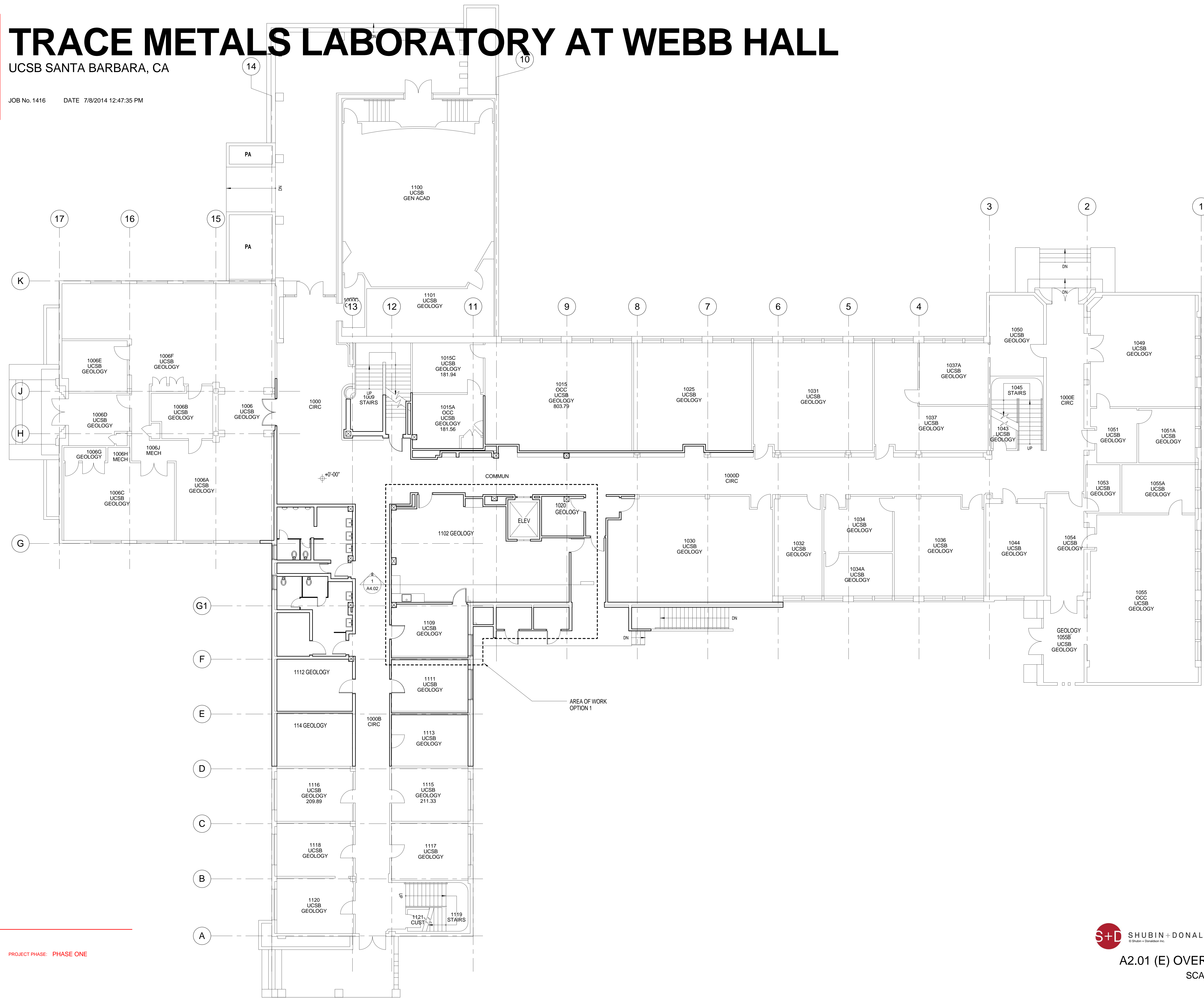


TRACE METALS LABORATORY AT WEBB HALL

UCSB SANTA BARBARA, CA

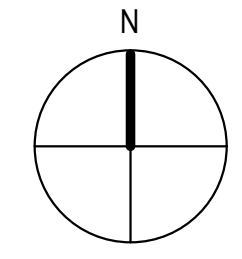
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PROJECT PHASE: PHASE ONE

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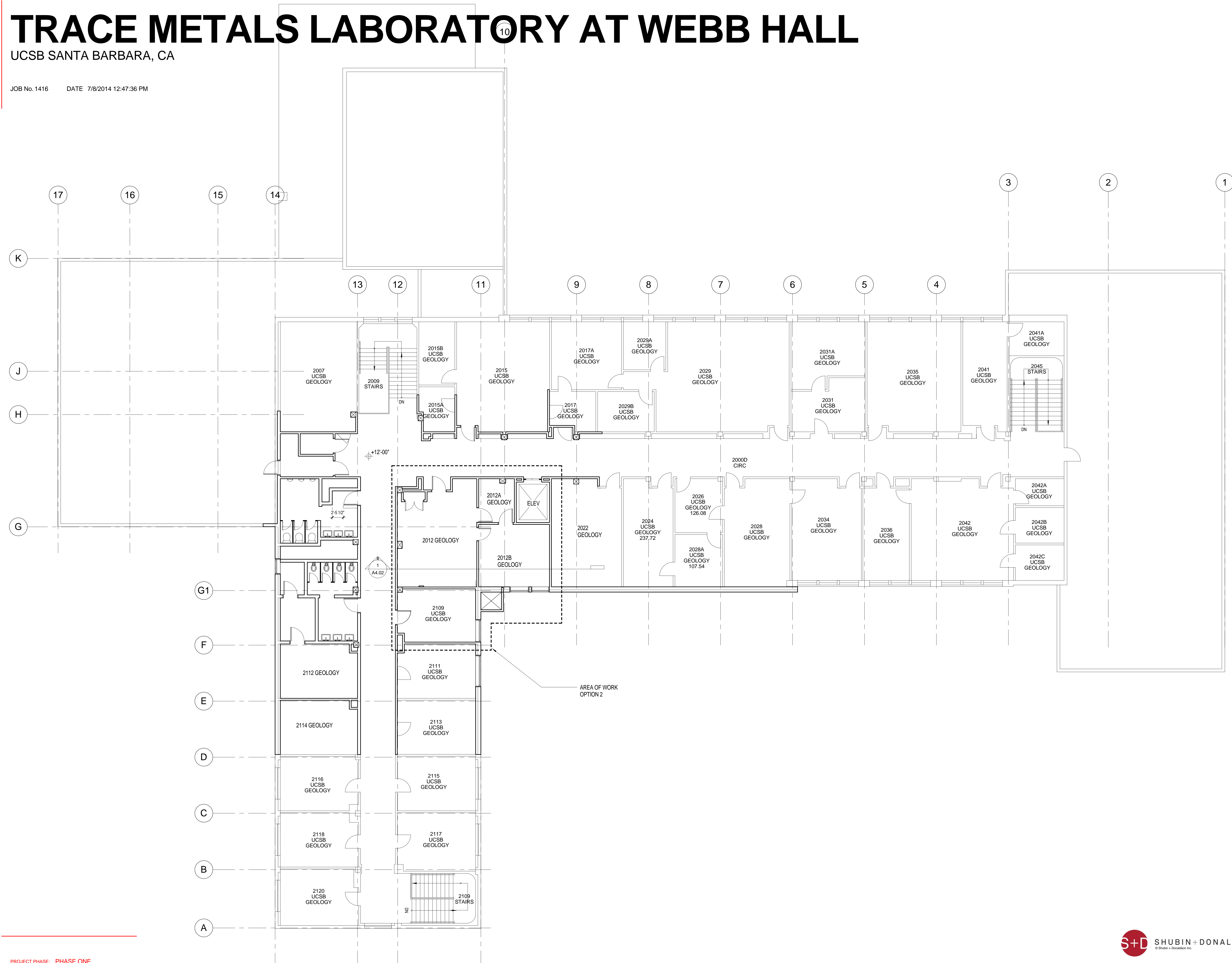
A2.01 (E) OVERALL 1ST FLOOR PLAN
SCALE: 1/8" = 1'-0"



TRACE METALS LABORATORY AT WEBB HALL

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PROJECT PHASE: PHASE ONE

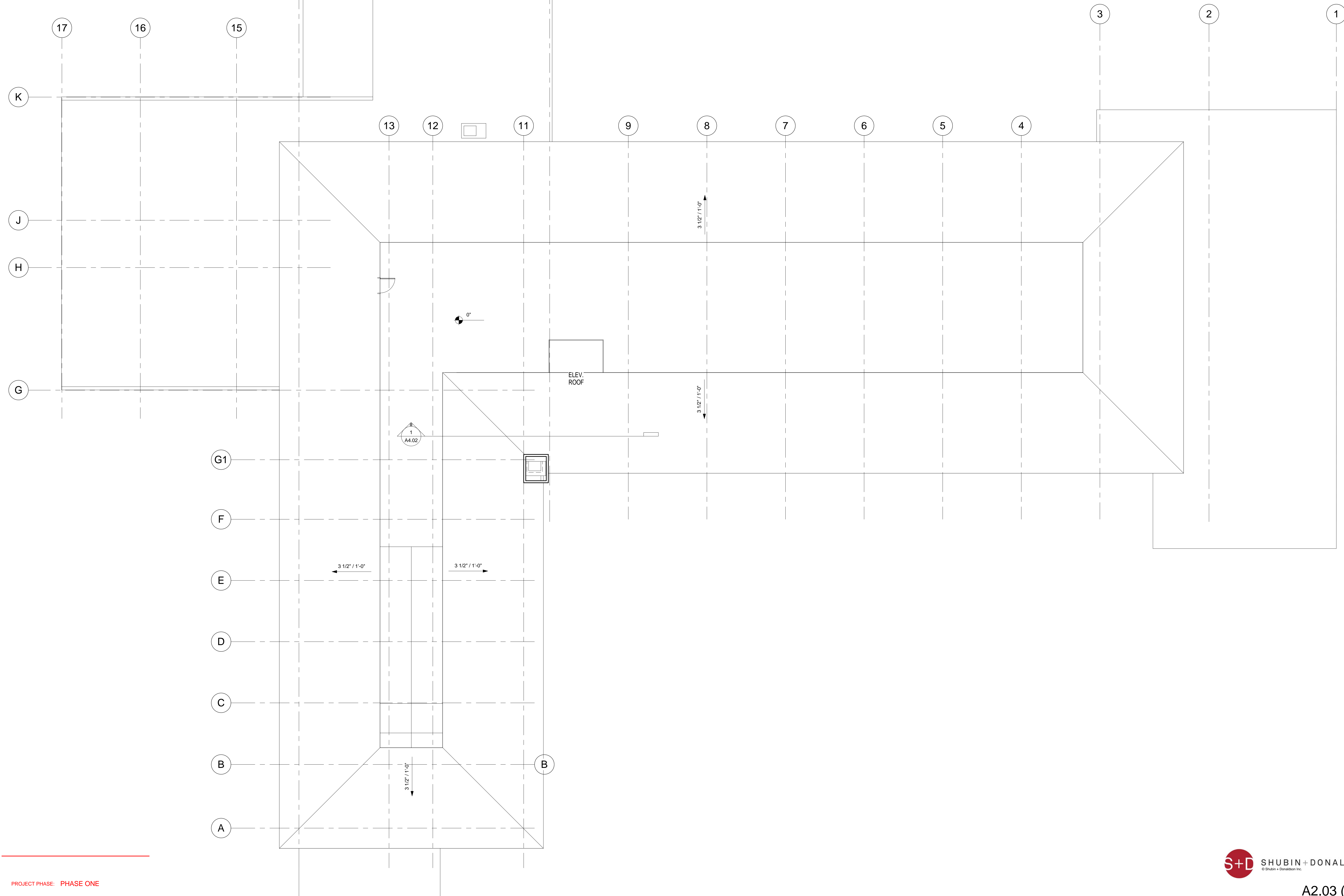
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A2.02 (E) OVERALL 2ND FLOOR PLAN
SCALE: 1/8" = 1'-0"

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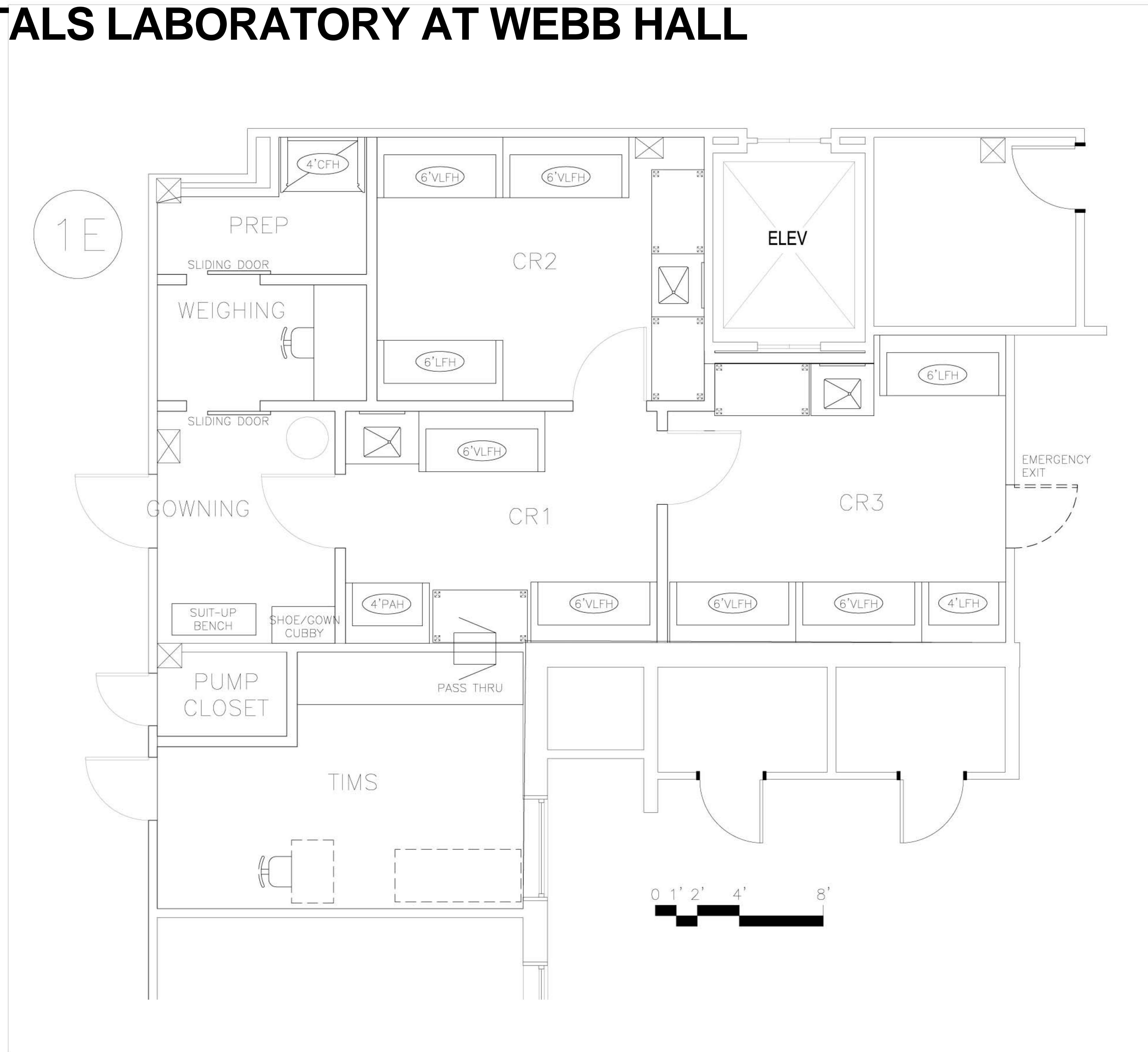
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A2.03 (E) ROOF PLAN
SCALE: 1/8" = 1'-0"

