

1) GENERAL INFORMATION

- A. GOVERNING BUILDING CODE: IBC-2015 "INTERNATIONAL BUILDING CODE" WITH CITY OF OKLAHOMA CITY AMENDMENTS.
B. RISK CATEGORY: THE RISK CATEGORY ACCORDING TO IBC-2015 TABLE 1604.5 AND ASCE 7-10 TABLE 1.5-1 IS CATEGORY II.
C. CONTRACT DOCUMENTS:

- 1) THE CONTRACT DOCUMENTS CONSIST OF THE AGREEMENT BETWEEN THE OWNER AND CONTRACTOR, CONDITIONS OF THE CONTRACT, DRAWINGS, SPECIFICATIONS, ADDENDA ISSUED PRIOR TO EXECUTION OF THE CONTRACT, OTHER DOCUMENTS LISTED IN THE AGREEMENT AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT.
2) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND DISSEMINATING ALL CONTRACT DOCUMENTS AND LATEST ADDENDA TO ALL SUB-CONTRACTORS PRIOR TO DETAILING, FABRICATION, OR INSTALLATION OF WORK.
3) CORRELATION OF THE CONTRACT DOCUMENTS: THE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. IF CONFLICTING REQUIREMENTS ARE FOUND BETWEEN THE DRAWINGS, SPECIFICATIONS AND/OR THESE GENERAL NOTES, THE MORE STRINGENT AND HIGHEST COST REQUIREMENT SHALL CONTROL UNLESS DIRECTED OTHERWISE IN WRITING BY THE OWNER'S REPRESENTATIVE.
4) THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DISCREPANCIES BETWEEN EACH SET, AND WITHIN EACH SET OF DRAWINGS, AND REPORT DISCREPANCIES, IF ANY, TO THE OWNER'S REPRESENTATIVE PRIOR TO THE DETAILING, FABRICATION, AND INSTALLATION OF AFFECTED WORK.
5) ALTHOUGH NOT NECESSARILY SPECIFICALLY REFERENCED IN THE CONTRACT DOCUMENTS, TYPICAL DETAILS AND GENERAL NOTES APPLY TO THE ENTIRE PROJECT WHEREVER CONDITIONS SIMILAR TO THOSE DETAILED OR NOTED EXIST.
6) THE USE OF ELECTRONIC FILES OR REPRODUCTION OF CONTRACT DOCUMENTS BY ANY TRADE OR MATERIAL SUPPLIER IN LIEU OF COMPLETELY INDEPENDENT PREPARATION OF SHOP DRAWINGS SIGNIFIES THE SUPPLIER'S CERTIFICATION THAT ALL INFORMATION SHOWN IN THE SHOP DRAWINGS IS CORRECT, AND ASSIGNS THEMSELVES TO RESPONSIBILITY FOR ANY JOB EXPENSE ARISING DUE TO ANY ERRORS OCCURRING THEREIN.
D. FIELD MODIFICATIONS: THE CONTRACTOR OR SUBCONTRACTOR FIELD MODIFICATIONS TO THE STRUCTURE WITHOUT THE PRIOR WRITTEN CONSENT OF THE STRUCTURAL ENGINEER ARE EXPRESSLY PROHIBITED AND MAY REQUIRE SUBSEQUENT REMEDIATION DIRECTED BY THE STRUCTURAL ENGINEER AT CONTRACTOR'S EXPENSE.

2) DESIGN LOADS

- A. GOVERNING STANDARD FOR DESIGN LOADS: ASCE 7-10 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
B. DEAD LOAD: SELF WEIGHT OF MATERIALS, UNLESS NOTED OTHERWISE
C. ROOF DEAD LOAD:
1) METAL ROOF DECK: 3 PSF
2) BEAM, SELF-WEIGHT: 2 PSF
3) TOTAL: 5 PSF
D. WIND LOADS:
1) RISK CATEGORY: II
2) EXPOSURE CATEGORY: C
3) ENCLOSURE CLASSIFICATION: UNENCLOSED
4) INTERNAL PRESSURE COEFFICIENT, GCPI: +/- 0.18
5) TOPOGRAPHIC FACTOR, KZT: 1.0
6) DIRECTIONALITY FACTOR, KD: 0.85
7) ULTIMATE DESIGN WIND SPEED, Vult: 109 MPH
E. SNOW LOADS:
1) SNOW IMPORTANCE FACTOR, Is: 1.0
2) GROUND SNOW LOAD, Pg: 10 PSF
3) EXPOSURE OF ROOF: PARTIALLY EXPOSED
4) SURFACE ROUGHNESS CATEGORY: C
5) EXPOSURE FACTOR, Ce: 1.0
6) THERMAL FACTOR, Ct: 1.0
7) ROOF SLOPE FACTOR, Cs: 1.0
8) CALCULATED FLAT ROOF SNOW LOAD, Pf: 7.0 PSF
9) MINIMUM FLAT ROOF SNOW LOAD, I*Pg: 10 PSF
10) RAIN ON SNOW SURCHARGE LOAD: 5 PSF
F. RAIN LOADS:
1) DEPTH OF WATER ON THE UNDEFLECTED ROOF UP TO THE INLET OF THE SECONDARY DRAINAGE SYSTEM WHEN THE PRIMARY DRAINAGE SYSTEM IS BLOCKED (I.E., THE STATIC HEAD), ds: 4.0 INCHES
2) ADDITIONAL DEPTH OF WATER ON THE UNDEFLECTED ROOF ABOVE THE INLET OF THE SECONDARY DRAINAGE SYSTEM AT ITS DESIGN FLOW (I.E., THE HYDRAULIC HEAD), dh: 2.0 INCHES
G. SEISMIC DESIGN CRITERIA:
1) RISK CATEGORY: II
2) SEISMIC IMPORTANCE FACTOR, Is: 1.0
3) SOIL SITE CLASSIFICATION: C
4) 0.2 SEC. MAPPED SPECTRAL ACCELERATION, Ss: 0.273
5) 1.0 SEC. MAPPED SPECTRAL ACCELERATION, S1: 0.079
6) SITE COEFFICIENT, 0.2 SEC. PERIOD, Fa: 1.20
7) SITE COEFFICIENT, 1.0 SEC. PERIOD, Fv: 1.70
8) 0.2 SEC. DESIGN SPECTRAL ACCELERATION, Sds: 0.219
9) 1.0 SEC. DESIGN SPECTRAL ACCELERATION, Sd1: 0.089
10) SEISMIC DESIGN CATEGORY: B
11) SEISMIC PARAMETERS FOR WALLS:
A) SEISMIC FORCE RESISTING SYSTEM: ORDINARY REINFORCED MASONRY SHEAR WALLS
B) RESPONSE MODIFICATION COEFFICIENT, R: 2.00
C) SYSTEM OVERSTRENGTH FACTOR, O: 2.50
D) DEFLECTION AMPLIFICATION FACTOR, Cd: 1.75
E) ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD.
F) SEISMIC RESPONSE COEFFICIENT, Cs: 0.118
12) SEISMIC PARAMETERS FOR CANOPY:
G) SEISMIC FORCE RESISTING SYSTEM: STEEL ORDINARY CANTILEVER COLUMN SYSTEMS
H) RESPONSE MODIFICATION COEFFICIENT, R: 1.25
I) SYSTEM OVERSTRENGTH FACTOR, O: 1.25
J) DEFLECTION AMPLIFICATION FACTOR, Cd: 1.25
K) ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD.
L) SEISMIC RESPONSE COEFFICIENT, Cs: 0.189
M) TOTAL LATERAL BASE SHEAR, V: 1 KIP

3) MATERIAL DESIGN VALUES

- A. CONCRETE (MIN. COMPRESSIVE STRENGTH AT 28 DAYS, NORMAL WEIGHT U.N.O.)
1) BELOW-GRADE FOUNDATIONS: 3,500 PSI
2) ALL OTHER STRUCTURAL CONCRETE, U.N.O.: 3,500 PSI
B. REINFORCED CONCRETE MASONRY
1) DETERMINATION OF COMPRESSIVE STRENGTH: UNIT STRENGTH METHOD
2) DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY, fm: 2,000 PSI
3) NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS (ASTM C90): 2,000 PSI
4) MORTAR (ASTM C270, PROPORTION SPECIFICATION, TYPE S): 1,800 PSI
5) GROUT (ASTM C476, PROPORTION SPECIFICATION): 2,000 PSI
C. CONCRETE AND MASONRY REINFORCEMENT (MINIMUM YIELD STRENGTH)
1) ALL PLAIN AND DEFORMED BARS (ASTM A615, GRADE 60): 60 KSI
2) WELDED PLAIN WIRE REINFORCEMENT (ASTM A1064): 65 KSI

- 3) WELDED DEFORMED WIRE REINFORCEMENT (ASTM A1064): 70 KSI
4) WELDABLE REINFORCING BARS (ASTM A706): 60 KSI
D. STRUCTURAL STEEL (MINIMUM YIELD STRENGTH)
1) ALL WIDE FLANGE SHAPES (ASTM A992): 50 KSI
2) SQUARE AND RECTANGULAR HSS (ASTM A500, GRADE C): 50 KSI
3) ANCHOR RODS (ASTM F1554, GRADE 36): 36 KSI
4) ALL OTHER SHAPES AND PLATES UNLESS NOTED (ASTM A36): 36 KSI (FABRICATOR MAY OPTIONALLY USE ASTM A572-50 PLATE MATERIAL)
E. COLD FORMED STEEL (MINIMUM YIELD STRENGTH)
1) ROOF DECK (ASTM A653, SS GRADE 33, G-60 GALVANIZED): 33 KSI

4) CONSTRUCTION LOADS AND STABILITY

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL TEMPORARY CONSTRUCTION LOADS CAN BE SAFELY SUPPORTED BY THE STRUCTURE DURING CONSTRUCTION.
B. THE STRUCTURAL FRAMING SYSTEM AND FOUNDATIONS HAVE BEEN DESIGNED AS A COMPLETE STRUCTURAL SYSTEM FOR SUPPORT OF THE LOADS INDICATED IN THE CONSTRUCTION DOCUMENTS. THE STRUCTURE HAS NOT BEEN DESIGNED OR CHECKED FOR TEMPORARY CONSTRUCTION LOADS NOR HAS IT BEEN DESIGNED OR CHECKED FOR ADEQUACY OR STABILITY AS A PARTIALLY ERRECTED STRUCTURE.
C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING THE ABILITY OF THE PARTIALLY COMPLETED OR FULLY COMPLETED STRUCTURE TO RESIST ALL CONSTRUCTION LOADS INCLUDING BUT ARE NOT NECESSARILY LIMITED TO MATERIAL STAGING, PERSONNEL, AND EQUIPMENT.
D. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING CONSTRUCTION TO KEEP STRUCTURAL FRAMING COMPONENTS SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS AND LOADS EQUAL IN INTENSITY TO DESIGN LOADS. THE TEMPORARY SUPPORTS SHALL BE SUFFICIENT TO SECURE THE PARTIALLY ERRECTED STRUCTURE OR ANY PORTION THEREOF AGAINST LOADS THAT ARE LIKELY TO BE ENCOUNTERED DURING CONSTRUCTION, INCLUDING THOSE DUE TO WIND AND THOSE THAT RESULT FROM CONSTRUCTION OPERATIONS.
E. THE CONTRACTOR SHALL NOT REMOVE TEMPORARY SUPPORTS UNTIL THE INSTALLATION OF ALL STRUCTURAL ELEMENTS IS COMPLETE AND HAS BEEN ACCEPTED AS COMPLETE BY THE ENGINEER. FOR THE PURPOSES OF THIS PARAGRAPH, "ALL STRUCTURAL ELEMENTS" INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING STRUCTURAL ELEMENTS:
1) FOUNDATIONS
2) MASONRY SHEAR WALLS
3) STRUCTURAL STEEL FRAMING WITH COMPLETED STEEL CONNECTIONS, INCLUDING PERMANENT VERTICAL AND/OR HORIZONTAL BRACING
4) ROOF DECK

5) EXISTING CONSTRUCTION

- A. ALL VERTICAL AND HORIZONTAL DIMENSIONS, FINISHED FLOOR AND ROOF ELEVATIONS, PLUMBNESS, AND DETAIL FOR THE EXISTING STRUCTURE SHALL BE VERIFIED IN THE FIELD PRIOR TO PROCEEDING WITH ANY DEMOLITION OR INSTALLATION OF NEW WORK.
B. PRIOR TO DEMOLITION OR INSTALLATION OF NEW WORK, THE CONTRACTOR SHALL MAKE WRITTEN DOCUMENTATION IF UNFORESEEN CONDITIONS OCCUR IN THE EXISTING CONSTRUCTION. THESE UNFORESEEN CONDITIONS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND A WRITTEN RESPONSE BEFORE PROCEEDING WITH THE WORK.
C. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL SHORING, PROPS, AND GUYS REQUIRED FOR THE TEMPORARY SUPPORT OF THE EXISTING STRUCTURE, UTILITIES, ETC. AS MAY BE NECESSARY TO SAFELY COMPLETE DEMOLITION OR NEW WORK.
D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING EXISTING UTILITIES, BOTH CHARTED AND UNCHARTED BEFORE COMMENCING WITH ANY EXCAVATION OR DEMOLITION WORK. DEPTH OF CONCRETE SAW SHALL BE SET SO AS NOT TO CUT ANY LOCAL EMBEDDED OR UNDER-FLOOR PIPING OR WIRING WHICH IS TO REMAIN.
E. ALL DRILLING, CUTTING, DEMOLITION OR OTHER MODIFICATIONS TO EXISTING CONSTRUCTION SHALL BE PERFORMED IN A MANNER THAT WILL NOT REDUCE THE STABILITY OR STRUCTURAL INTEGRITY OF THE EXISTING CONSTRUCTION. WHEN SAW CUTTING, SPECIAL CARE SHALL BE TAKEN TO NOT OVER CUT INTO AN EXISTING AREA OF STRUCTURE THAT WILL REMAIN.
F. CORING FOR PIPING OR CONDUIT THROUGH EXISTING STRUCTURAL MEMBERS IS NOT ALLOWED UNLESS SPECIFICALLY SHOWN IN THE CONTRACT DOCUMENTS OR SPECIFICALLY ALLOWED BY THE STRUCTURAL ENGINEER IN WRITING.
G. DAMAGE TO PORTIONS OF THE EXISTING STRUCTURE OR OTHER EXISTING BUILDING COMPONENTS CAUSED BY DEMOLITION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE AND TO A LEVEL ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.
H. WHEN EXISTING FOUNDATIONS ARE TO BE DEMOLISHED, EXCAVATION DEPTHS EXCEEDING 4 FEET SHALL BE BACKFILLED WITH PROPERLY COMPACTED CRUSHED STONE OR FLOWABLE FILL TO WITHIN 4 FEET OF THE REQUIRED FINISHED BACKFILL ELEVATION. THE REMAINING DEPTH OF BACKFILL SHALL BE COMPLETED WITH PROPERLY COMPACTED STRUCTURAL FILL AS OUTLINED IN THE FOUNDATION NOTES.
I. THE PROJECT AREA SHALL BE MAINTAINED AS CLEAN AS POSSIBLE WITH DUST BEING LIMITED AS MUCH AS PRACTICAL.

6) FOUNDATION NOTES

- A. GEOTECHNICAL REPORT: A PREVIOUSLY SUBMITTED GEOTECHNICAL ENGINEERING SERVICES REPORT FOR SANTA FE ELEMENTARY SCHOOL WILL BE UTILIZED FOR THE SECURITY UPGRADES TO SANTA FE ELEMENTARY SCHOOL IN OKLAHOMA CITY, OK. THE PREVIOUSLY SUBMITTED REPORT WAS PERFORMED BY PROFESSIONAL SERVICES INDUSTRIES, INC. (PSI), DATED NOVEMBER 16, 2016 (PSI PROJECT 05471124-6).
B. SITE SUB-GRADE PREPARATION:
1) SITE DRAINAGE: THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM THE AREAS OF EXCAVATION DURING CONSTRUCTION TO PREVENT PONDING UNDER FUTURE FOOTINGS. THE CONTRACTOR SHALL PROVIDE POSITIVE CUTOFF IN UTILITY TRENCHES AS REQUIRED TO PREVENT WATER MIGRATION INTO AREAS OF EXCAVATIONS AND FUTURE FOOTINGS.
2) MAINTENANCE OF SOIL MOISTURE: SOIL MOISTURE SHALL BE MAINTAINED UP UNTIL CONCRETE PLACEMENT TO PREVENT SHRINKAGE AND SUBSEQUENT POST-CONSTRUCTION SWELL OF SUBGRADE SOILS.
C. SHALLOW FOUNDATIONS:
1) FOOTING DESIGN PARAMETERS: THE PROPOSED SITE WALLS AND CANOPY SHALL BE SUPPORTED ON CONVENTIONAL SHALLOW SPREAD FOOTINGS BASED ON THE FOLLOWING DESIGN PARAMETERS:
A) BEARING MATERIAL: EXISTING SOIL
B) ALLOWABLE BEARING PRESSURE FOR SPOT FOOTINGS: 2500 PSF
C) ALLOWABLE BEARING PRESSURE FOR CONTINUOUS FOOTINGS: 2000 PSF
2) OBSERVATION OF BEARING CONDITIONS: A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER SHALL OBSERVE THE FOUNDATION EXCAVATIONS PRIOR TO STEEL OR CONCRETE PLACEMENT TO DETERMINE IF THE FOUNDATION MATERIALS ARE CAPABLE OF SUPPORTING THE DESIGN LOADS AND ARE CONSISTENT WITH THE MATERIALS DISCUSSED ABOVE.

