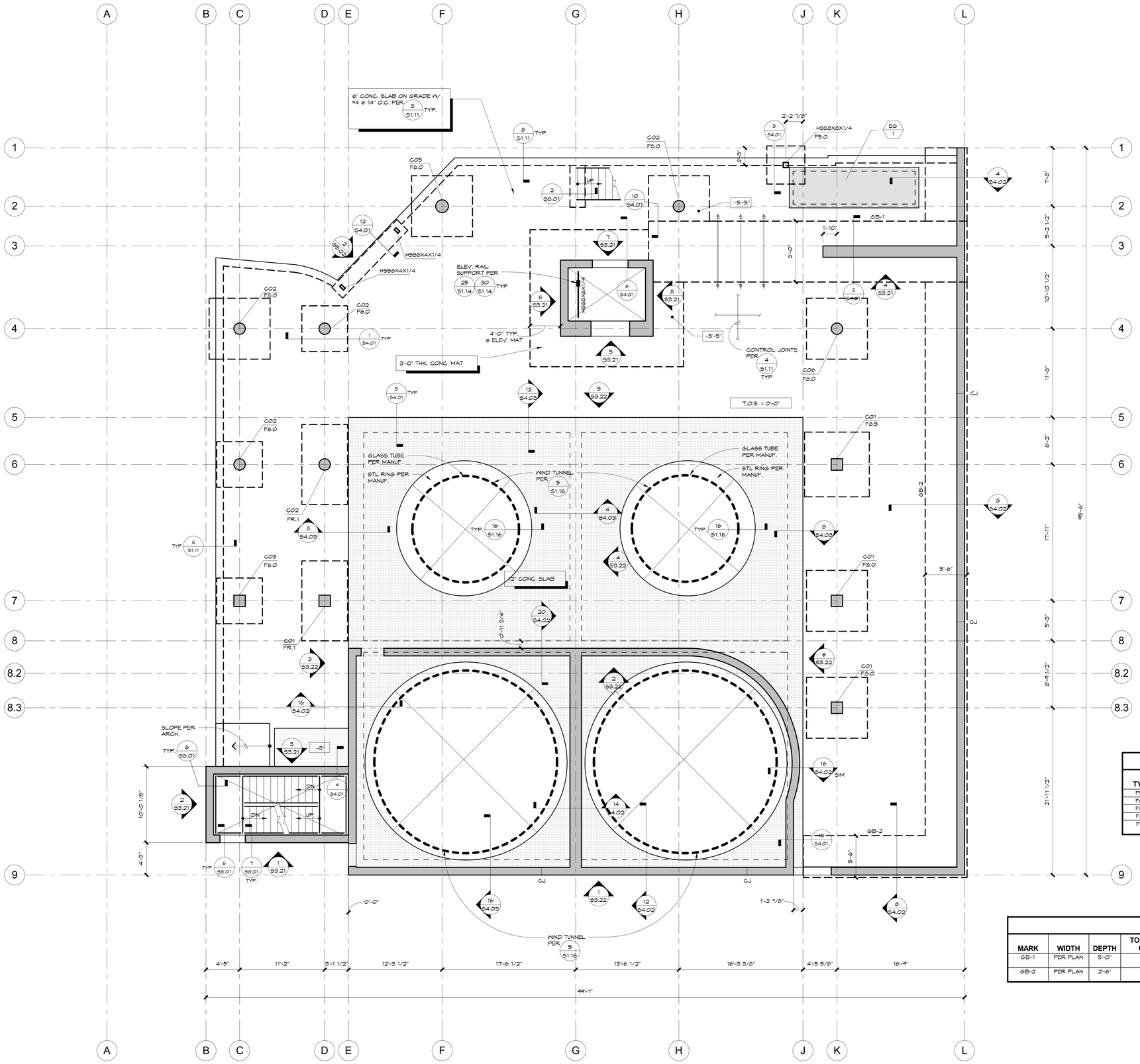
DRAWN BY: Author
CHECKED BY: Checker

PLOT DATE:

TITLE:
LEVEL B1 - REINFORCEMENT PLAN

DRAWING NO:
S2.B1.B

ALL IDEAS, DESIGN, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY, AND THE PROPERTY OF CARRIER JOHNSON + CULTURE AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON, AND IN CONNECTION WITH THIS PROJECT. NONE OF SUCH IDEAS, DESIGN, ARRANGEMENTS, OR PLANS SHALL BE USED BY, OR DISCLOSED TO ANY PERSON, FIRM, OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN PERMISSION OF CARRIER JOHNSON + CULTURE. FILING THESE DRAWINGS OR SPECIFICATIONS WITH ANY PUBLIC AGENCY IS NOT A PUBLICATION OF SAME. NO COPYING, REPRODUCTION OR USE THEREOF IS PERMISSIBLE WITHOUT THE CONSENT OF CARRIER JOHNSON + CULTURE.



1 LEVEL 1 - CONCRETE OUTLINE
3/16" = 1'-0"

CONCRETE FOUNDATION NOTES:

1. ELEVATIONS SHOWN ARE NOMINAL TOP OF SLAB ELEVATION: (DATUM 0'-0" = 13'-0" FT. MSL) SEE THE ARCHITECTURAL DRAWINGS FOR PRECISE TOP OF SLAB ELEVATIONS AND DRAINAGE REQUIREMENTS.
2. TYPICAL TOP OF FOOTING ELEVATION SHALL BE 1'-0" BELOW TOP OF SLAB-ON-GRADE, UON.
3. TYPICAL TOP OF MAT FOUNDATION SHALL BE AT FINISH FLOOR, UON.
4. UNLESS OTHERWISE INDICATED, LAP SPLICES OF LONGITUDINAL GRADE BEAM REINFORCING SHALL BE:

BAR SIZE	SPLICE LENGTH
#6	4'-0"
#7	5'-10"
#8	6'-9"
#9	7'-7"

5. TOPS OF FOOTINGS ADJACENT TO ELVATOR PIT SHALL MATCH FLOOR OF ELEVATOR PIT (VERIFY WITH ELEVATOR MANUFACTURER).
6. FOR SIZE AND LOCATION OF SLAB EDGES, CURBS, TOPPING SLABS, SLOPES,DEPRESSIONS OR PENETRATIONS IN THE FOUNDATION SEE ARCHITECTURAL OR MEP DRAWINGS. CONFIRM ELEVATOR PENETRATIONS WITH ELEVATOR MANUFACTURER.
7. PENETRATIONS IN THE FOUNDATION NOT SHOWN ON THE STRUCTURAL DRAWINGS THAT EXCEED 6" IN ANY DIRECTION SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
8. FOUNDATIONS SHALL BEAR IN SOIL WITH ALLOWABLE BEARING PRESSURE OF 6,000 PSF MINIMUM (TERRACE DEPOSITS AND/OR BAY POINT FORMATION AS DETERMINED BY THE GEOTECHNICAL ENGINEER). SLURRY FILL BELOW FOOTINGS WHERE REQUIRED TO ACHIEVE BEARING DEPTH.
9. FOR CONCRETE FRAMING NOTES AND LEGEND SEE SHEET S2.2.A.
10. FOR WIND TUNNEL HEIGHTS AND REACTIONS SEE SHEET S1.16

CONCRETE FOUNDATION LEGEND:

F13.0 — SPREAD FOOTING PER SCHEDULE

GB-1 — GRADE BEAM PER SCHEDULE

(-)2'-6" — TOP OF FOUNDATION ELEVATION OTHER THAN TYPICAL (ELEVATION GIVEN IS RELATIVE TO DATUM)

FOUNDATION STEP PER 15/S1.11

C1 — CAST-IN-PLACE COLUMN PER SCHEDULE 7/S3.01 (MARK IS GIVEN AT BASE OF COLUMN)

CAST-IN-PLACE CONCRETE WALL

STEP IN SLAB SURFACE PER 9/S1.11 (VERIFY HEIGHT, LOCATION, AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS)

3" — AREA OF DEPRESSION IN SLAB SURFACE 9/S1.11 (VERIFY DEPTH, LOCATION, SLOPE, AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS)

TOP MAT REINFORCEMENT (LAP BARS AT MID-SPAN, U.O.N. PER PLAN)
UPPER LAYER
LOWER LAYER

BOTTOM MAT REINFORCEMENT (LAP BARS AT WALL OR COLUMN LINES, U.O.N. PER PLAN)
UPPER LAYER
LOWER LAYER

SPREAD FOOTING SCHEDULE

TYPE	SIZE W	SIZE L	SIZE D	REINFORCEMENT	DETAIL
F5.0	5'-0"	5'-0"	1'-6"	(5)-#6 EA. WAY BOTT	1/S4.01
F6.0	6'-0"	6'-0"	1'-6"	(6)-#6 EA. WAY BOTT	1/S4.01
F8.0	8'-0"	8'-0"	2'-0"	(8)-#7 EA. WAY BOTT	1/S4.01
F8.5	8'-6"	8'-6"	2'-0"	(9)-#7 EA. WAY BOTT	1/S4.01
FR.1	8'-0"	10'-6"	2'-6"	(6)-#9 LONG BOTT & (7)-#9 TRANSV BOTT	1/S4.01

GRADE BEAM SCHEDULE

MARK	WIDTH	DEPTH	TOP REINF. CONT.	BOTT. REINF. CONT	TIE REINFORCEMENT		DETAIL	COMMENTS
						# OF LEGS		
GB-1	PER PLAN	5'-0"	(8)-#9	(8)-#9	#5 @ 12"	(6)	2/S4.01	SEE S2.1.B FOR ADD'L REINF.
GB-2	PER PLAN	2'-6"	(6)-#6	(6)-#6	#5 @ 12"	(4)	8/S4.02	SEE S2.1.B FOR ADD'L REINF.

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11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT

ISSUES:

REGISTERED PROFESSIONAL ENGINEER — JAMES A. AMUNDSON — No. 3332 — Exp. 12-31-15 — STRUCTURAL — STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:

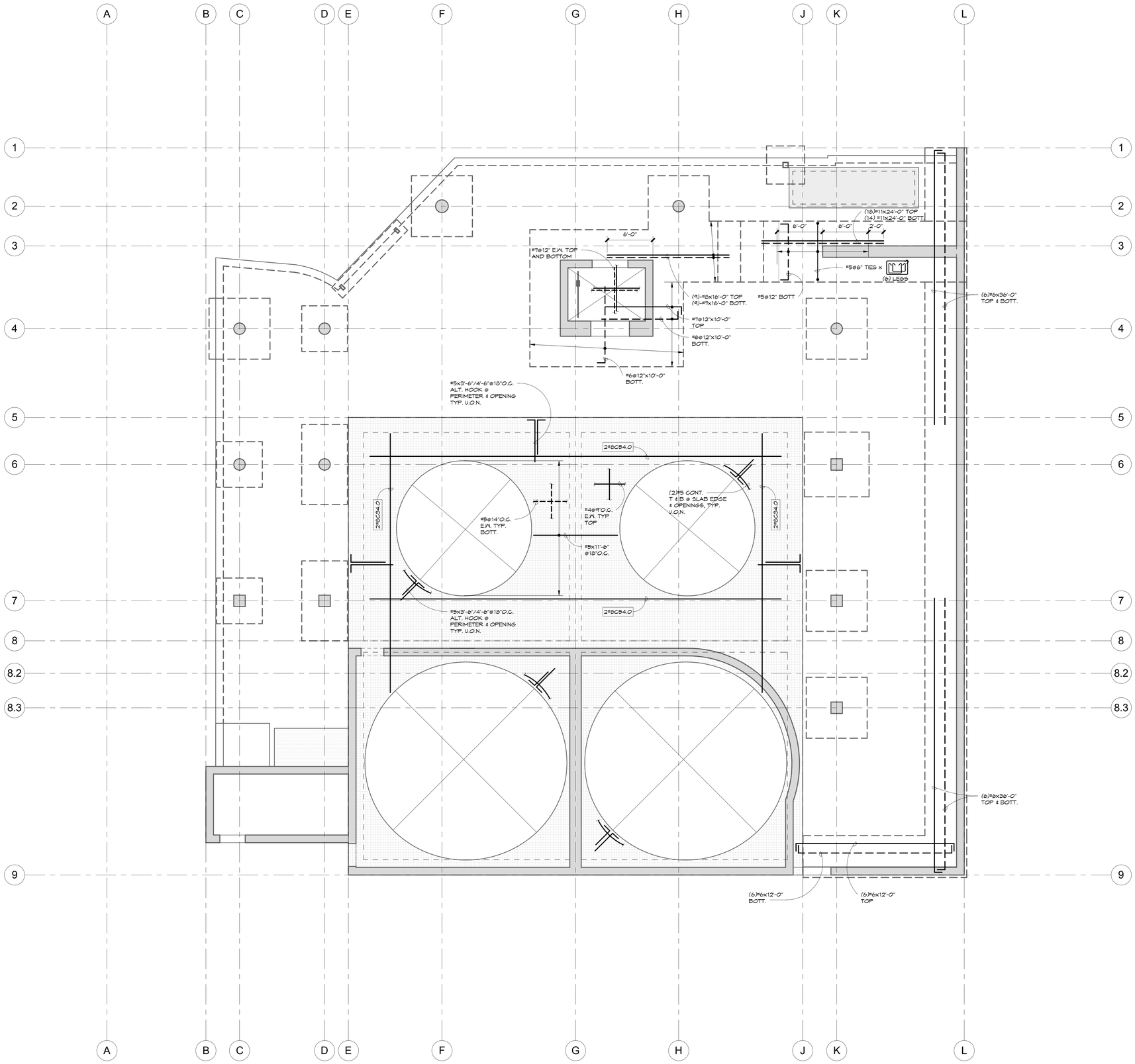
TITLE:

LEVEL 1 - CONCRETE OUTLINE

DRAWING NO:

S2.1.A

ALL IDEAS, DESIGN, ARRANGEMENTS AND PLANS INDICATED OR REPRESENTED BY THIS DRAWING ARE OWNED BY, AND THE PROPERTY OF CARRIER JOHNSON + CULTURE AND WERE CREATED, EVOLVED AND DEVELOPED FOR USE ON, AND IN CONNECTION WITH THIS PROJECT. NONE OF SUCH IDEAS, DESIGN, ARRANGEMENTS, OR PLANS SHALL BE USED BY, OR DISCLOSED TO ANY PERSON, FIRM, OR CORPORATION FOR ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN PERMISSION OF CARRIER JOHNSON + CULTURE. FILING THESE DRAWINGS OR SPECIFICATIONS WITH ANY PUBLIC AGENCY IS NOT A PUBLICATION OF SAME. NO COPYING, REPRODUCTION OR USE THEREOF IS PERMISSIBLE WITHOUT THE CONSENT OF CARRIER JOHNSON + CULTURE.



1 LEVEL 1 - REINFORCEMENT PLAN
3/16" = 1'-0"

N

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.1.A

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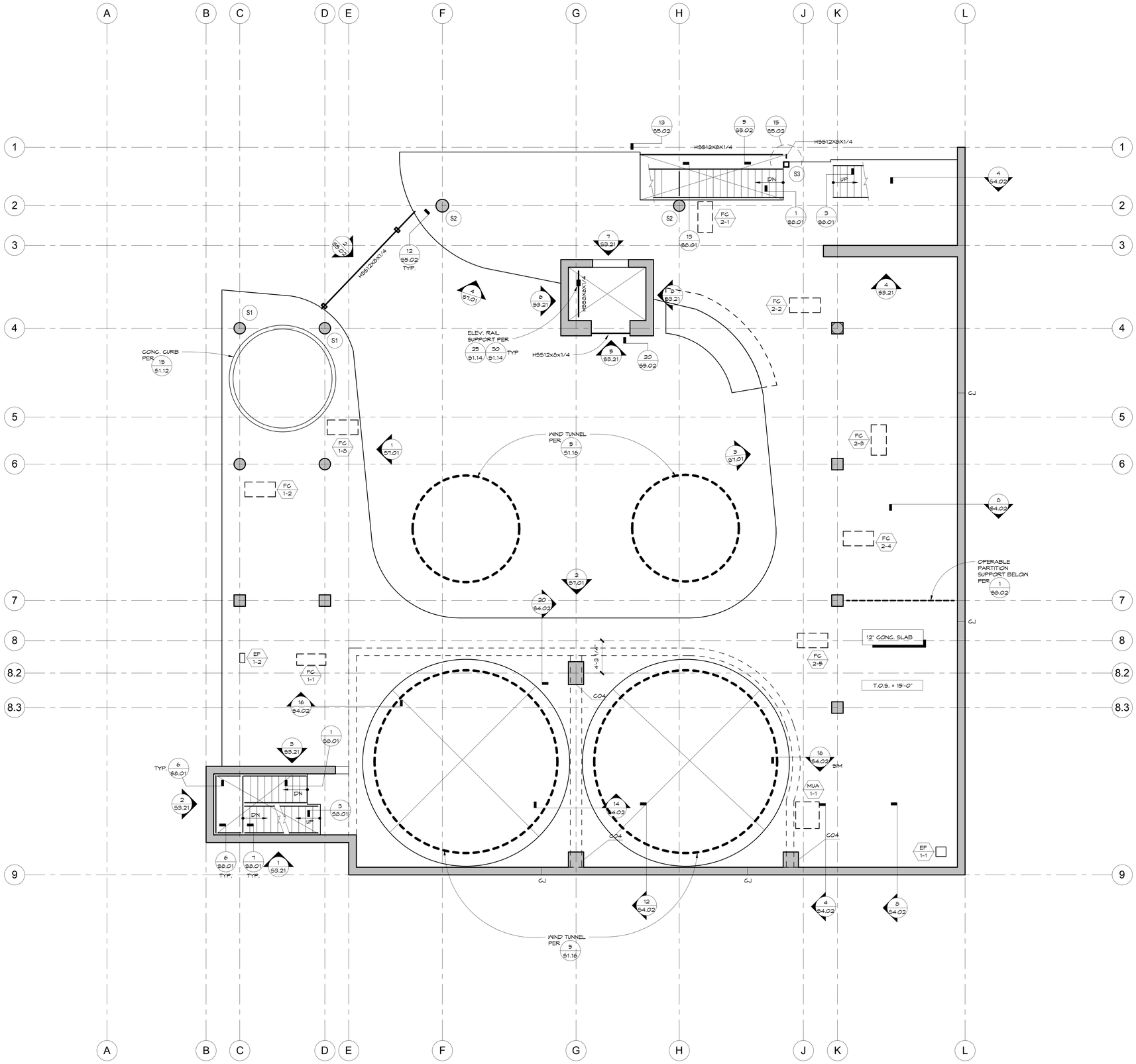
LEVEL 1 - REINFORCEMENT PLAN

DRAWING NO:
S2.1.B



1 LEVEL 2 - CONCRETE OUTLINE
3/16" = 1'-0"

CONCRETE FRAMING NOTES:

1. ELEVATIONS SHOWN ARE NOMINAL TOP OF SLAB ELEVATION: (DATUM:10'-0" = 13'-0" FT. MSL) SEE THE ARCHITECTURAL DRAWINGS FOR PRECISE TOP OF SLAB ELEVATIONS AND DRAINAGE REQUIREMENTS.
2. FOR SIZE AND LOCATION OF SLAB EDGES, CURBS, TOPPING SLABS, SLOPES,DEPRESSIONS OR PENETRATIONS IN STRUCTURAL SLAB SEE ARCHITECTURAL OR MEP DRAWINGS. CONFIRM ELEVATOR PENETRATIONS WITH ELEVATOR MANUFACTURER.
3. PENETRATIONS IN THE STRUCTURAL SLAB NOT SHOWN ON THE STRUCTURAL DRAWINGS THAT EXCEED 6" IN ANY DIRECTION SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
4. PENETRATIONS IN THE STRUCTURAL SLAB SHALL NOT BE LOCATED WITHIN THE WIDTH OF THE BANDED TENDONS.
5. THE REINFORCING PLAN PROVIDES FLEXURE AND TEMPERATURE REINFORCING REQUIREMENTS. FOR CHORD, TRIM, SHEAR HEAD AND OTHER SPECIAL REINFORCING SEE THE CONCRETE OUTLINE PLAN.
6. SPECIAL REINFORCING (AT OPENINGS AND RE-ENTRANT CORNERS, AND AT SLAB CORNERS) SHALL BE INSTALLED IN ADDITION TO REINFORCING INDICATED ON THE PLANS. (SEE 19 S1.12 20 S1.12 14 S1.12)
7. SEE DETAIL 6 S1.12 FOR ADDITIONAL BOTTOM REINF AT COLUMN.
8. WHERE FLOOR FINISHES HAVE MORE STRINGENT REQUIREMENTS FOR LEVELNESS, FLATNESS OR MOISTURE CONTENT THAN THE CONSTRUCTED FLOOR SLABS, A LEVELING AGENT AND/OR MOISTURE BARRIER MAY BE APPLIED. THE DESIGN OF THE SLAB ACCOUNTS FOR AN AVERAGE THICKNESS OF 3/4" AND A MAXIMUM THICKNESS OF 1 1/2" OF LEVELING AGENT.

CONCRETE FRAMING LEGEND:

TOS=0'-0" — NOMINAL TOP OF SLAB RELATIVE TO DATUM.