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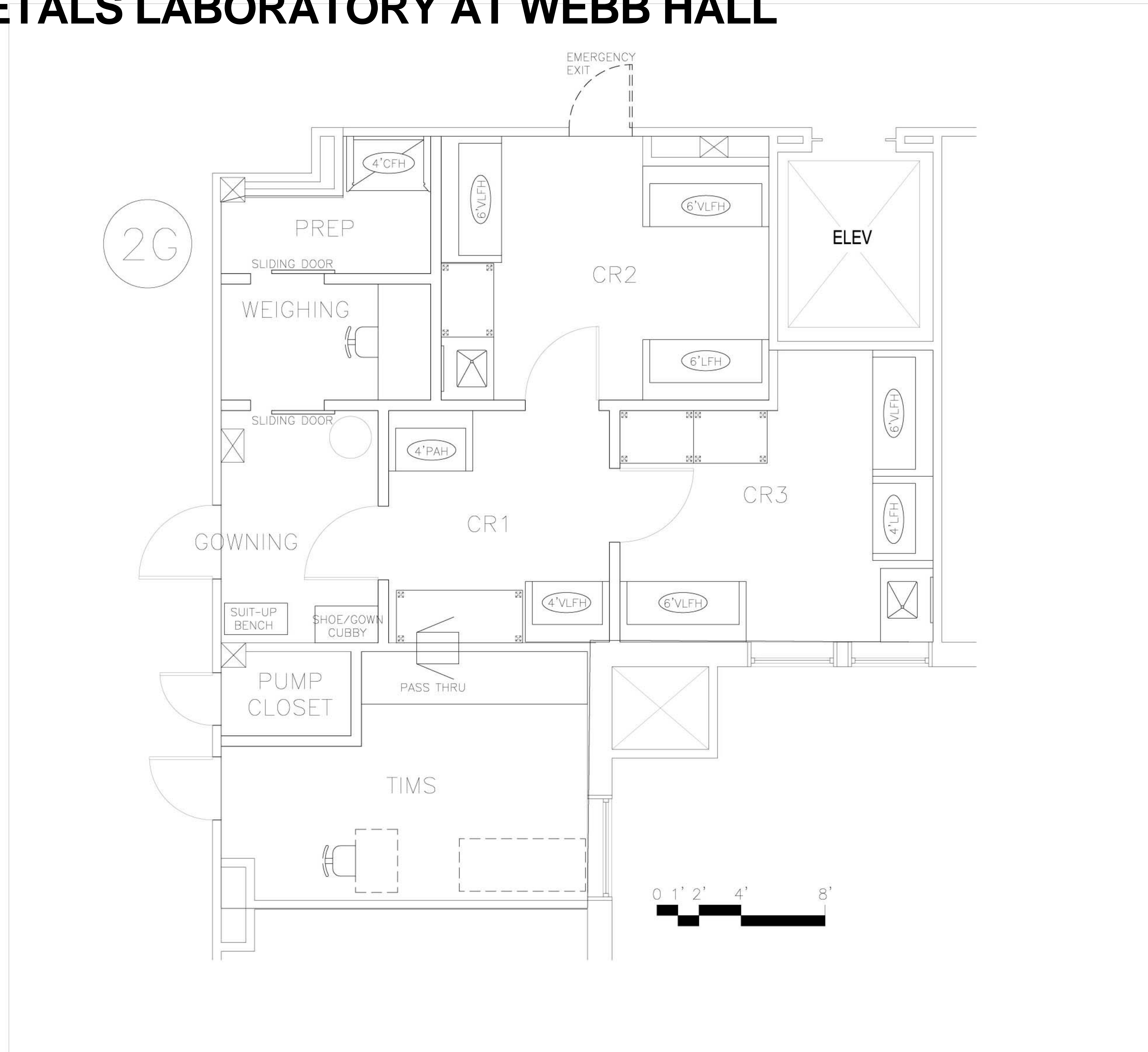


FIRST FLOOR LAB LAYOUT
SCALE: 1/2" = 1'-0"

TRACE METALS LABORATORY AT WEBB HALL

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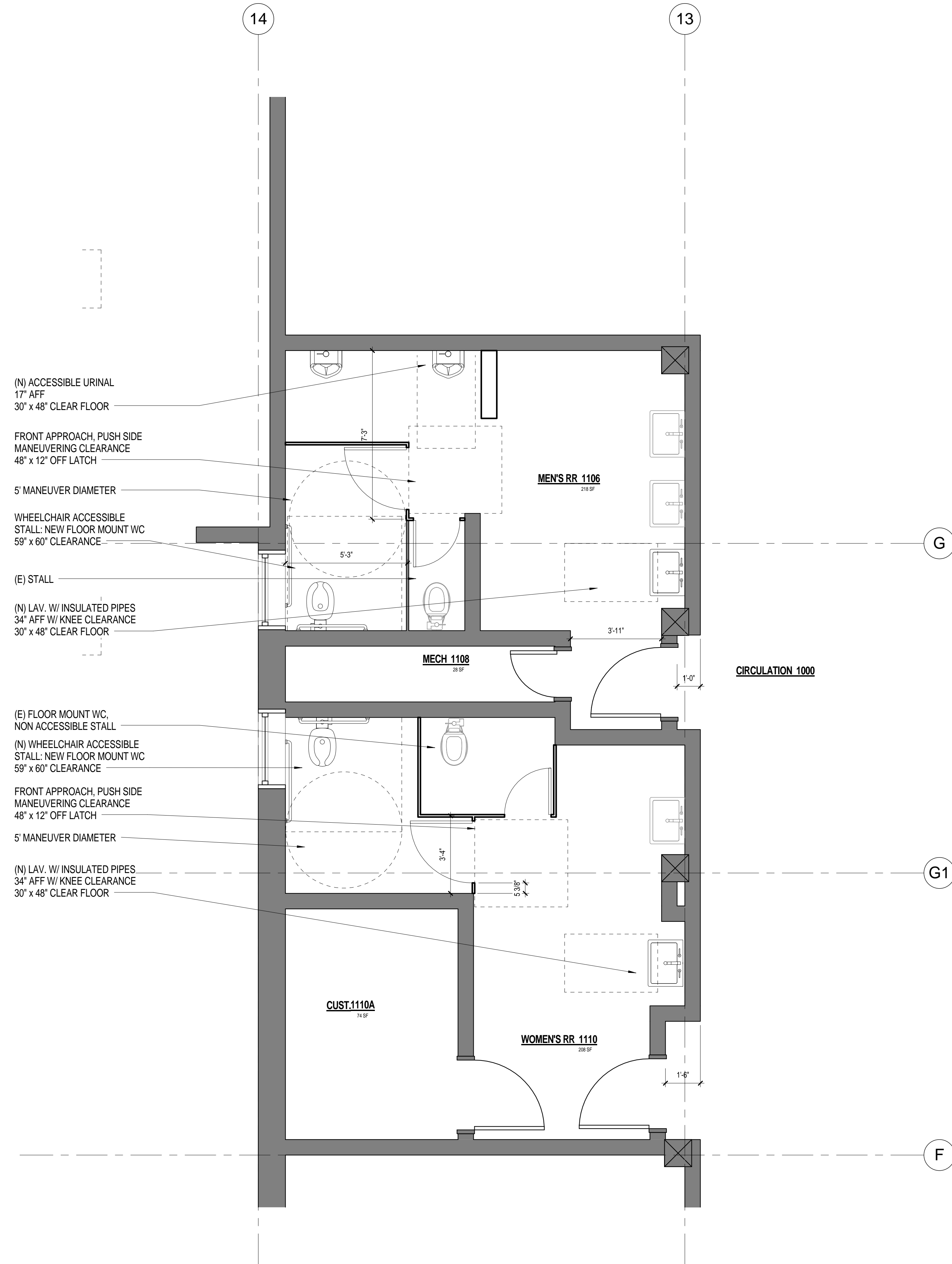
SECOND FLOOR LAB LAYOUT

SCALE: 1/2" = 1'-0"

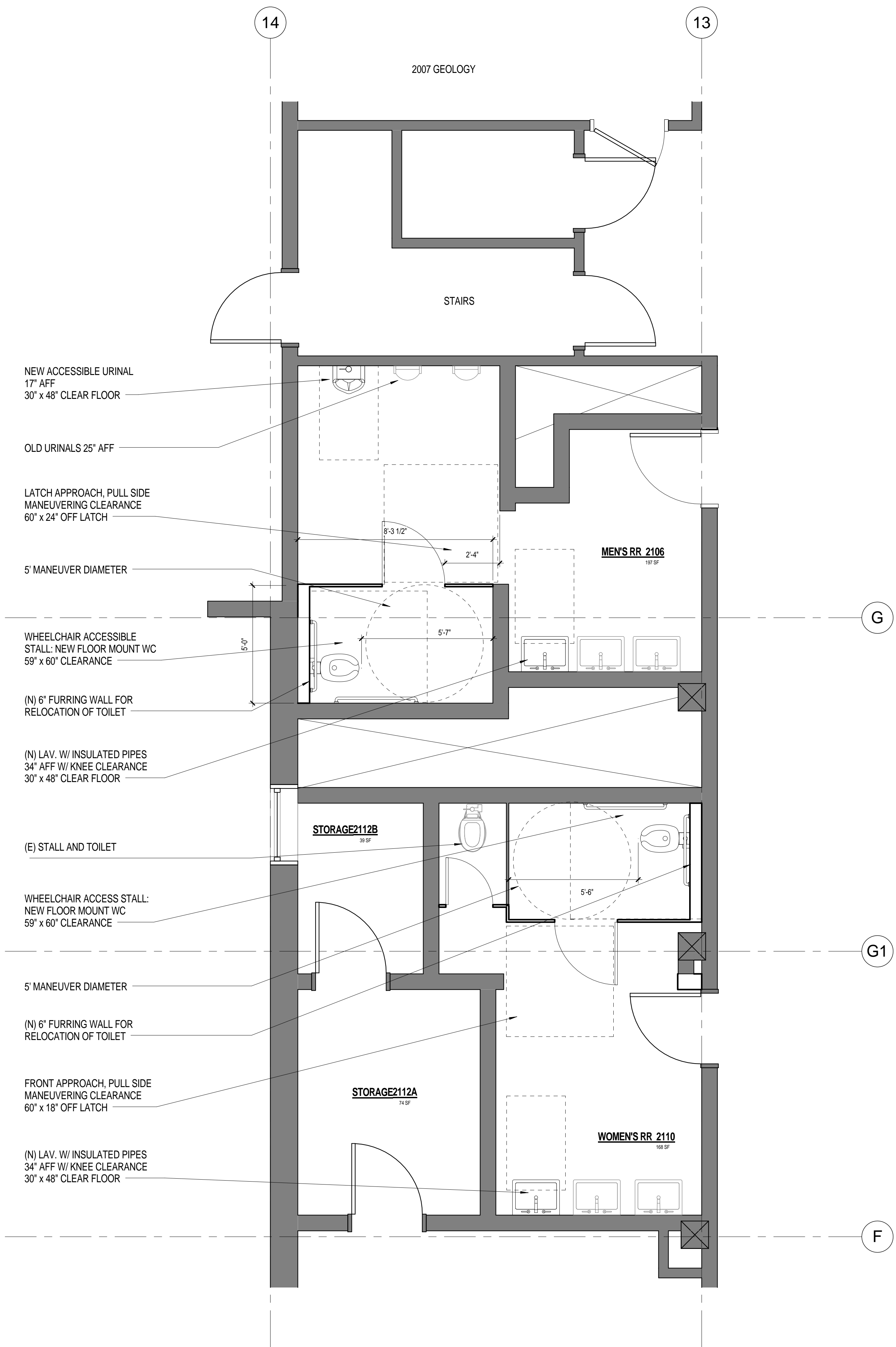
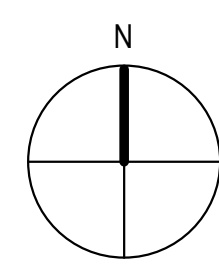
TRACE METALS LABORATORY AT WEBB HALL

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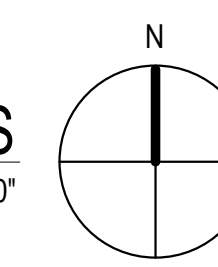
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FIRST FLOOR RESTROOMS
SCALE: 3/8" = 1'-0"



SECOND FLOOR RESTROOMS
SCALE: 3/8" = 1'-0"

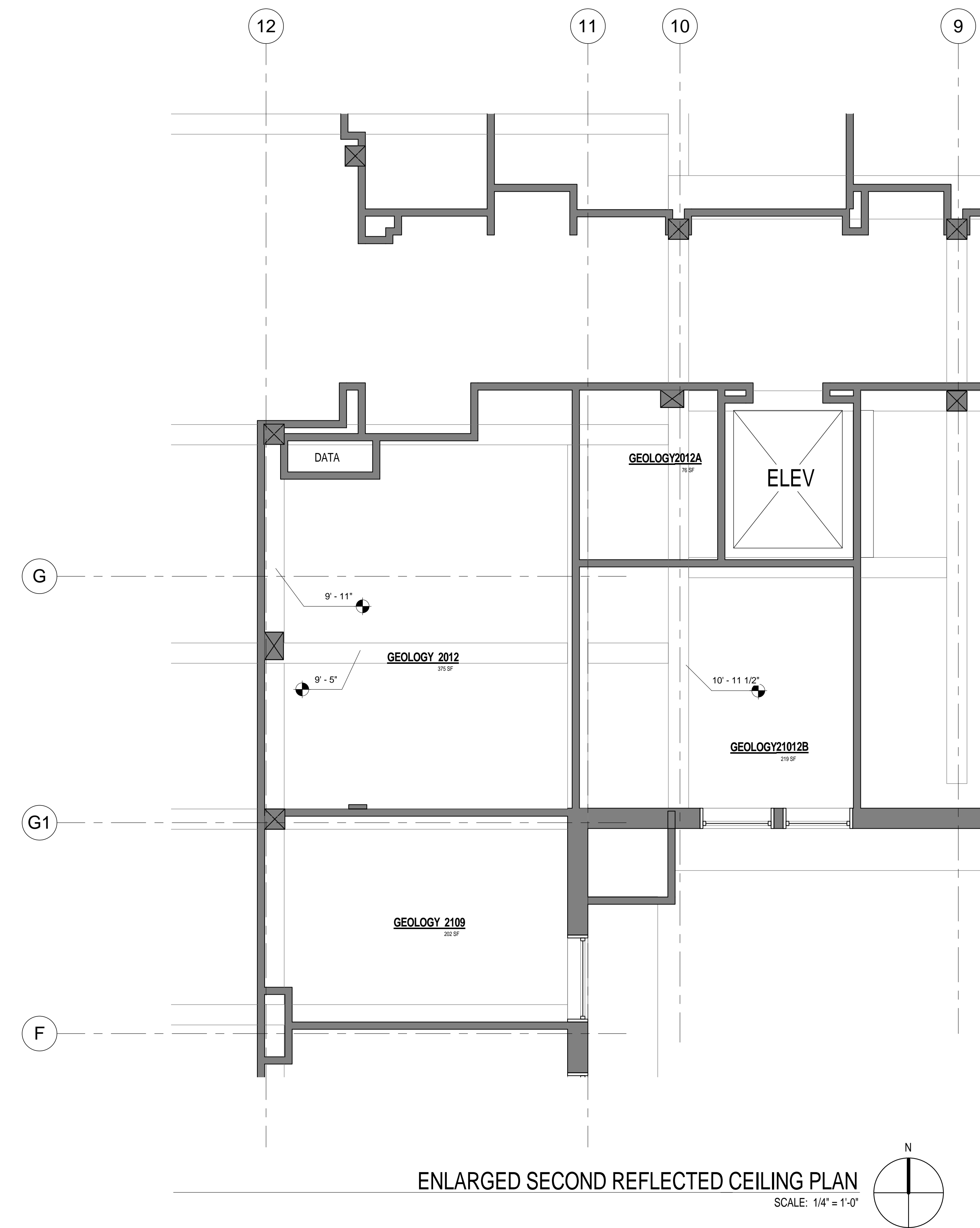
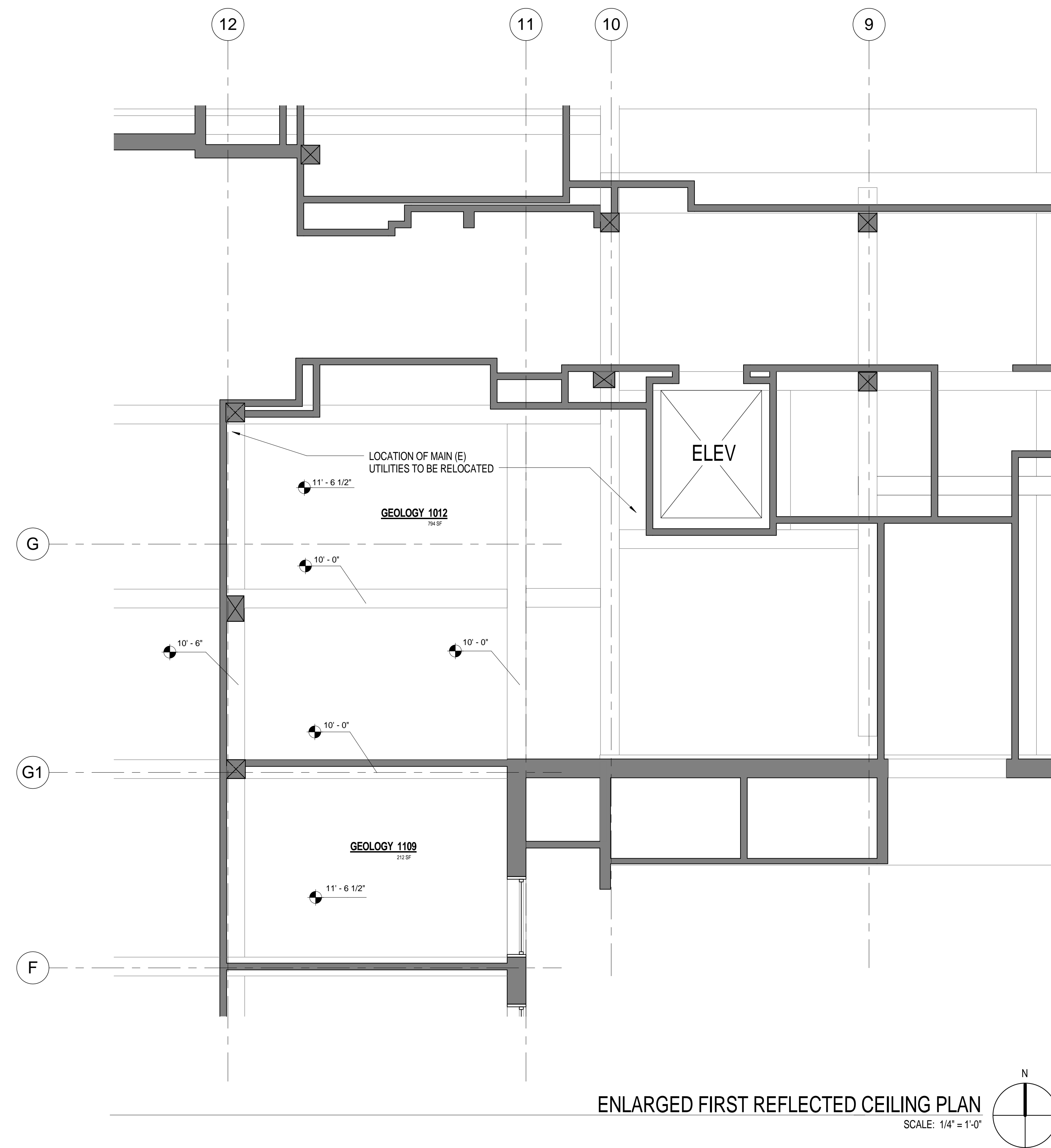