- 3) IMPROVEMENT OF BEARING CONDITIONS: SOFT OR LOOSE SOIL ZONES ENCOUNTERED AT THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED TO THE LEVEL OF STIFF OR DENSE SOIL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. CAVITIES FORMED AS A RESULT OF EXCAVATION OF SOFT OR LOOSE SOIL ZONES SHALL BE BACKFILLED WITH ENGINEERED FILL, LEAN CONCRETE OR FLOWABLE FILL, AS DETERMINED BY THE GEOTECHNICAL ENGINEER. CARE SHALL BE TAKEN TO PREVENT WETTING OR DRYING OF THE BEARING MATERIALS DURING CONSTRUCTION. ANY EXTREMELY WET OR DRY MATERIAL, OR ANY LOOSE OR DISTURBED MATERIAL IN THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED PRIOR TO PLACING CONCRETE.
4) TRENCHED FOOTINGS: EARTH-FORMED TRENCHED FOOTINGS ARE PERMITTED, EXCEPT WHERE BRICK LEDGES OR EXPOSED SURFACES REQUIRE FORMING AND/OR WHERE SOIL SIDE WALLS SLOUGH INTO THE TRENCH. IN ORDER TO ACHIEVE 3" MINIMUM CONCRETE COVER OVER STEEL REINFORCING ON SIDEWALLS, EARTH FORMED TRENCHES SHALL BE A MINIMUM OF 2" WIDER THAN THE FORMED DIMENSIONS SHOWN IN ALL SECTIONS AND DETAILS.
5) PIPE PENETRATIONS: ALL HORIZONTAL PIPE OR SIMILAR PENETRATIONS OR SLEEVES THROUGH FOOTINGS SHALL PREFERABLY OCCUR WITHIN THE MIDDLE 1/3 OF THE FOOTING DEPTH AND SHALL HAVE A MAXIMUM OPENING DIAMETER OF ONE-FOURTH THE FOOTING DEPTH. AT PENETRATIONS, PROVIDE (4) #5 DIAGONAL BARS AT ACI REQUIREMENTS FOR CLASS B TENSION SPLICES. CLEAR FROM FOOTING BEARING. IF PENETRATION MUST OCCUR NEAR THE BOTTOM OF FOOTING, REFER TYPICAL DETAILS FOR STANDARD DETAIL TO TRANSITION & THICKEN FOOTING TO ACCOMMODATE PENETRATION.

A. FOUNDATION MISCELLANEOUS

- 1) GROUNDWATER CONDITIONS: GROUNDWATER WAS ENCOUNTERED IN SOME OF THE BORINGS AT THE TIME OF DRILLING. HOWEVER, IT IS POSSIBLE THAT TRANIENT OVER-SATURATED GROUND CONDITIONS COULD DEVELOP AT SHALLOWER DEPTHS AT A LATER TIME DUE TO PERIODS OF HEAVY PRECIPITATION, LANDSCAPE WATERING, LEAKING WATER LINES, OR OTHER UNFORESEEN CAUSES. THE CONTRACTOR SHALL DETERMINE THE ACTUAL GROUNDWATER LEVELS AT TIME OF CONSTRUCTION. IF GROUNDWATER ISSUES ARE ENCOUNTERED DURING CONSTRUCTION, THE GEOTECHNICAL ENGINEER SHALL BE CONTACTED AND REQUESTED TO ASSESS THE POSSIBLE NEED FOR REMEDIAL MEASURES.
2) DRAINAGE CONSIDERATIONS DURING CONSTRUCTION: DUE TO ADVERSE EFFECT ON STRUCTURES, WATER SHALL NOT BE ALLOWED TO COLLECT IN THE FOUNDATION EXCAVATION OR IN THE CONSTRUCTION AREA EITHER DURING OR AFTER CONSTRUCTION. UNDERCUT OR EXCAVATED AREAS SHALL BE SLOPED TOWARD ONE CORNER TO FACILITATE REMOVAL OF ANY COLLECTED RAINWATER, OR POSITIVE RUNOFF SHALL BE PROVIDED. THE CONTRACTOR SHALL EXERCISE CARE IN CREATING DRAINAGE PATHS FOR WATER DURING THE CONSTRUCTION PHASE OF THE PROJECT. POSITIVE DRAINAGE SHALL BE PROVIDED DURING ALL PHASES OF CONSTRUCTION.
3) FINAL SITE GRADING: PER SECTION 1804.4 OF IBC, THE GROUND IMMEDIATELY ADJACENT TO THE FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 20 UNITS HORIZONTAL (5-PERCENT SLOPE) FOR A MINIMUM DISTANCE OF 10 FEET PERPENDICULAR TO THE FACE OF THE WALL. IF PHYSICAL OBSTRUCTIONS OR LOT LINES PROHIBIT 10 FEET OF HORIZONTAL DISTANCE, A 5-PERCENT SLOPE SHALL BE PROVIDED TO AN APPROVED ALTERNATIVE METHOD OF DIVERTING WATER AWAY FROM THE FOUNDATION. SWALES USED FOR THIS PURPOSE SHALL BE SLOPED A MINIMUM OF 2-PERCENT WHERE LOCATED WITHIN 10 FEET OF THE BUILDING FOUNDATION. IMPERVIOUS SURFACES WITHIN 10 FEET OF THE BUILDING SHALL BE SLOPED A MINIMUM OF 2-PERCENT AWAY FROM THE BUILDING.
4) EXCAVATION AND TEMPORARY SLOPES: THE CONTRACTOR, DESIGNATED AS "RESPONSIBLE PERSON" IN OSHA CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR PART 1926, IS SOLELY RESPONSIBLE FOR PLANNING AND IMPLEMENTING ALL SAFETY PROCEDURES DURING CONSTRUCTION. ALL EXCAVATION HEIGHT, SLOPE, AND DEPTH MUST ADHERE TO ALL SPECIFICATIONS OUTLINED IN LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. THE STRUCTURAL ENGINEER DOES NOT ASSUME ANY RESPONSIBILITY FOR CONSTRUCTION SITE SAFETY OR ANY PARTY'S, INCLUDING THE CONTRACTOR'S, COMPLIANCE WITH THE APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS OR ANY OTHER APPLICABLE REGULATIONS.
5) TRENCH BACKFILL: ALL REQUIRED TRENCH BACKFILL SHALL BE ACCEPTABLE FILL MATERIAL AS DEFINED ABOVE AND SHALL BE MECHANICALLY COMPACTED IN LAYERS TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698. SOME SECTIONS OF THE BACKFILL MAY BE EXPECTED AND ANY UTILITIES WITHIN THE TRENCHES SHALL BE CONSTRUCTED TO ALLOW THESE DIFFERENTIAL MOVEMENTS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6) CONSTRUCTION MONITORING: A GEOTECHNICAL ENGINEER SHALL BE RETAINED TO PROVIDE OBSERVATIONS AND TESTING OF SOILS EXPOSED DURING PROJECT CONSTRUCTION IN ORDER TO VERIFY THAT SOIL CONDITIONS ARE AS ANTICIPATED. CONSTRUCTION ACTIVITIES PERTAINING TO EARTHWORK AND OTHER RELATED ACTIVITIES SHALL ALSO BE OBSERVED BY THE GEOTECHNICAL ENGINEER AS OUTLINED ABOVE.

7) CONCRETE CONSTRUCTION NOTES

- A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL CONCRETE SHALL BE DETAILED, FABRICATED, AND ERRECTED IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) ACI 117-10 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"
2) ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
3) ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
4) ACI 347-04 "GUIDE TO FORMWORK FOR CONCRETE"
5) ACI SP-66(04) "ACI DETAILING MANUAL"
6) AWS D1.4-2011 "STRUCTURAL WELDING CODE - REINFORCING STEEL".
7) CRSI MSP-2009 "CRSI MANUAL OF STANDARD PRACTICE"
B. CONCRETE MIXTURES:
1) CEMENTITIOUS MATERIALS
A) OPTION 1 - ORDINARY PORTLAND CEMENT (OPC): ASTM C150 TYPE I OR II UNLESS SPECIFICALLY NOTED OTHERWISE.
B) OPTION 2 - PORTLAND LIMESTONE CEMENT (PLC): ASTM C595 TYPE 1L UNLESS SPECIFICALLY NOTED OTHERWISE.
2) ALL CONCRETE MIXES SHALL BE COMPRISED OF NORMAL WEIGHT AGGREGATES CONFORMING TO ASTM C33, EXCEPT WHERE SPECIFICALLY INDICATED AS LIGHTWEIGHT, IN WHICH CASE AGGREGATES SHALL CONFORM TO ASTM C330.
3) MIXING WATER SHALL CONFORM TO ASTM C1062. MIXING WATER, INCLUDING THAT PORTION OF MIXING WATER CONTRIBUTED IN THE FORM OF FREE MOISTURE ON AGGREGATES, SHALL NOT CONTAIN DELETERIOUS AMOUNTS OF CHLORIDE IONS.
4) ADMIXTURES, IF USED, SHALL CONFORM TO THE FOLLOWING:
A) WATER REDUCTION AND SETTING TIME MODIFICATION: ASTM C494.
B) PRODUCING FLOWING CONCRETE: ASTM C1017.
C) AIR ENTRAINMENT: ASTM C260.
D) INHIBITING CHLORIDE INDUCED CORROSION: ASTM C1582.
5) MIX DESIGNS SHALL BE PROPORTIONED BASED ON THE FOLLOWING MIX CHARACTERISTICS:
A) BELOW-GRADE FOUNDATIONS
1) FREEZING AND THAWING EXPOSURE CATEGORY (F): CLASS F1
2) SULFATE EXPOSURE CATEGORY (S): CLASS SO
3) WATER EXPOSURE CATEGORY (W): CLASS W0
4) CORROSION PROTECTION CATEGORY (C): CLASS C1
5) 28-DAY COMPRESSIVE STRENGTH: 3,500 PSI
6) MAXIMUM WATER/CEMENT RATIO: 0.55
7) MAXIMUM AGGREGATE SIZE: 1 1/2 INCHES
8) TARGET AIR CONTENT: 4.5 PERCENT PLUS OR MINUS 1.5 PERCENT
9) MAXIMUM WATER-SOLUBLE CHLORIDE ION CONTENT IN CONCRETE, PERCENT BY WEIGHT OF CEMENT: 0.30

- 6) CONCRETE MIX PROPORTIONS SHALL BE ESTABLISHED IN ACCORDANCE WITH ARTICLE 4.2.3 OF ACI 301 SO THAT THE CONCRETE SATISFIES THE FOLLOWING THREE REQUIREMENTS:
A) THE CONCRETE CAN BE PLACED READILY WITHOUT SEGREGATION INTO FORMS AND AROUND REINFORCEMENT UNDER ANTICIPATED PLACEMENT CONDITIONS. THE CONCRETE PRODUCER SHALL DETERMINE WHETHER ADMIXTURES ARE NECESSARY FOR WATER REDUCTION, SET TIME, OR SLUMP REQUIREMENTS.
B) THE CONCRETE SHALL MEET REQUIREMENTS FOR THE ASSIGNED EXPOSURE CLASSES OUTLINED HEREIN.
C) THE CONCRETE SHALL CONFORM TO STRENGTH TEST REQUIREMENTS FOR STANDARD-CURED SPECIMENS.
7) DOCUMENTATION OF CONCRETE MIXTURE CHARACTERISTICS SHALL BE SUBMITTED FOR REVIEW BEFORE THE MIXTURE IS USED. EVIDENCE OF THE ABILITY OF THE PROPOSED MIXTURE TO COMPLY WITH THE CONCRETE MIXTURE REQUIREMENTS IN THE CONSTRUCTION DOCUMENTS SHALL BE INCLUDED IN THE SUBMITTAL. THE EVIDENCE SHALL BE BASED ON FIELD TEST RECORDS OR LABORATORY TRIAL BATCHES.

C. CONCRETE REINFORCING:

- 1) ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL, UNLESS OTHERWISE NOTED, SHALL FOLLOW ALL SECTIONS OF ACI MNL-66, ACI 318, AND THE CRSI MSP.
2) UNLESS OTHERWISE NOTED, LAP SPLICES OF DEFORMED REINFORCING BARS SHALL CONFORM TO ACI REQUIREMENTS FOR CLASS B TENSION SPLICES. REFER TO LAP LENGTH SCHEDULES FOR TYPICAL LAP REQUIREMENTS.
3) PROVIDE CORNER BARS IN BOTH FACES OF ALL CONTINUOUS GRADE BEAMS, FOOTINGS AND WALLS. NUMBER, SIZE, AND SPACING OF CORNER BARS SHALL BE EQUAL TO NUMBER, SIZE AND SPACING OF HORIZONTAL REINFORCING WITH WHICH THEY LAP AND SHALL HAVE CLASS B TENSION LAP SPLICES IN EACH DIRECTION. REFER TO TYPICAL DETAILS FOR ADDITIONAL INFORMATION.
4) AT INTERSECTING FOUNDATIONS, EXTEND ALL HORIZONTAL REINFORCING OF THE INTERSECTING MEMBERS BEYOND THE POINT OF INTERSECTION TO THE OPPOSITE FACE. BEND TO A STANDARD 90 DEGREE HOOK OR PROVIDE BENT DOWELS OF EQUAL SIZE AND SPACING AND LAP AS REQUIRED FOR A CLASS B TENSION SPLICE (BUT NOT LESS THAN 12") IN EACH DIRECTION. REFER TO TYPICAL DETAILS FOR ADDITIONAL INFORMATION.
5) PROVIDE TIES COMPLYING WITH ACI 318 IN ALL CONCRETE COLUMNS AND PILASTERS. EVERY CORNER AND ALTERNATING LONGITUDINAL BAR SHALL HAVE A LATERAL SUPPORT PROVIDED BY THE CORNER OF A TIE WITH AN INCLUDED ANGLE ON NOT MORE THAN 135-DEGREES. NO UNSUPPORTED LONGITUDINAL BAR SHALL BE FARTHER THAN 6-IN. CLEAR ON EACH SIDE ALONG THE TIE FROM A LATERALLY SUPPORTED BAR.
6) CONCRETE COVER OVER STEEL REINFORCING SHALL CONFORM TO THE TABLE PROVIDED IN THE CONCRETE TYPICAL DETAILS.
D. JOINTS IN CONCRETE CONSTRUCTION:
1) CURING AT CONSTRUCTION JOINTS: CONCRETE POURS EITHER SIDE OF CONSTRUCTION JOINTS SHALL NOT BE CONCURRENT. CONCRETE SHALL BE ALLOWED TO CURE A MINIMUM OF 7 DAYS PRIOR TO PLACEMENT OF ADJACENT CONCRETE.

8) REINFORCED HOLLOW CONCRETE MASONRY NOTES

- A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL MASONRY SHALL BE DETAILED, FABRICATED, AND ERRECTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) TMS 402-2013, "BUILDING CODE FOR MASONRY STRUCTURES"
2) TMS 602-2013, "SPECIFICATION FOR MASONRY STRUCTURES"
B. MASONRY DIMENSIONS: REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS RELEVANT TO ALL CONCRETE MASONRY CONSTRUCTION.
C. CONCRETE MASONRY UNITS:
1) ALL CONCRETE MASONRY UNITS SHALL BE 1 OR 2-CELL LIGHTWEIGHT CONCRETE BLOCK WITH AN OVEN DRY WEIGHT OF LESS THAN 105 LBS PER CUBIC FOOT.
2) ALL CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI ON THE NET AREA (INDIVIDUAL STRENGTH PER ASTM C 90).
D. MORTAR:
1) MORTAR MATERIALS: CONCRETE MASONRY SHALL BE CONSTRUCTED WITH PORTLAND CEMENT/LIME, TYPE S MORTAR CONFORMING TO THE PROPORTION SPECIFICATION OF ASTM C270.
2) MORTAR SUBMITTAL REQUIREMENTS: BECAUSE THE PROPORTION SPECIFICATION FOR MORTAR IS PRESCRIPTIVE, THERE ARE NO MORTAR TESTS REQUIRED. SUBMITTAL INFORMATION SHALL INCLUDE THE PROPORTIONS OF MORTAR MATERIALS AND CERTIFICATES OF COMPLIANCE FOR EACH RAW MATERIAL USED.
3) MORTAR MIX PROPORTIONS: MORTAR MATERIAL PROPORTIONS BY VOLUME SHALL BE AS FOLLOWS:
A) PORTLAND CEMENT: 1
B) HYDRATED LIME OR LIME PUTTY: OVER 0.25 TO 0.50
C) AGGREGATE RATIO (MEASURED IN DAMP LOOSE CONDITIONS): NOT LESS THAN 2.25 AND NOT MORE THAN 3.0 TIMES THE SUM OF THE VOLUMES OF CEMENT AND LIME MATERIALS.
4) MORTAR MIXING: MIX CEMENTITIOUS MATERIALS AND AGGREGATES BETWEEN 3 AND 5 MINUTES IN A MECHANICAL BATCH MIXER WITH A SUFFICIENT AMOUNT OF WATER TO PRODUCE A WORKABLE CONSISTENCY, UNLESS SPECIFICALLY ALLOWED BY THE OWNER'S REPRESENTATIVE. DO NOT HAND MIX MORTAR. MAINTAIN WORKABILITY OF MORTAR BY REMIXING OR RETEMPERING. DISCARD MORTAR WHICH HAS BEGUN TO STIFFEN OR IS NOT USED WITHIN 2.5 HOURS AFTER INITIAL MIXING.
5) MORTAR PROTRUSIONS: REMOVE MORTAR PROTRUSIONS EXTENDING 1/4-INCH OR MORE INTO CELLS OR CAVITIES TO BE GROUTED.
6) ADMIXTURES: DO NOT USE ADMIXTURES CONTAINING MORE THAN 0.2 PERCENT CHLORIDE IONS.
7) MORTAR QUALITY ASSURANCE: TESTING AGENCY SHALL PERIODICALLY OBSERVE AND CONFIRM THAT THE PROPORTIONS OF SITE-PREPARED MORTAR COMPLY WITH THE PROPORTIONS OUTLINED ABOVE.

E. GROUT:

- 1) GROUT MATERIALS: GROUT USED IN THE CONSTRUCTION OF MASONRY SHALL CONFORM TO THE PROPORTION SPECIFICATION OF ASTM C476. GROUT AGGREGATES SHALL COMPLY WITH ASTM C404.
2) GROUT SUBMITTAL REQUIREMENTS: BECAUSE THE PROPORTION SPECIFICATION FOR GROUT IS PRESCRIPTIVE, THERE ARE NO GROUT TESTS REQUIRED. SUBMITTAL INFORMATION SHALL INCLUDE THE PROPORTIONS OF GROUT MATERIALS AND CERTIFICATES OF COMPLIANCE FOR EACH RAW MATERIAL USED.
3) GROUT MIX PROPORTIONS: GROUT MATERIAL PROPORTIONS BY VOLUME SHALL BE AS FOLLOWS:

Table with 5 columns: GROUT TYPE, CEMENT, LIME, AGGREGATE (DAMP, LOOSE)*, and COARSE. It lists proportions for FINE and COARSE grout.