CJ — WALL CONTROL JOINT PER 23 S1.11 COORDINATE LOCATION W/ ARCHITECTURAL REVEAL

ELEVATION OR SECTION DRAWING (ILLUSTRATING MORE THAN 1 LEVEL)

B1 — BEAM TYPE PER ELEVATIONS ON S3.11

3" MAX — STEP IN SLAB SURFACE (VERIFY HEIGHT, LOCATION AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS)

-3" — AREA OF DEPRESSION IN SLAB SURFACE (VERIFY DEPTH, LOCATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS)

TOP SLAB REINFORCEMENT (LAP BARS AT MIDSPAN, U.O.N. PER PLAN)
- UPPER LAYER (TYPICAL COVER U.O.N. = 1")
- LOWER LAYER

BOTTOM SLAB REINFORCEMENT (LAP BARS AT WALL OR COLUMN LINES, U.O.N. PER PLAN)
- UPPER LAYER
- LOWER LAYER (TYPICAL COVER U.O.N. = 1")

4#8C56.0 — CHORD BAR DESIGNATION.
CHORD BARS TO BE PLACED DIRECTLY ABV. BOTT REBAR MAT.
LOCATE FIRST BAR 6" FROM FACE OF COLUMN.
SPACE MULTIPLE BARS AT 6" O.C. (MIN.).
LAP SPLICE CHORD BARS 4'-8".
LAPS SHALL BE STAGGERED AND LIMITED TO HALF OF CHORD BARS AT ONE LOCATION
- LENGTH IN FEET
- CHORD BAR (C)
- BAR SIZE
- QUANTITY OF BARS

S — SHEAR HEAD REINF PER SCHEDULE 12 S1.12

A — STEEL COLUMN & BASE PL PER SCHEDULE 14 S1.14

RAISED CONCRETE PAD PER 15 S1.15

MECHANICAL EQUIPMENT PER SCHEDULE 5 S1.15

2 1/4 — TENDON PROFILE CONTROL POINT. VALUE GIVEN INDICATES DISTANCE IN INCHES FROM THE BOTTOM OF THE SLAB TO THE CENTER OF GRAVITY OF THE TENDON (CGS)

TENDON DEAD END

TENDON STRESSING END

(L)-(7) #5x14'-6"@9"O.C. INDICATES LONG BARS PER 1 S1.12

(S)-(14) #5x11'-0"@12"O.C. INDICATES SHORT BARS PER 1 S1.12

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11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT

ISSUES:

REGISTERED PROFESSIONAL ENGINEER — JAMES A. AMUNDSON — No. 3332 — Exp. 12-31-15 — STRUCTURAL — STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:

TITLE:

LEVEL 2 - CONCRETE OUTLINE

DRAWING NO:

S2.2.A

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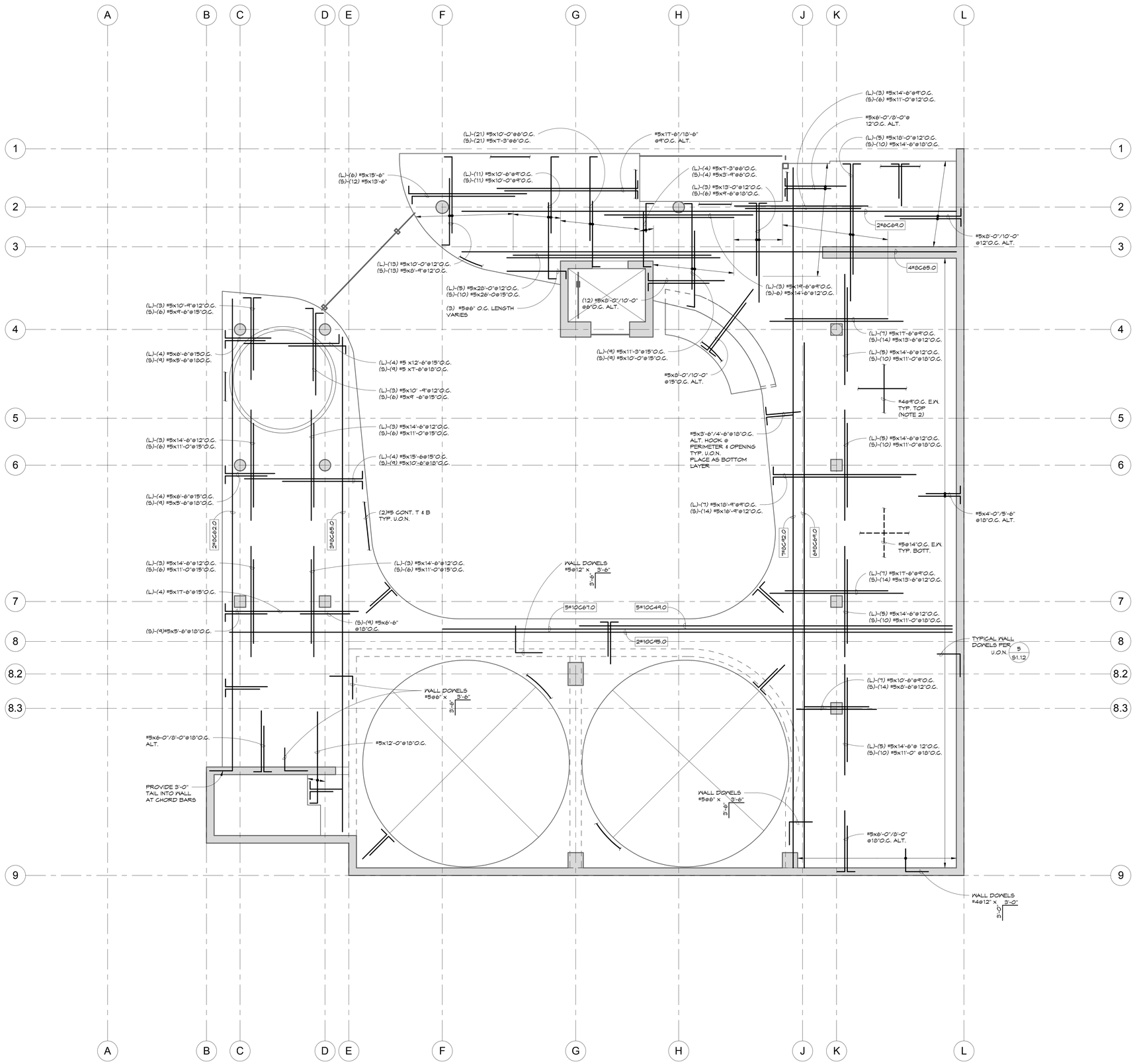

1 LEVEL 2 - REINFORCEMENT PLAN
3/16" = 1'-0"

N

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.2.A
2. TOP REINFORCING IS REQUIRED FOR ARCHITECTURAL EXPOSED CONCRETE. TYPICAL TOP REINFORCING SHOWN MAY BE OMITTED WHERE OTHER TOP BARS ARE INDICATED.

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ISSUES:

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PLOT DATE:

TITLE:
LEVEL 2 - REINFORCEMENT PLAN

DRAWING NO:
S2.2.B

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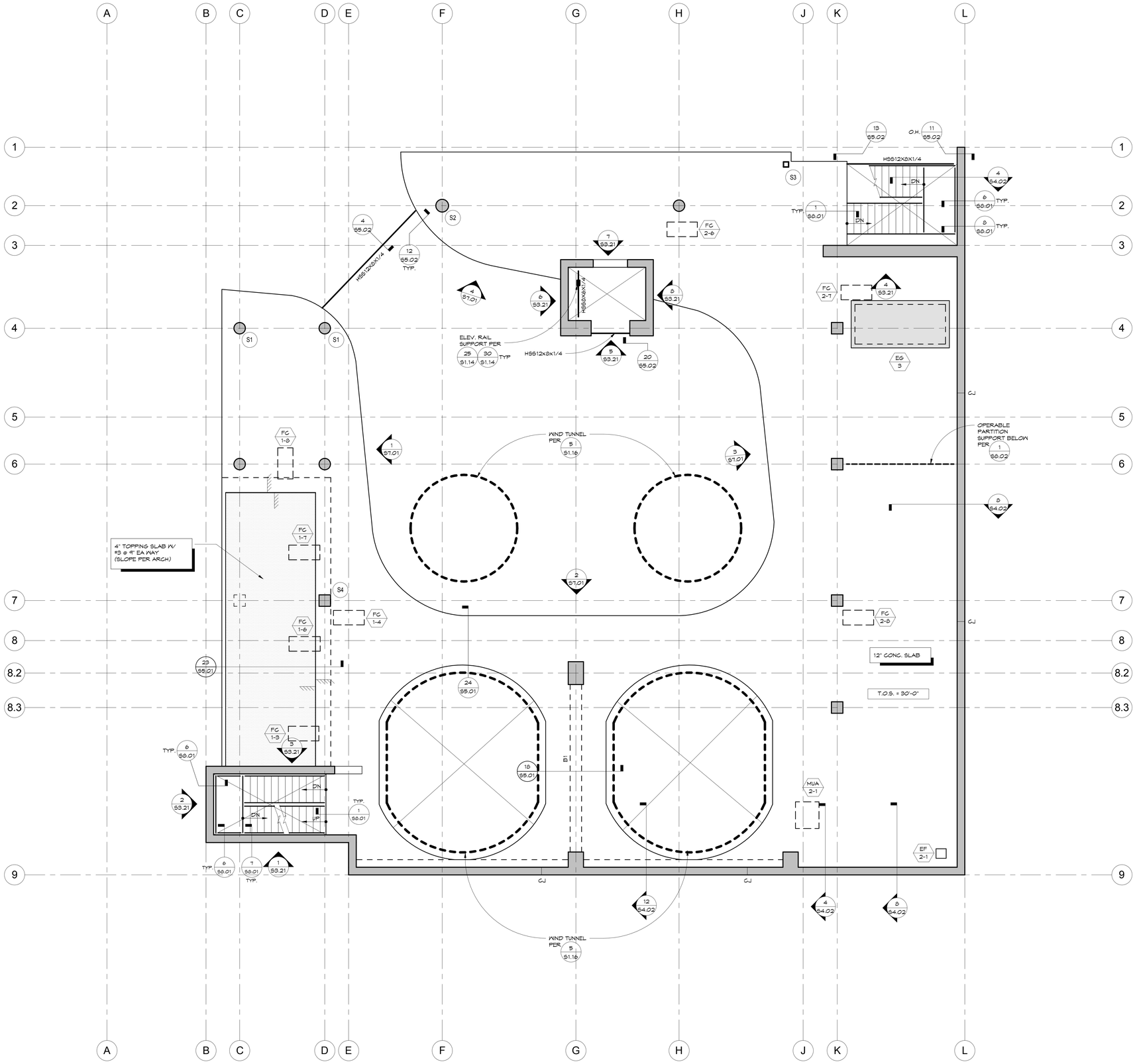

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.1.A
2. FOR FRAMING NOTES AND LEGEND SEE S2.2A

1 LEVEL 3 - CONCRETE OUTLINE
3/16" = 1'-0"

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10-01-14 DESIGN DEVELOPMENT
ISSUES:

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No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00
FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:

TITLE:
LEVEL 3 - CONCRETE OUTLINE

DRAWING NO:
S2.3.A

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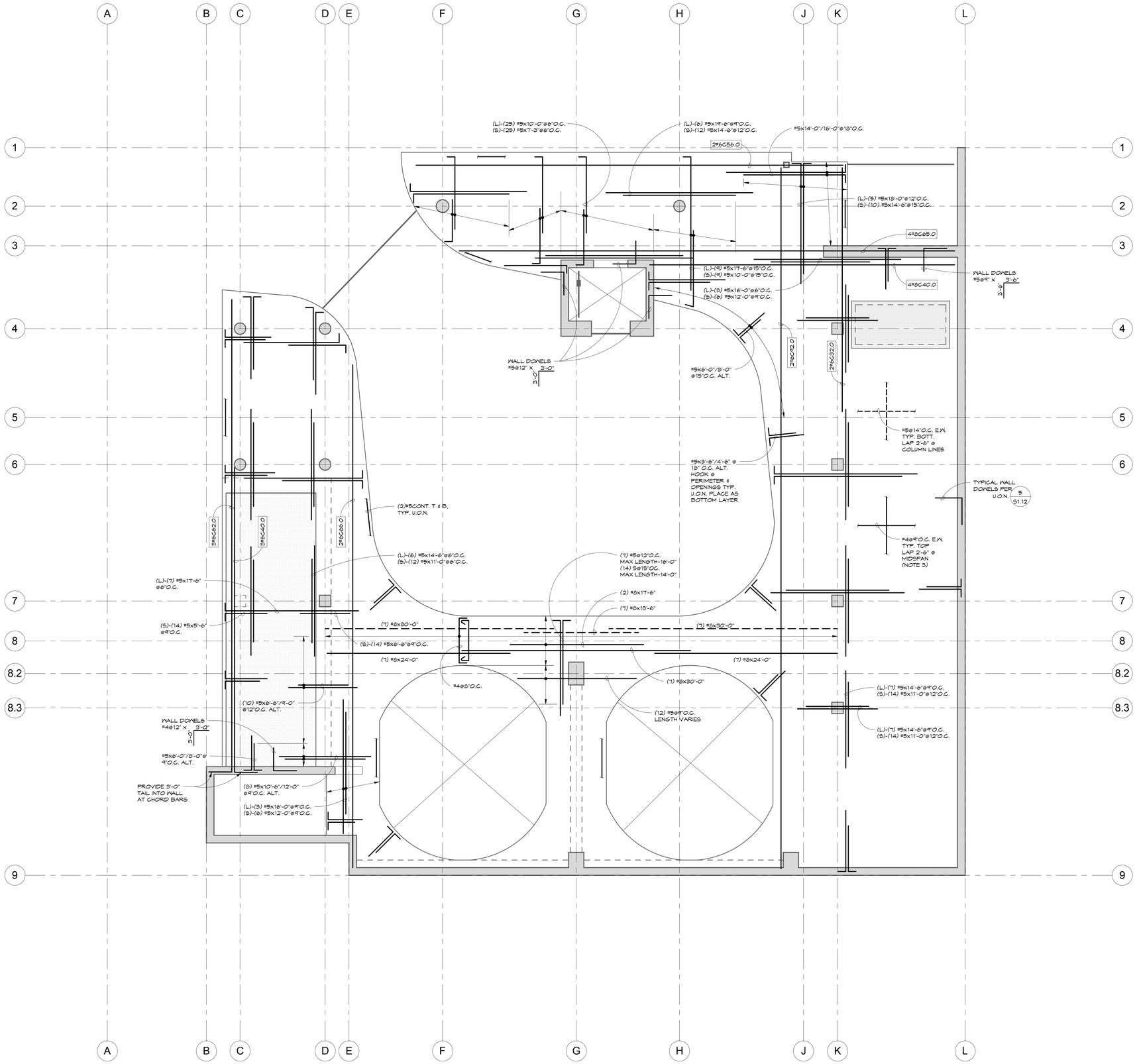

1 LEVEL 3 - REINFORCEMENT PLAN
3/16" = 1'-0"

N

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.3.A
2. FOR REINFORCEMENT NOT NOTED SEE S2.2.B
3. TOP REINFORCING IS REQUIRED FOR ARCHITECTURAL EXPOSED CONCRETE. TYPICAL TOP REINFORCING SHOWN MAY BE OMITTED WHERE OTHER TOP BARS ARE INDICATED.

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12-05-14 PLAN CHECK SUBMITTAL
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES K. AMUNDSON
No. 3322
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00
FILE NAME:

DRAWN BY: Author
CHECKED BY: Checker
PLOT DATE:

TITLE:
LEVEL 3 - REINFORCEMENT PLAN

DRAWING NO:
S2.3.B

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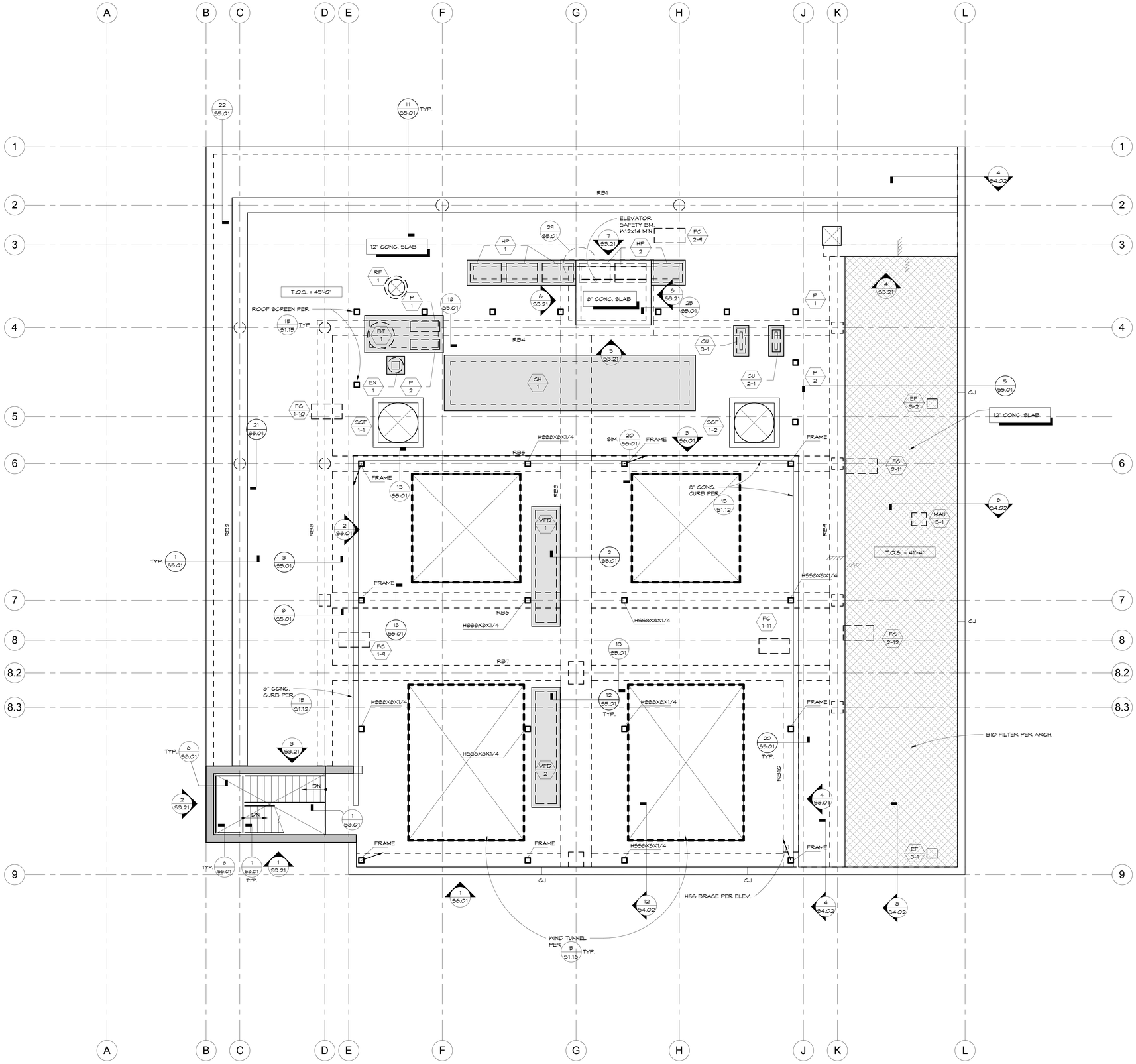
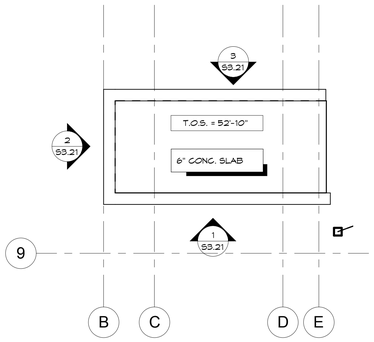


1 MAIN ROOF - CONCRETE OUTLINE
3/16" = 1'-0"

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.1.A
2. FOR FRAMING NOTES AND LEGEND SEE S2.2A



2 PARTIAL STAIR #2 ROOF PLAN
3/16" = 1'-0"

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10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE:
TITLE: MAIN ROOF - CONCRETE OUTLINE
DRAWING NO: S2.4.A

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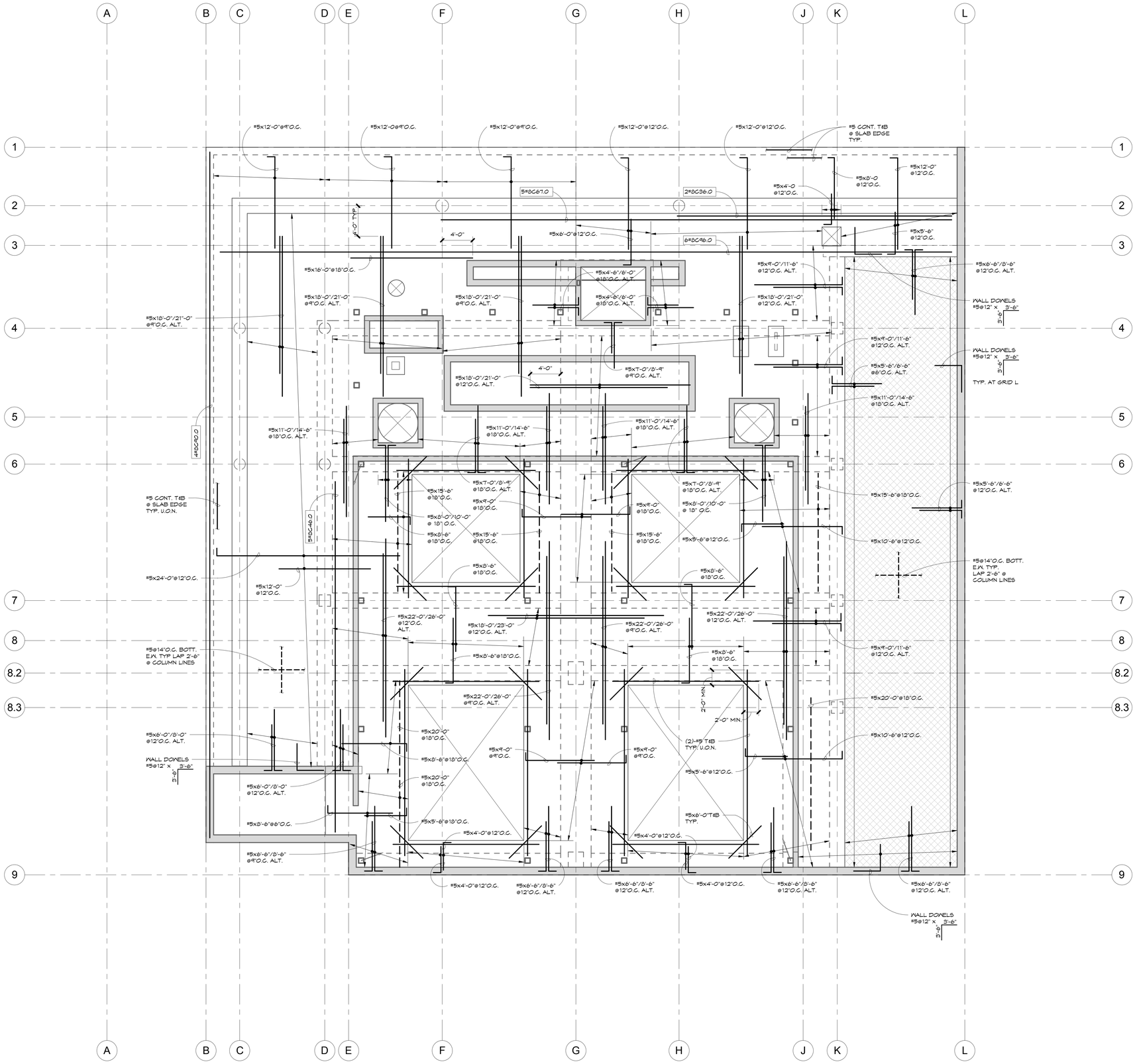
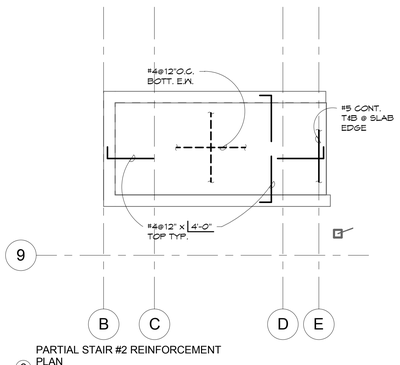


1 MAIN ROOF - REINFORCEMENT PLAN
3/16" = 1'-0"

FRAMING NOTES:

1. FOR ADD'L. NOTES SEE S2.4.A



2 PARTIAL STAIR #2 REINFORCEMENT PLAN
3/16" = 1'-0"

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Structural Engineers

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1401 IMPERIAL AVENUE
SAN DIEGO, CA 92101

03-06-15 PLAN CHECK RESUBMITTAL
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ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: Author
CHECKED BY: Checker
PLOT DATE:
TITLE: MAIN ROOF - REINFORCEMENT PLAN
DRAWING NO:

S2.4.B

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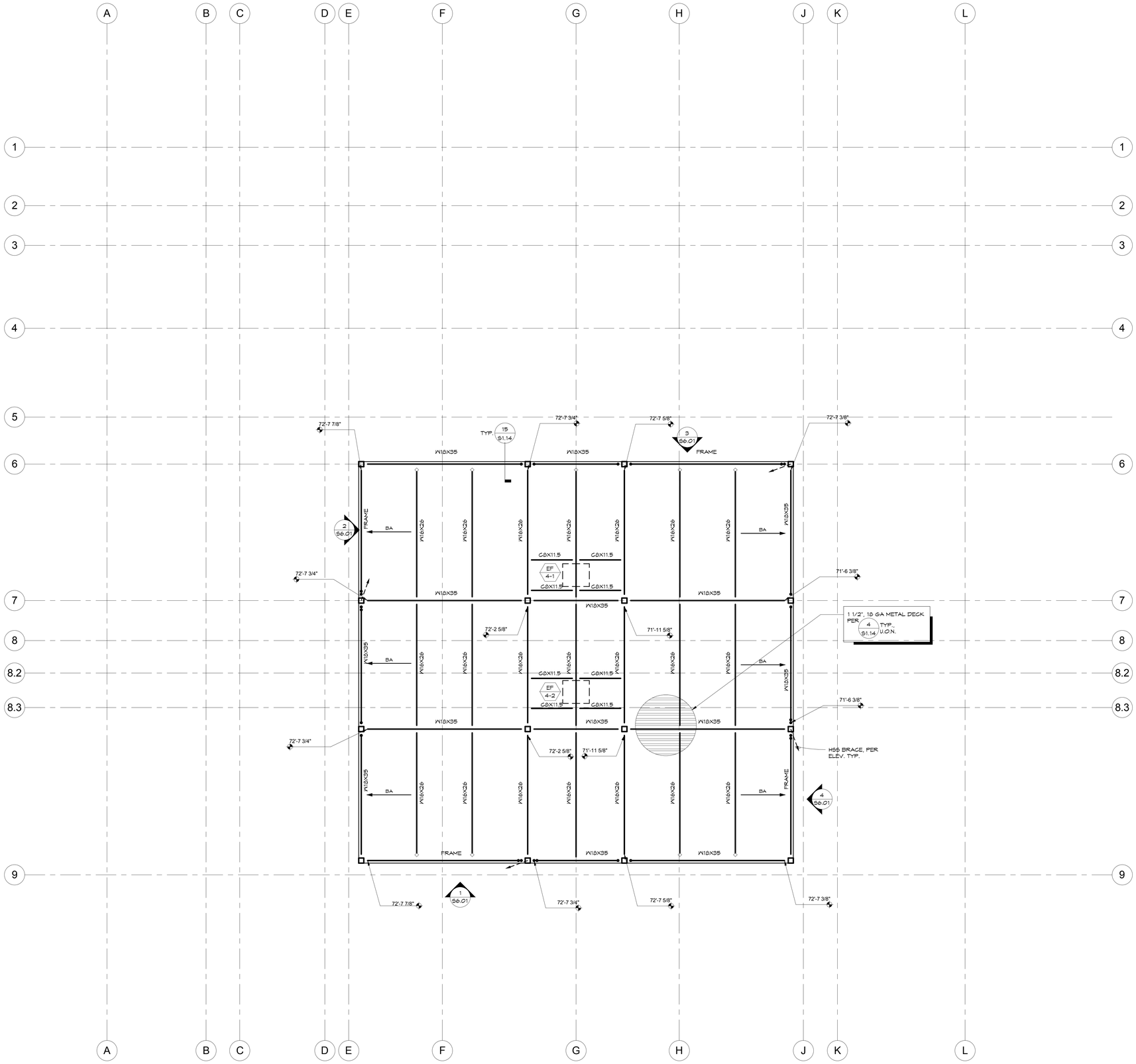

1 UPPER ROOF - FRAMING PLAN
3/16" = 1'-0"

N

STRUCTURAL STEEL NOTES:

1. WHERE SPACING OF BEAMS NOT INDICATED, PROVIDE EQUAL SPACING WITHIN EACH BAY.
2. METAL FLOOR DECK SHALL BE VERCO HSB-36 GALVANIZED OR APPROVED EQUAL. MAX. SPAN = 10'-0" WITH 2 SPAN MINIMUM. (ICC ESR-1135P)
3. COORDINATE W/ MECHANICAL DRAWINGS FOR LOCATION AND SIZES OF MECHANICAL EQUIPMENT AND OPENINGS.

STRUCTURAL STEEL LEGEND:

- BRACED FRAME PER ELEVATIONS
- W18x50 — BEAM SIZE
- (-6") — TOP OF STEEL (RELATIVE TO TYPICAL STEEL ELEVATION)
- BA — BRACE ANGLE PER 10 S1.14; BOTT. FLANGE CONNECTION
- FULL HEIGHT STIFFENER PLATE PER 5 S1.14
- USE OF A325SC (SLIP CRITICAL) BOLTS AT BEAM CONNECTION, PER 1 S6.02
- TOP OF STEEL ELEVATION RELATIVE TO DATUM
- FRAME — INDICATES FRAME MEMBER PER BRACE FRAME ELEVATION

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STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE:
TITLE: UPPER ROOF - FRAMING PLAN
DRAWING NO: S2.5

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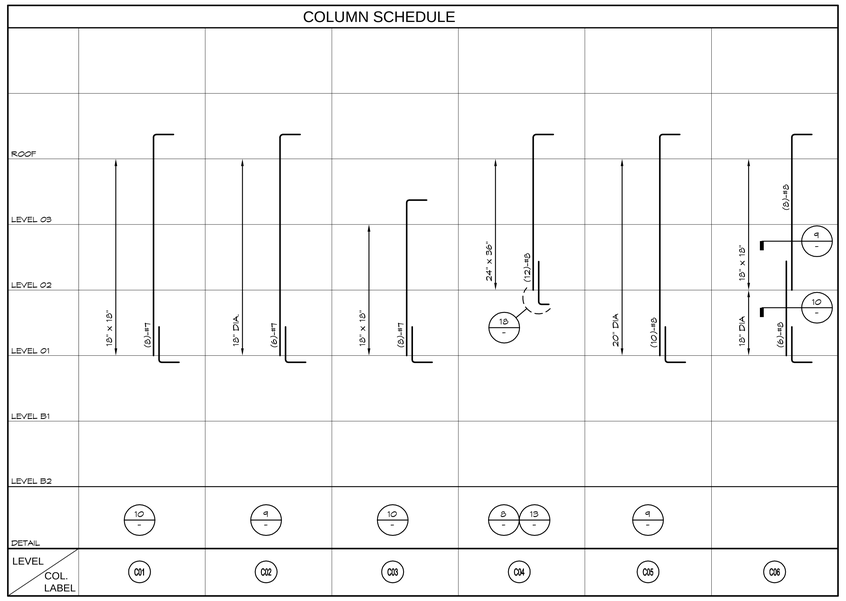
COLUMN SCHEDULE

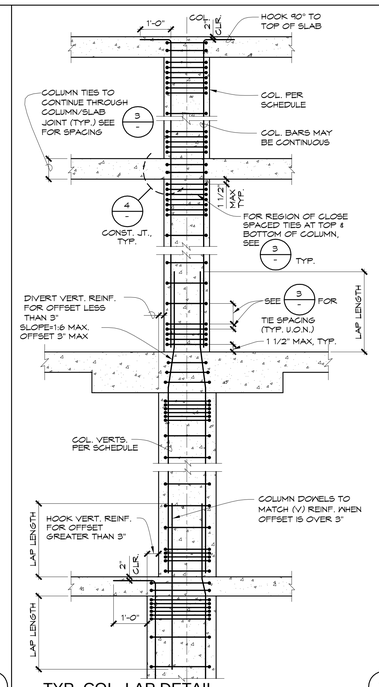


COLUMN NOTES:

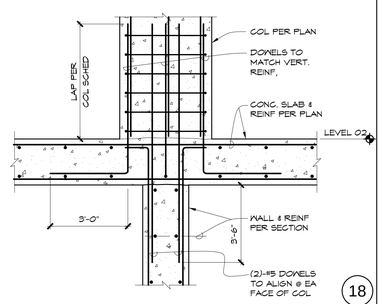
1. LONGITUDINAL REINFORCING IN COLUMNS SHALL BE ASTM A706.
2. FOUNDATION DOWELS SHALL MATCH COLUMN VERTICAL REINF. U.O.N. DOWELS SHALL EXTEND INTO FOUNDATION AND TERMINATE WITH A STANDARD HOOK, JUST ABOVE THE BOTTOM REINFORCING.
3. WHERE LONGITUDINAL COLUMN BARS ARE SHOWN CONTINOUS, THEY MAY BE SPLICED AT THE CONTRACTOR'S OPTION PER 2/S3.01
4. SPLICES SHALL CONFORM TO NOTES 4 THROUGH 6.
5. LAP SPLICES OF LONGITUDINAL REINF. (INCLUDING FOUNDATION DOWELS) SHALL BE:

BAR SIZE	SPLICE LENGTH
#7	4'-3"
#8	4'-9"
#9	5'-3"
#10	5'-9"
#11	6'-6"

6. LAP SPLICES BETWEEN LONGITUDINAL BARS OF DIFFERENT SIZES SHALL BE THE LENGTH REQUIRED FOR THE LARGER BAR.
7. TYPE 2 MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICES AT LONGITUDINAL BARS.
8. WHERE LONGITUDINAL BARS ARE REQUIRED TO BE HOOKED, BAR TERMINATORS MAY BE USED IN LIEU OF HOOKS.
9. WHERE COLUMNS OCCUR INTEGRAL WITH WALLS, THE CONCRETE STRENGTH OF THE COLUMN MAY MATCH THAT SPECIFIED FOR THE WALL, IN LIEU OF THE STRENGTH SPECIFIED.



7 TYP. COL. LAP DETAIL 2



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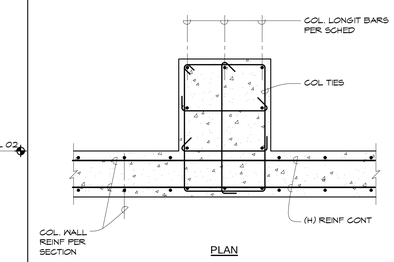

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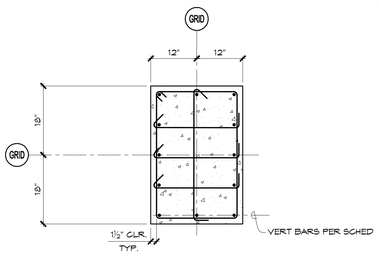

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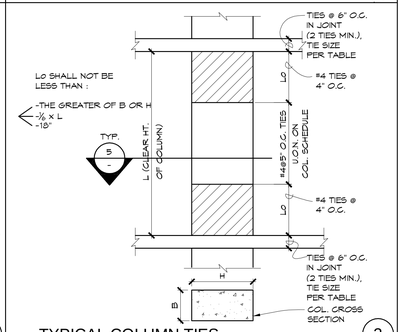
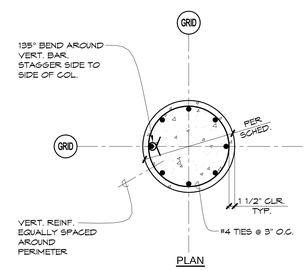


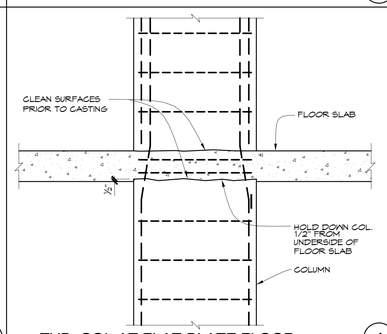
TYPICAL COLUMN TIES 3

NOT USED 14



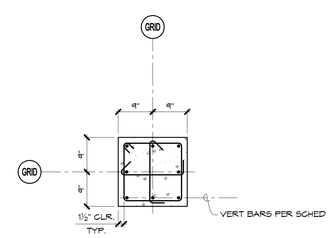
CONTRACTOR OPTION TO USE SPIRALS IN LIEU OF TIES. #4 SPIRAL @ 2" PITCH

9



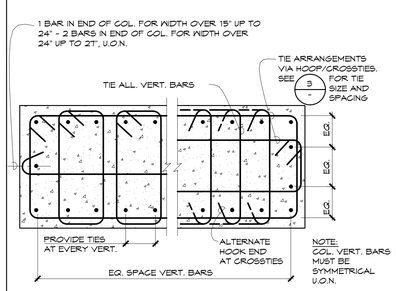
TYP. COL AT FLAT PLATE FLOOR 4

NOT USED 15



TYPICAL SQUARE COLUMN TIE AND BAR ARRANGEMENT 10

3000-18UC



TYP. COL. TIE & BAR ARRANGEMENT 5

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11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER JAMES A. AMUNDSON No. 3332 Exp. 12-31-15 STRUCTURAL STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE:

COLUMN SCHEDULE AND DETAILS

DRAWING NO:

S3.01

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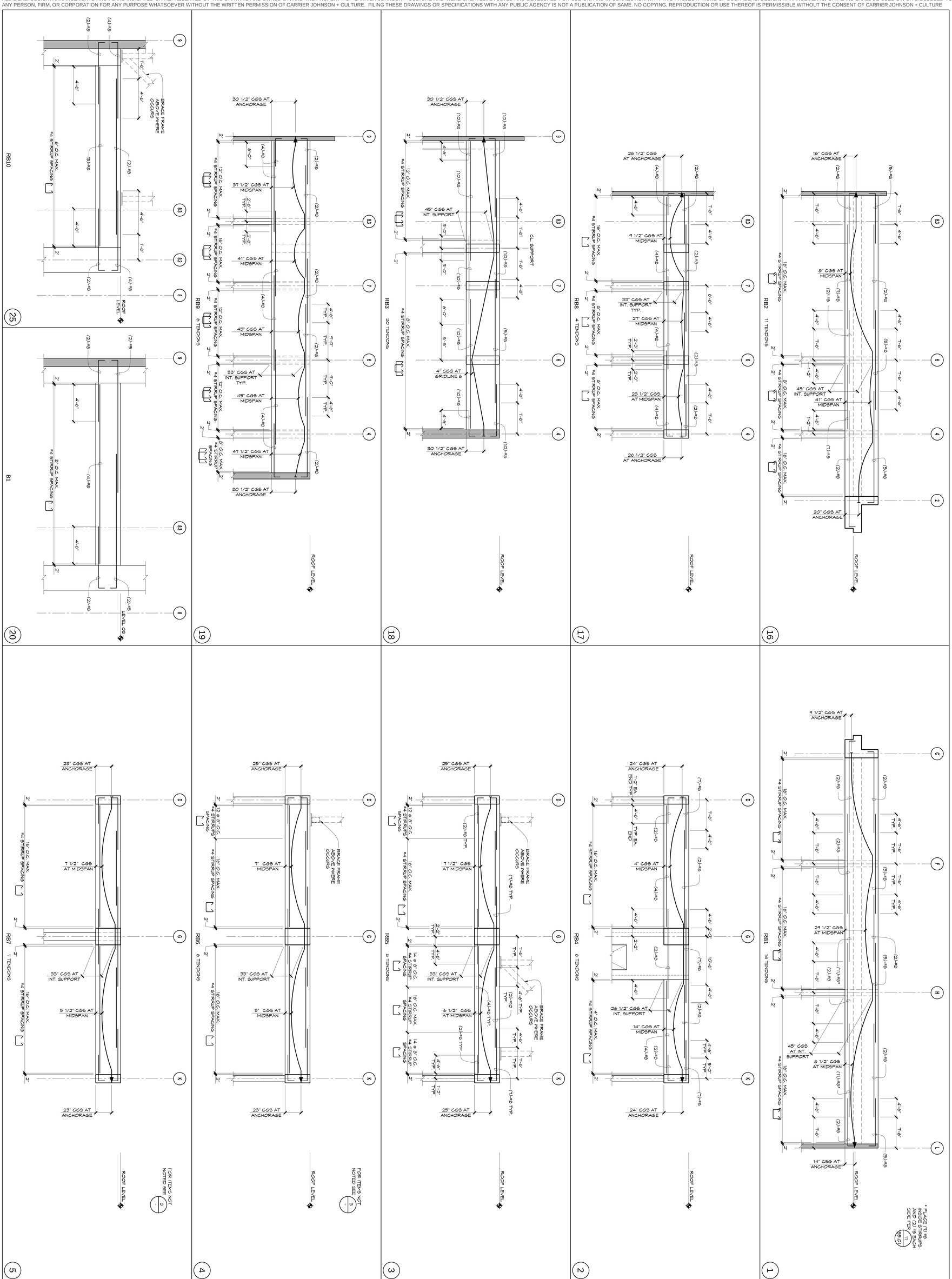

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11-11-14 CD PROGRESS
11-10-14 CONSTRUCTION DOCUMENTS
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER JAMES A. AMUNDSON No. 32820 Exp. 12/31/15 STATE OF CALIFORNIA Structural

PROJECT NO: 03/06/15
SIGNED: NO. 214049.00
SIZE: 00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE: BEAM ELEVATIONS
DRAWING NO: S3.11

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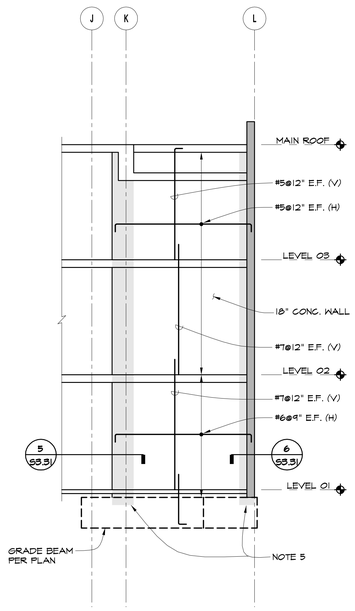
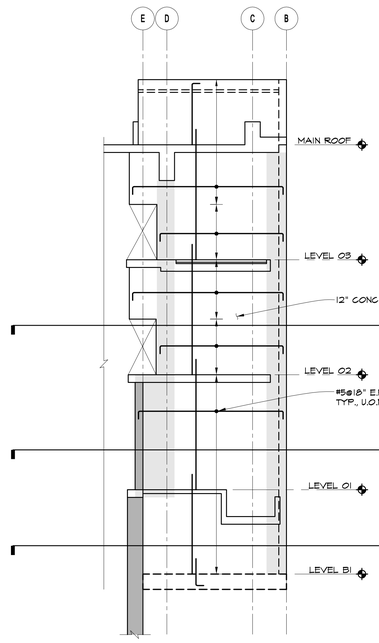
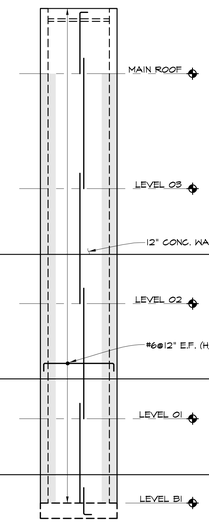


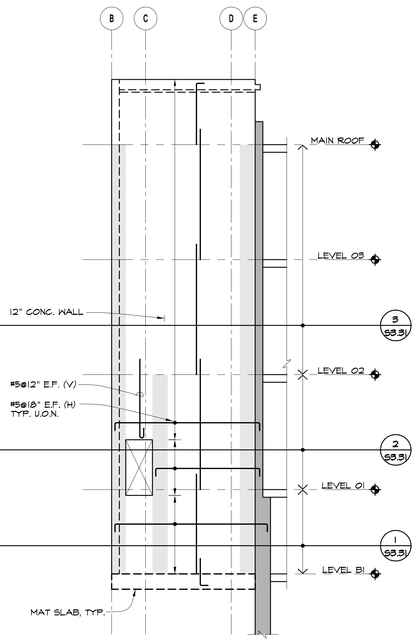
4 WALL ELEVATION - GRID 3
1/8" = 1'-0"



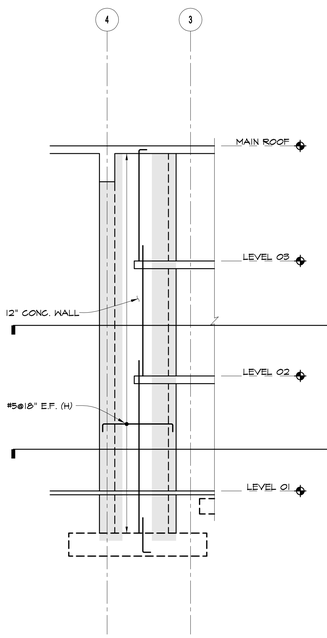
3 STAIR 2 ELEVATION - NORTH
1/8" = 1'-0"



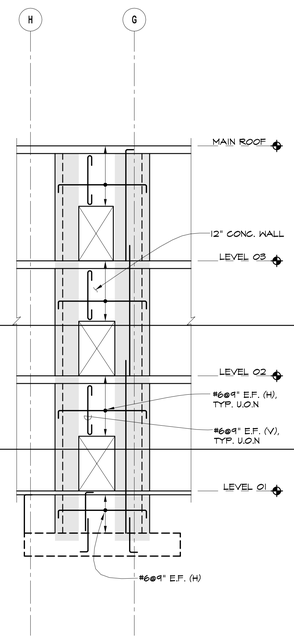
2 STAIR 2 ELEVATION - WEST
1/8" = 1'-0"



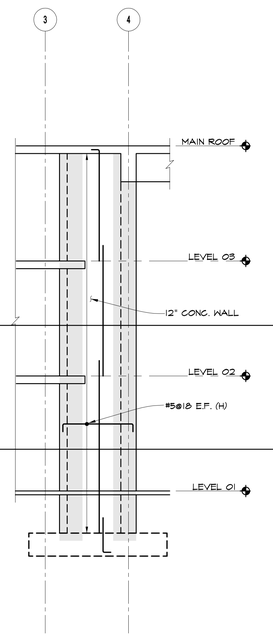
1 STAIR 2 ELEVATION - SOUTH
1/8" = 1'-0"



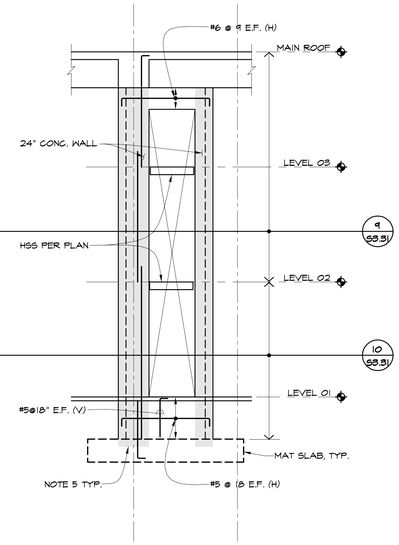
8 ELEVATOR CORE ELEVATION - EAST
1/8" = 1'-0"



7 ELEVATOR CORE ELEVATION - NORTH
1/8" = 1'-0"



6 ELEVATOR CORE ELEVATION - WEST
1/8" = 1'-0"



5 ELEVATOR CORE ELEVATION - SOUTH
1/8" = 1'-0"

WALL NOTES:

1. FOR ADD'L LEGEND, SEE SHEET S2.0.0.
2. FOUNDATION DOWELS SHALL MATCH WALL VERTICAL REINF. U.O.N. DOWELS SHALL EXTEND INO FOUNDATION AND TERMINATE WITH A STANDARD HOOK.
3. SHADED AREAS ON WALL ELEVATIONS AND CORE REINFORCING PLANS INDICATE BOUNDARY ZONES.
4. LONGITUDINAL REINFORCING IN BOUNDARY ZONES SHALL BE ASTM A706 AND SHALL BE PLACED WITH NO OFFSET BENDS.
5. BOUNDARY ZONE HOOPS AND CROSSTIES SHALL EXTEND 12" MIN. INTO THE FOUNDATION.
6. NO PENETRATIONS SHALL BE PERMITTED IN BOUNDARY ZONES OR WALL HEADERS WITHOUT PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER.
7. LAP SPLICES OF VERTICAL REINF. SHALL BE:

BAR SIZE	SPLICE LENGTH	BAR SIZE	SPLICE LENGTH
#5	2'-6"	#9	5'-2"
#6	3'-0"	#10	5'-10"
#7	4'-2"	#11	6'-6"
#8	4'-8"		

8. WHERE HORIZ. REINF. IS SHOWN CONTINUOUS, IT MAY BE LAP SPLICED AS FOLLOWS, (LAP SPLICES SHALL NOT OCCUR WITHIN A BOUNDARY ZONE):

BAR SIZE	SPLICE LENGTH	BAR SIZE	SPLICE LENGTH
#5	1'-10"	#9	4'-6"
#6	2'-2"	#10	5'-6"
#7	3'-2"	#11	6'-8"
#8	3'-8"		

9. HORIZ. REINF. SHALL BE CONTINUOUS THRU COLUMNS INTERIOR TO THE WALL LENGTH. AT END COLUMNS, HORIZ. REINF. SHALL EXTEND INTO THE COLUMN CORE BY 1'-0" MIN. AND TERMINATE WITH A STANDARD HOOK.
10. FOR COLUMN SCHEDULE AND COLUMN NOTES, SEE SHEETS S3.01.
11. FOR REINFORCING AT BLOCK OUTS AROUND SHORING TIE BACKS, SEE 30/S1.12

LEGEND:

EXTENT SIZE OF VERTICAL BOUNDARY ZONE REINFORCEMENT. SPACING AND TIES PER S3.31 THRU S3.32.

