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GENERAL

ALL TYPICAL DETAILS AND NOTES SHOWN ON DRAWINGS SHALL APPLY UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS SHOWN OR DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE DRAWINGS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ALTERNATE TYPICAL DETAILS TO THOSE PROVIDED WITH RELATED CALCULATIONS TO THE ENGINEER FOR APPROVAL PRIOR TO SHOP DRAWING PRODUCTION AND FIELD USE.

BUILDING CODE

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE BUILDING CODE. THE PUBLICATIONS LISTED BELOW ARE THE GOVERNING CODES AND STANDARDS AND ARE REFERENCED BY THEIR BASIC DESIGNATION. IN THE CASE OF CONFLICTING REQUIREMENTS, THE BUILDING CODE SHALL GOVERN.

APPLICABLE CODES AND STANDARDS

BUILDING CODE	INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION, INCLUDING THE STATE OF MICHIGAN BUILDING CODE AMENDMENTS.
ACI 318	AMERICAN CONCRETE INSTITUTE, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE " 2014 EDITION
ACI 530	AMERICAN CONCRETE INSTITUTE, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", 2013 EDITION
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", 2010 EDITION
AISC 360	AMERICAN INSTITUTE OF STEEL CONSTRUCTION, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", 2010 EDITION
AISI	AMERICAN IRON AND STEEL INSTITUTE, "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", 2012 EDITION
ASCE 7	AMERICAN SOCIETY OF CIVIL ENGINEERS, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES", 2010 EDITION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM INTERNATIONAL)
AWS A2.4	AMERICAN WELDING SOCIETY, "SYMBOLS FOR WELDING AND NONDESTRUCTIVE TESTING", 2007 EDITION
AWS D1.1	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE – STEEL," CURRENT EDITION PER IBC
AWS D1.3	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE – SHEET STEEL", CURRENT EDITION PER IBC
AWS D1.4	AMERICAN WELDING SOCIETY, "STRUCTURAL WELDING CODE – REINFORCING STEEL", CURRENT EDITION PER IBC
NDS	NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS), 2015 EDITION
ICC	INTERNATIONAL CODE COUNCIL, INTERNATIONAL CODE COUNCIL - EVALUATION SERVICES (ICC-ES)

STRUCTURAL DESIGN DATA

LOAD COMBINATIONS

LOAD COMBINATIONS ARE IN ACCORDANCE WITH SECTION 1605 OF THE BUILDING CODE.

LIVE LOADS

LIVE LOADS SHALL BE IN ACCORDANCE WITH THE BUILDING CODE (SECTION 1607) OR AS NOTED ON THE PLANS.

RESIDENTIAL: LL = 40 PSF
RESIDENTIAL BALCONIES LL = 60 PSF
OFFICES: LL = 50 PSF
PUBLIC AREAS, STAIRS & EXITS LL = 100 PSF
STORAGE & MEP: LL = 125 PSF

SNOW LOADS

SNOW LOADING AND SNOW DRIFT LOADING SHALL BE IN ACCORDANCE WITH THE BUILDING CODE (SECTION 1608).

GROUND SNOW LOAD: Pg = 70 PSF
IMPORTANCE FACTOR: Is = 1.0
SNOW EXPOSURE FACTOR: Ce = 1.0 (TYP. BUILDING UNO)
1.1 (VENTILATED COLD ROOFS)
1.2 (EXTERIOR UNHEATED STRUCTURES)
THERMAL FACTOR: Ct = 1.0
FLAT-ROOF SNOW LOAD: Pf = 49 PSF (BUILDING UNO)
54 PSF (VENTILATED COLD ROOFS)
59 PSF (EXT. UNHEATED STRUCTURES)

WIND LOADS

WIND PRESSURE SHALL BE IN ACCORDANCE WITH THE BUILDING CODE (SECTION 1609).

BASIC WIND SPEED: V_ult = 115 MPH (3-SECOND GUST)
V_asd = 90 MPH (3-SECOND GUST)
RISK CATEGORY: II
EXPOSURE: D
ENCLOSURE CLASSIFICATION: ENCLOSED
INT. PRESSURE COEFFICIENT: GCpi = 0.18

WIND COMPONENTS AND CLADDING DESIGN WIND PRESSURE FOR 10 FT^2* TRIBUTARY AREA
ROOF – ZONE 1 (INTERIOR) = +26 PSF/ -41 PSF
ROOF – ZONE 2 = +26 PSF/ -70 PSF(EDGE), -82 PSF (OVERHANG)
ROOF – ZONE 3 = +26 PSF/ -104 PSF (EDGE), -138 PSF (OVERHANG)
WALL - ZONE 4 (INTERIOR) = +44 PSF/ -48 PSF
WALL – ZONE 5 (CORNER) = +44 PSF/ -59 PSF
*DESIGN C&C WIND PRESSURES FOR TRIBUTARY AREAS LARGER THAN 10 FT^2 MAY BE USED, AS APPLICABLE, IF DETERMINED BY CALCULATION, AND APPROVED BY ENGINEER OF RECORD.
** PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE BUILDING SURFACES.

SEISMIC LOADS

SEISMIC LOADING SHALL BE IN ACCORDANCE WITH THE BUILDING CODE (SECTION 1613).

BUILDING LOCATION: LATITUDE = 46.452°N
LONGITUDE = 84.601°W
RISK CATEGORY: II
IMPORTANCE FACTOR: I_E = 1.0
SITE CLASS: E
MAPPED SPECTRAL ACCELERATION PARAMETERS: S_S = 0.048g
S_1 = 0.025g
SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 0.080g
S_{D1} = 0.057g
SEISMIC DESIGN CATEGORY: A

LOAD PATH FOR LATERAL FORCES

LATERAL FORCES ARE CARRIED BY THE FLOOR DIAPHRAGMS TO THE SHEAR WALLS, BRACED FRAMES, MOMENT FRAMES, ETC AND ROTATIONAL FORCES ARE DELIVERED TO THE FOUNDATION BY THE SHEAR WALLS, BRACED FRAMES, MOMENT FRAMES, ETC. IN PROPORTION TO THEIR ABILITY TO RESIST LATERAL DEFORMATION. LATERAL FORCES ARE CARRIED BY THE FLEXIBLE ROOF DIAGRAMS BASED ON TRIBUTARY AREAS.

CONCRETE

1. MIXING, BATCHING, TRANSPORTING, PLACING, AND CURING OF ALL CONCRETE, AND SELECTION OF CONCRETE MATERIALS, SHALL CONFORM TO ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS," EXCEPT AS NOTED BELOW. PROPORTIONS OF AGGREGATE TO CEMENTITIOUS PASTE SHALL BE SUCH AS TO PRODUCE A DENSE, WORKABLE MIX THAT CAN BE PLACED WITHOUT SEGREGATION OR EXCESS FREE SURFACE WATER.
2. ALL CONCRETE USED IN HORIZONTAL SURFACES EXPOSED TO THE WEATHER SHALL CONTAIN AN ACCEPTABLE ADMIXTURE TO PRODUCE AIR-ENTRAINED CONCRETE WITH TOTAL AIR CONTENT, AS NOTED IN THE CONCRETE MIX SPECIFICATION TABLE. TOLERANCE FOR AIR CONTENT SHALL BE +/-1 PERCENT. AIR CONTENT SHALL BE MEASURED AT THE DISCHARGE OF THE TRUCK. IF CONCRETE IS PUMPED, AIR CONTENT SHALL BE MEASURED AT THE DISCHARGE END OF THE PUMP LINE. TESTS FOR AIR CONTENT SHALL MEET ASTM C172 REQUIREMENTS.
3. MIX DESIGNS LISTED BELOW SHALL BE SUBMITTED TO THE ARCHITECT AND APPROVED PRIOR TO USE. SUBMITTALS SHALL INCLUDE TEST DATA THAT CONFIRMS THE STRENGTH OF EACH MIX PER ACI 318. SELECTION OF CONCRETE MIX PROPORTIONS SHALL BE IN ACCORDANCE WITH ACI 301. MIX PROPORTIONS SHALL MEET OR EXCEED THE REQUIREMENTS LISTED BELOW FOR THE LOCATIONS NOTED. THE MORE STRINGENT OF THE REQUIREMENTS LISTED SHALL GOVERN.
4. MAXIMUM SIZE OF AGGREGATE SHALL BE AS LISTED BELOW. MAXIMUM FLY ASH AS A PERCENTAGE OF TOTAL WEIGHT OF CEMENTITIOUS MATERIAL SHALL BE 25 PERCENT. FLY ASH SHALL BE CLASS C OR F, MEETING ASTM C618 REQUIREMENTS. WATER/CEMENT RATIO SHALL BE BASED ON TOTAL CEMENTITIOUS MATERIAL, INCLUDING FLY ASH AND OTHER POZZOLANIC MATERIALS.
5. THE CONTRACTOR SHALL DETERMINE SLUMP. EACH CONCRETE MIX SUBMITTED SHALL HAVE THE SLUMP SPECIFIED. SLUMP SHALL BE MEASURED AT THE DISCHARGE OF THE TRUCK. IF CONCRETE IS PUMPED, SLUMP SHALL BE MEASURED AT THE DISCHARGE END OF THE PUMP LINE. SLUMPS SHALL BE WITHIN +1 INCH AND -2 INCHES OF THE SPECIFIED SLUMP.
6. THE USE OF SUPER PLASTICIZERS AND WATER REDUCERS IS ALLOWED, BUT NOT REQUIRED. ALL ADMIXTURES SHALL BE CHLORIDE FREE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

CONCRETE MIX DESIGN TABLE

LOCATION	f_c' (PSI)	TEST AGE (DAYS)	MAX W/C RATIO	AIR CONTENT (%)	MAX. AGGREGATE SIZE
MISCELLANEOUS CONCRETE, CURBS, SIDEWALKS	4,500	28	0.45	6.0	1"
EXTERIOR SLABS ON GRADE	4,500	28	0.45	6.0	1"
EXTERIOR CONCRETE ON STEEL DECK	4,500	28	0.44	6.0	3/4"
INTERIOR SLABS ON GRADE	4,000	28	0.50	-	1"
WALLS AND FOOTINGS	4,000	28	0.44	-	1"

SHOTCRETE

1. STRUCTURAL SHOTCRETE MAY BE USED FOR WALLS IN LIEU OF CAST-IN-PLACE CONCRETE. SHOTCRETE SHALL CONFORM STRICTLY TO THE REQUIREMENTS OF THE BUILDING CODE, SECTION 1910.
2. NON-CONTACT LAP SPLICES SHALL BE DETAILED IN ACCORDANCE WITH THE CODE AND SUBMITTED ON SHOP DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS.
3. TEST PANELS ARE REQUIRED FOR HEAVILY REINFORCED AREAS SUCH AS PILASTERS, WALL COLUMNS, ETC.
4. THE CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS FOR SHOTCRETING.

FIBER REINFORCED CONCRETE

1. FIBER REINFORCED CONCRETE SHALL BE USED FOR INTERIOR SLABS ON GRADE WHERE SPECIFIED AND SHALL BE A SPECIAL MIX DESIGN PRODUCING A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AND SHALL CONFORM TO ACI REPORT 544.1R.
2. EITHER POLYPROPYLENE OR NYLON FIBERS MAY BE USED. POLYPROPYLENE FIBERS SHALL BE MANUFACTURED BY THE FIBERMESH COMPANY, NYCON COMPANY, OR APPROVED EQUAL AND SHALL COMPLY WITH ASTM C1116, TYPE III. NYLON FIBERS SHALL BE MANUFACTURED BY THE NYCON COMPANY OR APPROVED EQUAL. DOSAGE PER MANUFACTURER'S RECOMMENDATIONS.

REINFORCING STEEL

1. ALL REINFORCING SHALL BE NEW BILLET STOCK ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. BARS SHALL BE SECURELY TIED IN PLACE WITH #16 DOUBLE-ANNEALED IRON WIRE. BARS SHALL BE SUPPORTED ON ACCEPTABLE CHAIRS. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING OF REINFORCED CONCRETE STRUCTURES." CONTRACTOR SHALL COORDINATE REINFORCING STEEL PLACEMENT DETAILS AND PROVIDE TEMPLATES FOR PLACING STEEL IN CONGESTED AREAS AS NECESSARY. SHOP DRAWINGS (INCLUDING PLACING PLANS AND ELEVATIONS) SHALL BE SUBMITTED TO, AND REVIEWED BY, THE ARCHITECT/ENGINEER BEFORE STARTING FABRICATION.
2. NO REINFORCING BARS SHALL BE SPLICED BY WELDING. AT THE CONTRACTOR'S OPTION, MECHANICAL BUTT SPLICING USING AN EXOTHERMIC WELDING PROCESS AND HIGH-STRENGTH SLEEVES OR MECHANICAL CONNECTION SPLICING MAY BE USED, PROVIDED THAT THE MECHANICAL SPLICES SHALL HAVE A CURRENT ICC-ES REPORT DEMONSTRATING THAT THE PRODUCT CAN ACHIEVE A MINIMUM TENSILE STRENGTH OF 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE BAR. SPLICE DEVICES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. REINFORCING BARS SHALL BE LAP SPLICED FOR TENSION (LSB) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
3. WELDING OR TACK WELDING OF REINFORCING BARS TO OTHER BARS OR TO PLATES, ANGLES, ETC, IS PROHIBITED, EXCEPT WHERE SPECIFICALLY APPROVED BY THE ENGINEER. WHERE WELDING IS APPROVED, IT SHALL BE DONE BY AWS CERTIFIED WELDERS USING E9018 OR APPROVED ELECTRODES. WELDING PROCEDURES SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.4.
4. MINIMUM CAST-IN-PLACE CONCRETE COVER OVER REINFORCING STEEL, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:
   A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:
      ALL SIZES: 3 INCHES
   B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      #5 BAR OR SMALLER: 1 1/2 INCHES
      #6 BAR OR LARGER: 2 INCHES
   C. OTHER CONCRETE:
      WALLS - INTERIOR FACE:
      #14 AND #18 BARS: 1 1/2 INCHES
      #11 BARS AND SMALLER: 3/4 INCH

WELDED WIRE FABRIC

1. WELDED WIRE FABRIC (WWF) SHALL BE ELECTRICALLY WELDED AND CONFORM TO ASTM A185.
2. AN 8-INCH MINIMUM LAP SHALL BE PROVIDED FOR SIDE AND END LAPS.
3. WELDED WIRE FABRIC SHALL BE SUPPORTED ON APPROVED CHAIRS.

PRECAST CONCRETE

1. DESIGN OF ALL PRECAST ELEMENTS AND SYSTEMS SHALL BE GOVERNED BY "PCI DESIGN HANDBOOK" – SEVENTH EDITION AND ACI 318-11.
2. ALL PRECAST CONCRETE UNITS SHALL BE DESIGNED TO SUPPORT THE SUPERIMPOSED LOADS AS INDICATED ON THE CONTRACT DRAWINGS FOR THE INDICATED SPAN CONDITIONS. DESIGN SHALL BE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF THIS PROJECT.
3. PRECAST, PRESTRESSED MEMBERS HAVE BEEN INDICATED ON THE DRAWINGS BY GENERAL SIZE AND DEPTH. THE STRUCTURAL ANALYSIS AND DESIGN OF THESE ITEMS, AS WELL AS LIFTING DEVICES FOR ALL PRESTRESSED CONCRETE MEMBERS, SHALL BE PERFORMED BY THE MANUFACTURER OF THE PRESTRESSED MATERIALS.
4. DESIGN CALCULATIONS SHALL BE SUBMITTED WITH THE SHOP DRAWINGS FOR ALL PRECAST, PRESTRESSED UNITS. CALCULATIONS SHALL BE CERTIFIED BY A PROFESSIONAL ENGINEER.
5. THE PRECAST MANUFACTURING PLANT SHALL BE CERTIFIED BY THE PRECAST/PRESTRESSED CONCRETE INSTITUTE PRIOR TO THE START OF ANY PRODUCTION.
6. ALL PRECAST CONCRETE UNITS SHALL HAVE REACHED THEIR DESIGN STRENGTH PRIOR TO SHIPMENT TO THE SITE.
7. PRECAST UNITS SHALL BE ERECTED SIMULTANEOUSLY ON EACH SIDE OF ALL SUPPORTING BEAMS OR WALLS. THE BEAMS SHALL BE BRACED TO PREVENT ROTATION UNTIL THE PRECAST UNITS ARE TOTALLY ERECTED.
8. PRECAST CONCRETE FABRICATOR TO SHOW ALL FIELD ANCHORAGE REQUIREMENTS, INCLUDING FIELD WELDING, ON SHOP DRAWINGS.
9. ALL PRECAST TO PRECAST CONNECTIONS SHALL BE DESIGNED BY PRECAST SUPPLIER BASED ON LOADS DESCRIBED IN GENERAL NOTES AND LOAD MAP PLANS. ALL SUPPLEMENTAL MATERIAL REQUIRED FOR PRECAST CONNECTIONS INCLUDING, BUT NOT LIMITED TO, ANGLES, PLATES, ETC. SHALL BE PROVIDED BY PRECAST SUPPLIER AND INSTALLED BY THE PRECAST ERECTOR.
10. ALL EXTERIOR EXPOSED PRECAST CONCRETE CONNECTIONS (PLATES, ANGLES, ETC) SHALL BE GALVANIZED STEEL. REMOVE GALVANIZING WHERE FIELD WELDING IS REQUIRED, AND PAINT FIELD WELDS WITH ONE COAT OF "GALVACON" OR APPROVED EQUAL.
11. SEE ARCHITECTURAL DRAWINGS AND DETAILS FOR ALL NON-STRUCTURAL TOPPING OR LIGHTWEIGHT CONCRETE LEVELING FILL OVER PRECAST CONCRETE UNITS.
12. PRESTRESSED FABRICATOR SHALL BE RESPONSIBLE FOR ALL OPENINGS THROUGH PRESTRESSED UNITS LARGER THAN 8" SQUARE OR 8" IN DIAMETER. ALL OTHER OPENINGS (LESS THAN 8") SHALL BE CUT BY THE TRADE REQUIRING THEM AND THE LOCATION SHALL BE APPROVED BY THE PRECAST SUPPLIER. VERIFY SIZE, NUMBER AND LOCATION OF ALL OPENINGS WITH MECHANICAL, ELECTRICAL AND ARCHITECTURAL PLANS AND ALL CONTRACTORS.
13. ALL HEADERS AT OPENINGS THROUGH PRECAST UNITS SHALL BE PROVIDED BY PRECAST SUPPLIER. PRECAST UNITS ADJACENT TO OPENINGS SHALL BE DESIGNED FOR ADDITIONAL LOAD AT EACH HEADER LOCATION.
14. PROVIDE INSERTS AND ANCHORS IN PRECAST CONCRETE UNITS FOR SUPPORT OF MECHANICAL AND ELECTRICAL EQUIPMENT, ARCHITECTURAL ITEMS AND STRUCTURAL MEMBERS. SEE PLANS FOR LOCATION OF INSERTS AND ANCHORS. VERIFY LOCATION WITH ARCHITECT.
15. A BONDING AGENT IS REQUIRED WHEN CONCRETE TOPPING IS SHOWN ON DRAWINGS AS STRUCTURAL. BONDING AGENT BETWEEN GROUTED PLANK AND STRUCTURAL TOPPING SHALL BE ONE PART CEMENT 1.5 PARTS FINE SAND PASSING #8 SIEVE AND SUFFICIENT WATER TO ACHIEVE CONSISTENCY OF THICK PAINT & APPLIED PER ACI 302 SECTION 8.7.2.
16. CONTRACTOR SHALL PROVIDE WEEP HOLES IN THE CORES OF PRECAST PLANK AS REQUIRED IN ORDER TO NOT ALLOW WATER BUILD-UP IN THE CORES DURING CONSTRUCTION.
17. THE DESIGN OF ALL MEMBERS AND ELEMENTS SHOWN ON THE DRAWINGS IS FOR THE IN-PLACE COMPLETED BUILDING. ALL LOADING CRITERIA AND VERIFICATION OF DESIGN FOR LOADING SUCH AS STRIPPING, HANDLING, TRANSPORTATION AND ERECTION ARE THE SOLE RESPONSIBILITY OF THE PRECAST SUPPLIER.
18. ALL TEMPORARY SHORING PROVIDED BY THE PRECAST SUPPLIER SHALL BE DESIGNED, CERTIFIED AND COORDINATED WITH OTHER TRADES. THE DESIGN MUST INCLUDE TEMPORARY CONSTRUCTION LOADS AND BUILDING LIVE LOADS CAUSED BY THE DECKING BEING PLACED. THE TEMPORARY SHORING IS TO INCLUDE THE DESIGN AND SHOP DRAWING APPROVAL OF THE CONNECTION OF TEMPORARY SHORES TO THE OTHER ELEMENTS EVEN IF THE CONNECTION IS TO BE PROVIDED BY A COORDINATED TRADE SUCH AS STRUCTURAL STEEL OR CONCRETE SUPPLIER.

CONSTRUCTION JOINTS

1. ALL CONSTRUCTION JOINTS IN WALLS SHALL BE KEYED IN ACCORDANCE WITH THE TYPICAL CONSTRUCTION JOINT DETAILS SHOWN ON THE STRUCTURAL DRAWINGS OR, AT THE CONTRACTOR'S OPTION, SHALL BE INTENTIONALLY ROUGHENED IN ACCORDANCE WITH THE FOLLOWING: THE SURFACE OF ROUGHENED JOINTS SHALL BE SAND BLASTED OR ROUGHENED WITH A CHIPPING HAMMER TO EXPOSE THE AGGREGATE EMBEDDED IN THE PREVIOUS POUR. THE EXPOSED AGGREGATE SHALL PROTRUDE A MINIMUM OF 1/4 INCH. ALL SURFACES OF CONSTRUCTION JOINTS SHALL BE CLEANED AND LAITANCE REMOVED. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.
2. VERTICAL CONSTRUCTION JOINTS AND CONTROL JOINTS IN CONCRETE AND CMU WALLS SHALL BE HELD TO A MAXIMUM SPACING OF 30'-0". JOINTS SHALL BE PLACED WITHIN 15'-0" OF WALL CORNERS WHERE POSSIBLE.
3. ALL CONSTRUCTION, CONTROL, AND ISOLATION JOINTS FOR SLABS ON GRADE SHALL BE IN ACCORDANCE WITH THE TYPICAL SLAB ON GRADE DETAILS.
4. THE CONTRACTOR SHALL SUBMIT THE PROPOSED LOCATIONS OF CONSTRUCTION JOINTS TO THE ENGINEER FOR ACCEPTANCE BEFORE STARTING CONSTRUCTION.

SLEEVES

1. EXCEPT AS DETAILED ON STRUCTURAL DRAWINGS, NO CONCRETE FOOTINGS, BEAMS, OR GIRDERS SHALL BE SLEEVED FOR PIPING OR DUCTS, UNLESS APPROVED BY THE ENGINEER.

ANCHORAGE TO HARDENED CONCRETE

1. ANCHORAGE TO HARDENED CONCRETE SHALL INCLUDE MECHANICAL AND ADHESIVE ANCHORS OF SIZE, NUMBER, AND SPACING AS SHOWN ON THE DRAWINGS.
2. HOLES SHALL BE DRILLED AND CLEANED AND ANCHORS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND AN APPROVED ICC-ES REPORT.
3. INSPECTION AND TESTING SHALL BE PROVIDED IN ACCORDANCE WITH THE GENERAL NOTES AND THE APPROVED IDD-ES REPORT.
4. WHERE A SPECIFIC TYPE OF ANCHORAGE IS SPECIFIED ON THE DRAWINGS, SUBSTITUTION FOR A DIFFERENT TYPE OF ANCHORAGE (INCLUDING SUBSTITUTING FOR CAST-IN-PLACE ANCHORAGE) SHALL NOT BE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL.

MECHANICAL ANCHORS

1. ACCEPTABLE MECHANICAL ANCHORS SHALL BE AS FOLLOWS: HILTI "KWIK BOLT TZ" CARBON AND STAINLESS STEEL EXPANSION ANCHOR (ICC-ES ESR-1917), SIMPSON STRONG-TIE "STRONG-BOLT" WEDGE ANCHOR (ICC-ES ESR-1771), OR APPROVED ALTERNATIVE WITH A CURRENT ICC-ES REPORT INDICATING THAT THE ANCHOR IS PERMITTED FOR RESISTING THE APPLIED LOADS IN CRACKED CONCRETE.
2. UNLESS NOTED OTHERWISE ON THE DRAWINGS, MINIMUM EFFECTIVE ANCHOR EMBEDMENT DEPTH SHALL BE 6.5 ANCHOR DIAMETERS, MINIMUM DISTANCE TO THE NEAREST CONCRETE EDGE SHALL BE 12 ANCHOR DIAMETERS, AND MINIMUM ANCHOR SPACING SHALL BE 8 ANCHOR DIAMETERS.
3. STAINLESS STEEL ANCHORS SHALL BE USED AT ALL EXTERIOR LOCATIONS AND WHERE SPECIFICALLY INDICATED ON THE DRAWINGS.
4. NO STEEL REINFORCEMENT SHALL BE CUT TO INSTALL ANCHORS.
5. DEFECTIVE OR ABANDONED HOLES SHALL BE FILLED WITH NON-SHRINK GROUT OR AN INJECTABLE ADHESIVE MATCHING THE ADJACENT CONCRETE COMPRESSIVE STRENGTH. NOTIFY THE STRUCTURAL ENGINEERS OF DEFECTIVE OR ABANDONED HOLES IN WALLS AND COLUMNS. THESE ELEMENTS MAY REQUIRE NON-SHRINK GROUT WITH A COMPRESSIVE MODULUS OF ELASTICITY MATCHING THAT OF THE ADJACENT CONCRETE.

ADHESIVE ANCHORS

1. ACCEPTABLE ADHESIVE (EPOXY) ANCHORS SHALL BE AS FOLLOWS:
   A. INSTALLED IN CONCRETE:
      - HILTI "HIT-HY 200" (ICC-ES ESR-3187)
      - SIMPSON STRONG-TIE "SET-XP" (ICC-ES ESR-2508)
      - APPROVED ALTERNATE WITH A CURRENT ICC-ES REPORT
   B. INSTALLED IN CONCRETE MASONRY:
      - HILTI "HIT-HY 70" (ICC-ES ESR-2682)
      - SIMPSON STRONG-TIE "SET" (ICC-ES ESR-1772)
      - APPROVED ALTERNATE WITH A CURRENT ICC-ES REPORT
   C. INSTALLED IN BRICK MASONRY:
      - HILTI "HIT-HY 70" (ICC-ES ESR-3342)
      - SIMPSON STRONG-TIE "SET" (ICC-ES ESR-1772)
      - APPROVED ALTERNATE WITH A CURRENT ICC-ES REPORT
2. UNLESS NOTED OTHERWISE, ANCHORS SHALL BE ASTM A36 THREADED ROD OR ASTM A615, GRADE 60 REINFORCING STEEL DOWELS.
3. UNLESS NOTED OTHERWISE ON THE DRAWINGS, MINIMUM EFFECTIVE ANCHOR EMBEDMENT DEPTH SHALL BE 6.5 ANCHOR DIAMETERS, AND MINIMUM ANCHOR SPACING SHALL BE 6 ANCHOR DIAMETERS.
4. HOLES SHALL BE DRILLED WITH ROTARY IMPACT HAMMER OR EQUIVALENT METHOD TO PRODUCE A HOLE WITH A ROUGH INSIDE SURFACE. CORE DRILLING HOLES IS NOT PERMITTED.
5. NO REINFORCING SHALL BE CUT TO INSTALL ADHESIVE ANCHORS.
6. TWO-PART ADHESIVES SHALL BE MIXED, APPLIED, AND CURED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS IN THE ICC-ES REPORT. ALL PLACEMENT AND CURING SHALL BE CONDUCTED WITH CONCRETE AND AIR TEMPERATURES ABOVE 50 DEGREES FAHRENHEIT. ADHESIVE SHALL BE APPLIED ONLY TO CLEAN, DRY CONCRETE. POSITIVE PROTECTION SHALL BE PROVIDED SO THAT ANCHORS ARE NOT DISTURBED DURING THE CURING PERIOD.
7. DEFECTIVE OR ABANDONED HOLES SHALL BE FILLED WITH NON-SHRINK GROUT OR AN INJECTABLE ADHESIVE MATCHING THE ADJACENT CONCRETE COMPRESSIVE STRENGTHS. NOTIFY THE STRUCTURAL ENGINEER OF DEFECTIVE OR ABANDONED HOLES IN WALLS AND COLUMNS. THESE ELEMENTS MAY REQUIRE NON-SHRINK GROUT WITH A COMPRESSIVE MODULUS OF ELASTICITY MATCHING THAT OF THE ADJACENT CONCRETE.

NONSHRINK GROUT FOR BASE PLATES, SLEEVES, AND EMBEDDED STEEL

1. GROUT SHALL BE AN APPROVED NONSHRINK CEMENTITIOUS GROUT CONTAINING NATURAL AGGREGATES DELIVERED TO THE JOB SITE IN FACTORY PREPACKAGED CONTAINERS REQUIRING ONLY THE ADDITION OF WATER.
2. THE MINIMUM 28-DAY COMPRESSIVE STRENGTH SHALL BE AT LEAST 1,000 PSI HIGHER THAN THE SUPPORTING CONCRETE STRENGTH, UNLESS NOTED OTHERWISE.
3. GROUT SHALL BE MIXED, APPLIED, AND CURED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS. FOR GROUTING UNDER BASE PLATES, GROUT SHALL BE PROPORTIONED AS A FLOWABLE MIX. WHEN A FLOWABLE MIX DOES NOT PROVIDE THE REQUIRED STRENGTH OR WHEN A MINIMUM STRENGTH OF 10,000 PSI IS REQUIRED, AN EPOXY GROUT SHALL BE USED.

STRUCTURAL STEEL

ALL STEEL SHALL CONFORM TO THE FOLLOWING:

W-SHAPES	ASTM A992, Fy=50 KSI
ANGLES, PLATES, CHANNELS UNLESS NOTED OTHERWISE	ASTM A36, Fy=36 KSI
SQUARE OR RECTANGULAR STRUCTURAL TUBE (HSS)	ASTM A500, GRADE B, Fy=46 KSI
STEEL PIPE DIAMETER LESS THAN OR EQUAL TO 12 INCHES	ASTM A53, TYPE E OR S, GRADE B, Fy=35 KSI
MATERIAL CALLED OUT ON PLANS AS (A36)	ASTM A36, Fy=36 KSI

1. GENERAL NOTES FOR STEEL CONNECTIONS SHALL APPLY TO ALL STEEL CONNECTIONS UNLESS NOTED OTHERWISE.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE AISC SPECIFICATION. SHOP DRAWINGS SHALL BE SUBMITTED AND REVIEWED BY THE ARCHITECT/ENGINEER BEFORE COMMENCING FABRICATION.
3. ALL STEEL ANCHORS AND TIES AND OTHER MEMBERS EMBEDDED IN CONCRETE OR MASONRY SHALL BE LEFT UNPAINTED. DIMENSIONAL TOLERANCE FOR BUILT-UP MEMBERS SHALL BE PER AWS D1.1.
4. FOR ASTM A6 GROUP HOT-ROLLED SHAPES OR BUILT-UP SHAPES WITH A FLANGE THICKNESS OF 2 INCHES OR GREATER, CHARPY V-NOTCH TESTING SHALL BE PROVIDED IN ACCORDANCE WITH ASTM A6 SUPPLEMENTARY REQUIREMENT S30 WITH A MINIMUM VALUE OF 20 FOOT-POUNDS AT 70 DEGREES FAHRENHEIT. PLATES OF 2 INCHES AND THICKER SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FOOT-POUNDS AT 70 DEGREES FAHRENHEIT MEASURED AT ANY LOCATION PERMITTED BY ASTM A673.
5. STEEL BEAMS ARE EQUALLY SPACED BETWEEN DIMENSION POINTS AT THE MAXIMUM DECK SPAN LOCATION UNLESS NOTED OTHERWISE.
6. MINIMUM CONNECTIONS SHALL BE A TWO-BOLT CONNECTION USING 3/4 INCH DIAMETER A325 BOLTS IN SINGLE SHEAR. ALL HIGH-STRENGTH BOLTS SHALL BE INSTALLED, TIGHTENED AND INSPECTED IN ACCORDANCE WITH THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS. THE CRITERIA FOR SLIP-CRITICAL CONNECTIONS SHALL APPLY TO ALL CONNECTIONS UNLESS NOTED OTHERWISE AS SNUG-TIGHT. BOLTS IN CONNECTIONS OF BEAM-TO-BEAM/GIRDER MAY BE SNUG TIGHT, UNLESS SPECIFICALLY CALLED OUT AS SLIP CRITICAL (SC). WHERE CONNECTIONS ARE NOTED AS SNUG-TIGHT, THE CONTRACTOR MAY INSTALL PER THE CRITERIA FOR SNUG-TIGHT BOLTS. SLIP-CRITICAL CONNECTIONS SHALL USE LOAD INDICATOR WASHERS OR TENSION CONTROL BOLTS. ALL ASTM A307 BOLTS SHALL BE PROVIDED WITH LOCK WASHERS UNDER NUTS OR SELF-LOCKING NUTS. ALL BOLT HOLES SHALL BE STANDARD SIZE UNLESS NOTED OTHERWISE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SELECTION OF OPTIONAL DETAILS SHOWN ON THE DRAWINGS.
8. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL ERECTION AIDS THAT INCLUDE, BUT ARE NOT LIMITED TO, ERECTION ANGLES, LIFT HOLES, AND OTHER AIDS.