*TIMES THE SUM OF THE VOLUMES OF THE CEMENT & LIME MATERIALS



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- 4) CUTS, HOLES, COPING, ETC. REQUIRED FOR WORK OF OTHER TRADES SHALL BE SHOWN ON THE SHOP DRAWINGS AND MADE IN THE SHOP. CUTS OR BURNING OF HOLES IN STRUCTURAL STEEL MEMBERS IN THE FIELD WILL NOT BE PERMITTED.
- 5) THE FABRICATOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDS. ANY SUCH ERECTION AIDS SHALL BE REMOVED FROM THE COMPLETED STRUCTURE IF DIRECTED BY THE OWNER'S REPRESENTATIVE.
- 6) ALL EXTENSION BARS, RUN-OFF PLATES, AND BACKING BARS USED IN WELDED CONNECTIONS SHALL BE REMOVED AND THE JOINTS SHALL BE GROUNDED SMOOTH WHERE SUCH CONNECTION IS PERMANENTLY EXPOSED TO VIEW OR IS DESIGNATED AS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.
- 7) SHOP PRIMER
A) ALL STEEL EXPOSED TO EXTERIOR WEATHER OR AN UNCONTROLLED ENVIRONMENT SHALL BE BLAST CLEANED AND PRIMED WITH A SUBMITTED AND APPROVED ZINC-RICH PRIMER.
B) SHOP PRIMER SHALL NOT BE APPLIED TO THE FOLLOWING AREAS:
1) SURFACES TO BE FIELD WELDED.
1) GALVANIZED SURFACES.

D. STEEL MISCELLANEOUS:

- 1) ALL EDGE ANGLES SUPPORTING ROOF OR FLOOR DECK SHALL BE CONTINUOUS BUTT-SPlice WELDED OVER SUPPORTS.
- 2) SUBSTITUTION OF POST-INSTALLED ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
- 3) GALVANIZED LOOSE LEDGE ANGLES SHALL BE PROVIDED OVER ALL MASONRY VENEER OPENINGS OR RECESSES DEEPER THAN 1". LINTELS SHALL HAVE 1" OF BEARING AT EACH END FOR EVERY FOOT OF SPAN, WITH A MINIMUM OF 4" AND SIZED AS FOLLOWS UNLESS SHOWN OTHERWISE IN THE DRAWINGS.
A) UP TO 4'-0"L3-1/2 x 3-1/2 x 3/8
B) 4'-1" to 5'-0"L4 x 3-1/2 x 3/8 (LLV)
C) 5'-1" to 6'-6"L5 x 3-1/2 x 3/8 (LLV)
D) 6'-7" to 8'-0"L6 x 3-1/2 x 3/8 (LLV)

10) METAL DECK NOTES

- A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL STEEL DECK AND ASSOCIATED MATERIALS SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE FOLLOWING STEEL DECK INSTITUTE (SDI) STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) ANSI/NC1.0-10 "STANDARD FOR NONCOMPOSITE STEEL FLOOR DECK"
2) ANSI/RD1.0-10 "STANDARD FOR STEEL ROOF DECK"
3) SDI-C-2011 "STANDARD FOR COMPOSITE STEEL FLOOR DECK SLABS"
4) SDI-0A/QC-2011 "STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR INSTALLATION OF STEEL DECK"
- B. ROOF DECK:

- 1) BASIS OF DESIGN: NEW MILLENIUM TYPE 1.5F INTERMEDIATE RIB DECK WITH THE CHARACTERISTICS AND STRUCTURAL PROPERTIES OUTLINED BELOW. INTERMEDIATE RIB DECKS OF OTHER MANUFACTURERS ARE ACCEPTABLE IF THEY PROVIDE SIMILAR LOAD-CARRYING CAPACITY FOR THE DECK SPANS APPLICABLE TO THIS PROJECT.
A) SDI DECK TYPE: INTERMEDIATE RIB (F)
B) DEPTH: 1-1/2 IN.
C) THICKNESS: 18 GAGE
D) FINISH: GALVANIZED
E) Ip = 0.203 IN4/FT
F) In = 0.205 IN4/FT
G) Sp = 0.183 IN3/FT
H) Sn = 0.192 IN3/FT
I) Fy = 50 KSI
J) SIDE LAPS: NESTED
- 2) SUPPORT FASTENERS: ROOF DECK SHALL BE CONNECTED TO SUPPORTS WITH (1)-5/8" DIAMETER PUDDLE WELDS AT 6" O.C. (36/7 PATTERN).
A) WELDS SHALL PENETRATE ALL PLIES OF DECKING INTO SUPPORTING SUBSTRATE.
- 3) SIDE LAP FASTENERS: ROOF DECK SIDE LAPS SHALL BE FASTENED TOGETHER WITH WELDS AT 12" ON CENTER.
- 4) MINIMUM BEARING LENGTH AND LAP LENGTH: MINIMUM BEARING LENGTH ON SUPPORTS AT DISCONTINUOUS ENDS OF ROOF DECK IS 2-INCHES. MINIMUM BEARING LENGTH AND LAP LENGTH OF CONTINUOUS ROOF DECK OVER INTERIOR SUPPORTS IS 3-INCHES.

- C. SUBSTITUTION OF MECHANICAL SCREW ANCHORS FOR WELDING WILL NOT BE PERMITTED.
- D. SUPPORTS FOR DECKING ARE DEFINED AS MEMBERS PROVIDING DIRECT TRANSVERSE SUPPORT AS WELL AS CONTINUOUS PARALLEL EDGE SUPPORT.
- E. ALL DECKING SHALL BE PLACED WITH RIBS PERPENDICULAR TO SUPPORTING ROOF OR FLOOR MEMBERS AND SHALL SPAN A MINIMUM OF 3 SPANS UNLESS SHOWN OTHERWISE IN STRUCTURAL DRAWINGS.
- F. METAL DECKING SHALL NOT BE USED TO SUPPORT ANY HANGING LOADS INCLUDING, BUT NOT LIMITED TO, SUSPENDED MECHANICAL, ELECTRICAL, OR PLUMBING EQUIPMENT, CABLE TRAYS OR RACEWAYS, CEILING FINISHES OR CEILING FRAMING.

- 3) FOUNDATION DOWELS:
A) THERE SHALL BE A FOUNDATION DOWEL FOR EACH VERTICAL WALL REINFORCING BAR.
B) THE MINIMUM REQUIRED EMBEDMENT OF DOWELS IN CONCRETE FOUNDATIONS SHALL BE AS REQUIRED FOR A CLASS B SPLICE FOR THE SPECIFIED COMPRESSIVE STRENGTH FOR THE FOUNDATION. REFER TO CONCRETE LAP LENGTH SCHEDULES FOR TYPICAL LAP REQUIREMENTS. ALTERNATIVELY, THE FOUNDATION DOWELS MAY BE DEVELOPED WITH A STANDARD ACI 90 DEGREE HOOK INTO THE FOUNDATION.
C) MASONRY DOWELS SHOWN CAST-IN-PLACE IN DOCUMENTS SHALL BE TIED IN PLACE TO FOUNDATION REINFORCING. WET STICKING OF MASONRY DOWELS IS NOT PERMITTED. MASONRY CONTRACTOR SHALL VERIFY PLACEMENT AND LOCATION OF DOWELS PRIOR TO CONCRETE PLACEMENT. EPOXY EMBEDDING DOWELS SHALL NOT BE PERMITTED WITHOUT APPROVAL BY THE OWNER'S REPRESENTATIVE.
D) FOUNDATION DOWELS SHALL EXTEND UP INTO THE GROUDED CELLS TO PROVIDE THE MINIMUM LAP SPLICE LENGTH SHOWN IN THE CMU REINFORCING LAP SCHEDULE.
E) FOUNDATION DOWELS THAT INTERFERE WITH UNIT WEBS ARE PERMITTED TO BE BENT A MAXIMUM OF 1 IN. HORIZONTALLY FOR EVERY 6 IN. OF VERTICAL HEIGHT. REFER TYPICAL DETAIL FOR PERMITTED BENDING OF FOUNDATION DOWELS.
- 4) NORMAL VERTICAL WALL REINFORCING SHALL EXTEND CONTINUOUSLY FROM THE TOP OF FOUNDATION TO EMBED WITH A STANDARD HOOK INTO THE TOP BOND BEAM.
- 5) BOND BEAM REINFORCING STEEL FOR EXTERIOR WALLS SHALL BE CONTINUOUS THROUGHOUT, EXCEPT AT CONTROL JOINTS. AT CONTROL JOINTS, INTERMEDIATE BOND BEAM REINFORCEMENT SHALL BE CUT, BUT SHALL BE CONTINUOUS AT DIAPHRAGM BOND BEAMS. EXTEND REINFORCING BARS NOT LESS THAN THAT SPECIFIED ON LAP SCHEDULE. REFER TO TYPICAL DETAILS AND LAP SCHEDULE FOR ADDITIONAL INFORMATION.

J. GROUT PLACEMENT:

- 1) GROUT PLACING TIME: PLACE GROUT WITHIN 1-1/2 HOURS FROM INTRODUCING WATER IN THE MIXTURE AND PRIOR TO INITIAL SET.
- 2) GROUT POUR HEIGHT: DO NOT EXCEED THE MAXIMUM GROUT POUR HEIGHT GIVEN IN THE TABLE BELOW. THE GROUT POUR HEIGHT IS DEFINED AS THE TOTAL HEIGHT OF MASONRY TO BE GROUDED PRIOR TO ERECTION OF ADDITIONAL MASONRY. A GROUT POUR CONSISTS OF ONE OR MORE GROUT LIFTS.

GROUT SPACE REQUIREMENTS PER TMS 602-16 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, TABLE 3.2.1			
GROUT TYPE1	MAXIMUM GROUT POUR HEIGHT, FT.	MINIMUM CLEAR WIDTH OF GROUT SPACE, 2,3 IN.	MINIMUM CLEAR DIMENSIONS FOR GROUING CELLS OF HOLLOW UNITS, 3,4 IN. X IN.
FINE	1	3/4	1-1/2 X 2
FINE	5.33	2	2 X 3
FINE	12.67	2-1/2	2-1/2 X 3
FINE	24	3	3 X 3
COARSE	1	1-1/2	1-1/2 X 3
COARSE	5.33	2	2-1/2 X 3
COARSE	12.67	2-1/2	3 X 3
COARSE	24	3	3 X 4

FOOTNOTES:
1. FINE AND COARSE GROUTS ARE DEFINED IN ASTM C476.
2. FOR GROUING BETWEEN MASONRY WYTHES.
3. MINIMUM CLEAR WIDTH OF GROUT SPACE AND MINIMUM CLEAR GROUT SPACE DIMENSION ARE THE NET DIMENSION OF THE SPACE DETERMINED BY SUBTRACTING MASONRY PROTRUSIONS AND THE DIAMETERS OF HORIZONTAL BARS FROM THE AS-BUILT CROSS-SECTION OF THE GROUT SPACE. SELECT THE GROUT TYPE AND MAXIMUM GROUT POUR HEIGHT BASED ON THE MINIMUM CLEAR SPACE.

- 3) GROUT LIFT HEIGHT: PLACE GROUT IN LIFTS NOT EXCEEDING 5 FT. 4 IN. A GROUT LIFT IS DEFINED AS AN INCREMENT OF GROUT HEIGHT WITHIN A TOTAL GROUT POUR.
- 4) GROUT CONSOLIDATION: CONSOLIDATE GROUT POURS BY MECHANICAL VIBRATION, AND RECONSOLIDATE BY MECHANICAL VIBRATION AFTER INITIAL WATER LOSS AND SETTLEMENT HAS OCCURRED.
- 5) GROUT KEY: WHEN GROUING, FORM GROUT KEYS BETWEEN GROUT POURS. FORM GROUT KEYS BETWEEN GROUT LIFTS WHEN THE FIRST LIFT IS PERMITTED TO SET PRIOR TO PLACEMENT OF THE SUBSEQUENT LIFT.
A) FORM A GROUT KEY BY TERMINATING THE GROUT A MINIMUM OF 1-1/2 IN. BELOW A MORTAR JOINT.
B) DO NOT FORM GROUT KEYS WITHIN BOND BEAMS.
C) AT BOND BEAMS OR LINTELS LAID WITH CLOSED BOTTOM UNITS, TERMINATE THE GROUT POUR AT THE BOTTOM OF THE BEAM OR LINTEL WITHOUT FORMING A GROUT KEY.

9) STEEL CONSTRUCTION NOTES

- A. GOVERNING CODES AND STANDARDS: IN ADDITION TO THE REQUIREMENTS OF THE GOVERNING INTERNATIONAL BUILDING CODE, ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND AS SUPPLEMENTED BY THESE GENERAL NOTES AND THE PROJECT DRAWINGS AND SPECIFICATIONS.
1) AISC 303-10 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
2) AISC 341-10 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS"
3) AISC 360-10 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
4) AWS D1.1-2010 "STRUCTURAL WELDING CODE - STEEL"
5) RSCC-2009 "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS"

B. ANCHOR RODS & BASE PLATES:

- 1) UNLESS OTHERWISE INDICATED IN THE DRAWINGS, ALL ANCHOR RODS SHALL CONFORM TO THE SPECIFIED MATERIAL GRADE SHALL BE A MINIMUM 3/4 INCH DIAMETER WITH A MINIMUM FOUNDATION EMBEDMENT AS INDICATED IN STRUCTURAL DETAILS. THE EMBEDDED END SHALL HAVE EITHER A STANDARD BOLT HEAD, A HEAVY HEX NUT WITH THE THREADS SPOILED ABOVE AND BELOW THE NUT, OR JAMMED DOUBLE NUTS.
- 2) PRIOR TO PLACING CONCRETE, STEEL PLATE TEMPLATES SHALL BE PROVIDED TO FACILITATE PLACEMENT OF ANCHOR RODS IN DETAILED PLAN POSITIONS AND ELEVATIONS.
- 3) BASE PLATES SHALL BE LEVELED WITH LEVELING NUTS AND OVERSIZED WASHER PLATES OR WITH SHIM PACKS AT THE ERECTOR'S OPTION.
- 4) AFTER FINAL BASE PLATE POSITIONING, ANCHOR ROD NUTS SHALL BE INSTALLED TO A SNUG-TIGHT CONDITION AND WASHER PLATES SHALL BE FIELD WELDED AS INDICATED IN THE CONSTRUCTION DOCUMENTS.

C. STEEL FABRICATION & FINISH:

- 1) SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING FABRICATION. ANY FABRICATION INITIATED PRIOR TO APPROVAL OF SHOP DRAWINGS WILL BE AT THE SOLE RISK OF THE FABRICATOR.
- 2) ALL SHOP AND FIELD WELDS SHALL BE MADE IN ACCORDANCE WITH AWS D1.1. ALL WELDING SHALL USE LOW HYDROGEN PROCESSES.
- 3) ALL BEAMS THAT ARE REQUIRED TO HAVE CAMBER SHALL BE FABRICATED WITH CAMBER UPWARD. BEAMS WITHOUT SPECIFIED CAMBER SHALL BE FABRICATED SUCH THAT AFTER ERECTION, ANY NATURAL CAMBER DUE TO ROLLING OR SHOP FABRICATION IS UPWARD.

- 4) GROUT SLUMP: SITE-MIX GROUT TO A CONSISTENCY THAT HAS A SLUMP BETWEEN 8 AND 11 INCHES. DISCARD GROUT THAT DOES NOT MEET THE SPECIFIED SLUMP WITHOUT ADDING WATER AFTER INITIAL MIXING.
- 5) GROUT QUALITY ASSURANCE: TESTING AGENCY SHALL PERIODICALLY OBSERVE AND CONFIRM THAT THE PROPORTIONS AND SLUMP OF SITE-PREPARED GROUT COMPLY WITH THE REQUIREMENTS OUTLINED ABOVE.

F. INSPECTION: PRIOR TO THE START OF MASONRY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE FOLLOWING:

- 1) VERIFY FOUNDATIONS ARE CONSTRUCTED WITHIN A LEVEL ALIGNMENT TOLERANCE OF PLUS OR MINUS 1/2 IN.
- 2) VERIFY REINFORCING DOWELS ARE POSITIONED IN ACCORDANCE WITH THE PROJECT DRAWINGS.
- 3) IF STATED CONDITIONS ARE NOT MET, NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.

G. PREPARATION:

- 1) CLEANING:
A) CLEAN REINFORCEMENT AND SHANKS OF ANCHOR BOLTS BY REMOVING MUD, OIL, OR OTHER MATERIALS THAT WILL ADVERSELY AFFECT OR REDUCE BOND AT THE TIME MORTAR OUR GROUT IS PLACED.
B) PRIOR TO PLACING MASONRY, REMOVE LAITANCE, LOOSE AGGREGATE, AND ANYTHING ELSE THAT WOULD PREVENT MORTAR FROM BONDING TO THE FOUNDATION.
- 2) WETTING: DO NOT WET CONCRETE MASONRY UNITS BEFORE LAYING. WET CUTTING IS PERMITTED.
- 3) DEBRIS: CONSTRUCT GROUT SPACES FREE OF MORTAR DROPPING, DEBRIS, LOOSE AGGREGATES, AND ANY MATERIAL DELETERIOUS TO MASONRY GROUT.
- 4) REINFORCEMENT: PLACE REINFORCEMENT AND TIES IN GROUT SPACES PRIOR TO GROUING.
- 5) CLEANOUTS: PROVIDE CLEANOUTS IN THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR WHEN THE GROUT POUR HEIGHT EXCEEDS 5 FT 4 IN.
A) CONSTRUCT CLEANOUTS SO THAT THE SPACE TO BE GROUDED CAN BE CLEANED AND INSPECTED, IN SOLID GROUDED MASONRY, SPACE CLEANOUTS HORIZONTALLY A MAXIMUM OF 32 IN. ON CENTER.
B) CONSTRUCT CLEANOUTS WITH AN OPENING OF SUFFICIENT SIZE TO PERMIT REMOVAL OF DEBRIS. THE MINIMUM OPENING DIMENSION SHALL BE 3 IN.
C) AFTER CLEANING, CLOSE CLEANOUTS WITH CLOSURES BRACED TO RESIST GROUT PRESSURE.