SIZE AND SPACING OF VERTICAL REINFORCEMENT PER PLAN EACH FACE = E.F. TYP. U.O.N.

#5@18"(H)E.F. — SIZE AND SPACING O.C. OF HORIZONTAL REINFORCEMENT EACH FACE = E.F. HORIZONTAL BARS SHALL TERMINATE IN A 90 DEGREE HOOK AT WALL END

DOWEL TO MATCH SIZE AND SPACING OF VERTICAL REINFORCEMENT, U.O.N.

I.F. — INDICATES REINF. AT WALL INNER FACE

O.F. — INDICATES REINF. AT WALL OUTER FACE

INDICATES HAIRPIN TIES PER 19/S4.03

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SAN DIEGO, CA 92101

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10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE:

WALL ELEVATIONS

DRAWING NO:

S3.21

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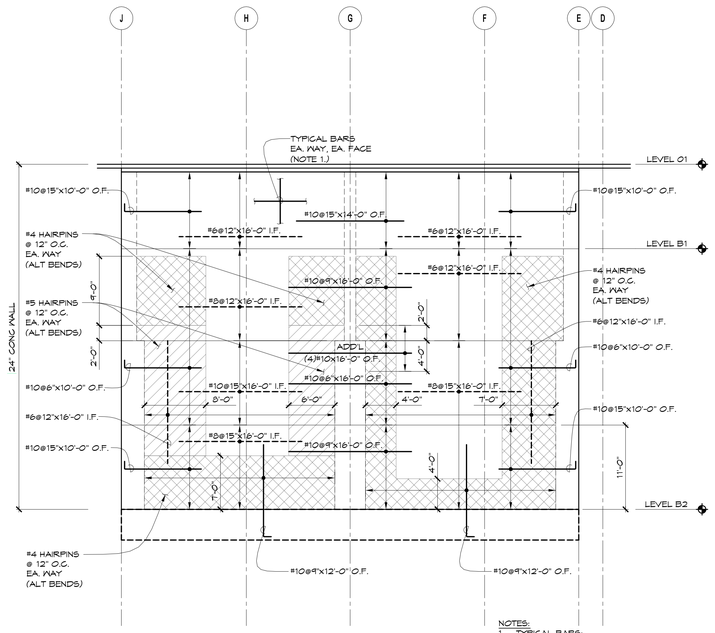
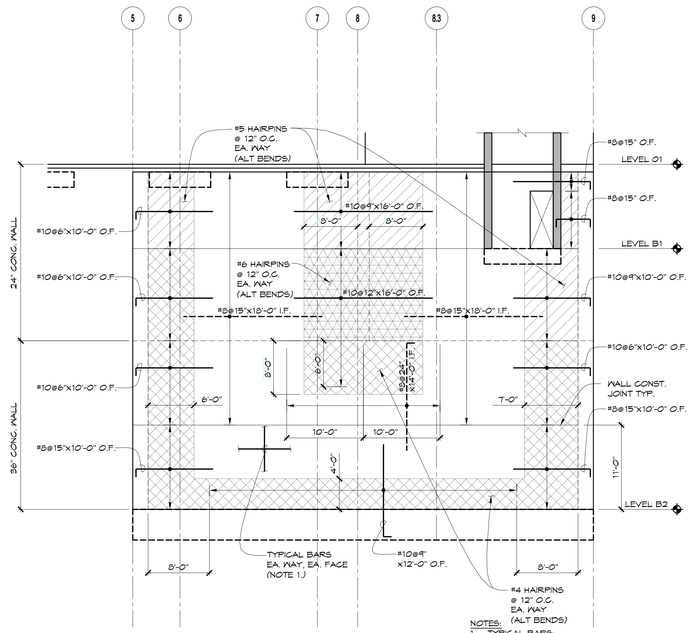


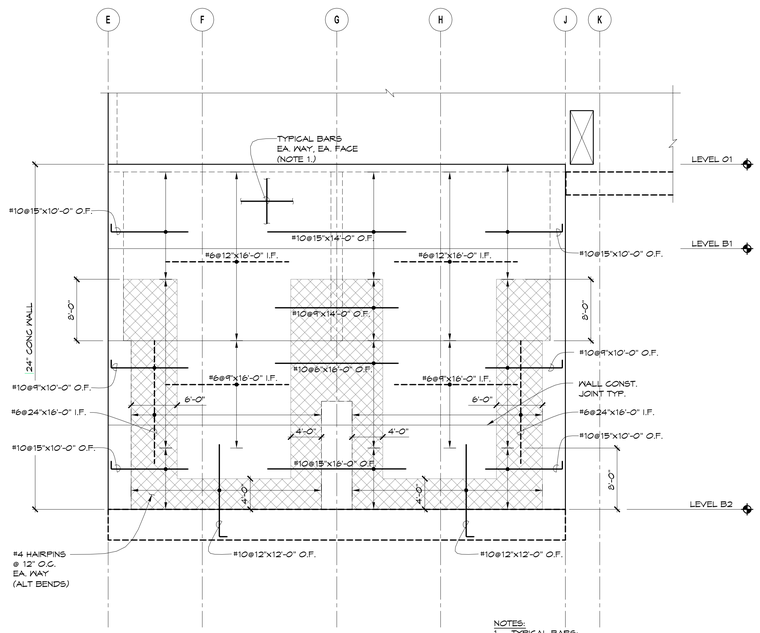
NOTES:
1. TYPICAL BARS:
   24" WALL = #6 @ 12" EA. WAY, EA FACE
2. TYPICAL HORIZONTAL BARS MAY BE LAPPED AS FOLLOWS:
   - INSIDE BARS AT WALL LINE
   - OUTSIDE BARS AT MIDSPAN
3. BARS INDICATED ON ELEVATION ARE IN ADDITION TO TYPICAL BARS, AND SHALL BE PLACED AS SHOWN WITHOUT SPLICES.

5 BASEMENT ELEVATION - GRID 5
1/8" = 1'-0"



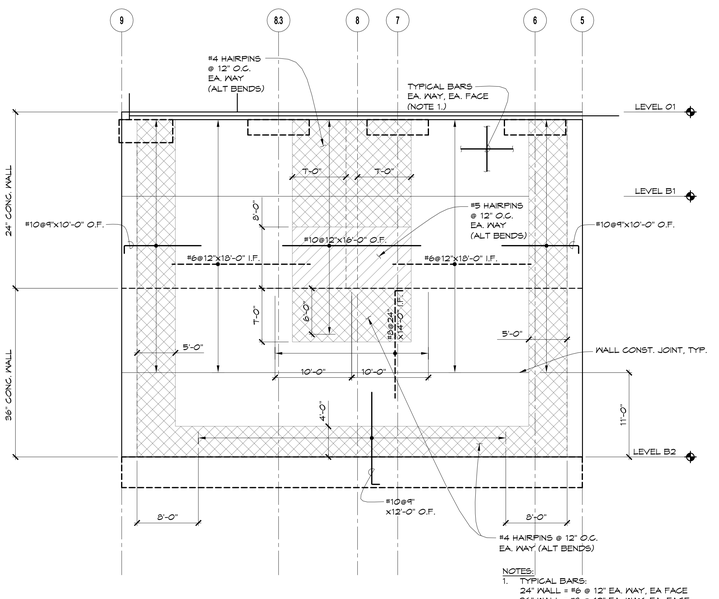
NOTES:
1. TYPICAL BARS:
   24" WALL = #6 @ 12" EA. WAY, EA FACE
   36" WALL = #5 @ 12" EA. WAY, EA. FACE
2. TYPICAL HORIZONTAL BARS MAY BE LAPPED AS FOLLOWS:
   - INSIDE BARS AT WALL LINE
   - OUTSIDE BARS AT MIDSPAN
3. BARS INDICATED ON ELEVATION ARE IN ADDITION TO TYPICAL BARS, AND SHALL BE PLACED AS SHOWN WITHOUT SPLICES.

3 BASEMENT ELEVATION - GRID E
1/8" = 1'-0"



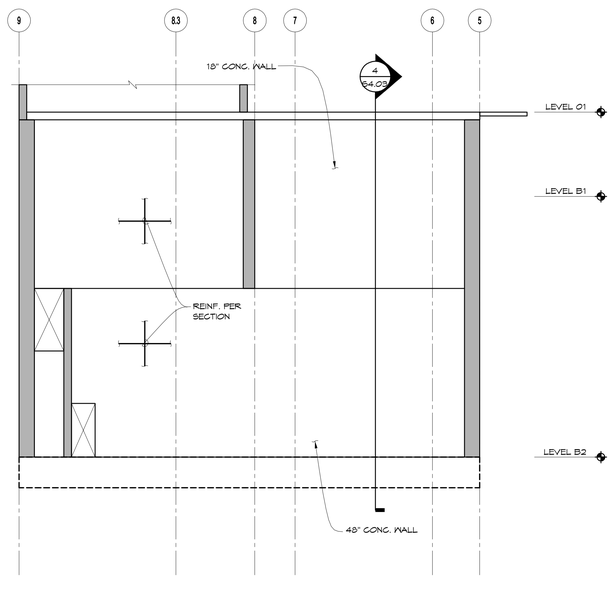
NOTES:
1. TYPICAL BARS:
   24" WALL = #6 @ 12" EA. WAY, EA FACE
2. TYPICAL HORIZONTAL BARS MAY BE LAPPED AS FOLLOWS:
   - INSIDE BARS AT WALL LINE
   - OUTSIDE BARS AT MIDSPAN
3. BARS INDICATED ON ELEVATION ARE IN ADDITION TO TYPICAL BARS, AND SHALL BE PLACED AS SHOWN WITHOUT SPLICES.

1 BASEMENT ELEVATION - GRID 9
1/8" = 1'-0"

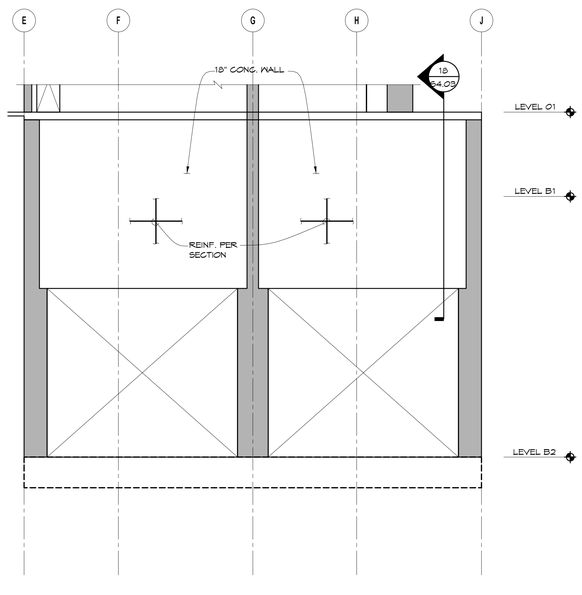


NOTES:
1. TYPICAL BARS:
   24" WALL = #6 @ 12" EA. WAY, EA FACE
   36" WALL = #5 @ 12" EA. WAY, EA. FACE
2. TYPICAL HORIZONTAL BARS MAY BE LAPPED AS FOLLOWS:
   - INSIDE BARS AT WALL LINE
   - OUTSIDE BARS AT MIDSPAN
3. BARS INDICATED ON ELEVATION ARE IN ADDITION TO TYPICAL BARS, AND SHALL BE PLACED AS SHOWN WITHOUT SPLICES.

6 BASEMENT ELEVATION - GRID J
1/8" = 1'-0"



4 BASEMENT ELEVATION - GRID G
1/8" = 1'-0"



2 BASEMENT ELEVATION - GRID 8
1/8" = 1'-0"

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12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO. 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE:

WALL ELEVATIONS

DRAWING NO:

S3.22

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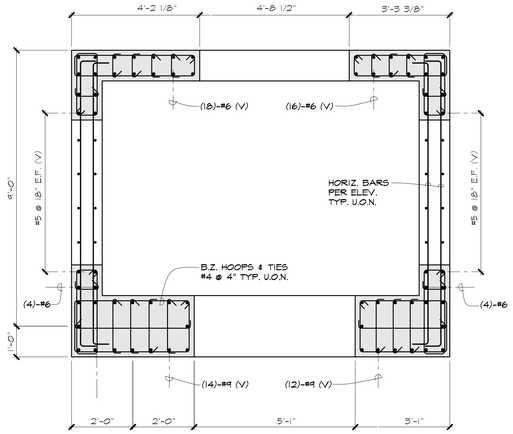
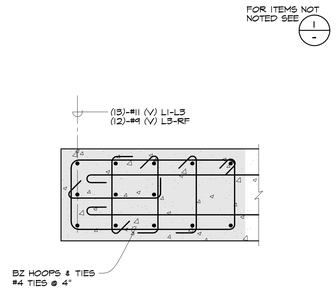


9 Elevator Core - Enlarged Plan Level 02 - Main Roof
1/2" = 1'-0"

9



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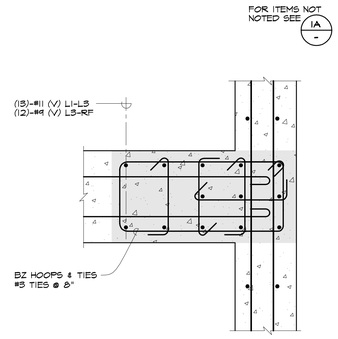

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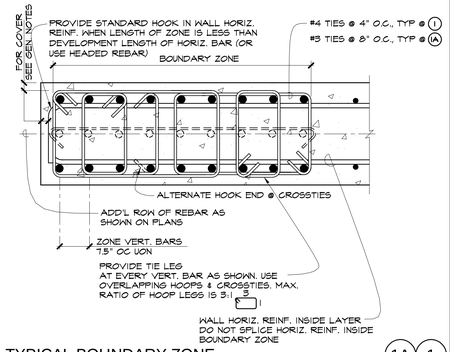
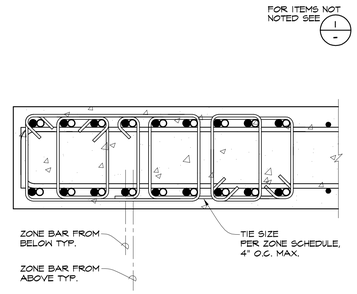


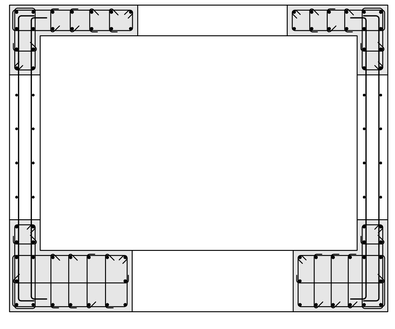
TYPICAL BOUNDARY ZONE

1A 1



TYPICAL BOUNDARY ZONE AT LAP SPLICE

2

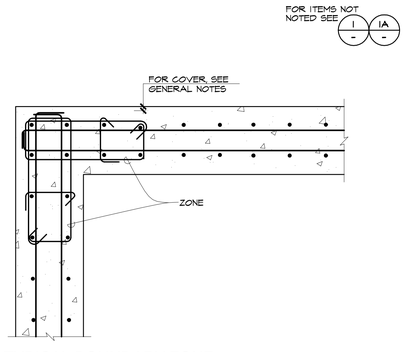


10 Elevator Core - Enlarged Plan Level 01 - Level 02
1/2" = 1'-0"

10

NOT USED

7

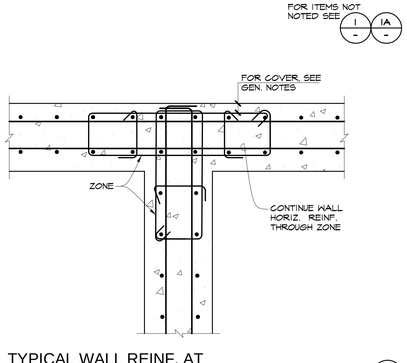


TYPICAL BOUNDARY ZONE
REINF. AT CORNER U.O.N.

3A 3

NOT USED

8



TYPICAL WALL REINF. AT
INTERSECTING WALL U/N

4A 4

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STRUCTURAL
STATE OF CALIFORNIA

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PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:
03-06-15

TITLE:

WALL
ENLARGED
PLANS

DRAWING NO:

S3.31

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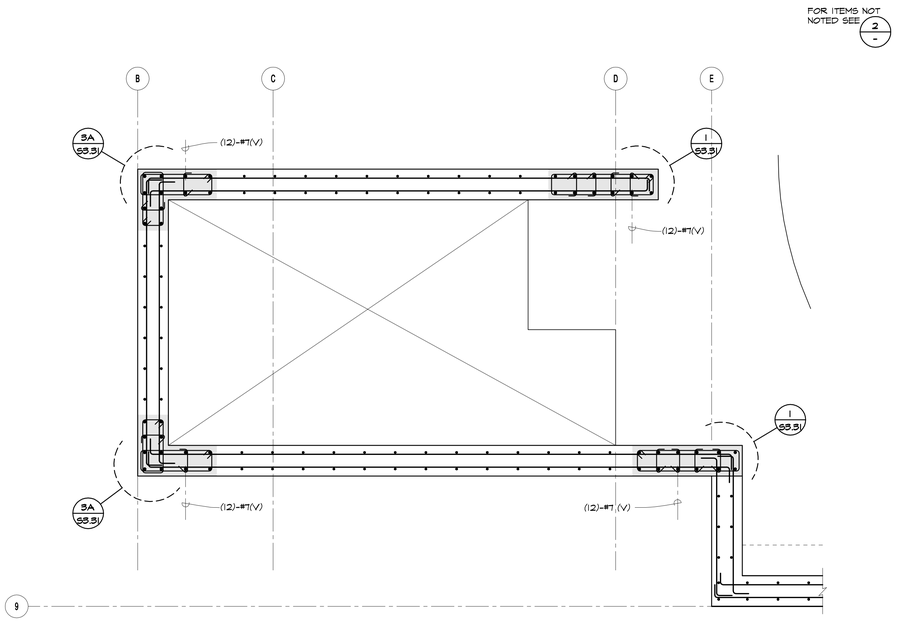
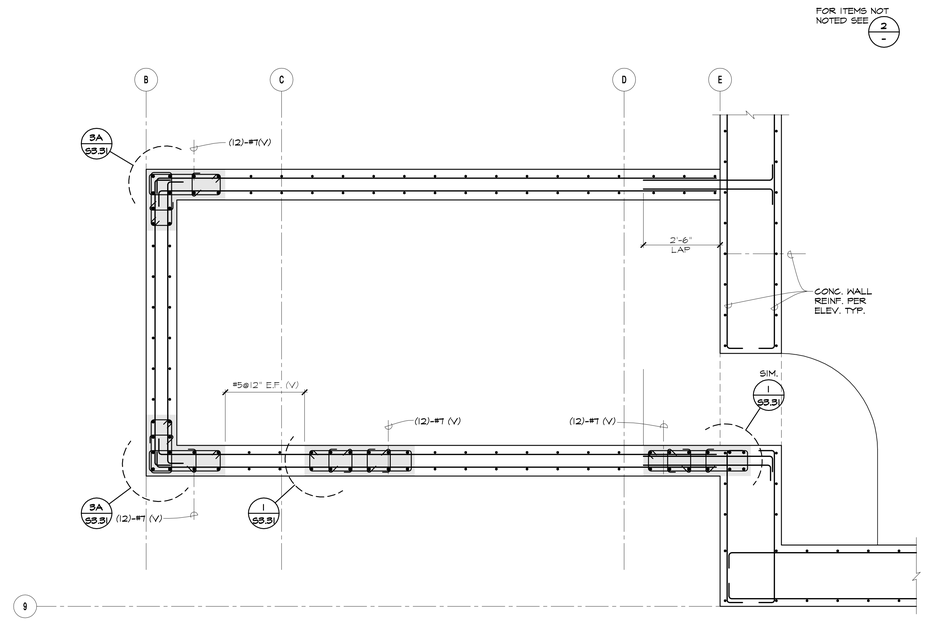
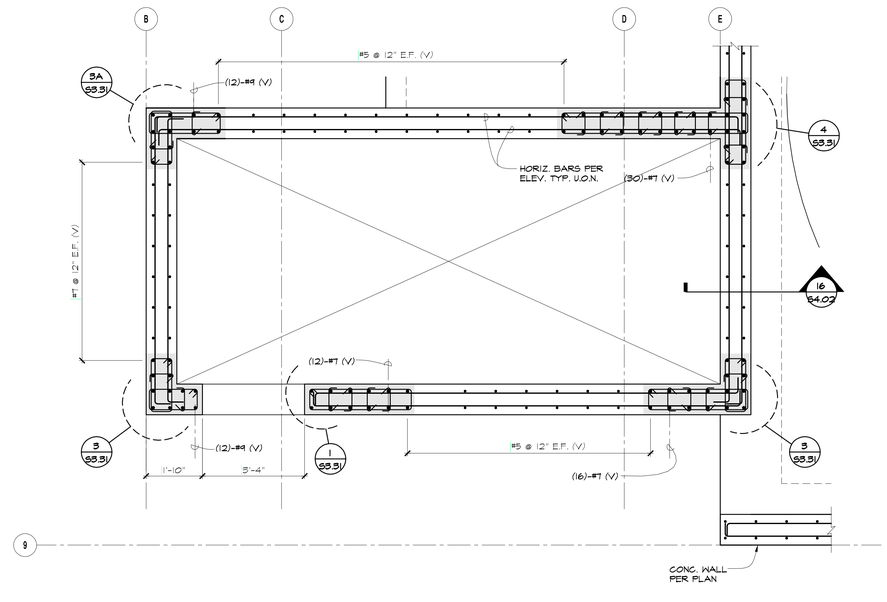