SEE PAGE 4 OF REPORT

TRACE METALS LABORATORY AT WEBB HALL

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CONSULTANT

NELSON CONSULTING ENGINEERS
8915 Resnick Drive, Suite 200, Irvine, CA 92618
Tel: 949 753-2070 Fax: 949 753-2071

NCE Project No: 14-031

REV.# DATE DESCRIPTION

5/20/14 PHASE ONE

DRAWN BY: DD

PROJECT PHASE:

PHASE ONE

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JOB #: NCE 14-031

S+D FM140334

STRUCTURAL STEEL:

- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE AS AMENDED TO DATE. CONTRACTOR SHALL PROVIDE ADDITIONAL MEMBERS AND TAKE MEASURES AS REQUIRED TO ERECT STEEL WITHIN AISC SPECIFIED TOLERANCES.
- STEEL MEMBERS SHALL CONFORM TO THE FOLLOWING MATERIAL SPECIFICATIONS:
 - WIDE FLANGE MEMBERS, WTS: ASTM A992.
 - PLATES, ANGLES, CHANNELS, ASTM A36.
 - HOLLOW STRUCTURAL SECTIONS, "HSS" SQUARE AND RECTANGULAR: ASTM A500, GRADE B, FY = 46 KSI.
 - HOLLOW STRUCTURAL SECTIONS, "HSS" ROUND: ASTM A500, GRADE B, FY = 42 KSI.
 - STRUCTURAL PIPES: ASTM A53, GRADE B, FY = 35 KSI. PIPES PER STANDARD WEIGHT, UNO.
- STIFFENERS SHALL HAVE THE SAME WIDTH AS THE FLANGES OF THE STEEL MEMBERS, UNLESS DETAILED OTHERWISE, WITH CLOSE BEARING AGAINST FLANGES.
- MACHINE BOLTS, ANCHOR BOLTS, AND THREADED STUD BOLTS SHALL CONFORM TO ASTM A307 UNLESS NOTED OTHERWISE. HOLES FOR MACHINE BOLTS SHALL BE BOLT DIAMETER + 1/16". HOLES FOR ANCHOR BOLTS MAY BE OVERSIZED PER AISC. THREADED STUD BOLTS SHALL BE WELDED ALL AROUND WITH A FILLET WELD SIZE EQUAL TO ONE-HALF THE STUD DIAMETER, OR WELDED BY AUTOMATIC GUN PROCESS.
- BOLTS, NUTS, AND RODS SHALL NOT BE WELDED OR HEATED, EXCEPT FOR A36, A572 GR50, AND A307, AND THOSE ONLY WITH THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD.
- WELDING SHALL BE PERFORMED BY EXPERIENCED, CERTIFIED WELDERS USING THE ELECTRIC ARC WELDING PROCESS, E70 SERIES ELECTRODES. WELDING SHALL CONFORM TO AISC AND AWS STANDARDS. ALL WELDS USED FOR CONNECTIONS OF STRUCTURAL MEMBERS SHALL BE MADE WITH WELD FILLER METAL WITH A CHARY V-NOTCH TOUGHNESS OF 20 FOOT-POUNDS AT MINUS 20 DEGREES FAHRENHEIT.
- WELDS NOT SPECIFIED SHALL BE CONTINUOUS FILLET WELDS. SIZE OF WELD SHALL BE BASED ON AISC STANDARDS FOR THINNER PART JOINTED.
- STRUCTURAL STEEL SHALL NOT BE TACK WELDED IN ANY WAY TO REINFORCING STEEL.
- PARTIAL AND FULL PENETRATION GROOVE WELDS SHALL HAVE NON-DESTRUCTIVE TESTING PERFORMED BY EITHER ULTRASONIC TESTING OR RADIOGRAPHY. SEE DETAIL SHEETS FOR WELD TESTING REQUIREMENTS OF MOMENT FRAMES.
- STRUCTURAL STEEL FRAMING MEMBERS SHALL BE SUPPORTED DURING FIELD WELDING. SUPPORTS SHALL REMAIN IN PLACE UNTIL STEEL TEMPERATURE HAS RETURNED TO AIR TEMPERATURE.
- OPENINGS SHALL NOT BE PLACED IN STEEL MEMBERS UNLESS SPECIFICALLY DETAILED. STEEL MEMBERS SHALL BE SHORED WHEN PERMISSIBLE HOLES ARE CUT WITH TORCH AFTER STEEL IS ERECTED. THE SHORES SHALL REMAIN IN PLACE UNTIL STEEL TEMPERATURE HAS RETURNED TO AIR TEMPERATURE.
- STRUCTURAL STEEL INSIDE THE BUILDING ENVELOPE SHALL RECEIVE ONE SHOP COAT OF PAINT PRIMER. STRUCTURAL STEEL AND BOLTS EXPOSED TO WEATHER SHALL BE GALVANNEZED. FIELD WELDS EXPOSED TO THE WEATHER SHALL BE TOUCHED UP WITH ZINC-RICH PAINT.
- STRUCTURAL STEEL SHALL BE DELIVERED TO THE JOB SITE FREE OF EXCESSIVE RUST, LOOSE MILL SCALE, GREASE, ETC.

WOOD/LUMBER FRAMING:

- ALL STRUCTURAL LUMBER SHALL BE DOUGLAS FIR NO. 2 GRADE CONFORMING TO STANDARD GRADING RULES FOR WEST COAST LUMBER, NO. 17.
- NOTCHES OF EXTERIOR WALL STUDS SHALL NOT EXCEED 25%/40% RESPECTIVELY. BORED HOLES IN BEARING/NONBEARING WALL STUDS SHALL NOT EXCEED 40%/60% RESPECTIVELY. IN NO CASE SHALL THE EDGE OF THE BORED HOLE BE NEARER THAN 5/8" TO THE EDGE OF THE STUD.
- NOTCHES ON THE ENDS OF JOISTS AND BEAMS FOR BEARING OVER SUPPORTS SHALL NOT EXCEED ONE FOURTH THE MEMBER DEPTH. HOLES BORED IN JOISTS AND BEAMS SHALL NOT BE WITHIN 2" OF THE TOP OR BOTTOM OF THE MEMBER, AND THE DIAMETER OF ANY SUCH HOLE SHALL NOT EXCEED ONE FOURTH THE DEPTH OF THE MEMBER. NOTCHES IN THE TOP OR BOTTOM OF JOISTS AND BEAMS ARE NOT PERMITTED.
- WOOD IN DIRECT CONTACT WITH THE GROUND, OR WOOD FRAMING MEMBERS INCLUDING SHEATHING THAT RESTS ON EXTERIOR FOUNDATION WALLS AND SLABS THAT ARE LESS THAN 8" FROM EXPOSED EARTH OR LESS THAN 6" FROM ASPHALT OR CONCRETE PAVING SHALL BE OF PRESERVATIVE-TREATED DOUGLAS FIR. CUT ENDS OF PRESERVATIVE-TREATED LUMBER SHALL BE TREATED IN A MANNER TO PROVIDE SAME PROTECTION AS BEFORE THE CUT. FASTENERS USED IN CONNECTING PRESERVATIVE-TREATED AND FIRE-RETARDANT WOOD SHALL BE HOT-DIPPED ZINC COATED GALVANIZED, STAINLESS STEEL, OR SILICON BRONZE.
- NAILING SHALL BE PER CBC CHAPTER 23 AND CBC TABLE 2304.9.1 UNLESS SHOWN OTHERWISE. FASTENERS FOR PRESERVATIVE-TREATED AND FIRE-RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED GALVANIZED STEEL. THE COATING WEIGHTS FOR ZINC-COATED FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A153. ALL STRUCTURAL FRAMING NAILS USED IN CONSTRUCTION OF THIS PROJECT SHALL BE COMMON NAILS AND CONFORM TO:

| PENNY | MINIMUM WEIGHT | NAIL PENETRATION | NAIL DIAMETER |
|-------|----------------|------------------|---------------|
| 80 | 1 1/2" | 0.131" | |
| 100 | 1 5/8" | 0.148" | |
| 160 | 1 3/4" | 0.162" | |
| 200 | 2 1/8" | 0.192" | |
- USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOB SITE DEMONSTRATION AND THE APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD. THE APPROVAL IS SUBJECT TO CONTINUED SATISFACTORY PERFORMANCE. MACHINE NAILING IS NOT ALLOWED FOR 5/16" SHEATHING. IF NAIL HEADS PENETRATE THE OUTER SKIN MORE THAN WOULD BE NORMAL FOR A HAND HAMMER OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED, THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY AND MACHINE NAILING SHALL BE DISCONTINUED.
- ALL NAILS LARGER THAN 16D, LAG SCREWS, AND NAILS SIMILAR TO SIMPSON STRONG-TIE "N544", SHALL BE INSTALLED IN PROPER PRE-DRILLED HOLES ONLY. DIRECT HAMMERS IS NOT PERMITTED.
- BOLTS SHALL BE UNFINISHED BOLTS CONFORMING TO ASTM A307. HOLES FOR MACHINE BOLTS IN WOOD SHALL BE BOLT DIAMETER PLUS 1/32" TO 1/16". ALL BOLTS SHALL HAVE STANDARD CUT WASHER UNDER HEAD AND NUT UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE RTIGHTENED PRIOR TO ENCLOSING WITH SHEATHING, CELING, PLASTER, ETC.
- LAG SCREWS SHALL CONFORM TO ANSI/ASME B18.2.1. WOOD SCREWS SHALL CONFORM TO ANSI/ASME B18.6.1.
- ALL FRAMING ANCHORS, CLIPS, STRAPS, HANGERS, ETC. SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE COMPANY, INC. (OR APPROVED EQUAL WITH VALID ICC REPORT) AND SHALL BE FULLY BOLTED AND/OR NAILED UNLESS NOTED OTHERWISE ON PLANS. NAIL TYPE FOR METAL CONNECTORS SHALL BE AS REQUIRED BY THE CONNECTOR MANUFACTURER. IF ANCHORS HAVE AN OPTION FOR DIFFERENT SIZE AND NUMBER OF NAILS, THE LARGER SIZE AND AMOUNT SHALL BE USED.

FASTENERS IN EXISTING CONCRETE:

- ADHESIVE ANCHORS:
 - ADHESIVE ANCHORS SHALL BE INSTALLED USING SIMPSON SET-XP EPOXY PER ICC ESR-2508
 - ANCHOR MATERIAL SHALL BE REBAR CONFORMING TO ASTM A615 GRADE 60 OR CARBON STEEL CONFORMING TO ASTM A307 GRADE C OR ASTM A193 GRADE B7. SIZE OF REBAR AND RODS SHALL BE AS SHOWN ON THE DRAWINGS.
 - NOMINAL EMBEDMENT DEPTH OF ANCHOR SHALL BE AS SHOWN ON THE DRAWINGS. MINIMUM DRILLED HOLE DEPTH IS DEEPER THAN THE NOMINAL HOLE DEPTH AND SHALL BE AS INDICATED IN THE ICC REPORT. HOLE DIAMETER AND ANCHOR INSTALLATION TORQUE SHALL BE AS INDICATED IN THE ICC REPORT.
 - ANCHOR SPACING AND EDGE DISTANCE SHALL BE AS SHOWN ON THE DRAWINGS BUT SHALL NOT BE LESS THAN THE MINIMUMS ALLOWED IN THE ICC REPORT.
 - CONCRETE SHALL BE 21 DAYS OLD MINIMUM BEFORE DRILLING HOLES FOR ANCHORS.
 - IN AREAS RECEIVING ANCHORS, ALL EXISTING REINFORCEMENT (PRESTRESS TENDONS AND REINFORCING BARS) SHALL BE LOCATED IN ORDER TO AVOID DAMAGING THE REINFORCEMENT WHILE INSTALLING THE ANCHORS. ANCHORS SHALL BE LOCATED AT LEAST 3" FROM ANY REINFORCEMENT. NOTIFY NCE IF EXISTING REINFORCING IS ENCOUNTERED.
 - CONTINUOUS SPECIAL INSPECTION OF ANCHOR INSTALLATION IS REQUIRED.
- EXPANSION ANCHORS:
 - EXPANSION ANCHORS SHALL BE SIMPSON STRONG-BOLT 2 WEDGE ANCHORS PER ICC ESR-3037 AND ALL MANUFACTURER'S RECOMMENDATIONS.
 - ANCHORS SHALL BE CARBON STEEL UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
 - NOMINAL EMBEDMENT DEPTH OF ANCHOR SHALL BE AS SHOWN ON THE DRAWINGS. MINIMUM DRILLED HOLE DEPTH IS DEEPER THAN THE NOMINAL HOLE DEPTH AND SHALL BE AS INDICATED IN THE ICC REPORT. HOLE DIAMETER AND ANCHOR INSTALLATION TORQUE SHALL BE AS INDICATED IN THE ICC REPORT.
 - ANCHOR SPACING AND EDGE DISTANCE SHALL BE AS SHOWN ON THE DRAWINGS BUT SHALL NOT BE LESS THAN THE MINIMUMS ALLOWED IN THE ICC REPORT.
 - CONCRETE SHALL BE 21 DAYS OLD MINIMUM BEFORE DRILLING HOLES FOR ANCHORS.
 - IN AREAS RECEIVING ANCHORS, ALL EXISTING REINFORCEMENT (PRESTRESS TENDONS AND REINFORCING BARS) SHALL BE LOCATED IN ORDER TO AVOID DAMAGING THE REINFORCEMENT WHILE INSTALLING THE ANCHORS. ANCHORS SHALL BE LOCATED AT LEAST 3" FROM ANY REINFORCEMENT. NOTIFY NCE IF EXISTING REINFORCING IS ENCOUNTERED.
 - CONTINUOUS SPECIAL INSPECTION OF ANCHOR INSTALLATION IS REQUIRED.
- CONCRETE SCREWS:
 - CONCRETE SCREWS SHALL BE INSTALLED USING SIMPSON TITEN-HD SCREWS PER ICC ESR-2713 AND ALL MANUFACTURER'S RECOMMENDATIONS.
 - NOMINAL EMBEDMENT DEPTH OF ANCHOR SHALL BE AS SHOWN ON THE DRAWINGS. MINIMUM DRILLED HOLE DEPTH IS DEEPER THAN THE NOMINAL HOLE DEPTH AND SHALL BE AS INDICATED IN THE ICC REPORT. HOLE DIAMETER AND ANCHOR INSTALLATION TORQUE SHALL BE AS INDICATED IN THE ICC REPORT.
 - ANCHOR SPACING AND EDGE DISTANCE SHALL BE AS SHOWN ON THE DRAWINGS BUT SHALL NOT BE LESS THAN THE MINIMUMS ALLOWED IN THE ICC REPORT.
 - CONCRETE SHALL BE 21 DAYS OLD MINIMUM BEFORE DRILLING HOLES FOR ANCHORS.
 - IN AREAS RECEIVING ANCHORS, ALL EXISTING REINFORCEMENT (PRESTRESS TENDONS AND REINFORCING BARS) SHALL BE LOCATED IN ORDER TO AVOID DAMAGING THE REINFORCEMENT WHILE INSTALLING THE ANCHORS. ANCHORS SHALL BE LOCATED AT LEAST 3" FROM ANY REINFORCEMENT. NOTIFY NCE IF EXISTING REINFORCING IS ENCOUNTERED.
 - CONTINUOUS SPECIAL INSPECTION OF ANCHOR INSTALLATION IS REQUIRED.

