GENERAL STRUCTURAL NOTES

A. BUILDING CODES AND STANDARDS

1. THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS REFERENCED WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION AND QUALITY CONTROL OF ALL WORK PERFORMED ON THE PROJECT.
   a. "INTERNATIONAL BUILDING CODE - 2018" INTERNATIONAL CODE COUNCIL, INC.
   b. "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES", (ANSI/ASCE 7) AMERICAN SOCIETY OF CIVIL ENGINEERS.
2. ADDITIONAL DESIGN STANDARDS FOR MATERIALS SHALL BE FOUND IN THE APPROPRIATE SECTIONS THAT FOLLOW. SEE THOSE SECTIONS FOR THE APPLICABLE CODES.

B. DESIGN LOADS

1. GRAVITY - SUPERIMPOSED DEAD LOADS
   a. ROOF
      PER MODULAR MANUFACTURER — 25 PSF
   b. FLOORS
      PER MODULAR MANUFACTURER — 40 PSF
2. GRAVITY - FLOOR LIVE LOADS
   a. FIRST FLOOR — 100 PSF + 2,000 LBS CONCENTRATED
3. GRAVITY - ROOF LIVE LOADS
   a. PER MODULAR MANUFACTURER — 25 PSF + DRIFT
4. LATERAL LOADS - WIND
   a. ULTIMATE DESIGN WIND SPEED (3 SECOND GUST) — 111 MPH
   b. NOMINAL WIND SPEED — 86 MPH
   c. RISK CATEGORY — II
   d. MAIN WIND-FORCE RESISTING SYSTEMEXPOSURE — C
5. LATERAL LOADS - SEISMIC
   a. PER MODULAR MANUFACTURER — 25 PSF + DRIFT
6. LATERAL LOADS - EARTH PRESSURE
   a. LATERAL EQUIVALENT FLUID PRESSURE
      1) AT REST CONDITION (BRACED WALLS) — 45 PSF/FT OF DEPTH
7. THE STRUCTURE HAS BEEN DESIGNED FOR THE DEAD, LIVE AND LATERAL LOADS INDICATED ABOVE. ANY INCREASE OF LOADS DUE TO CHANGE IN USAGE OR CONSTRUCTION MATERIALS, ETC. SHALL HAVE THE WRITTEN APPROVAL OF THE ENGINEER. THE CONTRACTOR IS CAUTIONED AS TO NOT STORE ANY CONSTRUCTION MATERIALS OR UNDERTAKE ANY CONSTRUCTION OPERATIONS WHICH WILL EXCEED THE DESIGN LIVE LOAD CAPACITIES NOTED.

C. CONSTRUCTION

1. GENERAL
   a. THESE DRAWINGS REPRESENT THE COMPLETED PROJECT WHICH HAS BEEN DESIGNED FOR THE STRUCTURE DEAD LOADS AND FOR THE SUPERIMPOSED LIVE LOADS INDICATED IN THE DESIGN LOADS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPER DESIGN AND CONSTRUCTION OF FALSEWORK, FORMWORK, TEMPORARY BRACING, SHEETING AND SHORING, ETC.
   b. IMPLEMENTING JOB SITE SAFETY AND CONSTRUCTION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
   c. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES AND DRAWINGS, THE MOST RIGID REQUIREMENT SHALL GOVERN.
   d. THE ARCHITECTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS FOR DIMENSIONS, ELEVATIONS, SECTIONS AND DETAILS AS REQUIRED. REPORT DISCREPANCIES IMMEDIATELY TO THE ARCHITECT.
   e. THE CONTRACTOR SHALL CHECK AND VERIFY DIMENSIONS FOR ALL WORK BEFORE PROCEEDING WITH THE CONSTRUCTION. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF ANY WORK.
   f. CONSULT ARCHITECTURAL AND MEP DRAWINGS FOR VERIFICATION OF LOCATION AND SIZE OF ALL OPENINGS, SLEEVES, REVEALS, DEPRESSIONS, INSERTS, CONCRETE HOUSEKEEPING PADS, HANDRAILS, GUARDRAILS, PARTITION SUPPORTS, LINTELS, ETC. REQUIRED FOR THE PROJECT. VERIFY REQUIREMENTS OF TRADES AFFECTING THE WORK AND NOTIFY THE ARCHITECT OF ANY CONFLICTS.
   g. WORK NOT INCLUDED ON THE DRAWINGS BUT IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES ELSEWHERE ON THE DRAWINGS SHALL BE REPEATED.
   h. ALL COSTS OF INVESTIGATION AND/OR REDESIGN, DUE TO THE CONTRACTOR'S MIS-LOCATION OF STRUCTURAL ELEMENTS OR OTHER LACK OF CONFORMANCE WITH THE PROJECT DOCUMENTS, SHALL BE AT THE CONTRACTOR'S EXPENSE.
   i. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR DETAILED INFORMATION REGARDING DAMPROOFING, AND WATERPROOFING.
2. SHOP DRAWINGS
   a. SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS, INCLUDING ALL CONCRETE AND GROUT MIX DESIGNS AND ADMIXTURES, MUST BE SUBMITTED BY THE GENERAL CONTRACTOR AND REVIEWED BY THE ENGINEER. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S APPROVAL STAMP CERTIFYING HE HAS VERIFIED ALL CONSTRUCTION CRITERIA INCLUDING FIELD MEASUREMENTS, MATERIAL AND SIMILAR DATA AND HAS CHECKED THE SUBMITTAL FOR COMPLETENESS, COORDINATION AND COMPLIANCE WITH THE CONTRACT DOCUMENTS.
   b. UNAUTHORIZED REPRODUCTION OF ANY PORTION OF THE STRUCTURAL DRAWINGS FOR RESUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.
   c. IF THE CONTRACTOR OR OWNER FAILS TO OBTAIN THE ENGINEER'S REVIEW OF THE SHOP DRAWINGS, THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT. SHOP DRAWINGS ARE REVIEWED BY THE ENGINEER AS A CONVENIENCE TO THE GENERAL CONTRACTOR AND ARE NOT A CONTRACT DOCUMENT.
   d. CONTRACTOR SHALL FURNISH DIMENSIONED SHOP DRAWINGS AT ALL LEVELS LOCATING FLOOR AND ROOF EDGES AND LOCATING ALL SLEEVES AND OPENINGS REQUIRED BY ALL TRADES FOR REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER.
   e. AT THE TIME OF SHOP DRAWING SUBMISSION, THE GENERAL CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF ANY DEVIATIONS OR OMISSIONS FROM THE CONTRACT DOCUMENTS.

D. FOUNDATION

1. DESIGN DATA
   a. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY KAW VALLEY ENGINEERING, INC. DATED DECEMBER 6, 2021, REPORT NO. C21G1105.
   b. ALL FOUNDATIONS HAVE BEEN DESIGNED FOR AN ALLOWABLE NET BEARING PRESSURE OF 3,500 PSF PER THE GEOTECHNICAL REPORT.
   c. ALL EXTERIOR FOUNDATIONS SHALL BEAR A MINIMUM OF 3'-0" BELOW FINISHED GRADE. IN CASE OF CONFLICT, NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF ANY CONSTRUCTION TO ALLOW FOR ADJUSTMENT. FOOTINGS SHALL BEAR ON APPROVED UNDISTURBED MATERIAL OR STRUCTURAL FILL.
2. GENERAL
   a. SEE GEOTECHNICAL ENGINEERING REPORT FOR EXCAVATION AND SUBGRADE PREPARATION REQUIREMENTS, INCLUDING COMPACTION PROCEDURES. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL ENGINEERING REPORT ARE PART OF THIS WORK.
   b. ALL EXCAVATION, BACKFILLING AND STRUCTURAL FILL PLACEMENT OPERATIONS BENEATH THE BUILDING SLAB AND FOUNDATIONS, AND ALL COMPACTION TESTS AND INSPECTIONS SHALL BE DONE UNDER THE DIRECTION AND SUPERVISION OF A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER. ALL FILL MATERIAL, COMPACTION EQUIPMENT AND PROCEDURES SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PERFORMING ANY EARTHWORK OPERATIONS.
   c. CONCRETE FOR FOUNDATIONS SHALL BE PLACED ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER. SHOULD THE SOIL BEARING PRESSURE BE FOUND TO BE LESS THAN THE ALLOWABLE BEARING PRESSURES LISTED ABOVE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
   d. THE CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM AS SHOWN PRIOR TO STARTING WORK.
   e. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES, EXISTING STRUCTURES, ETC., WHETHER INDICATED OR NOT, WHICH MAY BE AFFECTED BY THE CONSTRUCTION PROCESS. SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR, THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER.
   f. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL. STEP FOUNDATIONS UNDER UTILITIES AS REQUIRED WHERE UTILITIES OCCUR.
   g. FOLLOWING REQUIRED STRIPPING OPERATIONS, ANY PROOF ROLLING SHALL BE AS DIRECTED BY A QUALIFIED GEOTECHNICAL ENGINEER. THE PURPOSE FOR PROOF ROLLING WILL BE TO LOCATE ANY ISOLATED AREAS OF SOFT OR LOOSE SOILS REQUIRING IMPROVEMENT OR REPLACEMENT. SOFT AREAS SHALL BE UNDERCUT AND REPLACED BY PROPERLY COMPACTED MATERIALS AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
   h. ALL SHORING, SHEETING AND DEWATERING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL ENGAGE AN ENGINEER LICENSED IN THE PROJECT'S JURISDICTION TO DESIGN ALL SHEETING AND SHORING.
   i. SEE PLUMBING AND CIVIL DRAWINGS FOR UNDER SLAB AND PERIMETER DRAINAGE SYSTEMS (IF ANY).
3. BACKFILL
   a. TO BE PER THE GEOTECHNICAL REPORT.
4. SLAB BASE COURSE
   a. TO BE PER THE GEOTECHNICAL REPORT.