H. MASONRY ERECTION:

- 1) BOND PATTERN: UNLESS OTHERWISE INDICATED, LAY MASONRY IN RUNNING BOND.
- 2) PLACING MORTAR UNITS: COMPLY WITH ARTICLE 3.3 B OF TMS 602, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
A) BED JOINTS AT FOUNDATIONS: IN THE STARTING COURSE ON FOUNDATIONS AND OTHER SUPPORTING MEMBERS, CONSTRUCT BED JOINTS SO THAT THE BED JOINT THICKNESS IS AT LEAST 1/4 IN. AND NOT MORE THAN:
(i) 3/4 IN. WHEN THE MASONRY IS UNGROUTED OR PARTIALLY GROUDED
(ii) 1-1/4 IN. WHEN THE FIRST COURSE OF MASONRY IS SOLID GROUDED AND SUPPORTED BY A CONCRETE FOUNDATION.
B) OPENINGS IN TROUGH BLOCKS: AT ALL VERTICAL REINFORCING LOCATIONS, THE BOTTOM OF TROUGH BLOCKS SHALL BE CUT TO PROVIDE A MINIMUM 2-INCH DIAMETER HOLE TO ALLOW PLACEMENT OF VERTICAL REINFORCING AND PLACEMENT OF GROUT THROUGH THE HOLE.
- 3) EMBEDDED ITEMS AND ACCESSORIES: COMPLY WITH ARTICLE 3.3 D OF TMS 602.
- 4) TEMPORARY BRACING OF MASONRY: DESIGN, PROVIDE, AND INSTALL TEMPORARY BRACING THAT WILL ASSURE STABILITY OF MASONRY DURING CONSTRUCTION.
- 5) SITE TOLERANCES: ERECT MASONRY WITHIN THE TOLERANCES DEFINED IN ARTICLE 3.3 F OF TMS 602.
- 6) PLACING REINFORCING: COMPLY WITH ALL PROVISIONS OF ARTICLE 3.4 OF TMS 602. MAINTAIN CLEAR DISTANCE BETWEEN REINFORCING BARS AND ANY FACE OF MASONRY UNIT OR FORMED SURFACE, BUT NOT LESS THAN 1/4-IN FOR FINE GROUT OR 1/2-IN. FOR COARSE GROUT.
- 7) CONTROL JOINTS: LOCATION AND DETAILS OF CONTROL JOINTS SHALL BE AS DEFINED ON ARCHITECTURAL DRAWINGS. IF NOT SHOWN ON THE ARCHITECTURAL DRAWINGS, THE LOCATION OF CONTROL JOINTS SHALL BE DETAILED BY THE MASONRY CONTRACTOR AND SUBMITTED FOR REVIEW AND APPROVAL BY THE ARCHITECT AND ENGINEER. THE DISTANCE BETWEEN CONTROL JOINTS SHOULD NOT EXCEED THE LESSER OF 1.5 TIMES THE WALL HEIGHT OR 25 FT. IN ADDITION, CONTROL JOINTS SHOULD TYPICALLY BE PROVIDED AT THE FOLLOWING LOCATIONS:
A) AT CHANGES IN WALL HEIGHT.
B) AT PILASTERS AND CHANGES IN WALL THICKNESS.
C) DIRECTLY OVER EXPANSION JOINTS IN SUPPORTING FOUNDATIONS.
D) AT EXPANSION JOINTS IN ROOFS AND FLOORS THAT BEAR ON THE WALL.
E) NEAR ONE SIDE OF OPENINGS LESS THAN 6 FT. WIDE. REFER TYPICAL MASONRY OPENING DETAILS.
F) NEAR BOTH SIDES OF OPENINGS GREATER THAN 6 FT. WIDE.
G) AT INTERSECTING WALLS.
H) AT MAXIMUM OF ONE-HALF THE TYPICAL CONTROL JOINTS SPACING FROM CORNERS.
- 8) LINTELS: LINTELS SHALL BE PROVIDED WHERE REQUIRED ACCORDING TO TYPICAL LINTEL DETAILS AND SCHEDULE OR AS INDICATED ON PLAN SHEETS. SOLID BOTTOM TROUGH BLOCKS SHALL BE USED AT THE HEADS OF ALL OPENINGS.

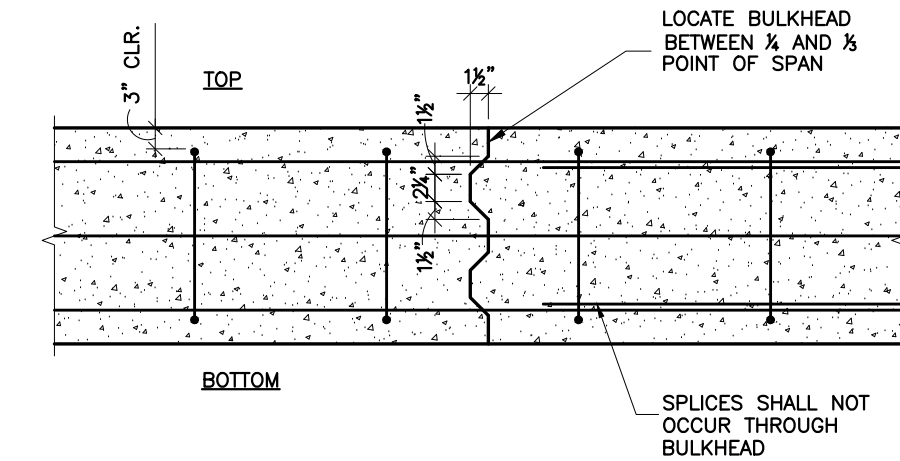
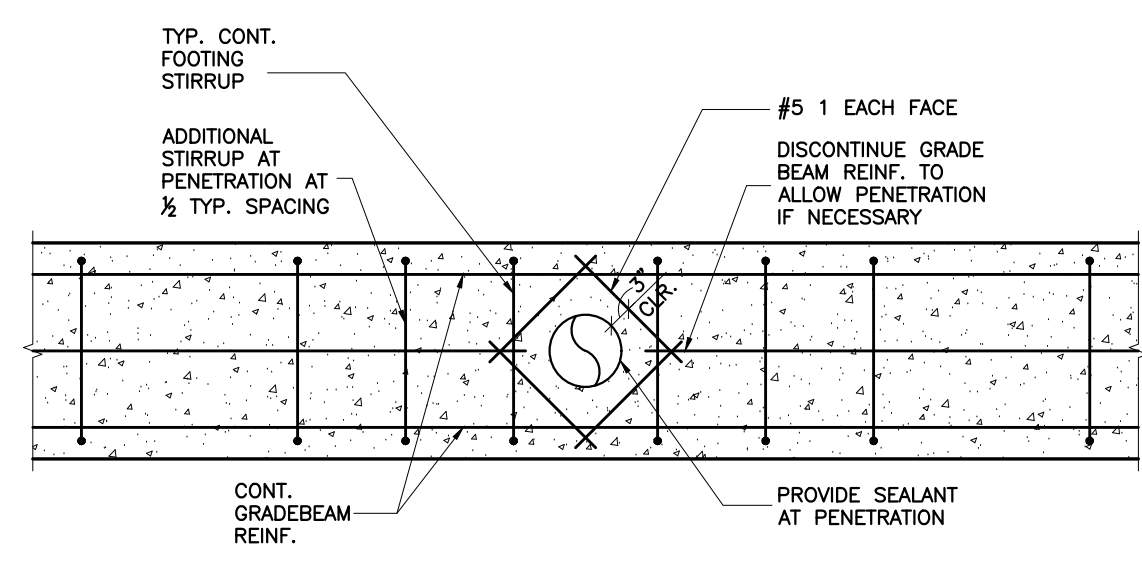
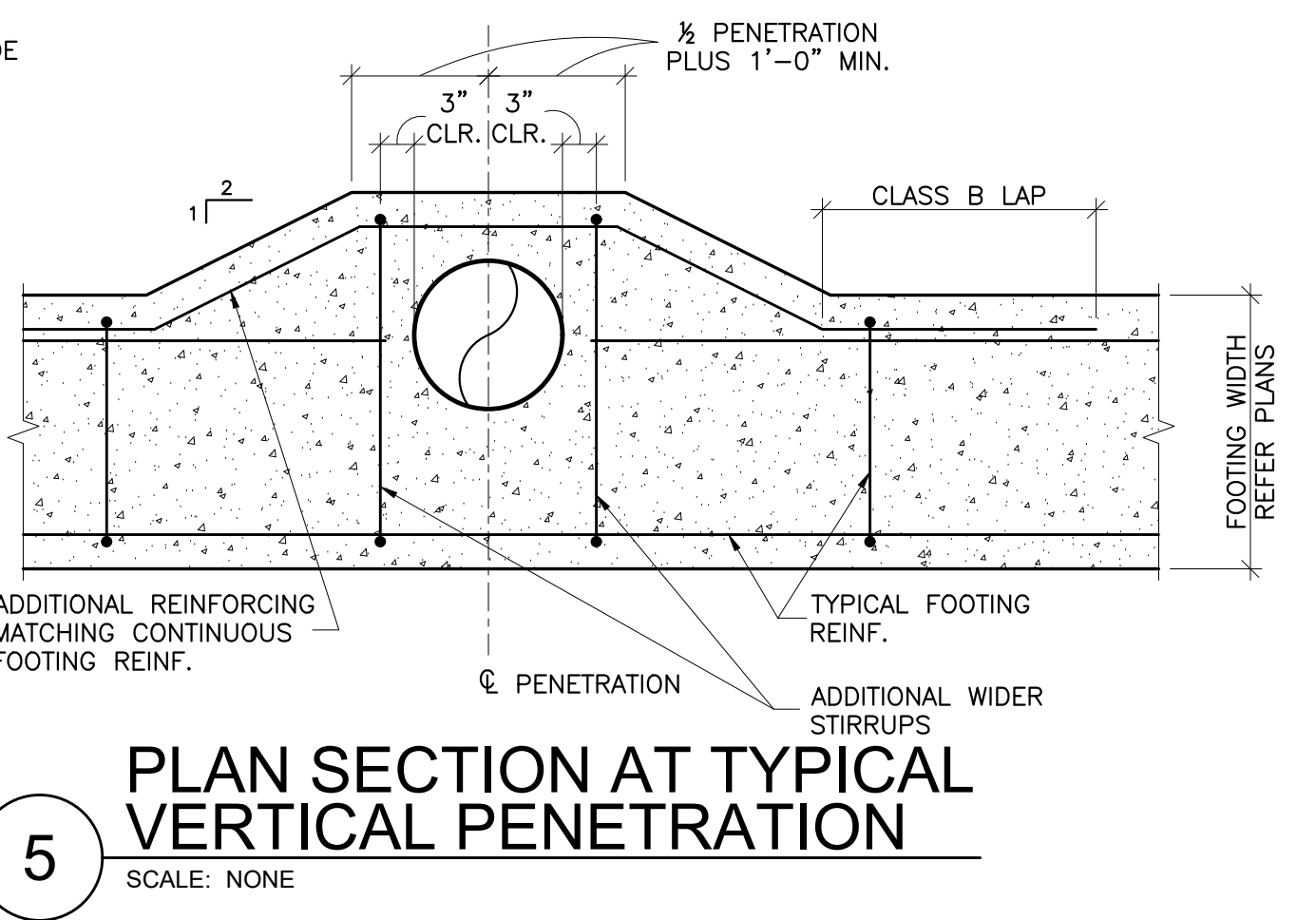
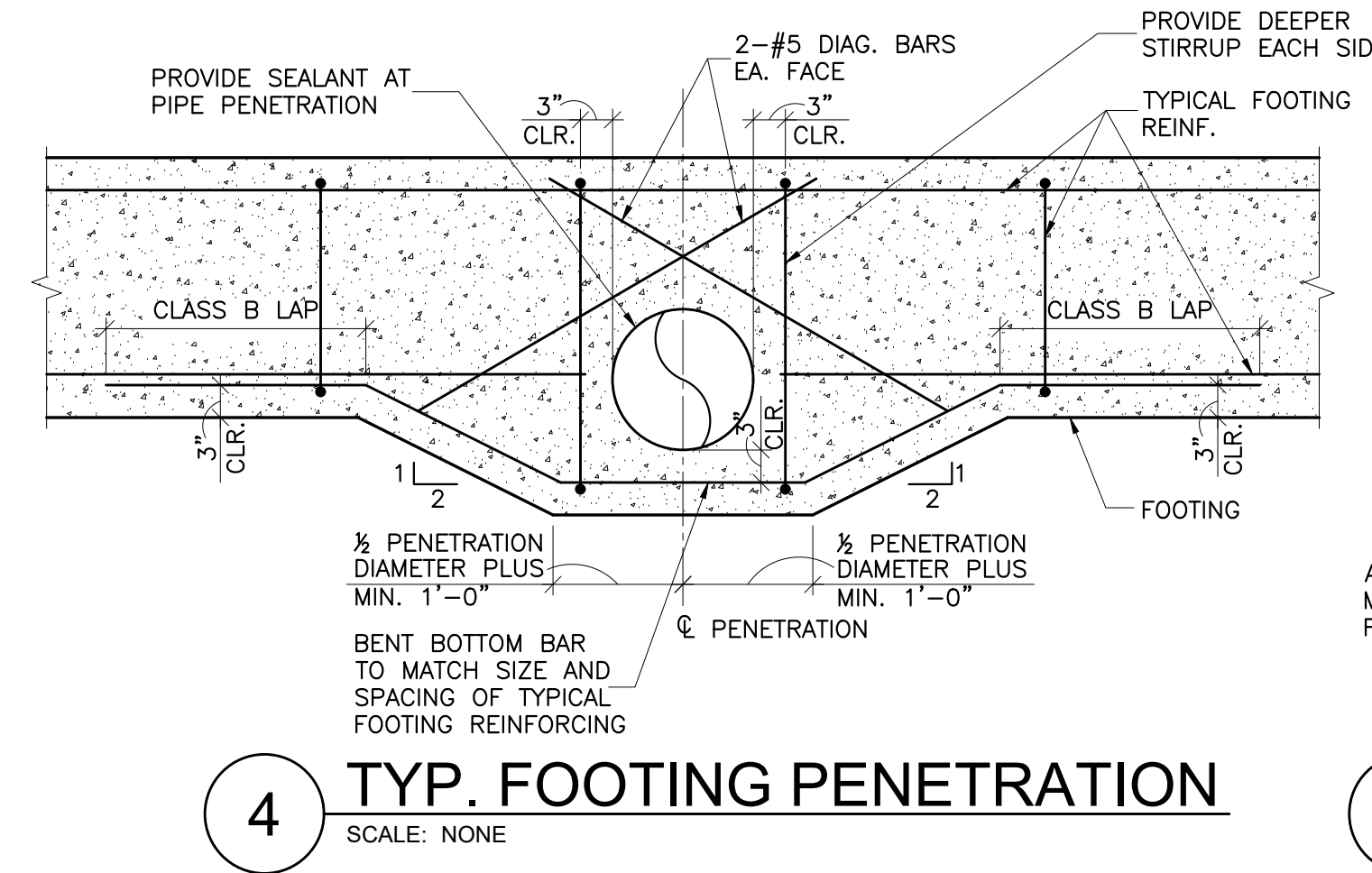
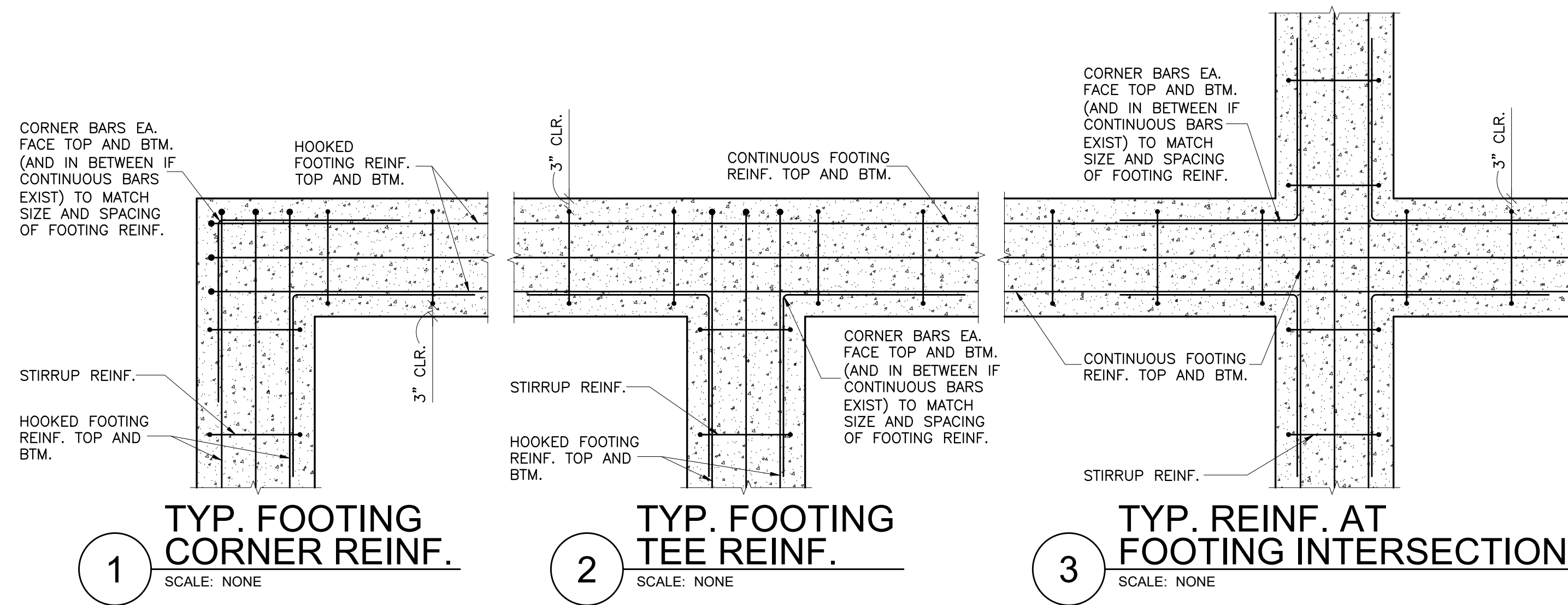
I. CONCRETE MASONRY REINFORCING:

- 1) MINIMUM HORIZONTAL AND VERTICAL REINFORCING IN CMU WALLS SHALL BE PROVIDED AS FOLLOWS:

MINIMUM REINFORCING IN CMU WALLS					
WALL TYPE	CMU TYPE	GROUTED VERTICAL REINFORCING CELL		HORIZONTAL BOND BEAM REINFORCING	
		BAR	SPACING OF GROUDED CELLS	BAR	SPACING OF BOND BEAMS
EXTERIOR	8"	(1)#5	32" O.C.	(2)#4	48" O.C.