3 Stair #2 - Enlarged Plan Level 02 - Main Roof
1/2" = 1'-0"



1 Stair #2 - Enlarged Plan Level B1 - Level 01
1/2" = 1'-0"



2 Stair #2 - Enlarged Plan Level 01 - Level 02
1/2" = 1'-0"

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STATE OF CALIFORNIA

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5432.00

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DRAWN BY: CHECKED BY:

PLOT DATE:
03-06-15

TITLE:

WALL ENLARGED PLANS

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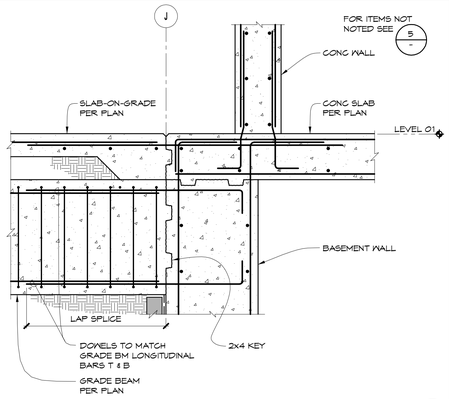

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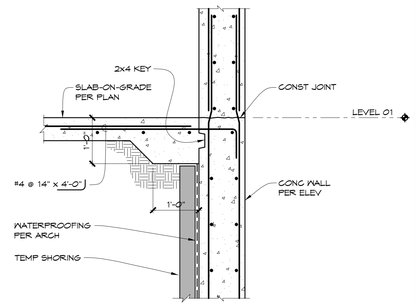

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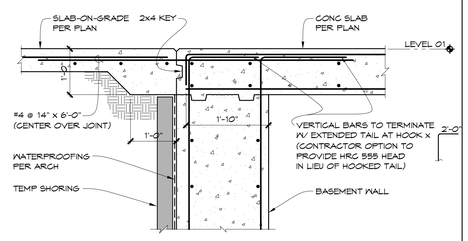

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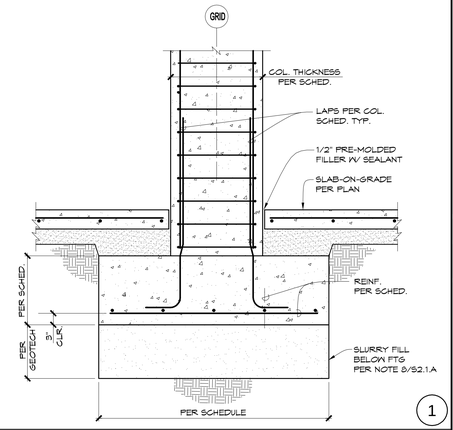

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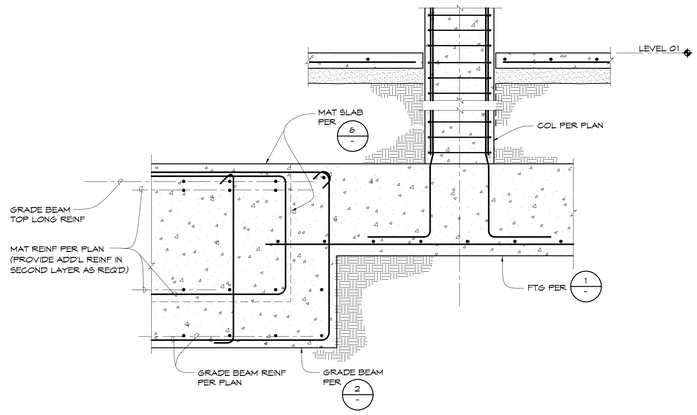

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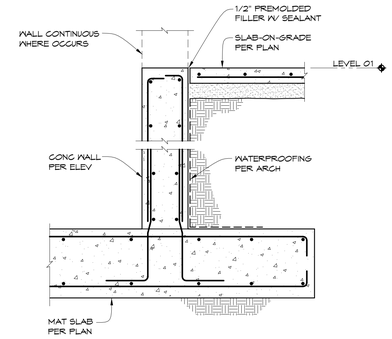

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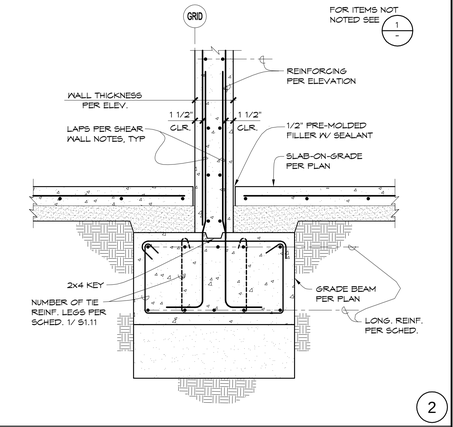

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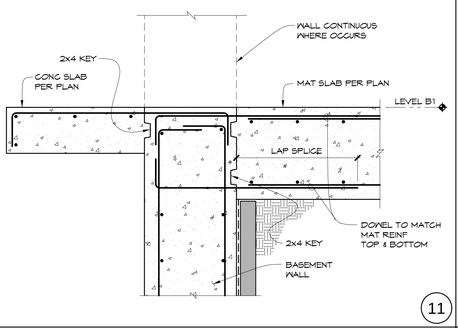

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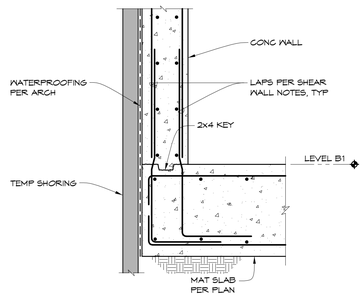

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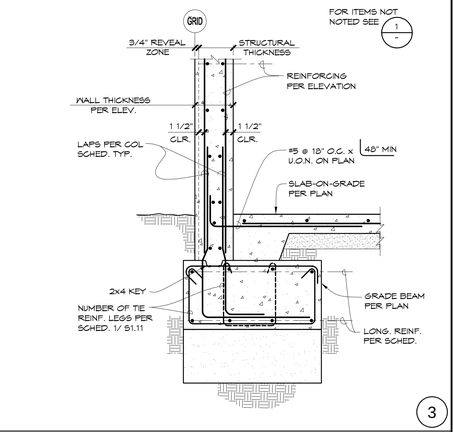

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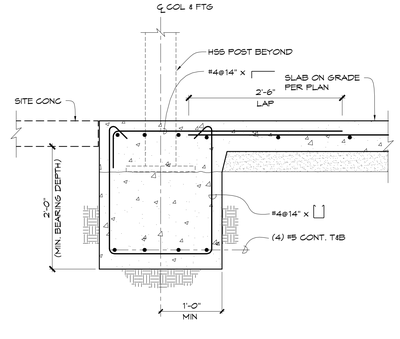

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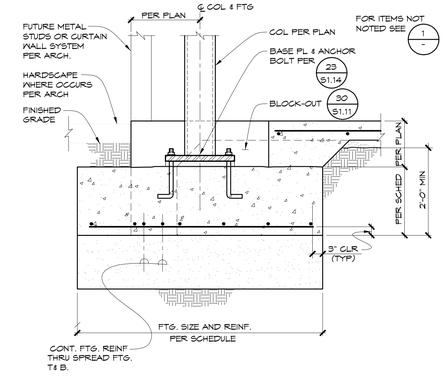
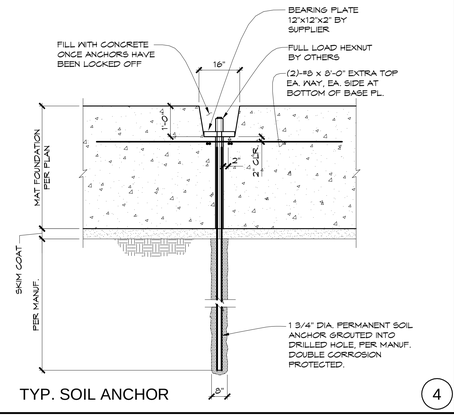


SPREAD FOOTING AT EXT.

8



TYP. SOIL ANCHOR

4

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SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE: 03-06-15

TITLE:

FOUNDATION DETAILS

DRAWING NO:

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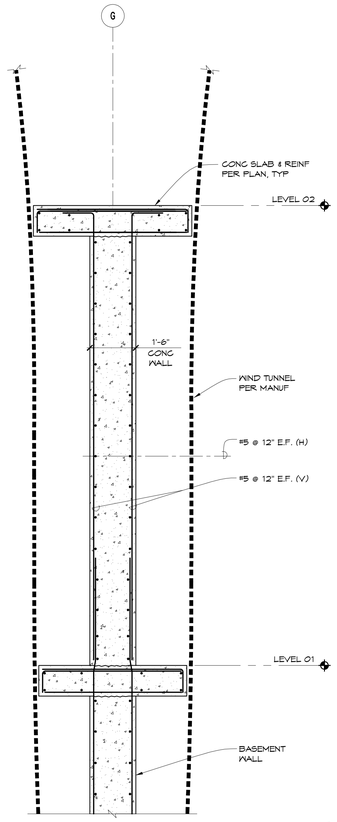
NOT USED (18)



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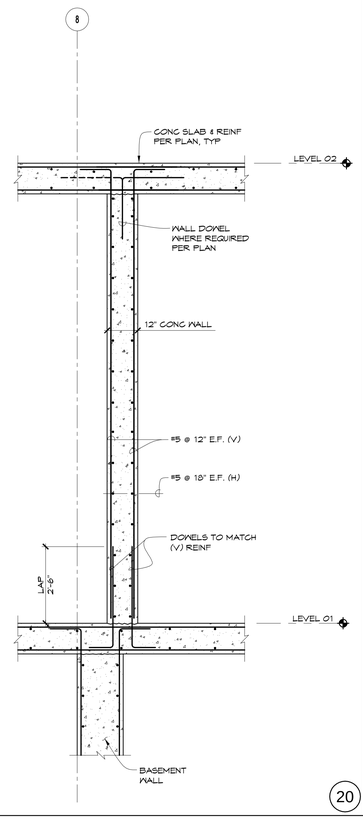

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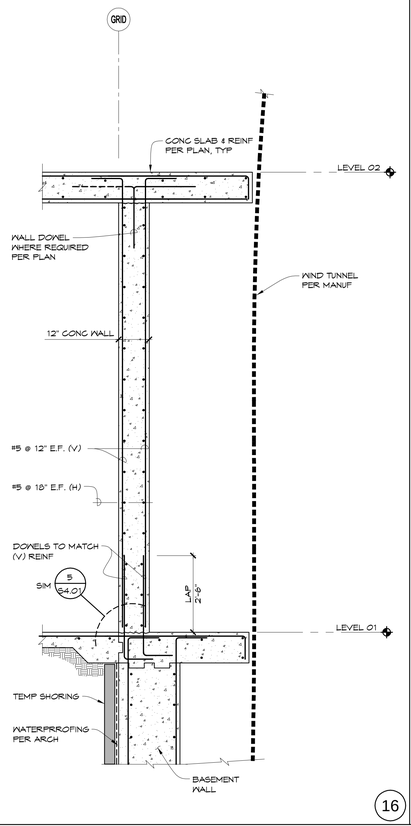

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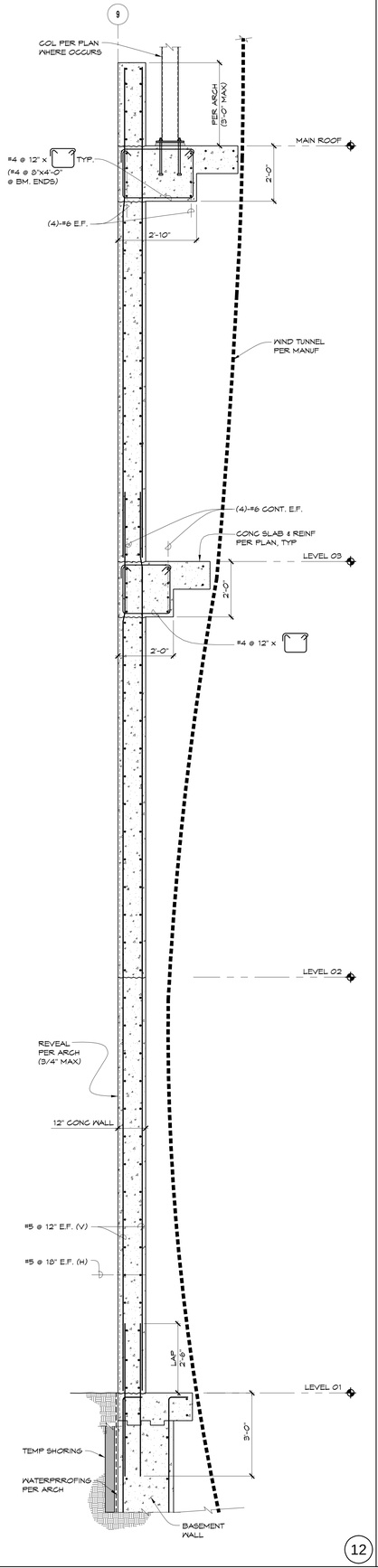

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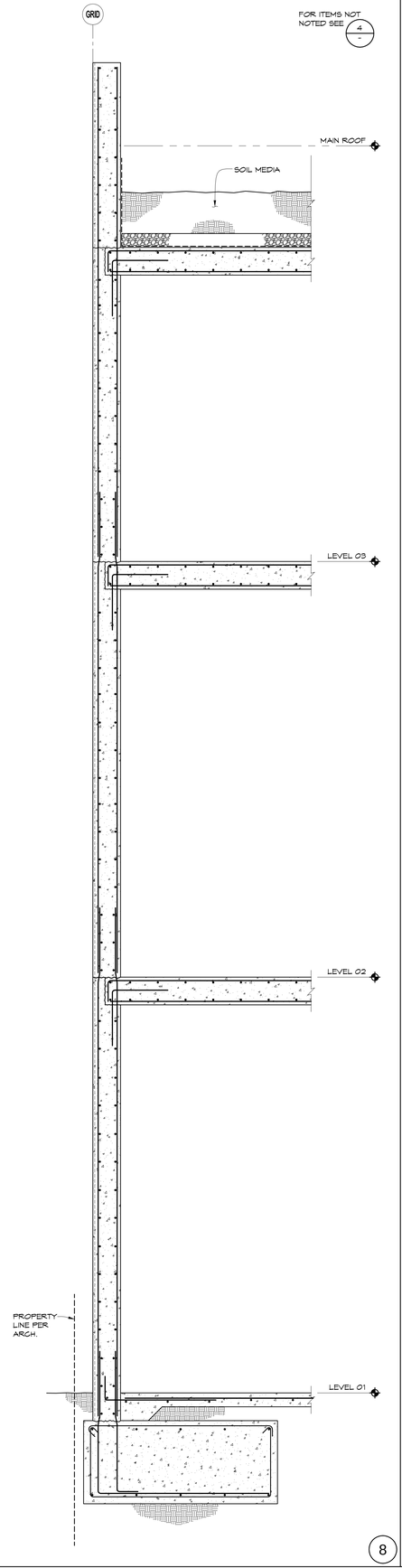

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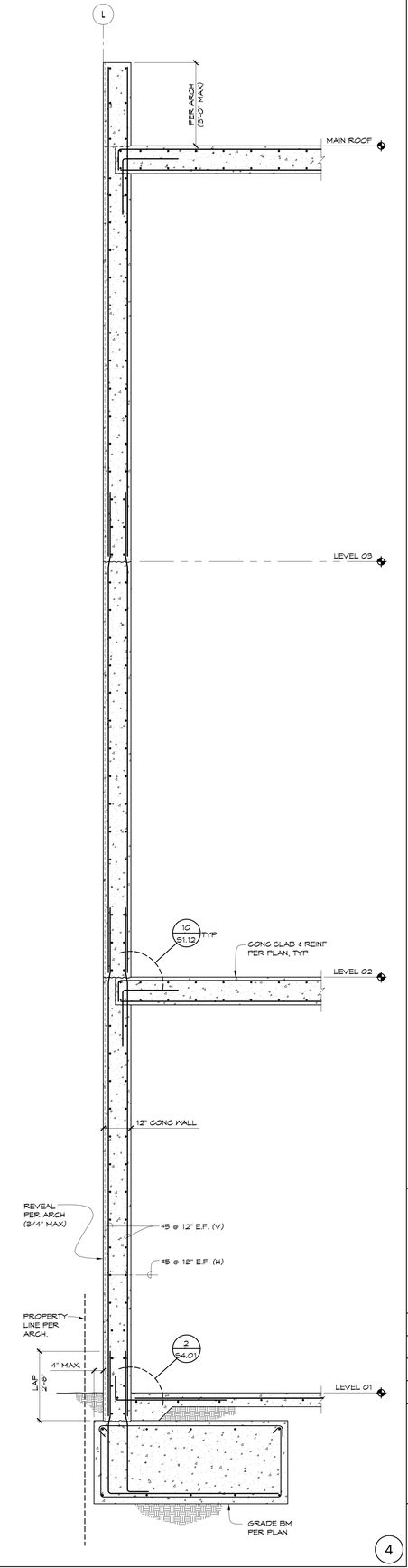

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JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE:

WALL SECTIONS

DRAWING NO:

S4.02

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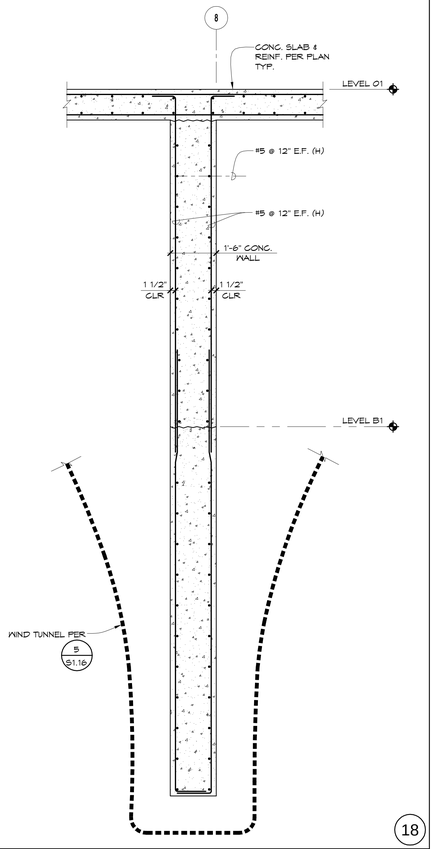

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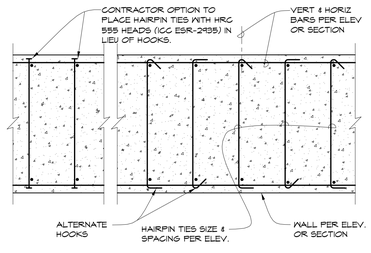

PLAN

TYPICAL HAIRPIN TIES

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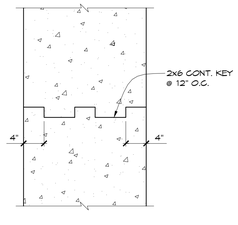

TYP. KEY AT BASEMENT WALL POUR JOINT

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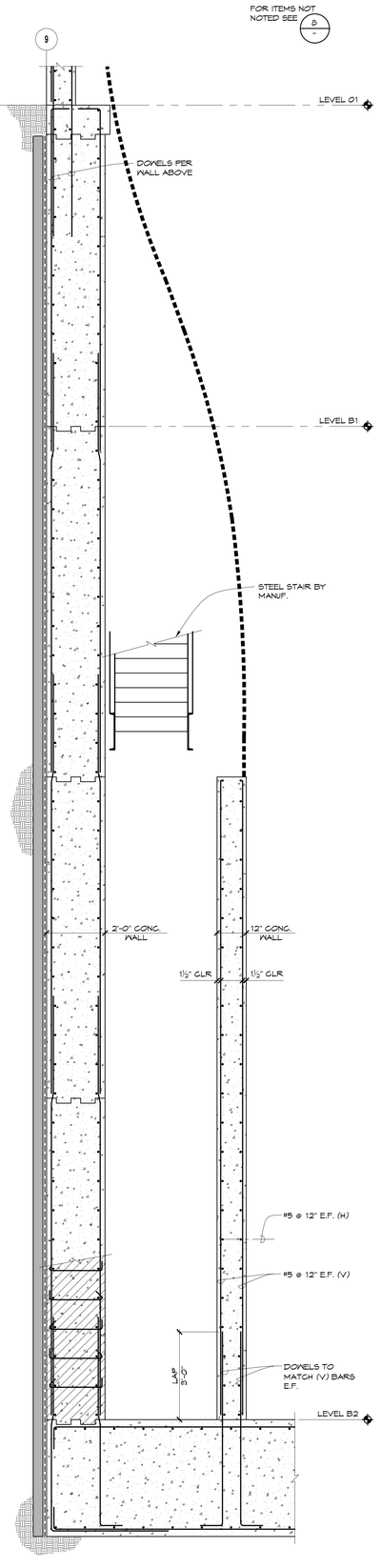

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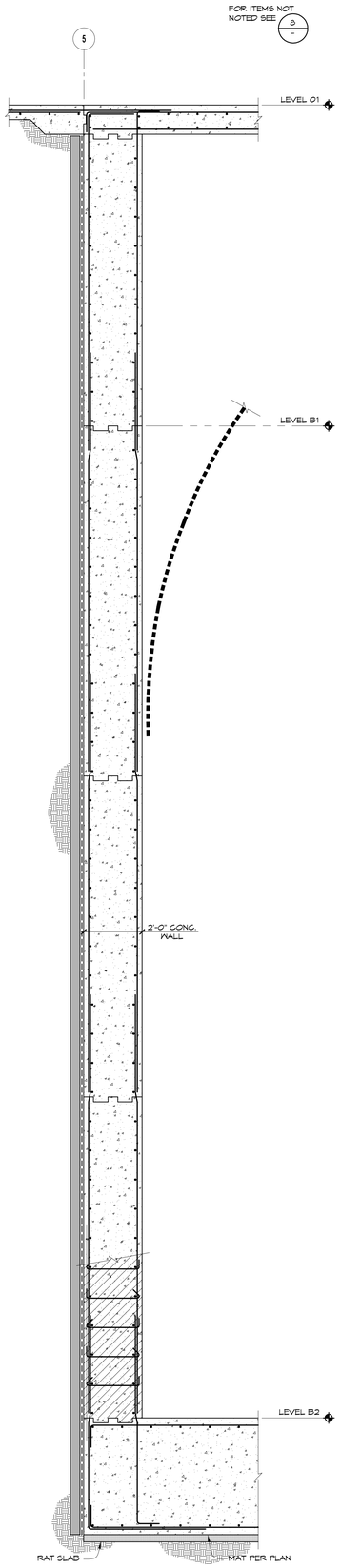