STRUCTURAL STEEL WELDING

1. STRUCTURAL STEEL SHOP DRAWINGS SHALL SHOW ALL WELDING WITH AWS A2.4 SYMBOLS.
2. ALL WELDING SHALL BE DONE BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH AWS D1.1. WELDS SHOWN ON THE DRAWINGS ARE THE MINIMUM SIZES. INCREASE WELD SIZE TO AWS MINIMUM SIZES, BASED ON PLATE THICKNESS. THE MINIMUM WELD SIZE SHALL BE 3/16 INCH.
3. FIELD WELDING SYMBOLS HAVE NOT NECESSARILY BEEN INDICATED ON THE DRAWINGS. WHERE SHOWN, PROPER FIELD WELDING PER AWS D1.1 SHALL BE USED. WHERE NO FIELD WELDING SYMBOLS ARE SHOWN, IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE USE OF SHOP AND FIELD WELDS.
4. ALL PARTIAL PENETRATION GROOVE WELD SIZES SHOWN ON THE DRAWINGS REFER TO EFFECTIVE THROAT THICKNESS.
5. ALL WELDS SHALL BE MADE USING LOW HYDROGEN ELECTRODES WITH MINIMUM TENSILE STRENGTH PER AWS D1.1 (MINIMUM 70 KSI). LOW HYDROGEN SMAW ELECTRODES SHALL BE USED WITHIN 4 HOURS OF OPENING THEIR HERMETICALLY SEALED CONTAINERS, OR SHALL BE REDRIED PER AWS D1.1, SECTION 4.5. ELECTRODES SHALL BE REDRIED NO MORE THAN ONE TIME, AND ELECTRODES THAT HAVE BEEN WET SHALL NOT BE USED.
6. ALL WELDING SHALL BE PERFORMED IN STRICT ADHERENCE TO A WRITTEN WELDING PROCEDURE SPECIFICATION (WPS) PER AWS D1.1. ALL WELDING PARAMETERS SHALL BE WITHIN THE ELECTRODE MANUFACTURER'S RECOMMENDATIONS. WELDING PROCEDURES SHALL BE SUBMITTED TO THE OWNER'S TESTING AGENCY FOR REVIEW BEFORE STARTING FABRICATION OR ERECTION. COPIES OF THE WPS SHALL BE ON SITE AND AVAILABLE TO ALL WELDERS AND THE SPECIAL INSPECTOR.
7. ALL COMPLETE-PENETRATION WELDS SHALL BE ULTRASONICALLY TESTED UPON COMPLETION OF THE CONNECTION, EXCEPT PLATE LESS THAN OR EQUAL TO 1/4 INCH THICK SHALL BE MAGNETIC PARTICLE TESTED. REDUCTION IN TESTING MAY BE MADE IN ACCORDANCE WITH THE BUILDING CODE WITH APPROVAL OF THE ENGINEER.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE JOINT PREPARATIONS AND WELDING PROCEDURES THAT INCLUDE, BUT ARE NOT LIMITED TO: REQUIRED ROOT OPENINGS, ROOT FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, COPES, SURFACE ROUGHNESS VALUES, AND TAPERS AND TRANSITIONS OF UNEQUAL PARTS.

FIREPROOFING STRUCTURAL STEEL

1. REFER TO ARCHITECTURAL PLANS FOR MINIMUM HOURLY VALUES OF STEEL FIRE PROTECTION FOR DETERMINING THE THICKNESS OF SPRAY APPLIED FIREPROOFING.
2. THE STRUCTURAL FRAME CONSISTS OF COLUMNS AND GIRDERS, BEAMS, TRUSSES, AND SPANDRELS HAVING DIRECT CONNECTIONS TO THE COLUMNS AND BRACING MEMBERS DESIGNED TO CARRY GRAVITY LOADS.
3. FLOOR OR ROOF MEMBERS THAT HAVE NO CONNECTION TO COLUMNS SHALL BE CONSIDERED SECONDARY MEMBERS.

ANCHOR RODS

1. ANCHOR RODS SHALL BE ASTM F1554 GRADE 36 WITH CLASS 1A THREADS, UNLESS NOTED OTHERWISE.
2. ANCHOR RODS MAY BE HEADED BOLT OR UNHEADED ROD MATERIAL. PROVIDE HEAVY HEX NUT ON THE EMBEDDED END OF THE UNHEADED ROD AND WELD IN PLACE TO PREVENT IT FROM TURNING.
3. FURNISH HARDENED PLATE WASHERS, LOCK WASHERS, AND MATCHING HEAVY HEX NUTS FOR SECURING THE BASE PLATE TO THE ANCHOR RODS.
4. HOOKED ANCHOR RODS SHALL NOT BE USED EXCEPT WHERE NOTED.
5. A RIGID STEEL TEMPLATE SHALL BE USED TO LOCATE ANCHOR RODS WHILE PLACING CONCRETE.
6. ANCHOR RODS SHALL HAVE SUFFICIENT LENGTH TO PROVIDE THE MINIMUM EMBEDMENT SHOWN ON THE DRAWINGS, MEASURED FROM THE FACE OF THE CONCRETE TO THE NEAR FACE OF THE DOUBLE NUT, WITH ADEQUATE EXTENSION AS REQUIRED TO RECEIVE THE BASE PLATE WITH FULL THREAD PROJECTION FOR NUT INSTALLATION.
7. ANCHOR ROD INSTALLATION SHALL BE COORDINATED WITH REINFORCING AND FORMWORK.
8. LEVELING NUTS SHALL NOT BE USED EXCEPT AFTER EVALUATION BY THE CONTRACTOR'S ERECTION ENGINEER.
9. AFTER BASE INSTALLATION, ANCHOR ROD NUTS SHALL BE INSTALLED TO A SNUG-TIGHT CONDITION.
10. NO HEATING OR BENDING OF THE ANCHOR RODS IS PERMITTED.
11. HOLES IN THE BASE MATERIAL SHALL NOT BE ENLARGED BY BURNING.

STEEL FLOOR DECK

1. THE STEEL DECK SHALL BE OF DEPTH AND GAUGE SHOWN ON THE STRUCTURAL DRAWINGS.
2. SHOP DRAWINGS SHALL BE SUBMITTED SHOWING DECK GAUGE, LAYOUT, FASTENING, STUD LAYOUT, AND CLOSURES.
3. THE AISI SPECIFICATIONS SHALL GOVERN THE DESIGN OF ALL DECK UNITS. STEEL DECK AND ALL OF ITS FLASHINGS SHALL CONFORM TO ASTM A653. THE STEEL SHALL HAVE RECEIVED, BEFORE BEING FORMED, A METAL PROTECTIVE COATING OF ZINC CONFORMING TO ASTM A653-G60, UNLESS NOTED OTHERWISE.
4. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3.
5. UNLESS SHOWN OTHERWISE, UNITS SHALL BE FASTENED TO THE STEEL SUPPORTS AT THE ENDS OF THE UNITS AND AT INTERMEDIATE SUPPORTS AT 12 INCHES ON CENTER WITH 3/4-INCH-DIAMETER PUDDLE WELDS; WHERE TWO UNITS ABUT, EACH UNIT SHALL BE SO FASTENED TO THE STEEL SUPPORTS.
6. THE SIDE LAPS OF ADJACENT UNITS SHALL BE FASTENED BETWEEN SUPPORTS BY 1 1/2-INCH TOP SEAM WELDS AT 1'-0" ON CENTER OR BUTTON PUNCHED AT 1'-0" ON CENTER.
7. DECK UNITS SHALL BE FASTENED TO THE STEEL SUPPORTS AT THE SIDE BOUNDARIES BY 3/4-INCH-DIAMETER PUDDLE WELDS AT 1'0" ON CENTER. 3/4-INCH-DIAMETER SHEAR STUDS WELDED THROUGH DECK MAY BE USED IN PLACE OF 3/4-INCH-DIAMETER PUDDLE WELDS.
8. DESIGN AND PROVIDE FLASHING AND CLOSURE PLATES AT WALL ENDS OF ALL UNITS, AROUND COLUMNS, AND AT ALL PERIMETER LOCATIONS REQUIRING CLOSURE. COORDINATE ALL CLOSURES WITH ELEVATOR, STAIR, AND OTHER ARCHITECTURAL DETAILS. THE DECK INSTALLATION, WHEN COMPLETE, SHALL BE READY TO RECEIVE CONCRETE.
9. STEEL DECK TYPES SHALL BE VULCRAFT OR APPROVED EQUAL.

STEEL JOISTS

1. STEEL JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS" OF THE AMERICAN STEEL JOIST INSTITUTE (SJI). JOISTS SHALL BE CAMBERED FOR DEAD LOAD DEFLECTION.
2. JOIST DEPTH AND SPACING SHALL BE AS INDICATED ON PLANS. PROPOSED REVISIONS TO DEPTH AND SPACING MUST BE APPROVED BY THE ENGINEER.
3. FIELD WELD STANDARD K SERIES JOISTS TO SUPPORTING STEEL WITH A MINIMUM OF 1" X 1/8" FILLET WELD EACH SIDE OF BEARING PLATE AT ALL JOIST BEARING LOCATIONS UNLESS DETAILED OTHERWISE ON PLANS.
4. FIELD WELD STANDARD LH AND DLH SERIES JOISTS TO SUPPORTING STEEL WITH A MINIMUM OF 2" X 1/4" FILLET WELD EACH SIDE OF BEARING PLATE AT ALL JOIST BEARING LOCATIONS UNLESS DETAILED OTHERWISE ON PLANS.
5. MINIMUM BEARING OF STANDARD K-SERIES JOISTS SHALL BE 2 1/2" ON STEEL OR 4" ON MASONRY OR CONCRETE UNLESS DETAILED OTHERWISE ON PLANS.
6. MINIMUM BEARING OF LH AND DLH SERIES JOISTS SHALL BE 4" ON STEEL AND 6" ON MASONRY OR CONCRETE UNLESS DETAILED OTHERWISE ON PLANS.
7. INSTALL BRIDGING IN ACCORDANCE WITH SJI SPECIFICATION AND PROVIDE POSITIVE WALL ANCHORAGE FOR BRIDGING BETWEEN FIRST JOIST ON PARALLEL WALL.
8. ALL HEADER ANGLES FOR STEEL JOISTS ARE TO BE FURNISHED BY THE JOIST FABRICATOR. ALL OTHER ANGLES FOR OPENINGS BETWEEN JOISTS SHALL BE FURNISHED BE THE STRUCTURAL STEEL FABRICATOR.
9. WHERE SPECIAL ROOF LOADS ARE INDICATED ON THE DRAWINGS, JOISTS SHALL BE DESIGNED AND FURNISHED TO SAFELY CARRY THESE LOADS PLUS THE UNIFORM ROOF LOADING OF 49 PSF SNOW LOAD AND 25 PSF DEAD LOAD. JOISTS SHALL ALSO BE DESIGNED FOR AN ALLOWABLE UNIFORM UPLIFT OF 10 PSF.
10. SUBMIT SHOP DRAWINGS FOR ALL JOISTS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
11. AT COMPLETION OF MANUFACTURE, THE STEEL JOIST MANUFACTURER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE IN ACCORDANCE WITH IBC SECTION 1704.2.5.2 STATING THAT WORK WAS PERFORMED IN ACCORDANCE WITH CONSTRUCTION DOCUMENTS AND WITH SJI STANDARD SPECIFICATIONS.

STEEL ROOF DECK

1. THE STEEL ROOF DECK SHALL BE OF DEPTH SHOWN ON THE STRUCTURAL DRAWINGS.
2. STEEL DECK TYPES SHALL BE VULCRAFT TYPE B, VERCO TYPE HSB-36, ACS TYPE B, OR APPROVED EQUAL, UNLESS NOTED OTHERWISE. MINIMUM GAUGE IS 20.
3. FIELD WELD STEEL ROOF TYPE B DECK TO SUPPORTING MEMBERS WITH 5/8" DIAMETER PUDDLE WELDS AT A 36/4 PATTERN AT END LAPS AND AT INTERMEDIATE SUPPORTS. WHERE TWO UNITS ABUT, EACH UNIT SHALL BE SO FASTENED TO THE STEEL FRAMING.
4. THE SIDE LAPS OF ADJACENT UNITS SHALL BE FASTENED BETWEEN SUPPORTS BY #10 TEK SCREWS AT A MAXIMUM SPACING OF 1'-0" ON CENTER UNLESS NOTED OTHERWISE.
5. DECK UNITS SHALL BE CONNECTED TO THE STEEL SUPPORTS AT THE SIDE BOUNDARIES AT EVERY DECK FLUTE UNLESS NOTED OTHERWISE.
6. SHOP DRAWINGS SHALL BE SUBMITTED SHOWING DECK GAUGE, LAYOUT, CONNECTIONS, AND CLOSURES.
7. AT EPIC TORIS A DECK, SCREW DECK TO SUPPORTING MEMBERS WITH #12 SCREWS AT 24/6 PATTERN AT END LAPS AND AT INTERMEDIATE SUPPORTS. WHERE TWO UNITS ABUT, EACH UNIT SHALL BE SO FASTENED TO THE STEEL FRAMING. SIDE LAPS OF ADJACENT UNITS SHALL BE FASTENED BETWEEN SUPPORTS BY #12 TEK SCREWS AT A MAXIMUM SPACING OF 9-INCHES ON CENTER UNLESS NOTED OTHERWISE.
8. SHEET STEEL FOR PRIME PAINTED ROOF DECK AND ALL OF ITS ACCESSORIES SHALL CONFORM TO ASTM A1008 WITH A MINIMUM YIELD STRENGTH OF 33 KSI.
9. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3.
10. UNITS SHALL SPAN OVER FOUR SUPPORTS, CONTINUOUS OVER THREE OR MORE SPANS, EXCEPT WHERE THE FRAMING DOES NOT PERMIT.
11. WHERE STEEL MEMBERS ARE PARALLEL TO THE DECK FLUTES AND AT THE SAME ELEVATION OF THE BOTTOM OF THE DECK, ADJUST DECK LAYOUT AND WELD DECK TO STEEL WITH SAME WELDING AS REQUIRED FOR SIDE BOUNDARIES.
12. STEEL DECK THAT IS TO BE COVERED WITH INSULATING CONCRETE SHALL BE SLOTTED OR PERFORATED TO PROVIDE A MINIMUM OF 1.5 PERCENT UNIFORMLY DISTRIBUTED VENTING.
13. PROVIDE FLASHING AND CLOSURE PLATES AT ALL PERIMETER LOCATIONS REQUIRING CLOSURE. THE DECK INSTALLATION, WHEN COMPLETE, SHALL BE READY TO RECEIVE INSULATING CONCRETE.
14. AT THE CONTRACTOR'S OPTION, ALTERNATIVE 1.5B AND 3N DECK GAUGE AND/ OR CONNECTIONS OTHER THAN THOSE SPECIFIED IN THE DRAWINGS AND NOTES MAY BE USED, PROVIDED THE MINIMUM REQUIREMENTS ARE MET:
    a. A MINIMUM ALLOWABLE DIAPHRAGM SHEAR CAPACITY OF 500 POUNDS PER FOOT AND A MAXIMUM FLEXIBILITY FACTOR (F) OF 25 MICRO-INCHES PER POUND, ARE MET.
    b. THE GAUGE OF DECK AND ITS CONNECTIONS TO THE STRUCTURE SHALL MEET THE SPAN CONDITIONS, DEFLECTION REQUIREMENTS, CONSTRUCTION LOADS, DIAPHRAGM SHEARS, REQUIRED FLEXIBILITY FACTOR (F), AND THE SUPERIMPOSED GRAVITY LOADS AND WIND LOADS SHOWN ON THE DRAWINGS, LOAD DIAGRAMS, AND NOTES.
    c. MAXIMUM DEFLECTION UNDER SUPERIMPOSED LOADS IS 1/2 INCH OR L/240.
    d. ALTERNATIVE DECK GAUGE AND/ OR CONNECTIONS PER NOTE ABOVE, CONNECTIONS SHALL BE MADE WITH WELDS, POWDER ACTUATED FASTENERS, OR PNEUMATIC PINS, SCREWS, OR MECHANICAL CRIMPING, PROVIDED THAT THE CONTRACTOR PRESENTS CALCULATIONS WITH CURRENT ICC-ES EVALUATION REPORTS DEMONSTRATING EQUIVALENT VALUES OF SHEAR CAPACITY, DECK CAPACITY, AND DECK FLEXIBILITY.
    e. WRITTEN VERIFICATION OF CONFORMANCE FOR ALL CONDITIONS IN THE STRUCTURE SHALL BE SUBMITTED FOR ACCEPTANCE PRIOR TO FABRICATION. THE CAPACITIES OF THE DECK SHALL BE BASED ON CURRENT ICC-ES EVALUATION REPORTS.

GAUGE STEEL FRAMING

1. THE CONTRACTOR SHALL PROVIDE FULL-TIME QUALITY CONTROL OVER ALL FABRICATION AND ERECTION ACTIVITY THROUGH THE USE OF AN INDEPENDENT TESTING AGENCY AND/OR A QUALIFIED REPRESENTATIVE OF THE STEEL MANUFACTURER.
2. THE CONTRACTOR SHALL OBTAIN MILL CERTIFICATION FROM THE GAUGE STEEL MANUFACTURER OR SHALL SUBMIT TENSILE TESTS AND GALVANIZATION TESTS TO THE ENGINEER OF RECORD TO VERIFY THE ADEQUACY OF THE GAUGE MATERIALS.
3. GAUGE MATERIAL SHALL BE FORGED FROM GALVANIZED ASTM A653 STEEL. 54 MIL (16 GA.), 68 MIL (14 GA.) AND 97 MIL (12 GA.) MATERIAL SHALL BE GRADE 50 WITH A MINIMUM YIELD STRESS OF 50 KSI. 43 MIL (18 GA.) AND LIGHTER MATERIAL SHALL BE GRADE 33 WITH A MINIMUM YIELD STRESS OF 33 KSI. ALL MEMBERS TO BE GALVANIZED PER ASTM A653 WITH A MINIMUM G60 COATING
4. FRAMING MEMBERS SHALL HAVE THE MINIMUM EFFECTIVE PHYSICAL AND STRUCTURAL PROPERTIES AS PUBLISHED BY THE STEEL STUD MANUFACTURER'S ASSOCIATION (ICC ES ER-4943P) OR EQUIVALENT ICBO APPROVED FRAMING MEMBERS AT THE CONTRACTOR'S OPTION.
5. MEMBER DESIGNATION:

600	S	162	-	54
DEPTH (INCHES)	MEMBER TYPE	FLANGE WIDTH (INCHES)		MATERIAL THICKNESS (MILS)

6. WALL STUDS AND FRAMING AT WALL OPENINGS SHALL BE PER THE DRAWINGS. STUDS SHALL BE SHEATHED ON BOTH SIDES EXCEPT WHERE NOTED. COLD ROLLED CHANNEL OR OTHER BRIDGING/BRACING SHALL BE PROVIDED WHERE SHEATHING ONLY OCCURS ON ONE SIDE. SEE TYPICAL DETAILS FOR ADDITIONAL INFORMATION.
7. WALL STUD BRIDGING SHALL BE INSTALLED IN A MANNER TO PREVENT STUD ROTATION. BRIDGING ROWS SHALL BE SPACED PER THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. THE MAXIMUM SPACING FOR BRIDGING SHALL BE 5'-0" ON CENTER FOR WALLS RESISTING HORIZONTAL WIND LOADS ONLY AND 3'-4" ON CENTER FOR AXIAL LOADED WALLS
8. PREFABRICATED MEMBERS SHALL BE AS SHOWN IN THE DRAWINGS AND SHALL BE ASSEMBLED SQUARE WITH THE FASTENERS INDICATED IN THE DRAWINGS. ALL FRAMING MEMBERS SHALL BE CUT SQUARELY AND SHALL BE POSITIVELY HELD IN PLACE UNTIL PROPERLY FASTENED. HANDLING AND LIFTING OF PREFABRICATED MEMBERS SHALL BE DONE IN A MANNER AS TO NOT CAUSE DISTORTION OF ANY MEMBERS.
9. SPLICES IN AXIALLY LOADED STUDS SHALL NOT BE PERMITTED.
10. GAUGE STEEL ACCESSORIES SHALL OF THE TYPE, SIZE AND SPACING SHOWN ON THE DRAWINGS, 54 MIL (16 GA.) MINIMUM UNLESS DETAILED OTHERWISE.
11. ERECT FRAMING PLUMB, LEVEL AND SQUARE IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS.
12. TEMPORARY BRACING OF WALL FRAMING SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED AND REMOVED ONLY AFTER THE FRAMING HAS BEEN SECURED WITH PERMANENT SUPPORT.

GAUGE STEEL FASTENERS

1. FASTENING OF GAUGE STEEL COMPONENTS SHALL BE BY WELDING OR SCREWING OR BY OTHER MEANS OF FASTENING AS INDICATED IN THE DRAWINGS.
2. ALL FASTENERS SHALL BE OF THE TYPE AND SIZE SHOWN IN THE DRAWINGS TO ACCOMMODATE THE CONNECTIONS. FASTENERS INSTALLED IN CONCRETE SHALL BE INSTALLED ONLY AFTER THE SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF THE CONCRETE HAS BEEN OBTAINED.
3. FASTENERS USED IN PULLOUT CONDITIONS SHALL BE LOAD TESTED IN TENSION TO 2 TIMES THE ALLOWABLE LOAD EVERY 50 FASTENERS.
4. SCREWS:
   A. ALL SCREWS (REFERRED TO AS TEK) SHALL BE SELF-TAPPING SELF-DRILLING FASTENERS THAT ARE ZINC COATED AS MANUFACTURED BY ITW BUILDEX TEK/TRAXX, ELCO DRIL-FLEX, HILTI KWIK-FLEX, OR APPROVED EQUAL.
   B. THE MINIMUM SCREW SIZE/TYPE/POINT SHALL BE #8-18 (#2 POINT) OR #10-16 (#2 POINT) TEK FOR USE IN 33 MIL (20 GA.) THROUGH 54 MIL (16 GA.) MATERIAL, AND #10-16 (#3 POINT) OR #12-14 (#2 OR #3 POINT) TEK FOR MATERIAL HEAVIER THAN 54 MIL (16GA.) UNLESS NOTED OTHERWISE.
   C. SCREWS FOR SHEATHING CONNECTIONS SHALL BE OF THE PROPER SIZE AND TYPE FOR A POSITIVE SHEATHING-TO-METAL CONNECTION.
   D. ALL SCREW CONNECTIONS SHALL BE MADE FROM THE LIGHTER MATERIAL INTO THE HEAVIER MATERIAL UNLESS NOTED OTHERWISE.
   E. SCREWS SHALL HAVE A MINIMUM PROJECTION OF 3 THREADS THROUGH THE LAST MATERIAL JOINED AND SHALL HAVE MINIMUM EDGE DISTANCES AND CENTER-TO-CENTER SPACINGS OF ½ INCH.
   F. ALL SCREWS SHALL CONFORM TO SAE J78 AND SHALL BE COATED WITH A CORROSIVE-RESISTANT COATING. THE SCREW MANUFACTURER SHALL PROVIDE VERIFICATION OF THE FASTENERS RESISTANCE TO HYDROGEN EMBRITTELMENT.
5. WELDS:
   A. WELDS SHALL BE OF THE TYPE, SIZE AND SPACING SHOWN ON THE DRAWINGS AND OF SUFFICIENT SIZE TO INSURE THE STRENGTH OF THE CONNECTION.
   B. ALL WELDING OF GAUGE STEEL MATERIAL SHALL BE IN ACCORDANCE WITH AWS D1.3.
   C. WIRE TYING OF COMPONENTS SHALL NOT BE PERMITTED.
   D. ALL WELDS SHALL BE TOUCHED UP WITH A ZINC-RICH PAINT.
6. POWDER DRIVEN FASTENERS (P.D.F.):
   A. POWDER DRIVEN FASTENERS INSTALLED IN CONCRETE OR STEEL SHALL BE AS MANUFACTURED BY HILTI, INC. (ICC ES ESR-2269) OR APPROVED EQUAL AND INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS AND THE GUIDELINES OF THE EVALUATION REPORT.

WOOD FRAMING LUMBER

1. FRAMING LUMBER SHALL BE KILN DRIED OR MC-15, AND GRADED AND MARKED IN CONFORMANCE WITH WEST COAST LUMBER INSPECTION BUREAU STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 16, LATEST EDITION.

GLUED-LAMINATED FRAMING LUMBER (GL)

1. GLUE-LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ANSI-AITC A190.1 AND ASTM D3737. EACH MEMBER SHALL BEAR AN AITC IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC CERTIFICATE OF CONFORMANCE.
2. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, Fb = 2,400 PSI, Fv = 240 PSI.
3. ALL BEAMS CONTINUOUS OVER SUPPORTS AND CANTILEVER BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V8, Fb = 2,400 PSI, Fv = 240 PSI.
4. CAMBER ALL GLULAM ROOF BEAMS TO A 3,500-FOOT RADIUS UNLESS NOTED OTHERWISE ON THE PLANS.

PREFABRICATED CONNECTOR PLATE LIGHT GAUGE ROOF TRUSSES

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES. THESE MEMBERS SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH THE "DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES," LATEST EDITION, BY THE TRUSS PLATE INSTITUTE, FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. THE FOLLOWING TRUSS LOADING IS TYPICAL UNLESS NOTED OTHERWISE ON PLANS AND/OR LOAD MAPS.

   TOP CHORD LIVE LOAD (SNOW) 54 PSF
   TOP CHORD DEAD LOAD 10 PSF
   BOTTOM CHORD DEAD LOAD 10 PSF
   TOTAL LOAD 69 PSF

2. ROOF TRUSSES SUPPORTING SNOW LOADS SHALL BE DESIGNED TO RESIST THE SNOW LOADS SET FORTH IN ACSE 7, CHAPTER 7.
3. ROOF TRUSS DEFLECTION SHALL MEET THE MINIMUM IBC REQUIREMENTS UNLESS A MORE STRINGENT CRITERIA IS NOTED ON THE PLANS.
4. WOOD TRUSSES SHALL UTILIZE APPROVED CONNECTOR PLATES (GANGNAIL OR APPROVED EQUAL).
5. SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS COMPLETE WITH STRESS DIAGRAMS FOR REVIEW A MINIMUM OF TWO WEEKS PRIOR TO FABRICATION. SUBMITTED DOCUMENTS SHALL BEAR THE STAMP AND SIGNATURE OF AN ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED. PROVIDE FOR SHAPES, BEARING POINTS, GIRDER TRUSSES, INTERSECTIONS, HIPS, VALLEYS, ETC. SHOWN ON THE DRAWINGS. EXACT COMPOSITION OF SPECIAL HIP, VALLEY, AND INTERSECTION AREAS (USE OF GIRDER TRUSSES, JACK TRUSSES, STEP-DOWN TRUSSES, ETC) SHALL BE DETERMINED BY THE CONTRACTOR UNLESS SPECIFICALLY INDICATED ON THE PLANS.
6. PROVIDE FOR ALL TRUSS-TO-TRUSS AND TRUSS-TO-GIRDER TRUSS CONNECTION DETAILS AND REQUIRED CONNECTION MATERIALS. PROVIDE FOR ALL TEMPORARY AND PERMANENT TRUSS BRACING AND BRIDGING.

PLYWOOD

1. PLYWOOD SHEATHING SHALL BE GRADE C-D EXTERIOR GLUE OR STRUCTURAL II. EXTERIOR GLUE SHALL BE IN CONFORMANCE WITH THE BUILDING CODE, UNITED STATES VOLUNTARY PRODUCT STANDARDS PS-1 AND PS-2.
2. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING, AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD.

LAMINATED VENEER ROOF DECKING

1. LAMINATED VENEER ROOF DECKING SHALL BE MANUFACTURED UNDER A PROCESS APPROVED BY THE NATIONAL RESEARCH BOARD. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, THE NATIONAL RESEARCH BOARD NUMBER, AND THE QUALITY CONTROL AGENCY.
2. LAMINATED VENEER ROOF DECKING SHALL BE INSTALLED WITH A RANDOM LENGTH CONTINUOUS LAY-UP SYSTEM APPLIED OVER THREE SPANS OR MORE. EACH INDIVIDUAL PLANK MUST BEAR ON AT LEAST ONE SUPPORTING MEMBER. ALL JOINTS SHALL BE END-MATCHED AND ALL PLANKS NAILED TOGETHER WITHIN 1 FOOT OF EACH SIDE OF THE END JOINT. END JOINTS IN ADJACENT PLANKS SHALL BE AT LEAST 2 FEET APART WHEN MEASURED ALONG THE LENGTH OF THE DECKING. END JOINTS SHALL NOT OCCUR IN 1/3 OF THE END SPAN COURSE.
3. FASTENING AND NAILING OF LAMINATED VENEER DECKING SHALL BE PER THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. AT A MINIMUM, ADJACENT DECKING COURSES SHALL BE SPIKED TO EACH OTHER WITH EIGHT-INCH SPIKES AT INTERVALS NOT TO EXCEED 30-INCHES THROUGH PREDRILLED EDGE HOLES AND WITH ONE SPIKE AT A DISTANCE NOT EXCEEDING TEN-INCHES FROM THE END OF EACH PIECE.
4. ALL MEMBERS SHALL BE DOUGLAS FIR-LARCH, Fb = 2,585 PSI, Fv = 165 PSI, E = 1,800,000 PSI.
5. DESIGN SHOWN ON PLANS IS BASED ON LAMINATED VENEER DECKING MANUFACTURED BY FILLER KING COMPANY. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER.

TREATED WOOD

1. ALL WOOD PLATES, LEDGERS AND BLOCKING IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA) APPROVED PRESERVATIVE. ALTERNATIVELY PER IBC SECTION 2304.11, FOR SOME EXCEPTIONS, IMPERVIOUS MOISTURE BARRIERS MAY BE PROVIDED BETWEEN UNTREATED MEMBERS AND CONCRETE OR MASONRY.
2. ALL METAL FASTENERS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED OR STAINLESS STEEL. WHEN USING GALVANIZED FASTENERS, THE CONTRACTOR SHALL COORDINATE THE GALVANIZATION PROCESS WITH THE CHEMICAL COMPOSITION OF THE WOOD TREATMENT.