DESIGN/BUILD AND DEFERRED APPROVAL ELEMENTS AND REQUIREMENTS:

- IN THE EVENT THAT THE STRUCTURAL ENGINEER OF RECORD DOES NOT DESIGN ALL STRUCTURAL ELEMENTS REQUIRED FOR COMPLETION OF THE PROJECT, THE CONTRACTOR MAY ELECT TO HIRE A DESIGN/BUILD ENGINEER. THE CONTRACTOR SHALL CONTACT THE AUTHORITY HAVING JURISDICTION TO DETERMINE WHICH DESIGN/BUILD ITEMS REQUIRE A PERMIT THROUGH A DEFERRED APPROVAL PROCESS.
- FOR DESIGN/BUILD ELEMENTS, THE CONTRACTOR SHALL PREPARE ALL REQUIRED DOCUMENTS: CALCULATIONS, SHOP DRAWINGS, MATERIAL SPECIFICATIONS, AND DATA SHEETS, ALL OF WHICH SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE. ALL DOCUMENTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER OF RECORD AND NCE, INC. FOR REVIEW TO VERIFY THAT THE DESIGN COMPLIES WITH THE PROJECT DESIGN LOADING CRITERIA, THAT THE PRIMARY STRUCTURAL SYSTEM IS CAPABLE OF SUPPORTING THE IMPOSED LOADS AT CONNECTION POINTS, AND FOR COORDINATION AS REQUIRED. THE PREPARER OF THE DOCUMENTS IS SOLELY RESPONSIBLE FOR THEIR DESIGN AND FOR VERIFICATION THAT THEIR COMPONENTS ARE INSTALLED CORRECTLY. THE STRUCTURAL ENGINEER OF RECORD IS RESPONSIBLE FOR VERIFICATION OF CODE COMPLIANCE. WHERE THE DESIGN/BUILD ELEMENT REQUIRES A DEFERRED APPROVAL, THE CONTRACTOR SHALL SUBMIT THE DOCUMENTS TO THE AUTHORITY HAVING JURISDICTION AND RESOLVE ALL PLAN CHECK CORRECTIONS TO OBTAIN A PERMIT. FABRICATION AND INSTALLATION OF DESIGN/BUILD AND DEFERRED APPROVAL ELEMENTS SHALL NOT PROCEED UNTIL THE DESIGN TEAM HAS REVIEWED THE DOCUMENTS AND THE CONTRACTOR HAS OBTAINED A PERMIT FOR THE ITEMS REQUIRING DEFERRED APPROVAL.
- THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES, THE ARCHITECT, AND OTHER CONSULTANTS. DESIGN SHALL INCLUDE THE DESIGN OF THE ELEMENT AND ITS CONNECTION TO THE STRUCTURE. ONLY THE FOLLOWING ITEMS MAY BE CONSIDERED FOR THE DESIGN/BUILD AND DEFERRED APPROVAL PROCESS:
 - CURTAIN WALL, WINDOW WALL, LOUVER, AND GLAZING SYSTEMS.
 - FIRE SPRINKLER SUPPORT.
 - ANCHORAGE OF EQUIPMENT AND COMPONENTS FOR MECHANICAL, ELECTRICAL, PLUMBING, ETC.
 - ANY STRUCTURE THAT IS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT IS REQUIRED BY OTHER DISCIPLINES, SUCH AS ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, LANDSCAPE, ETC.
- ALL MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE BRACED TO RESIST THE FORCES PRESCRIBED IN ASCE 7 SECTION 13.6 WITH DETAILS IN ACCORDANCE WITH THE SMACNA SEISMIC RESTRAINT MANUAL, GUIDELINES FOR MECHANICAL SYSTEMS.

SHOP AND ERECTION DRAWINGS:

- SHOP AND ERECTION DRAWINGS SERVE TO AID SUBCONTRACTORS IN THE PERFORMANCE OF THEIR WORK. THE CONTRACTOR SHALL REVIEW SUBMITTALS RECEIVED BY THEIR SUBCONTRACTORS FOR COMPLIANCE AND CONFORMANCE WITH THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS AND MARK ANY DISCREPANCIES. SHOP AND ERECTION DRAWINGS SHALL INCORPORATE THE LATEST REVISIONS TO THE STRUCTURAL DRAWINGS AND THOSE THAT DO NOT SHALL NOT BE FORWARDED TO THE DESIGN TEAM FOR REVIEW. THE CONTRACTOR SHALL ASSIGN A NUMBER TO EACH SUBMITTAL AND PROVIDE A REVIEW STAMP AND SIGNATURE. WORK SHALL NOT BEGIN UNTIL THE SHOP AND ERECTION DRAWINGS REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD ARE RECEIVED AT THE JOBSITE.
- WHERE THE FOLLOWING TYPES OF WORK ARE SHOWN IN THE PLANS, SHOP AND ERECTION DRAWINGS ARE REQUIRED:
 - REINFORCING STEEL.
 - CONCRETE MIX DESIGNS.
 - STRUCTURAL STEEL.
 - CURTAIN WALL, WINDOW WALL, LOUVER, AND GLAZING SYSTEMS.
 - FIRE SPRINKLER SUPPORT.
 - ANCHORAGE OF EQUIPMENT AND COMPONENTS FOR MECHANICAL, ELECTRICAL, PLUMBING, ETC.
- CORRECTIONS OR COMMENTS MADE BY THE STRUCTURAL ENGINEER OF RECORD ON THE SHOP AND ERECTION DRAWINGS DURING REVIEW DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION, COORDINATING WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING HIS WORK IN A SAFE AND SATISFACTORY MANNER.

FIRE SPRINKLER SUPPORT:

- DESIGN OF HANGERS, SWAY BRACING, AND ATTACHMENT TO THE STRUCTURE IS A DEFERRED SUBMITTAL ITEM. SEE DESIGN/BUILD NOTES FOR REQUIREMENTS.
- CONTRACTOR SHALL SUBMIT DRAWINGS TO THE STRUCTURAL ENGINEER OF RECORD PRIOR TO THE START OF WORK. PROVIDE PIPE SIZES, WET PIPE WEIGHTS, AND PROPOSED DETAILS FOR ATTACHMENT. SIZE OF MEMBERS MAY BE SUBJECT TO CHANGE DUE TO PIPE LOCATIONS. INSTALLATION OF FIRE SPRINKLERS SHALL NOT PROCEED UNTIL SHOP DRAWINGS AND METHOD OF STRENGTHENING, IF REQUIRED, HAVE BEEN DETERMINED. CONNECTORS USED FOR ATTACHING SPRINKLER COMPONENTS TO THE STRUCTURE SHALL HAVE A VALID ICC REPORT FOR THE APPLICATIONS USED WHEN CONSIDERING GRAVITY AND SEISMIC LOADING.
- CONNECTIONS TO CONCRETE BEAMS SHALL OCCUR WITHIN THE MIDDLE THIRD OF THE MEMBER DEPTH.

CONCRETE AND REINFORCING STEEL:

- CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNIZED TESTING LABORATORY, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE, WITH COPIES OF DESIGN SENT TO THE STRUCTURAL ENGINEER OF RECORD. ALL CONCRETE SHALL CONTAIN A POLYMER BASED WATER REDUCING ADMIXTURE.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C150. AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33. CONCRETE MIX DESIGNS SHALL CONTAIN A BLEND OF SAND, FINE, AND COARSE AGGREGATE. "PEA-GRAVEL" MIXES SHALL NOT BE USED EXCEPT WHERE SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. UNLESS REQUIRED OTHERWISE BY AUTHORITY HAVING JURISDICTION, MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 2,500 PSI WITH A MAXIMUM WATER-CEMENT RATIO OF 0.50 AND USE TYPE II/IV CEMENT. MAXIMUM SLUMP SHALL NOT EXCEED 4".
- REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60. REINFORCING TO BE WELDED SHALL BE ASTM A706.
- DETAILING OF REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE ACI CODE. ALL REINFORCING BAR BENDS SHALL BE MADE COLD. REINFORCING SHALL NOT BE RE-BENT.
- REINFORCING STEEL SHALL BE CONTINUOUS, EXCEPT AS DETAILED. SPLICE LOCATIONS SHALL BE VERIFIED WITH THE STRUCTURAL ENGINEER OF RECORD. REINFORCING STEEL SHALL BE SPLICED IN ACCORDANCE WITH THE STRUCTURAL DETAIL, UNLESS SHOWN OTHERWISE ON THE DRAWINGS. SPLICES IN WALLS, SLABS, AND FOOTINGS SHALL BE STAGGERED AT LEAST 4'-0" AND SHALL BE PLACED SUCH THAT NOT MORE THAN ONE-THIRD OF THE BARS IN A LAYER ARE SPLICED AT ANY ONE LOCATION.
- ALL REINFORCING BARS, ANCHOR BOLTS, EMBEDDED BOLTS, THREADED RODS, AND OTHER INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE AND GROUT AND SHALL BE FREE OF GREASE, RUST, MUD, MILL SCALE, OR OTHER CONTAMINANTS THAT DECREASE BOND. PROVIDE PROPER CONSOLIDATION OF CONCRETE AND GROUT TO ASSURE ADEQUATE BOND.
- CORNERS AND INTERSECTIONS OF WALLS AND FOOTINGS SHALL HAVE LAPPED HORIZONTAL L-BARS EQUAL IN SIZE AND SPACING TO MATCH HORIZONTAL REINFORCING.
- CLEAR COVERAGE OF CONCRETE OVER OUTER REINFORCING BARS SHALL BE AS FOLLOWS:
 - CONCRETE PLACED DIRECTLY AGAINST EARTH: 3" CLEAR.
 - SLABS ON GRADE: IN MIDDLE THIRD OF SLAB THICKNESS.
 - FORMED CONCRETE EXPOSED TO EARTH OR WEATHER: 1 1/2" CLEAR (2" CLEAR FOR #6 OR LARGER).

OWNERSHIP OF DOCUMENTS:

- ALL DRAWINGS, SPECIFICATIONS, AND OTHER WORK PRODUCT FOR THIS PROJECT ARE INSTRUMENTS OF SERVICE FOR THIS PROJECT ONLY AND SHALL REMAIN THE PROPERTY OF THE NCE, INC. WHETHER THIS PROJECT IS COMPLETED OR NOT. REUSE OF INSTRUMENTS OF SERVICE OF NCE, INC. BY THE OWNER ON EXTENSIONS OF THIS PROJECT, OR ON ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF NCE, INC. SHALL BE AT THE OWNER'S RISK AND THE OWNER AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS NCE, INC. FROM ALL CLAIMS, DAMAGES, AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF SUCH UNAUTHORIZED USE OF NCE, INC.'S INSTRUMENTS OF SERVICE BY THE OWNER OR BY OTHERS ACTING THROUGH THE OWNER.

GENERAL:

- THE FOLLOWING NOTES AND TYPICAL DETAILS APPLY TO ALL DRAWINGS IN THIS SET UNLESS NOTED OTHERWISE.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS WITH THE ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND WITH CONDITIONS AT THE JOB SITE PRIOR TO STARTING CONSTRUCTION. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, LANDSCAPE, CIVIL, AND ALL CONSULTANTS' DRAWINGS. IN NO CASE SHALL DIMENSIONS BE SCALED FROM DRAWINGS AND/OR DETAILS. ANY DISCREPANCIES BETWEEN CONDITIONS INDICATED AND ARCHITECTURAL AND CONSULTANT DRAWINGS OR WITH ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE STRUCTURAL ENGINEER OF RECORD FOR CLARIFICATION PRIOR TO PROCEEDING. ANY WORK INSTALLED PRIOR TO AND/OR IN CONFLICT WITH SUCH CLARIFICATION SHALL BE CORRECTED BY THE CONTRACTOR AT HIS EXPENSE AND AT NO ADDITIONAL COST TO THE OWNER.
- ALL PHASES OF WORK, CONSTRUCTION, AND WORKMANSHIP SHALL CONFORM TO THE MINIMUM STANDARDS OF THE 2013 CALIFORNIA BUILDING CODE. ALL ASTM SPECIFICATIONS NOTED ON THE DRAWINGS SHALL BE OF THE LATEST REVISION.
- THE STRUCTURAL DRAWINGS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE SHOWN, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKMEN, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR THE BUILDING, FORMS AND SCAFFOLDING.
- OPENINGS, POCKETS, ETC. SHALL NOT BE PLACED OR CUT IN SLABS, BEAMS, COLUMNS, WALLS, ETC. UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. IN THE CASE THAT OPENING, POCKETS, ETC ARE REQUIRED, THE CONTRACTOR SHALL SUBMIT THE PROPOSED SIZES AND LOCATIONS OF ALL HOLES TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW PRIOR TO ANY DRILLING, CORING, OR CUTTING. THE CONTRACTOR SHALL TAKE WHATEVER STEPS ARE NECESSARY TO LOCATE AND AVOID ALL CONCRETE OR MASONRY REINFORCEMENT.
- IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE NOTES, THEN THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE SHOWN OR CALLED FOR AND SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD.

PROJECT DESIGN CRITERIA:

- CODE: 2013 CALIFORNIA BUILDING CODE.
- MAXIMUM ALLOWABLE DEFLECTION NORMAL TO THE SURFACE OF A WALL UNDER SEISMIC OR WIND LATERAL FORCE LOADING SHALL NOT EXCEED:

| FINISH | MAX DEFLECTION |
|-----------------|----------------|
| CEMENT PLASTER | L/240 |
| LATEX PLASTER | L/240 |
| INTERIOR GYP BD | L/120 |
| TILE AND STONE | L/480 |
- MAXIMUM ALLOWABLE DEFLECTION FOR HORIZONTAL MEMBERS SHALL NOT EXCEED:

| FINISH | LIVE LOAD DEFLECTION | TOTAL LOAD DEFLECTION |
|-----------------|----------------------|-----------------------|
| CEMENT PLASTER | L/360 | L/240 |
| LATEX PLASTER | L/240 | L/240 |
| INTERIOR GYP BD | L/240 | L/180 |
| TILE AND STONE | L/360 | L/360 |
- ALL MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE BRACED TO RESIST THE FORCES PRESCRIBED IN ASCE 7 SECTION 13.6 WITH DETAILS IN ACCORDANCE WITH THE SMACNA SEISMIC RESTRAINT MANUAL, GUIDELINES FOR MECHANICAL SYSTEMS.