NOTES:
1. ALL SINGLE BAR REINFORCING IN VERTICAL CELLS SHALL BE CENTERED IN CELL UNLESS NOTED OTHERWISE.
2. AN ADDITIONAL VERTICAL BAR OF THE SAME SIZE AND LENGTH AS THE NORMAL REINFORCING BAR SHALL BE PLACED IN GROUDED CELLS:
a. IN FIRST TWO JAMB CELLS ON EACH SIDE OF WALL OPENINGS.
b. IN CELLS ON EACH SIDE OF CONTROL JOINTS OR EXPANSION JOINTS.
c. IN CELL AT ALL WALL INTERSECTIONS AND FIRST ADJACENT CELL IN EACH DIRECTION.
4. ADDITIONAL BOND BEAMS SHALL BE PROVIDED FOR ALL MASONRY LINTELS AND WALL OPENINGS AS SHOWN IN TYPICAL DETAILS.

- 2) THE MINIMUM LENGTH OF LAP SPLICES OF REINFORCING STEEL IN MASONRY SHALL BE AS SHOWN IN THE CMU REINFORCING LAP SCHEDULE.



CONCRETE EXPOSURE	MEMBER	REINFORCEMENTS	SPECIFIED COVER, IN.
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	NO. 6 THROUGH NO. 18 BAR	2
		NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER	1-1/2
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLAB, JOISTS, AND WALLS	NO. 14 AND NO. 18 AND SMALLER	1-1/2
	BEAMS, COLUMNS, PEDESTALS, AND TENSION TIES	NO. 11 BAR AND SMALLER PRIMARY REINFORCEMENT, STIRRUPS, TIES, SPIRALS, AND HOOPS	3/4 1-1/2

8 TYP. MIN. CONCRETE COVER
SCALE: NONE

TENSION DEVELOPMENT AND LAP-SPLICE LENGTHS FOR UNCOATED REINFORCING BARS

BAR SIZE	LAP CLASS	LAP LENGTH (IN.) PER SPACING AND COVER CASE			
		f'c=3500 psi (NORMAL WEIGHT)			
		TOP BARS		OTHER BARS	
#3	A	22	32	17	25
	B	28	42	22	32
#4	A	29	43	22	33
	B	37	56	29	43
#5	A	36	54	28	41
	B	47	70	36	54
#6	A	43	64	33	50
	B	56	84	43	64
#7	A	63	94	48	72
	B	81	122	63	94
#8	A	72	107	55	82
	B	93	139	72	107
#9	A	81	121	62	93
	B	105	157	81	121
#10	A	91	136	70	105
	B	118	177	91	136
#11	A	101	151	78	116
	B	131	196	101	151
#14	N/A	121	181	93	139
#18	N/A	161	241	124	186

9 REINFORCING LAP LENGTHS
SCALE: NONE

NOTES: 1 in.=25.4 mm.
1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP-SPLICE LENGTHS ARE CALCULATED PER ACI 318, SECTIONS 25.4 AND 25.5, RESPECTIVELY. TABULATED VALUES FOR BEAMS OR COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT AND CONCRETE COVER MEETING MINIMUM CODE REQUIREMENTS.
3. CASES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL ELEMENT, CONCRETE COVER, AND CENTER-TO-CENTER SPACING OF THE BARS, ARE DEFINED AS: BEAMS OR COLUMNS: CASE 1-COVER AT LEAST 1.0d, AND CENTER-TO-CENTER SPACING AT LEAST 2.0d, AND CASE 2-COVER LESS THAN 1.0d, OR CENTER-TO-CENTER SPACING LESS THAN 2.0d. ALL OTHERS: CASE 1-COVER AT LEAST 1.0d, AND CENTER-TO-CENTER SPACING AT LEAST 3.0d. CASE 2-COVER LESS THAN 1.0d, OR CENTER-TO-CENTER SPACING LESS THAN 3.0d.
4. LAP SPLICE LENGTHS ARE MULTIPLES OF TENSION DEVELOPMENT LENGTHS; CLASS A=1.0d AND CLASS B=1.3d (ACI 318, SECTION 25.5.2).
5. ACI 318 DOES NOT ALLOW TENSION LAP SPLICES OF #14 OR #18 BARS. THE TABULATED VALUES FOR THOSE BAR SIZES ARE THE TENSION DEVELOPMENT LENGTHS.
6. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 in. OF CONCRETE CAST BELOW THE BARS.
7. FOR LIGHTWEIGHT-AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.



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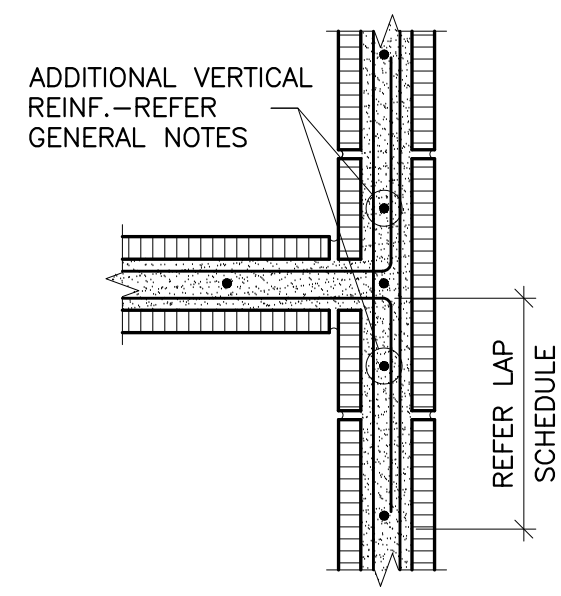
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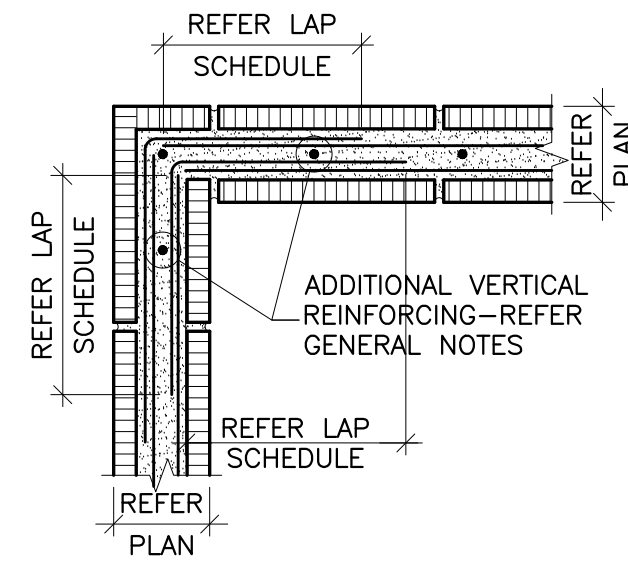
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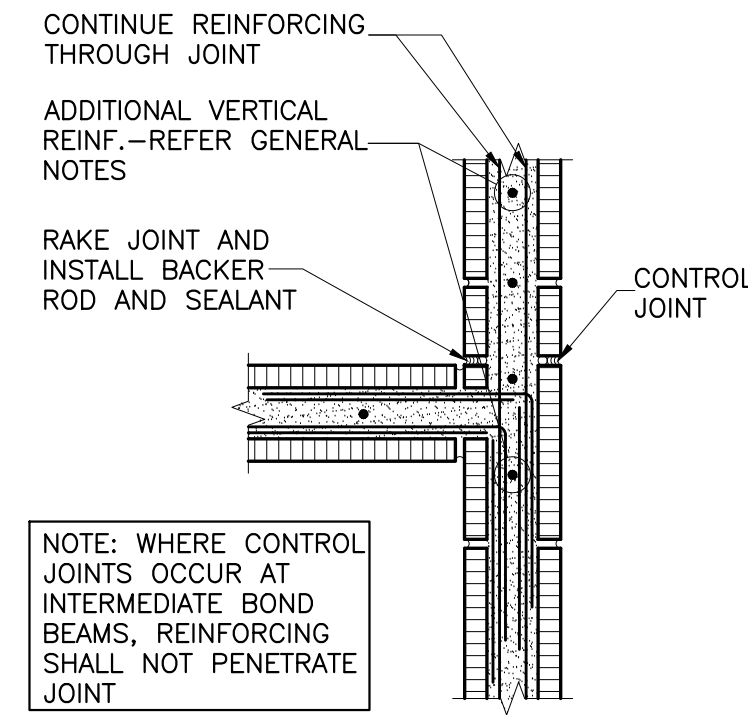




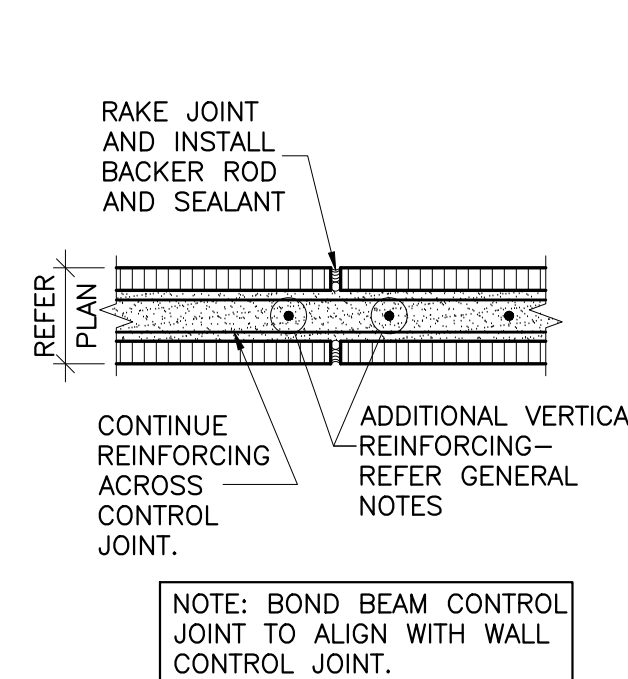
1 DETAIL AT BOND BEAM CORNER W/ NO CONTROL JT
SCALE: NONE



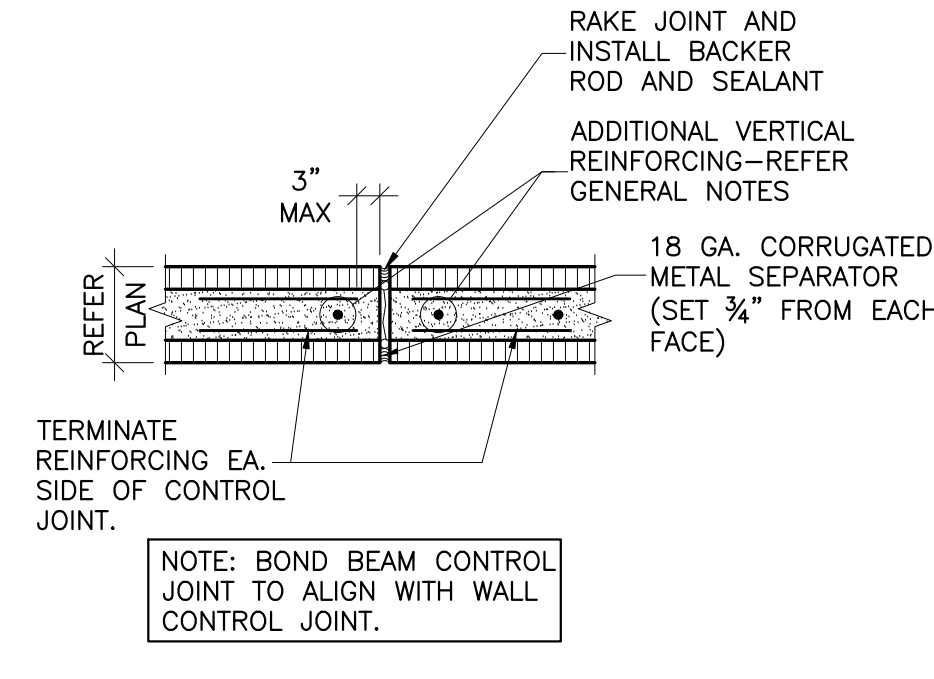
2 DETAIL AT FLOOR/ROOF BOND BEAM CORNER W/ CONTROL JT
SCALE: NONE



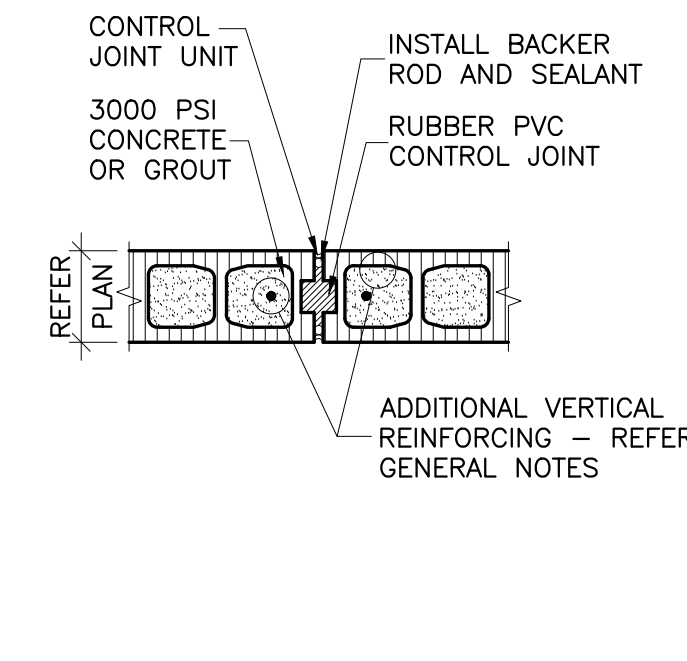
3 CORNER BOND BEAM WITH NO CONTROL JT
SCALE: NONE



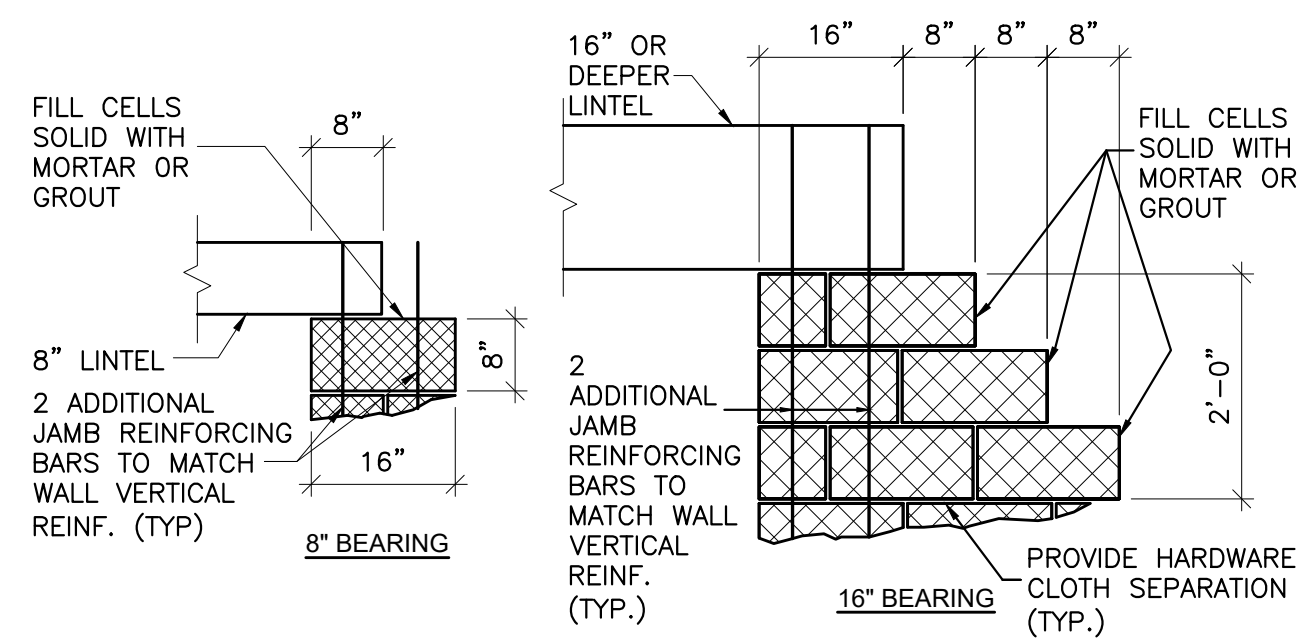
4 CONTROL JT AT FLOOR/ROOF BOND BEAM
SCALE: NONE