E. CAST-IN-PLACE CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ALL PROVISIONS OF THE FOLLOWING PUBLICATIONS:
   a. "SPECIFICATIONS FOR STRUCTURAL CONCRETE", ACI 301.
   b. "BUILDING CODE REQUIREMENTS FOR CONCRETE", ACI 318.
   c. "GUIDE TO HOT WEATHER CONCRETING", ACI 305.
   d. "GUIDE TO COLD WEATHER CONCRETING", ACI 306.
   e. "GUIDE TO FORMWORK FOR CONCRETE", ACI 347.
   f. "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION MATERIALS", ACI 117.
2. MATERIALS
   a. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

APPLICATION	f'c AT 28 DAYS	DRY UNIT WEIGHT PCF	W/CM RATIO	MAX. SLUMP (IN) (+/- 1")
SLABS-ON-GROUND (INTERIOR)	4,000	145		5
SLABS-ON-GROUND (EXTERIOR)	4,500	145	0.45	5
FOOTINGS	3,000	145		4*
WALLS AND PIERS	4,000	145	0.50	4*

   (*SLUMP: CONCRETE CONTAINING HRWR ADMIXTURE SHALL HAVE A MAXIMUM SLUMP OF 7" AFTER ADDITION OF HRWR TO A VERIFIED WATER SLUMP OF 2" TO 3" MAXIMUM)

   b. CEMENT ASTM C150, TYPE I OR II
   c. CEMENT SUBSTITUTESASTM C595, ASTM C989, ASTM C618 (CLASS C OR F)
      MAXIMUM PERCENT OF TOTAL IN ACCORDANCE WITH ACI 318
   d. COARSE AGGREGATES ASTM C33 (NORMAL WEIGHT)
   e. COARSE AGGREGATE SIZE SHALL BE:
      1 1/2" MAX. / 1" TOP SIZE FOR SLABS ON GROUND LESS THAN 6" THICK
      1 1/2" MAX. / 1" TOP SIZE FOR ALL OTHER WORK
   f. COMBINED AGGREGATE GRADING FOR SLABS SHALL BE WELL-GRADED FROM TOP SIZE TO NO. 100 SIEVE. FOR THE 1 1/2" MAX. / 1" TOP SIZE AGGREGATE, GRADATIONS SHALL BE 8-22% RETAINED ON EACH SIEVE BELOW THE TOP SIZE AND ABOVE THE NO. 100 SIEVE SIZE. IDEAL RANGE FOR THE NO. 30 AND NO. 50 SIEVE IS 8-15% RETAINED ON EACH SIEVE. FOR THE TOP SIZE, 0-4% SHALL BE RETAINED ON THE 1" SIEVE.
   g. THE PROPORTIONING OF THE CONCRETE MIX FOR SLABS-ON-GROUND IS EXTREMELY IMPORTANT. MINIMIZING SHRINKAGE OF THE CONCRETE IS KEY TO A SUCCESSFUL FLOOR SLAB. HIGH CEMENT AND HIGH WATER CONTENT ARE FACTORS THAT INCREASE CONCRETE SHRINKAGE. CEMENT CONTENT SHALL BE OPTIMIZED TO PRODUCE THE SPECIFIED STRENGTH BUT BALANCED TO MINIMIZE THE SHRINKAGE POTENTIAL. WATER CONTENT SHALL BE ADJUSTED AND COORDINATED WITH THE NECESSARY ADMIXTURES TO MINIMIZE SHRINKAGE POTENTIAL BUT STILL ACHIEVING THE DESIRED PLACEABILITY AND FINISHABILITY. A LARGE QUANTITY OF COARSE AGGREGATE (2000 LBS./CU.YD. MINIMUM), SHALL BE USED TO HELP MINIMIZE THE SHRINKAGE POTENTIAL.
   h. AIR: ALL CONCRETE EXPOSED TO WEATHER, EXCEPT CONCRETE TO RECEIVE A STEEL TROWEL FINISH, SHALL BE AIR-ENTRAINED 6% ± 1 1/2% BY VOLUME. ENTRAINING ADMIXTURES TO COMPLY WITH ASTM C260.
   i. REINFORCEMENT:
      DEFORMED REINFORCING BARS — ASTM A615, GRADE 60
      SMOOTH WELDED WIRE REINFORCEMENT (WWR) — ASTM A1064, GRADE 65
   j. ADMIXTURES: NO ADMIXTURE CONTAINING CALCIUM CHLORIDE OR OTHER CHLORIDE CONTAINING AGENTS SHALL E PERMITTED. WATER-REDUCING ADMIXTURES SHALL COMPLY WITH ASTM C494. CONCRETE SHALL HAVE A WATER SLUMP OF 2" TO 3" PRIOR TO INTRODUCTION OF ADMIXTURE TO THE CONCRETE MIX.
   k. JOINT FILLER FOR SLAB-ON-GROUND
      1) MM-80 BY METZGER-MCGUIRE. FILL JOINTS 60-90 DAYS FROM SLAB PLACEMENT, JOINTS SHALL NEVER BE FILLED WITHIN 30 DAYS OF SLAB PLACEMENT.
   l. ISOLATION JOINT FILLER STRIPS
      INTERIOR — CERAMAR BY W.R. MEADOWS INC.
      EXTERIOR — ASTM D1751, ASPHALT-SATURATED CELLULOSE FIBER
   m. SUBMIT CONCRETE DESIGN MIXES INCLUDING TEST RESULTS IN ACCORDANCE WITH ACI 318 TO VERIFY STRENGTH FOR ALL CLASSES OF CONCRETE TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO PLACING ANY CONCRETE.
   n. SUBMIT REINFORCING PLACEMENT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO PROCEEDING WITH THE WORK.
3. GENERAL
   a. REINFORCING STEEL CLEAR COVER SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS:
      CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:
      ALL BARS — 3"

      CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
      #6 BARS AND LARGER — 2"
      #5 BARS AND SMALLER — 1 1/2"

      BEAMS AND COLUMNS:
      PRIMARY REINFORCEMENT, TIES,
      STIRRUPS AND SPIRALS — 1 1/2"
   b. UNLESS DETAILED OTHERWISE, SPLICES SHALL BE MADE BY CONTACT TENSION LAP SPLICES. MINIMUM LAP TO BE 44 BAR DIAMETERS FOR #6 BARS AND SMALLER, OR 24 INCHES WHICHEVER IS GREATER. LAP BARS CONTINUOUS AROUND CORNERS. DOWEL INTERSECTING WALLS INTO CROSS WALLS.
   c. WELDED WIRE REINFORCEMENT SHALL BE SUPPLIED IN FLAT SHEETS. PLACE AND SUPPORT REINFORCEMENT BEFORE CONCRETE PLACEMENT TO MAINTAIN LOCATION, DURING CONCRETE PLACEMENT, WITHIN TOLERANCES INDICATED IN ACI 117. REINFORCEMENT SUPPORTS SHALL CONFORM TO CRSI RB4.1. WWR W4.0/D4.0 AND SMALLER SHALL HAVE CONTINUOUS SUPPORT. THE CONTINUOUS SUPPORT SPACING SHALL NOT EXCEED 12 INCHES PERPENDICULAR TO THE DIRECTION OF THE SPAN. LAP WELDED WIRE REINFORCEMENT PER GUIDELINES SET BY THE WIRE REINFORCEMENT INSTITUTE.
   d. NO WELDING OF REINFORCING SHALL BE PERMITTED UNLESS SPECIFICALLY CALLED FOR OR APPROVED BY THE STRUCTURAL ENGINEER. WHERE WELDING OF REINFORCING STEEL IS REQUIRED, PROVIDE BARS CONFORMING TO ASTM A706. ALL WELDING PROCEDURES SHALL CONFORM WITH THE REQUIREMENTS OF AWS D1.4.
   e. PROVIDE PLASTIC TIPPED BOLSTERS AND CHAIRS AT ALL LOCATIONS WHERE THE CONCRETE SURFACE IS EXPOSED.
   f. IT IS THE INTENT OF THESE DOCUMENTS TO STATE ABSOLUTELY THAT THE WATER/CEMENT RATIO OF THE APPROVED CONCRETE MIX SHALL NOT BE EXCEEDED. THUS, NO WATER CAN BE ADDED TO ANY CONCRETE ON SITE UNLESS THERE IS A HOLD BACK OF WATER IN THE MIX FROM THE READY-MIX PLANT. THE DELIVERY TICKETS SHALL STATE THE QUANTITY OF WATER THAT HAS BEEN HELD BACK. IF WATER IS ADDED ON SITE, IT SHALL BE DOCUMENTED ON THE DELIVERY TICKETS AND SHALL NOT EXCEED THE QUANTITY IN THE APPROVED MIX.
   g. CONCRETE CURING:
      1) ALL CONCRETE SURFACES, OTHER THAN FLOOR SLABS, SHALL BE MOIST-CURED OR PROTECTED USING A LIQUID MEMBRANE CURING AGENT MEETING THE REQUIREMENTS OF ASTM C309 APPLIED AS SOON AS FORMS ARE REMOVED OR FINISHING IS COMPLETED TO PREVENT EARLY DRYING OF THE CONCRETE AND TO PROVIDE ADEQUATE CURING FOR A MINIMUM OF 7 DAYS. THIS INCLUDES FOUNDATIONS, WALLS AND PIERS.
      2) ALL FLOOR SLABS ON GROUND SHALL BE WET CURED FOR 7 DAYS USING PNA HYDRACURE CURING COVER.
   h. CONCRETE SLABS SHALL BE FINISHED FLAT AND LEVEL WITHIN TOLERANCES SET FORTH IN ACI 117 AND TO THE ELEVATIONS INDICATED ON THE DRAWINGS. SLABS-ON-GROUND SHALL HAVE A MINIMUM SPECIFIED OVERALL FLATNESS/LEVELNESS OF FF35/25 AND A MINIMUM LOCAL FLOOR FLATNESS/LEVELNESS OF FF25/17. SLOPED SURFACES HALL HAVE A MINIMUM FLOOR FLATNESS OF FF25.
   i. FOR SLAB SURFACES NOT SCHEDULED TO RECEIVE FLOORING (SEE ARCHITECTURAL DRAWINGS), IMMEDIATELY AFTER 7 DAYS WET CURE, APPLY ONE COAT SEALHARD CHEMICAL HARDENER AS MANUFACTURED BY L&M CONSTRUCTION CHEMICALS OR APPROVED EQUAL. APPLICATION OF HARDENER TO CONFORM WITH THE MANUFACTURER'S RECOMMENDATIONS.
   j. CONSTRUCTION JOINTS AND CONTRACTION JOINTS IN SLABS-ON-GROUND SHALL BE ARRANGED TO LIMIT MAXIMUM LENGTH BETWEEN JOINTS IN ANY DIRECTION TO 24x THE SLAB THICKNESS WITH AN ASPECT RATIO NOT EXCEEDING 1.25, UNLESS SHOWN OTHERWISE ON THE DRAWINGS. INSTALL JOINTS ON COLUMN CENTERLINES AND IN BOTH DIRECTIONS AT 90 DEGREES TO A REENTRANT CORNER. SEE PLANS AND DETAILS FOR SPECIFIC REQUIREMENTS.
   k. ALL FORMWORK, SHORING, AND RESHORING, SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER LICENSED IN THE PROJECT'S JURISDICTION.
   l. NO SLEEVES SHALL BE PLACED THROUGH ANY CONCRETE ELEMENT UNLESS SHOWN ON THE STRUCTURAL DRAWINGS, APPROVED SLEEVING SHOP DRAWINGS OR SPECIFICALLY AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
   m. CORE DRILLING OF FOUNDATIONS, PIERS, BEAMS, SLABS OR COLUMNS SHALL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
   n. WHERE REQUIRED ON ARCHITECTURAL DRAWINGS, PROVIDE CONTINUOUS WATERSTOP AT ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN BELOW GRADE WALLS.
   o. CHAMFER ALL EXPOSED CONCRETE CORNERS, 3/4"x3/4" MINIMUM, UNLESS NOTED OR DETAILED ON THE ARCHITECTURAL DRAWINGS.