STATEMENT OF SPECIAL INSPECTIONS AND STRUCTURAL TESTS:

- PROVIDE A STATEMENT OF SPECIAL INSPECTIONS AND STRUCTURAL TESTS IN ACCORDANCE WITH CBC CHAPTER 17. ALL SPECIAL INSPECTORS SHALL SUBMIT FINAL REPORTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT THESE TESTS AND INSPECTIONS ARE MADE AND TO DETERMINE WHEN INSPECTIONS ARE CONTINUOUS OR PERIODIC. STRUCTURAL TESTS AND INSPECTIONS ARE REQUIRED FOR THE FOLLOWING WORK:
 - FOUNDATIONS:
 - COMPACTED FILL INCLUDING UTILITY TRENCHES --- YES
 - VISUAL EXAMINATION AND APPROVAL OF ALL FOUNDATION EXCAVATIONS --- YES
 - CONCRETE: SPECIAL INSPECTIONS AND VERIFICATIONS FOR CONCRETE CONSTRUCTION SHALL BE AS REQUIRED BY CBC SECTION 1705.3 AND CBC TABLE 1705.3.
 - CONTINUOUS INSPECTION AND TEST CYLINDERS FOR CONCRETE DESIGN STRENGTH OVER 2,500 PSI --- YES
 - REINFORCING, BOLT, AND EMBEDDED PLATE INSTALLATION IN CONCRETE (DURING INSTALLATION AND PLACING OF CONCRETE) --- YES
 - REINFORCING STEEL:
 - PLACING OF REINFORCING STEEL --- YES
 - MILL REPORTS AND IDENTIFICATION OF STEEL --- YES
 - SAMPLING AND TESTING OF REINFORCING STEEL --- NO
 - WOOD --- NO
 - STRUCTURAL STEEL: SPECIAL INSPECTIONS FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF ASCE 380.
 - MILL REPORTS AND IDENTIFICATION OF STEEL (AFDAMIT OF COMPLIANCE) --- YES
 - SAMPLING AND TESTING OF STEEL --- NO
 - WELDING: WELDING INSPECTION AND WELDING INSPECTOR QUALIFICATIONS SHALL BE IN ACCORDANCE WITH AWS D1.1 FOR STRUCTURAL STEEL, AWS D1.3 FOR SHEET STEEL, AND AWS D1.4 FOR REINFORCING STEEL.
 - ALL STRUCTURAL FIELD AND SHOP WELDING (INCLUDING METAL DECK, METAL STUD FRAMING, AND HEADED STUD ANCHORS) EXCEPT WELDING IN AN APPROVED FABRICATOR'S SHOP PER CBC SECTION 1704.2.2 --- YES
 - NON-DESTRUCTIVE TESTING OF PARTIAL AND COMPLETE JOINT PENETRATION WELDS AT MEMBER SPLICES AND MEMBER CONNECTIONS --- YES
 - WELDING OF REINFORCING STEEL --- YES
 - STRUCTURAL LIGHT GAGE METAL FRAMING --- AS SPECIFIED BY THE STRUCTURAL ENGINEER OF RECORD
 - REVIEW AND APPROVAL OF WELDING PROCEDURE SPECIFICATIONS --- YES
 - BOLTING:
 - HIGH STRENGTH BOLTING --- YES
 - EXPANSION BOLTING IN CONCRETE --- YES
 - EPOXY BOLTING IN CONCRETE --- YES
 - SIMPSON TITEN HD SCREWS IN CONCRETE --- YES
 - APPROVED FABRICATORS: SUBMIT CERTIFICATE OF COMPLIANCE FOR ALL OFF-SITE FABRICATION SUCH AS STRUCTURAL STEEL, MANUFACTURED LUMBER, WOOD JOISTS, WOOD OPEN WEB TRUSSES, METAL PLATE CONNECTED WOOD TRUSSES, PRECAST CONCRETE, STEEL JOISTS, ETC --- YES
- ALL TESTS AND INSPECTIONS SHALL BE PERFORMED BY AN INDEPENDENT INSPECTION AGENCY WHOSE QUALIFICATIONS ARE ACCEPTABLE TO NCE, INC., THE STRUCTURAL ENGINEER OF RECORD, AND THE AUTHORITY HAVING JURISDICTION. THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY THE OWNER. INSPECTION REPORTS SHALL BE WRITTEN DAILY WITH COPIES SENT TO THE OWNER, ARCHITECT, STRUCTURAL ENGINEER OF RECORD, AND AUTHORITY HAVING JURISDICTION.
- SPECIAL INSPECTIONS LISTED ARE IN ADDITION TO THE CALLED INSPECTIONS REQUIRED BY THE CODE AND ARE NOT A SUBSTITUTE FOR INSPECTIONS BY THE CITY INSPECTOR. SPECIAL INSPECTIONS SHALL BE CONTINUOUS UNLESS ALLOWED OTHERWISE BY THE CODE. JOB SITE VISIT AND OBSERVATIONS DO NOT CONSTITUTE AN OFFICIAL INSPECTION.
- WORK REQUIRING SPECIAL INSPECTION THAT IS INSTALLED OR COVERED WITHOUT THE INSPECTION SHALL BE SUBJECT TO REMOVAL AT THE CONTRACTOR'S EXPENSE.

STRUCTURAL OBSERVATION:

- REFERENCE CBC SECTION 1704.5.
- FOR THE CONSTRUCTION OF STRUCTURAL WORK SHOWN IN THE DRAWINGS, THE OWNER SHALL EMPLOY THE STRUCTURAL ENGINEER OF RECORD OR ANOTHER ENGINEER DESIGNATED BY THE STRUCTURAL ENGINEER OF RECORD TO PERFORM STRUCTURAL OBSERVATION.
- THE STRUCTURAL ENGINEER OF RECORD SHALL PERFORM STRUCTURAL OBSERVATION (VISUAL OBSERVATION) OF THE STRUCTURAL SYSTEM, FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS, AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL SYSTEM. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED BY CBC SECTION 110. THE SPECIAL INSPECTIONS OF CBC SECTION 1704, OR OTHER SECTIONS OF THE CODE. THE STRUCTURAL ENGINEER OF RECORD SHALL PROVIDE WRITTEN FIELD REPORTS TO THE ARCHITECT DESCRIBING THE STATUS OF CONSTRUCTION AND IDENTIFYING DISCREPANCIES FROM THE STRUCTURAL DRAWINGS.
- STRUCTURAL OBSERVATIONS SHALL BE MADE AT THE FOLLOWING APPLICABLE STAGES OF CONSTRUCTION:
 - CONCRETE AND REINFORCING STEEL: AFTER EXCAVATION OR FORMING, AND AFTER PLACEMENT OF REINFORCING STEEL, PRIOR TO CONCRETE PLACEMENT AND CLOSING OF FORMS.
 - STRUCTURAL STEEL ERECTION.



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NCE Project No.: 14-031

REV. # DATE DESCRIPTION

02/2014 PHASE ONE

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PROJECT PHASE:
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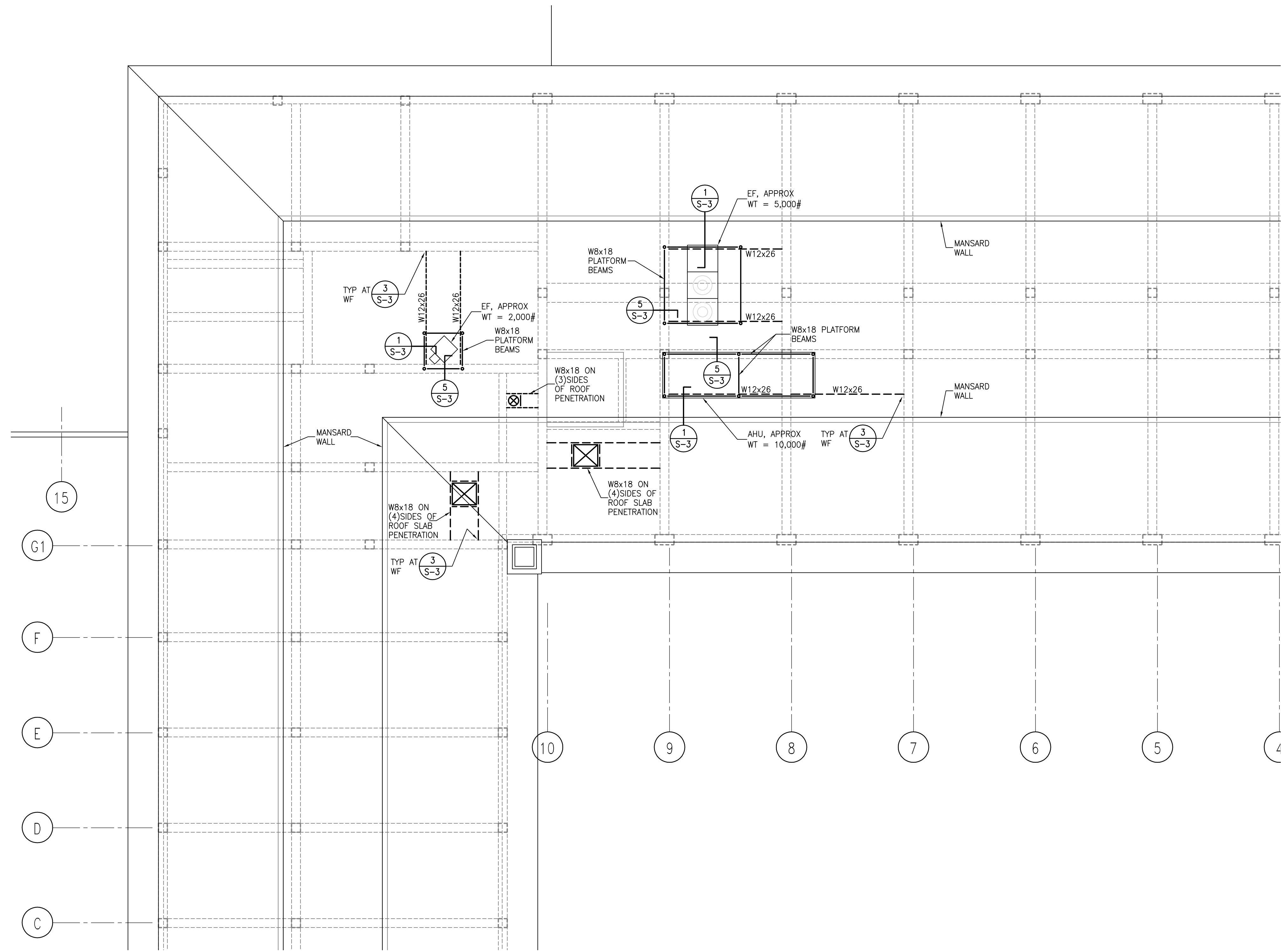
PARTIAL ROOF
FRAMING PLAN

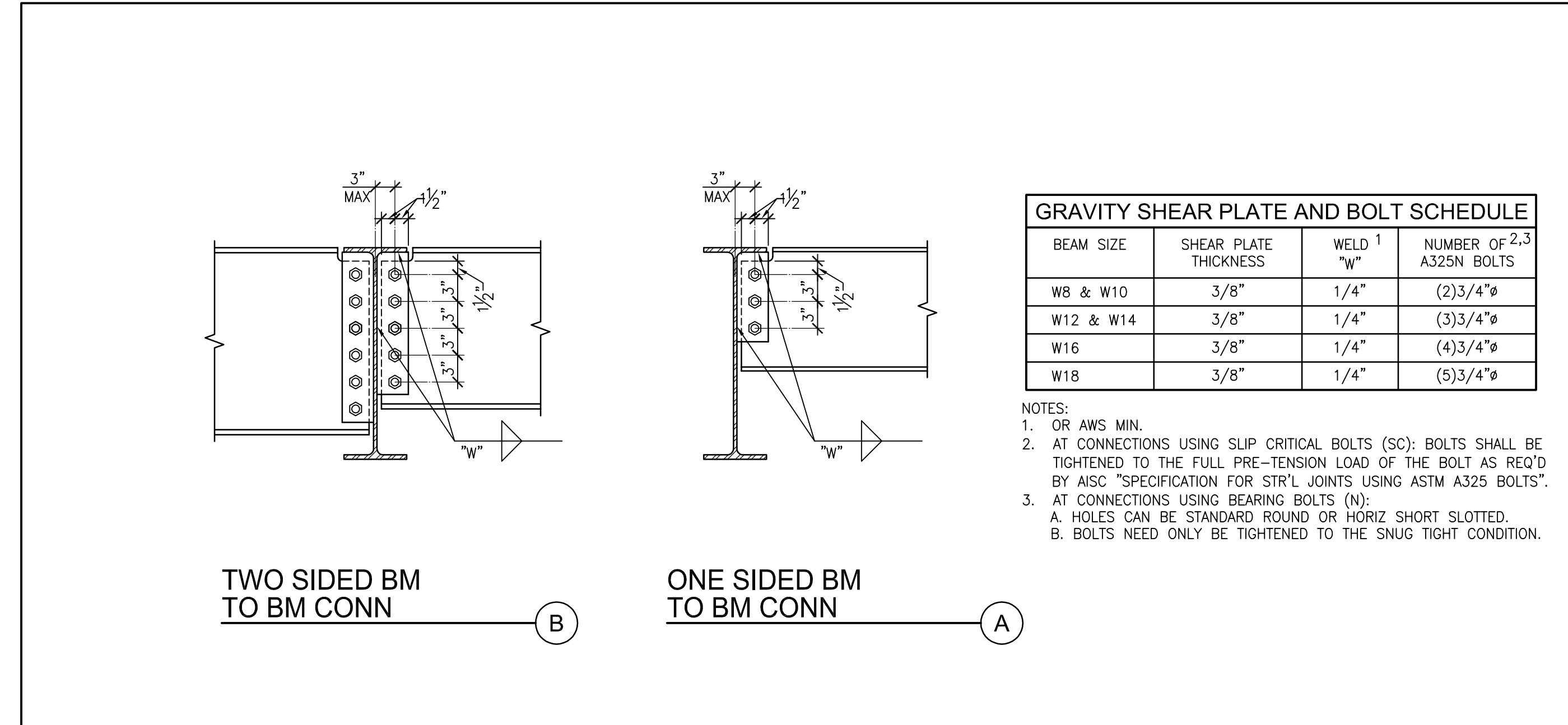
NOTES:

- COORDINATE LOCATIONS OF MECH'L UNITS AND PENETRATIONS WITH MECH'L DRAWINGS.
- INSTALL FRAMING AROUND SLAB PENETRATIONS BEFORE CUTTING HOLES IN SLAB.
- STRUCTURAL STEEL INSIDE THE BUILDING ENVELOPE SHALL RECEIVE ONE SHOP COAT OF PAINT PRIMER. STRUCTURAL STEEL AND BOLTS EXPOSED TO WEATHER SHALL BE GALVANIZED. FIELD WELDS EXPOSED TO WEATHER SHALL BE TOUCHED UP WITH ZINC-RICH PAINT.
- SEE 4/S-3 FOR SLAB SAWCUT DETAIL.
- SEE 11/S-3 FOR HORIZONTAL DUCT PENETRATION DETAIL THRU MANSARD WALL.
- PROVIDE SUPPORTS ON ROOF FOR HORIZONTAL DUCTWORK.
- SEE 8/S-3 FOR HOOD SUPPORT DETAIL.
- SEE 14/S-3 FOR NEW PAD FOR TRANSFORMER.
- IF LABORATORY IS LOCATED ON THE FIRST FLOOR, IN ADDITION TO SLAB PENETRATIONS AND WBX18'S AROUND OPENINGS AT THE ROOF LEVEL, SLAB PENETRATIONS AND WBX18'S AROUND OPENINGS ARE REQ'D AT THE SECOND FLOOR LEVEL ALSO.