TIMBER CONNECTORS

1. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE BY SIMPSON STRONG-TIE COMPANY, INC, AS SPECIFIED IN THE LATEST EDITION OF THEIR CATALOG. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE CURRENT ICC-ES EVALUATION REPORTS DEMONSTRATING THAT THE PRODUCTS HAVE EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER.
2. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER.
3. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.
4. ALL NAILS SHALL BE COMMON, UNLESS NOTED OTHERWISE.
5. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

MASONRY

1. MASONRY CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE BUILDING CODE.
2. ALL HOLLOW CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, NORMAL WEIGHT, TYPE 1, MOISTURE CONTROLLED. MINIMUM REQUIRED BLOCK COMPRESSIVE STRENGTH IS 3,250 PSI.
3. GROUT SHALL CONFORM TO ASTM C476, FINE GROUT. MAXIMUM SIZE OF AGGREGATE SHALL BE 3/8 INCH. FLY ASH AS A PERCENTAGE OF TOTAL WEIGHT OF CEMENTITIOUS MATERIAL SHALL NOT EXCEED 40 PERCENT PER ASTM C595. FLY ASH SHALL BE CLASS C OR F, MEETING ASTM C618 REQUIREMENTS. SLUMP SHALL BE 8 TO 11 INCHES. WATER-REDUCING ADMIXTURES MAY BE USED. MINIMUM GROUT COMPRESSIVE STRENGTH BASED ON 28-DAY TESTS SHALL BE 2,500 PSI AND GREATER THAN OR EQUAL TO THE SPECIFIED MINIMUM DESIGN STRENGTH.
4. ALL LOAD BEARING CONCRETE MASONRY UNITS (CMU) SHALL BE LAID IN A RUNNING BOND USING TYPE S MORTAR CONFORMING TO ASTM C270.
5. REQUIRED MORTAR PROPORTIONS BY VOLUME:

TYPE	PORTLAND CEMENT	HYDRATED LIME	AGGREGATE MEASURED IN A DAMP, LOOSE CONDITION
S	1	OVER 1/4 TO 1/2	NOT LESS THAN 2 1/4 AND NOT MORE THAN 3 TIMES THE SUM OF THE VOLUMES OF THE CEMENT

6. MASONRY ASSEMBLY MINIMUM DESIGN STRENGTH IS f'm = 2,500 PSI.
7. ALL BELOW GRADE MASONRY SHALL HAVE ALL CORES FILLED SOLID WITH CONCRETE GROUT.
8. ALL CORES CONTAINING REINFORCEMENT SHALL BE FILLED SOLID WITH CONCRETE GROUT.
9. GROUT SHALL BE VIBRATED WHILE PLACING TO ENSURE THAT CORES ARE COMPLETELY FILLED.
10. WHEN GROUTING IS STOPPED FOR ONE HOUR OR MORE, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE POUR 1½" BELOW THE TOP OF THE UPPERMOST UNIT.
11. GROUT PLACEMENT AND LIFT HEIGHTS SHALL BE IN ACCORDANCE WITH ARTICLE 3.5 OF THE SPECIFICATION FOR MASONRY STRUCTURES, TMS 602/ACI 530.1/ASCE6.
12. PROVIDE 9 GAUGE GALVANIZED LADDER TYPE HORIZONTAL REINFORCING AT EVERY OTHER BLOCK COURSE IN ALL MASONRY WALLS, UNLESS DETAILED OTHERWISE.
13. REINFORCE ALL BOND BEAMS WITH (2) #5 BOTTOM BARS, UNLESS DETAILED OTHERWISE.
14. SEE TYPICAL MASONRY DETAILS MINIMUM REINFORCING REQUIREMENTS.
15. SUBMIT GROUT MIXES TO ARCHITECT FOR REVIEW BEFORE COMMENCING MASONRY CONSTRUCTION.

FOUNDATIONS

1. COLUMN DOWELS SHALL BE INSTALLED WITH A TEMPLATE TO HOLD BARS IN THE PROPER POSITION AND SHALL BE PLACED WITH A TOLERANCE OF +/- 1/4 INCH.
2. SPREAD FOOTINGS:
   A. DESIGN SOIL BEARING PRESSURE = 1,500 PSF.
   B. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL AND SHALL BE LOWERED TO FIRM BEARING IF SUITABLE SOIL IS NOT FOUND AT ELEVATIONS DETERMINED BY TOP OF FOOTING ELEVATION AND FOOTING DEPTH.
   C. REFER TO THE PROJECT GEOTECHNICAL EVALUATION REPORT FOR SOIL CONDITIONS AND RECOMMENDATIONS
      - PREPARED BY: SME
      - PROJECT NO.: SME PROJECT NO. 090492.00
      - DATED: DECEMBER 16, 2022
   D. SITE AND BUILDING SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT.

STRUCTURAL FILL

1. ALL FILL PLACED TO SUPPORT SLABS ON GRADE, BEHIND PERMANENT WALLS, AND AROUND ALL DRAINS SHALL CONSIST OF WELL GRADED, GRANULAR MATERIAL PER THE SPECIFICATIONS.
2. SOILS FOR STRUCTURAL FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
3. STRUCTURAL FILL SHALL BE PLACED ON SOUND NATIVE MATERIAL.
4. PROOF-ROLL CUT AREAS WHICH PROVIDE SUPPORT FOR PERMANENT STRUCTURES.
5. AREAS WHICH ARE EXCESSIVELY YIELDING, AS DETERMINED BY THE CONTINUOUS OBSERVATION OF THE GEOTECHNICAL ENGINEER, SHALL BE OVEREXCAVATED AND REPLACED WITH STRUCTURAL FILL.
6. STRUCTURAL FILL SHALL BE PLACED PER THE SPECIFICATION.

EXTERIOR CLADDING

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE CLADDING SYSTEMS, INCLUDING THEIR STRUCTURAL INTEGRITY, WATERPROOFING SYSTEMS AND CONNECTION TO THE PRIMARY STRUCTURE.
2. STRUCTURAL ELEMENTS AT THE BUILDING PERIMETER HAVE BEEN DESIGNED FOR THE VERTICAL LOADS SPECIFIED IN THESE NOTES, SHOWN ON THE LOAD MAPS, AND ON PLANS, SECTIONS AND DETAILS.
3. CLADDING ATTACHMENTS SHALL NOT APPLY MOMENTS TO SLAB EDGES OR LATERAL LOADS TO STEEL BEAMS OR INTRODUCE TORSIONAL LOADS INTO STEEL BEAMS OR COLUMNS.
4. BRACES, ADDED REINFORCING AND/OR TIES SHALL BE DESIGNED AND SUPPLIED BY THE CONTRACTOR FOR LOAD ECCENTRICITIES AND LATERAL LOADS. THE CONTRACTOR SHALL SUPPLY ALL CONNECTION MATERIAL, BRACES, ETC.
5. SUBMITTED DOCUMENTS SHALL INDICATE MAGNITUDE AND LOCATION OF ALL LOADS IMPOSED ON THE PRIMARY STRUCTURE.
6. EXTERIOR CLADDING CONNECTIONS SHALL ACCOUNT FOR STRUCTURAL DEFLECTION, COLUMN SHORTENING, AND CONSTRUCTION TOLERANCE DETERMINED FROM ACI 301.
7. THE CLADDING DESIGN SHALL ACCOMMODATE A TYPICAL VERTICAL MOVEMENT AT EACH FLOOR OF 1/2 INCH DUE TO VARIABLE LIVE LOADING. THIS DISPLACEMENT WILL OCCUR AT THE FREE END OF CANTILEVER BEAMS AND AT MIDSPAN OF EDGE SLABS AND BEAMS.

STAIRS, ELEVATORS, AND MISCELLANEOUS METALS

1. UNLESS SHOWN AND DETAILED IN THE STRUCTURAL DRAWINGS, ALL STAIRS ARE TO CONSIST OF A PRE-FABRICATED AND PRE-ENGINEERED STAIR, LANDING, AND RAILING SYSTEM DESIGNED BY THE CONTRACTOR OR STAIR SUPPLIER. SEE THE ARCHITECT FOR STAIR SYSTEM LAYOUT, DIMENSIONS, AND CONFIGURATION OF RISE AND RUN. THE CONTRACTOR SHALL BE RESPONSIBLE TO DESIGN AND PROVIDE THE STAIR SYSTEM INCLUDING ALL CONNECTIONS AND SECONDARY SUPPORT FRAMING.
2. ALL ELEVATOR MACHINE BEAMS, HOIST BEAMS, SILLS, DOOR SUPPORTS, AND RAILS AND THEIR CONNECTIONS TO THE PRIMARY STRUCTURE ARE TO BE DESIGNED BY THE ELEVATOR MANUFACTURER. THE CONTRACTOR SHALL PROVIDE ADDITIONAL FRAMING AS NECESSARY FOR ADDITIONAL MACHINE ROOM FLOOR PENETRATIONS PER THE TYPICAL DETAILS. THE ELEVATOR MACHINE BEAMS SHALL BE DESIGNED TO BE FLUSH WITH THE BOTTOM OF CONCRETE AND SHALL BE DESIGNED FOR THE TRIBUTARY LOADS INDICATED IN THE LOAD MAPS IN ADDITION TO THE WEIGHT OF THE SUPPORTED EQUIPMENT AND SELF WEIGHT OF THE MACHINE ROOM FLOOR/ROOF STRUCTURE.
3. THE CONTRACTOR SHALL DESIGN AND SUPPLY ALL ADDITIONAL MISCELLANEOUS METALS THAT ARE INDICATED IN THE ARCHITECTURAL DRAWINGS OR THOSE METALS WHICH ARE FOUND TO BE NECESSARY TO SUPPORT THE ARCHITECTURAL FINISHES OR OTHER BUILDING SYSTEMS.
4. ALL FRAMING AND CONNECTIONS DESIGNED BY THE CONTRACTOR SHALL NOT RESULT IN ECCENTRIC LOADS BEING APPLIED TO THE PRIMARY STRUCTURE NOR LATERAL LOADS BEING APPLIED TO THE BOTTOM FLANGE OF STEEL BEAMS. THE CONTRACTOR'S DESIGN SHALL VERIFY THAT THE CONNECTIONS DO NOT RESULT IN ADVERSE LOCAL CONNECTION STRESSES OCCURRING WITHIN THE PRIMARY STRUCTURE. SUBMIT CALCULATIONS STAMPED BY A STRUCTURAL ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED AND SHOP DRAWINGS INDICATING IMPOSED LOADS ON THE PRIMARY STRUCTURE.

MECHANICAL/ELECTRICAL/PLUMBING SYSTEM SUPPORTS

1. THE CONTRACTOR SHALL DESIGN AND SUPPLY ALL ADDITIONAL MISCELLANEOUS METALS AND SYSTEM SUPPORT COMPONENTS THAT ARE NECESSARY TO SUPPORT ALL MECHANICAL, ELECTRICAL (TELECON, AUDIO VISUAL, ETC.), AND PLUMBING/FIRE-PROTECTION SYSTEMS. SUCH METALS AND SUPPORT COMPONENTS AND THEIR CONNECTIONS SHALL BE PROVIDED AS NECESSARY TO DIRECTLY AND CONCENTRICALLY IMPOSE LOADS ON THE PRIMARY STRUCTURE.
2. STEEL ROOF DECK SHALL NOT DIRECTLY SUPPORT THESE SYSTEMS.
3. THE CONNECTIONS TO THE PRIMARY STRUCTURE ARE SUBJECT TO THE REQUIREMENTS OF THE MISCELLANEOUS METALS SECTION ABOVE.

SECONDARY SUPPORT FRAMING

1. SECONDARY SUPPORT FRAMING FOR CONNECTING NON-STRUCTURAL COMPONENTS TO THE PRIMARY STRUCTURE SHALL BE DESIGNED, SUPPLIED AND INSTALLED BY OTHERS.
2. SHOP DRAWINGS FOR SECONDARY SUPPORT FRAMING SHALL BE SUBMITTED FOR REVIEW ALONG WITH THE SUPPORTING CERTIFIED STRUCTURAL CALCULATIONS. SUBMITTAL SHALL IDENTIFY THE LOADS IMPOSED UPON THE PRIMARY STRUCTURE AT THE CONNECTION POINTS OF THE SECONDARY SUPPORT FRAMING.
3. UNISTRUT, OR EQUIVALENT, AND ITS CONNECTIONS SHALL BE CONSIDERED SECONDARY SUPPORT FRAMING, UNLESS SPECIFICALLY NOTED OTHERWISE.

EXTERIOR STEEL STUD WALLS

1. EXTERIOR STEEL STUD WALLS SHALL CONSIST OF STEEL STUD TYPE FRAMING THAT HAS CURRENT ICC-ES EVALUATION REPORTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN ALL EXTERIOR STEEL STUD WALLS AND THEIR CONNECTIONS TO THE PRIMARY STRUCTURE. SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS INDICATING IMPOSED LOADS ON THE PRIMARY STRUCTURE FOR THESE CONDITIONS. SUBMITTED DOCUMENTS SHALL BEAR THE STAMP AND SIGNATURE OF AN ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED.
3. EXTERIOR STUD WALLS SHALL BE DESIGNED TO MEET THE FOLLOWING MINIMUM HORIZONTAL OUT-OF-PLANE DEFLECTION CRITERIA:
   A. WALLS SUPPORTING BRICK, TILE OR STONE; L/360
   B. ALL OTHER WALLS, UNLESS NOTED OTHERWISE: L/240
4. NON-LOAD BEARING EXTERIOR STUD WALLS SHALL BE DETAILED TO ACCOMMODATE UP TO 1" VERTICAL DEFLECTION OF THE PRIMARY STRUCTURE, UNLESS NOTED OTHERWISE.

INTERIOR STEEL STUD FRAMING

1. INTERIOR PARTITIONS SHALL CONSIST OF METAL STUD TYPE FRAMING THAT HAS CURRENT ICC-ES EVALUATION REPORTS.
2. CONNECTION OF STUDS, TRACK, AND OTHER ITEMS BY MEANS OF EITHER DRILLED-IN ANCHORAGE OR POWDER DRIVEN FASTENERS SHALL OCCUR WITH FASTENERS AS INDICATED IN THE METAL STUD ICC-ES REPORTS. CONNECTIONS SHALL ALLOW FOR THE BUILDING MOVEMENTS CITED ABOVE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF SOFFITS, SUSPENDED WALLS, CEILINGS, OR CONDITIONS WHERE THE STUD FRAMING IS USED TO SUPPORT CASEWORK OR SIZEABLE DOOR/WINDOW HARDWARE; THE METAL STUD FRAMING; AND ANY MISCELLANEOUS STEEL FRAMING THAT IS DETERMINED TO BE NECESSARY BASED ON THE CONTRACTOR'S DESIGN. SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS INDICATING IMPOSED LOADS ON THE PRIMARY STRUCTURE FOR THESE CONDITIONS. SUBMITTED DOCUMENTS SHALL BEAR THE STAMP AND SIGNATURE OF AN ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED.

BUILDING TOLERANCES

1. STANDARD TOLERANCES SHALL BE BASED ON THE REQUIREMENTS OF THE AISC CODE OF STANDARD PRACTICE AND ACI 117, "STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS."

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SEQUENCING CONSTRUCTION AND LATERAL STABILITY

1. THE STRUCTURAL COMPONENTS BY THEMSELVES ARE A NON-SELF-SUPPORTING STRUCTURE. LATERAL FORCES DUE TO WIND, EARTHQUAKE, OR SOIL ARE CARRIED BY THE ROOF AND FLOOR DIAPHRAGMS TO THE LATERAL SYSTEM. CERTAIN ELEMENTS SHOWN ON THE STRUCTURAL DRAWINGS (SUCH AS BRACING, ROOF AND FLOOR SLABS, AND CONCRETE IN COMPOSITE COLUMNS) ARE REQUIRED FOR OVERALL OR LOCAL STABILITY OF OTHER ELEMENTS (SUCH AS BEAMS, COLUMNS, AND WALLS).
2. IF, DUE TO SEQUENCING OF CONSTRUCTION, THESE STABILITY ELEMENTS ARE NOT IN PLACE, THE CONTRACTOR SHALL RETAIN A STRUCTURAL ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED, WHO SHALL INVESTIGATE WHERE TEMPORARY SHORING/BRACING IS REQUIRED, AND SHALL DESIGN THIS TEMPORARY SHORING/BRACING. THE CONTRACTOR SHALL PROVIDE THIS SHORING/BRACING UNTIL THE REQUIRED STRUCTURAL ELEMENTS AND THEIR CONNECTIONS HAVE BEEN INSTALLED AND REACH THEIR FINAL DESIGN STRENGTHS.

EXISTING STRUCTURE

1. EXISTING STRUCTURAL DIMENSIONS AND MEMBER SIZES ARE FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO FABRICATION. THE CONTRACTOR SHALL VERIFY THE ACTUAL CONFIGURATION OF EXISTING CONSTRUCTION AND THE CONDITION OF THE STRUCTURE BEFORE BEGINNING WORK.
2. ANY DISCREPANCIES OF UNSOUND CONDITIONS SHALL BE REPORTED TO THE ARCHITECT FOR RESOLUTION BEFORE BEGINNING WORK.
3. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS, EMBEDMENTS, AND OPENINGS NOT SHOWN.
4. REFER TO MECHANICAL AND ELECTRICAL PLANS FOR DUCTS, PIPING, EMBEDMENTS, AND OPENINGS NOT SHOWN.
5. TEMPORARY SHORING AND BRACING MAY BE NECESSARY IN ORDER TO PERFORM THE NECESSARY STRUCTURAL MODIFICATIONS TO THE EXISTING STRUCTURE SHOWN ON THE STRUCTURAL AND ARCHITECTURAL PLANS AND DETAILS. THE CONTRACTOR MUST RETAIN A STRUCTURAL ENGINEER LICENSED TO PERFORM THE WORK IN THE JURISDICTION WHERE THE PROJECT IS LOCATED, WHO SHALL INVESTIGATE WHERE THIS TEMPORARY SHORING/BRACING IS REQUIRED AND SHALL DESIGN THIS TEMPORARY SHORING/BRACING.

MISCELLANEOUS

1. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL, ELEVATOR, OR OTHER SPECIALTY ENGINEERING DRAWINGS FOR DIMENSIONS NOT SHOWN, INCLUDING BUT NOT LIMITED TO: SIZE AND LOCATION OF CURBS, EQUIPMENT HOUSEKEEPING PADS, WALL AND FLOOR OPENINGS, BLOCKOUTS, FLOOR DEPRESSIONS, SUMPS, DRAINS, ANCHOR BOLTS, EMBEDDED ITEMS, ARCHITECTURAL TREATMENT, ETC. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND RESOLVE DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION.
2. WHERE SECTIONS ARE INDICATED ON THE PLAN BY A NUMBER AND A DRAWING NUMBER THUS, 1/SS.01, THE INDICATED SECTION (1) IS SHOWN ON STRUCTURAL DRAWING SS.01.

SPECIAL INSPECTION

1. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION AND TESTING PER IBC SECTION 1704.
2. THIS WORK SHALL BE PERFORMED BY A SPECIAL INSPECTOR CERTIFIED BY THE GOVERNING BUILDING OFFICIAL TO PERFORM THE TYPES OF INSPECTIONS AND TESTS SPECIFIED.
3. THE FREQUENCY OF INSPECTIONS AND TESTING SHALL BE AS OUTLINED IN THE IBC TABLE ITEMS LISTED BELOW.
4. DEFICIENCIES SHALL BE REPORTED DAILY TO THE CONTRACTOR.
5. SUMMARY REPORTS SHALL BE DISTRIBUTED WEEKLY TO THE OWNER, ARCHITECT, CONTRACTOR, BUILDING OFFICIAL, AND STRUCTURAL ENGINEER. THE CONCRETE SUPPLIER SHALL BE INCLUDED IN THE DISTRIBUTION OF ALL SUMMARY REPORTS FOR CONCRETE TESTING.
6. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR SPECIAL INSPECTION AND TESTING.

SPECIAL INSPECTION TABLE

ITEM	DESCRIPTION (SEE IBC SECTS. 1704 & 1705)	IBC REQUIREMENT
CONCRETE	CONCRETE THAT IS PART OF THE STRUCTURE	TABLE 1705.3 ITEMS 5, 6, 7, 8, 10, AND 12
SHOTCRETE	SHOTCRETE THAT IS PART OF THE STRUCTURE	TABLE 1705.3 ITEMS 5, 6, AND 7
BOLTS INSTALLED IN CONCRETE	ANCHOR BOLTS, HEADED STUDS (EXCEPT AT BEAM-TO-DECK INSTALLATION)	TABLE 1705.3 ITEM 3
REINFORCING STEEL	A. PLACEMENT OF REINFORCING STEEL B. SPLICING OF REINFORCING STEEL BY BUTT WELDING, EXOTHERMIC WELDING PROCESS OR THREADED COUPLERS	TABLE 1705.3 ITEM 1 TABLE 1705.3 ITEM 2
STRUCTURAL STEEL	A. STRUCTURAL STEEL THAT IS PART OF THE STRUCTURE B. WELDING, HIGH STRENGTH BOLTING, AND DETAILS C. STEEL DECK AND HEADED STEEL STUD PLACEMENT AND ATTACHMENT D. FIELD CUT SURFACES E. FIELD HEATING FOR STRAIGHTENING F. TOLERANCES FOR FIELD ERECTION	IBC SECTION 1705.2.1 AISC 360 CHAPTER N AISC 360 SECTION N5 AISC 360 SECTION N6 AISC 360 SECTION M2.2 AISC 360 SECTION M2.1 CODE OF STANDARD PRACTICE SECTION 7.13
STEEL OTHER THAN STRUCTURAL STEEL	A. COLD-FORMED STEEL DECK THAT IS PART OF THE STRUCTURE B. WELDING OF COLD-FORMED STEEL DECK C. WELDING AND OTHER FASTENING COMPONENTS TO WIND FORCE RESISTING COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION SYSTEM INCLUDING SHEAR WALLS, BRACES, DIAPHRAGMS, DRAG STRUTS, AND HOLDOWNS	IBC SECTION 1705.2.2 TABLE 1705.2.2 ITEM 2a SECTION 1705.10.2
STRUCTURAL MASONRY	ALL MASONRY SHOWN ON THE STRUCTURAL DRAWINGS INCLUDING MASONRY SHOWN IN TYPICAL DETAILS BUT LOCATED ON ARCHITECTURAL DRAWINGS	IBC SECTION 1705.4 ACI 530 CHAPTER 3 ACI 530 TABLE 3.1.2 ITEMS 1,2,3,4,5
SOILS, SPECIAL GRADING, EXCAVATION AND FILLING	A. FOUNDATION EXCAVATIONS AND BEARING STRATA B. TESTING, PREPARATION, PLACEMENT, AND COMPACTION	TABLE 1705.6 ITEMS 1 AND 2 TABLE 1705.6 ITEMS 3, 4, AND 5
POST INSTALLED ANCHORS OR DOWELS	ALL POST-INSTALLED ANCHORS/ DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY TABLE 1705.3 ITEM 4 AND AS REQUIRED BY THE APPROVED ICC-ES REPORT	
EPOXY OR CEMENT GROUTED DOWELS OR ANCHORS	-OBSERVE DRILLED HOLES AFTER CLEANING AND INSTALLATION OF ANCHOR -ANCHORS SUBJECT TO SUSTAINED TENSION SHALL BE CONTINUOUSLY INSPECTED AND INSTALLED BY A CERTIFIED INSTALLER IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS AND ACI 318	

DEFERRED STRUCTURAL SUBMITTALS

1. SOME STRUCTURAL SYSTEMS ARE DEFINED AS VENDOR-DESIGNED COMPONENTS PER THE STRUCTURAL DOCUMENTS. THESE ELEMENTS OF THE DESIGN ARE DEFERRED SUBMITTAL COMPONENTS AND HAVE NOT BEEN PERMITTED UNDER THE BASE BUILDING APPLICATION. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT THE STAMPED COMPONENT SYSTEM DOCUMENTS TO THE BUILDING OFFICIAL FOR APPROVAL.
2. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT, WHO SHALL REVIEW THEM FOR GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE CONTRACTOR SHALL SUBMIT THESE REVIEWED DEFERRED SUBMITTAL DOCUMENTS TO THE BUILDING OFFICIAL. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.
3. THE FOLLOWING LIST INCLUDES THE ITEMS THAT ARE DEFINED AS DEFERRED STRUCTURAL SUBMITTAL COMPONENTS. REFER TO THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR ADDITIONAL DEFERRED SUBMITTAL COMPONENTS.
4. DEFERRED STRUCTURAL SUBMITTAL COMPONENTS:
   A. EXTERIOR CLADDING
   B. EXTERIOR STEEL STUD WALLS AND CONNECTIONS
   C. PRECAST FLOOR PLANKS
   D. STEEL STAIRS AND LANDINGS, LADDERS, RAILINGS
   E. LIGHT GAUGE CFS ROOF TRUSSES
   F. SECONDARY SUPPORT FRAMING AND CONNECTIONS

SHOP DRAWINGS

1. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION:
   A. REINFORCING STEEL
   B. STRUCTURAL STEEL
   C. STEEL JOISTS AND DECK
   D. GLUE LAMINATED MEMBERS
   E. LAMINATED VENEER ROOF DECK
   F. EXTERIOR CLADDING
   G. EXTERIOR STEEL STUD WALLS AND CONNECTIONS
   H. FOLDING PARTITION DOORS
   I. PRECAST FLOOR PLANKS
   J. STEEL STAIRS AND LANDINGS, LADDERS, RAILINGS
   K. LIGHT GAUGE CFS ROOF TRUSSES
   L. SECONDARY SUPPORT FRAMING AND CONNECTIONS
2. DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD; THEREFORE, THEY SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY THE ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE ONE ELECTRONIC COPY TO BE MARKED AND RETURNED.
3. SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED, AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWINGS SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE FOLLOWED.
4. SHOP DRAWINGS FOR DEFERRED SUBMITTALS THAT ARE DEFINED AS DESIGN-BUILD COMPONENTS IN THE CONSTRUCTION DOCUMENTS SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP FOR THE JURISDICTION WHERE THE PROJECT IS LOCATED AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE INCLUDED IN THE SUBMITTAL.

WINTER CONSTRUCTION

1. ALL SOIL BELOW FOOTINGS SHALL BE PROTECTED FROM FREEZING BY ALL NECESSARY MEANS (e.g. TEMPORARY HEAT AND BLANKETS, TEMPERATURE PROBES, ETC.).
2. ALL CONCRETE SHALL BE PREVENTED FROM FREEZING AFTER POURING, AS DIRECTED BY THE CONCRETE SPECIAL INSPECTOR, BY ALL NECESSARY MEANS (e.g. TEMPORARY HEAT, BLANKETS, ETC.).
3. ALL BACKFILL MUST BE PLACED ON UNFROZEN GROUND, IN UNFROZEN STATE AND COMPACTED PER THE GEOTECHNICAL REPORT.

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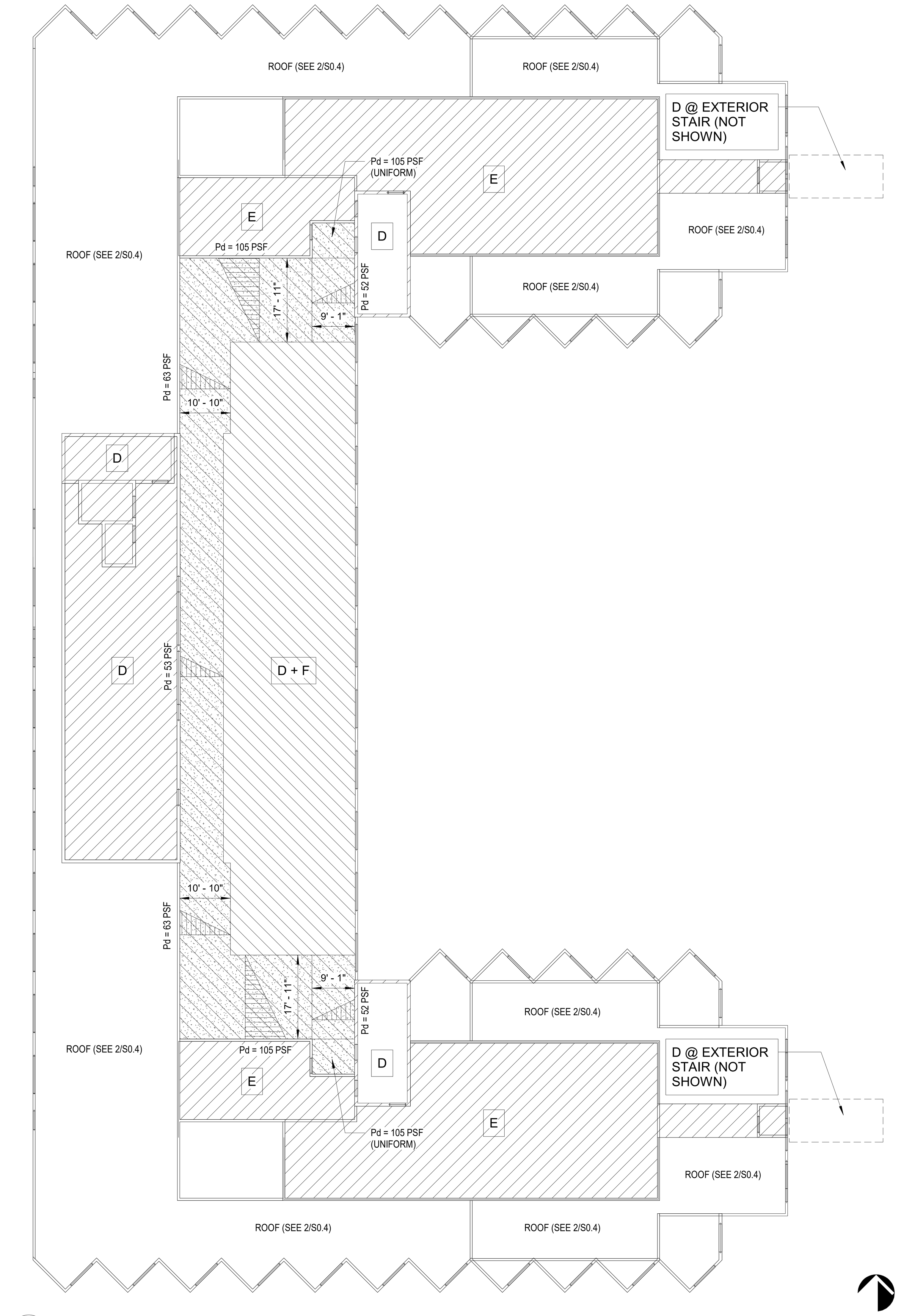
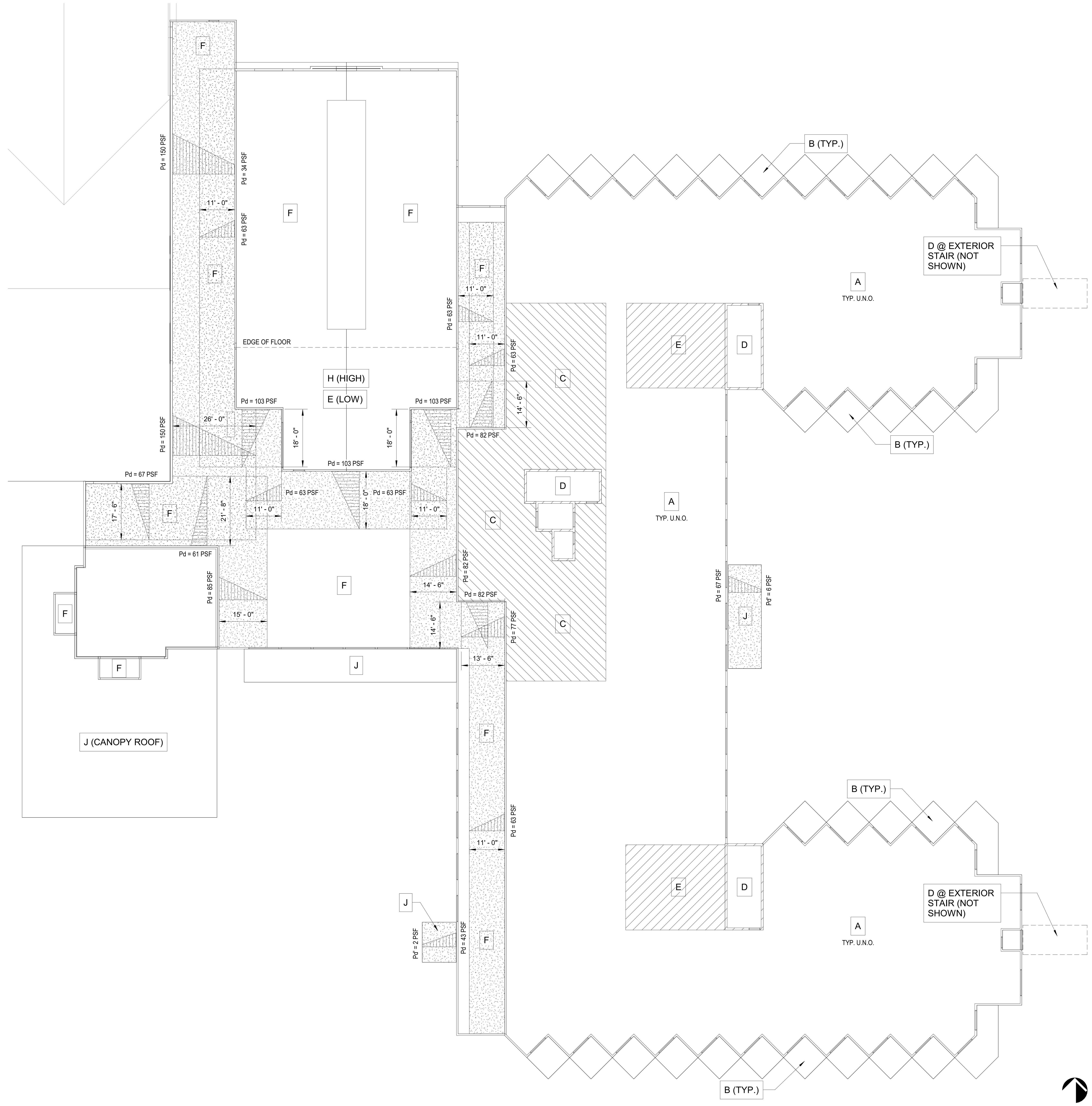