E. CAST-IN-PLACE CONCRETE

4. INSPECTION AND TESTING
   a. THE OWNER WILL ENGAGE A TESTING AND INSPECTION AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS TO THE ARCHITECT AND STRUCTURAL ENGINEER.
   b. CAST-IN-PLACE CONCRETE
      1) THE AGENCY SHALL INSPECT THE FORMWORK AND REINFORCING STEEL PLACEMENT FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS AND SHOP DRAWINGS. THE AGENCY SHALL MONITOR ALL STRUCTURAL CONCRETE PLACEMENT FOR CONFORMANCE WITH APPLICABLE ACI REQUIREMENTS.
      2) SAMPLE FRESH CONCRETE IN ACCORDANCE WITH ASTM C172. MOLD TEST CYLINDERS IN ACCORDANCE WITH ASTM C31. RECORD AIR AND CONCRETE TEMPERATURES, AIR CONTENT AND SLUMP.
      3) A MINIMUM OF FIVE TEST CYLINDERS SHALL BE CAST FOR EACH DAY'S POUR OR EACH 50 CUBIC YARDS, WHICHEVER RESULTS IN MORE TEST CYLINDERS.
      4) THE AGENCY WILL MAKE ADDITIONAL TESTS OF IN-PLACE CONCRETE AT THE CONTRACTOR'S EXPENSE WHEN THE TEST RESULTS INDICATE SPECIFIED CONCRETE STRENGTHS HAVE NOT BEEN ATTAINED, AS DIRECTED BY THE STRUCTURAL ENGINEER.
      5) FLOOR SLAB FLATNESS AND LEVELNESS SHALL BE TESTED IN ACCORDANCE WITH ASTM E1155 AS THE WORK PROGRESSES. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE TESTING AGENCY.
      6) DELIVERY TICKETS SHALL BE PROVIDED WITH EVERY TRUCKLOAD OF CONCRETE. TICKETS SHALL INDICATE ALL MATERIALS AND THEIR WEIGHTS FOR THAT LOAD.

F. STRUCTURAL STEEL

1. DESIGN STANDARDS
   a. "STEEL CONSTRUCTION MANUAL", FIFTEENTH EDITION, AISC (INCLUDING "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC 360, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", RCSC, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", AISC.)
   b. "DETAILING FOR STEEL CONSTRUCTION", AISC.
   c. "STRUCTURAL WELDING CODE - STEEL", AWS D1.1.
2. MATERIALS
   a. CHANNELS, ANGLES AND PLATES — ASTM A36, Fy = 36 KSI
   b. HEADED SHEAR STUDS — ASTM A108, GRADE 1015 OR 1020
   c. WELDING ELECTRODES — AWS A5.1 OR A5.5, E70XX
3. GENERAL
   a. THE CONTRACTOR SHALL DESIGN AND INSTALL ALL NECESSARY TEMPORARY SUPPORTS, GUYING AND OTHER BRACING TO PROVIDE LATERAL STABILITY OF THE STRUCTURE UNTIL ALL PERMANENT STRUCTURAL ELEMENTS, INCLUDING SHEAR WALLS AND BRACING ARE ATTACHED AND CAPABLE OF SUPPORTING LOADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION PROCEDURES.
   b. ALL STEEL AT AND BELOW FINISHED GRADE OR SLAB ON GROUND ELEVATION SHALL RECEIVE (2) COATS OF BITUMINOUS PAINT COMPLYING WITH ASTM D1187 OR BE ENCASED IN CONCRETE WHICH PROVIDES A MINIMUM 3" OF COVER.
   c. EXCEPT FOR STEEL ENCASED IN CONCRETE OR SPRAY-ON FIREPROOFING, ALL STEEL SHALL BE CLEANED (SSPC-SP3 FOR INTERIOR EXPOSURE AND SSPC-SP6 FOR EXTERIOR EXPOSURE) AND PAINTED WITH AN APPROVED CORROSION RESISTANT PRIMER. TOUCH-UP ALL FIELD WELDS AND ABRADED AREAS WITH SHOP PRIMER.
   d. ALL STRUCTURAL STEEL THAT IS LOCATED IN EXTERIOR UNHEATED SPACES, INCLUDING STEEL DIRECTLY EXPOSED TO WEATHER, SHALL BE POWER TOOL CLEANED AND PAINTED WITH (3) COATS OF OIL BASE PAINT IN ACCORDANCE WITH SSPC-PS 1.09.
   e. THE GENERAL CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
   f. GAS CUTTING TORCHES SHALL NOT BE USED TO CORRECT FABRICATION ERRORS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
   g. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE IN ACCORDANCE WITH THE AISC AND AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING IS TO BE REPLACED OR ACCEPTABLY REINFORCED AS ACCEPTABLE TO THE STRUCTURAL ENGINEER.
   h. WELDERS SHALL HAVE CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS. THE ENGINEER MAY REQUEST SUCH EVIDENCE AT ANY TIME DURING THE PROJECT.
4. INSPECTION AND TESTING
   a. THE OWNER WILL ENGAGE A TESTING AND INSPECTION AGENCY TO PROVIDE SERVICES AS INDICATED BELOW AND SUBMIT REPORTS TO THE ARCHITECT AND ENGINEER.
   b. STRUCTURAL STEEL:
      1) VISUALLY INSPECT ALL FILLET WELDS.
      2) 10% OF ALL FIELD FILLET WELDS SHALL BE TESTED BY THE MAGNETIC PARTICLE METHOD.
      3) TEST ANY WELD WHICH VISUAL EXAMINATION INDICATES AN UNUSUAL CONDITION AND/OR POOR QUALITY.
      4) WELDING INSPECTION AND TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH THE AWS CODE.

G. SPECIAL INSPECTION

1. SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 1704 OF THE 2018 INTERNATIONAL BUILDING CODE FOR THE FOLLOWING ITEMS:
   a. BUILDING PAD/EARTHWORK PREPARATION.
   b. INSTALLATION OF EMBED PLATES IN CONCRETE.
   c. REINFORCED CONCRETE AND REINFORCING STEEL PLACEMENT, EXCLUDING SLAB-ON-GROUND CONSTRUCTION.
   d. FIELD WELDING.

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4/29/2022

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Certificate Number: E-2005005585-F

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checked by : MEB

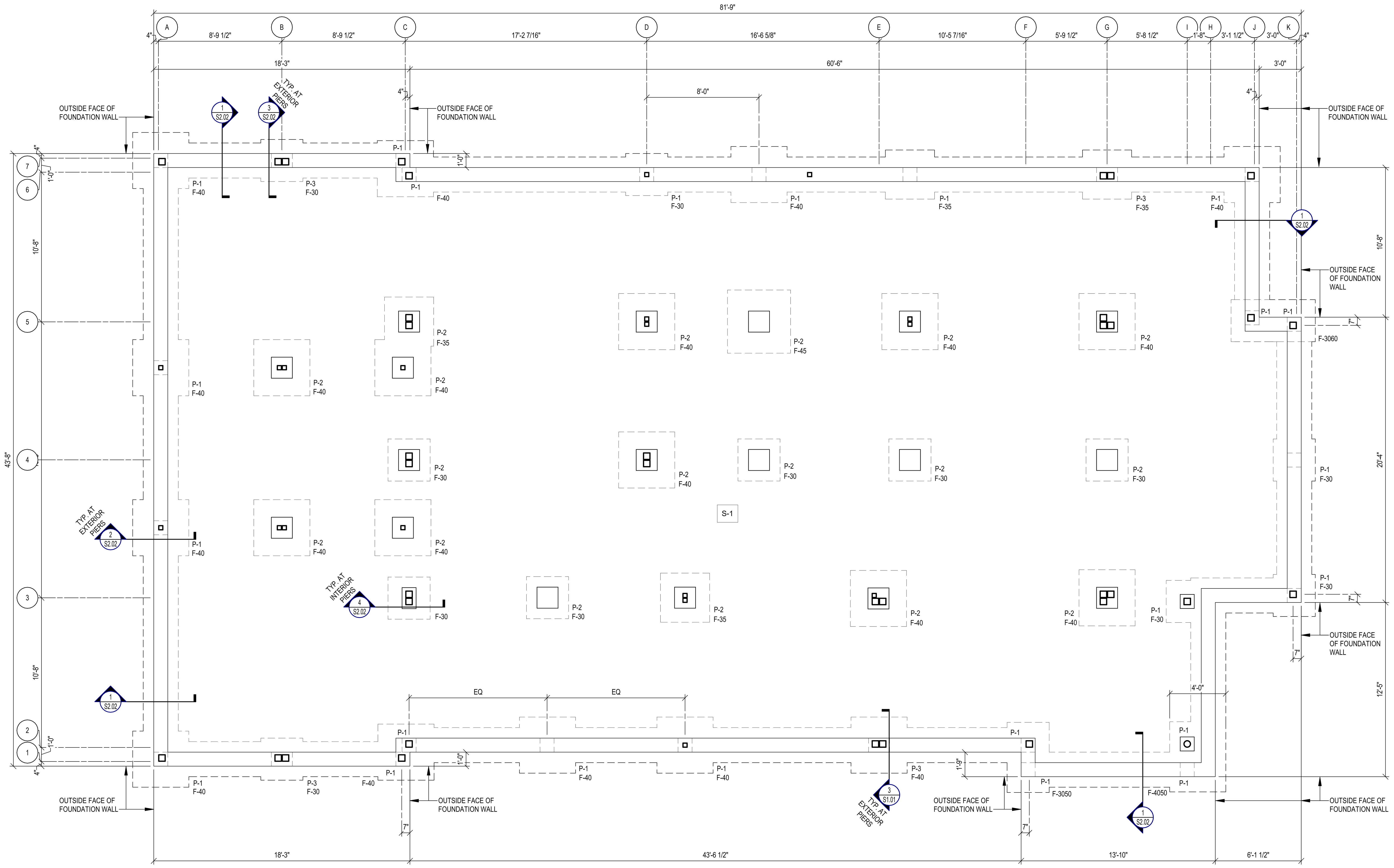
ISSUE : CONSTRUCTION DOCUMENTS
ISSUE DATE : 29 APRIL 2022
REVISIONS :

#	Description:	Date:
0	ISSUED FOR PERMIT	04/29/22

scale : 12" = 1'-0"
project number : 101161

GENERAL STRUCTURAL NOTES

sheet no. : S0.01



FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

NORTH

PLAN NOTES

1. TOP OF FINISHED FIRST FLOOR ELEVATION = (XXX.X') = REFERENCE ELEVATION (0'-0") UNLESS NOTED.
2. ALL ELEVATIONS INDICATED ON THE DRAWINGS ARE TAKEN FROM REFERENCE ELEVATION.
3. (-x'-x") INDICATES TOP OF FOOTING ELEVATION. STEP FOOTING AS REQUIRED PER DETAIL E/S2.01.
4. TOP OF INTERIOR FOOTING ELEVATION = (-5'-10 1/2") UNLESS NOTED.
5. TOP OF EXTERIOR FOOTING ELEVATION = (-5'-10 1/2") UNLESS NOTED.
6. TOP OF PIER AND PERIMETER FOUNDATION WALL ELEVATION = [-1'-2 1/2"] UNLESS NOTED.
7. TOP OF CRAWL SPACE SLAB = (-5'-2 1/2") UNLESS NOTED.
8. ALL PIERS, COLUMNS AND FOOTINGS SHALL BE CENTERED ON COLUMN LINES UNLESS DIMENSIONED OR DETAILED OTHERWISE.
9. SEE S0.01 FOR GENERAL STRUCTURAL NOTES.
10. REFER TO ARCHITECTURAL DRAWINGS FOR HOUSEKEEPING PADS, FLOOR SLOPES, FLOOR RECESSES, SLAB INSERTS, ACCESS FLOOR LAYOUT AND DETAILS, ETC. SEE MECHANICAL DRAWINGS FOR FLOOR DRAIN AND CLEANOUT LOCATIONS.
11. REFER TO ARCHITECTURAL DRAWINGS FOR EXTERIOR STAIR LAYOUT, DIMENSIONS AND LOCATIONS.
12. REFER TO SITE AND MEP DRAWINGS FOR UNDERGROUND UTILITY LOCATIONS. COORDINATE FOUNDATION INSTALLATION WITH UTILITIES. STEP FOOTING AS REQUIRED. SEE DETAIL F/S2.01.
13. REFER TO SITE AND ARCHITECTURAL DRAWINGS FOR LOCATION OF ATM FOUNDATION. SEE SECTIONS ON S2.02.