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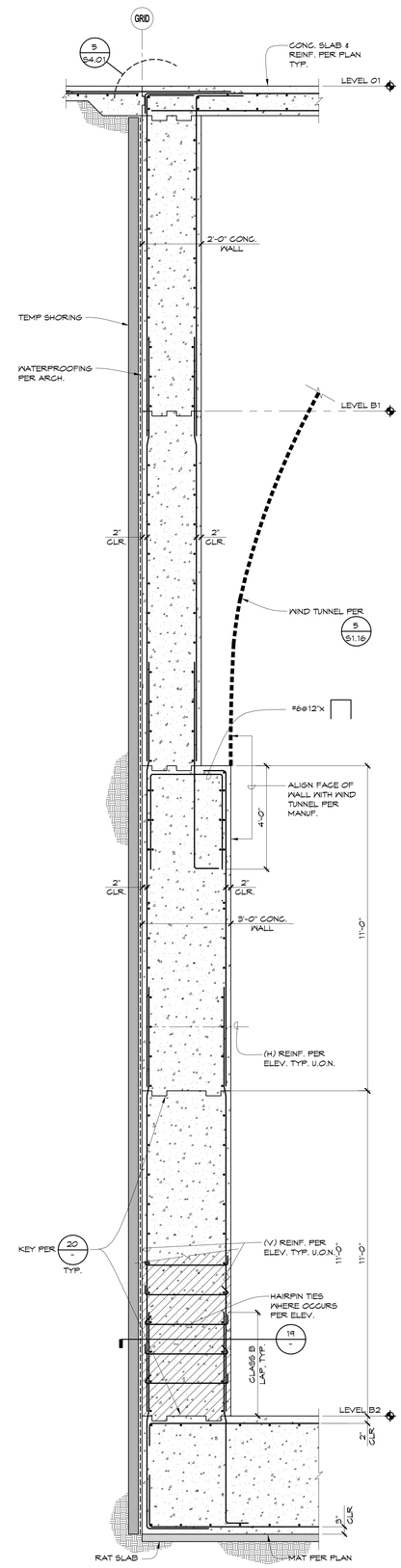

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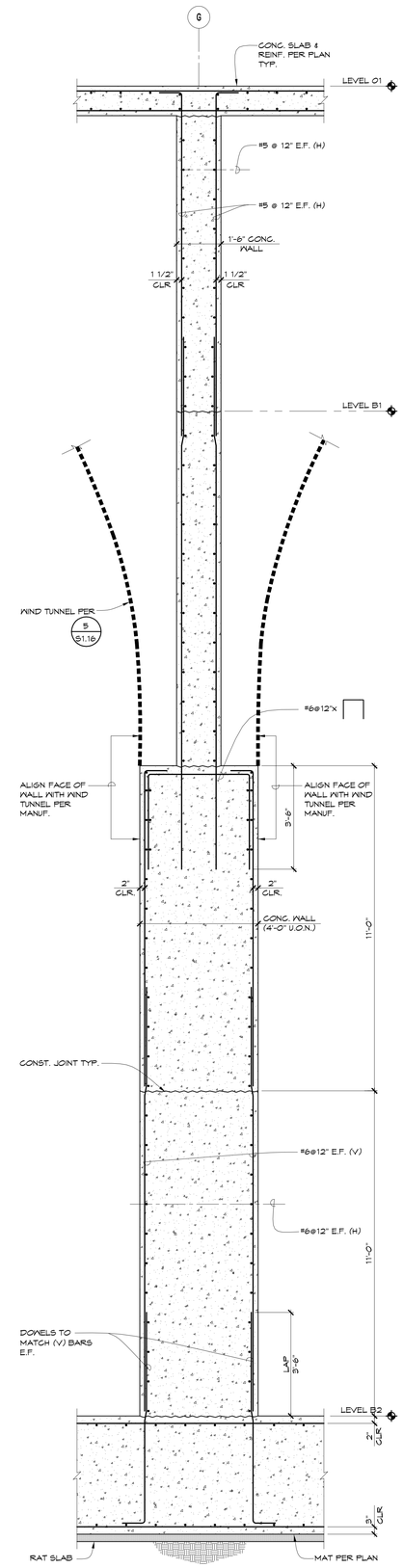

4

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1301 third avenue, san diego ca 92101
phone 619.239.2353 fax 619.239.6227

HOPE-AMUNDSON
Structural Engineers

AIRBORNE SAN DIEGO
1401 IMPERIAL AVENUE
SAN DIEGO, CA 92101

03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
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No. 3332
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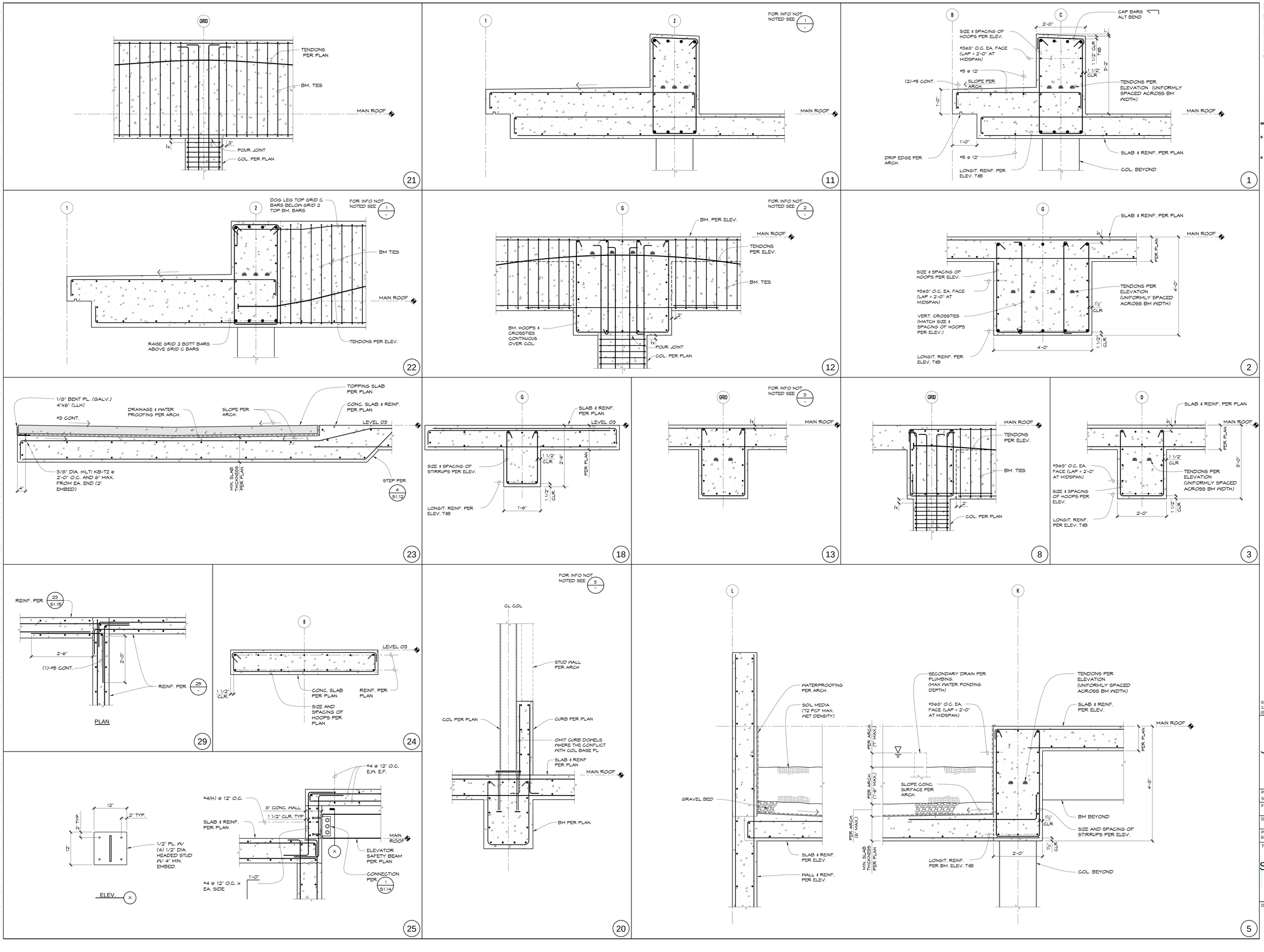
S4.03



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STRUCTURAL DETAILS

DRAWING NO:

S5.01

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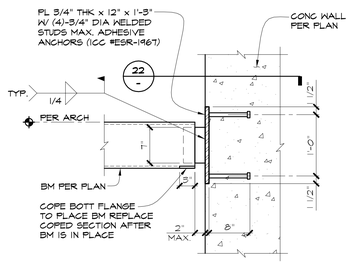

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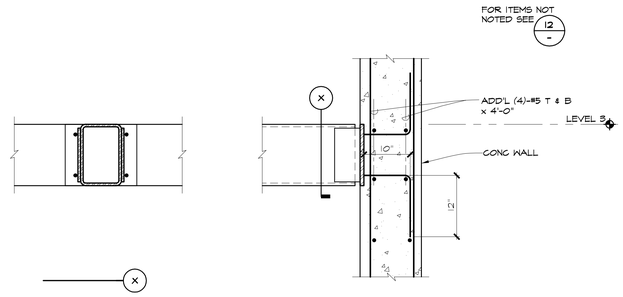

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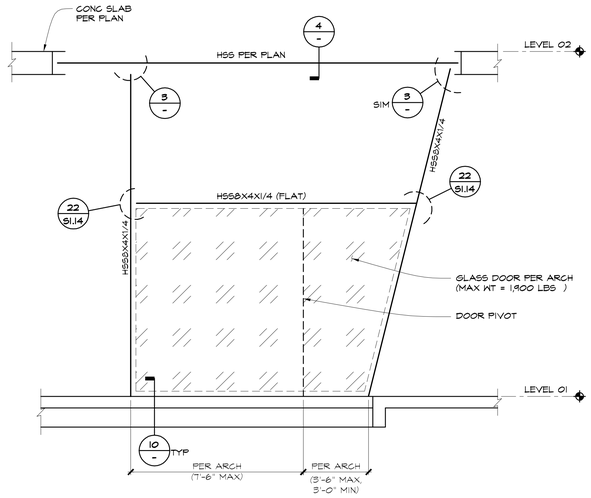

FRAME ELEVATION AT ENTRY

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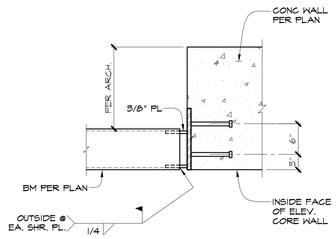

PLAN

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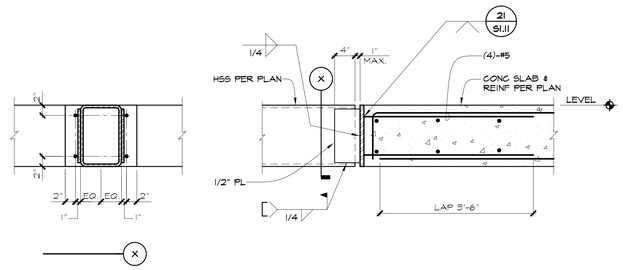

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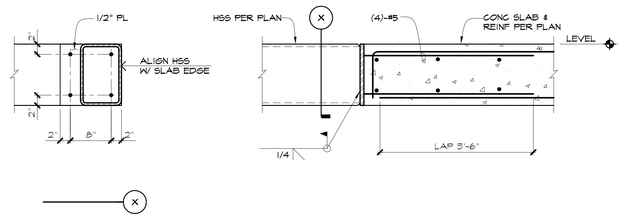

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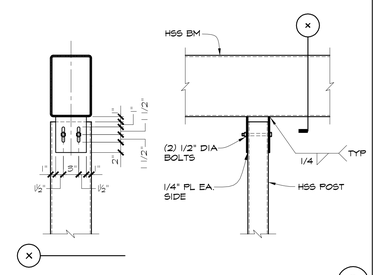

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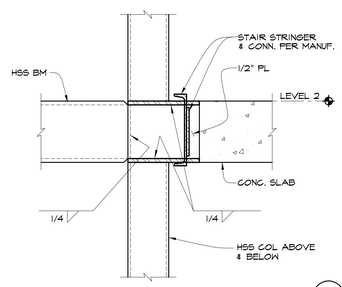

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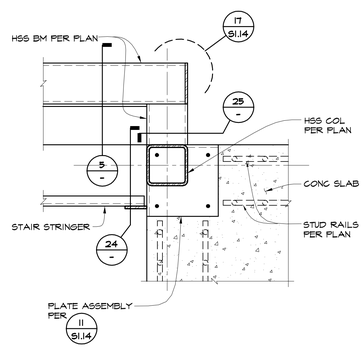

PLAN

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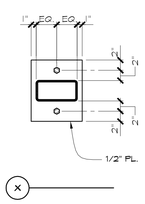

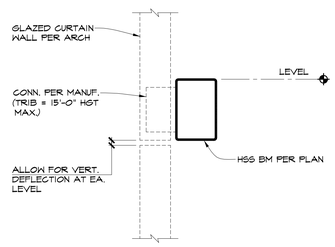

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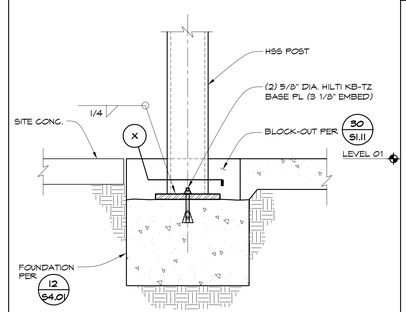

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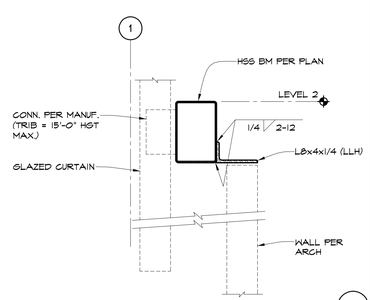

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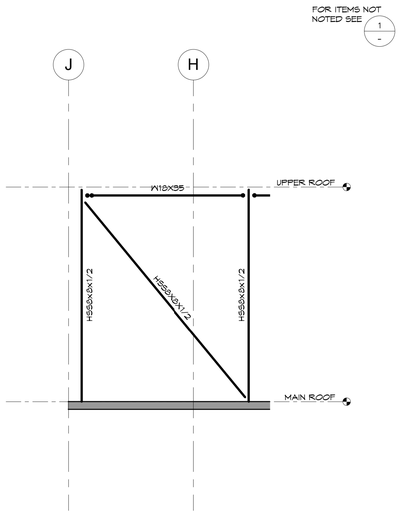
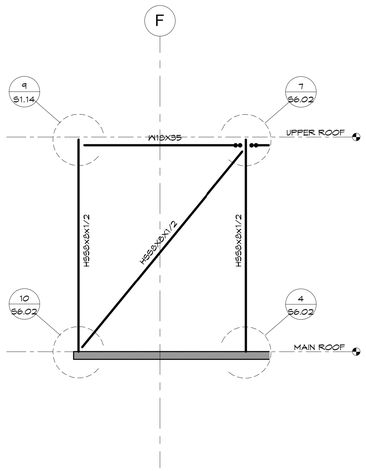


BRACED FRAME ELEVATION - NORTH

3



BRACED FRAME ELEVATION - SOUTH

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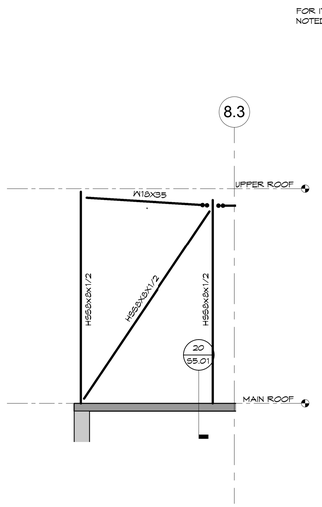

BRACED FRAME ELEVATION - EAST

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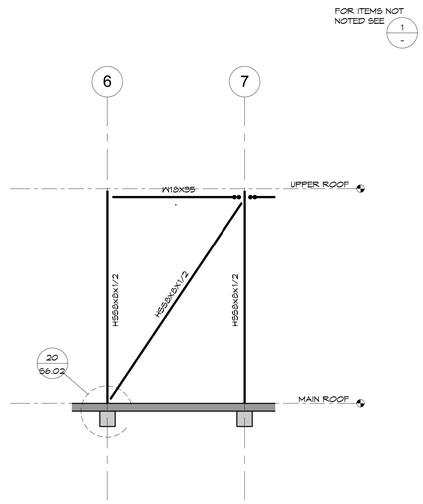

BRACED FRAME ELEVATION - WEST

2

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SAN DIEGO, CA 92101

03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
ISSUES:

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STATE OF CALIFORNIA

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5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:

TITLE:
BRACE FRAME ELEVATIONS

DRAWING NO:
S6.01

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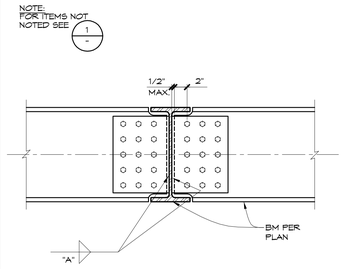
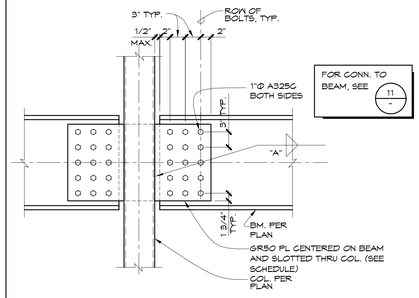
NOT USED (16)



TYPICAL BM TO BM DRAG CONN. (11)

STYP021

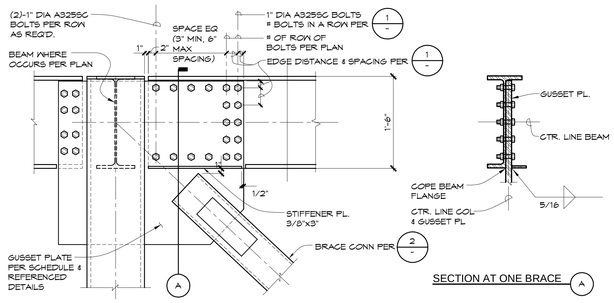


FOR CONN. TO BEAM, SEE 11/-

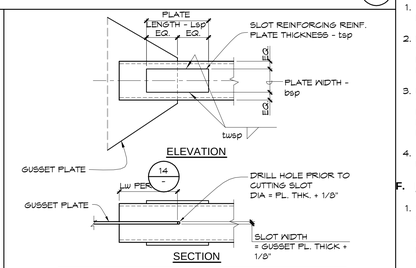
DRAG CONNECTION SCHEDULE								
BEAM SIZE	# OF 1" DIA A325-SC BOLTS PER ROW	# OF ROWS OF BOLTS PER PLAN						
		1 ROW		2 ROWS		3 ROWS		
		PL t	WELD "A"	PL t	WELD "A"	PL t	WELD "A"
W10	2	3/8	5/16	-	-	-	-
W12	3	3/8	5/16	-	-	-	-
W14	3	3/8	5/16	5/8	1/2	-	-
W16	4	3/8	5/16	5/8	1/2	5/8	1/2
W18	5	5/8	1/2	5/8	1/2	5/8	1/2

TYP. BM TO COLUMN FLANGE DRAG CONN. (1)

NOT USED (17)

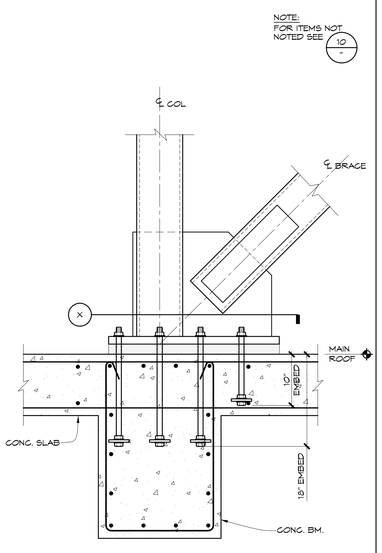


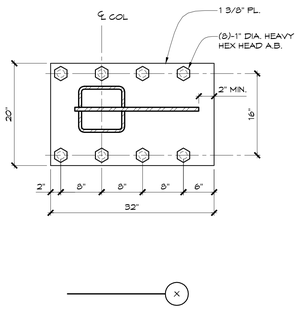
GUSSET TO BEAM AND COLUMN (7)



SLOT REINFORCING PLATE CONN. SCHED.				
BRACE SIZE	tsp	bsp	Lsp	twsp
HSS8x8x1/2	1/4	4	14	3/16

SLOT REINFORCING PLATE (2)





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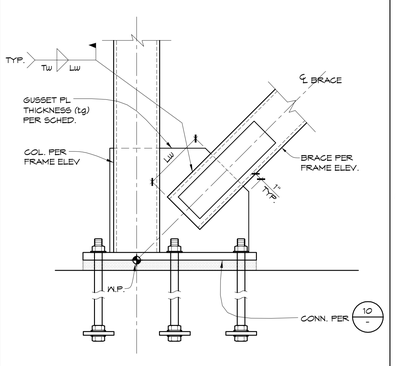
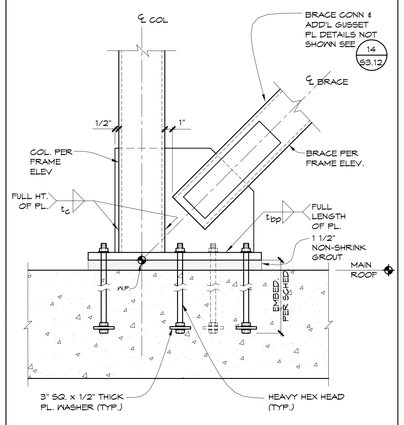
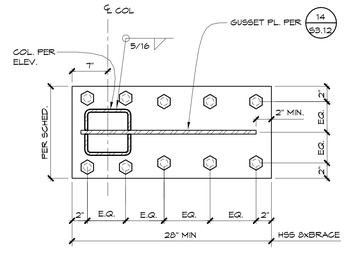


BRACE CONNECTION SCHEDULE			
BRACE SIZE	tg	Tw	Lw
HSS8x8x1/2	5/8	5/16	12"

BRACE CONNECTION TO GUSSET PLATE (14)

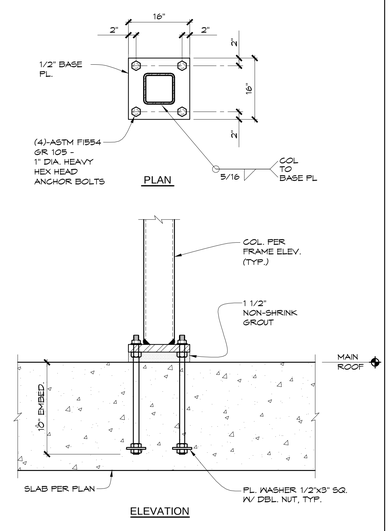
NOT USED (15)





BASE PLATE SCHEDULE						
BRACE SIZE	BASE PL WIDTH	BASE PL THICKNESS	AB'S (F1554 GR 105 U.O.N.)	AB EMBED LENGTH	t_c	t_{bp}
HSS8x8x1/2	16"	1 3/8"	(10)-1" DIA.	1'-6"	5/16	5/16

GUSSET TO BASE PL. (10)



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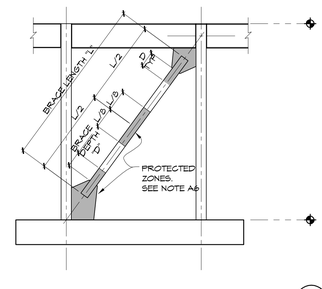

OCBF PROTECTED ZONE (5)

ORDINARY CONCENTRIC BRACED FRAME NOTES / QUALITY ASSURANCE

D. WELDING PROCEDURES:

1. WELDING SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF AWS D1.1, AS SUPPLEMENTED BY AISC 341, APPENDIX W.
2. EACH WELDER WORKING ON THE PROJECT SHALL BE ASSIGNED AN IDENTIFICATION SYMBOL OR MARK. EACH WELDER SHALL MARK THIS IDENTIFICATION SYMBOL AT EACH WELDMENT COMPLETED.
3. FOR ALL COMPLETE JOINT PREPARATION (CJP) AND PARTIAL JOINT PENETRATION (PJP) GROOVE WELDS SUBJECT TO ULTRASONIC TESTING, A VISIBLE MARK "FOR UT" SHALL BE ACCURATELY PLACED ON THE STEEL A DISTANCE OF FOUR INCHES AWAY FROM THE ROOT OF THE EDGE PREPARATION.
4. WELD "DAMS" OR "END DAMS" SHALL NOT BE USED. "RUN OFF" OR WELD TABS, IF USED, SHALL EXTEND BEYOND THE EDGE OF THE JOINT A DISTANCE EQUAL TO A MINIMUM OF THE PART THICKNESS, BUT NOT LESS THAN ONE INCH. ALL WELD TABS SHALL BE REMOVED TO WITHIN 1/8 INCH OF THE BASE METAL SURFACE. THE REMOVAL AREA SHALL BE FINISHED TO A SURFACE ROUGHNESS OF 500 MICRO-INCHES OR SMOOTHER. THE CONTOUR OF THE WELD END SHALL PROVIDE A SMOOTH TRANSITION TO ADJACENT SURFACES, FREE OF NOTCHES, GOUGES, AND SHARP CORNERS.