2 PENTHOUSE FLOOR LOAD MAP PLAN
S0.3 1/16" = 1'-0"

NORTH

LOAD MAP DESIGNATIONS			
A	**RESIDENTIAL ROOMS AND CORRIDORS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	40 PSF
B	**RESIDENTIAL BALCONIES (DECKS):**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	10 PSF
	LL	LIVE LOAD	60 PSF
C	**OFFICES :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	50 PSF
D	**PUBLIC AREAS, STAIRS, EXITS, PARTY ROOMS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	100 PSF
E	**MAINTENANCE / MECHANICAL ROOMS, LIGHT STORAGE, STORAGE ROOMS, ELECTRICAL ROOMS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	125 PSF
F	**TYPICAL ROOF :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC. / ROOFING	15 PSF
	SL	SNOW LOAD	49 PSF + DRIFT
G	**VENTILATED ROOF OVER LIGHT GAUGE TRUSSES :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC. / ROOFING	15 PSF
	SL	SNOW LOAD	54 PSF + DRIFT
H	**ROOF OVER MECHANICAL ROOMS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC. / ROOFING	35 PSF
	SL	SNOW LOAD	49 PSF + DRIFT
J	**EXTERIOR CANOPIES :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	10 PSF
	SL	SNOW LOAD	59 PSF + DRIFT



1 LEVEL 2 / LOW ROOF LOAD MAP PLAN
S0.3 1/16" = 1'-0"

NORTH

LOAD MAP PLAN NOTES:

1. SEE GENERAL STRUCTURAL NOTES AND LOAD MAP PLANS FOR APPLIED DESIGN UNIFORM DEAD, LIVE AND SNOW LOADS. REFER TO LOAD MAP DESIGNATION TABLE.
2. "Pd" INDICATES MAXIMUM TAPERED DRIFT SNOW LOAD. DRIFTING SNOW LOAD SHALL BE CONSIDERED IN ADDITION TO DESIGN UNIFORM LOADS.
3. PRECAST SUPPLIER SHALL VERIFY LOAD MAP PLANS WITH ARCHITECTURAL DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR FLOOR PLANS.
4. SEE FRAMING PLANS FOR MECHANICAL UNITS SIZE, LOCATION AND WEIGHT, HANGING EQUIPMENT, ETC. VERIFY SIZE, LOCATION AND WEIGHT WITH ARCHITECT AND MECHANICAL PRIOR TO FABRICATION.
5. PRECAST FLOOR PLANK SHALL BE DESIGNED FOR WEIGHT OF TOPPING/CONCRETE FOR THICKNESS SPECIFIED IN DRAWINGS.
6. THE MINIMUM DESIGN ULTIMATE IN-PLANE SHEAR LOAD DELIVERED TO THE LATERAL SHEAR RESISTING ELEMENTS (SHEAR WALLS, BRACED FRAMES, RIGID FRAMES, COLLECTOR BEAMS, DRAG STRUT BEAMS, ETC.) DUE TO WIND FROM RIGID PRECAST FLOOR PLANK IS 1,500 POUNDS PER LINEAR FOOT ALONG THE LENGTH OF THE WALL PANELS, BRACED FRAMES, RIGID FRAMES, DRAG STRUT BEAMS (BEAMS ON SAME GRID AS LATERAL RESISTING ELEMENT), AND DIAPHRAGM BOUNDARIES, UNLESS NOTED OTHERWISE.
7. PRECAST SUPPLIER SHALL DESIGN ALL WALL PANELS, FLOOR PLANK AND CONNECTIONS FOR VERTICAL AND LATERAL LOADS DESCRIBED IN GENERAL NOTES, LOAD MAP PLANS, FRAMING PLANS, SECTIONS AND DETAILS.

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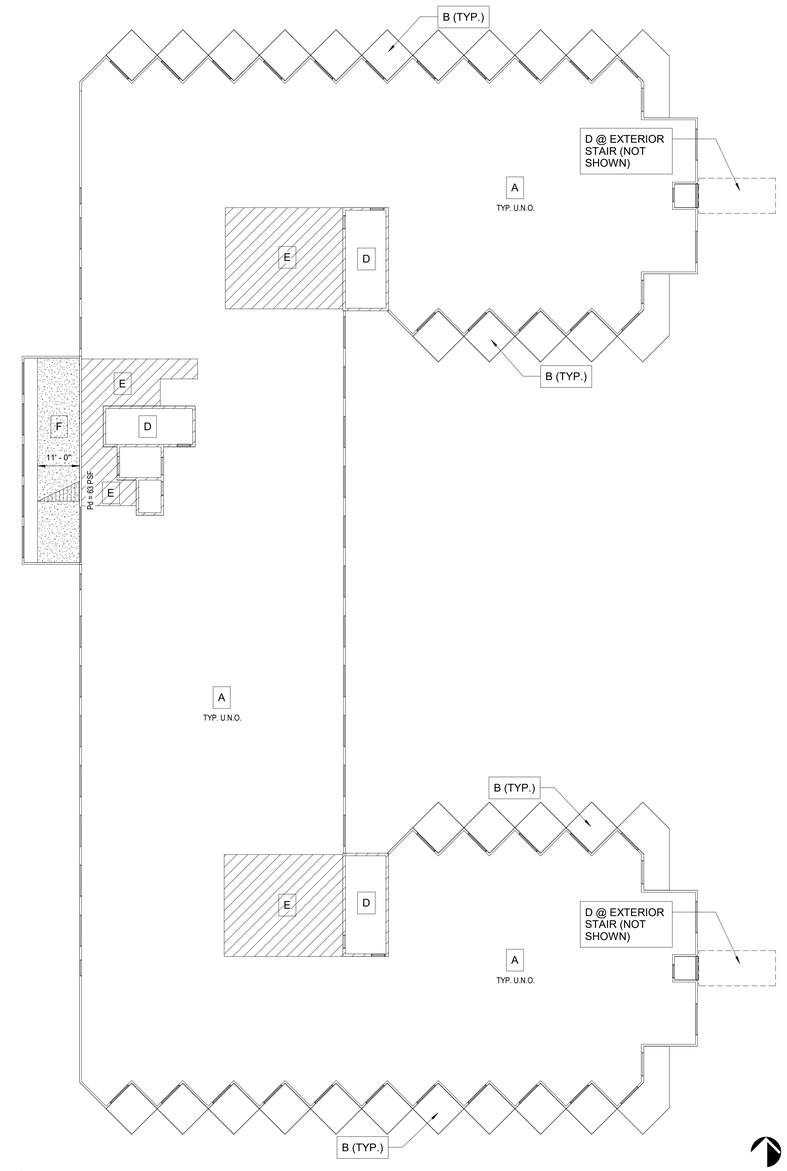
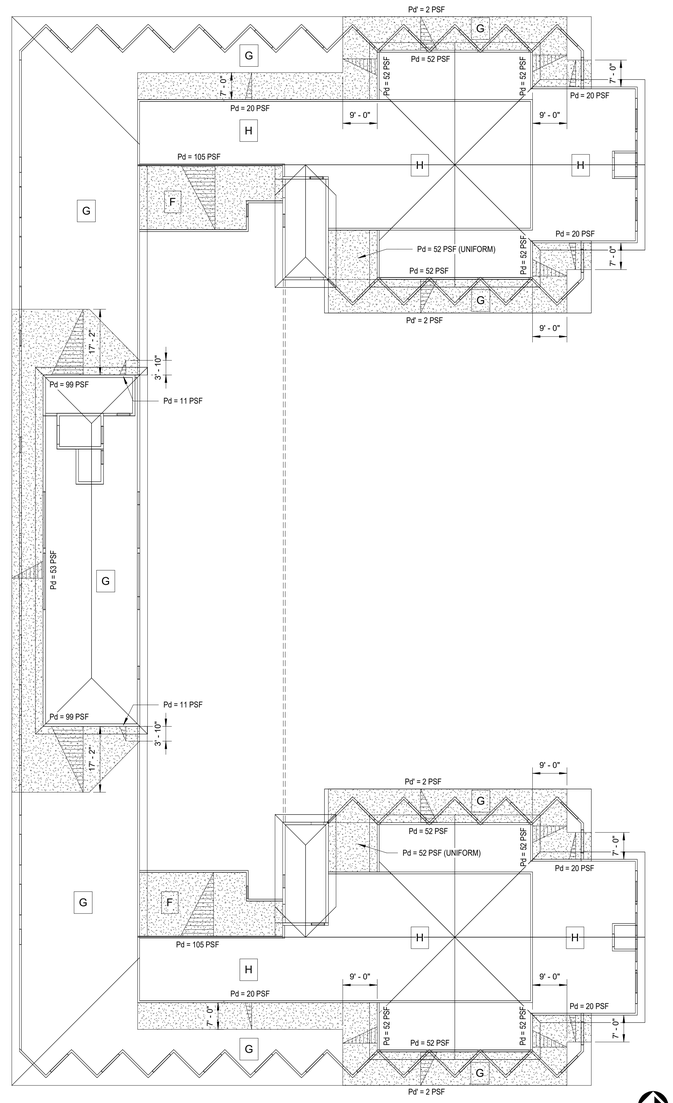


1 S0.4 LEVEL 3 LOAD MAP PLAN
1/16" = 1'-0"

LOAD MAP DESIGNATIONS			
A	**RESIDENTIAL ROOMS AND CORRIDORS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	40 PSF
B	**RESIDENTIAL BALCONIES (DECKS):**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	10 PSF
	LL	LIVE LOAD	60 PSF
C	**OFFICES :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	50 PSF
D	**PUBLIC AREAS, STAIRS, EXITS, PARTY ROOMS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	100 PSF
E	**MAINTENANCE / MECHANICAL ROOMS, LIGHT STORAGE, STORAGE ROOMS, ELECTRICAL ROOMS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	15 PSF
	LL	LIVE LOAD	125 PSF
F	**TYPICAL ROOF :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC. / ROOFING	15 PSF
	SL	SNOW LOAD	49 PSF + DRIFT
G	**VENTILATED ROOF OVER LIGHT GAUGE TRUSSES :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC. / ROOFING	15 PSF
	SL	SNOW LOAD	54 PSF + DRIFT
H	**ROOF OVER MECHANICAL ROOMS :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC. / ROOFING	35 PSF
	SL	SNOW LOAD	49 PSF + DRIFT
J	**EXTERIOR CANOPIES :**		
	DL	SELF WEIGHT OF STRUCTURE	
	SDL	MECH. / ELEC. / MISC.	10 PSF
	SL	SNOW LOAD	59 PSF + DRIFT

LOAD MAP PLAN NOTES:
SEE SHEET S0.3 FOR LOAD MAP NOTES



2 S0.4 ROOF LOAD MAP PLAN
1/16" = 1'-0"

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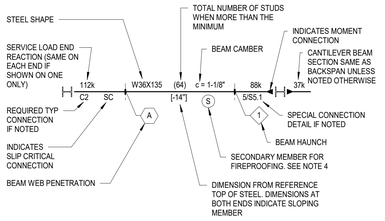


NOTES:

1. NO REACTION AT EITHER END INDICATES MINIMUM CONNECTION FOR BEAM DEPTH. SEE "GENERAL NOTES FOR STEEL CONNECTIONS".
2. SPACE STUDS PER "TYPICAL SHEAR STUD PLACEMENT" DETAIL.
3. "M" IN PLACE OF STEEL SHAPE INDICATES W10X12 WITH MINIMUM CONNECTION.
4. BEAMS ARE PRIMARY MEMBERS FOR FIREPROOFING UNLESS NOTED AS SECONDARY. SEE "GENERAL NOTES" FOR CRITERIA.
5. WHERE NO BEAM SIZE IS CALLED OUT ADJACENT TO FLOOR OR ROOF OPENING, REFER TO "TYPICAL STEEL DETAILS" FOR SIZES AND CONNECTIONS.
6. ⬡ INDICATES BEAM PENETRATION PER "TYPICAL BEAM PENETRATION" DETAIL.
7. ◇ INDICATES BEAM HAUNCH PER "TYPICAL HAUNCHED BEAM" DETAIL.

1 S1.1 TYPICAL BEAM CALLOUT KEY

NOTES:

1. NOTATIONS:
   db: NOMINAL BAR DIAMETER (INCHES)
   L_D : TENSION DEVELOPMENT LENGTH (INCHES) FOR REINFORCEMENT SATISFYING THE FOLLOWING REQUIREMENTS:
   - SLABS AND WALLS: CLEAR SPACING > 2 db, AND CONC. CLEAR COVER > db
   - BEAMS AND COLUMNS: CLEAR SPACING > db, AND CONC. CLEAR COVER > db
   L_T : DEVELOPMENT LENGTH OF TOP BARS IN TENSION = 1.3 x L (INCHES)
   L_B : DEVELOPMENT LENGTH OF BARS OR DOWELS IN COMPRESSION = 19 x db (INCHES)
   L_C : TIED COLUMN LAP SPLICE IN COMPRESSION = 30 x db (INCHES)
   L_{CS} : SPIRAL COLUMN LAP SPLICE IN COMPRESSION = 22.5 x db (INCHES)
   L_{SB} : TENSION LAP SPLICE LENGTH FOR OTHER THAN TOP BARS = 1.3 x L (INCHES)
   L_{SBT}: TENSION LAP SPLICE LENGTH OF TOP BARS = 1.7 x L (INCHES)
2. MULTIPLY VALUES IN THE TABLE BY 1.5 IF CLEAR SPACING OR CONCRETE COVER DO NOT MEET THE REQUIREMENTS FOR LD IN NOTE 1.
3. MULTIPLY VALUES IN THE TABLE BY 1.2 FOR EPOXY COATED BARS WITH CLEAR SPACING AND COVER MEETING THE REQUIREMENTS FOR LD IN NOTE 1, OTHERWISE MULTIPLY VALUE BY 1.5.
4. TOP BARS: HORIZONTAL BEAM REINFORCING WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW.
5. THE DEVELOPMENT AND SPLICE LENGTHS ARE BASED ON REINFORCEMENT STRENGTH F_Y = 60 KSI
6. #14 AND #18 BARS SHALL NOT BE LAP SPLICED. SEE GENERAL NOTES.
7. MULTIPLY VALUES IN THE TABLE BY 1.33 FOR USE WITH LIGHTWEIGHT AGGREGATE CONCRETE.

CONCRETE — f'c = 4,000 PSI

BAR SIZE	L_D	L_T	L_{SB}	L_{SBT}
#3	15	20	20	26
#4	19	25	25	33
#5	24	32	32	42
#6	29	38	38	50
#7	42	55	55	72
#8	48	63	63	82
#9	54	71	71	93
#10	61	80	80	104
#11	67	88	88	115
#14	81	106	-	-
#18	108	141	-	-

CONCRETE — ALL STRENGTHS

BAR SIZE	L_B	L_C	L_{CS}
#3	8	12	12
#4	10	15	12
#5	12	19	14
#6	15	23	17
#7	17	26	20
#8	19	30	23
#9	22	34	26
#10	24	38	29
#11	27	42	32
#14	33	-	-
#18	43	-	-

MASONRY

BAR SIZE	TENSION L_D	TENSION L_{SB}	COMPRESSION L_B	COMPRESSION L_C
#3	24	24	24	24
#4	24	24	24	24
#5	30	25	24	24
#6	36	30	27	24
#7	42	35	32	26
#8	48	40	36	30
#9	54	45	41	34
#10	60	50	45	38
#11	66	55	50	41

2 S1.1 TYPICAL REINFORCING BAR DEVELOPMENT AND SPLICE LENGTH TABLES

TABLE A

MINIMUM TENSION EMBEDMENT LENGTHS, (L_{DH}) FOR STANDARD END HOOKS ON GRADE 60 BARS

BAR SIZE	NORMAL WEIGHT CONCRETE, f'c (psi) 3,000	4,000	5,000	6,000	7,000	8,000
#3	6"	6"	6"	6"	6"	6"
#4	8"	7"	7"	7"	7"	7"
#5	10"	9"	8"	7"	7"	7"
#6	12"	10"	9"	8"	8"	8"
#7	14"	12"	11"	10"	9"	9"
#8	16"	14"	12"	11"	10"	10"
#9	18"	15"	14"	13"	12"	11"
#10	20"	17"	15"	14"	14"	14"
#11	22"	19"	17"	16"	15"	15"
#14	37"	32"	29"	27"	25"	25"
#18	50"	43"	39"	35"	33"	31"

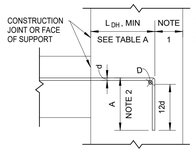
END HOOK

ALL GRADES (D) FINISHED BEND DIAMETER

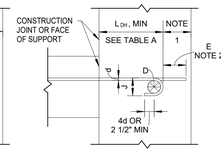
BAR SIZE	D	180° HOOKS E	180° HOOKS J	90° HOOKS A
#3	2-1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3-3/4"	7"	5"	10"
#6	4-1/2"	8"	6"	12"
#7	5-1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9-1/2"	15"	11-3/4"	19"
#10	10-3/4"	17"	13-1/4"	22"
#11	12"	19"	14-3/4"	24"
#14	18-1/4"	27"	21-3/4"	31"
#18	24"	36"	28-1/2"	41"

NOTES:

1. BAR DIMENSION REQUIRED TO MANUFACTURE HOOK.
2. FOR EPOXY COATED HOOKS, INCREASE THE ABOVE EMBEDMENT LENGTHS BY 20%.
3. ABOVE VALUES VALID FOR ALL CASES IF:
   SIDE COVER >= 2-1/2"
   END COVER >= 2"

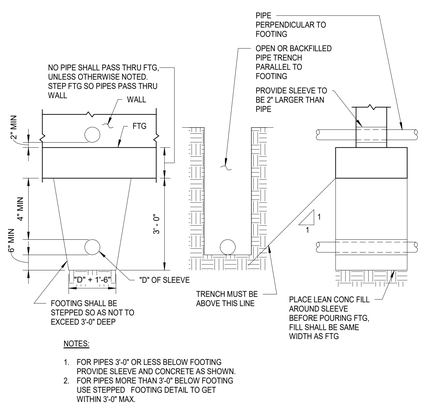


90° HOOK

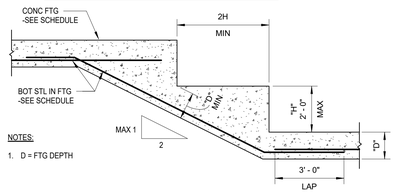


180° HOOK

3 S1.1 TYPICAL REINFORCING BAR STANDARD HOOK AND EMBEDMENT TABLES NOT TO SCALE



ALTERNATE TYPICAL FOOTING STEP DETAIL



NOTES:

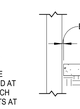
1. D = FTG DEPTH

NOTES:

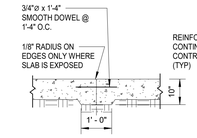
1. FOR PIPES 3'-0" OR LESS BELOW FOOTING PROVIDE SLEEVE AND CONCRETE AS SHOWN.
2. FOR PIPES MORE THAN 3'-0" BELOW FOOTING USE STEPPED FOOTING DETAIL TO GET WITHIN 3'-0" MAX.

NOTES:

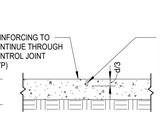
1. SEE PLAN FOR SLAB ON GRADE THICKNESS.
2. LOCATE CONSTRUCTION JOINTS UNDER PARTITIONS OR ON COLUMN LINES. PROVIDE CONTROL JOINTS ON ALL COLUMN LINES AND AT 30x SLAB THICKNESS MAXIMUM SPACING EACH WAY IN BETWEEN. PROVIDE CONTROL JOINTS AT ALL RE-ENTRANT CORNERS.
3. SAWED JOINTS SHALL BE MADE AS SOON AS THE JOINT CAN BE CUT WITHOUT EDGES RAVELING AND WITHIN 24 HOURS OF SLAB PLACEMENT. SAWED JOINTS SHALL BE FILLED WITH SEALANT AS COORDINATED WITH THE ARCHITECT.
4. SEE GENERAL NOTES FOR SPECIAL CONCRETE MIX DESIGN.
5. FOLLOW RECOMMENDATIONS GIVEN IN GEOTECHNICAL REPORT IN STRICT ACCORDANCE IN REGARDS TO THE USE OF VAPOR BARRIER, CRUSHED STONE AND SOIL COMPACTION.



WALL

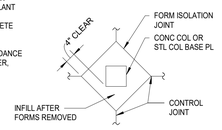


CONSTRUCTION JOINT

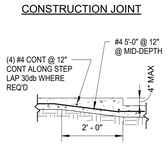


NOTE:
CONSTRUCTION JOINT MAY BE USED AT ANY CONTROL JOINT LOCATION.

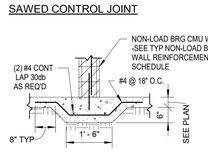
SAWED CONTROL JOINT



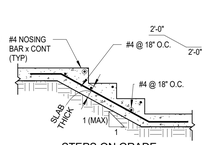
ISOLATION JOINT AT COLUMN



DEPRESSED SLAB



THICKENED SLAB

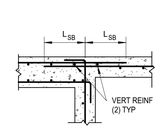


STEPS ON GRADE

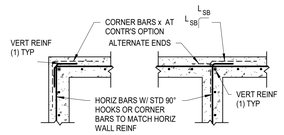
4 S1.1 TYPICAL FOOTING STEP DETAIL NOT TO SCALE

5 S1.1 TYPICAL DETAIL @ PIPES PERPENDICULAR TO FTGS NOT TO SCALE

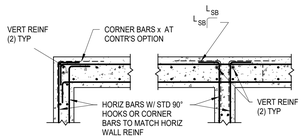
6 S1.1 TYPICAL FIBER REINFORCED SLAB ON GRADE NOT TO SCALE



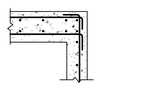
WALL/FTG INTERSECTION OF SINGLE AND DOUBLE LAYER REINFORCING



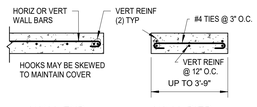
WALL/FTG CORNER WALL/FTG INTERSECTION



WALL/FTG CORNER WALL/FTG INTERSECTION

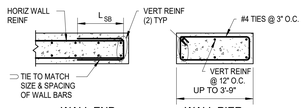


WALL/FTG CORNER OF SINGLE AND DOUBLE LAYER REINFORCING



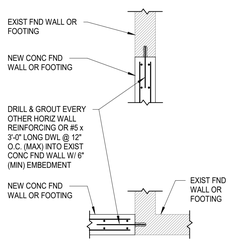
WALL END WALL PIER

SINGLE LAYER REINFORCING



WALL END WALL PIER

DOUBLE LAYER REINFORCING



CONNECTION NEW TO EXISTING

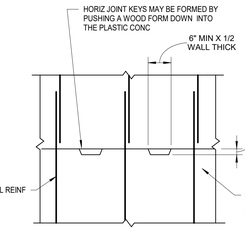
NOTES:

1. UNLESS NOTED OR SHOWN OTHERWISE, ALL WALLS ARE TO BE REINFORCED WITH MINIMUM REINFORCEMENT AS SHOWN IN THE FOLLOWING TABLE:

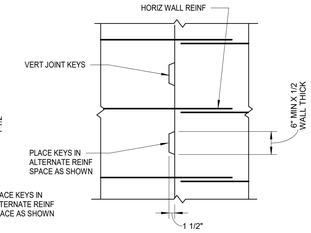
MINIMUM WALL REINFORCEMENT

WALL THICKNESS	HORIZONTAL BARS	VERTICAL BARS	LOCATION
6" & UNDER	#4 @ 16" OC	#4 @ 18" OC	CENTERLINE
OVER 6-8"	#4 @ 12" OC	#4 @ 16" OC	CENTERLINE
OVER 8-10"	#5 @ 14" OC	#5 @ 16" OC	CENTERLINE
OVER 10-12"	#4 @ 16" OC	#4 @ 16" OC	EACH FACE
OVER 12-14"	#4 @ 12" OC	#4 @ 16" OC	EACH FACE
OVER 14-16"	#4 @ 12" OC	#4 @ 16" OC	EACH FACE
OVER 16-20"	#5 @ 14" OC	#5 @ 16" OC	EACH FACE
OVER 20-24"	#5 @ 12" OC	#5 @ 16" OC	EACH FACE
OVER 24-28"	#5 @ 10" OC	#5 @ 16" OC	EACH FACE
OVER 28-32"	#5 @ 9" OC	#5 @ 14" OC	EACH FACE
OVER 32-36"	#5 @ 8" OC	#5 @ 12" OC	EACH FACE

2. LAP WALL REINFORCING Lsb AT SPLICES.
3. ALL VERTICAL REINFORCING IN CONCRETE WALLS SHALL BE CONTINUOUS FROM STRUCTURAL FLOOR TO STRUCTURAL FLOOR, OR FROM FOOTING TO FIRST STRUCTURAL FLOOR ABOVE, UNLESS NOTED OTHERWISE.
4. START HORIZONTAL AND VERTICAL BARS 1 INCH CLEAR OF EDGE OF OPENINGS. SPACE REINFORCING BARS AT EQUAL SPACES NOT TO EXCEED REQUIRED SPACING.



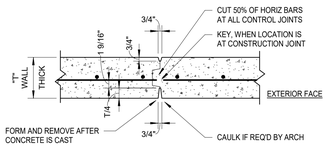
HORIZONTAL JOINT ELEVATION



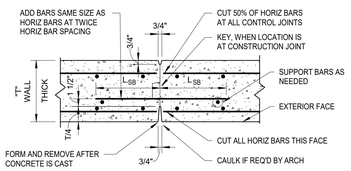
VERTICAL JOINT ELEVATION

7 S1.1 TYPICAL CONCRETE WALL / FOOTING REINFORCING NOT TO SCALE

8 S1.1 TYPICAL CONCRETE WALL REINFORCING NOT TO SCALE

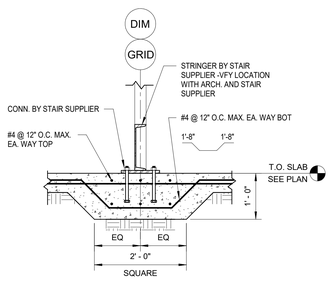


SINGLE LAYER REINFORCING PLAN

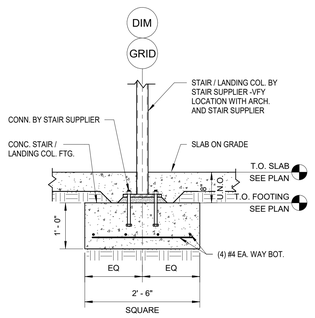


DOUBLE LAYER REINFORCING PLAN

9 S1.1 TYPICAL CONCRETE WALL CONTROL JOINT NOT TO SCALE



10 S1.1 TYPICAL THICKENED SLAB ON GRADE @ STRINGER SUPPORT NOT TO SCALE



11 S1.1 TYPICAL FOOTING @ STEEL STAIR COLUMN NOT TO SCALE

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project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

STATE OF MICHIGAN JON E. AAMODT 42272 LICENSED PROFESSIONAL ENGINEER

printed name: Jon E. Aamodt
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sign date: 04-17-2023

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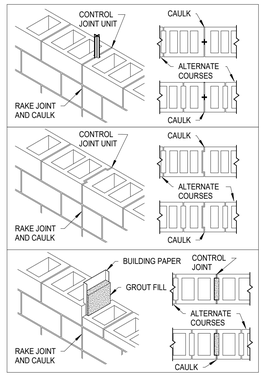
BID SET 04-17-2023

revision / issue	no.	date

sheet title: TYPICAL CONCRETE DETAILS

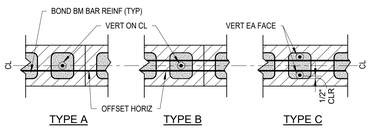
sheet number: S1.1



NOTE:

1. INTERRUPT 50% OF BOND BEAM AND LADDER TYPE REINFORCING AT CONTROL JOINT LOCATIONS (TYP)

1 S1.2 TYPICAL CMU CONTROL JOINT METHODS
NOT TO SCALE



BAR LOCATION TYPES

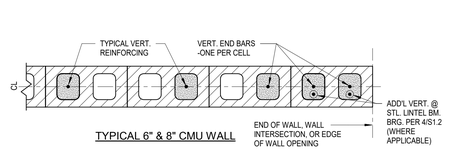
NOTES:

1. BOND BEAM REINFORCEMENT ABOVE AND BELOW OPENINGS SHALL BE CONTINUOUS (UNSPLICED) AND EXTENDED 2'-0" MINIMUM BEYOND OPENING.
2. WHERE BOND BEAM DOES NOT ALIGN WITH TOP OR BOTTOM OF OPENINGS, ADD A BOND BEAM COURSE EXTENDING 2'-0" BEYOND THE OPENING.
3. BOND BEAM BARS MAY BE USED TO ARRIVE AT TOTAL STEEL AREA REQUIRED BY REINFORCING SCHEDULE.
4. GROUT ALL CELLS THAT CONTAIN REINFORCEMENT OR EMBEDDED ITEMS.
5. PACK TOP COURSE CELLS SOLID WITH GROUT, TYPICAL.
6. PROVIDE 3/4" MINIMUM, 1 1/2" MAXIMUM CLEAR SPACE BETWEEN TOP WALL AND BOTTOM OF PLATE, DECK OR FIREPROOFING ON BEAMS.
7. FOR DRILLED IN CONCRETE ANCHORS IN BOTTOM OF SLAB, EMBED SO THAT THEY EXTEND A MINIMUM OF 1" ABOVE THE UPPER PART OF THE DECK FLUTES.
8. PROVIDE SPECIAL INSPECTION FOR DRILLED IN CONCRETE ANCHORS AT WALLS 16'-0" AND HIGHER.
9. LOCATE BRACE FOR BEAM BOTTOM FLANGE, AT EACH CONCRETE MASONRY UNIT TOP SUPPORT, AT 4'-0" O.C. MAXIMUM.