COLUMN AND FOOTING KEY

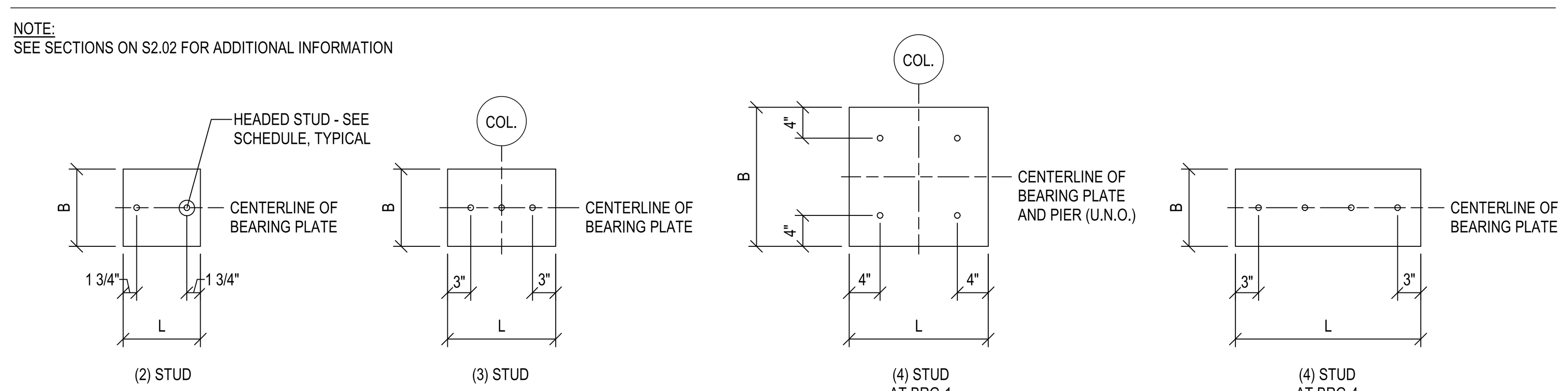
PIER MARK (IF OCCURS) (SEE SCHEDULE THIS SHEET) — P-x
TOP OF PIER ELEVATION IF DIFFERENT FROM TYPICAL — [-x'-x"]
FOOTING MARK (SEE SCHEDULE THIS SHEET) — F-x
TOP OF FOOTING ELEVATION IF DIFFERENT FROM TYPICAL — (-x'-x")

BEAM BEARING PLATE SCHEDULE

MARK	SIZE (BxL)	THICKNESS	HEADED STUDS	EMBED DEPTH	REMARKS
BRG-1	16"x16"	1"	(4) 3/4" DIA.	8"	TO BE USED WITH PIERS "P-2" (U.N.O.)
BRG-2	7 1/2"x 7 1/2"	1"	(2) 3/4" DIA.	8"	TO BE USED WITH PIERS "P-1" (U.N.O.)
BRG-3	7 1/2"x 15"	1"	(3) 3/4" DIA.	12"	TO BE USED WITH PIERS "P-3" (U.N.O.)
BRG-4	7 1/2"x 24"	1"	(4) 3/4" DIA.	12"	TO BE USED WITH "P-4"

BEAM BEARING PLATE STUD CONFIGURATIONS

NOTE:
SEE SECTIONS ON S2.02 FOR ADDITIONAL INFORMATION



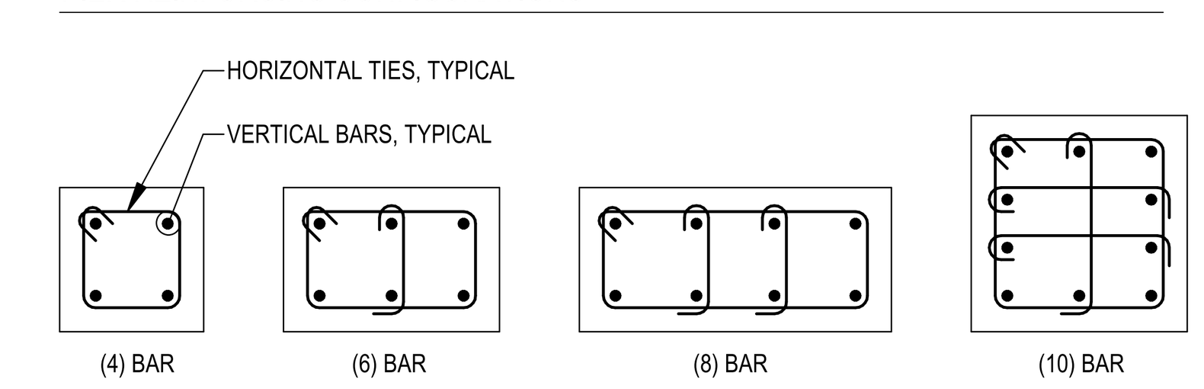
FLOOR SLAB LEGEND

TYPE	DESCRIPTION
S-1	3" THICK CONCRETE SLAB UNREINFORCED ON 10 MIL BLACK POLYFILM ON 4" CRUSHED STONE
S-2	6" THICK CONCRETE SLAB REINFORCED WITH 4x4-W4.0xW4.0 WWR ON 10 MIL BLACK POLYFILM ON 6" CRUSHED STONE

PIER SCHEDULE

PIER MARK	PIER SIZE WIDTH	PIER SIZE LENGTH	VERTICAL REINFORCEMENT	HORIZONTAL TIES	REMARKS
P-1	1'-0"	1'-0"	(4) #6 BARS	#3 BARS AT 8"O.C.	
P-2	1'-6"	1'-6"	(10) #6 BARS	#3 BARS AT 8"O.C.	
P-3	1'-0"	1'-6"	(6) #6 BARS	#3 BARS AT 8"O.C.	

PIER REINFORCING CONFIGURATIONS



COLUMN FOOTING SCHEDULE

MARK	DIMENSIONS WIDTH	DIMENSIONS LENGTH	DIMENSIONS DEPTH	REINFORCEMENT	REMARKS
F-30	3' - 0"	3' - 0"	1' - 0"	(3) #5 BARS E.W. BOTTOM	
F-35	3' - 6"	3' - 6"	1' - 0"	(3) #5 BARS E.W. BOTTOM	
F-40	4' - 0"	4' - 0"	1' - 0"	(4) #5 BARS E.W. BOTTOM	
F-45	4' - 6"	4' - 6"	1' - 0"	(4) #5 BARS E.W. BOTTOM	
F-3050	3' - 0"	5' - 0"	1' - 0"	(3) #5 BARS L.W., (5) #5 BARS S.W. BOTTOM	
F-3060	3' - 0"	6' - 0"	2' - 0"	(3) #5 BARS L.W., (6) #5 BARS S.W. TOP & BOTTOM	
F-4050	4' - 0"	5' - 0"	1' - 0"	(4) #5 BARS L.W., (5) #5 BARS S.W. BOTTOM	

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NUMBER PE-2022001734
PROFESSIONAL ENGINEER
4/29/2022

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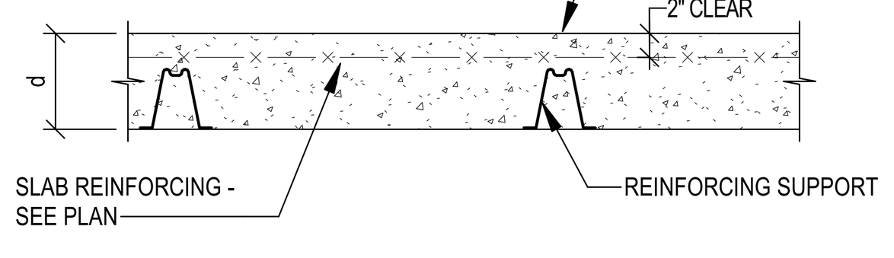
scale : As indicated
project number : 101161

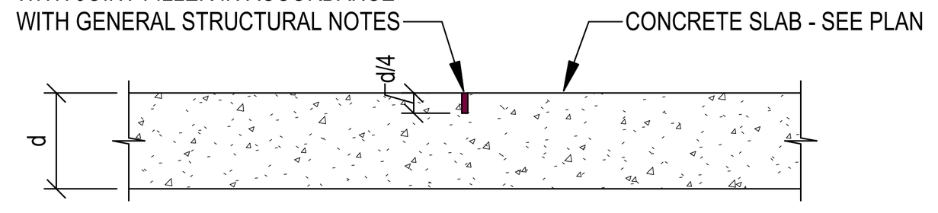
FOUNDATION PLAN AND SCHEDULES

sheet no. : S1.01

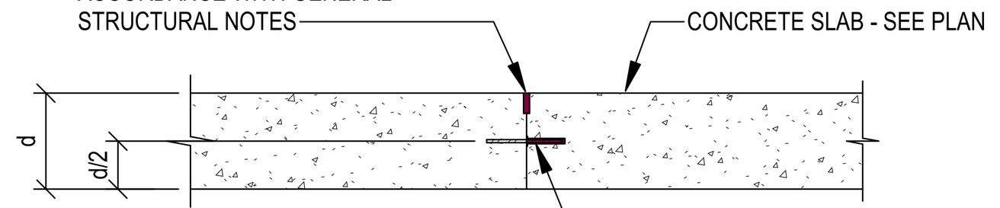


TYPICAL WWR REINFORCED SLAB SECTION

REINFORCEMENT NOTES:
1. REINFORCEMENT SHALL NOT CONTINUE THROUGH CONSTRUCTION JOINTS UNLESS OTHERWISE NOTED.
2. PLACE AND SUPPORT REINFORCEMENT PRIOR TO CONCRETE PLACEMENT TO MAINTAIN LOCATION, DURING CONCRETE PLACEMENT, SHOWN ON THESE DETAILS AND WITHIN TOLERANCES INDICTATED IN ACI 117. REINFORCEMENT SUPPORT SHALL CONFORM TO CRSI RB4.1.
3. CONCRETE BRICKS ARE NOT ACCEPTABLE FOR REINFORCING SUPPORT IN SLABS.
4. WWR W4.0/D4.0 AND SMALLER SHALL HAVE CONTINUOUS SUPPORT. THE CONTINUOUS SUPPORT SHALL NOT EXCEED 12 INCHES PERPENDICULAR TO THE DIRECTION OF SPAN.
5. IF VAPOR RETARDER/BARRIER IS PRESENT, REINFORCEMENT SUPPORTS SHALL NOT DAMAGE VAPOR RETARDER/BARRIER. PROVIDE CONTINUOUS PLATES ON BOTTOM OF BOLSTERS AND PROVIDE PLATES ON INDIVIDUAL CHAIRS.