5 CONTROL JT AT INTERMEDIATE BOND BEAM
SCALE: NONE



6 CONTROL JT BETWEEN BOND BEAMS
SCALE: NONE

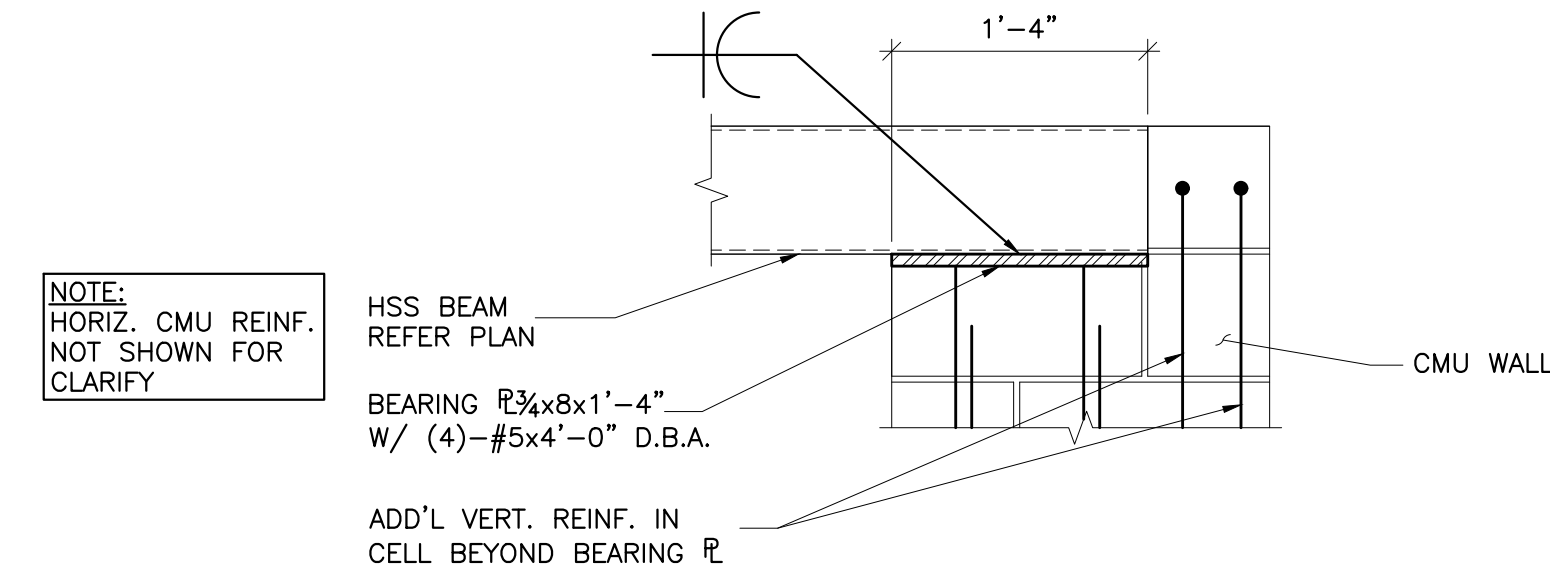


7 BEARING DETAILS TYP. LINTEL TYPES
SCALE: NONE

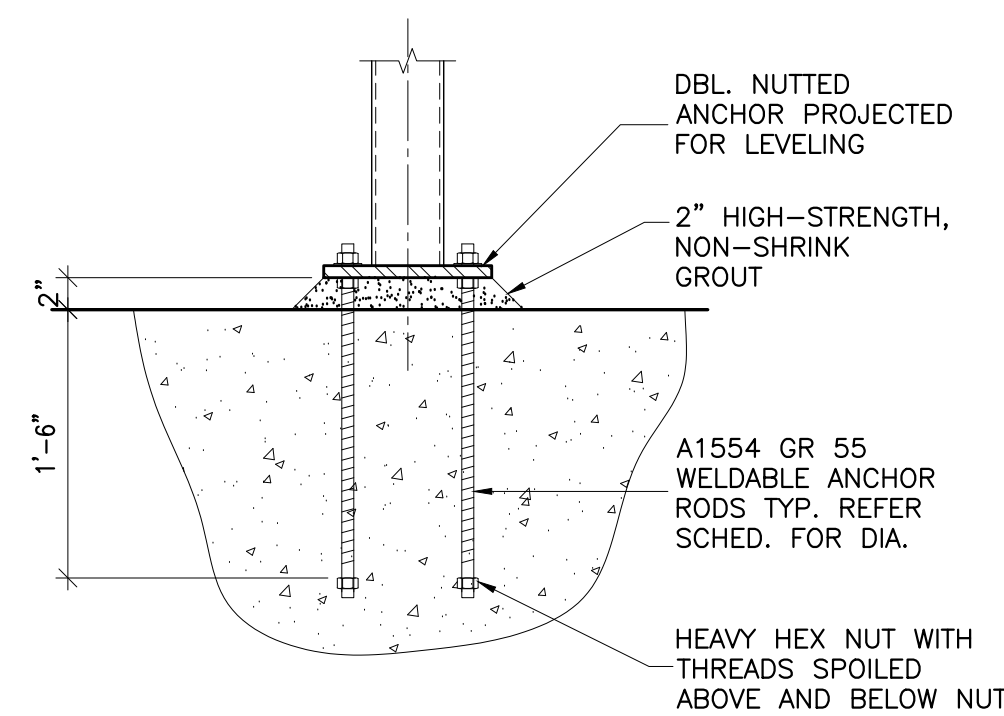
BAR SIZE	LENGTH (in.)			
	CENTER			EDGE (2 IN CLEAR COVER)
	6" CMU	8" CMU	12" CMU	6", 8", 12" CMU
3	1'-0"	1'-0"	1'-0"	1'-6"
4	1'-6"	1'-6"	1'-0"	2'-0"
5	2'-6"	2'-0"	1'-6"	3'-0"
6	**	3'-6"	2'-0"	**
7	**	**	3'-0"	**
8	**	**	**	**

8 CMU REINFORCING LAP SCHEDULE
SCALE: NONE

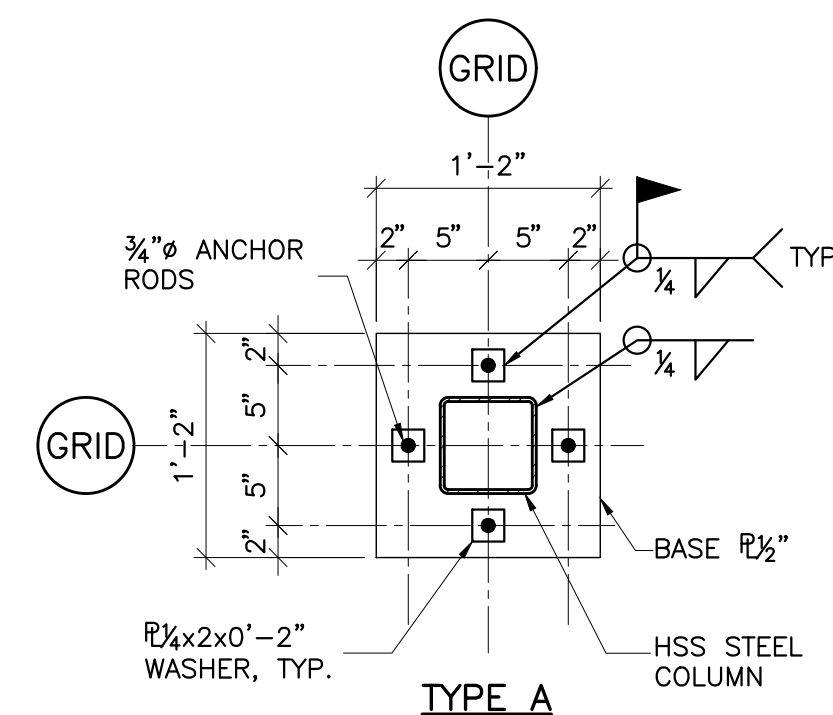
NOTES:
1. f'm = 2000 psi
2. fy = 60,000 psi
*SCHEDULE ALSO APPLIES TO EMBEDMENT LENGTHS
**MECHANICAL SPLICES SHALL BE USED



9 TYP. BEAM BEARING PLATE DETAILS
SCALE: NONE



10 BASE PLATE DETAIL
SCALE: NONE



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REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION			
VERIFICATION AND INSPECTION	FREQUENCY OF INSPECTION		REFERENCED STANDARD
	CONTINUOUS (inspect each joint/member)	PERIODIC (inspect random joint/members)	
1. Material verification of structural steel and cold-formed steel deck U.N.O.:			
a. For structural steel, identification markings to conform to AISC 360.	-	QC and QA	AISC 360, Section M1
b. For other steel, identification markings to conform to ASTM standards specified in the approved construction documents.	-	QC and QA	Applicable ASTM material standards
2. Inspection prior to welding:			
a. Verify identification markings of weld filler materials conform to AWS specification in the approved construction documents.	-	QC and QA	AISC 360, Section A3.5 and applicable AWS AS documents
b. Welding procedure specifications are available.	QC and QA	-	AISC 360, Table N5.4-1
c. Manufacturer certifications for welding consumables available.	QC and QA	-	
d. Material identification (type/grade) and welded identification system.	-	QC and QA	
e. Fit-up of welds including but not limited to joint preparation, dimensions, cleanliness, tacking, and backing type/fit as applicable.	-	QC and QA	
f. Configuration and finish of access holes	-	QC and QA	
g. Check welding equipment.	-	QC	
3. Inspection of welding:			
a. AISC 360 requirements for welding structural steel			
1) Use of qualified welders	-	QC and QA	AISC 360, Table N5.4-2 During Welding
2) Packaging and exposure control and handling of welding consumables.	-	QC and QA	
3) No welding over cracked tack welds	-	QC and QA	
4) Environmental conditions including but not limited to precipitation, temperature and wind.	-	QC and QA	
5) Verify settings on equipment, travel speeds, selected materials, shielding gas type/flow rate, preheating interpass temperatures and proper position meets WPS standards.	-	QC and QA	
6) Verify welding techniques for interpass, final cleaning, profile limitations, and quality requirements.	-	QC and QA	
7) Welds are cleaned and painted where required.	-	QC and QA	
8) Verify size, length and locations of welds.	QC and QA	-	
9) Visually verify welds for crack prohibition, weld/base-metal fusion, crater cross section, weld profiles, weld size, undercutting, and porosity.	QC and QA	-	
10) Arc strikes, k-area cracks within 3" of weld, removal of backing, and repair activities as applicable.	QC and QA	-	
11) Documentation of acceptance or rejection of welded joint or member.	QC and QA	-	
b. American Welding Society requirements for structural steel and cold-formed steel deck:			
1) Complete and partial joint penetration groove welds.	QC and QA	-	AWS D1.1
2) Multipass fillet welds.	QC and QA	-	
3) Single-pass fillet welds > 5/16"	QC and QA	-	
4) Plug and slot welds.	QC and QA	-	AWS D1.3
5) Single-pass fillet welds ≤ 5/16"	-	QC and QA	
6) Floor and roof deck welds.	-	QC and QA	AWS D1.1
7) Welded studs & deformed bar anchors (DBAs).	-	QC and QA	
8) Welded sheet steel for cold-formed steel members	-	QC and QA	AWS D1.1
9) Welding of stairs & railing systems	-	QC and QA	
c. Reinforcing steel:			
1) Verification of weldability of reinforcing steel other than ASTM A 706.	-	QC and QA	AWS D1.4, ACI 318: Section 3.5.2
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	QC and QA	-	
3) Shear reinforcement.	QC and QA	-	
4) Other reinforcing steel.	-	QC and QA	

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1) Inspect reinforcement, including prestressing tendon, and verify placement.	-	X	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2) Inspect anchors cast in concrete.	-	X	ACI 318:17.8.2	-
3) Verify use of required design mix.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
4) Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.4, 26.12	1908.10
5) Inspect concrete and shotcrete placement for proper application techniques.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
6) Verify maintenance of specified curing temperature and techniques.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
7) Inspect formwork for shape, location and dimensions of the concrete member being formed.	-	X	ACI 318: 26.11.1,2(b)	-

TABLE 3.1.2 – QUALITY ASSURANCE REQUIRED INSPECTIONS AND TESTS OF MASONRY CONSTRUCTION				
MINIMUM TESTS				
Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with Specification Article 1.5B.1.b.3 for self-consolidation grout				
Verification of f_m and $f_{m,c}$ in accordance with Specification Article 1.4 B prior to construction, except where specifically exempted. At shelter walls, prisms created in the field shall be tested to verify f_m .				
MINIMUM SPECIAL INSPECTIONS				
INSPECTION TASK	FREQUENCY (NON-SHELTER)		REFERENCE FOR CRITERIA	
	CONTINUOUS	PERIODIC	TMS 602/ACI 530/ASCE 5	TMS 602/ACI 530.1/ASCE 6
1. Verify compliance with the approved submittals.	-	X	-	Art. 1.5
2. As masonry construction begins, verify that the following are in compliance:				
a. Proportions of site-prepare mortar	-	X	-	-
b. Construction of mortar joints	-	X	-	Art. 2.1, 2.6 A
c. Location of reinforcement, connectors, and prestressing tendons and anchorages	-	X	-	Art. 3.4, 3.6 A
3. Prior to grouting, verify that the following are in compliance:				
a. Grout space	-	X	-	Art. 3.2 D, 3.2 F
b. Grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages	-	X	Sec. 6.1	Art. 2.4, 3.4
c. Placement of reinforcement, connectors, and prestressing tendons and anchorages	-	X	Sec. 6.1, 6.2.1, 6.2.6, 6.2.7	Art. 3.2 E, 3.4, 3.6A
d. Proportions of site-prepared grout and prestressing grout for bonded tendons	-	X	-	Art. 2.6 B, 2.4 G.1.b
e. Construction of mortar joints	-	X	-	Art. 3.3 B
4. Verify during construction:				
a. Size and location of structural elements.	-	X	-	Art. 3.3 F
b. Type, size and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	-	X	Sec. 1.2.1 (e), 6.1.4.3, 6.2.1	-
c. Preparation, construction and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F).	-	X	-	Art. 1.8 C, 1.8 D
5. Observe preparation of grout specimens, mortar specimens, and/or prisms	-	X	-	Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4
a. Required for the first 5000 square feet of AAC masonry.				
b. Required after the first 5000 square feet of AAC masonry.				

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS			
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X	
2. Verify excavations are extended to proper depth and have reached proper material.	-	X	
3. Perform classification and testing of compacted fill materials.	-	X	
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	-	
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	-	X	

A) QUALITY CONTROL (QC) AS SPECIFIED IN AISC 360 CHAPTER N AND SUMMARIZED HEREIN SHALL BE PROVIDED BY THE FABRICATOR AND ERECTOR.

B) QUALITY ASSURANCE (QA) AS SPECIFIED IN AISC 360 CHAPTER N AND SUMMARIZED HEREIN SHALL BE PROVIDED BY AN INDEPENDENT INSPECTOR.

C) NONDESTRUCTIVE TESTING (NDT) SHALL BE PERFORMED BY THE AGENCY OR FIRM RESPONSIBLE FOR QUALITY ASSURANCE (QA).

D) COORDINATED INSPECTION: WHERE A TASK IS NOTED TO BE PERFORMED BY BOTH QC AND QA, IT IS PERMITTED TO COORDINATE THE INSPECTION FUNCTION BETWEEN THE QUALITY CONTROL INSPECTOR (QCI) AND QUALITY ASSURANCE INSPECTOR (QAI) SO THAT THE INSPECTION FUNCTIONS ARE PERFORMED BY ONE PARTY. THE QAI SHALL PERFORM COORDINATED INSPECTION UNLESS OTHERWISE AUTHORIZED BY THE EOR AND AHJ.

2) STEEL QUALITY INSPECTOR QUALIFICATIONS

A) QUALITY CONTROL INSPECTOR (QAC) OF ERECTOR/FABRICATOR SHALL BE QUALIFIED TO THE SATISFACTION OF THE ERECTOR/ FABRICATOR'S QC PROGRAM AND AISC 360 SECTION N.4.1 REQUIREMENTS.

B) QUALITY ASSURANCE INSPECTOR (QAI) SHALL BE QUALIFIED BY A QA AGENCY AND AISC 360 SECTION N.4.2 REQUIREMENTS.

C) NON-DESTRUCTIVE TESTING PERSONNEL, OR OTHER THAN VISUAL, SHALL BE QUALIFIED IN ACCORDANCE WITH EMPLOYER'S WRITTEN PRACTICE MEETING OR EXCEEDING REQUIREMENTS OF AWS D1.1/D1.1M AND EITHER ANST SNT-TC-1A OR ANST CP-189 REQUIREMENTS.

3) INSPECTION/APPROVAL OF STEEL FABRICATORS: WHERE FABRICATION OF STRUCTURAL STEEL LOADBEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A STEEL FABRICATOR'S SHOP, REFER TO PARAGRAPH 1.L ABOVE.

4) REFER ATTACHED TABLES FOR SPECIAL INSPECTIONS AND TESTING FOR STEEL CONSTRUCTION.

C. CONCRETE CONSTRUCTION

1) SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ITEMS IDENTIFIED IN IBC TABLE 1705.3.

2) IBC SECTION 1705.3, EXCEPTION 1 DOES NOT REQUIRE SPECIAL INSPECTIONS FOR ISOLATED FOOTINGS OF BUILDINGS LESS THAN THREE STORIES IN HEIGHT THAT ARE FULLY SUPPORTED ON EARTH OR ROCK. NOTE THAT ALL ISOLATED FOOTINGS SUPPORTING COLUMNS AND/OR DIAGONALS ASSOCIATED WITH THE LATERAL BRACING SYSTEM SHALL BE SPECIALLY INSPECTED AND TESTED.

3) IBC SECTION 1705.3, EXCEPTION 2 REGARDING CONTINUOUS FOOTINGS SHALL NOT APPLY. NOTE THAT ALL CONTINUOUS FOOTINGS AND TIE BEAMS SHALL BE SPECIALLY INSPECTED AND TESTED.

4) ALL ELEVATED STRUCTURAL CONCRETE SHALL BE SPECIALLY INSPECTED AND TESTED.

5) ALL SLABS-ON-GRADE SHALL BE SPECIALLY INSPECTED AND TESTED.

D. MASONRY CONSTRUCTION

1) MASONRY SPECIAL INSPECTIONS AND TESTS SHALL BE AS REQUIRED BY TABLE 3.1.2 OF TMS 602-13/ACI 530-13/ASCE 5-13.

2) PERFORM PRISM TESTING PRIOR TO BEGINNING WORK.

3) PROVIDE SETS OF PRISMS FOR TESTING EVERY 5,000 SF OF CMU WALL OR AT LEAST ONE SET OF PRISMS DAILY.

E. SOILS

1) REQUIRED SPECIAL INSPECTIONS AND SOIL TESTS ARE AS SHOWN IN TABLE 1705.6 OF IBC.

2) RAMMED AGGREGATE PIERS ARE TO BE PERFORMANCE SPECIFIED. THE CONTRACTOR SHALL MAKE APPROVED SUBMITTALS AVAILABLE TO THE SPECIAL INSPECTOR. GRADATION VERIFICATION OF RAMMED EARTH IS REQUIRED. VERIFICATION OF PLACEMENT TECHNIQUES AND VIBRATORY EQUIPMENT IS REQUIRED FOR SPECIAL INSPECTION AS WELL.

1. STATEMENT OF SPECIAL INSPECTIONS NOTES:

A. THIS STATEMENT OF SPECIAL INSPECTIONS IS INCLUDED AS REQUIRED BY SECTION 1704.3 OF CHAPTER 17 OF 2015 INTERNATIONAL BUILDING CODE.

B. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE 2015 INTERNATIONAL BUILDING CODE, AISC 360, AND ACI 530 AS SUMMARIZED HEREIN. GENERAL REQUIREMENTS ARE LISTED BELOW AND IN THE ATTACHED INSPECTION TABLES.

C. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL SPECIAL INSPECTION REQUIREMENTS. IF CONFLICTING REQUIREMENTS ARE FOUND BETWEEN STATEMENTS OF SPECIAL INSPECTIONS AND THE PROJECT SPECIFICATIONS, THE MORE STRINGENT PROVISION SHALL CONTROL UNLESS DIRECTED OTHERWISE IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.

D. THE OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS FOR THIS PROJECT. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE TO THE SATISFACTION OF THE BUILDING OFFICIAL FOR THE INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

E. PRIOR TO THE START OF CONSTRUCTION, EACH SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING HIS OR HER COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING. EXPERIENCE OR TRAINING SHALL BE CONSIDERED RELEVANT WHEN THE DOCUMENTED EXPERIENCE OR TRAINING IS RELATED IN COMPLEXITY TO THE SAME TYPE OF SPECIAL INSPECTION ACTIVITIES FOR PROJECTS OF SIMILAR COMPLEXITY AND MATERIAL QUALITIES.

F. THE CONTRACTOR SHALL MAINTAIN ACCESS FOR THE SPECIAL INSPECTOR. THE CONSTRUCTION OR WORK WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTION OR TESTING.

G. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING REASONABLE NOTICE TO THE SPECIAL INSPECTOR(S) REGARDING WHEN ELEMENTS OF THE PROJECT WILL BE READY FOR EFFICIENT IMPLEMENTATION OF SPECIAL INSPECTIONS.

H. THE CONTRACTOR SHALL PROVIDE ACCESS TO THE LATEST VERSION OF ALL APPROVED PLANS AND SHOP DRAWINGS FOR THE SPECIAL INSPECTOR'S USE IN PERFORMING SPECIAL INSPECTIONS.

I. CONTRACTOR SHALL GRANT ACCESS TO OWNER'S SPECIAL INSPECTOR AS IS REASONABLY NECESSARY FOR THE PROPER PERFORMANCE OF SPECIAL INSPECTIONS.

J. SPECIAL INSPECTIONS DO NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO COMPLY WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND JOBSITE SAFETY ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.

K. APPROVED SPECIAL INSPECTORS SHALL KEEP RECORDS OF THEIR SPECIAL INSPECTIONS AND TESTS. THE SPECIAL INSPECTOR SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONALS IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF DISCREPANCIES SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF WORK BY THE OWNER OR OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL.

L. SPECIAL INSPECTION OF FABRICATED ITEMS: WHERE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION. THIS REQUIREMENT MAY BE WAIVED IF THE EXCEPTIONS OUTLINED BELOW ARE MET.

1) EXCEPTION 1: SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE FABRICATOR MAINTAINS APPROVED DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES THAT PROVIDE A BASIS FOR CONTROL OF THE WORKMANSHIP AND THE FABRICATOR'S ABILITY TO CONFORM TO APPROVED CONSTRUCTION DOCUMENTS AND IBC 2015. APPROVAL SHALL BE BASED UPON REVIEW OF FABRICATION AND QUALITY CONTROL PROCEDURES AND PERIODIC INSPECTION OF FABRICATION PRACTICES BY THE BUILDING OFFICIAL.

2) EXCEPTION 2: SPECIAL INSPECTIONS ARE NOT REQUIRED WHERE THE FABRICATOR IS REGISTERED AND APPROVED IN ACCORDANCE WITH SECTION 1704.2.5.1 OF IBC 2015.

A) FABRICATOR APPROVAL: SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER OR OWNER'S AUTHORIZED AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL AS SPECIFIED IN SECTION 1704.5 OF IBC 2015 STATING THAT THE WORK WAS APPROVED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

M. PER IBC SECTION 1704.3.2, THE SEISMIC FORCE RESISTING SYSTEMS FOR THIS FACILITY ARE DEFINED IN THE "DESIGN LOADS" SECTION OF THE GENERAL NOTES. NOTE THAT PER IBC SECTION 1705.12.1.1, THE EXCEPTION IS ENVOKED FOR STEEL SYSTEMS WITH AN R=3 AND A SEISMIC DESIGN CATEGORY C.

Q. SUBMITTALS TO THE BUILDING OFFICIAL: IN ADDITION TO THE SUBMITTAL OF REPORTS OF SPECIAL INSPECTIONS AND TESTS IN ACCORDANCE WITH IBC SECTION 1704.2.4, REPORTS AND CERTIFICATES SHALL BE SUBMITTED BY THE OWNER OR OWNER'S AUTHORIZED AGENT TO THE BUILDING OFFICIAL FOR EACH OF THE FOLLOWING:

1) CERTIFICATE OF COMPLIANCE FOR THE FABRICATION OF STRUCTURAL, LOAD-BEARING OR LATERAL LOAD-RESISTING MEMBERS OR ASSEMBLIES ON THE PREMISES OF A REGISTERED AND APPROVED FABRICATOR IN ACCORDANCE WITH IBC SECTION 1704.2.5.1.

2) CERTIFICATE OF COMPLIANCE FOR THE SEISMIC QUALIFICATION OF NONSTRUCTURAL COMPONENTS, SUPPORTS AND ATTACHMENTS IN ACCORDANCE WITH IBC SECTION 1705.13.2.

3) REPORTS OF PRECONSTRUCTION TESTS FOR SHOTCRETE IN ACCORDANCE WITH IBC SECTION 1908.5.

4) CERTIFICATE OF COMPLIANCE FOR OPEN WEB STEEL JOISTS IN ACCORDANCE WITH IBC SECTION 2207.5.

2. REQUIRED SPECIAL INSPECTIONS AND TESTS

A. THE SPECIAL INSPECTOR SHALL PROVIDE CONTINUOUS OR PERIODIC INSPECTIONS AS SHOWN IN THE ATTACHED INSPECTION TABLES.

1) CONTINUOUS INSPECTION: THE SPECIAL INSPECTOR SHALL BE PRESENT AT ALL PROCEDURAL EVENTS.

2) PERIODIC INSPECTION: THE SPECIAL INSPECTOR SHALL BE PRESENT AT THE START OF THE WORK AND PERIODIC INSPECTION IS MADE TO VERIFY PROGRESS OF WORK IS IN COMPLIANCE.

B. STRUCTURAL STEEL AND DECKING

1) STEEL QUALITY CONTROL AND QUALITY ASSURANCE



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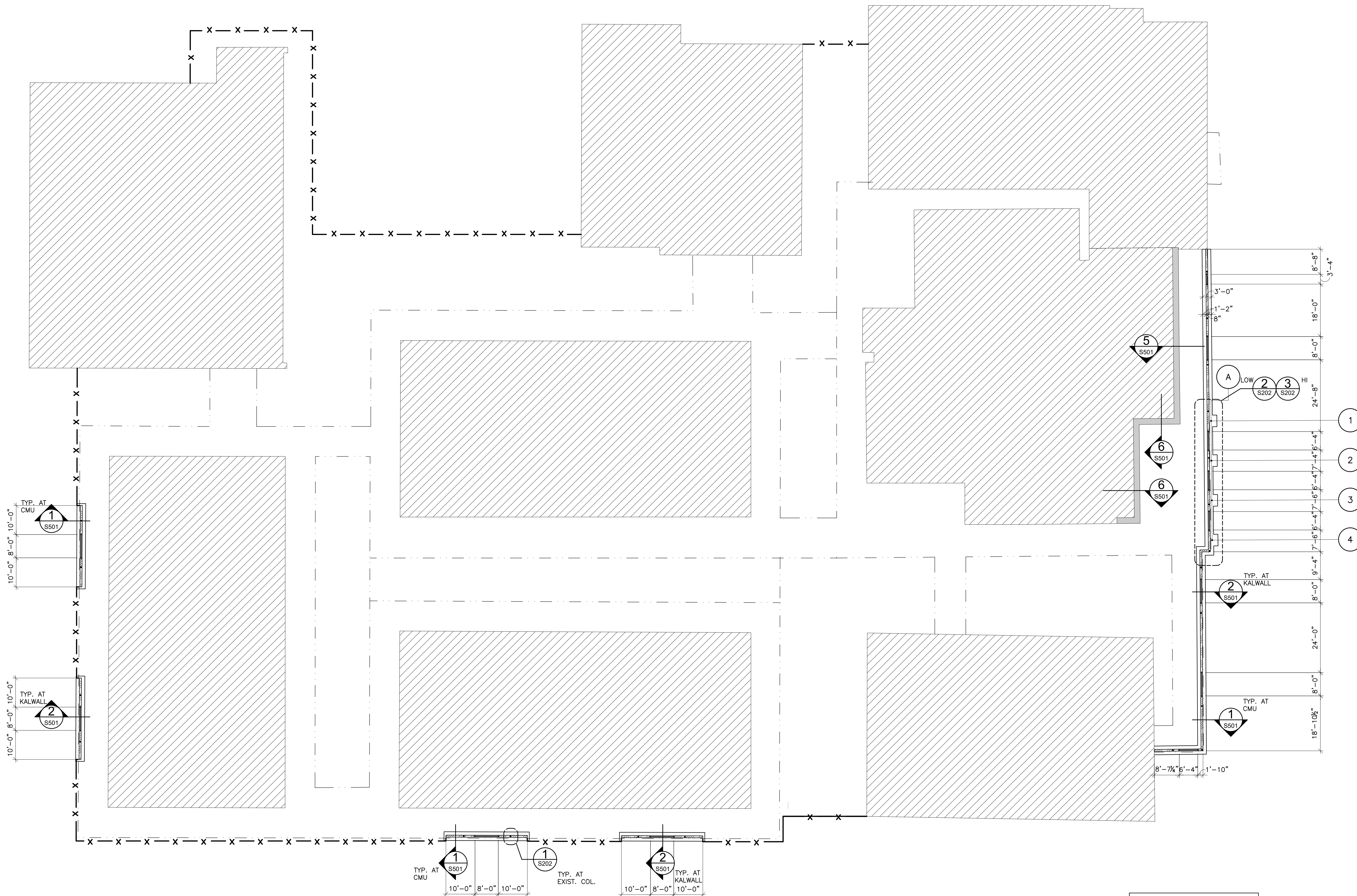
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LEGEND	
	CMU WALL
	EXIST. STRUCTURE TO REMAIN
	EXIST. CANOPY TO REMAIN
	NEW FENCE
	NEW SCREENWALL



1 SITE PLAN
S201 SCALE: 1/16"=1'-0"





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MA	checked by
JANUARY 2024	date
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SECURITY UPGRADES
SANTA FE
ELEMENTARY SCHOOL

sheet no:

S202

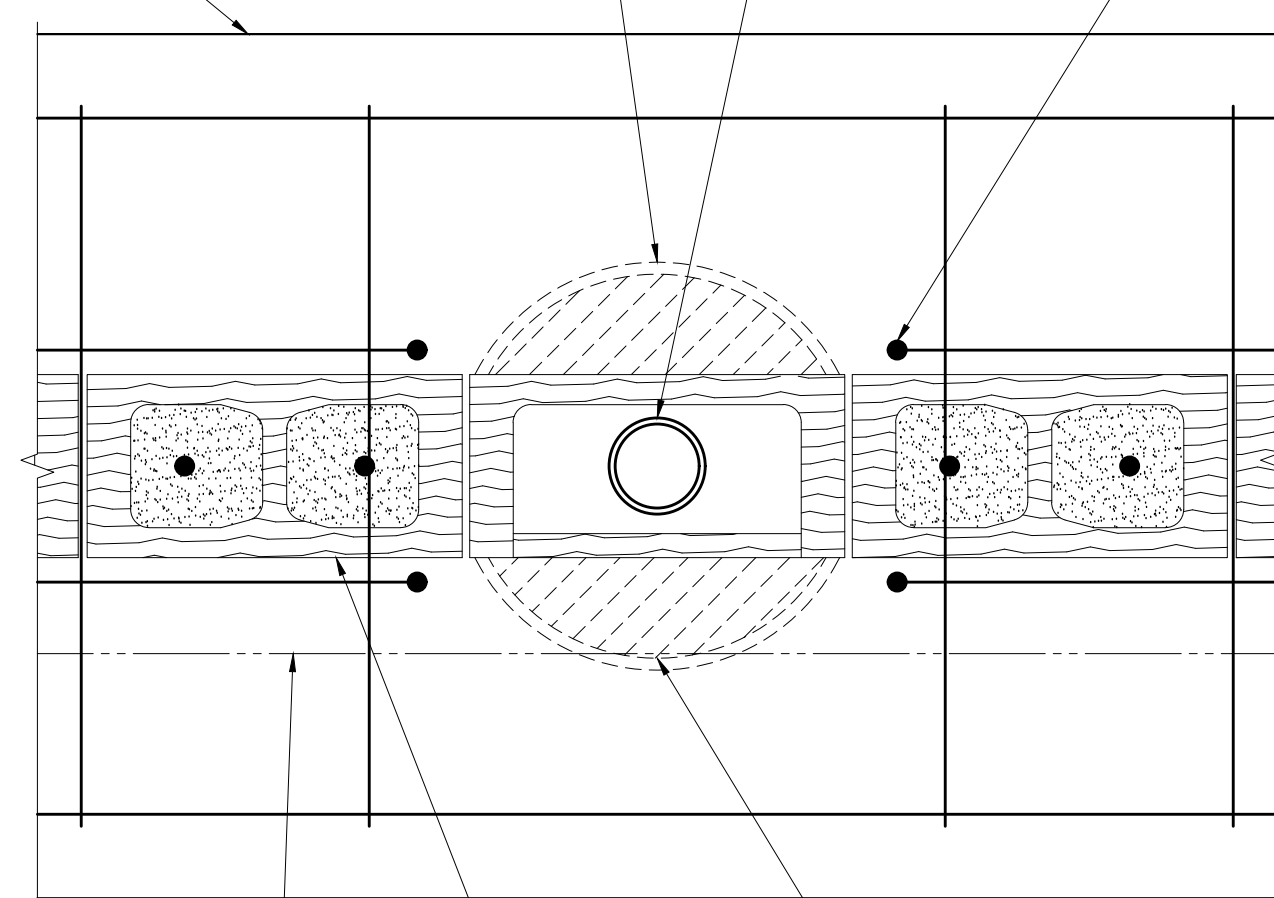
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FOUNDATION PLAN NOTES:

- FOUNDATION AND SLAB SUBGRADE SHALL BE PREPARED AS OUTLINED IN THE STRUCTURAL GENERAL NOTES.
- REFERENCE ELEVATION OF 100'-0" EQUALS ACTUAL FINISHED FLOOR ELEVATION OF THE EXISTING BUILDING (FIELD VERIFY).

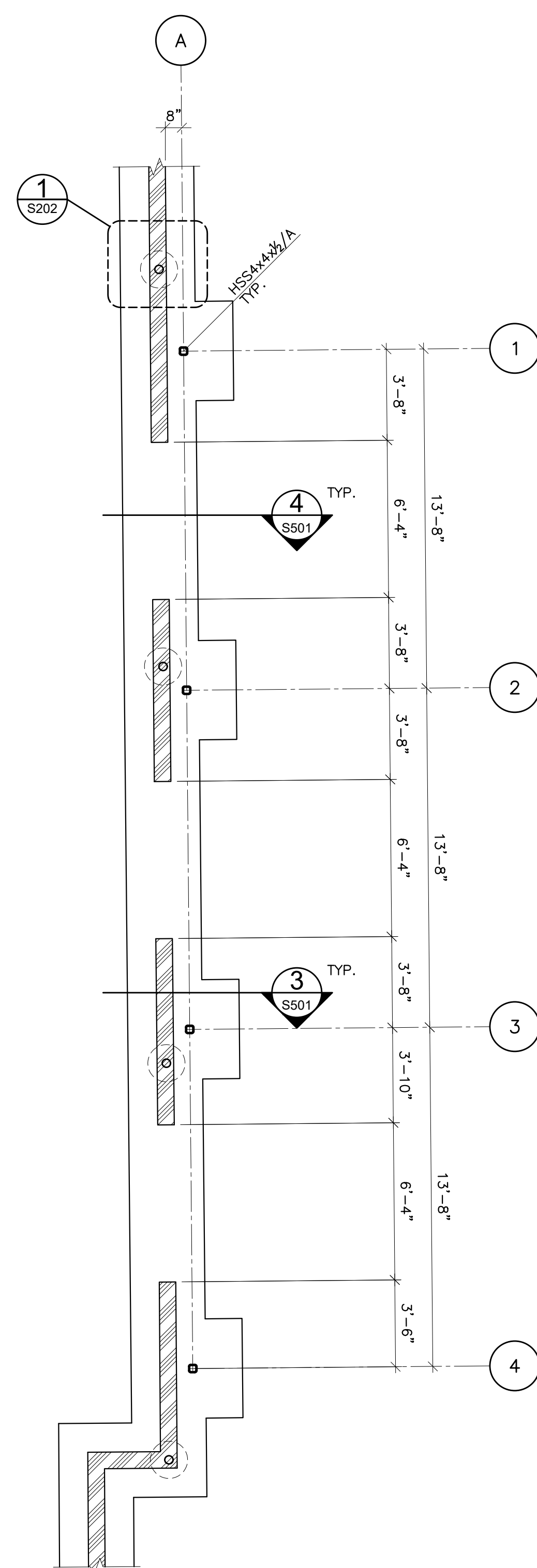
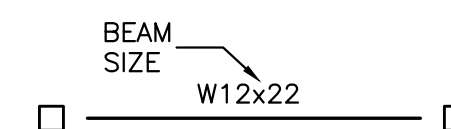
CONT. FOOTING BELOW. REFER 1/S501 FOR REINF. INFO
1/2" EXP. JT. MATERIAL
EXIST. CANOPY COLUMN TO REMAIN
HOOK ENDS OF INTERRUPTED BARS
BRICK VENEER REFER ARCH.
8" CMU WALL
EXIST. 16" Ø BELL PIER BELOW TO REMAIN (FIELD VERIFY)



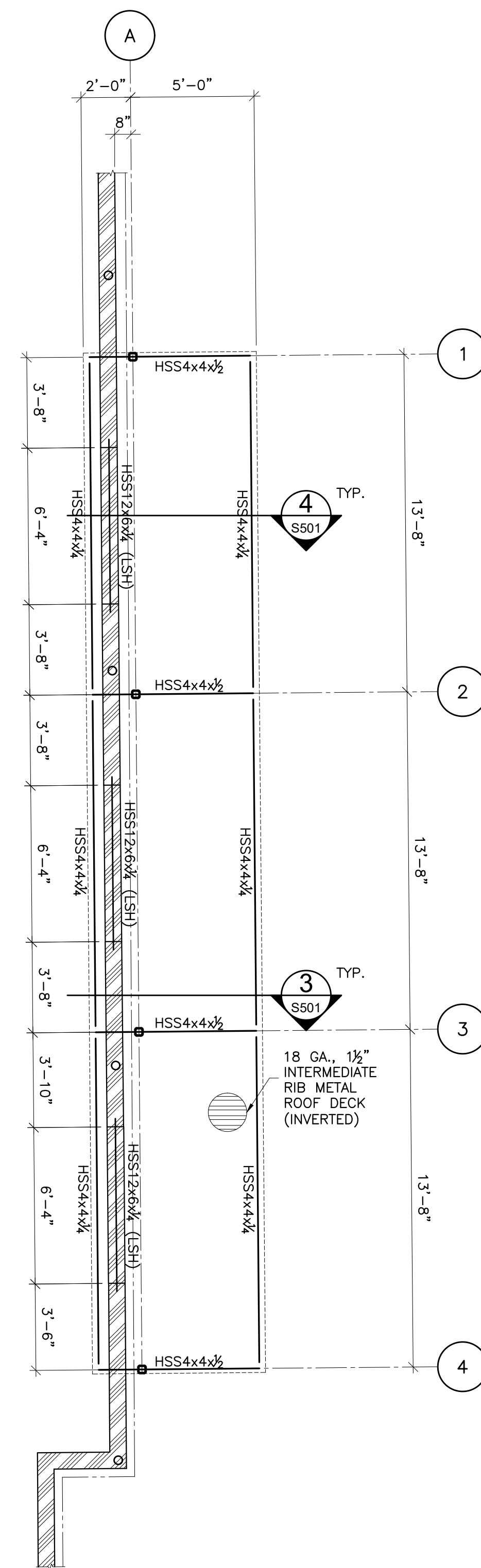
1 ENLARGED PLAN
S202 SCALE: 1 1/2"=1'-0"

ROOF FRAMING PLAN NOTES:

- ALL ELEVATIONS ARE REFERENCE FINISHED FLOOR DATUM OF 100'-0". REFER FOUNDATION PLAN NOTES FOR ACTUAL ELEVATION.
- REFER TO FOUNDATION PLAN FOR COLUMN SIZES.