E. WELDING PROCEDURE SPECIFICATION (WPS):

1. THE WPS SHOULD BE WRITTEN BY A COMPETENT WELDING ENGINEER.
2. EACH WPS SHALL SPECIFY ALL APPLICABLE ESSENTIAL VARIABLES OF AWS D1.1. WPS VARIABLES SHALL BE WITHIN THE PARAMETERS ESTABLISHED BY THE FILLER METAL MANUFACTURER.
3. WELDERS AND SPECIAL INSPECTORS SHALL BE INSTRUCTED IN THE PROPER USE OF THE WPS AND SHALL BE INSTRUCTED TO RETAIN A COPY OF THE WPS FOR PRESENTATION TO THE DEVELOPMENT SERVICES STRUCTURAL INSPECTOR UPON REQUEST.
4. THE SPECIAL INSPECTOR MUST VERIFY THAT WELDING IS BEING PERFORMED ACCORDING TO THE WPS.

F. INSPECTION & TESTING:

1. THE REQUIREMENTS LISTED BELOW FOR ELEMENTS OF THE SEISMIC LOAD RESISTING SYSTEM (SLRS), ARE IN ADDITION TO THE GENERAL SPECIAL INSPECTION AND STRUCTURAL OBSERVATION REQUIREMENTS. IN THE CASE OF CONFLICT, THE NOTES ON THIS SHEET ARE TO BE FOLLOWED FOR INSPECTION & TESTING OF ELEMENTS OF THE SLRS.
2. QC WELDING INSPECTORS, QA WELDING INSPECTORS, AND NDT TECHNICIANS SHALL BE QUALIFIED IN ACCORDANCE WITH AISC 341, SECTION N3.
3. NONDESTRUCTIVE TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH AISC 341, SECTION N4.
4. WELD ACCEPTANCE CRITERIA SHALL BE PER AWS D1.1, AS AMENDED BY AISC 341 APPENDIX W.
5. INSPECTION POINTS AND FREQUENCIES OF QC AND QA TASKS AND REQUIRED DOCUMENTATION SHALL BE AS SPECIFIED IN AISC 341, APPENDIX Q.
6. WHERE JUSTIFIED BY DOCUMENTION OF TEST RESULTS, THE PERCENTAGES OF ULTRASONIC TESTING AND MAGNETIC PARTICLE TESTING FOR AN INDIVIDUAL WELDER MAY BE REDUCED IN ACCORDANCE WITH THE PROVISIONS OF AISC 341, SECTION Q5.2.
7. VISUAL INSPECTIONS OF PROTECTED ZONE SHALL BE PROVIDED AS SPECIFIED IN AISC 341, SECTION Q5.4.

A. GENERAL NOTES:

1. ORDINARY CONCENTRIC BRACED FRAMES AND CONNECTIONS HAVE BEEN DESIGNED AND DETAILED IN ACCORDANCE WITH AISC 341, "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS."
2. THE SEISMIC LOAD RESISTING SYSTEM (SLRS) ELEMENTS SUBJECT TO THE REQUIREMENTS OF AISC 341 INCLUDE:
   A. BEAMS, COLUMNS AND BRACES IN ORDINARY CONCENTRIC BRACED FRAMES.
   B. GUSSET PLATES AND BASE PLATES WHICH ARE PART OF FRAME BEAM AND COLUMN ASSEMBLIES.
   C. WELDING AND HIGH-STRENGTH BOLTING AT COLLECTOR (DRAG) CONNECTIONS ARE SUBJECT TO THESE REQUIREMENTS.
   D. PLATES FOR CONNECTION OF NON-FRAME BEAMS TO FRAME BEAMS OR FRAME COLUMNS ARE NOT SUBJECT TO THESE REQUIREMENTS.
   E. ANGLE BRACES AND THEIR CONNECTIONS TO FRAME BEAMS ARE NOT SUBJECT TO THESE REQUIREMENTS.
3. IN ADDITION TO THE PROVISIONS CONTAINED IN THE STRUCTURAL DRAWINGS, QUALITY ASSURANCE PROCEDURES SHALL BE IN ACCORDANCE WITH AISC 341, APPENDIX Q.
4. IN ADDITION TO THE PROVISIONS CONTAINED IN THE STRUCTURAL DRAWINGS, WELDING PROVISIONS SHALL BE IN ACCORDANCE WITH AISC 341, APPENDIX W.
5. ANY PROPOSED MODIFICATIONS DUE TO FABRICATION ERRORS OR UNFORSEEN FIELD CONDITIONS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO SUCH MODIFICATION BEING MADE.
6. WHERE A "PROTECTED ZONE" IS IDENTIFIED ON THE CONNECTION DETAILS, THE FOLLOWING PROVISIONS SHALL APPLY WITHIN THE PROTECTED ZONE:
   A. NO WELDED OR BOLTED CONNECTIONS, HOLES, OR OTHER ATTACHMENTS WILL BE PERMITTED EXCEPT AS SPECIFICALLY SHOWN ON THE STRUCTURAL DETAILS
   B. DISCONTINUITIES CREATED BY FABRICATION OR ERECTION OPERATIONS, SUCH AS TACK WELDS, ERECTION AIDS, AIR-ARC GOUGING AND THERMAL CUTTING SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER.
   C. WELDED, BOLTED, SCREWED OR SHOT-IN ATTACHMENTS FOR EXTERIOR FACADES, PARTITIONS, DUCT WORK, PIPING OR OTHER CONSTRUCTION SHALL NOT BE PLACED WITHIN THE PROTECTED ZONE.

B. SUBMITTALS:

1. CONTRACTOR SUBMITTALS:
   THE FOLLOWING DOCUMENTS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO FABRICATION OR ERECTION, AS APPLICABLE:
   A. SHOP DRAWINGS, TO INCLUDE AS A MINIMUM THE FOLLOWING:
      (1) DESIGNATION OF MEMBERS AND CONNECTIONS THAT ARE PART OF THE SEISMIC LOAD RESISTING SYSTEM.
      (2) GUSSET PLATES DRAWN TO SCALE
      (3) ACCESS HOLE DIMENSIONS, SURFACE PROFILE AND FINISH REQUIREMENTS
      (4) LOCATIONS WHERE BACKING BARS ARE TO BE REMOVED
      (5) LOCATIONS WHERE WELD TABS ARE TO BE REMOVED
      (6) LOCATIONS AND DIMENSIONS OF PROTECTED ZONES
      (7) NDT TO BE PERFORMED BY THE FABRICATOR, IF ANY
      (8) IDENTIFICATION OF THE WELDING PROCEDURE SPECIFICATION (WPS) APPLICABLE TO EACH SHOP WELD.
   B. ERECTION DRAWINGS, TO INCLUDE AS A MINIMUM THE FOLLOWING:
      (9) DESIGNATION OF MEMBERS AND CONNECTIONS THAT ARE PART OF THE SEISMIC LOAD RESISTING SYSTEM.
      (10) LOCATIONS WHERE BACKING BARS ARE TO BE REMOVED
      (11) LOCATIONS WHERE SUPPLEMENTAL FILLETS ARE REQUIRED WHEN BACKING IS PERMITTED TO REMAIN
      (12) LOCATIONS WHERE WELD TABS ARE TO BE REMOVED
      (13) LOCATIONS AND DIMENSIONS OF PROTECTED ZONES
      (14) THOSE JOINTS OR GROUPS OF JOINTS IN WHICH A SPECIFIC ASSEMBLY ORDER, WELDING SEQUENCE, WELDING TECHNIQUE OR OTHER SPECIAL PRECAUTIONS ARE REQUIRED.
      (15) IDENTIFICATION OF THE WELDING PROCEDURE SPECIFICATION (WPS) APPLICABLE TO EACH FIELD WELD.
      (16) IDENTIFICATION OF FIELD INSTALLED HIGH-STRENGTH BOLTED CONNECTIONS AS SNUG-TIGHT, PRETENSIONED, OR SLIP-CRITICAL, AS REQUIRED BY THE CONTRACT DOCUMENTS
   C. WELDING PROCEDURE SPECIFICATIONS (WPS), WHICH SHALL SPECIFY ALL APPLICABLE ESSENTIAL VARIABLES OF AWS D1.1 AND THE FOLLOWING, AS APPLICABLE:
      (17) POWER SOURCE (CONSTANT CURRENT OR CONSTANT VOLTAGE)
   D. COPIES OF THE MANUFACTURER'S TYPICAL CERTIFICATE OF CONFORMANCE FOR ALL ELECTRODES, FLUXES AND SHIELDING GASSES TO BE USED. CERTIFICATES OF CONFORMANCE SHALL SATISFY THE APPLICABLE AWS AS REQUIREMENTS.
   E. MANUFACTURER'S PRODUCT DATA SHEETS OR CATALOG DATA FOR SMAW, FCAW, AND GMAW COMPOSITE (CORED) FILLER METALS TO BE USED. THE DATA SHEETS SHALL DESCRIBE THE PRODUCT, LIMITATIONS OF USE, RECOMMENDED OR TYPICAL WELDING PARAMETERS, AND STORAGE AND EXPOSURE REQUIREMENTS, INCLUDING BAKING, IF APPLICABLE.
2. CONTRACTOR DOCUMENTS:
   THE FOLLOWING DOCUMENTS NEED NOT BE SUBMITTED, BUT SHALL BE AVAILABLE FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO FABRICATION OR ERECTION, AS APPLICABLE:
   A. MATERIAL TEST REPORTS FOR STRUCTURAL STEEL, BOLTS, SHEAR CONNECTORS, AND WELDING MATERIALS
   B. INSPECTION PROCEDURES
   C. NONCONFORMANCE PROCEDURES
   D. MATERIAL CONTROL PROCEDURES
   E. BOLT INSTALLATION PROCEDURES
   F. WELDER PERFORMANCE QUALIFICATION RECORDS (WPQR), INCLUDING ANY SUPPLEMENTAL TESTING REQUIREMENTS
   G. QUALITY CONTROL (QC) INSPECTOR QUALIFICATIONS
3. QUALITY ASSURANCE AGENCY SUBMITTALS:
   THE AGENCY RESPONSIBLE FOR QUALITY ASSURANCE (QA) SHALL SUBMIT THE FOLLOWING DOCUMENTS TO DSA, THE ENGINEER OF RECORD, AND THE OWNER:
   A. QA AGENCY'S WRITTEN PRACTICES FOR THE MONITORING AND CONTROL OF THE AGENCY'S OPERATIONS, INCLUDING THE PROCEDURES LISTED IN AISC 341, SECTION Q4.
   B. QUALIFICATION OF MANAGEMENT AND QA PERSONNEL DESIGNATED FOR THE PROJECT
   C. QUALIFICATION RECORDS FOR INSPECTORS AND NDT TECHNICIANS DESIGNATED FOR THE PROJECT
   D. NDT PROCEDURES AND EQUIPMENT CALIBRATION RECORDS FOR NDT TO BE PERFORMED AND EQUIPMENT TO BE USED FOR THE PROJECT
   E. DAILY INSPECTION REPORTS
   F. NONCONFORMANCE REPORTS

C. MATERIALS:

1. BEAMS AND COLUMNS IN ORDINARY CONCENTRIC BRACED FRAMES SHALL BE OF ASTM A992.
2. GUSSET PLATES AND BASE PLATES TO BE OF ASTM A572 GRADE 50 STEEL COMPATIBLE WITH THE BEAMS AND COLUMNS.
3. FILLER METAL FOR ALL WELDS IN THE SLRS SHALL COMPLY WITH THE FOLLOWING:
   A. CHARPY V NOTCH (CVN) TOUGHNESS OF 20 FOOT-POUNDS AT ZERO DEGREES FARENHEIT, AS DETERMINED BY THE APPROPRIATE AWS AS CLASSIFICATION TEST METHOD OR MANUFACTURER CERTIFICATION.
   B. 58 KSI MINIMUM YIELD STRENGTH.
   C. 70 KSI MINIMUM TENSILE STRENGTH.
   D. 22 PERCENT MINIMUM ELONGATION.
4. ALL OTHER MATERIAL REQUIREMENTS SHALL BE PER STRUCTURAL NOTES ELSEWHERE ON THESE DRAWINGS.

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03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
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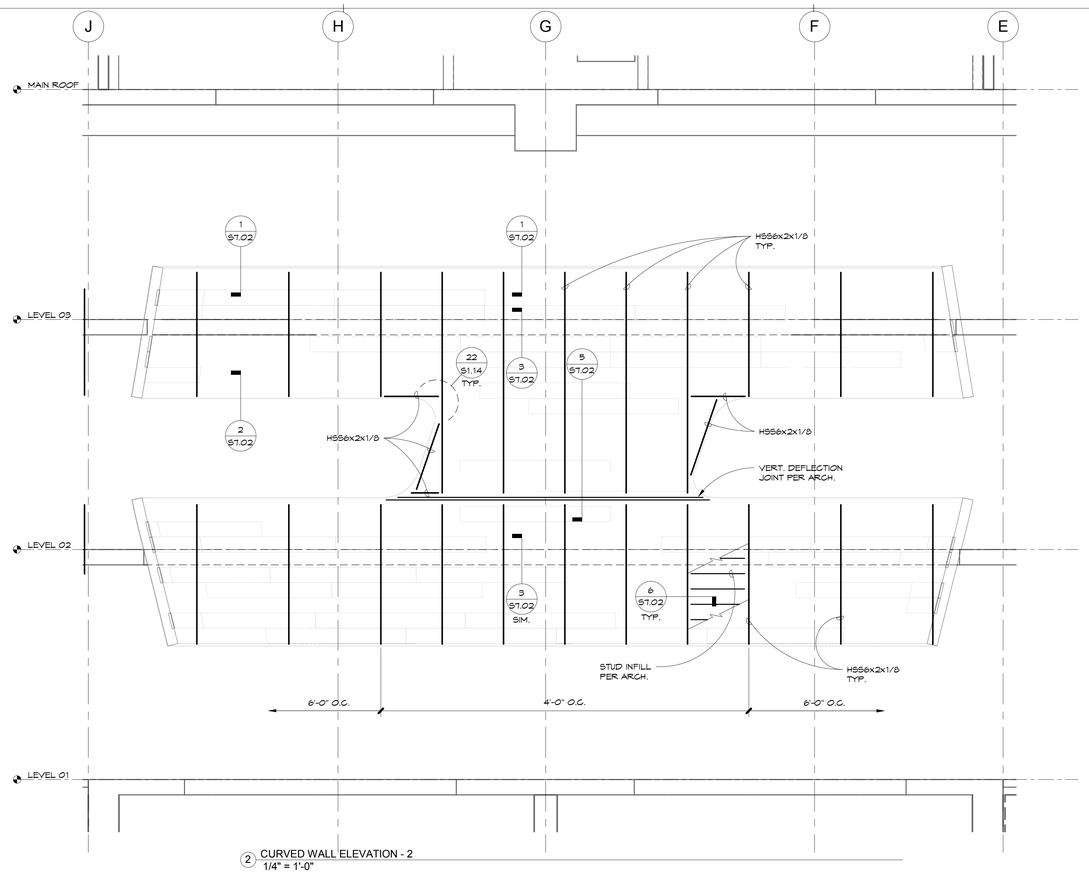
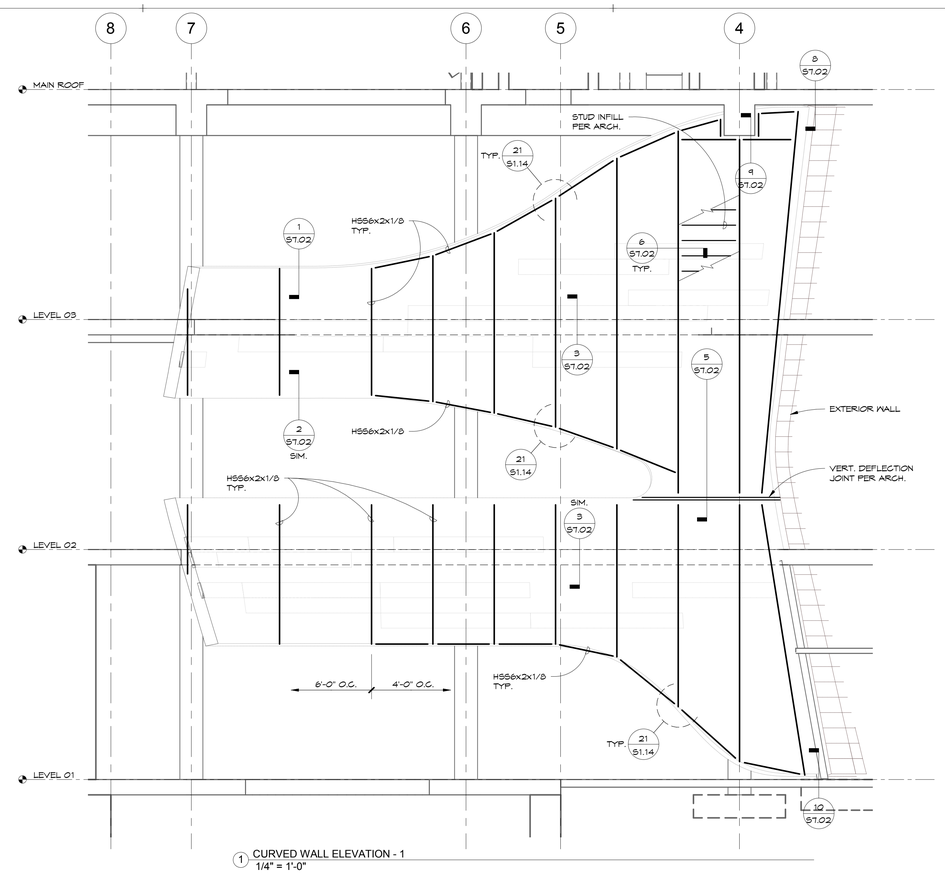
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00
FILE NAME:
DRAWN BY: CHECKED BY:
PLOT DATE: 03-06-15
TITLE: BRACE FRAME DETAILS & NOTES
DRAWING NO: S6.02



2 CURVED WALL ELEVATION - 2
1/4" = 1'-0"



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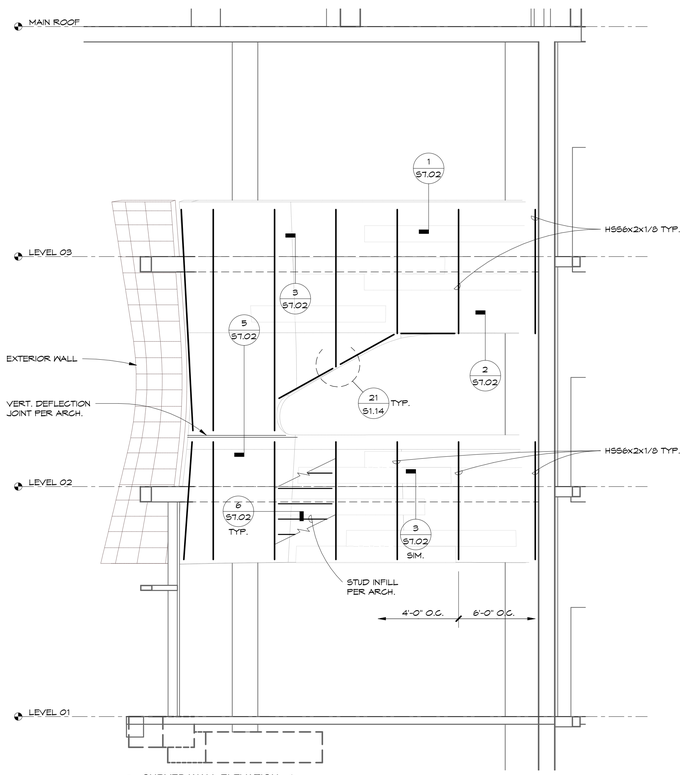

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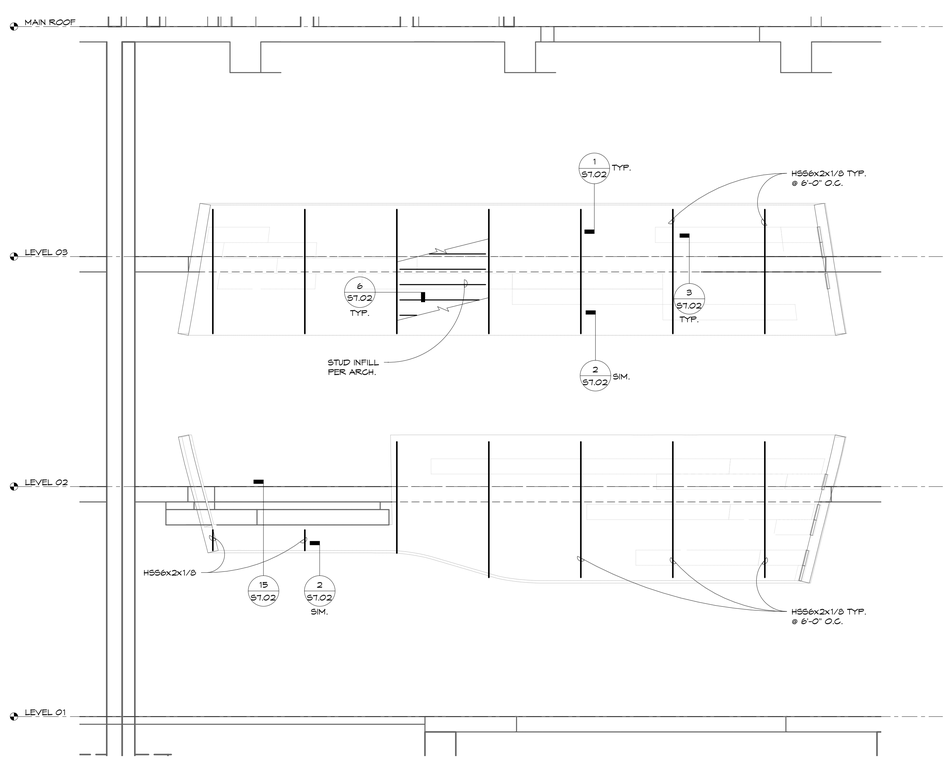