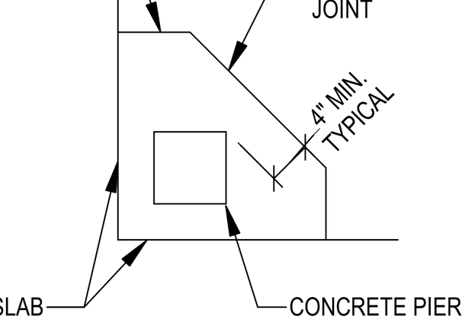


TYPICAL SAWCUT CONTRACTION JOINT

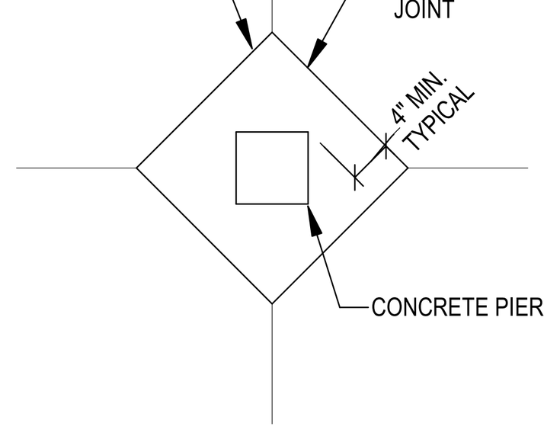


TYPICAL CONSTRUCTION JOINT

A	SLAB ON GROUND JOINTS
S2.01	NO SCALE

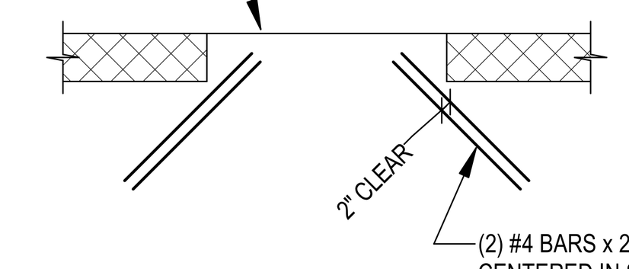


TYPICAL COLUMN AT CORNER OF BUILDING

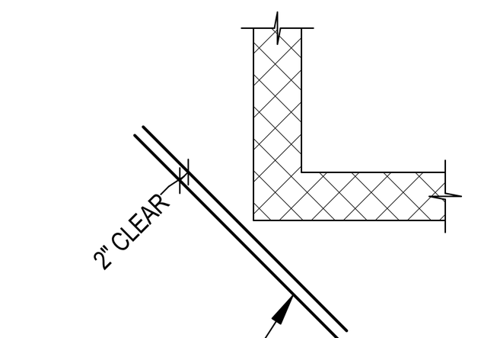


TYPICAL COLUMN AT CENTER OF SLAB

B	COLUMN ISOLATION JOINTS
S2.01	NO SCALE

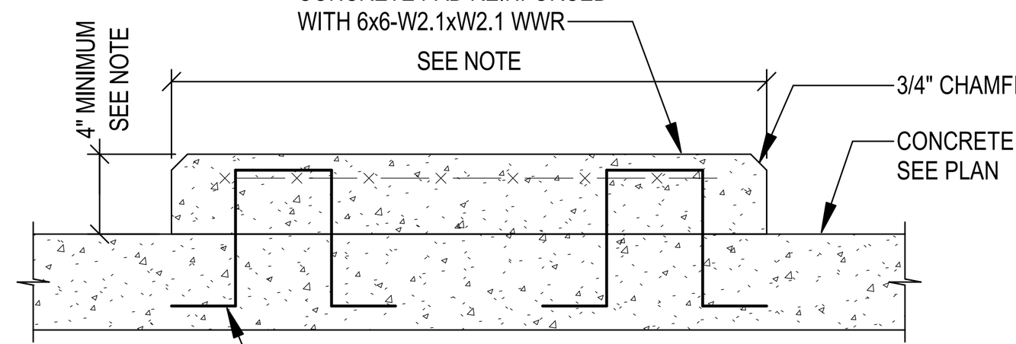


TYPICAL SLAB DETAIL AT WALL OPENING



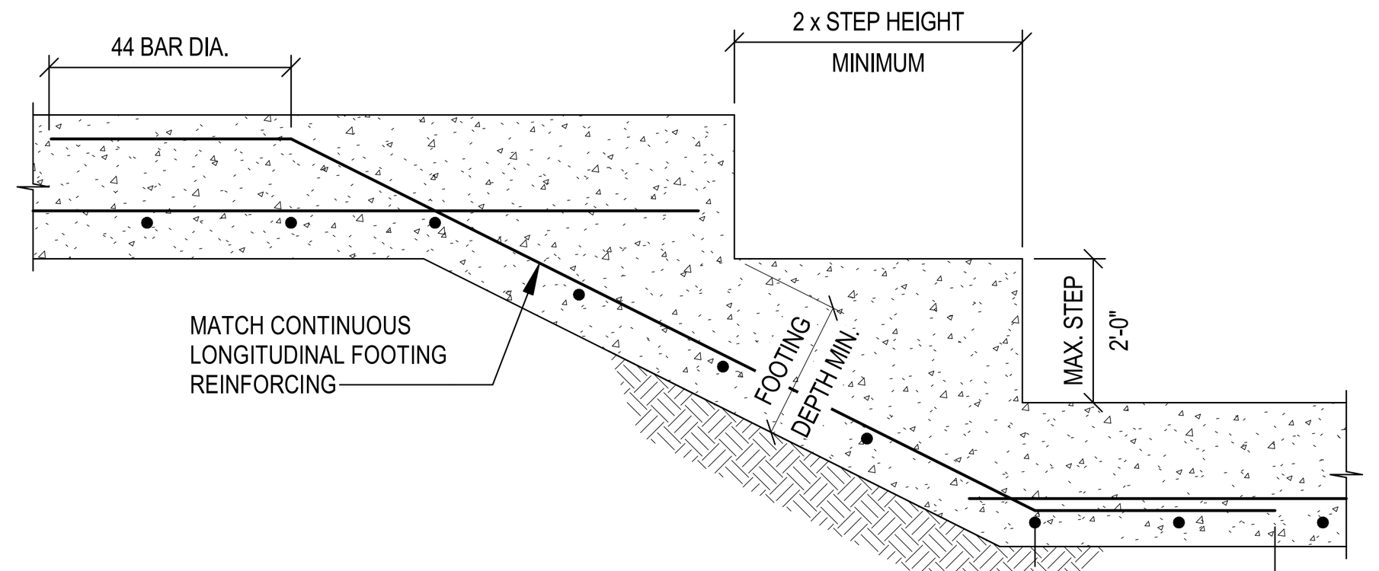
TYPICAL SLAB DETAIL AT RE-ENTRANT WALL CORNER

C	SLAB REINFORCING
S2.01	NO SCALE



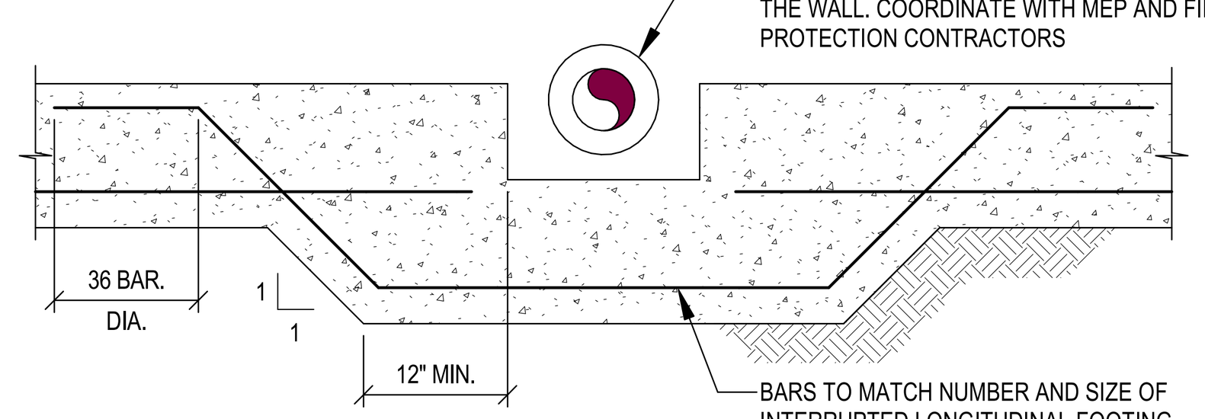
NOTE:
COORDINATE SIZE, HEIGHT AND LOCATION WITH MEP AND FIRE PROTECTION CONTRACTORS

D	HOUSEKEEPING PAD
S2.01	NO SCALE

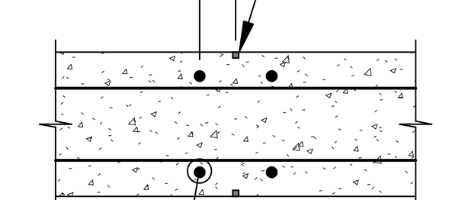


NOTE:
STEPS IN FOOTING ARE LIMITED TO GROUPS OF THREE (STEPS) WITH 8'-0" (MINIMUM) OF HORIZONTAL DISTANCE BETWEEN EACH GROUP.