2 ENLARGED FOUNDATION PLAN
S202 SCALE: 1/4"=1'-0"



3 ENLARGED FRAMING PLAN
S202 SCALE: 3/4"=1'-0"



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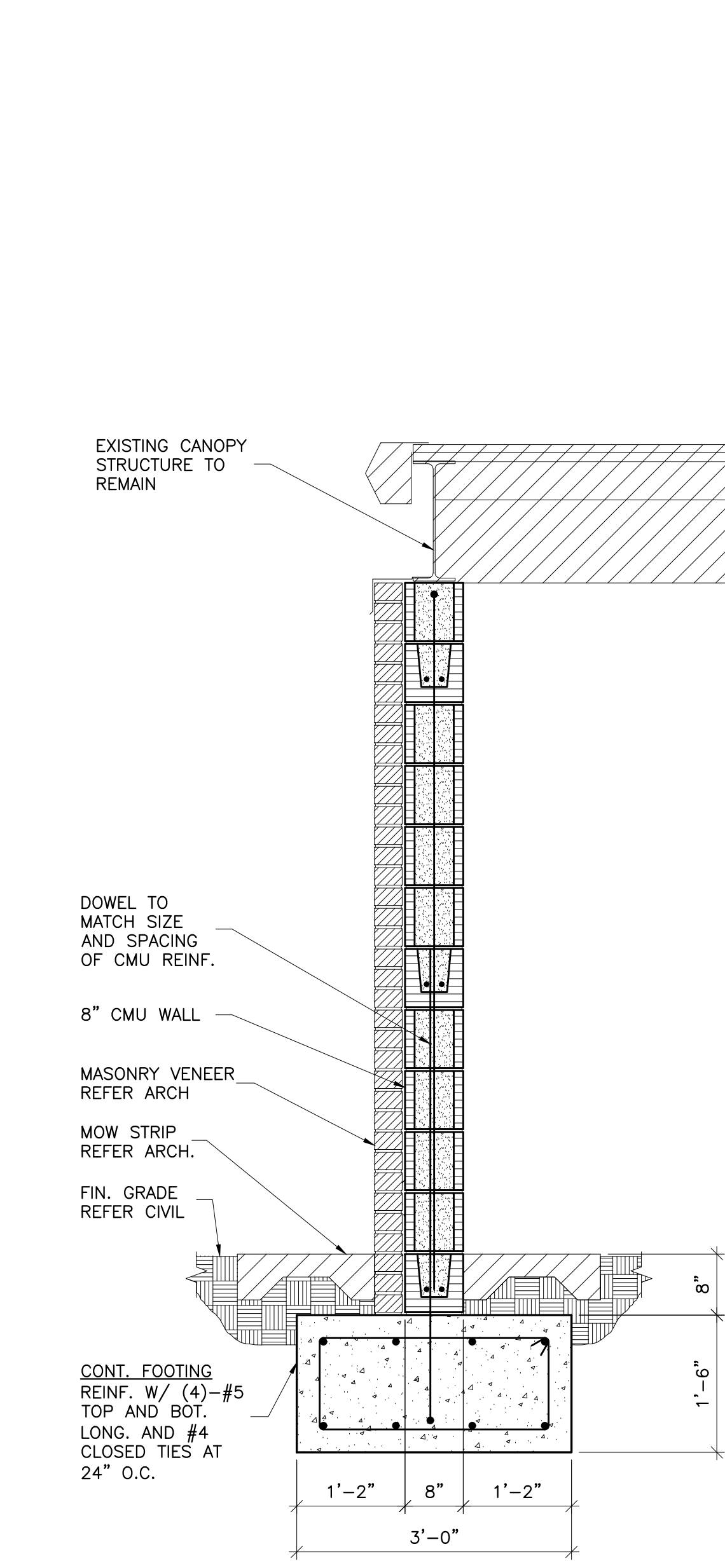
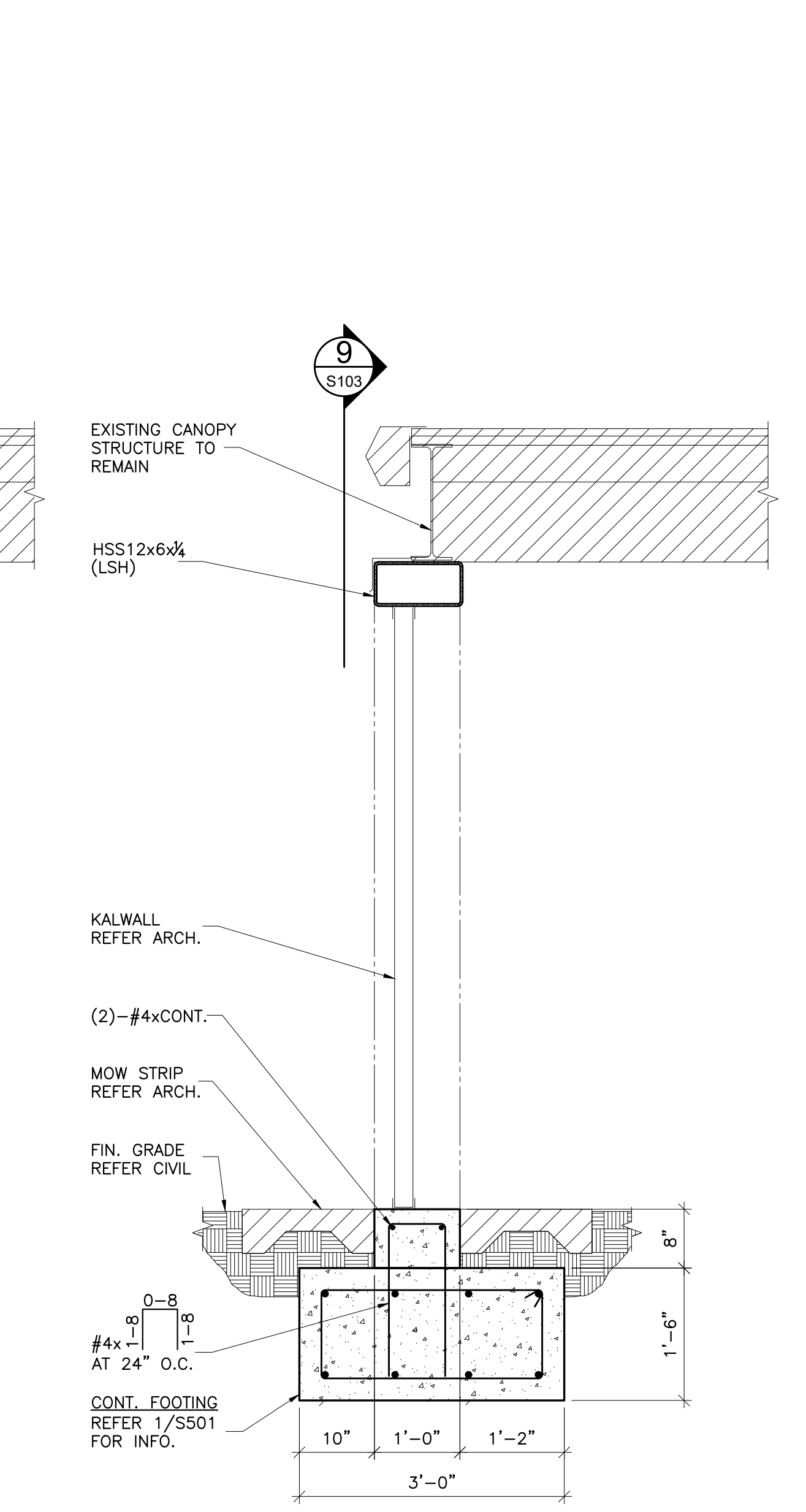
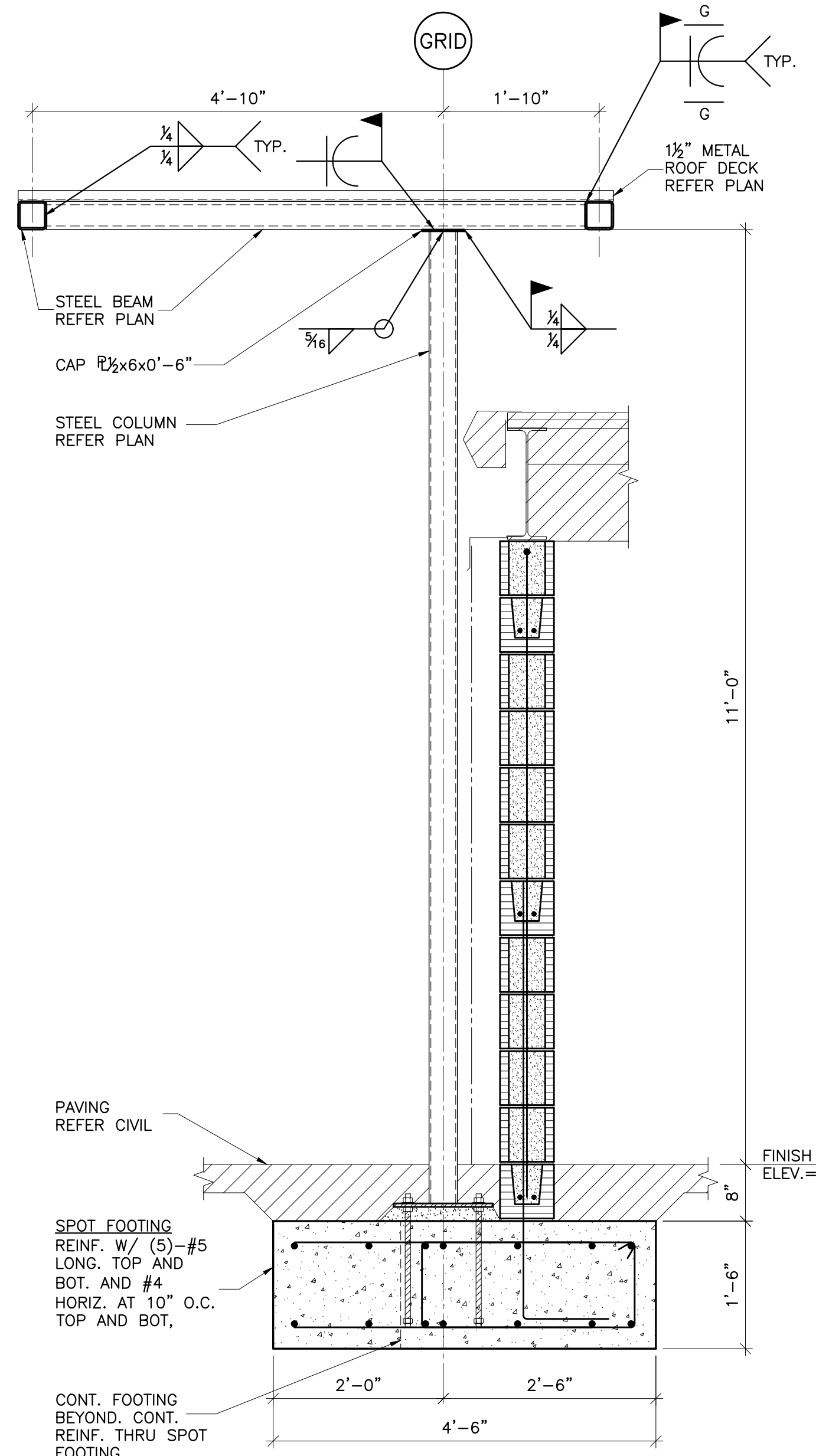
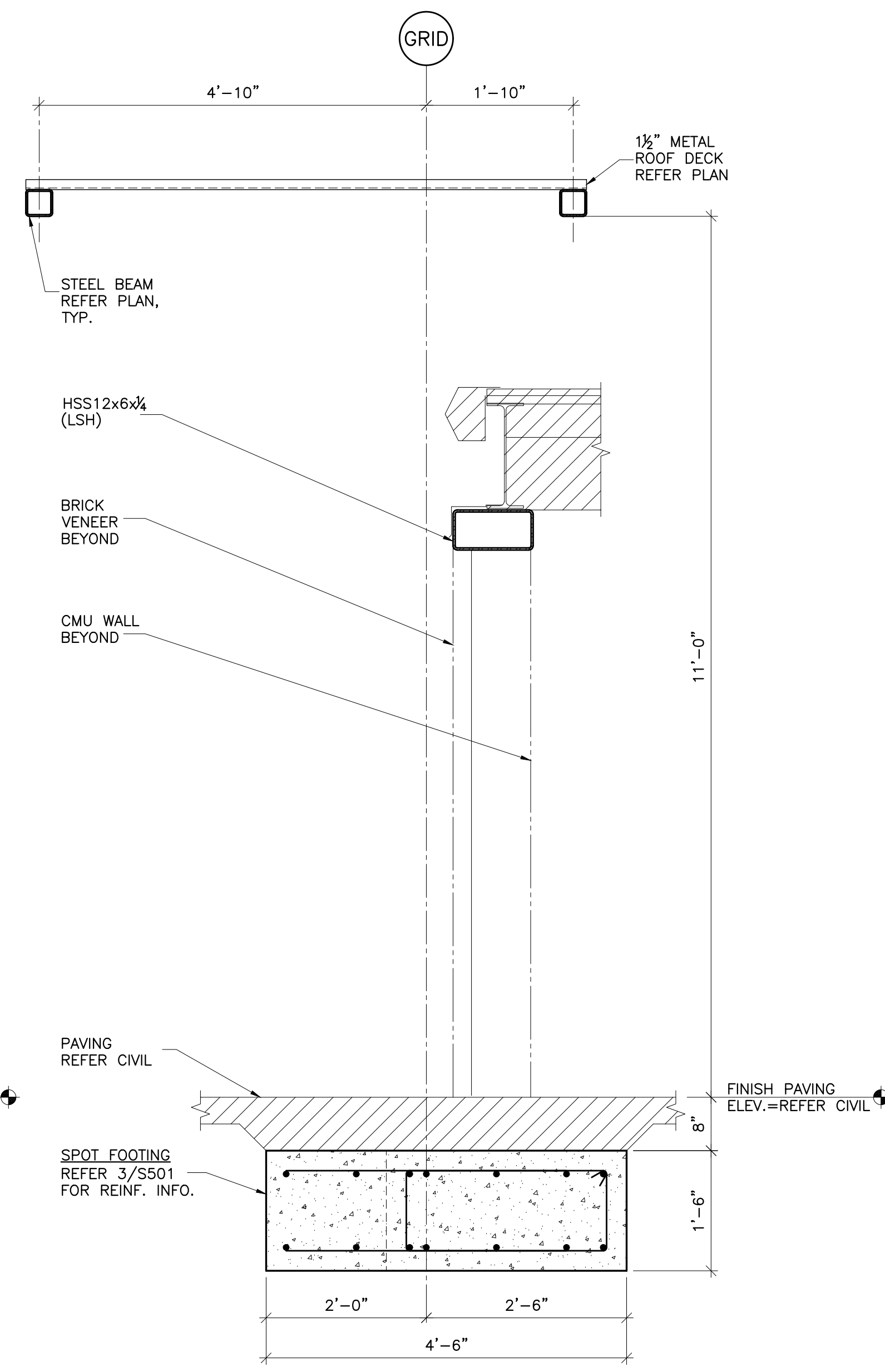
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S501

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1 SECTION
S501 SCALE: 3/4"=1'-0"

2 SECTION
S501 SCALE: 3/4"=1'-0"

3 SECTION
S501 SCALE: 3/4"=1'-0"

4 SECTION
S501 SCALE: 3/4"=1'-0"

5 SECTION
S501 SCALE: 3/4"=1'-0"

6 SECTION
S501 SCALE: 3/4"=1'-0"

7 SECTION
S501 SCALE: 3"=1'-0"

8 SECTION
S501 SCALE: 3"=1'-0"