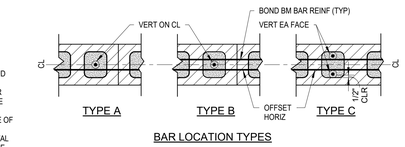
CMU REINFORCING SCHEDULE

NOMINAL WALL THICKNESS	BOND BEAM REINF		VERTICAL REINFORCING			BOND BM BAR LOCATION TYPE	MAXIMUM WALL HEIGHT
	NUMBER AND SIZE	LAP LENGTH	NUMBER AND SIZE	SPACING	LAP LENGTH		
4"	(1) #5	30"	(1) #5	32"	30"	A	9'-0"
6"	(2) #5	30"	(1) #5	48"	30"	B	15'-0"
8"	(2) #5	30"	(1) #5	48"	30"	B	18'-0"
10"	(2) #5	30"	(1) #5	48"	30"	B	21'-0"
10"	(2) #5	30"	(2) #5	48"	30"	C	26'-0"
12"	(2) #5	30"	(2) #5	48"	30"	C	32'-0"

2 S1.2 TYPICAL CMU NON-LOAD BEARING WALL REINFORCING SCHEDULE AND NOTES
NOT TO SCALE



TYPICAL 6" & 8" CMU WALL



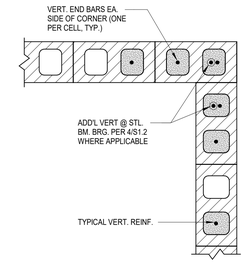
BAR LOCATION TYPES

NOTES:

1. BOND BEAM REINFORCEMENT ABOVE AND BELOW OPENINGS SHALL BE CONTINUOUS (UNSPLICED) AND EXTENDED 2'-0" MINIMUM BEYOND OPENING.
2. WHERE BOND BEAM DOES NOT ALIGN WITH TOP OR BOTTOM OF OPENINGS, ADD A BOND BEAM COURSE EXTENDING 2'-0" BEYOND THE OPENING.
3. LOCATE SCHEDULED BARS FROM TABLE EACH SIDE OF EACH OPENING, EACH CORNER AND WALL ENDS.
4. BOND BEAM BARS MAY BE USED TO ARRIVE AT TOTAL STEEL AREA REQUIRED BY REINFORCING SCHEDULE.
5. GROUT ALL CELLS THAT CONTAIN REINFORCEMENT OR EMBEDDED ITEMS.
6. BOND BEAMS SHALL BE LOCATED AT EACH FLOOR LEVEL AND INTERMEDIATE STAIR LANDING ELEVATIONS. SEE THE ELEVATION ON TYPICAL LOAD BEARING CMU WALL FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
7. ALL CMU TO BE CONSTRUCTED PER CMU REINFORCING SCHEDULE UNLESS NOTED OTHERWISE.

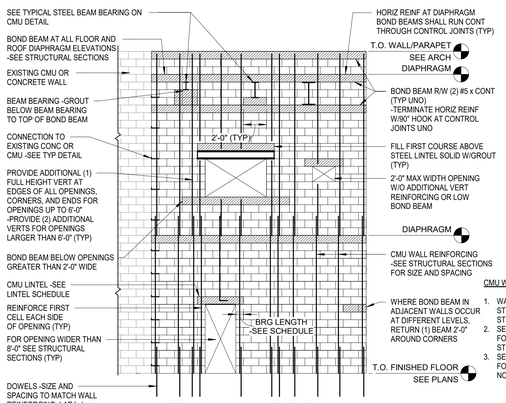
CMU REINFORCING SCHEDULE

NOMINAL WALL THICKNESS / LOCATION	BOND BEAM REINF			VERTICAL REINFORCING			BOND BM BAR LOCATION TYPE	VERT. END WALL REINF.	
	NUMBER AND SIZE	SPACING	LAP LENGTH	NUMBER AND SIZE	SPACING	LAP LENGTH		NUMBER AND SIZE	LAP LENGTH
6" ALL LOC'S U.N.O.	(1) #5	SEE NOTE #6	30"	#5	24"	30"	A	(2) #5	30"
8" ON GRID EB & E1	(2) #5	SEE NOTE #6	30"	#5	24"	30"	B	(3) #5	30"
8" ALL LOC'S U.N.O.	(2) #5	48" & SEE NOTE #6	30"	#7 UP TO L3	16"	42"	B	(3) #7	42"
				#6 L3 & ABOVE	16"	36"	B	(3) #6	36"



TYPICAL CMU ELEVATOR AND STAIR SHAFTS @ CORNER

3 S1.2 TYPICAL CMU LOAD BEARING WALL REINFORCING SCHEDULE AND NOTES
NOT TO SCALE



TYPICAL CMU WALL ELEVATION

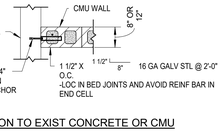
NON LOAD-BEARING CMU LINTEL SCHEDULE

THICKNESS	CLEAR SPAN	DEPTH (INCH)	HORIZONTAL REINFORCING
8"	4'-0" OR LESS	8	(2) #5 BOT
	4'-0" TO 6'-4"	16	(2) #5 BOT
	6'-4" TO 8'-0"	16	(2) #6 BOT
10" OR 12"	4'-0" OR LESS	8	(2) #5 BOT
	4'-0" TO 6'-4"	16	(2) #5 BOT
	6'-4" TO 8'-0"	16	(2) #6 BOT

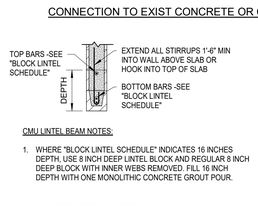
*SEE PLANS FOR LINTELS AND LINTEL SCHEDULE AT BEARING WALLS

CMU WALL ELEVATION NOTES:

1. WALL ELEVATION IS TYPICAL FOR STRUCTURAL AND NON-STRUCTURAL CMU WALLS.
2. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF NON-STRUCTURAL CMU WALLS.
3. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION NOT INDICATED.



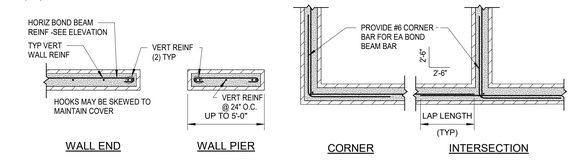
CONNECTION TO EXIST CONCRETE OR CMU



CMU LINTEL BEAM NOTES:

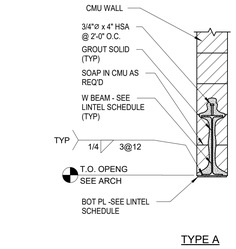
1. WHERE "BLOCK LINTEL SCHEDULE" INDICATES 16 INCHES DEPTH, USE 8 INCH DEEP LINTEL BLOCK AND REGULAR 8 INCH DEEP BLOCK WITH INNER WEBS REMOVED. FILL 16 INCH DEPTH WITH ONE MONOLITHIC CONCRETE GROUT POUR.

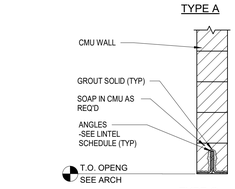
LINTEL BEAM DETAIL



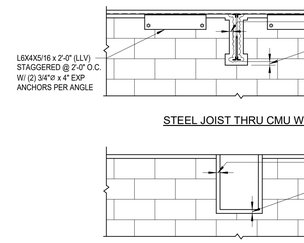
HORIZONTAL BEAM DETAILS

4 S1.2 TYPICAL CMU WALL ELEVATION AND DETAILS
NOT TO SCALE

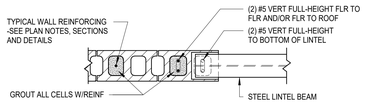




5 S1.2 TYPICAL SECTION @ LINTELS
NOT TO SCALE



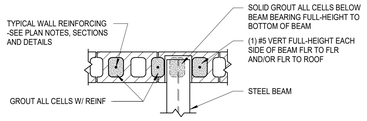
6 S1.2 TYPICAL CMU NON-LOAD BEARING WALL
NOT TO SCALE



PLAN VIEW @ STEEL LINTEL BEAM

NOTES:

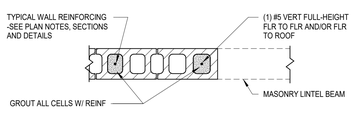
1. EXTEND #5 VERT BARS 2'-0" MINIMUM IN FOUNDATION WALL BELOW OR EPOXY DOWEL PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
2. WHERE BEAM BEARING ABOVE ALIGNS WITH BEAM BEARING BELOW, LAP #5 BARS 2'-6" MINIMUM AT FLOOR LEVEL.



PLAN VIEW @ STEEL BEAM

NOTES:

1. EXTEND #5 VERT BARS 2'-0" MINIMUM IN FOUNDATION WALL BELOW OR EPOXY DOWEL PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
2. WHERE BEAM BEARING ABOVE ALIGNS WITH BEAM BEARING BELOW, LAP #5 BARS 2'-6" MINIMUM AT FLOOR LEVEL.

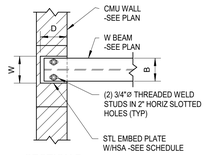


PLAN VIEW @ CMU LINTEL BEAM

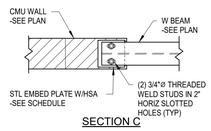
NOTES:

1. EXTEND #5 VERT. BARS 2'-0" MINIMUM IN FOUNDATION WALL BELOW OR EPOXY DOWEL PER MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
2. WHERE BEAM BEARING ABOVE ALIGNS WITH BEAM BEARING BELOW, LAP #5 BARS 2'-6" MINIMUM AT FLOOR LEVEL.

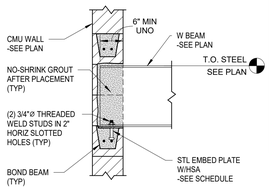
7 S1.2 TYPICAL CMU WALL REINFORCING AT BEAM BEARING
NOT TO SCALE



SECTION B



SECTION C



SECTION A

EMBED PLATE SCHEDULE
(TYP UNLESS NOTED OTHERWISE ON PLANS)

BEAM WIDTH	BASE PLATE SIZE (TxWxD)		# OF HSA 1/2"ø x4"
	8" CMU	12" CMU	
B <=4"	3/8"x6"x6"	3/8"x6"x6"	1 CTR'D
4"< B <= 6"	1/2"x7"x7"	1/2"x7"x7"	2
6"< B <= 8"	1/2"x8"x7"	1/2"x10"x7"	2
8"< B <= 10"	- - -	5/8"x12"x11"	3
10"< B <= 12"	- - -	5/8"x14"x11"	3
12"< B <= 14"	- - -	5/8"x16"x11"	4
K-SERIES JST	3/8"x7"x7"	3/8"x7"x7"	2
LH-SERIES JST	1/2"x10"x7"	1/2"x10"x7"	2

NOTES:

1. SEE "TYPICAL CMU WALL REINFORCING AT BEAM BEARING" DETAIL FOR ADDITIONAL INFORMATION.
2. PROVIDE STANDARD HOLE IN LIEU OF SLOTTED HOLES WHERE BEAM IS NOTED AS DRAG STRUT ON PLAN.

8 S1.2 TYPICAL STEEL BEAM BEARING ON CMU DETAILS
NOT TO SCALE

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BAY MILLS HOTEL AND RESORT EXPANSION BP-2

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BRIMLEY, MI 49715

project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

STATE OF MICHIGAN * JON E. AAMODT * 42272 * LICENSED PROFESSIONAL ENGINEER

printed name: Jon E. Aamodt
reg. #: 42272
sign date: 04-17-2023

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sheet title: TYPICAL CMU DETAILS
sheet number: S1.2

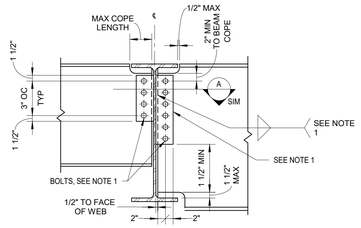
TABLE A		
WIDE-FLANGE BEAM DEPTH	BUILT-UP BEAM DEPTH (INCH)	MINIMUM NUMBER OF BOLTS REQUIRED
W8, W10 W12, W14 W16, W18 W21 W24 W27 W30 W33, W36 W40, W44	8 TO 10 TO 14 TO 18 TO 24 TO 27 TO 30 TO 33 TO 36 TO 40	2 3 4 5 6 7 8 9 10

NOTES:

THESE NOTES APPLY TO ALL CONNECTIONS UNLESS NOTED OTHERWISE.

1. SEE PLANS FOR BEAM REACTIONS WHERE NO DETAIL IS NOTED. USE APPROPRIATE TYPICAL DETAIL.
2. THE MINIMUM NUMBER OF BOLTS IN A BEAM WEB CONNECTION SHALL BE SHOWN IN "TABLE A"
3. BEAMS SHALL HAVE STANDARD ROUND HOLES (STD), AND SHEAR TAB PLATES SHALL HAVE HORIZONTAL SHORT SLOTTED HOLES (SSL) UNLESS NOTED OTHERWISE.
4. BOLTS IN CONNECTIONS OF BEAM TO BEAM / GIRDER SHALL BE SNUG TIGHT UNLESS SPECIFICALLY CALLED OUT AS SLIP CRITICAL (SC.).
5. WHEN CONDITIONS VARY FROM THOSE SHOWN IN THE "TYPICAL STEEL DETAILS", OR WHEN THE CONTRACTOR WANTS TO USE ALTERNATE DETAILS: DETAIL CONSTRUCTION ACCORDING TO THE "AISC MANUAL OF STEEL CONSTRUCTION". SUBMIT CALCULATIONS FOR ENGINEER'S APPROVAL.
6. CONTRACTOR SHALL COORDINATE THE BOLT SELECTION AND USE BETWEEN FABRICATOR AND ERECTOR.
7. WHEN THE ACTUAL WEB THICKNESS IS LESS THAN THAT SHOWN IN THE APPLICABLE CONNECTION TABLE. SEE "TYPICAL WEB DOUBLER" DETAIL OR SCALE THE MAXIMUM REACTION BY THE RATIO OF ACTUAL WEB THICKNESS TO MINIMUM WEB THICKNESS.
8. SEE "GENERAL NOTES FOR COPED BEAMS" FOR ADDITIONAL REQUIREMENTS WHEN BEAMS ARE COPED.

1 S1.3 GENERAL NOTES FOR STEEL CONNECTIONS

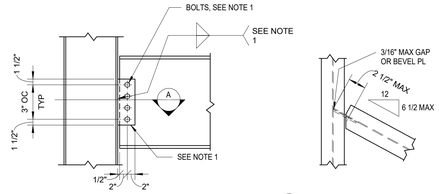


BEAM TO BEAM

NOTES:

1. SEE "TABLE B" FOR ADDITIONAL CONNECTION REQUIREMENTS.
2. WHEN REQUIRED NUMBER OF BOLTS DOES NOT FIT WITHIN BEAM DEPTH, OR WHEN THE REACTION IS MORE THAN THE MAXIMUM IN "TABLE B", USE DETAIL "DOUBLE ANGLE SHEAR CONNECTIONS".
3. FOR SKEWED BEAMS NOT MEETING THE LIMITS SHOWN IN SECTION, SEE "TYPICAL SKEWED BEAM CONNECTION".
4. SEE "GENERAL NOTES FOR COPED BEAMS".

2 S1.3 SINGLE PLATE SHEAR CONNECTIONS - TYPE C1
NOT TO SCALE



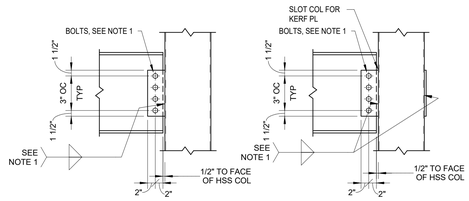
BEAM TO COLUMN FLANGE

A SKEWED BEAM

TABLE B									
	MAXIMUM REACTION				NO COPE	TOP COPE ONLY		TOP & BOTTOM COPE	
					Fy = 50 KSI	Fy (BEAM) = 50 KSI		Fy (BEAM) = 50 KSI	
	NUMBER OF BOLTS	MAXIMUM REACTION (KIPS)	PLATE THICK (A36) (INCH)	WELD SIZE (INCH)	MINIMUM WEB THICK (INCH)	MINIMUM WEB THICK (INCH)	MAXIMUM COPE LENGTH (INCH)	MINIMUM WEB THICK (INCH)	MAXIMUM COPE LENGTH (INCH)
3/4" ø A325 BOLTS	2	13	5/16 *	1/4	0.17	0.17	2 1/2	0.17	0 1/2
	3	24	5/16 *	1/4	0.18	0.20	3 1/2	0.20	2
	4	41	5/16 *	1/4	0.18	0.24	4	0.25	3 1/2
	5	51	5/16 *	1/4	0.18	0.24	4	0.25	4
	6	62	3/8	5/16	0.18	0.25	4 1/2	0.25	4
	7	72	3/8	5/16	0.18	0.25	5	0.25	5
	8	83	3/8	5/16	0.18	0.25	6 1/2	0.25	8
	9	93	1/2	3/8	0.18	0.25	7 1/2	0.25	8
	10	99	1/2	3/8	0.17	0.24	7 1/2	0.24	7 1/2
	11	109	1/2	3/8	0.17	0.24	7	0.24	7 1/2
	12	114	1/2	3/8	0.16	0.23	6 1/2	0.23	7 1/2

* 7/8" DIA. A325 BOLTS SHALL BE USED AT ALL BEAM CONNECTIONS THAT SUPPORT PRECAST PLANK.
-WHERE 5/16" PLATES ARE SPECIFIED, 3/8" PLATES SHALL BE USED AT ALL BEAM CONNECTIONS THAT SUPPORT PRECAST PLANK.

3 S1.3 SINGLE PLATE SHEAR CONNECTIONS - TYPE C1A
NOT TO SCALE



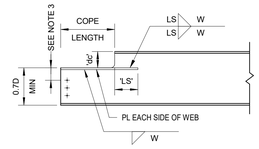
SINGLE SHEAR PLATE CONN

KERF PLATE CONN

NOTES:

1. SEE "TABLE B" FOR ADDITIONAL CONNECTION REQUIREMENTS AND ALLOWABLE LOADS.
2. WHEN SINGLE PLATE CONNECTION EXCEEDS EITHER OF THE LIMITS OF "TABLE G" PROVIDE KERF PLATE CONNECTION.

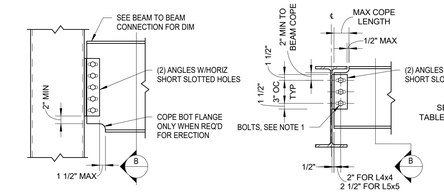
TABLE G		
	RECTANGULAR HSS (Fy = 46 KSI)	
CONNECTION PL THICK (IN)	MIN WALL THICK (IN)	MAX WALL WIDTH
5/16	0.22	9
3/8	0.28	11
1/2	0.34	14



NOTES:

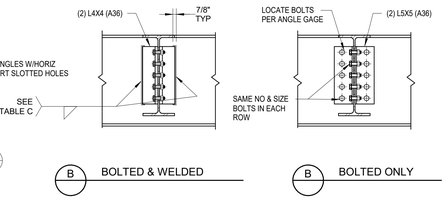
1. "W" SHALL BE 0.35t OR AISC MINIMUM.
2. "LS" SHALL BE THE GREATER OF THREE TIMES THE PLATE WIDTH OR TWO TIMES THE COPE DEPTH (dc).
3. ADJUST BOLT LOCATION AS REQUIRED.

4 S1.3 TYPICAL COPE WEB STIFFENER
NOT TO SCALE



BEAM TO COLUMN FLANGE

BEAM TO BEAM



B BOLTED & WELDED

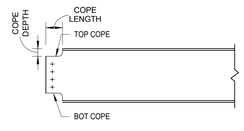
B BOLTED ONLY

TABLE C									
	MAXIMUM REACTION				NO COPE	TOP COPE ONLY		TOP & BOTTOM COPE	
					Fy = 50 KSI	Fy (BEAM) = 50 KSI		Fy (BEAM) = 50 KSI	
	NUMBER OF BOLTS	MAXIMUM REACTION (KIPS)	ANGLE THICK (A36) (INCH)	WELD SIZE (INCH)	MINIMUM WEB THICK (INCH)	MINIMUM WEB THICK (INCH)	MAXIMUM COPE LENGTH (INCH)	MINIMUM WEB THICK (INCH)	MAXIMUM COPE LENGTH (INCH)
3/4" ø A325 BOLTS	2	16	3/8	5/16	0.15	0.20	1 1/2	0.21	0 1/2
	3	32	3/8	5/16	0.23	0.26	3 1/2	0.26	2
	4	48	3/8	5/16	0.26	0.29	5	0.29	3 1/2
	5	62	3/8	5/16	0.30	0.30	5	0.30	4
	6	87	3/8	5/16	0.35	0.35	6 1/2	0.35	4
	7	113	3/8	5/16	0.36	0.39	8	0.39	5
	8	156	3/8	5/16	0.36	0.47	13	0.47	8
	9	189	3/8	5/16	0.36	0.50	15 1/2	0.51	9
	10	210	3/8	5/16	0.36	0.50	16	0.51	10
	11	231	3/8	5/16	0.36	0.50	15	0.51	12
	12	251	3/8	5/16	0.36	0.50	18	0.51	14

* 7/8" DIA. A325 BOLTS SHALL BE USED AT ALL BEAM CONNECTIONS THAT SUPPORT PRECAST PLANK.

MINIMUM SUPPORT THICKNESS WHEN WELDED TO SUPPORT	
BOLT ø	Fy = 50 KSI
3/4"	0.24
7/8"	0.24
1"	0.36

5 S1.3 DOUBLE ANGLE SHEAR CONNECTIONS - TYPE C2
NOT TO SCALE

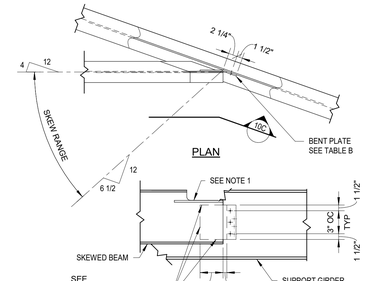


NOTES:

THESE NOTES APPLY TO ALL COPED BEAMS UNLESS NOTED OTHERWISE:

1. COPED BEAMS SHALL BE CHECKED FOR MINIMUM WEB THICKNESS AND MAXIMUM COPE LENGTH PER APPLICABLE TABLE. COPE LENGTH IS AS SHOWN IN THE CONNECTION DETAILS.
2. MAXIMUM TOP COPE DEPTH IS 2" FOR BEAM DEPTHS UP TO W18, 3" FOR BEAM W21 AND DEEPER. WHEN ACTUAL COPE DEPTH EXCEEDS MAXIMUM COPE DEPTH, ADD STIFFENERS PER "TYPICAL COPE WEB STIFFENER" DETAIL.
3. WHEN ACTUAL COPE LENGTH IS GREATER THAN SHOWN IN APPLICABLE TABLE, SEE "TYPICAL COPE WEB STIFFENER" DETAIL OR REDUCE THE MAXIMUM REACTION BY THE RATIO OF MAXIMUM COPE LENGTH TO ACTUAL COPE LENGTH. THESE REDUCTIONS ARE NOT ALLOWED BELOW THE HEAVY LINES SHOWN IN THE TABLES.

6 S1.3 TYPICAL COPED BEAM DETAIL
NOT TO SCALE

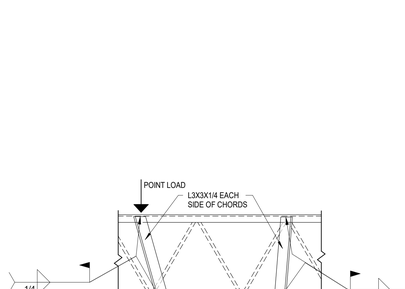


10C SECTION

NOTES:

1. SEE "TYPICAL WEB COPE STIFFENER" DETAIL FOR INFORMATION NOT SHOWN, CUT PLATE ONE SIDE AS REQUIRED FOR FIT UP.
2. REFERENCE "TABLE B" FOR NUMBER OF BOLTS REQUIRED FOR MAXIMUM REACTION.

7 S1.3 TYPICAL SKEWED BEAM CONNECTION
NOT TO SCALE

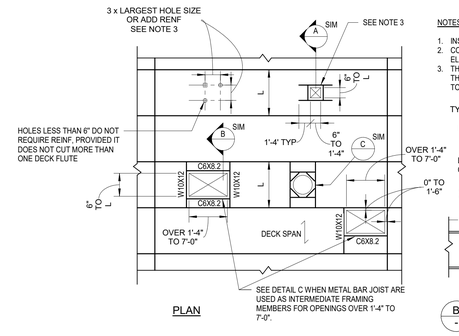


THE POINT LOAD AS SHOWN SHALL BE PLACED AT A PANEL POINT OR FIELD WELD DOUBLE ANGLES, AS SHOWN, FROM THE POINT OF LOAD TO THE NEAREST PANEL POINT ON THE OPPOSITE CHORD.

NOTE:

1. POINT LOAD REINFORCING IS NOT REQUIRED IF THE LOAD IS LESS THAN 100 POUNDS.

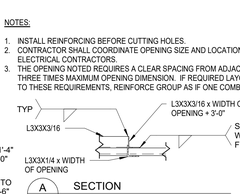
8 S1.3 POINT LOAD REINFORCEMENT SECTION
NOT TO SCALE



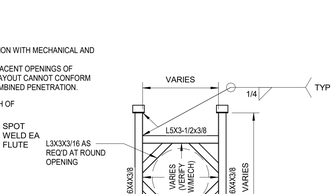
PLAN

NOTES:

1. INSTALL REINFORCING BEFORE CUTTING HOLES.
2. CONTRACTOR SHALL COORDINATE OPENING SIZE AND LOCATION WITH MECHANICAL AND ELECTRICAL CONTRACTORS.
3. THE OPENING NOTED REQUIRES A CLEAR SPACING FROM ADJACENT OPENINGS OF THREE TIMES MAXIMUM OPENING DIMENSION. IF REQUIRED LAYOUT CANNOT CONFORM TO THESE REQUIREMENTS, REINFORCE GROUP AS IF ONE COMBINED PENETRATION.



B SECTION OPTION 1



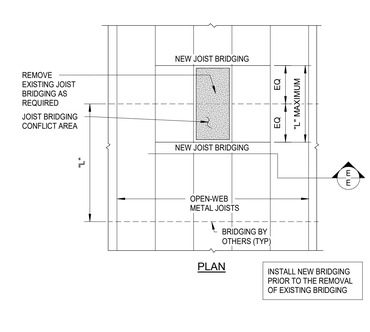
REFER TO MECH DRAWINGS FOR ALL OPENING LOCATIONS AND SIZES

NOTE:

WHEN JOIST SPACING IS GREATER THAN 5'-0" USE L6X6X1/2 PRIMARY FRAMING MEMBERS.