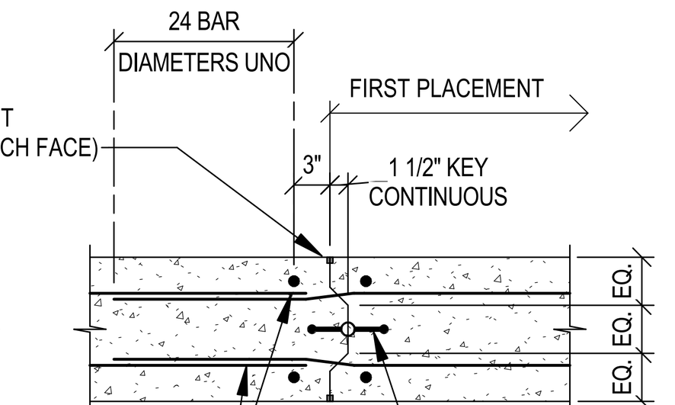
E	STEPPED FOOTING
S2.01	NO SCALE



F	PIPE SLEEVE
S2.01	NO SCALE



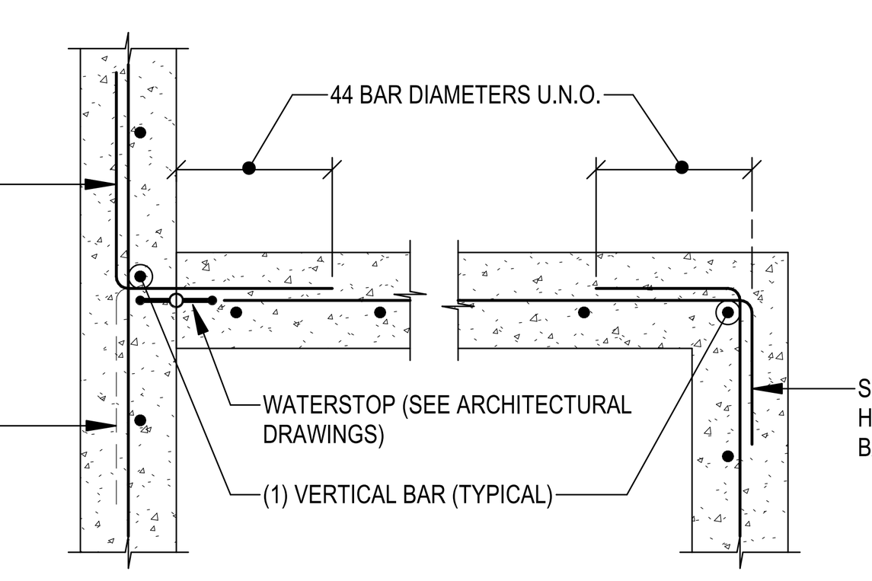
CONTROL JOINT

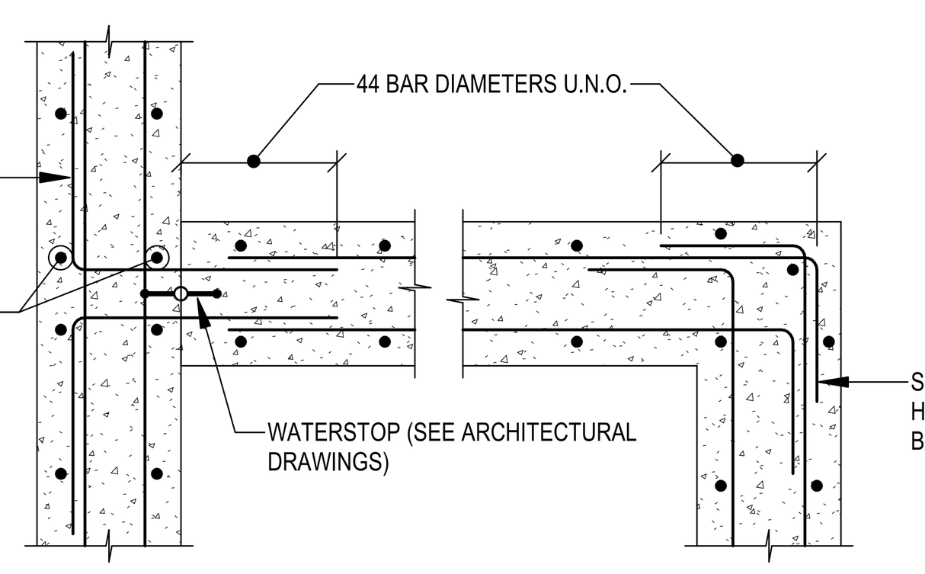


CONSTRUCTION JOINT

NOTES:
1. PROVIDE CONSTRUCTION OR CONTROL JOINTS AT 25'-0" MAXIMUM SPACING INTERVALS.
2. LOCATE FIRST JOINT NO FURTHER THAN 15'-0" FROM CORNER.
3. JOINT LOCATIONS AND DETAILS TO BE APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.

G	CONCRETE WALL JOINTS
S2.01	NO SCALE





NOTES:
1. DOWEL BARS TO BE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.
2. CORNER BARS MAY BE SUBSTITUTED FOR 90° HOOKS ON ENDS OF HORIZONTAL BARS FOR EACH LAYER OF REINFORCING.

H	CONCRETE WALL REINFORCING
S2.01	NO SCALE

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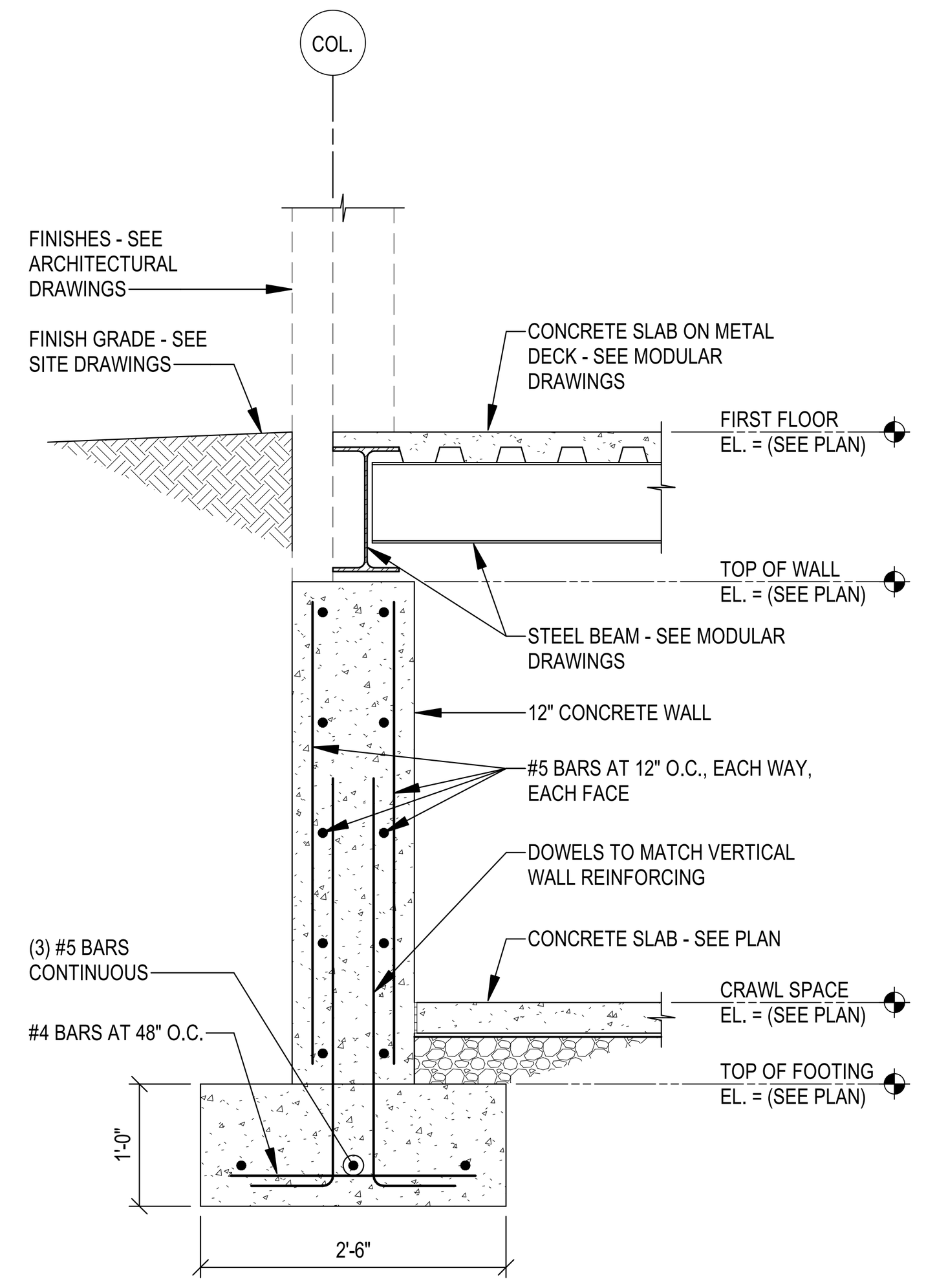
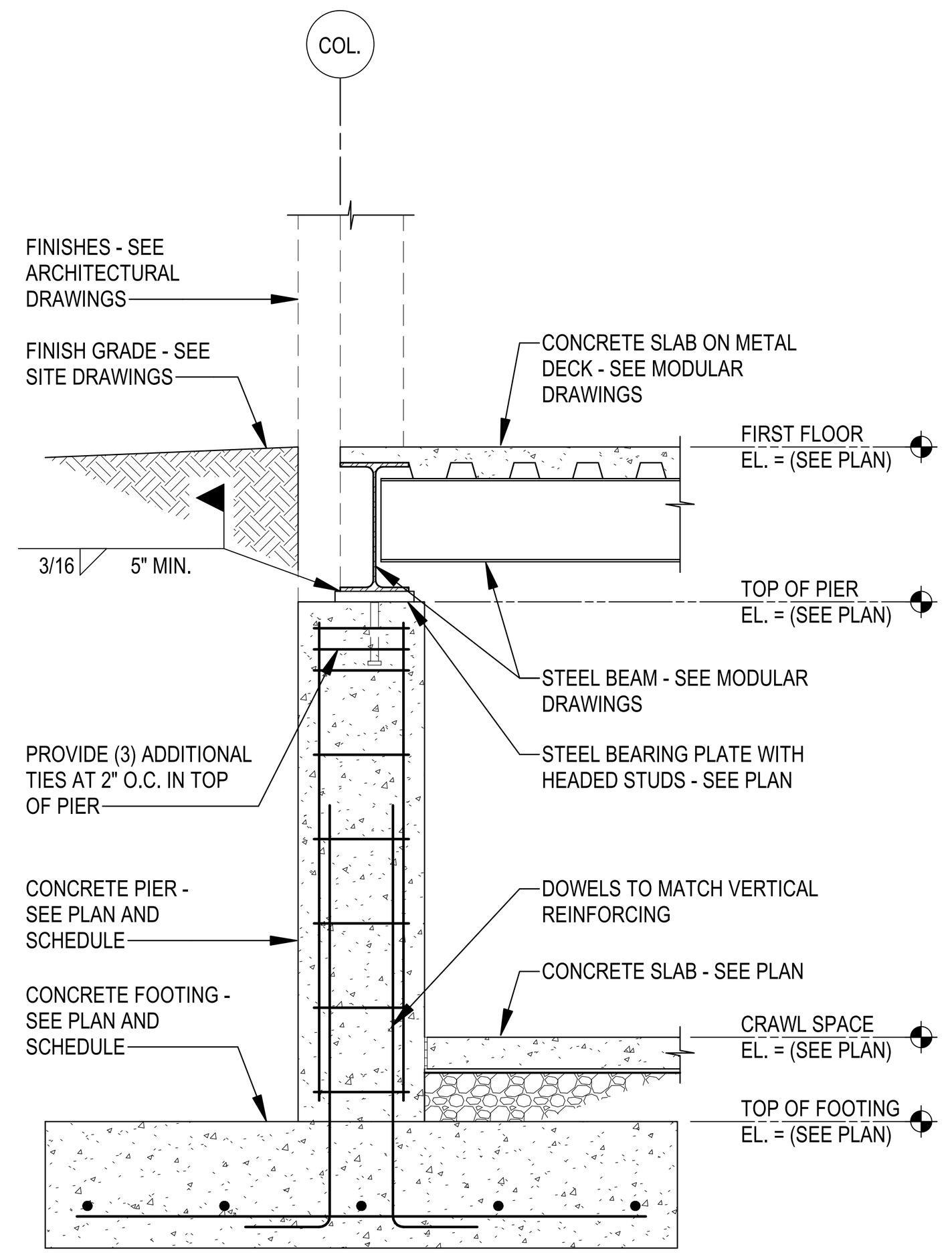
FOUNDATION DETAILS