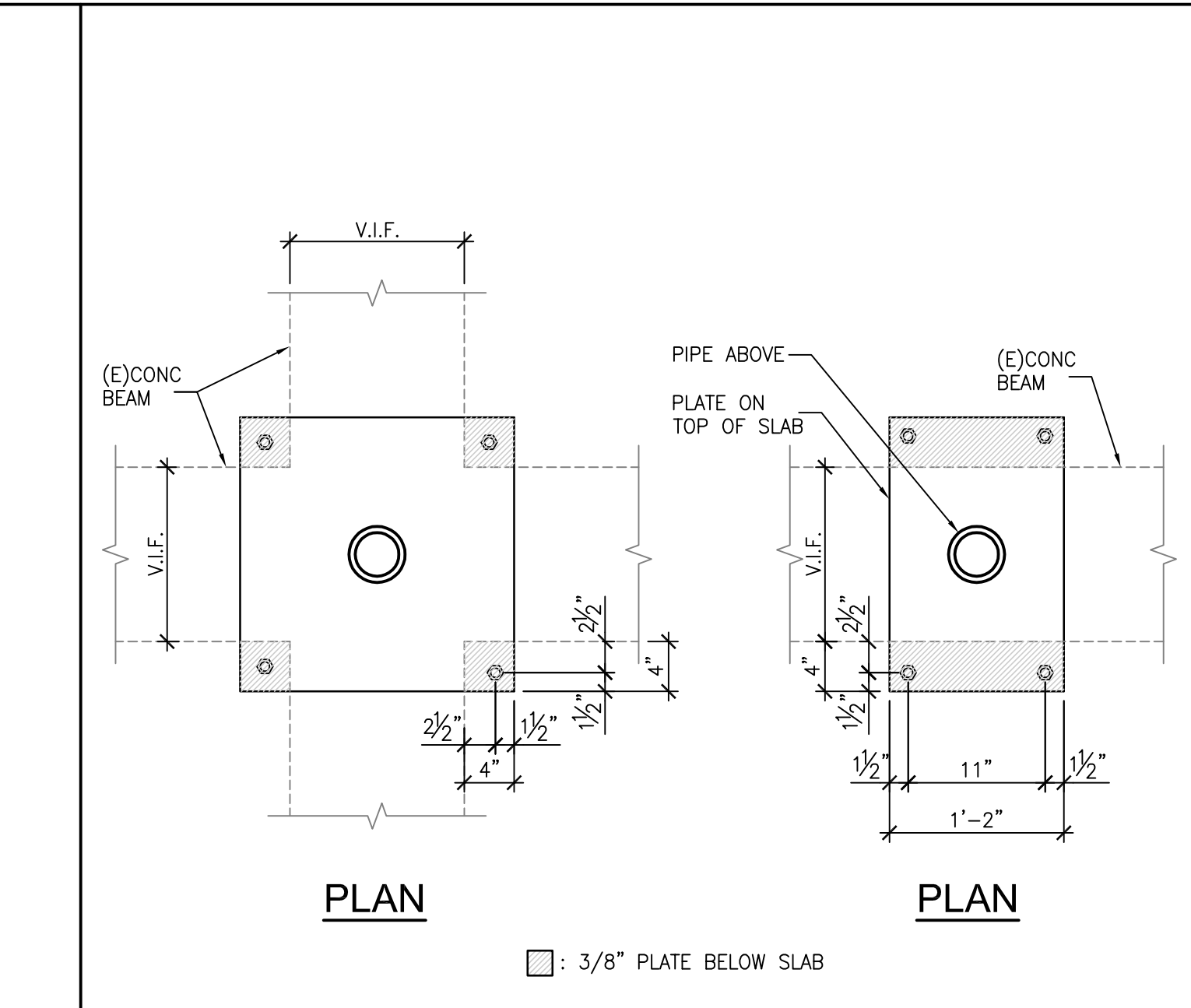
LEGEND:

- STEEL BEAM BELOW ROOF
- STEEL BEAM ABOVE ROOF
- CONCRETE ROOF BEAM

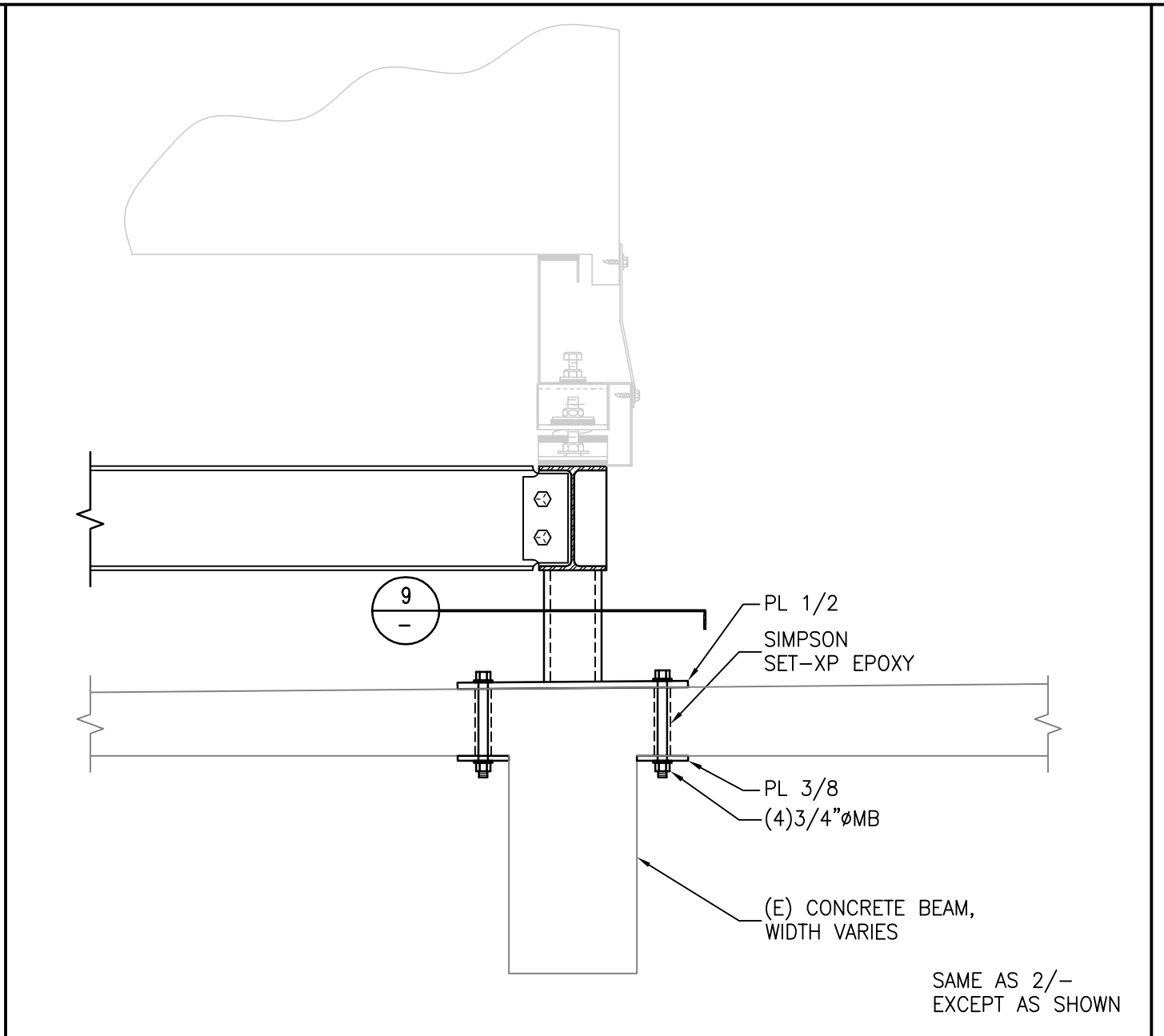




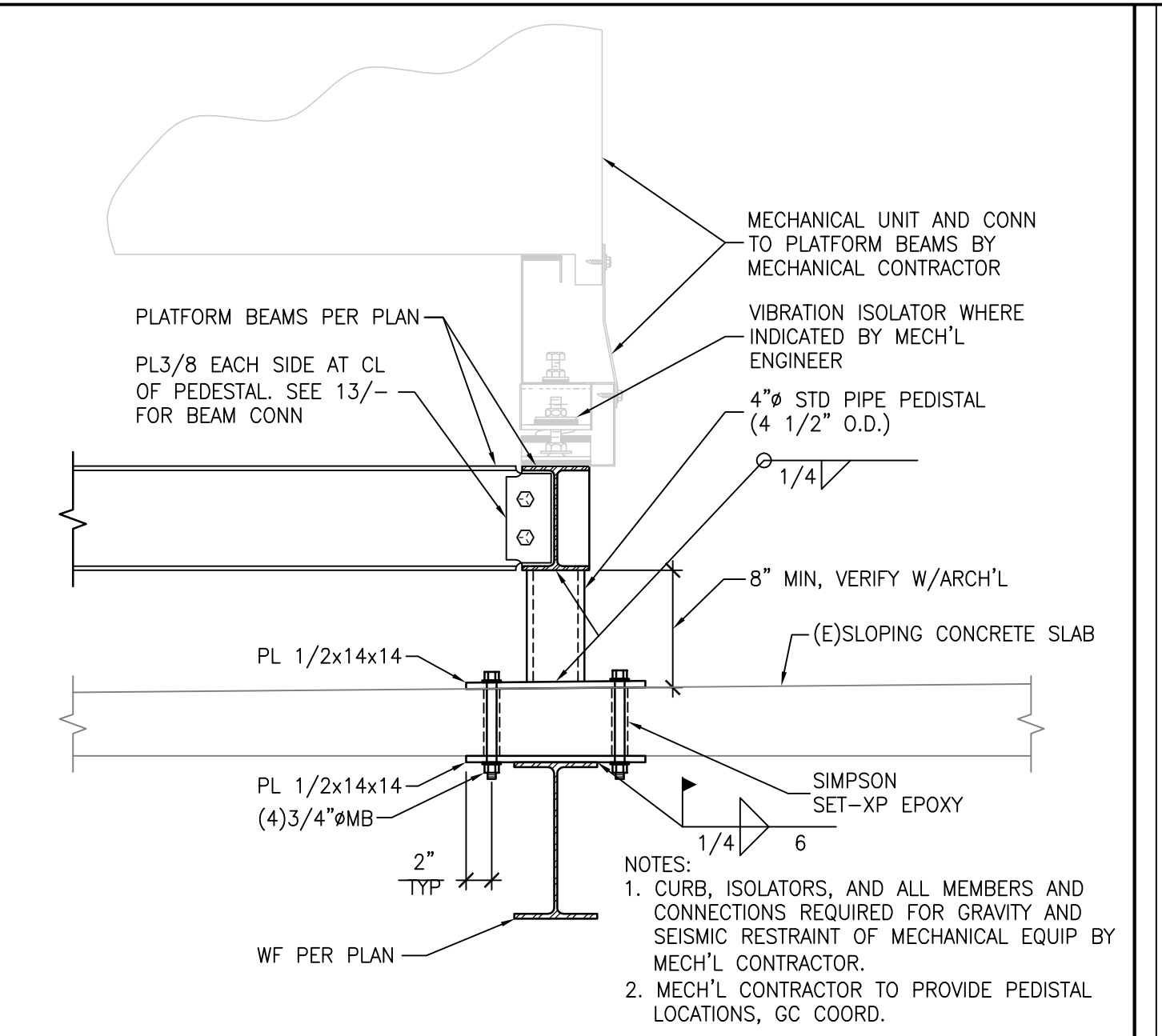
STEEL BEAM CONNECTIONS



MECH'L PLATFORM PIPE SUPPORT



MECH'L PLATFORM AT (E) CONCRETE BEAM

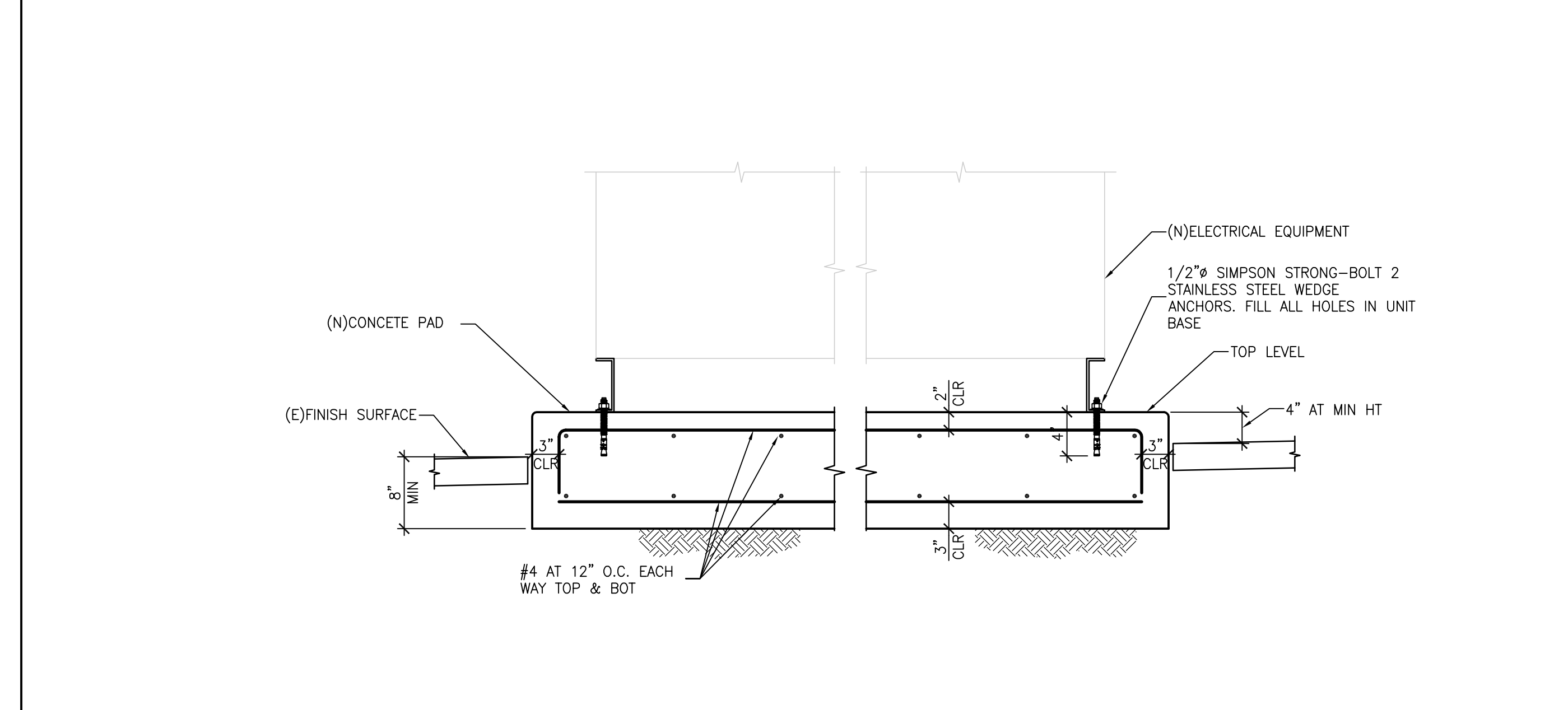


MECH'L PLATFORM AT (N) STEEL BEAM

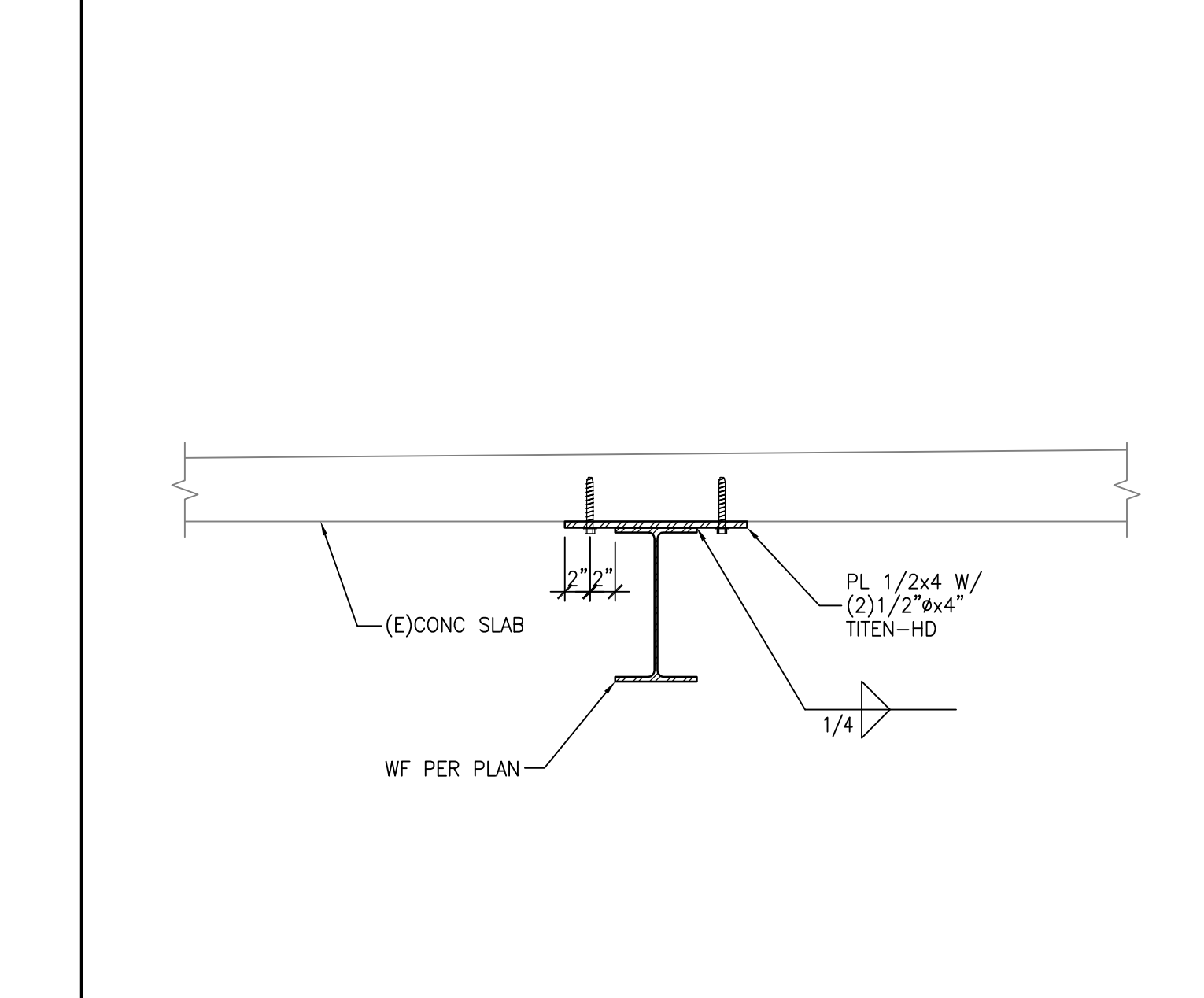


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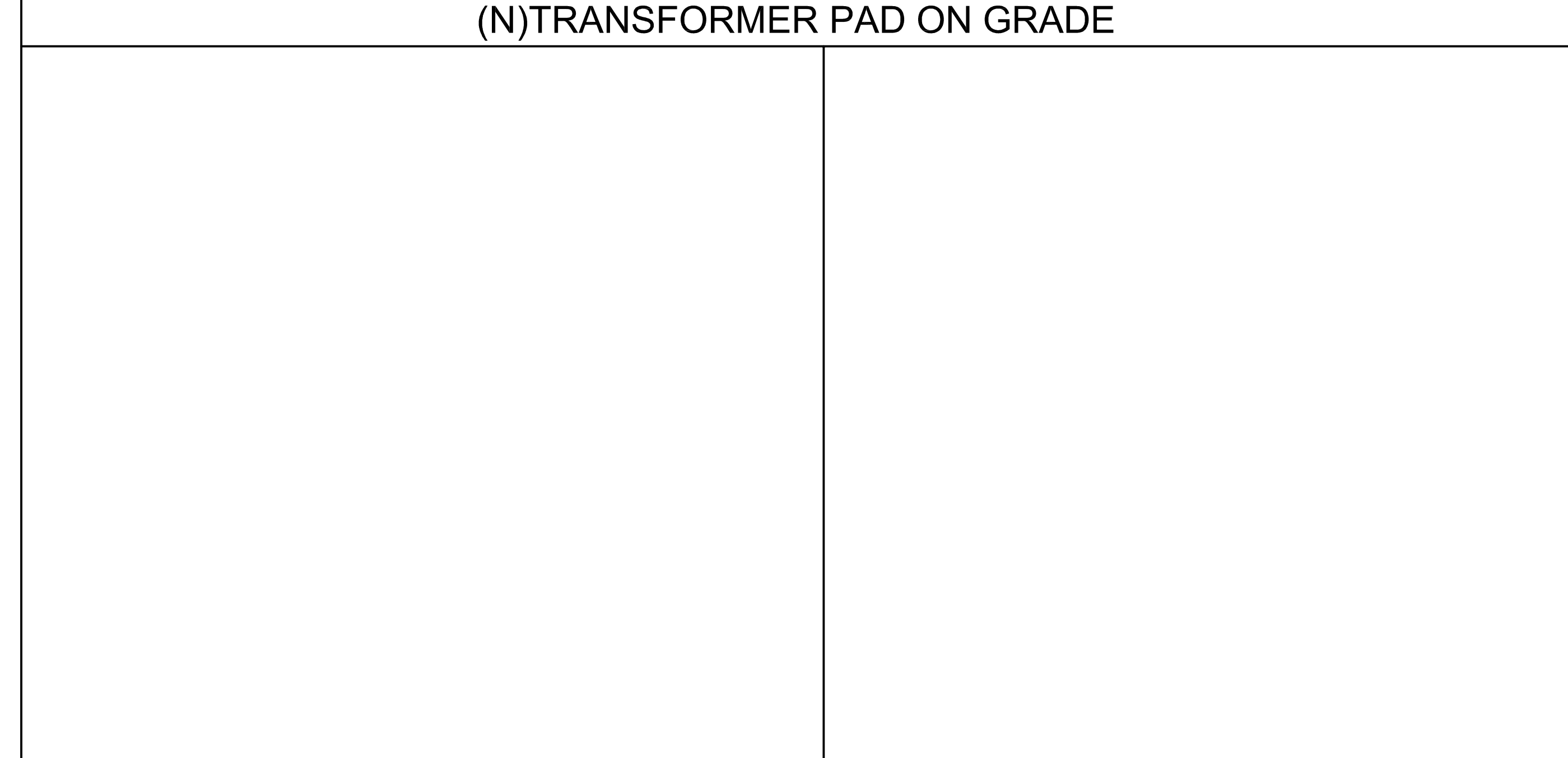
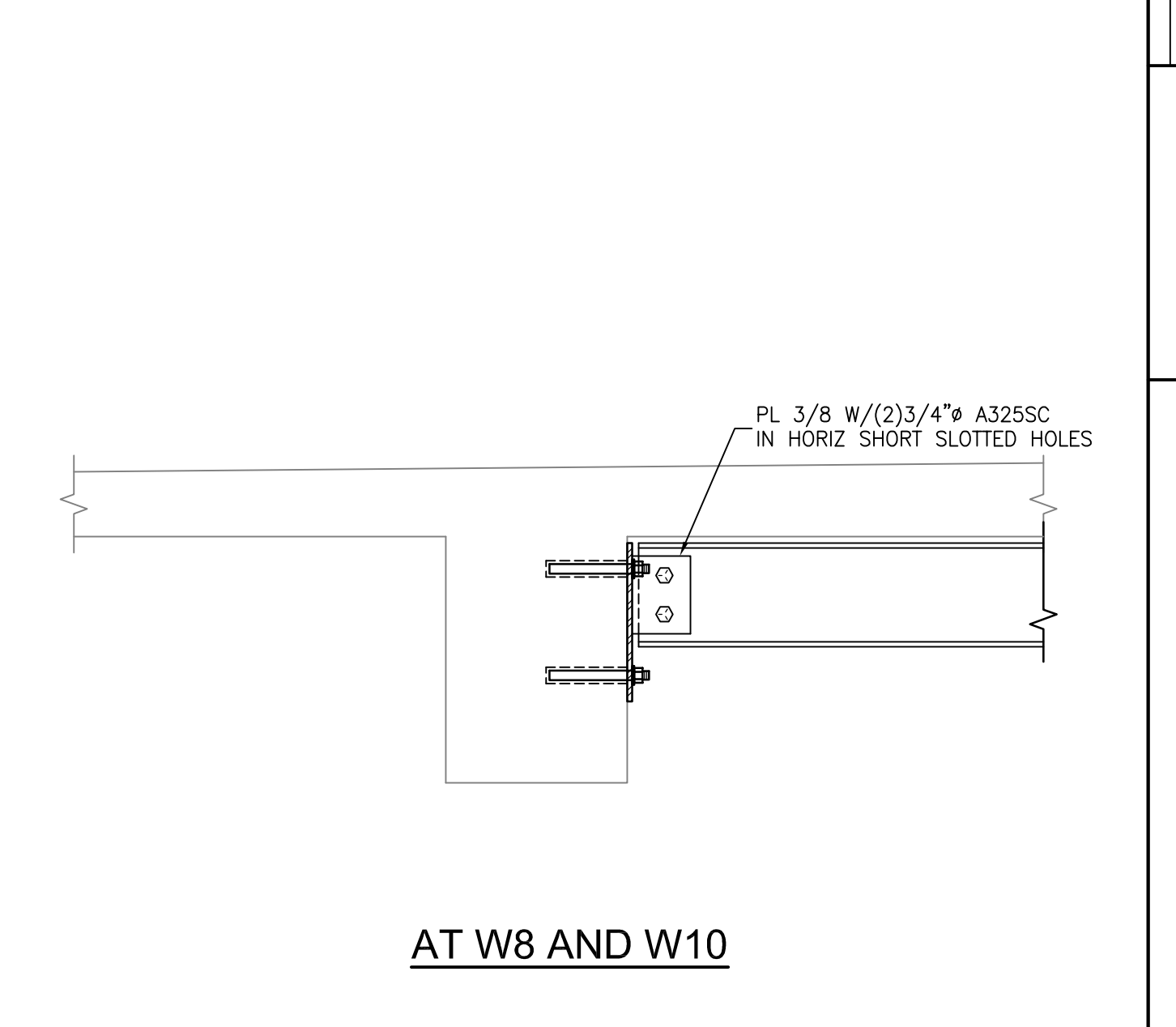
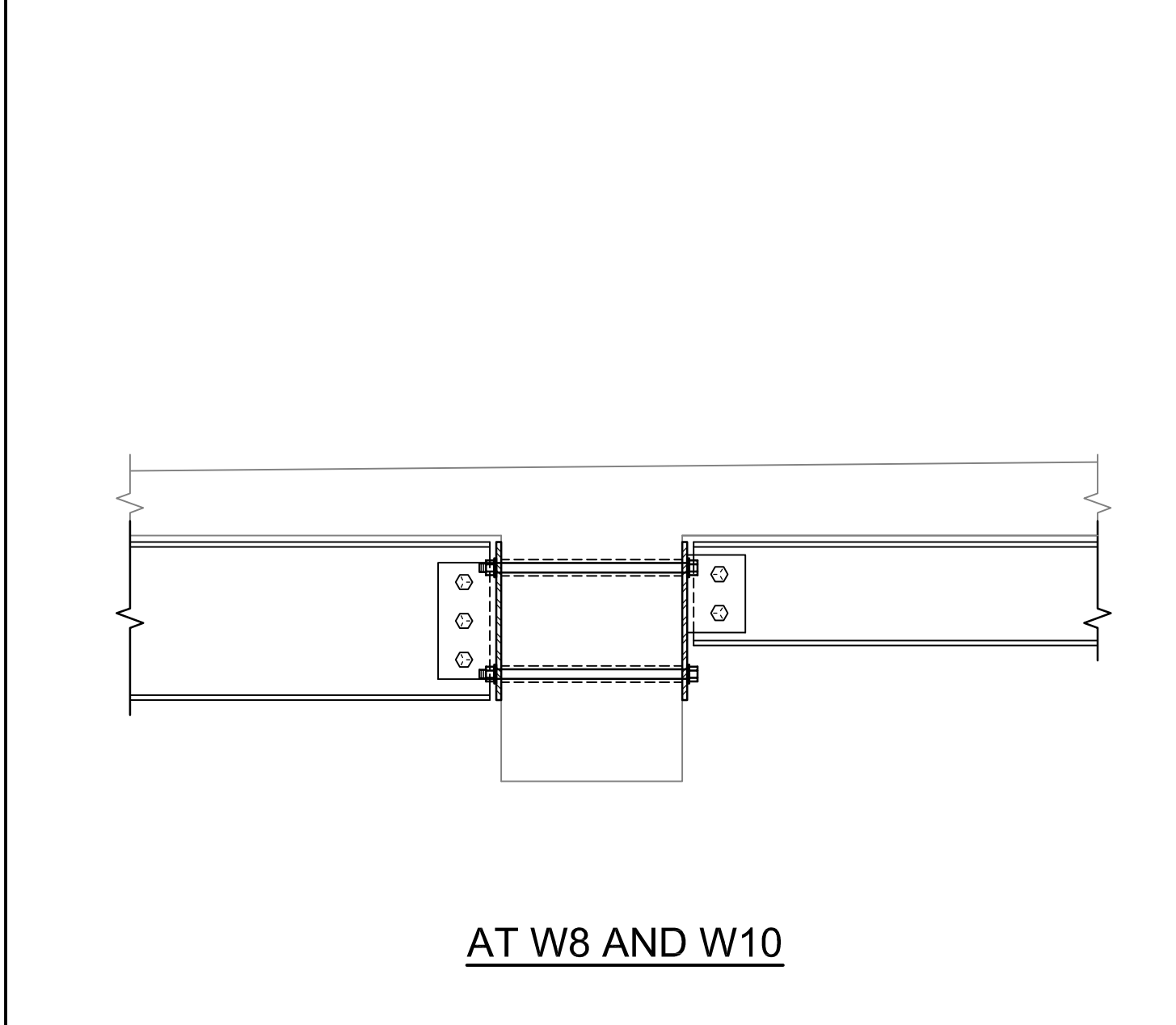
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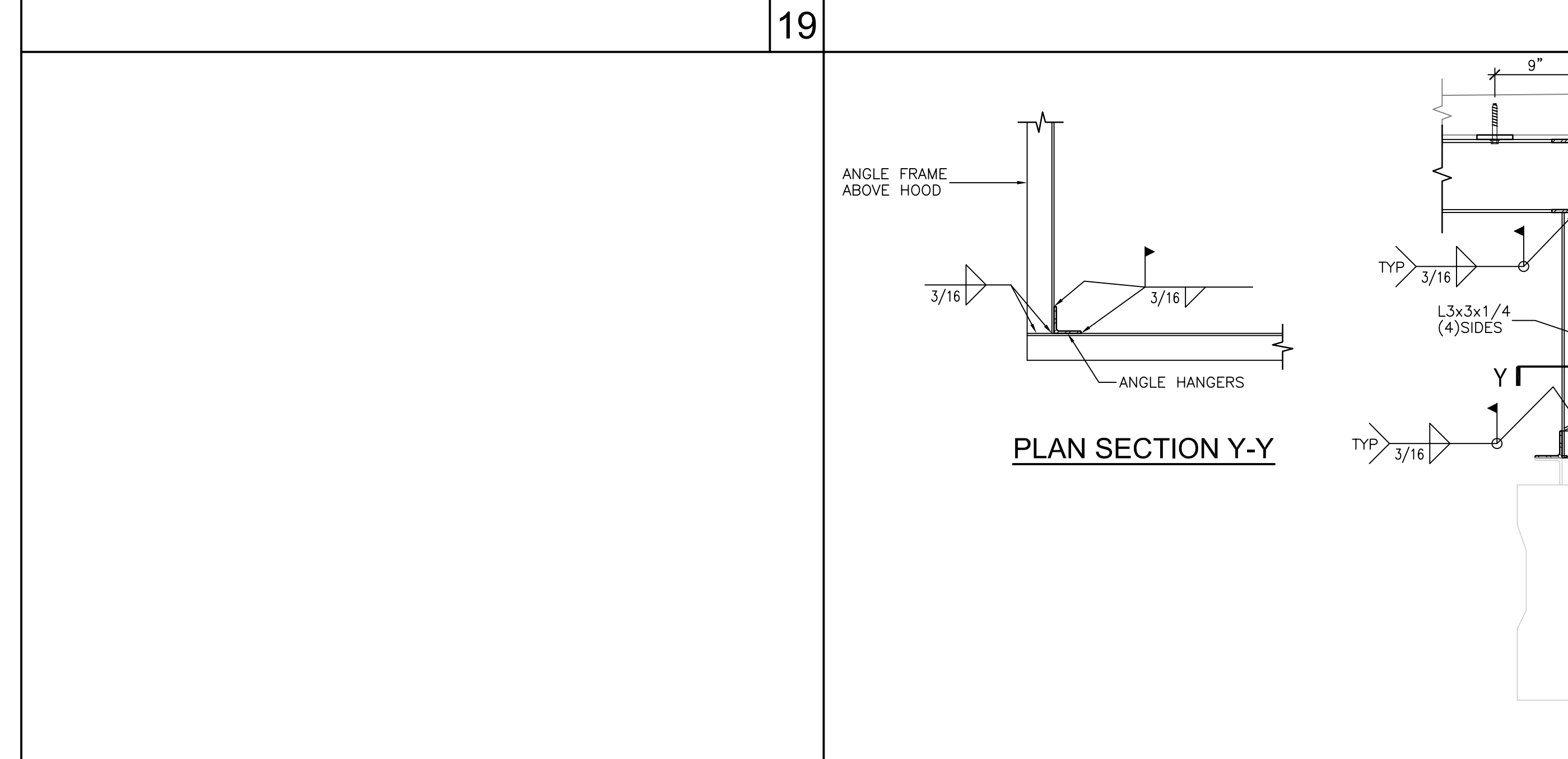
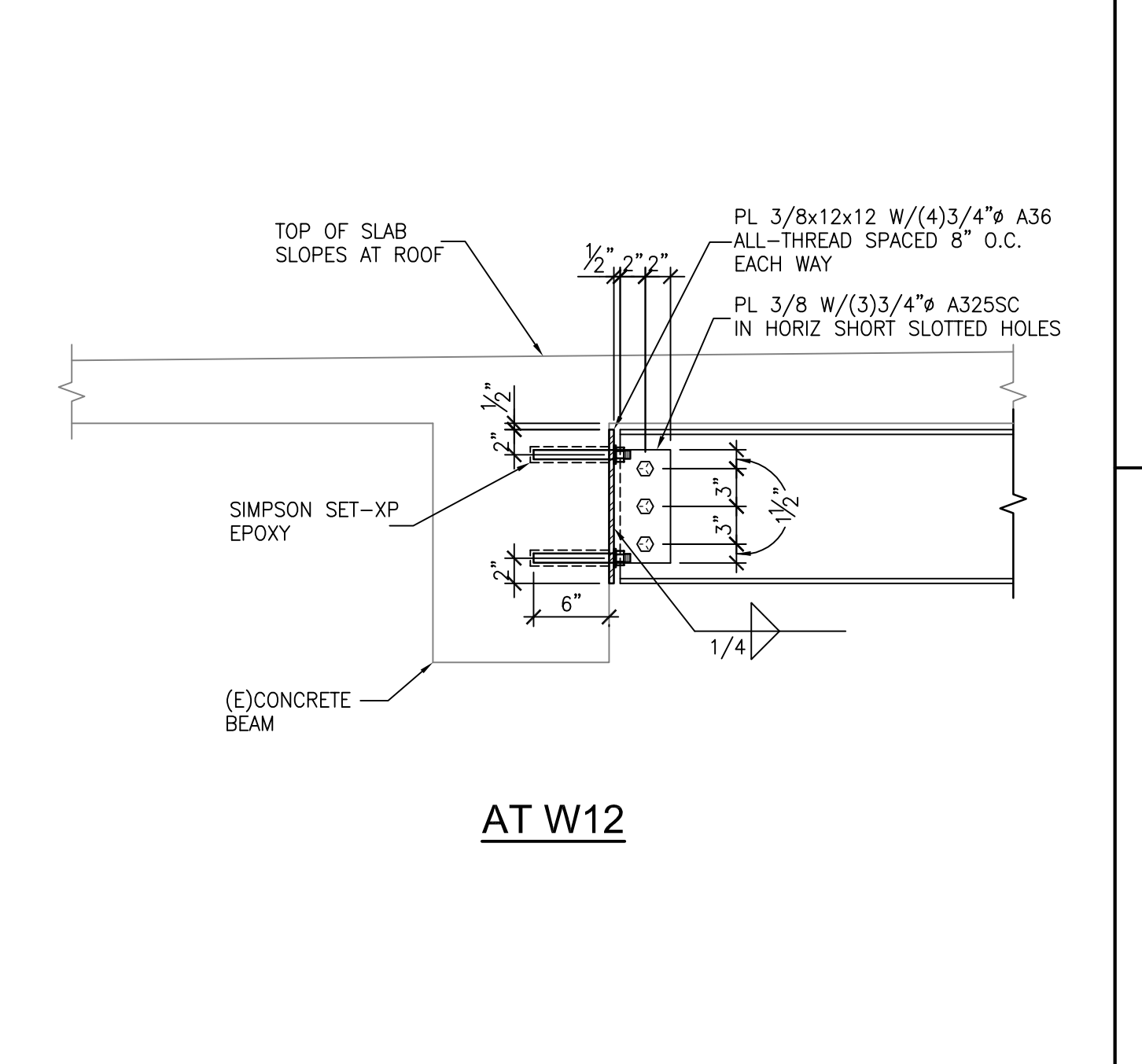
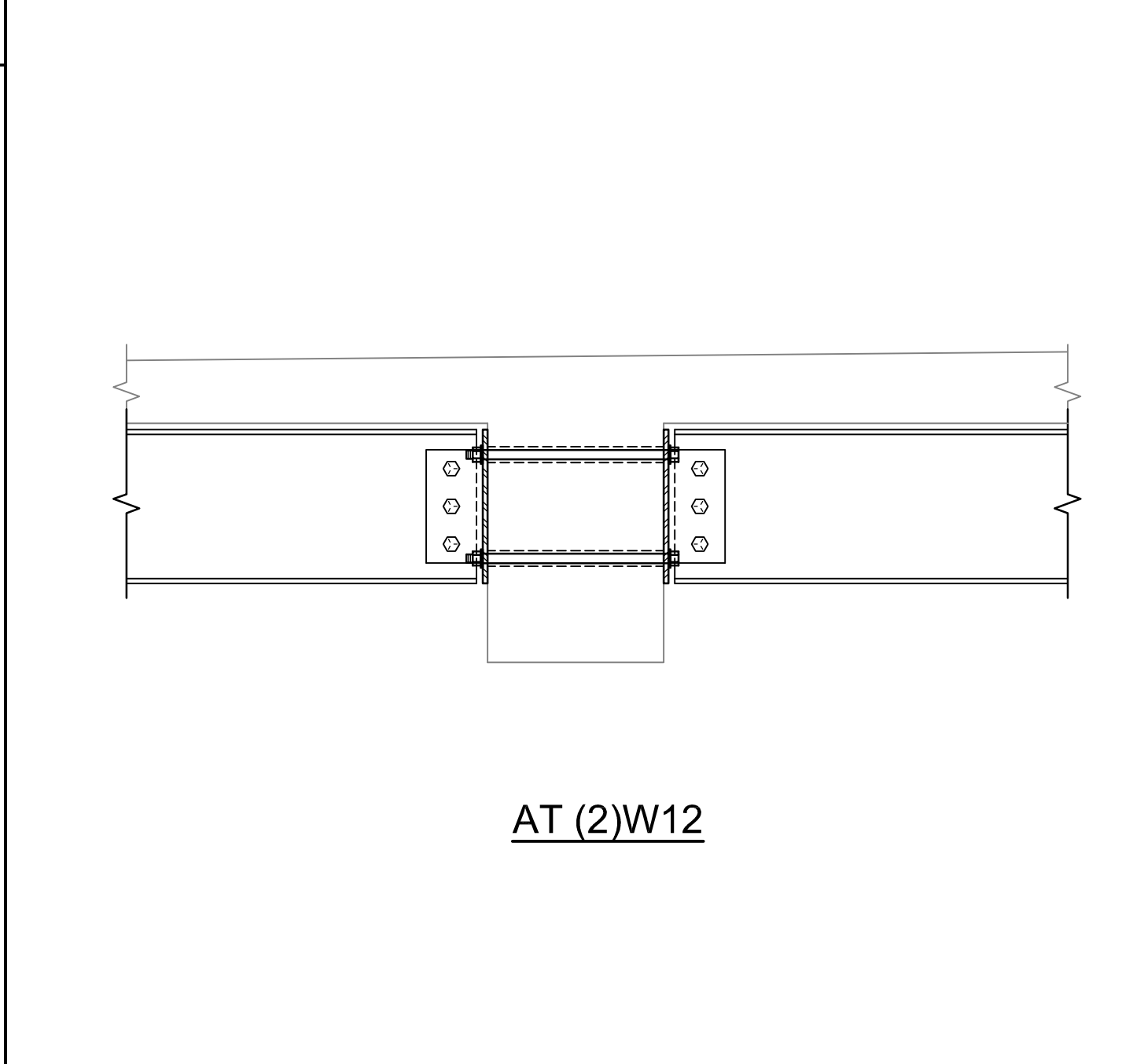
(N) TRANSFORMER PAD ON GRADE