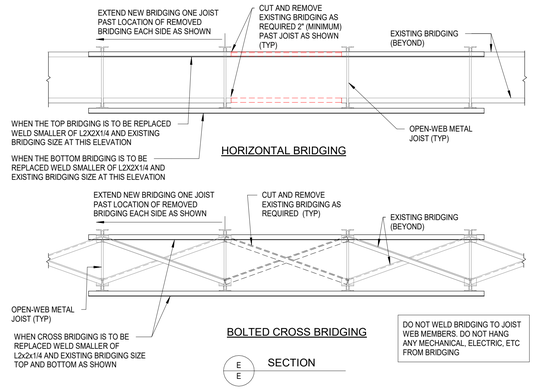
C TYP ROOF OPENING FRAME OPTION 2

9 S1.3 TYPICAL ROOF DECK OPENING - 7'-0" OPENINGS & LESS
NOT TO SCALE

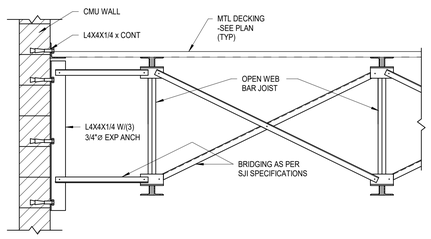


INSTALL NEW BRIDGING PRIOR TO THE REMOVAL OF EXISTING BRIDGING

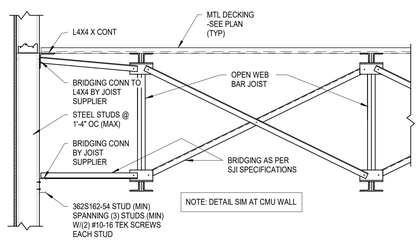
10 S1.3 TYPICAL JOIST BRIDGING CONFLICT
NOT TO SCALE



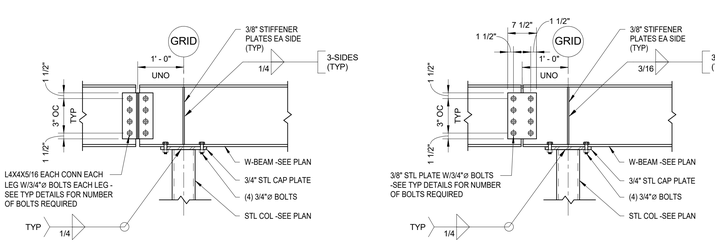
DO NOT WELD BRIDGING TO JOIST WEB MEMBERS. DO NOT HANG ANY MECHANICAL, ELECTRIC, ETC FROM BRIDGING



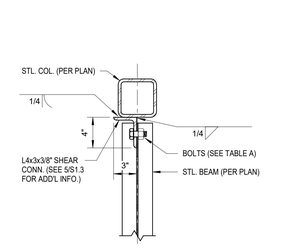
11 S1.3 TYPICAL CROSS BRIDGING DETAIL AT CMU
NOT TO SCALE



12 S1.3 TYPICAL CROSS BRIDGING DETAIL AT STEEL STUD WALL
NOT TO SCALE



13 S1.3 TYPICAL BEAM SPLICE DETAIL @ ROOF/FLOOR
NOT TO SCALE



14 S1.3 SINGLE ANGLE SHEAR CONNECTIONS - TYPE C2A
1 1/2" = 1'-0"

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BAY MILLS HOTEL AND RESORT EXPANSION BP-2

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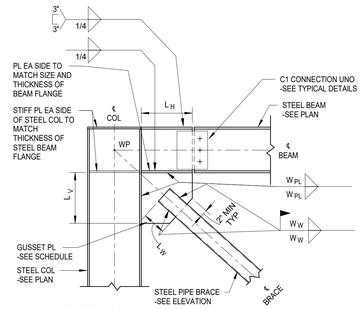
BID SET 04-17-2023

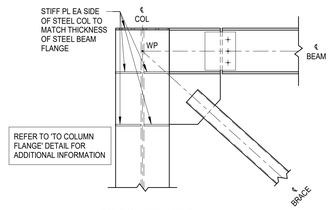
revision / issue	no.	date

sheet title: TYPICAL STEEL DETAILS

sheet number: S1.3



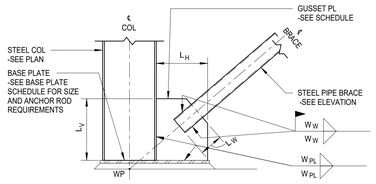
TO COLUMN FLANGE



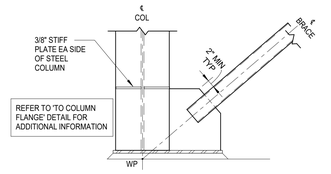
TO COLUMN WEB

BRACED FRAME CONNECTIONS							
GUSSET	GUSSET PL THICKNESS, t (INCHES)	HORIZ LENGTH GUSSET PLATE, L_H (INCHES)	VERT LENGTH GUSSET PLATE, L_V (INCHES)	LENGTH OF BRACE WELD, L_W (INCHES)	W_W (INCHES)	W_{PL} (INCHES)	REMARKS
60	3/8	12	15	6	1/4	1/4	

TYPICAL BRACED FRAME CONNECTION AT TOP (W COLUMNS)



TO COLUMN FLANGE

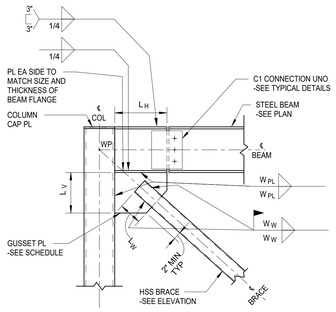


TO COLUMN WEB

BRACED FRAME CONNECTIONS							
GUSSET	GUSSET PL THICKNESS, t (INCHES)	HORIZ LENGTH GUSSET PLATE, L_H (INCHES)	VERT LENGTH GUSSET PLATE, L_V (INCHES)	LENGTH OF BRACE WELD, L_W (INCHES)	W_W (INCHES)	W_{PL} (INCHES)	REMARKS
50	3/8	12	21	6	1/4	1/4	

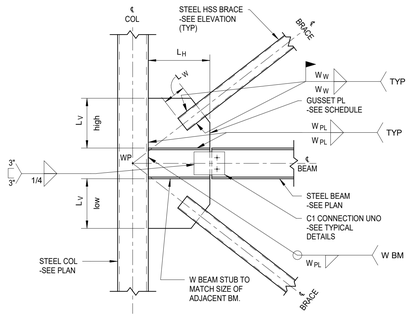
TYPICAL BRACED FRAME CONNECTION AT BASE (W COLUMNS)

1 / S1.4 TYPICAL BRACE FRAME CONNECTION - W-COLUMNS
NOT TO SCALE



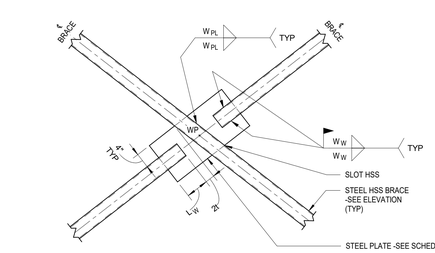
BRACED FRAME CONNECTIONS								
GUSSET	GUSSET PL THICKNESS, t (INCHES)	HORIZ LENGTH GUSSET PLATE, L_H (INCHES)	VERT LENGTH GUSSET PLATE, L_V (INCHES)	W_L (INCHES)	W_{PL} (INCHES)	W_W (INCHES)		REMARKS
30	3/8	12	17	6	1/4	1/4		
31	3/8	12	20	6	1/4	1/4		
32	3/8	13	12	6	1/4	1/4		
33	3/8	16	12	6	1/4	1/4		
34	3/8	18	12	6	1/4	1/4		
35	3/8	20	12	6	1/4	1/4		
36	3/8	22	12	6	1/4	1/4		
37	1/2	15	12	6	1/4	1/4		

TYPICAL BRACED FRAME CONNECTION AT TOP, SIM. @ BOTTOM (HSS COLUMNS)



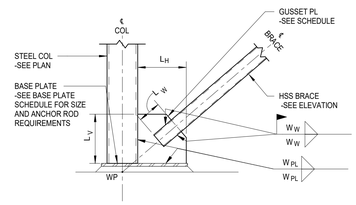
BRACED FRAME CONNECTIONS									
GUSSET	GUSSET PL THICKNESS, t (INCHES)		HORIZ LENGTH GUSSET PLATE, L_H (INCHES)	VERT LENGTH GUSSET PLATE, L_V (INCHES)		W_L (INCHES)	W_{PL} (INCHES)	W_W (INCHES)	REMARKS
	high	low		high	low				
20	3/8	3/8	18	12	12	6	1/4	1/4	
21	3/8	3/8	21	12	13	6 (high) 8 (low)	1/4	1/4	
22	3/8	3/8	23	12	16	6 (high) 12 (low)	1/4	1/4	
23	3/8	1/2	12	20	19	6	1/4	1/4	
24	3/8	1/2	19	12	12	6	1/4	1/4	
25	1/2	1/2	12	19	20	6	1/4	1/4	
26	1/2	5/8	15	12	12	6	5/16	5/16	
27	1/2	5/8	20	12	13	6	5/16	5/16	
28	5/8	7/8	13	12	12	6	5/16	5/16	

TYPICAL BRACED FRAME CONNECTION AT INTERMEDIATE COLUMN LOCATION



BRACED FRAME CONNECTIONS				
GUSSET	PLATE THICKNESS, T (INCHES)	LENGTH OF BRACE WELD, L_W (INCHES)	W_W (INCHES)	W_{PL} (INCHES)	REMARKS
10	3/8	6	1/4	1/4	
11	1/2	6	1/4	1/4	
12	5/8	6	5/16	5/16	
13	7/8	6	5/16	5/16	

TYPICAL BRACED FRAME INTERSECTION CONNECTION



BRACED FRAME CONNECTIONS							
GUSSET	GUSSET PL THICKNESS, t (INCHES)	HORIZ LENGTH GUSSET PLATE, L_H (INCHES)	VERT LENGTH GUSSET PLATE, L_V (INCHES)	LENGTH OF BRACE WELD, L_W (INCHES)	W_W (INCHES)	W_{PL} (INCHES)	REMARKS
1	3/8	12	14	6	1/4	1/4	
2	3/8	12	16	6	1/4	1/4	
3	3/8	12	18	6	1/4	1/4	
4	1/2	12	26	6	1/4	1/4	
5	5/8	12	16	6	5/16	5/16	
6	5/8	13	15	6	5/16	5/16	
7	7/8	12	19	6	5/16	5/16	

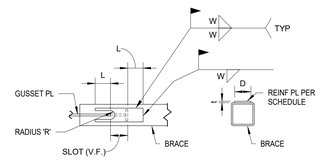
TYPICAL BRACED FRAME CONNECTION AT BASE (HSS COLUMNS)

3 / S1.4 TYPICAL BRACE FRAME CONNECTION - HSS
NOT TO SCALE

NOTES:

1. ALL PLATES SHALL BE GRADE A36 STEEL UNLESS NOTED OTHERWISE.
2. DETAIL GUSSET PLATE TO PROVIDE THE REQUIRED BRACE TO GUSSET PLATE, GUSSET PLATE TO BEAM, AND GUSSET PLATE TO COLUMN WELD LENGTHS.
3. SLOT WIDTH IN BRACE SHALL BE EQUAL TO THE CONNECTING GUSSET PLATE THICKNESS PLUS A MAXIMUM OF 1/8" TOLERANCE. PROVIDE SLOT PATCH AND SLOT REINFORCING AT ALL BRACE SLOTS PER THE TYPICAL BRACE SLOT REINFORCING DETAIL WHERE SLOT WIDTH EXCEEDS THIS TOLERANCE.
4. BRACE TO GUSSET WELDS CALLED OUT ARE EFFECTIVE WELD LENGTH. WHERE BRACE SLOT WIDTH RESULTS IN GAP AT ROOT OF WELD, INCREASE WELD LEG LENGTH TO COMPENSATE.
5. SHOP DRAWINGS SUBMITTED TO THE ENGINEER FOR REVIEW SHALL CLEARLY INDICATE THE BRACE ANGLE, BRACE TO GUSSET PLATE WELD LENGTH, VERTICAL GUSSET PLATE LENGTH, AND GUSSET PLATE HORIZONTAL LENGTH. BRACE OUTLINE SHALL BE SHOWN.

BRACED FRAME GENERAL NOTES



BRACE SLOT REINFORCING					
BRACE SIZE	t (INCH)	W (INCH)	R (INCH)	L (INCH)	D (INCH)
HSS5x5	3/8	1/4	1 1/8	4	3 1/2

TYPICAL BRACE SLOT REINFORCING DETAIL - SQUARE HSS BRACE

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BRIMLEY, MI 49715

project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

printed name: Jon E. Aamodt
reg. #: 42272
sign date: 04-17-2023

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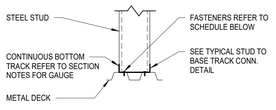
BID SET
04-17-2023

revision / issue	no.	date

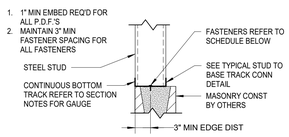
sheet title: TYPICAL STEEL DETAILS

sheet number: S1.4



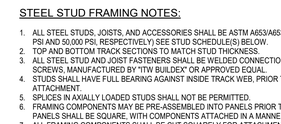
BASE DETAIL @ METAL DECK

LOCATION	NUMBER OF FASTENERS REQ'D
TYPICAL FRAMING	(2) #10-16 SCREWS @ 8" OC
JAMB STUDS	(4) #10-16 SCREWS @ EACH JAMB



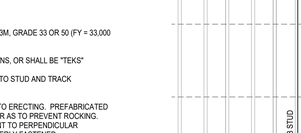
BASE DETAIL @ MASONRY/CONC.

LOCATION	NUMBER OF FASTENERS REQ'D
TYPICAL FRAMING	(2) 0.157"ø P.D.F.'S @ EACH STUD
JAMB STUDS	(4) 0.157"ø P.D.F.'S @ EACH JAMB



BASE DETAIL @ STRUCTURAL STEEL

LOCATION	NUMBER OF FASTENERS REQ'D
TYPICAL FRAMING	(2) 0.157" DIA. P.D.F.'S @ EACH STUD
JAMB STUDS	(4) 0.157" DIA. P.D.F.'S @ EACH JAMB

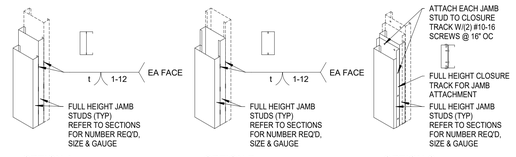


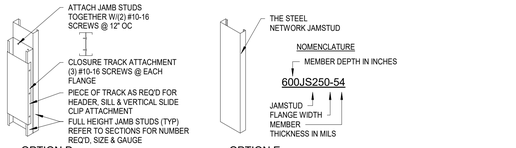
BASE DETAIL @ PRECAST CONCRETE

LOCATION	NUMBER OF FASTENERS REQ'D
TYPICAL FRAMING	(2) 0.157"ø P.D.F.'S @ EACH STUD
JAMB STUDS	(4) 0.157"ø P.D.F.'S @ EACH JAMB

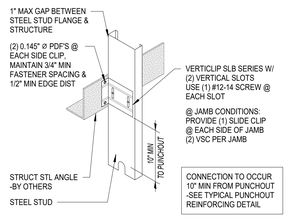
NOTE: ANCHORS @ SHEAR WALL & HOLDOWN LOC'S ARE IN ADDITION TO THESE TYPICAL BASE CONNECTION REQUIREMENTS.

1 S1.5 TYPICAL STUD BASE DETAILS
NOT TO SCALE

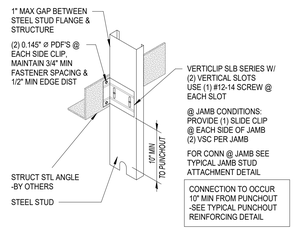




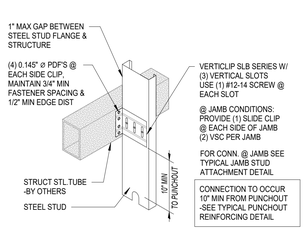
2 S1.5 TYPICAL JAMB STUD ATTACHMENT DETAILS - CONTRACTORS OPTION
NOT TO SCALE



VSC DETAIL - METAL STUD



VSC DETAIL - JAMB STUD



VSC DETAIL - METAL STUD

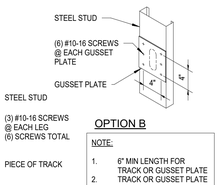
VSC DETAIL - METAL STUD

VSC DETAIL - JAMB STUD

VSC DETAIL - JAMB STUD

- (VSC = VERTICAL SLIDE CLIP) (INSTALL PER MANUFACTURER SPECIFICATIONS)

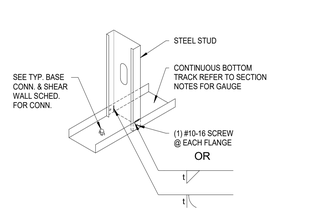
6 S1.5 TYPICAL VSC DETAILS - METAIL STUD / JAMB STUD
NOT TO SCALE



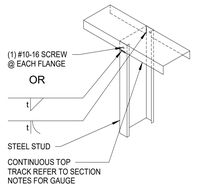
OPTION B

NOTE:
1. 6" MIN LENGTH FOR TRACK OR GUSSET PLATE
2. TRACK OR GUSSET PLATE TO BE SAME WIDTH AND GAUGE AS STUD

3 S1.5 TYPICAL PUNCHOUT REINFORCING
NOT TO SCALE



4 S1.5 TYPICAL STUD TO BASE TRACK CONNECTION
NOT TO SCALE



5 S1.5 TYPICAL STUD TO TOP TRACK CONNECTION
NOT TO SCALE

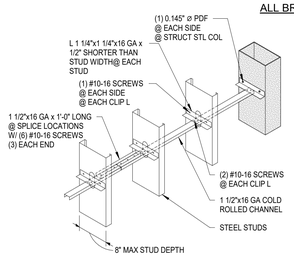
FASTENER NOTES:

1. ALL PDF'S ATTACHED TO STRUCTURAL STEEL ARE TO BE HILTI X-EDNL RAMSET 1500/1600, POWERS DRIVE PIN, OR EQUAL. TYPICAL THRU-OUT.
2. ALL PDF'S ATTACHED TO CONCRETE ARE TO BE HILTI X-DNI, RAMSET 1500/1600, POWER DRIVE PIN, OR EQUAL. TYPICAL THRU-OUT.
3. ALL SCREWS ARE TO BE ITW BUILDEX TEKS OR EQUAL. TYPICAL THRU-OUT.

MILS TO GAUGE CONVERSION CHART	
MILS	GAUGE
33 MILS	20 GAUGE
43 MILS	18 GAUGE
54 MILS	16 GAUGE
68 MILS	14 GAUGE
97 MILS	12 GAUGE

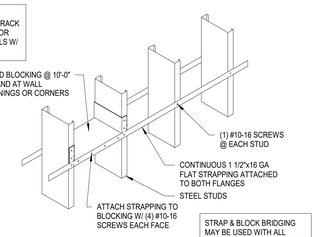
WELD THICKNESS	
STEEL STUD THICKNESS IN MILS	WELD THICKNESS (t)
33 MILS	NO WELDING
43 MILS	1/8"
54 MILS	1/8"
68 MILS	1/8"
97 MILS	5/32"

ALL BRIDGING VERTICAL SPACING @ 48" OC AT DETAIL BELOW



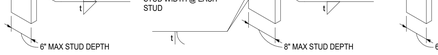
COLD ROLLED CHANNEL OPTION

FOR SOLID BLOCKING:
NOTCH AND BEND UP TRACK FLANGES 90° OR ANCHOR BLOCKING TO VERTICALS W/ CLIP L'S



STRAP & BLOCK OPTION

STRAP BLOCK BRIDGING MAY BE USED WITH ALL STUD DEPTHS, CURVED OR STRAIGHT WALLS

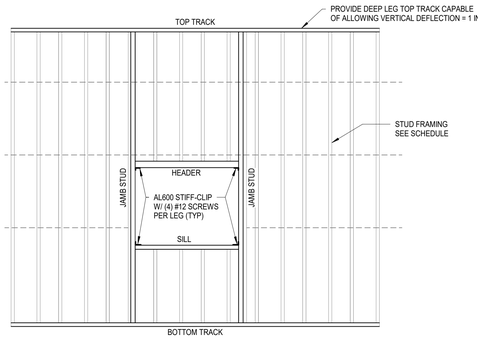


WELDED ATTACHMENT | WELDED ATTACHMENT | SPAZZER BAR ATTACHMENT | BRIDGECLIP ATTACHMENT

7 S1.5 TYPICAL BRIDGING ATTACHMENT DETAILS - CONTRACTORS OPTION
NOT TO SCALE

STEEL STUD FRAMING NOTES:

1. ALL STEEL STUDS, JOISTS, AND ACCESSORIES SHALL BE ASTM A653/A653M, GRADE 33 OR 50 (FY = 33,000 PSI AND 50,000 PSI, RESPECTIVELY) SEE STUD SCHEDULE(S) BELOW.
2. TOP AND BOTTOM TRACK SECTIONS TO MATCH STUD THICKNESS.
3. ALL STEEL STUD AND JOIST FASTENERS SHALL BE WELDED CONNECTIONS, OR SHALL BE "TEKS" SCREWS, MANUFACTURED BY "ITW BUILDEX" OR APPROVED EQUAL.
4. STUDS SHALL HAVE FULL BEARING AGAINST INSIDE TRACK WEB, PRIOR TO STUD AND TRACK ATTACHMENT.
5. SPLICES IN AXIALLY LOADED STUDS SHALL NOT BE PERMITTED.
6. FRAMING COMPONENTS MAY BE PRE-ASSEMBLED INTO PANELS PRIOR TO ERECTING. PREFABRICATED PANELS SHALL BE SQUARE, WITH COMPONENTS ATTACHED IN A MANNER AS TO PREVENT ROCKING.
7. ALL FRAMING COMPONENTS SHALL BE CUT SQUARELY FOR ATTACHMENT TO PERPENDICULAR MEMBERS. MEMBERS SHALL BE HELD POSITIVELY IN PLACE UNTIL PROPERLY FASTENED.
8. ERECT FRAMING AND PANELS PLUMB, LEVEL AND SQUARE IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS.
9. HANDLING AND LIFTING OF PREFABRICATED PANELS SHALL BE DONE IN A MANNER AS TO NOT CAUSE DISTORTION IN ANY MEMBER.
10. TRACK SHALL BE SECURELY ANCHORED TO THE SUPPORTING STRUCTURE AS SHOWN ON THE FABRICATION AND ERECTION DRAWINGS.
11. AT TRACK BUTT JOINTS, ABUTTING PIECES OF TRACK SHALL BE SECURELY ANCHORED TO A COMMON STRUCTURAL ELEMENT, OR THEY SHALL BE BUTT-WELDED OR SPLICED TOGETHER.
12. STUDS SHALL BE PLUMBED, ALIGNED AND SECURELY ATTACHED TO THE FLANGE OR WEBS OF BOTH UPPER AND LOWER TRACKS.
13. WALL STUD BRIDGING SHALL BE ATTACHED IN A MANNER TO PREVENT STUD ROTATION. BRIDGING ROWS SHALL BE SPACED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION. THE MINIMUM BRIDGING SHALL BE 4'-0" OC FOR WIND LOADED WALLS AND 3'-4" OC FOR AXIAL LOADED WALLS.



TYPICAL NON-LOAD BEARING WALL ELEVATION

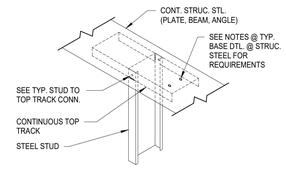
STUD SCHEDULE FOR INTERIOR NON-LOAD BEARING WALLS (FOR TYPICAL WALL CONSTRUCTION W/ L/240 DEFLECTION LIMIT)		
HEIGHT	STUD SIZE & SPACING	REMARKS
UP TO 15'-0"	362S137-33 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS
15'-0" TO 18'-0"	362S137-43 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS
18'-0" TO 20'-0"	362S137-54 (Fy = 50) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS
UP TO 24'-0"	600S137-33 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS
UP TO 31'-0"	800S137-33 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS

STUD SCHEDULE FOR INTERIOR NON-LOAD BEARING WALLS (FOR WALL CONSTRUCTION WITH TILE OR STONE VENEER W/ L/360 DEFLECTION LIMIT - SEE ARCH FOR ALL LOCATIONS)		
HEIGHT	STUD SIZE & SPACING	REMARKS
UP TO 14'-0"	362S137-33 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS
UP TO 21'-0"	600S137-33 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS
UP TO 27'-0"	800S137-33 (Fy = 33) @ 1'-4" OC	ALL FULL HEIGHT INTERIOR WALLS

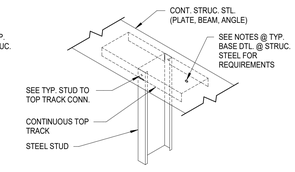
WALL OPENING SCHEDULE @ 3 5/8" NON-LOAD BEARING WALLS			
OPENING WIDTH	DEFLECTION	JAMB STUDS EACH SIDE	HEADER AND SILL
UP TO 6'-0"	L/360	(2) WALL STUDS	(2) 362S137-33 BOX HEADER W/ T&B TRACKS, SINGLE SILL TRACK
>6'-0" TO 8'-0"	L/360	(3) WALL STUDS	(2) 362S137-54 BOX HEADER W/ T&B TRACKS, SINGLE SILL TRACK
>8'-0" TO 10'-0"	L/360	(3) WALL STUDS	(2) 600S162-33 BOX HEADER W/ T&B TRACKS. SEE 2/S1.0 FOR SILL
>10'-0" TO 12'-0"	L/360	(3) WALL STUDS	(2) 600S162-54 BOX HEADER W/ T&B TRACKS. SEE 2/S1.0 FOR SILL

WALL OPENING SCHEDULE @ 6" NON-LOAD BEARING INTERIOR AND EXTERIOR WALLS			
OPENING WIDTH	DEFLECTION	JAMB STUDS EACH SIDE	HEADER AND SILL
UP TO 6'-0"	L/360	(2) WALL STUDS	(2) 600S162-33 BOX HEADER W/ T&B TRACKS, SINGLE SILL TRACK
>6'-0" TO 8'-0"	L/360	(3) WALL STUDS	(2) 600S167-43 BOX HEADER W/ T&B TRACKS, SINGLE SILL TRACK
>8'-0" TO 10'-0"	L/360	(3) WALL STUDS	(2) 600S162-54 BOX HEADER W/ T&B TRACKS. SEE 2/S1.0 FOR SILL
>10'-0" TO 12'-0"	L/360	(3) WALL STUDS	(2) 600S162-68 BOX HEADER W/ T&B TRACKS. SEE 2/S1.0 FOR SILL

8 S1.5 TYPICAL INTERIOR NON-LOAD BEARING STEEL STUD WALL FRAMING NOTES AND SCHEDULES (EXTERIOR STEEL WALLS AT BUILDING PERIMETER TO BE DESIGNED AND DETAILED BY STEEL STUD SUPPLIER)
NOT TO SCALE

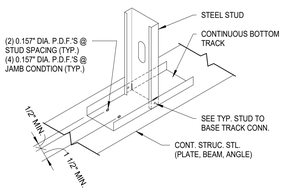


LOAD BRG. TOP TRACK @ STEEL

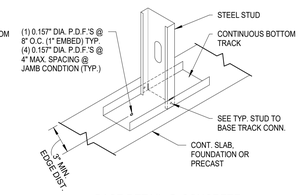


LOAD BRG. TOP TRACK @ CONCRETE

9 S1.5 TYPICAL STUD TO BASE TRACK CONNECTION
NOT TO SCALE

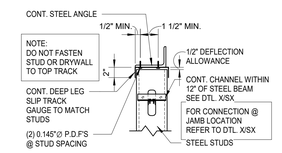


BASE DETAIL @ STRUCTURAL STEEL

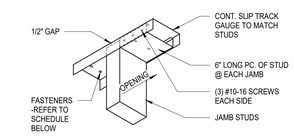


BASE DETAIL @ CONCRETE

10 S1.5 SLIP TRACK REINFORCING
NOT TO SCALE



11 S1.5 SLIP TRACK TO STEEL ANGLE
NOT TO SCALE



LOCATION	NUMBER OF FASTENERS REQUIRED	EDGE DISTANCE	FASTENER SPACING
STRUCTURAL STEEL	(4) 0.157"Ø P.D.F.'S (2) EACH SIDE OF JAMB	1/2" MIN.	1 1/2" MIN.
METAL DECK	(4) #10-16 SCREWS (2) EACH SIDE OF JAMB	N/A	1 1/2" MIN.
PRECAST CONCRETE	(4) 0.157"Ø P.D.F.'S (2) EACH SIDE OF JAMB	3" MIN.	3" MIN.

12 S1.5 TYPICAL STUD TO BASE TRACK CONNECTION
NOT TO SCALE

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BRIMLEY, MI 49715

project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

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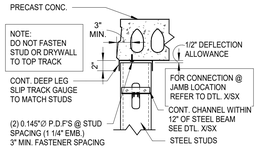
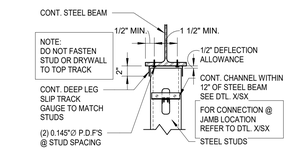
sheet title: TYPICAL LIGHT GAUGE STEEL DETAILS

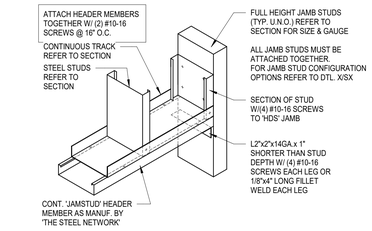
sheet number: S1.5



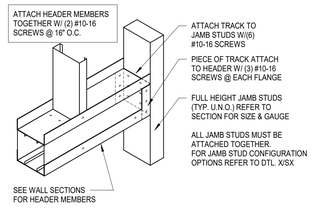
1 S1.6 SLIP TRACK TO PRECAST
NOT TO SCALE



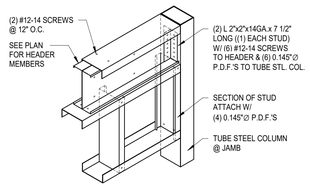
2 S1.6 SLIP TRACK TO STEEL BEAM
NOT TO SCALE



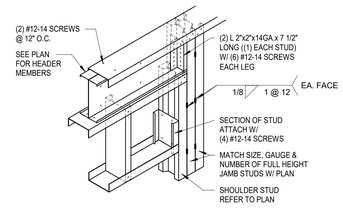
3 S1.6 HEADER - JAMB DETAIL
NOT TO SCALE



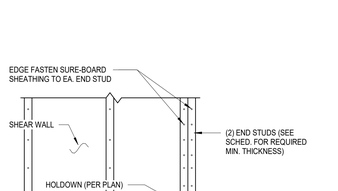
4 S1.6 HEADER - JAMB DETAIL
NOT TO SCALE



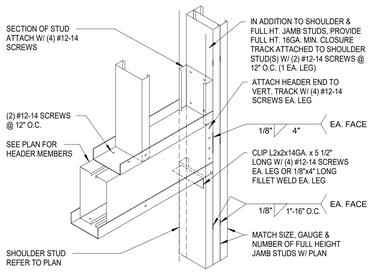
5 S1.6 HEADER - JAMB DETAIL - LOAD BEARING
NOT TO SCALE



6 S1.6 HEADER - JAMB DETAIL - LOAD BEARING
NOT TO SCALE



7 S1.6 HEADER - JAMB DETAIL - LOAD BEARING
NOT TO SCALE



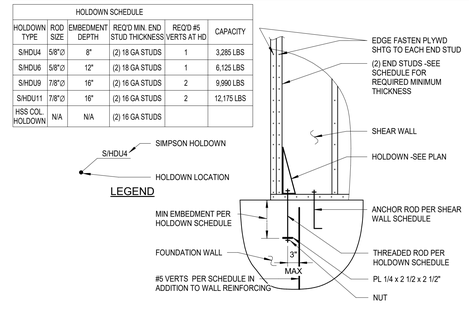
8 S1.6 HEADER - JAMB DETAIL - LOAD BEARING
1" = 1'-0"

9 S1.6 SILL - JAMB DETAIL
NOT TO SCALE

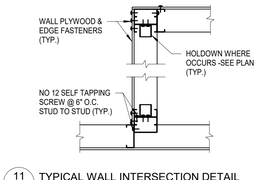
NOTES:
1. SEE TYPICAL HOLDOWN DETAILS 17/S1.6 AND 18/S1.6 FOR REQUIREMENTS AT HOLDOWNS @ PRECAST PLANK
2. SEE TYPICAL HSS COLUMN HOLDOWN DETAIL 16/S1.6 FOR REQUIREMENTS WHEN HSS COLUMNS ARE USED AS HOLDOWNS.

HOLDOWN SCHEDULE

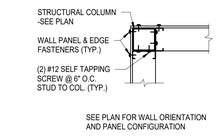
HOLDOWN TYPE	ROD SIZE	EMBEDMENT DEPTH	REQ'D MIN. END STUD THICKNESS	REQ'D #5 VERTS AT HD	CAPACITY
S/HDU4	5/8"Ø	8"	(2) 18 GA STUDS	1	3,285 LBS
S/HDU6	5/8"Ø	12"	(2) 18 GA STUDS	1	6,125 LBS
S/HDU9	7/8"Ø	16"	(2) 16 GA STUDS	2	9,990 LBS
S/HDU11	7/8"Ø	16"	(2) 16 GA STUDS	2	12,175 LBS
HSS COL. HOLDOWN	N/A	N/A	(2) 16 GA STUDS		



10 S1.6 TYPICAL HOLDOWN TO FOUNDATION
NOT TO SCALE



11 S1.6 TYPICAL WALL INTERSECTION DETAIL
NOT TO SCALE



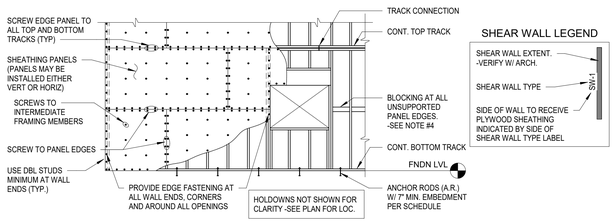
SEE PLAN FOR WALL ORIENTATION
AND PANEL CONFIGURATION

12 S1.6 TYPICAL SHEAR WALL ATTACHMENT TO COLUMN
NOT TO SCALE

SHEAR WALL SCHEDULE

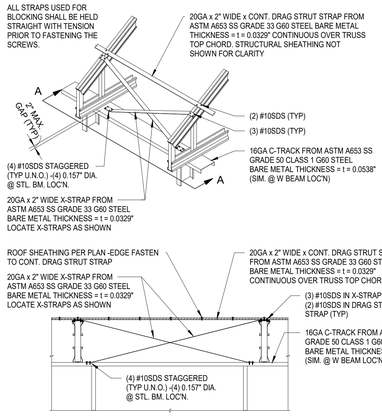
SHEAR WALL TYPE	MIN. STUD MIL. (GAUGE)	SHEATHING	FASTENER SPACING AT PANEL EDGE	TRACK CONNECTION TOP	BOTTOM TRACK TO CONC. OR STL. BELOW	ALLOWABLE CAPACITY (LBS/FT)
SW-1	43 (18)	SURE-BOARD ONE SIDE	6" O.C.	(1) ROW NO. 8 SCREWS @ 5" O.C.	5/8"Ø AR'S @ 24"o.c.	562
SW-2	43 (18)	SURE-BOARD ONE SIDE	4" O.C.	(1) ROW NO. 8 SCREWS @ 5" O.C.	5/8"Ø AR'S @ 16"o.c.	770

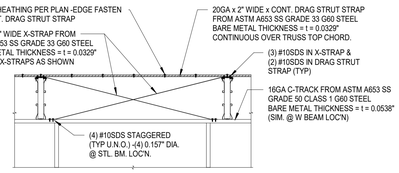
NOTES:
1. REFER TO GENERAL NOTES AND TYPICAL DETAILS FOR STUD FRAMING REQUIREMENTS
2. USE SURE-BOARD SERIES 200 STRUCTURAL PANEL (ICBO #ER-5762) OR APPROVED EQUAL. SURE-BOARD SCREWS SHALL BE NO. 8x1.25" SELF-DRILLING/SELF-TAPPING BUGLE HEAD SCREWS. SEE ARCH FOR WALL BOARD THICKNESS AND TYPE.
3. INSTALL SCREWS TO INTERMEDIATE MEMBERS AT 12" ON CENTER, UNLESS NOTED OTHERWISE.
4. PROVIDE BLOCKING (43 MIL. MIN) BETWEEN STUDS WHEN TOP OR BOTTOM PANEL EDGE DOES NOT BREAK ON A CONTINUOUS TRACK.
5. REFER TO PLAN FOR SHEAR WALL END CONDITIONS.
6. COORDINATE MINIMUM STUD GAUGE REQUIREMENTS WITH LIGHT GAUGE STEEL FRAMING SCHEDULE. THE HEAVIER GAUGE GOVERNS.