sheet no. :
S2.01



1 S2.02 **SECTION**
SCALE: 3/4" = 1'-0"



2 S2.02 **SECTION**
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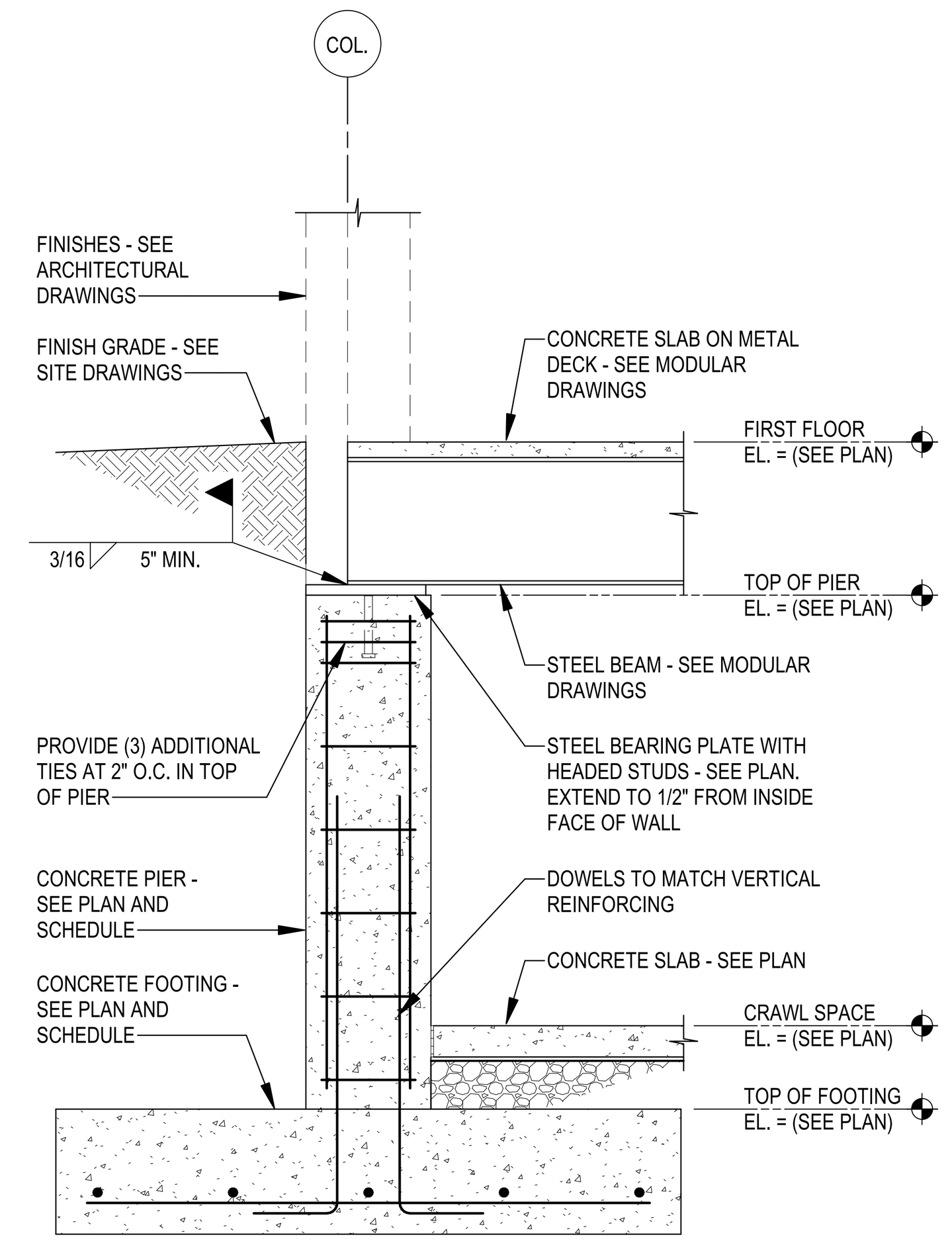

3 S2.02 **SECTION**
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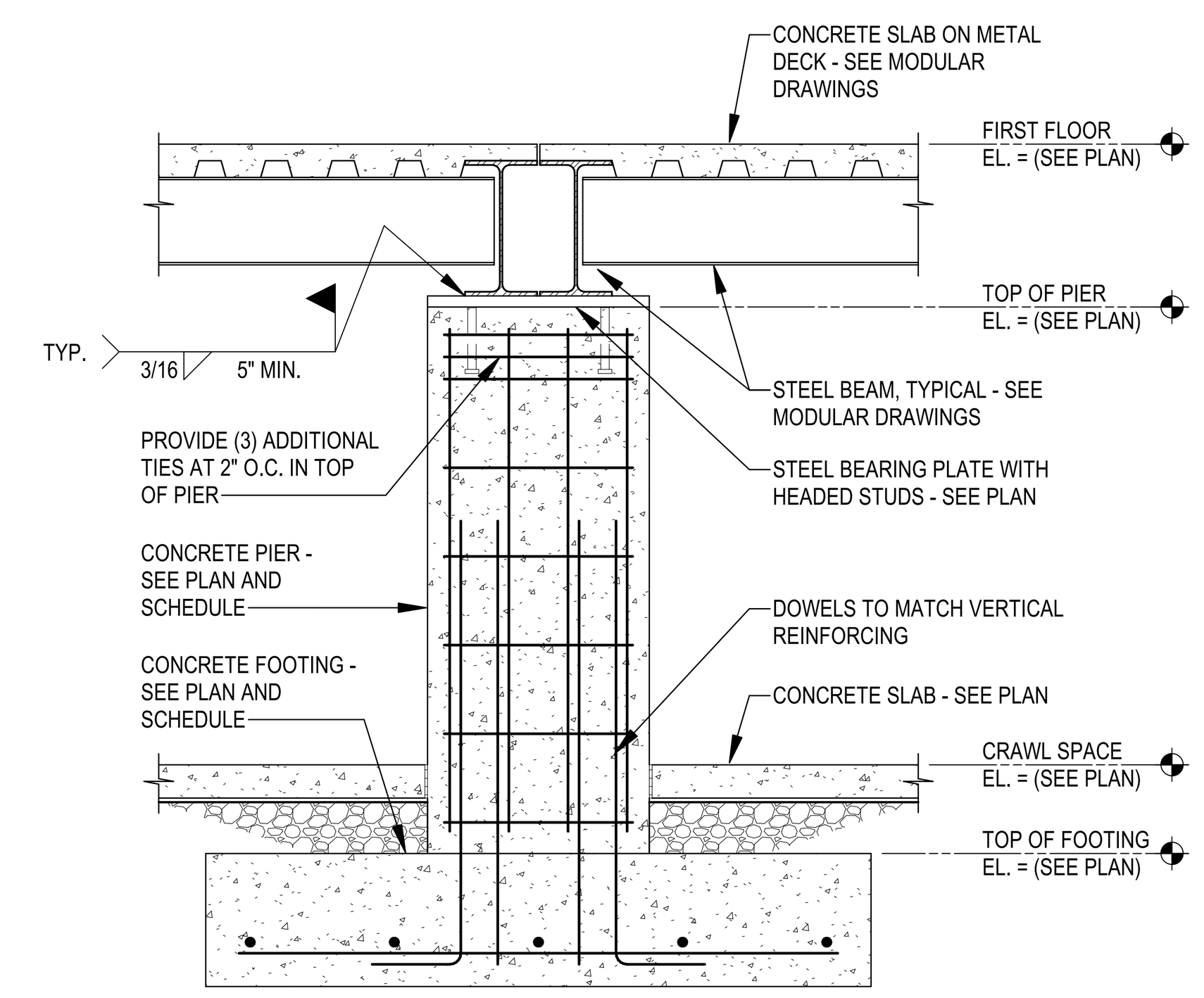

4 S2.02 **SECTION**
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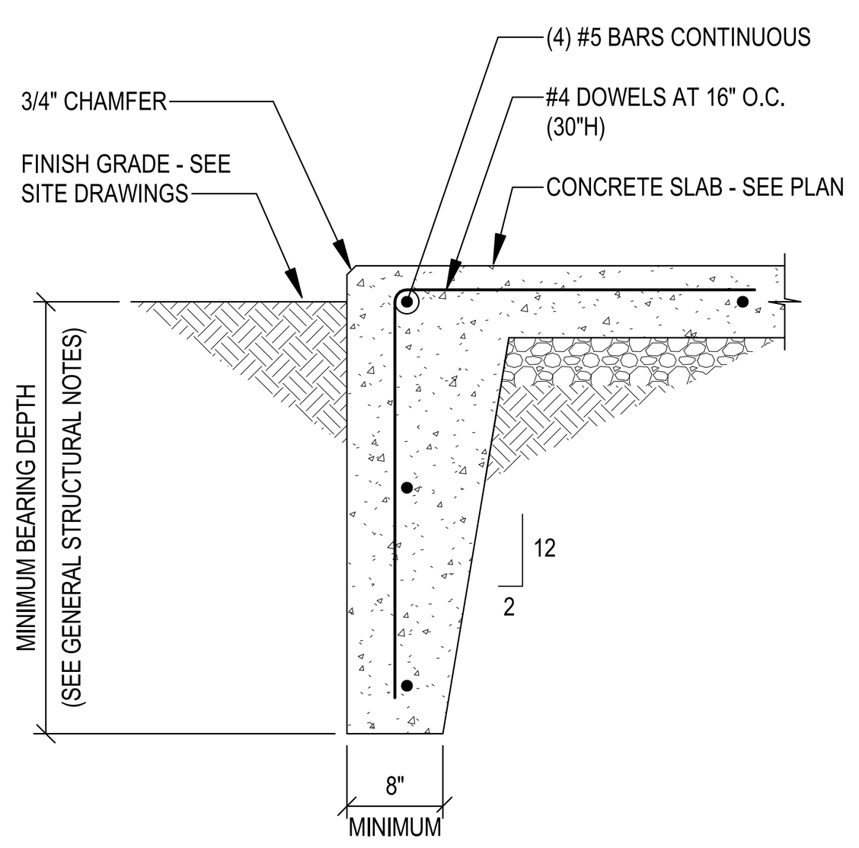

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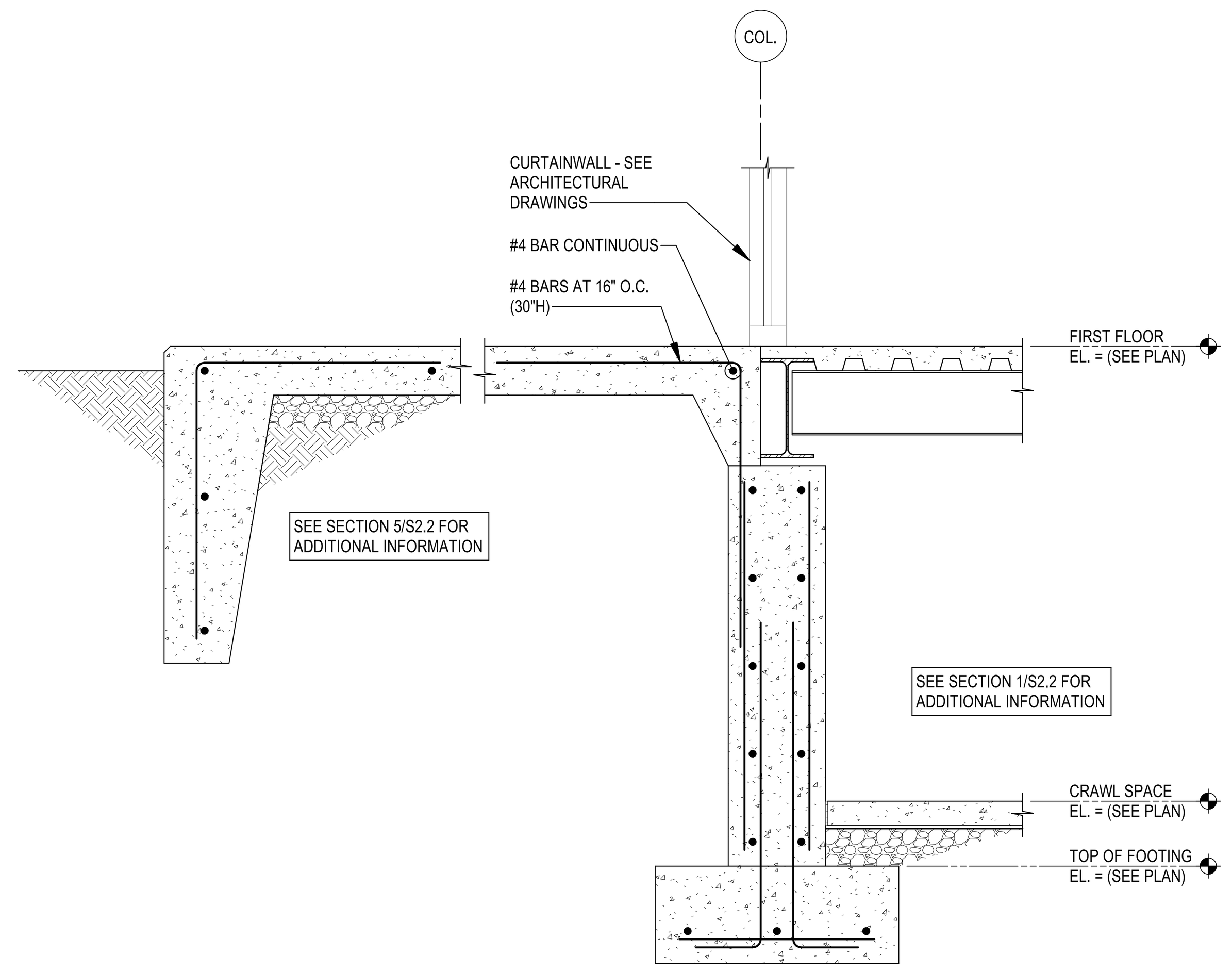
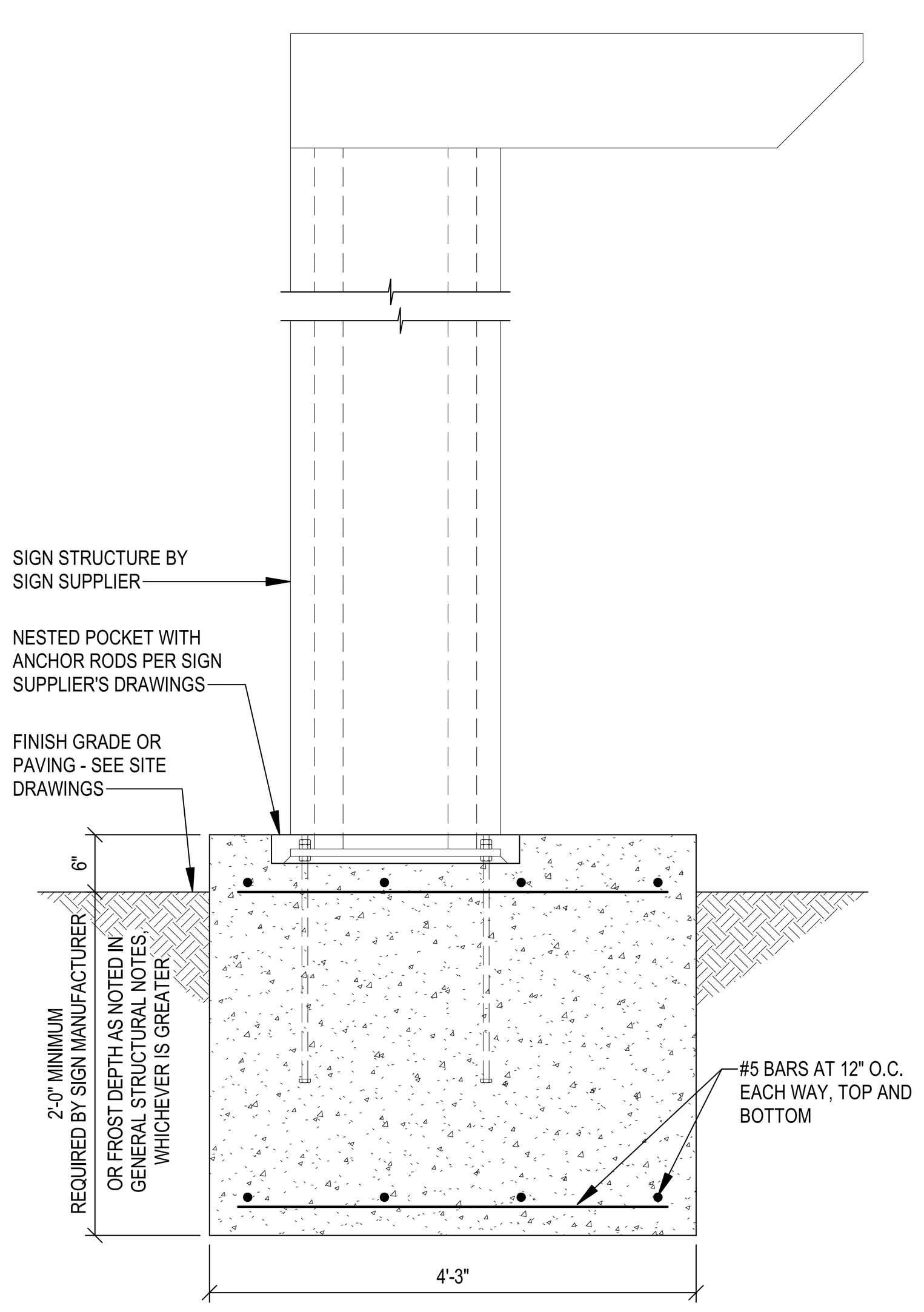
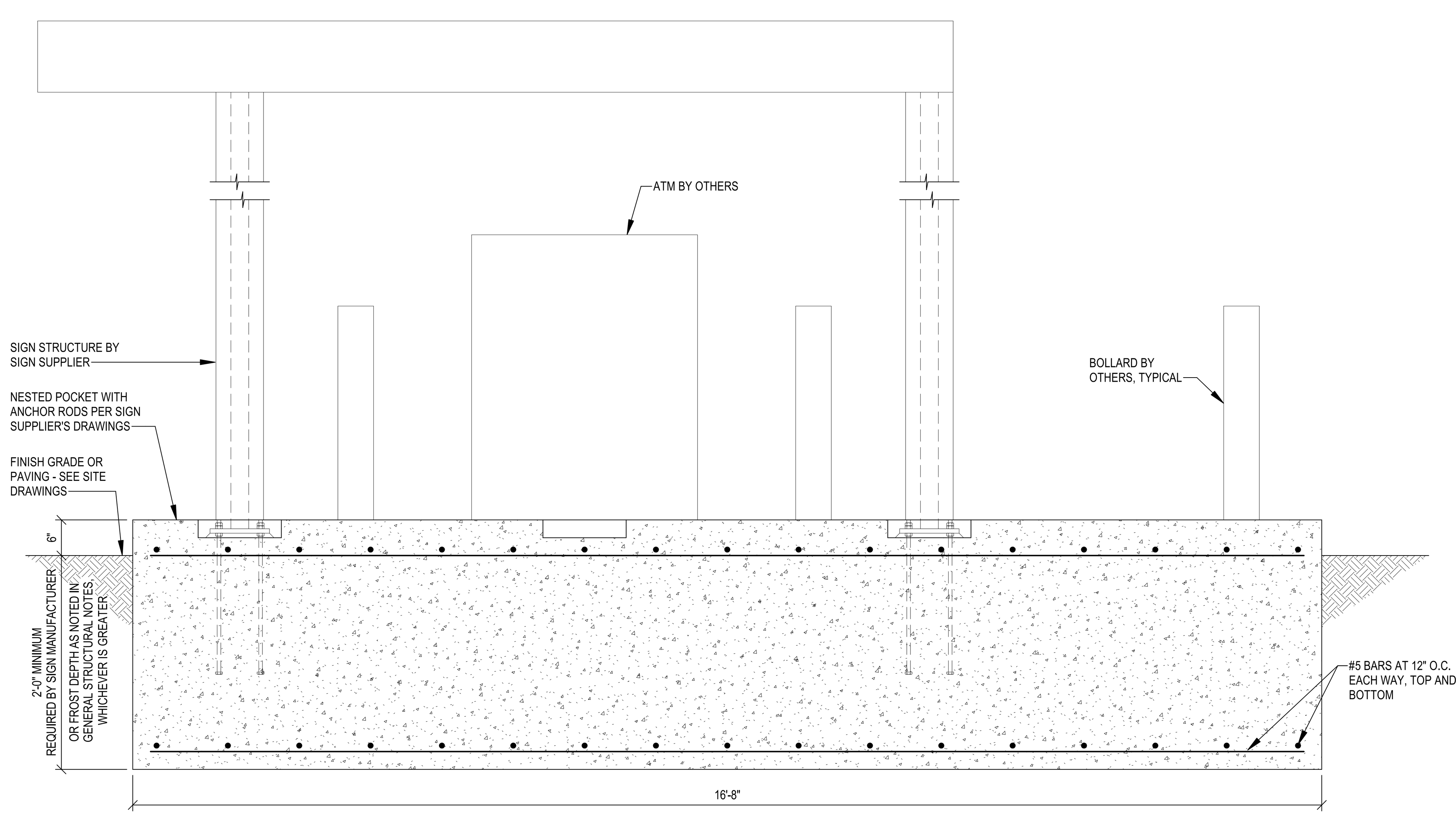


6 S2.02 **SECTION**
SCALE: 3/4" = 1'-0"



NOTES:
1. CONTRACTOR SHALL COORDINATE NESTED POCKETS, ANCHOR RODS, BOLLARDS AND EMBEDDED ELECTRICAL CONDUITS WITH SIGN SUPPLIER'S DRAWINGS PRIOR TO PLACING CONCRETE.
2. REFER TO SITE AND ARCHITECTURAL DRAWINGS FOR LOCATION OF ATM FOUNDATION.

7 S2.02 **SECTION AT ATM**
SCALE: 3/4" = 1'-0"



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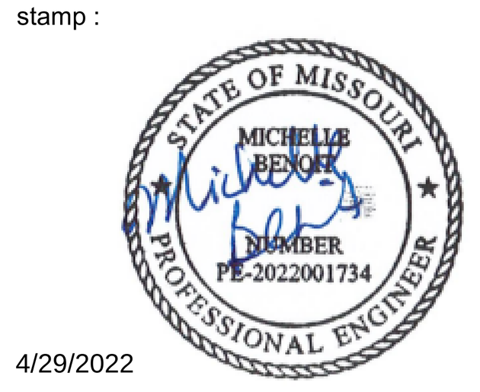

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FOUNDATION SECTIONS

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