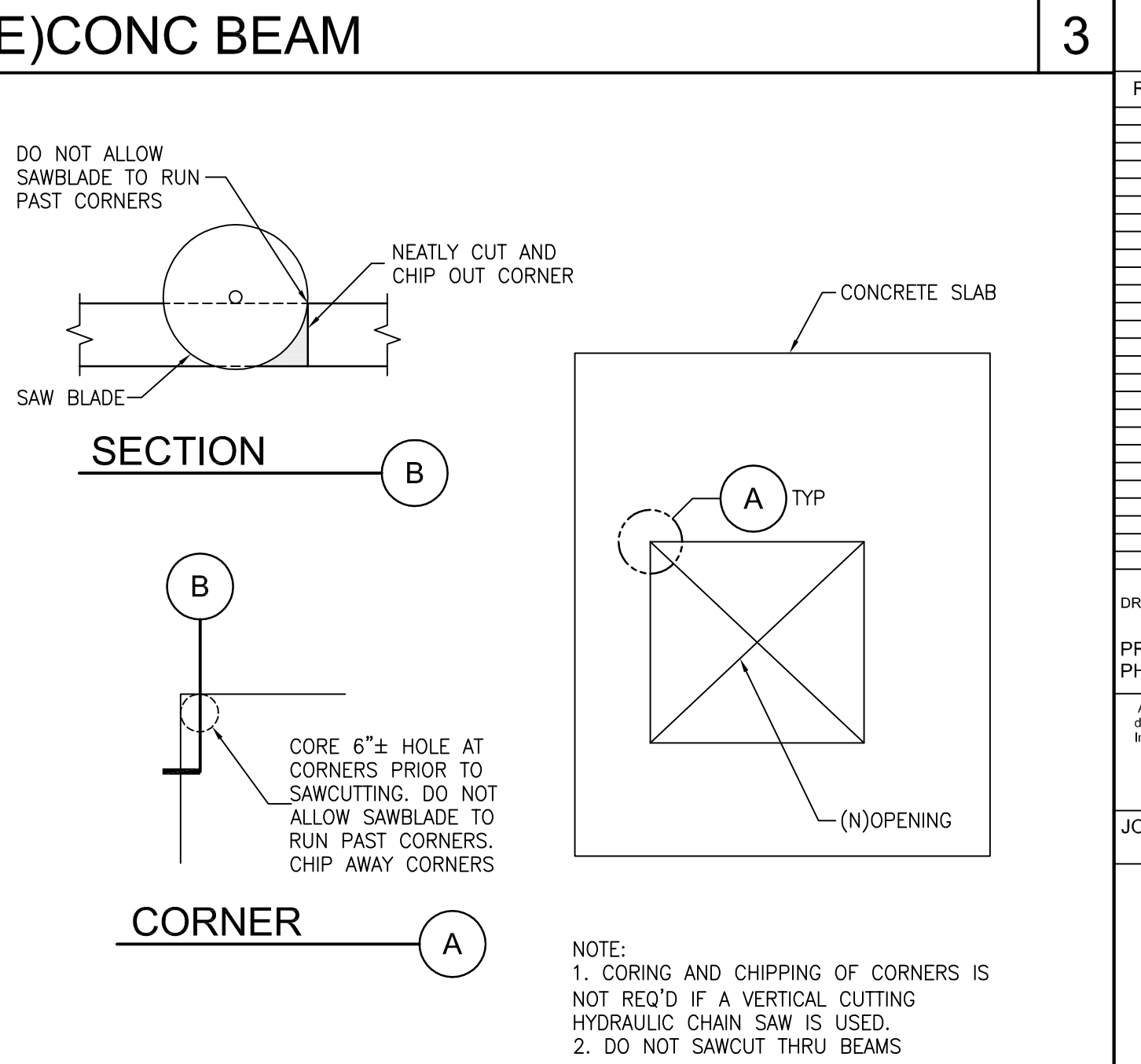
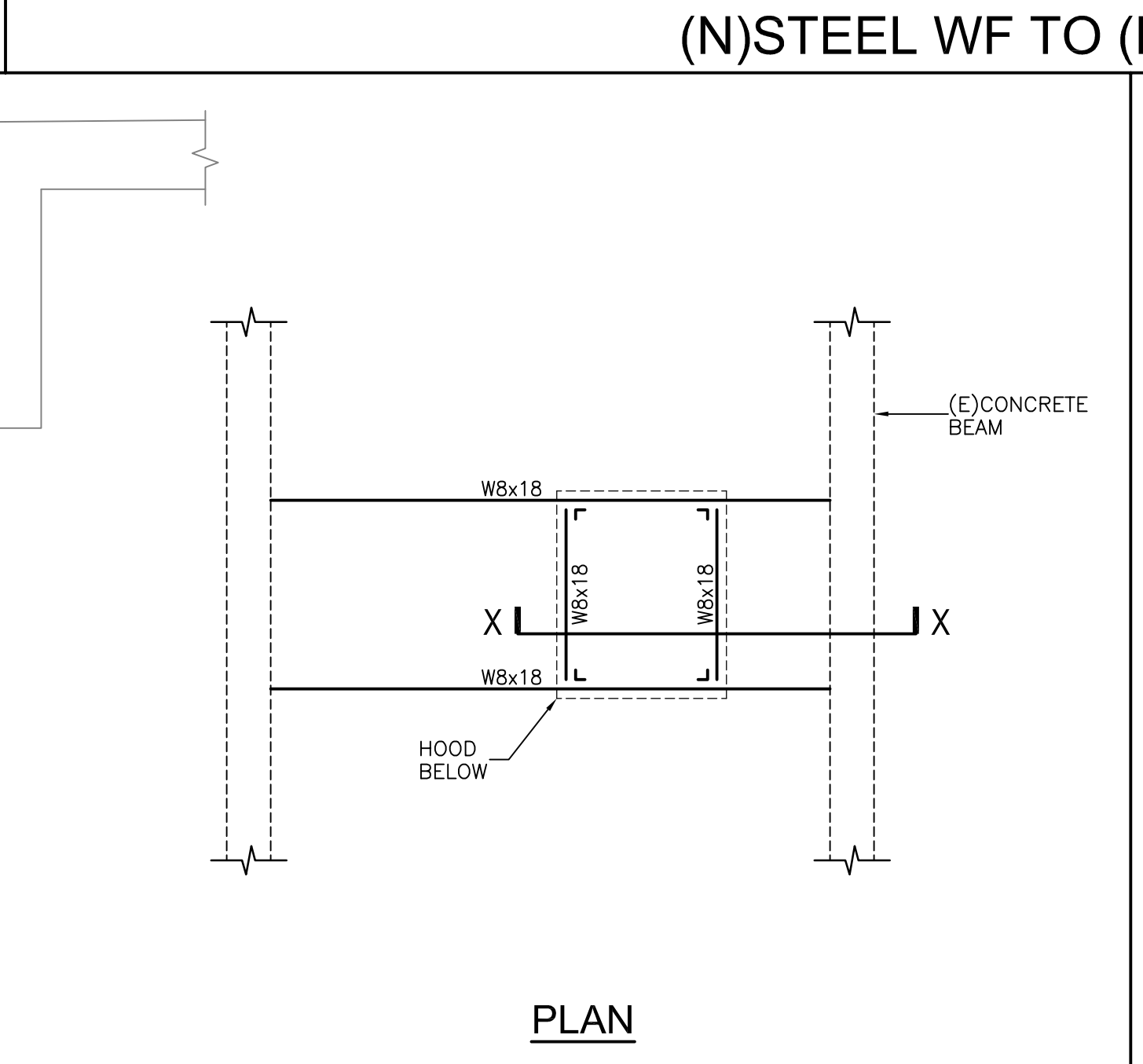
WF UNDER SLAB



DUCT PEN THRU MANSARD WALL



HOOD SUPPORT



SLAB SAWCUT OPENING

HOOD SUPPORT

HOOD SUPPORT

SLAB SAWCUT OPENING

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NCE Project No: 14-031

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 STRUCTURAL DETAILS