SHEAR WALL LEGEND

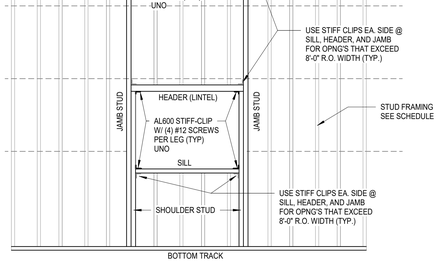
13 S1.6 TYPICAL SHEAR WALL ELEVATION
NOT TO SCALE





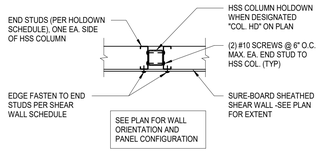
SECTION A - A

14 S1.6 HEEL STRAPPING DETAIL
NOT TO SCALE



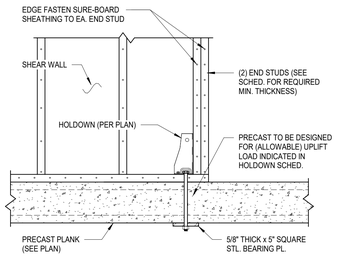
OPENING LOC.	FULL HT. JAMB STUD	HEADER / LINTEL	SILL (IF APPLICABLE)	SHOULDER STUD
L-2 LINTELS	(2) 600S162-54 (BOXED)	(2) VERTS + (2) 600T125-54 (BOXED) (PER LINTEL SCHED.)	600T125-54	(2) 600S162-54 (BOXED)
L-3 LINTELS IN 6" WALL	(2) 600S162-54 (BOXED)	(2) VERTS + (2) 600T125-54 (BOXED) (PER LINTEL SCHED.)	600T125-54	(2) 600S162-54 (BOXED)
L-3 LINTELS IN 8" WALL	(2) 800S162-54 (BOXED)	(2) VERTS + (2) 800T125-54 (BOXED) (PER LINTEL SCHED.)	800T125-54	(2) 800S162-54 (BOXED)
L-4 LINTELS	(2) 800S200-118 (BOXED)	(2) VERTS + (2) 800T200-68 (BOXED) (PER LINTEL SCHED.)	800T300-97	(2) 800S200-118 (BOXED)
L-7 LINTELS	(2) 600S162-54 (BOXED)	(2) VERTS + (2) 600T300-68 (BOXED) (PER LINTEL SCHED.)	600T300-97	(2) 600S162-54 (BOXED)

15 S1.6 TYPICAL BEARING STEEL STUD WALL FRAMING ELEVATION
1/2" = 1'-0"

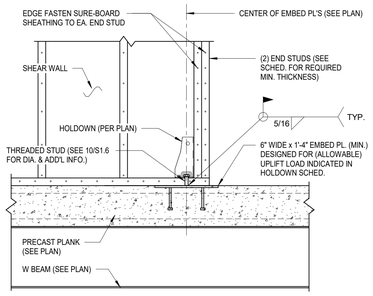


SEE PLAN FOR WALL
ORIENTATION AND
PANEL CONFIGURATION

16 S1.6 TYPICAL HSS COLUMN HOLDOWN (PLAN VIEW)
3/4" = 1'-0"



17 S1.6 TYPICAL DETAIL @ HOLDOWN @ PRECAST PLANK
1" = 1'-0"



18 S1.6 TYPICAL DETAIL @ HOLDOWN @ PRECAST PLANK W/ STEEL BEAM BELOW
1" = 1'-0"

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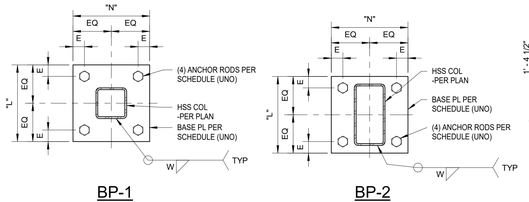
sheet title: TYPICAL LIGHT GAUGE STEEL DETAILS

sheet number: S1.6

COLUMN BASE PLATE SCHEDULE							
MARK	COLUMN SIZE	BASE PLATE THICKNESS	BASE PLATE WIDTH = "N"	BASE PLATE LENGTH = "L"	ANCH. ROD SIZE	EDGE DIST = E	FILLET WELD = W
BP-1	HSS4x4	3/4"	10"	10"	3/4"	1 1/2"	5/16"
BP-1	HSS5x5	1"	11"	11"	3/4"	1 1/2"	5/16"
BP-1	HSS6x6	1 1/8"	12"	12"	3/4"	1 1/2"	5/16"
BP-1	HSS7x7	1 1/4"	13"	13"	3/4"	1 1/2"	5/16"
BP-1	HSS12x12	1 3/4"	21"	21"	1 1/4"	2 1/4"	5/8"
BP-2	HSS7x5	1 1/8"	11"	13"	3/4"	1 1/2"	5/16"
BP-2	HSS9x5	1 1/8"	11"	15"	3/4"	1 1/2"	5/16"
BP-2	HSS18x6	1"	12"	24"	3/4"	1 1/2"	5/16"
BP-3	HSS5x5	1 3/4"	SEE DTL.	SEE DTL.	1 1/2"	2 1/4"	CJP
BP-3	HSS6x6	1 3/4"	SEE DTL.	SEE DTL.	1 1/2"	2 1/4"	CJP
BP-3	HSS7x7	1 3/4"	SEE DTL.	SEE DTL.	1 1/2"	2 1/4"	CJP
BP-4	HSS20x12	2 1/2"	18"	34"	1 1/4"	2 1/4"	CJP
BP-5	W16	1"	11 1/2"	18 1/2"	3/4"	SEE DTL.	5/16"
BP-6	W16	1"	28 1/2"	18 1/2"	1"	1 3/4"	5/16"
BP-7	HSS5x5	1 3/4"	SEE DTL.	SEE DTL.	1 1/2"	2 1/4"	CJP
BP-8	HSS5x5	1"	8 1/2"	10"	3/4"	1 1/2"	5/16"
BP-8	HSS7x7	1 1/4"	10 1/2"	12"	3/4"	1 1/2"	1/4"
BP-9	HSS5x5	1 1/4"	28 1/2"	7"	1"	1 3/4"	1/2"
BP-10	RNGS STRY HSS5x5	1 1/4"	SEE DTL.	SEE DTL.	1 1/4"	2 1/4"	1/2"

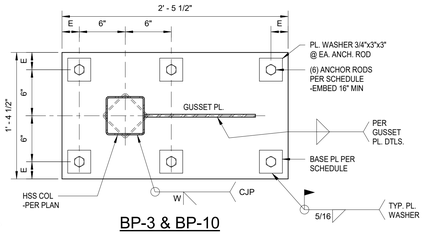
NOTES:

1. TIGHTEN ANCHOR RODS SNUG TIGHT AND TACK WELD NUT TO ROD TO PREVENT LOOSENING.
2. BASE PLATE HOLE DIAMETER AND PLATE WASHER SHALL BE SIZED PER "AISC MANUAL - TABLE 14-2" UNLESS NOTED OTHERWISE.
3. SEE "TYPICAL ANCHOR ROD DETAIL" FOR ADDITIONAL INFORMATION.

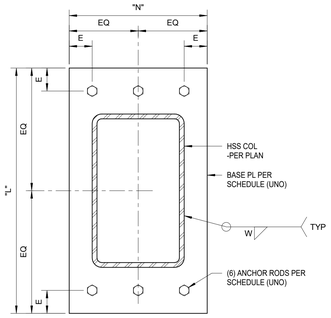


BP-1

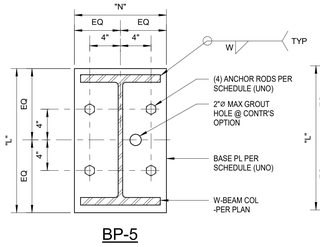
BP-2



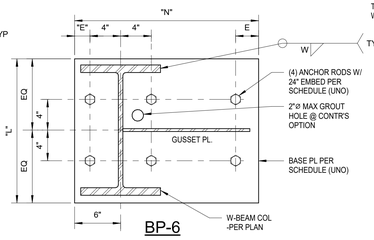
BP-3 & BP-10



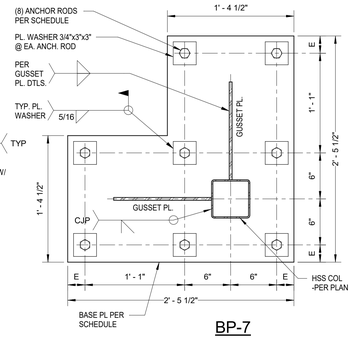
BP-4



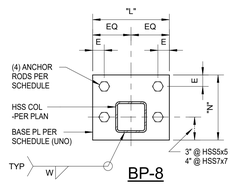
BP-5



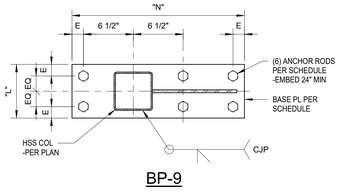
BP-6



BP-7

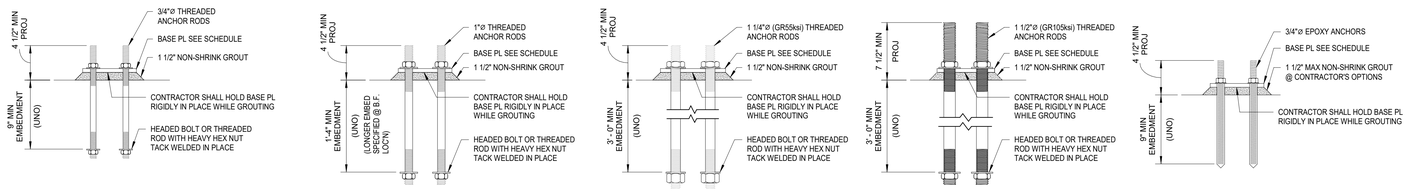


BP-8

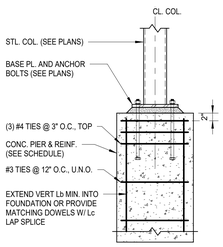


BP-9

1 TYPICAL COLUMN BASE PLATE - BRG. ON CONC.
S1.7 1 1/2" = 1'-0"



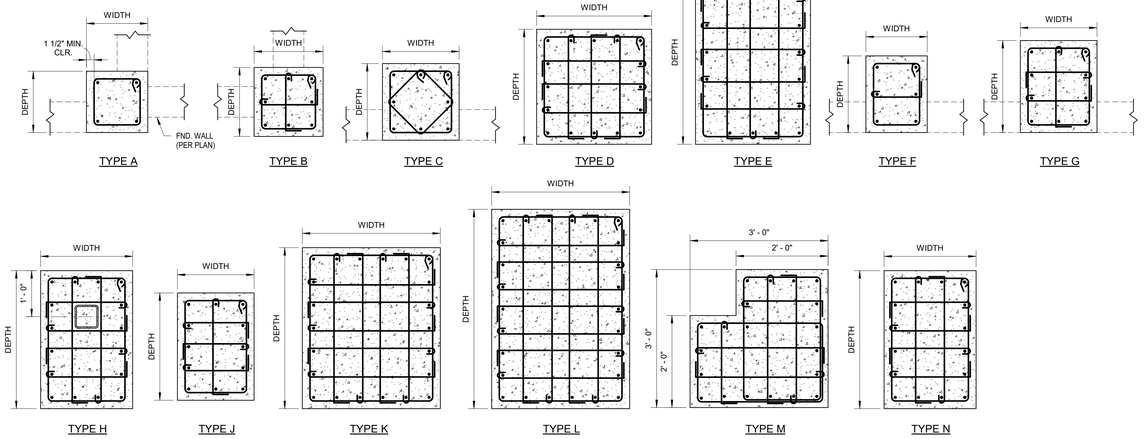
2 TYPICAL ANCHOR ROD DETAILS
S1.7 1 1/2" = 1'-0"



CONCRETE PIER SCHEDULE					
PIER MARK	SIZE WIDTH	SIZE DEPTH	PIER TYPE	REINFORCING	REMARKS
P-1	1'-4"	1'-4"	A	(4) #6 VERTS	
P-2	1'-6"	1'-6"	B	(8) #6 VERTS	
P-3	1'-8"	1'-8"	C	(8) #6 VERTS	
P-4	2'-0"	2'-0"	C	(8) #6 VERTS	
P-5	2'-6"	2'-6"	D	(16) #8 VERTS	
P-6	2'-6"	4'-0"	E	(20) #9 VERTS	
P-7	1'-4"	1'-8"	F	(6) #6 VERTS	
P-7A	1'-4"	2'-0"	F	(6) #6 VERTS	
P-8	1'-8"	2'-0"	G	(10) #6 VERTS	
P-9	2'-0"	3'-0"	H	(16) #9 VERTS	
P-10	1'-8"	2'-4"	J	(12) #6 VERTS	
P-11	3'-0"	3'-0"	D	(16) #8 VERTS	
P-12	3'-0"	3'-6"	K	(22) #8 VERTS	
P-13	3'-0"	4'-4"	L	(26) #8 VERTS	
P-14	2'-6"	3'-0"	H	(16) #6 VERTS	
P-15	SEE DTL.		M	(20) #9 VERTS	
P-16	2'-0"	3'-0"	N	(16) #6 VERTS	
P-17	2'-4"	3'-0"	H	(16) #9 VERTS	

NOTES:

1. SEE CONCRETE PIER SCHEDULE FOR TYPE OF REINFORCING CONFIGURATION.
2. A TYPICAL CROSSTIE SHALL HAVE A 135 DEGREE HOOK AT ONE END AND A 90 DEGREE HOOK AT THE OTHER END. AT CONTRACTORS OPTION, THE 135 DEGREE HOOK MAY BE REPLACED WITH A 180 DEGREE HOOK, AND THE 90 DEGREE HOOK MAY BE REPLACED WITH A 135 DEGREE HOOK. CROSSTIES WITH 90 DEGREE HOOKS SHALL HAVE THE CONSECUTIVE CROSSTIES ALTERNATED END FOR END ALONG THE LONGITUDINAL REINFORCEMENT.
3. SEE PLAN FOR PIER ORIENTATION AND ELEVATION OF TOP OF PIERS.



3 CONCRETE PIER SCHEDULE / DETAILS
S1.7 3/4" = 1'-0"

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11386 WEST LAKESHORE DRIVE
BRIMLEY, MI 49715

project #: 22-538
date: 04-17-2023
drawn by: DWS
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STATE OF MICHIGAN
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42272
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04-17-2023

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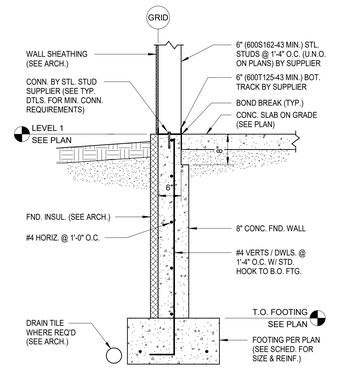
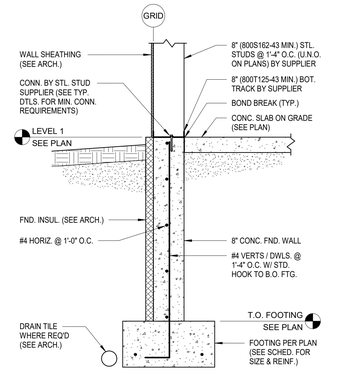
sheet title: TYPICAL PIER - BASE PLATE - ANCHOR BOLT DETAILS

sheet number: S1.7



2 S2.1 SECTION @ FOUNDATION
3/4" = 1'-0"



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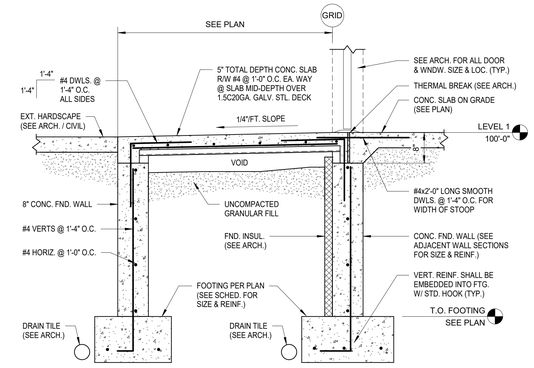

4 S2.1 SECTION @ STOOP
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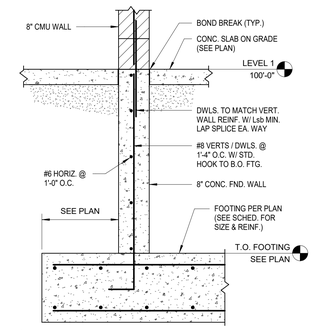

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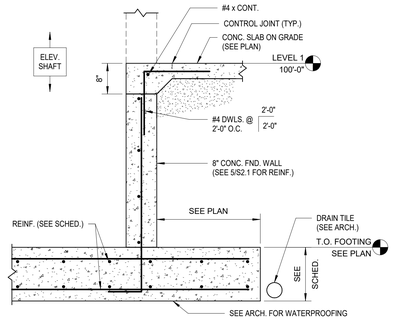
3/4" = 1'-0"



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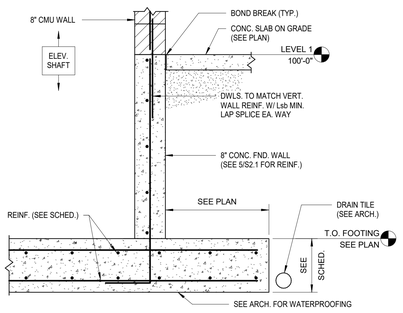
3/4" = 1'-0"



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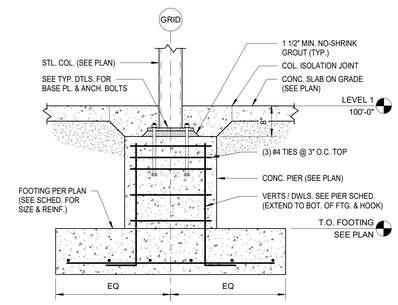
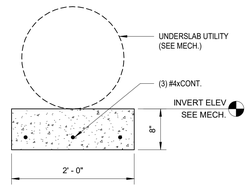
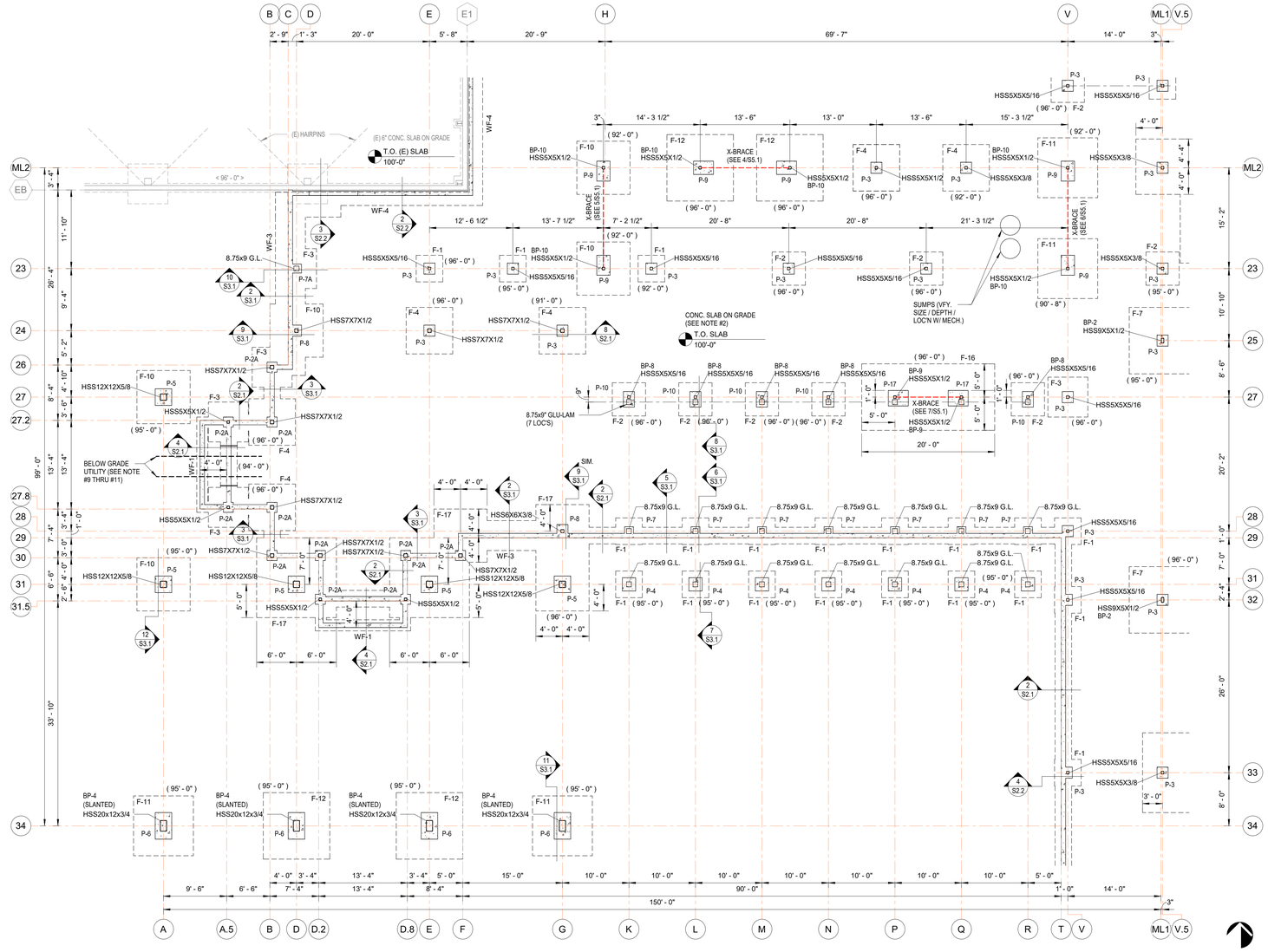
3/4" = 1'-0"



8 S2.1 SECTION @ FOUNDATION
3/4" = 1'-0"



9 S2.1 SECTION @ FOUNDATION
1" = 1'-0"



1 S2.1 FOUNDATION PLAN AREA "A"
1/8" = 1'-0"

FOUNDATION PLAN NOTES:

1. REFERENCE MAIN FLOOR ELEVATIONS IS 609.10'. TOP OF SLAB ON GRADE/SLAB IS AT THE REFERENCE FLOOR ELEVATION AND SHALL MATCH ELEVATION OF EXISTING SLAB ON GRADE, UNLESS NOTED OTHERWISE.
2. SLAB ON GRADE IS 4" THICK, UNLESS NOTED OTHERWISE, AND IS TO BE REINFORCED WITH SYNTHETIC FIBERS PER MANUFACTURER'S RECOMMENDATIONS. SEE TYPICAL FIBER REINFORCED SLAB ON GRADE DETAILS. SLAB ON GRADE SHALL BE PLACED ATOP COMPACTED STRUCTURAL FILL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
3. "(XXX-XX")" INDICATES TOP OF FOOTING ELEVATION. ALL FOOTINGS SHALL BEAR ON UNDISTURBED SUBGRADE OR STRUCTURAL FILL IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. ALL EXTERIOR T.O. FOOTING ELEVATIONS TO BE ('96'-0") UNLESS NOTED OTHERWISE.
4. "F-1" AND "WF-1" INDICATES FOOTING MARK. SEE FOOTING SCHEDULE FOR SIZE AND REINFORCING. ALL WALL (STRIP) FOOTINGS SHALL BE WF-2, UNLESS NOTED OTHERWISE.
5. "P-1" INDICATES CONCRETE PIER MARK. SEE PIER SCHEDULE IN THE TYPICAL DETAILS FOR SIZE AND REINFORCING. TOP OF PIER TO BE 8" BELOW FINISHED FLOOR (ELEV. 99'-4") UNLESS NOTED OTHERWISE. WHERE P-XA IS NOTED TOP OF PIER ELEVATION IS '96'-4" AND WHERE P-XB IS NOTED TOP OF PIER ELEVATION IS '98'-0".
6. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR SIDEWALKS, PAVING, AND SITE DETAILS AT BUILDING EXTERIOR.
7. ---------- REPRESENTS APPROXIMATE FOOTING STEP LOCATION. SEE TYPICAL DETAIL 4/S1.1. CONTRACTOR SHALL DETERMINE AND COORDINATE ACTUAL FOOTING STEP LOCATIONS.
8. <XXX-XX"> INDICATES TOP OF EXISTING FOOTING ELEVATION. CONTRACTOR TO FIELD VERIFY ELEVATIONS OF EXISTING FOOTINGS WHERE NEW FOOTINGS ARE TO BE PLACED ADJACENT. DO NOT UNDERMINE THE EXISTING FOUNDATION SYSTEM.
9. GENERAL CONTRACTOR AND CONCRETE CONTRACTOR SHALL COORDINATE AND CONFIRM FOOTING ELEVATIONS, FOOTING STEP LOCATIONS, AND SEQUENCING WITH UNDERGROUND PIPING LOCATIONS AND INVERT ELEVATIONS PRIOR TO POURING CONCRETE. VERIFY DEPTHS AND LOCATIONS WHERE ADJACENT TO CONCRETE FOOTINGS WITH MECHANICAL AS NOT TO UNDERMINE FOUNDATIONS. CONTRACTOR TO COORDINATE SLEEVE REQUIREMENTS WITH MECHANICAL CONTRACTOR IN ACCORDANCE WITH DETAIL 5/S1.1 PRIOR TO POURING CONCRETE.
10. UNDERGROUND PIPING (UTILITIES) AND SUMP PITS ARE SHOWN FOR REFERENCE ONLY. SEE MECHANICAL AND PLUMBING DRAWINGS FOR ACTUAL LOCATIONS AND ELEVATIONS. CONTRACTOR SHALL COORDINATE AND CONFIRM FOOTING ELEVATIONS WITH UNDERGROUND PIPING AND SUMP PIT LOCATIONS PRIOR TO POURING CONCRETE.
11. SEE TYPICAL CONCRETE DETAILS FOR PIPE SLEEVE PENETRATING FOUNDATION WALLS OR UNDER FOOTINGS. VERIFY LOCATIONS WITH MECHANICAL AND PLUMBING.
12. REFERENCE ALL CONSTRUCTION DOCUMENTS FOR SIZE, EXTENT AND LOCATION OF CONCRETE CURBS, HOUSEKEEPING PADS, CMU WALL, BOLLARDS, EDGE ANGLES, SLAB PENETRATIONS AND SLAB RECESSES. REINFORCE PER TYPICAL DETAILS.
13. VERIFY SIZE AND LOCATIONS OF STOOPS WITH ARCHITECT PRIOR TO PLACING CONCRETE.
14. "BP-1" INDICATES BASE PLATE TYPE. SEE BASE PLATE SCHEDULE ON SHEET S1.1 FOR DETAILS. ALL BASE PLATES TO BE BP-1 UNLESS NOTED OTHERWISE.