3 CURVED WALL ELEVATION - 3
1/4" = 1'-0"

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SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: Author
CHECKED BY: Checker

PLOT DATE:

TITLE:
INTERIOR CURVED WALL ELEVATIONS

DRAWING NO:
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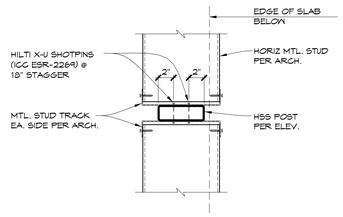

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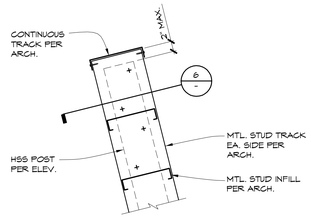

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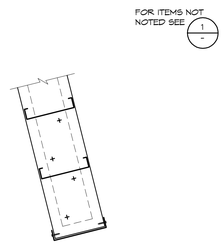

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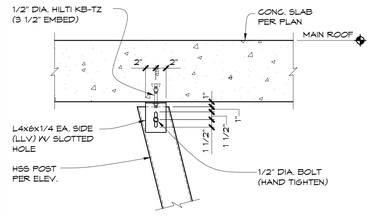

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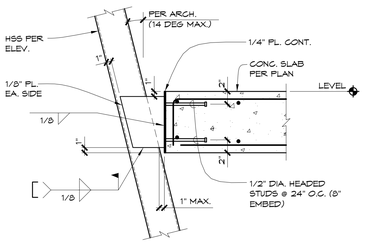

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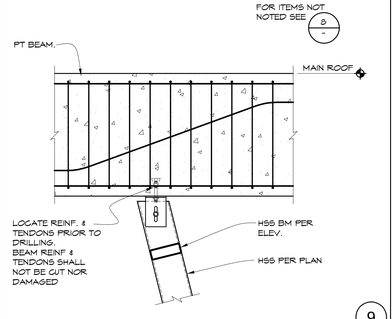

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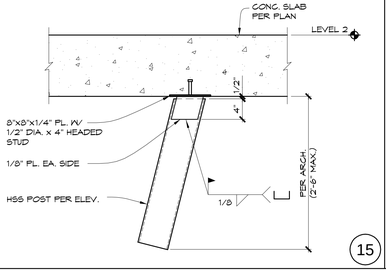

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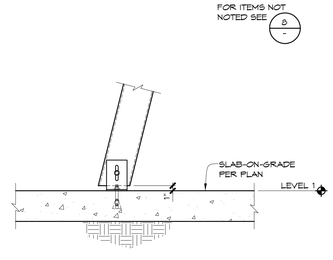

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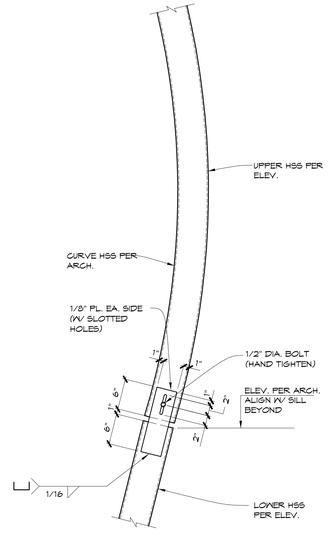

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No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO: 5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE: 03-06-15

TITLE:
INTERIOR CURVED WALL DETAILS

DRAWING NO:
S7.02

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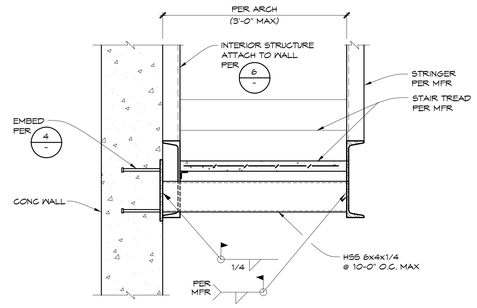

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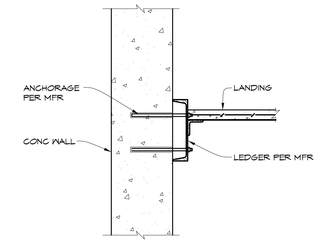

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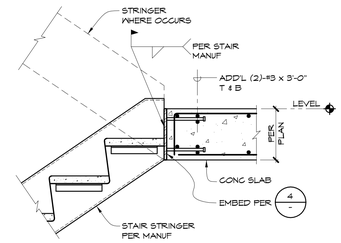

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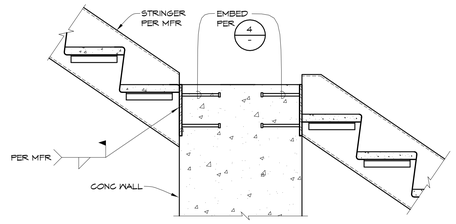

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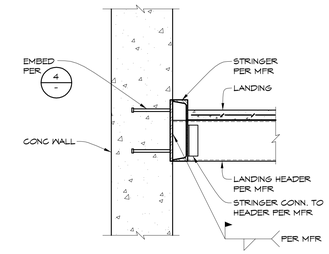

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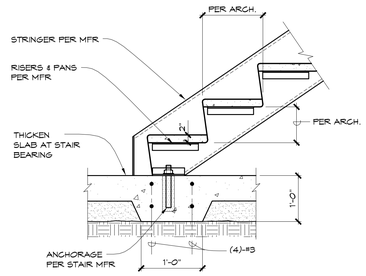
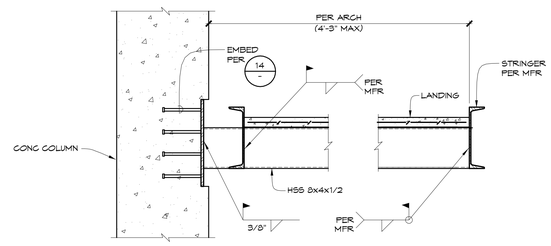


NOTE:
EXTEND THICKENED SLAB
1'-0" BEYOND STRINGER EACH END

2



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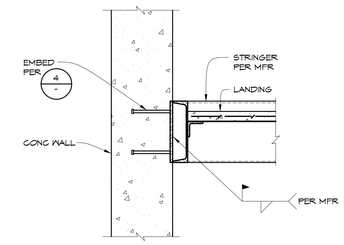

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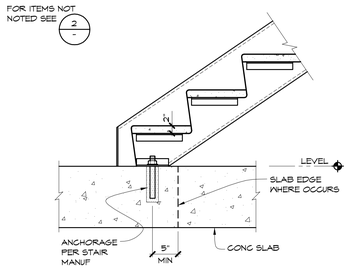

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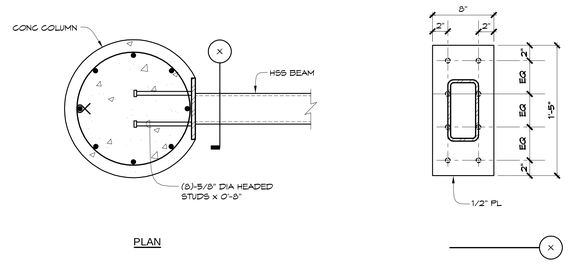

PLAN

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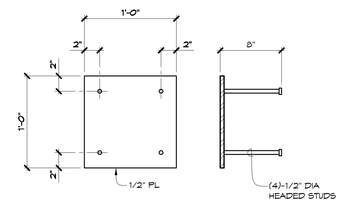

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architecture + environments + brand strategy + graphics
1301 third avenue, san diego ca 92101
phone 619.239.2353 fax 619.239.6227

HOPE-AMUNDSON
Structural Engineers

AIRBORNE SAN DIEGO
1401 IMPERIAL AVENUE
SAN DIEGO, CA 92101

03-06-15 PLAN CHECK RESUBMITTAL
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 5332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

PLOT DATE:
03-06-15

TITLE:

STRUCTURAL DETAILS

DRAWING NO:

S8.01

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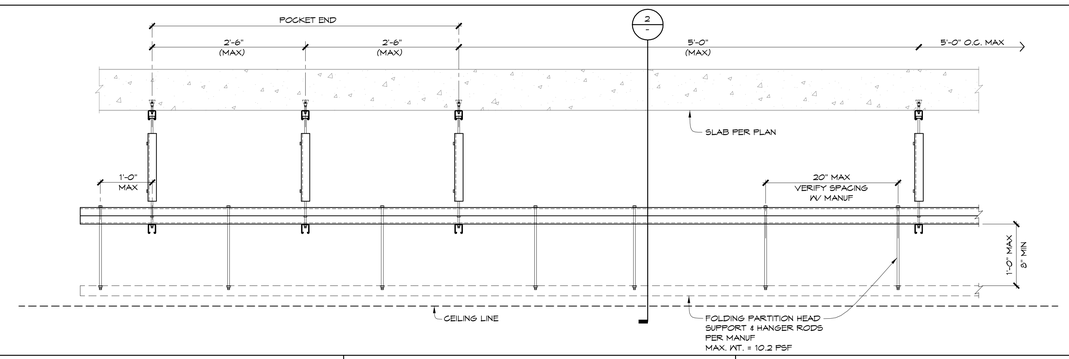

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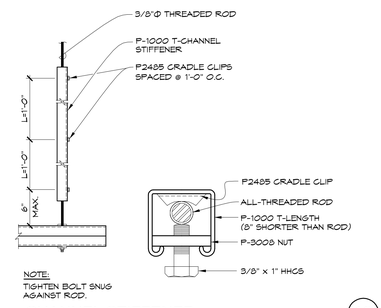

CHANNEL STIFFENER

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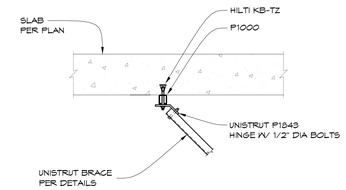

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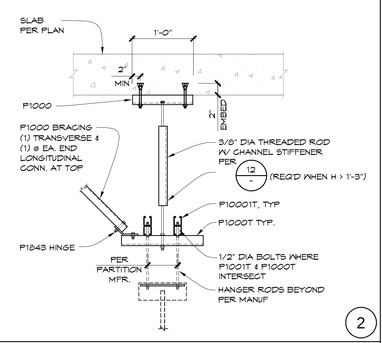

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HOPE-AMUNDSON
Structural Engineers

AIRBORNE SAN DIEGO
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03-06-15 PLAN CHECK RESUBMITTAL
12-05-14 PLAN CHECK SUBMITTAL
11-11-14 CD PROGRESS
11-07-14 CONCRETE PRICING
10-01-14 DESIGN DEVELOPMENT
ISSUES:

REGISTERED PROFESSIONAL ENGINEER
JAMES A. AMUNDSON
No. 3332
Exp. 12-31-15
STRUCTURAL
STATE OF CALIFORNIA

SIGNED: 03/06/15
NO: 214049.00

PROJECT NO:
5432.00

FILE NAME:

DRAWN BY: CHECKED BY:

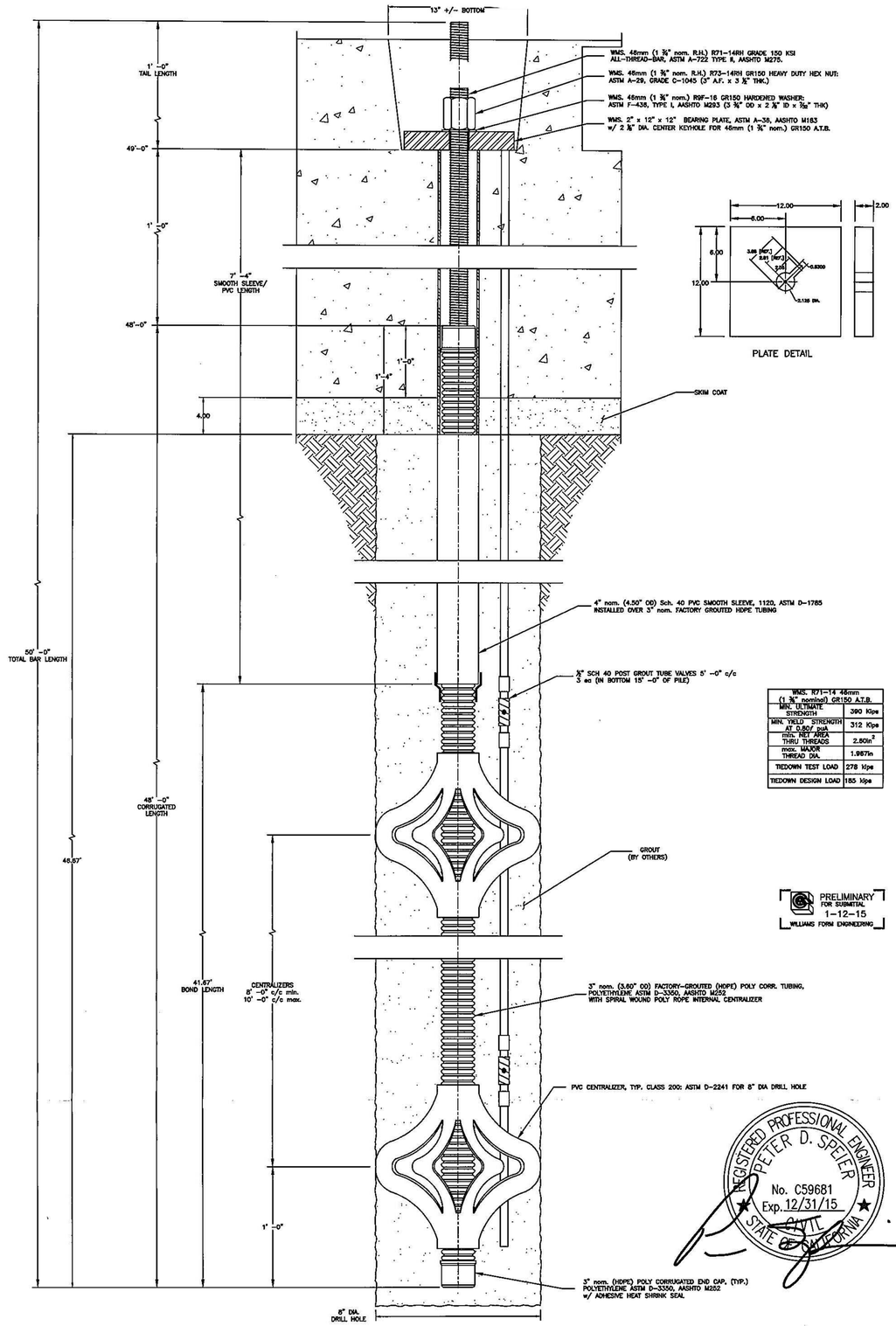
PLOT DATE:
03-06-15

TITLE:

STRUCTURAL DETAILS

DRAWING NO:

S8.02



WMS. R71-14 46mm (1 3/4" nominal) GR150 A.T.B.	
MIN. ULTIMATE STRENGTH	390 kips
MIN. YIELD STRENGTH AT 0.80f' pu/k	312 kips
min. NET AREA THRU THREADS	2.50in²
max. MAJOR THREAD DIA.	1.957in
TIEDOWN TEST LOAD	278 kips
TIEDOWN DESIGN LOAD	185 kips

PRELIMINARY FOR SUBMITTAL 1-12-15 WILLIAMS FORM ENGINEERING

REGISTERED PROFESSIONAL ENGINEER PETER D. SPEIER No. C59681 Exp. 12/31/15 CIVIL STATE OF CALIFORNIA

SHEET TITLE	
CONDON JOHNSON	
1401 IMPERIAL	
WMS. 46mm (1 3/4" nom.) GR150 TIE ROD	
DRAWN BY:	CJT
SCALE:	NTS
DATE:	1-6-15
E.C.O. NO.:	402-9831
APPR. NO.:	
DSGN. BY:	
TECH REP.:	JO
SHEET NO.	1 OF 1
PRINT NO.	1-JK-3-1657

WILLIAMS FORM ENGINEERING CORP.
8165 GRAPHIC DR, BELMONT, MI 49306, PH: 616.866.0815 - FX: 616.866.1890

CUSTOMER CONDON JOHNSON
PROJECT 1401 IMPERIAL

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CONDON - JOHNSON & ASSOCIATES, INC.
CONTRACTORS AND ENGINEERS

Date: January 21, 2015

Project: Airborne America, Inc. – 1401 Imperial Ave.

Re: Uplift Soil Anchor (Tiedown) Construction Plan

REFERENCES

- Prelimary geotechnical Investigation, "Proposed Airborne America Building 1401 Imperial Avenue, San Diego, California" prepared by Murbach Geotech, dated July 18, 2014. Figure 10, Assumed Design Parameters note #7.
- Project structural plans prepared by Hope-Amundson, "Plan Check Submittal" dated December 05, 2014. Sheets: S1.02 section "Stuctural Notes: I. Soil Anchor (Foundation tie-downs)",S2.B2.A, and S4.01

OVERVIEW

The following is Condon-Johnson & Assoc., Inc.'s (CJA) proposed Construction Plan for tiedowns at the above named project. The project plans call for thirty (30 ea) 1¾" diameter, double corrosion protected, permanent soil anchors grouted into a drilled hole.

SUBMITTAL CONTENTS:

1.0 Grout mix design.
2.0 Anchor materials.
3.0 Drilling methods and equipment.
4.0 Tiedown testing.

1.0 Grout mix design

CJA will utilize cement and water grout batched onsite. Water shall not exceed 5 gallons per 94 lb sack of cement; a maximum water to cement ratio of 0.45. Strength shall be 4,000 psi minimum at 28 days.

2.0 Anchor materials

Tiedown anchors shall consist of 1¾" diameter, Grade 150 thread bar fully encapsulated in corrugated PVC sheathing that extends ~1' into the mat slab (See Attachment 1).

3.0 Drilling methods and equipment

Tiedown construction shall be performed for a level surface from the bottom of slab elevation, prior to the skim coat being placed.

1. Centerline offsets and benchmarks for grade control will be established from construction staking.
2. The drill rig will position the drill tool over the center of the hole.
3. The axis for the hole shall be initially set plumb utilizing a hand level on the drill string.
5. Holes will be drilled to the design depth by advancing a temporary casing using external air/water flush.
6. The tendon (encapsulated bar and post grout line) will be installed in the casing after the casing has been advanced to tip.
7. The casing will be filled with grout.
8. The casing will be withdrawn while simultaneously pumping grout through the rotary and into the casing under pressure.
9. The tiedowns will be post grouted the day following installation. Then the post grout line will be flushed with water for future use.
10. Initial tiedown testing may, at CJA's option, take place prior to slab construction. A random portion of the anchors may be tested to insure adequate bond stress can be realized.
11. The mat foundation will be constructed (by others) with the necessary block out per plan detail 4/S4.01 for subsequent testing and lock-off. It is important that the concrete contractor make provisions to insure that slab concrete does not enter the blockout.
11. Tiedown testing and lock-off shall take place as detailed in item 4.0 – Tiedown testing. Tiedowns will be post-grouted at CJA's discretion. If anchor fails initial testing, further post-grouting may take place. Anchors shall remain undisturbed until the grout has cured a minimum of 3 days before any proof testing is carried out.
12. The void above the elevation of primary grout and within the 3" PVC sheathing will be filled with cement and water grout.
13. The block out shall be filled by others, subsequent to successful tiedown testing and lock-off.

The following equipment is to be used:

a. Klemm 806 (or similar)
b. 900 CFM air compressor (or similar)
c. Portable Batching Silo (or similar)
d. Hany/Obermann Grout Plant (or similar)
e. 25 kW Generator (or similar)
f. 100T Support Crane

4.0 Tiedown testing

Tiedown testing shall be performed as recommended in the latest edition of the Post Tensioning Institutes "Recommendations for Prestressed Rock and Soil Anchors". If anchors are tested after slab construction, testing shall occur after the concrete has achieved sufficient strength. Block outs per contract plan detail 4/4.01 shall be cast into the mat foundation to accommodate testing.

1. All anchors shall be proof tested; a sample test sheet is attached.
2. The proof test shall be performed by incrementally loading the anchor in accordance with the following schedule. At each increment, the movement of the tendon shall be recorded to the nearest 0.001 inches with respect to an independent fixed reference point. The anchor load shall be measured with a pressure gage calibrated with the

reference point. The anchor load shall be measured with a pressure gage calibrated with the jack and accurate enough to read to the nearest 100 psi. The load increments shall be:

Increment	Load
AL	19 k
0.25 P	47 k
0.50 P	93 k
0.75 P	139 k
1.00 P	185 k
1.25 P	232 k
1.50 P	278 k
AL = alignment load (0.10 P)	
P = design load (185 k)	
T = test load (1.5P = 278 k)	

The load shall be held at each increment just long enough to obtain the movement reading but not more than one minute.

The test load shall be held for 10 minutes. Total movements with respect to a fixed reference point shall be recorded at 1, 2, 3, 4, 5, 6 and 10 minutes. If the movement between 1 and 10 minutes exceeds 0.04 in. the test load shall be maintained for 50 more minutes. Additional anchor movements shall be recorded at 15, 20, 25, 30, 45 and 60 minutes. All measurements shall be recorded on a tieback test sheet.

An anchor shall be acceptable if:

a. The total movement obtained from a proof test, measured between 50% of the design load and the test load should exceed 80% of the theoretical elastic elongation of the free stressing length for this respective load range (0.083 in.).
b. The creep rate does not exceed 0.08 in. per log cycle during the final cycle of the proof test.

3. Lock off anchors at load determined by the engineer.
4. Perform a lift-off reading. The initial lift-off reading must indicate an anchor load within 5% of the specified lock-off load.

ONCE TESTING IS COMPLETE AND ACCEPTED IN THE FIELD, THE EXCESS BAR WILL BE CUT OFF AND NO FURTHER TESTING WILL BE POSSIBLE.

REGISTERED PROFESSIONAL ENGINEER GEORGE M. BURKHART No. C58413 Expires 12/31/15 CIVIL STATE OF CALIFORNIA

AIRBORNE SAN DIEGO

1401 IMPERIAL AVENUE
SAN DIEGO CA. 92101

11-11-14 CD PROGRESS
08-29-14 SCHEMATIC DESIGN
ISSUES:

PRELIMINARY NOT FOR CONSTRUCTION

PROJECT NO: 5432.00
FILE NAME: \\BIM\Central\5432.00_Arch-Central.rvt
DRAWN BY: Author
CHECKED BY: Checker
PLOT DATE: 11-11-14
TITLE: UPLIFT SOIL ANCHORS (TIEDOWNS)
DRAWING NO: SA-01