FOOTING SCHEDULE

MARK	SIZE	REINFORCING	Comments
F-1	4'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (5) #5 EA. WAY BOTTOM	
F-2	5'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (6) #5 EA. WAY BOTTOM	
F-3	6'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (7) #5 EA. WAY BOTTOM	
F-4	7'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (8) #5 EA. WAY BOTTOM	
F-5	8'-0" SQUARE x 1'-2" DEEP COLUMN FOOTING	R/W (9) #5 EA. WAY BOTTOM	
F-6	9'-0" SQUARE x 1'-4" DEEP COLUMN FOOTING	R/W (9) #6 EA. WAY TOP & BOTTOM	
F-7	10'-0" SQUARE x 1'-6" DEEP COLUMN FOOTING	R/W (11) #6 EA. WAY TOP & BOTTOM	
F-8	11'-0" SQUARE x 1'-7" DEEP COLUMN FOOTING	R/W (13) #6 EA. WAY BOTTOM	
F-9	12'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (15) #6 EA. WAY BOTTOM	
F-10	8'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (8) #6 EA. WAY TOP & BOTTOM	
F-11	9'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (9) #6 EA. WAY TOP & BOTTOM	
F-12	10'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (11) #6 EA. WAY TOP & BOTTOM	
F-13	11'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (13) #6 EA. WAY TOP & BOTTOM	
F-14	12'-0" SQUARE x 1'-9" DEEP COLUMN FOOTING	R/W (15) #6 EA. WAY TOP & BOTTOM	
F-15	1'-4" DEEP MAT FOOTING	R/W #6 @ 14" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-16	1'-6" DEEP MAT FOOTING	R/W #6 @ 12" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-17	1'-8" DEEP MAT FOOTING	R/W #6 @ 10" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-18	1'-10" DEEP MAT FOOTING	R/W #6 @ 9" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-19	2'-0" DEEP MAT FOOTING	R/W #6 @ 9" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-20	5'-0" x 6'-0" x 1'-0" DEEP COLUMN FOOTING	R/W #5 @ 10" O.C. (MAX.) EA. WAY BOTTOM	
F-21	5'-0" x 7'-6" x 1'-2" DEEP COLUMN FOOTING	R/W #5 @ 10" O.C. (MAX.) EA. WAY BOTTOM	
F-22	13'-0" SQUARE x 1'-9" DEEP COLUMN FOOTING	R/W (17) #6 EA. WAY BOTTOM	
WF-1	1'-8" WIDE x 1'-0" DEEP x CONT. WALL FOOTING	R/W (2) #5xCONT. BOTTOM	
WF-2	2'-6" WIDE x 1'-0" DEEP x CONT. WALL FOOTING	R/W (3) #5xCONT. BOTTOM	
WF-3	4'-6" WIDE x 1'-0" DEEP x CONT. WALL FOOTING	R/W (5) #5xCONT. & #5 TRANS. @ 1'-4" O.C. (MAX.) BOTTOM	
WF-4	COMBINED WALL FOOTING	SEE SECTIONS & DETAILS FOR SIZE & REINFORCING	

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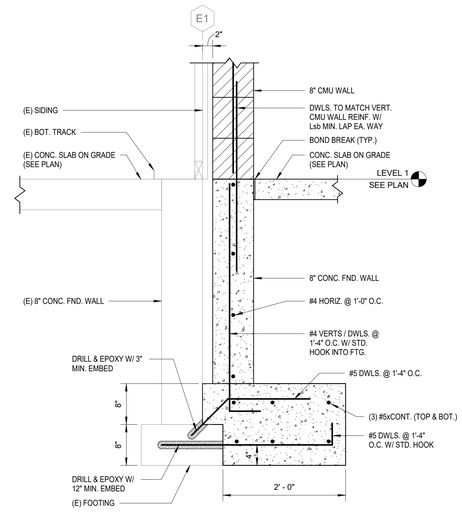
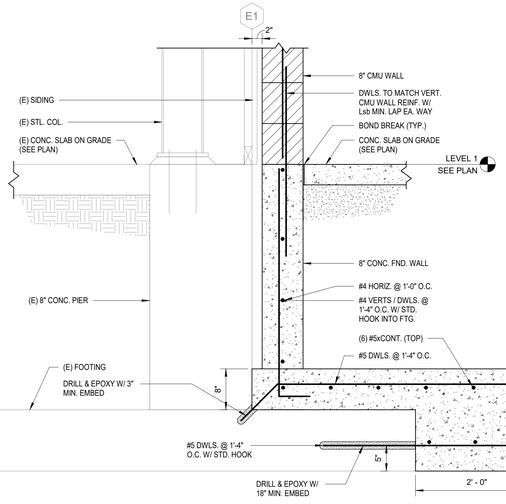


2 S2.2 SECTION @ FOUNDATION
1" = 1'-0"



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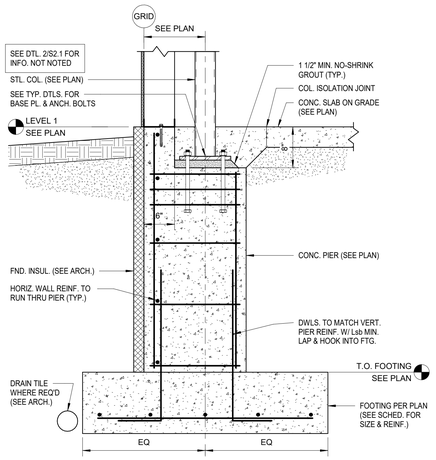
1" = 1'-0"



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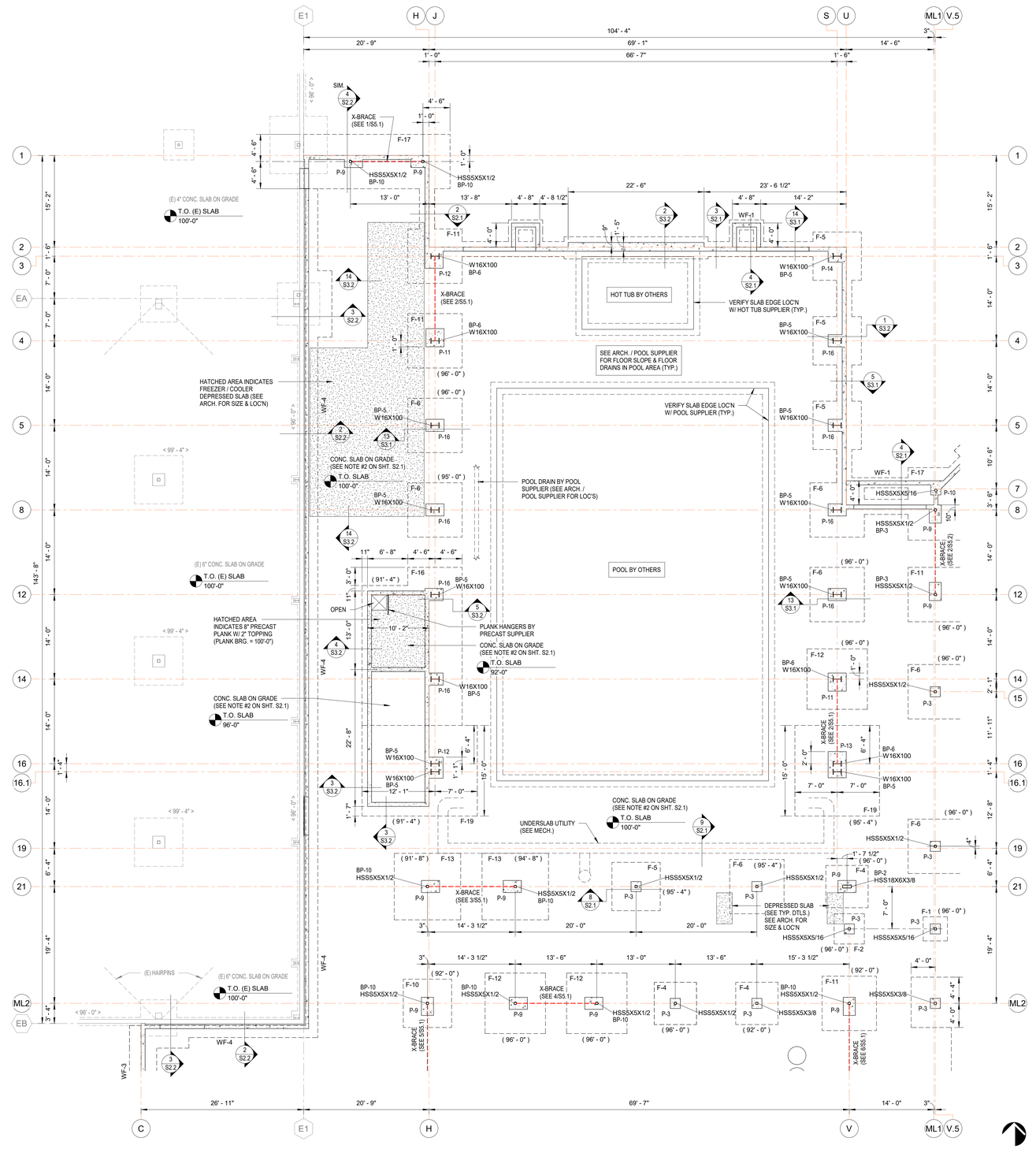

1 S2.2 FOUNDATION PLAN AREA "B"
1/8" = 1'-0"

FOUNDATION PLAN NOTES:
SEE SHEET S2.1 FOR PLAN NOTES AND FOOTING SCHEDULE

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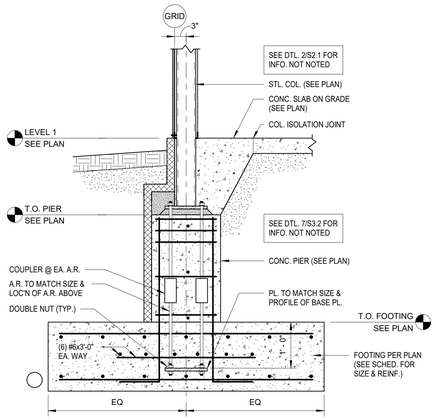
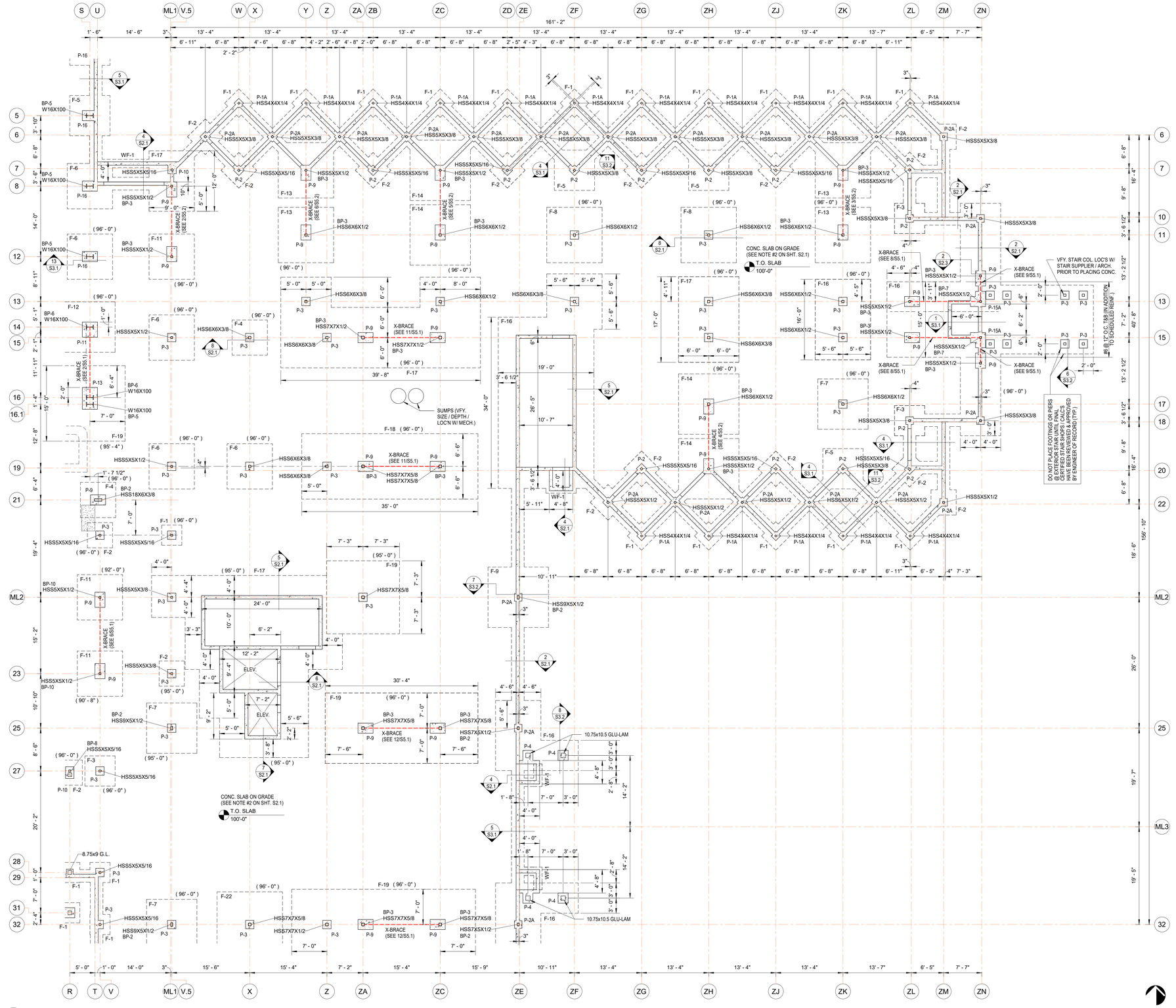


2 / S2.3 SECTION @ BF PIER ON GRID "ZN"
3/4" = 1'-0"



1 / S2.3 FOUNDATION PLAN AREA "C"
1/8" = 1'-0"

FOUNDATION PLAN NOTES:
SEE SHEET S2.1 FOR PLAN NOTES AND FOOTING SCHEDULE

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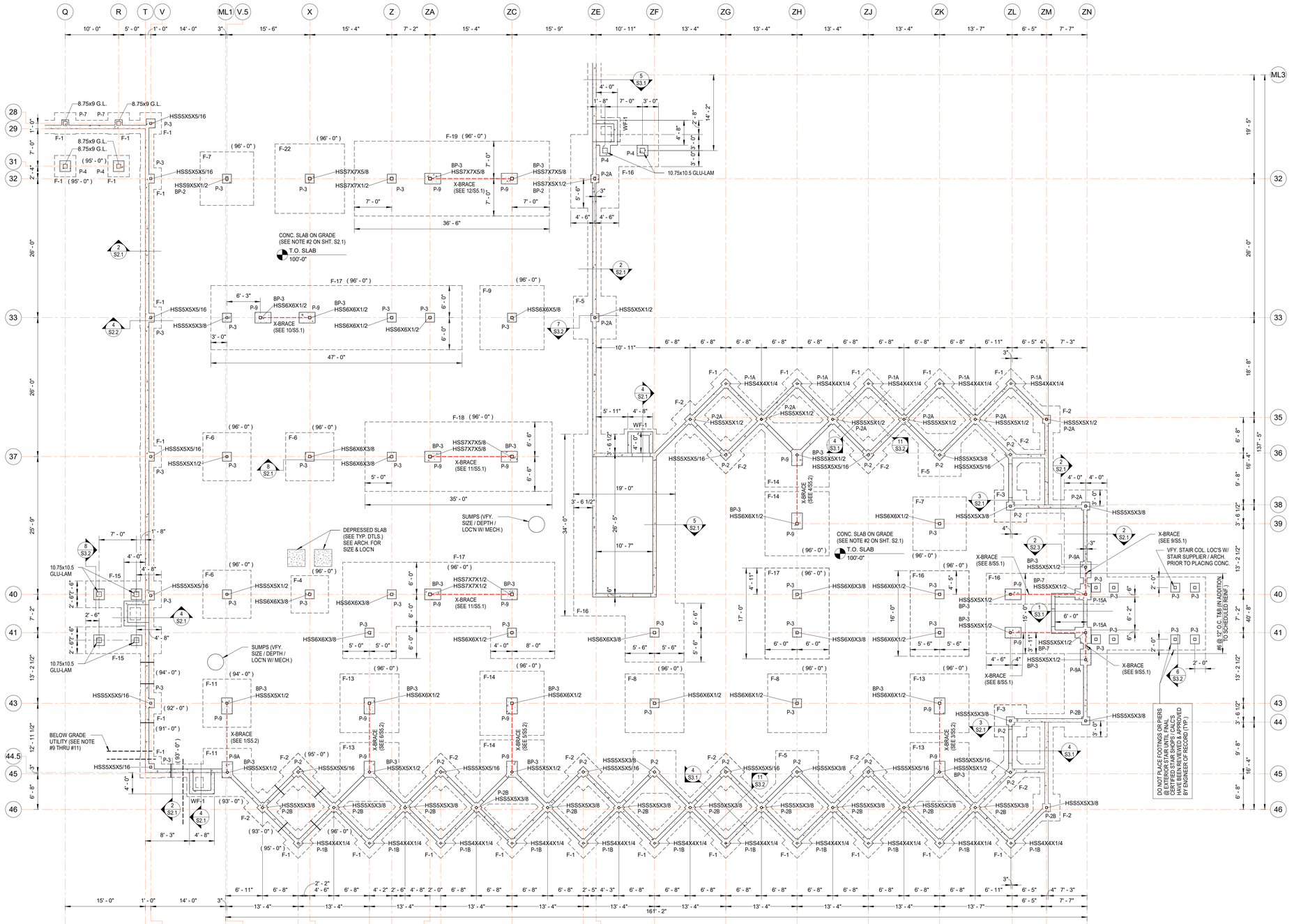

1 S2.4 FOUNDATION PLAN AREA "D"
1/8" = 1'-0"

FOUNDATION PLAN NOTES:
SEE SHEET S2.1 FOR PLAN NOTES

FOOTING SCHEDULE

MARK	SIZE	REINFORCING	Comments
F-1	4'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (5) #5 EA. WAY BOTTOM	
F-2	5'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (6) #5 EA. WAY BOTTOM	
F-3	6'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (7) #5 EA. WAY BOTTOM	
F-4	7'-0" SQUARE x 1'-0" DEEP COLUMN FOOTING	R/W (8) #5 EA. WAY BOTTOM	
F-5	8'-0" SQUARE x 1'-2" DEEP COLUMN FOOTING	R/W (9) #5 EA. WAY BOTTOM	
F-6	9'-0" SQUARE x 1'-4" DEEP COLUMN FOOTING	R/W (9) #6 EA. WAY TOP & BOTTOM	
F-7	10'-0" SQUARE x 1'-6" DEEP COLUMN FOOTING	R/W (11) #6 EA. WAY TOP & BOTTOM	
F-8	11'-0" SQUARE x 1'-7" DEEP COLUMN FOOTING	R/W (13) #6 EA. WAY BOTTOM	
F-9	12'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (15) #6 EA. WAY BOTTOM	
F-10	8'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (8) #6 EA. WAY TOP & BOTTOM	
F-11	9'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (9) #6 EA. WAY TOP & BOTTOM	
F-12	10'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (11) #6 EA. WAY TOP & BOTTOM	
F-13	11'-0" SQUARE x 1'-8" DEEP COLUMN FOOTING	R/W (13) #6 EA. WAY TOP & BOTTOM	
F-14	12'-0" SQUARE x 1'-9" DEEP COLUMN FOOTING	R/W (15) #6 EA. WAY TOP & BOTTOM	
F-15	1'-4" DEEP MAT FOOTING	R/W #6 @ 14" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-16	1'-6" DEEP MAT FOOTING	R/W #6 @ 12" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-17	1'-8" DEEP MAT FOOTING	R/W #6 @ 10" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-18	1'-10" DEEP MAT FOOTING	R/W #6 @ 9" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-19	2'-0" DEEP MAT FOOTING	R/W #6 @ 9" O.C. (MAX.) EA. WAY TOP & BOTTOM (SEE PLAN FOR SIZE)	
F-20	5'-0" x 6'-0" x 1'-0" DEEP COLUMN FOOTING	R/W #5 @ 10" O.C. (MAX.) EA. WAY BOTTOM	
F-21	5'-0" x 7'-6" x 1'-2" DEEP COLUMN FOOTING	R/W #5 @ 10" O.C. (MAX.) EA. WAY BOTTOM	
F-22	13'-0" SQUARE x 1'-9" DEEP COLUMN FOOTING	R/W (17) #6 EA. WAY BOTTOM	
WF-1	1'-8" WIDE x 1'-0" DEEP x CONT. WALL FOOTING	R/W (2) #5xCONT. BOTTOM	
WF-2	2'-6" WIDE x 1'-0" DEEP x CONT. WALL FOOTING	R/W (3) #5xCONT. BOTTOM	
WF-3	4'-6" WIDE x 1'-0" DEEP x CONT. WALL FOOTING	R/W (5) #5xCONT. & #5 TRANS. @ 1'-4" O.C. (MAX.) BOTTOM	
WF-4	COMBINED WALL FOOTING	SEE SECTIONS & DETAILS FOR SIZE & REINFORCING	

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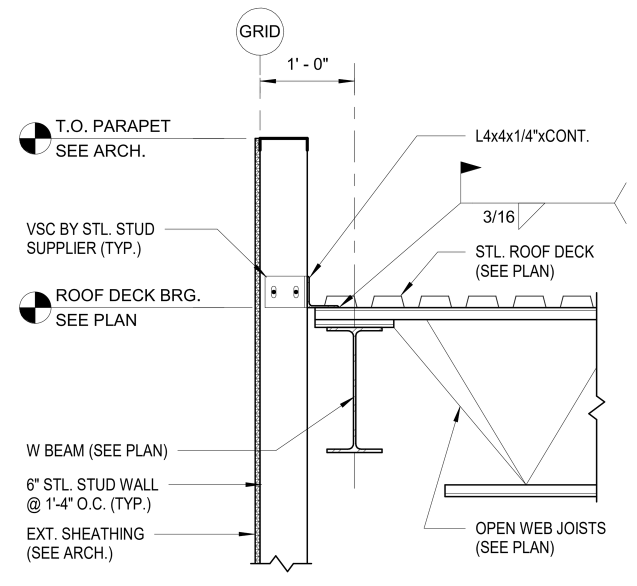
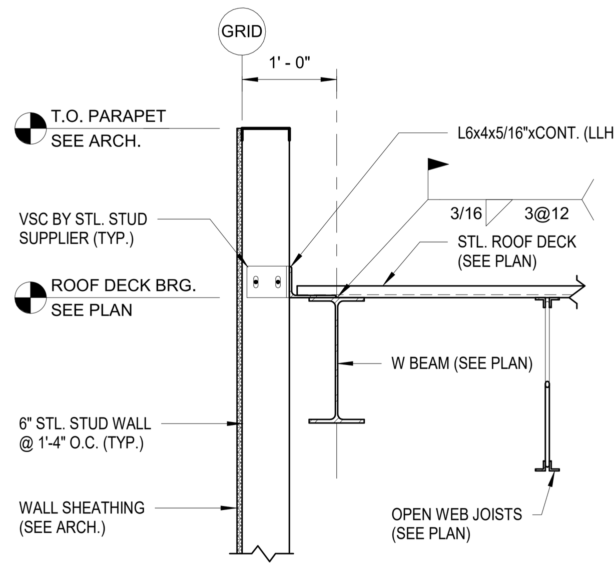
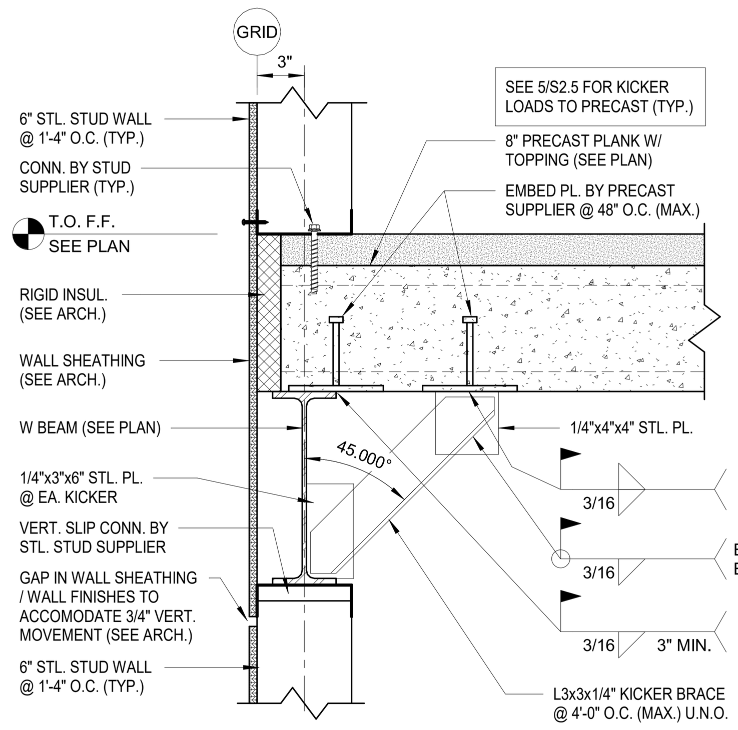


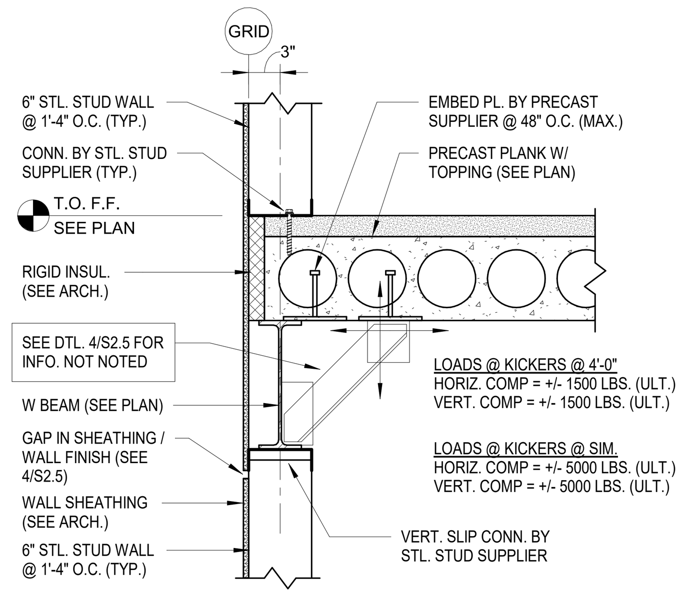
2 S2.5 SECTION @ ROOF
3/4" = 1'-0"



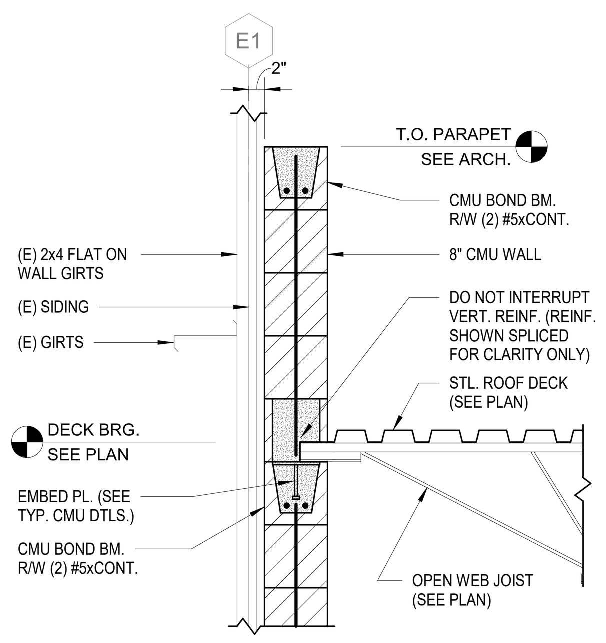
3 S2.5 SECTION @ ROOF
3/4" = 1'-0"



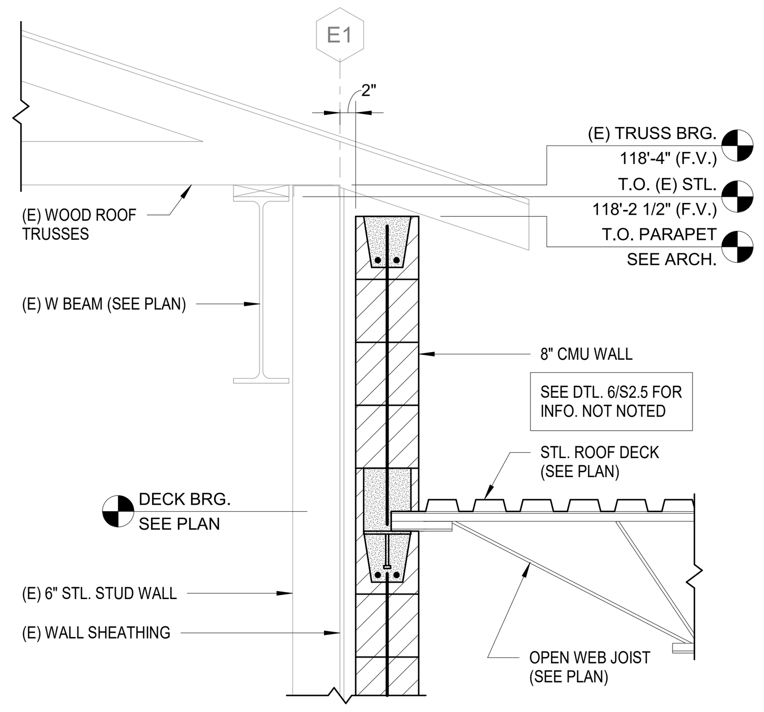
4 S2.5 SECTION @ FLOOR
1 1/2" = 1'-0"



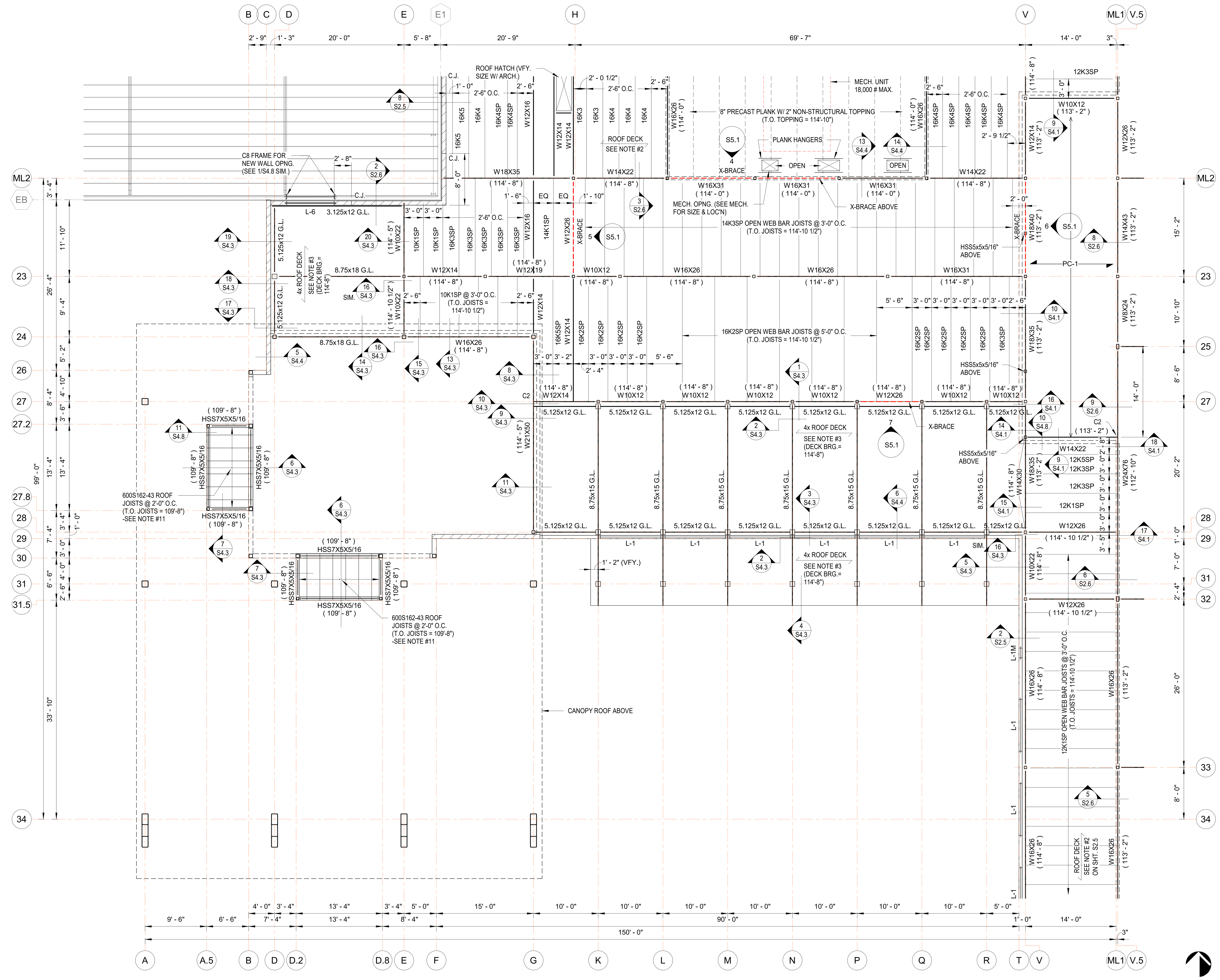
5 S2.5 SECTION @ FLOOR
1" = 1'-0"



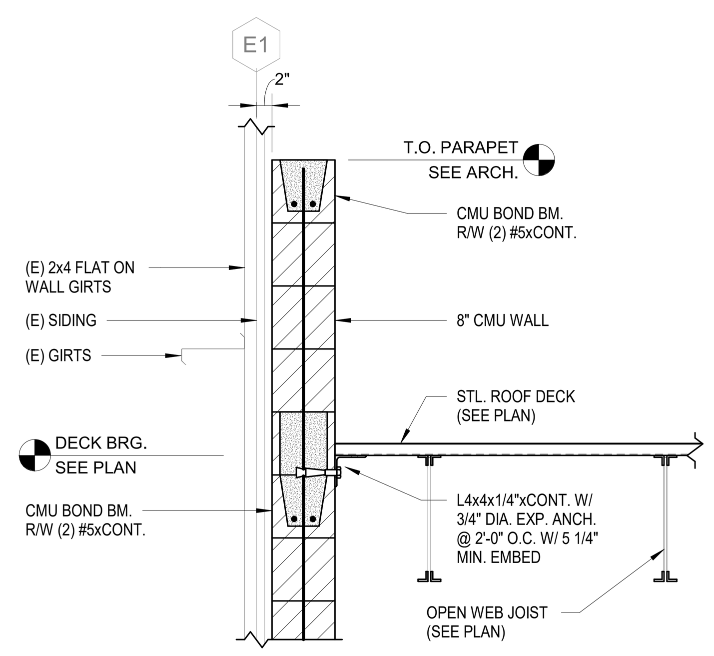
6 S2.5 SECTION @ ROOF
3/4" = 1'-0"



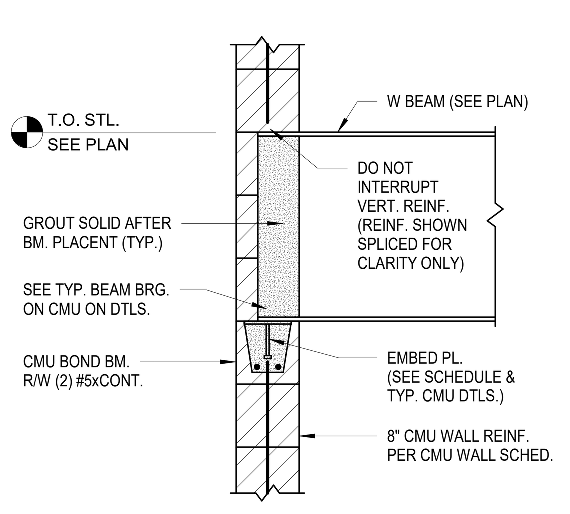
7 S2.5 SECTION @ ROOF
3/4" = 1'-0"



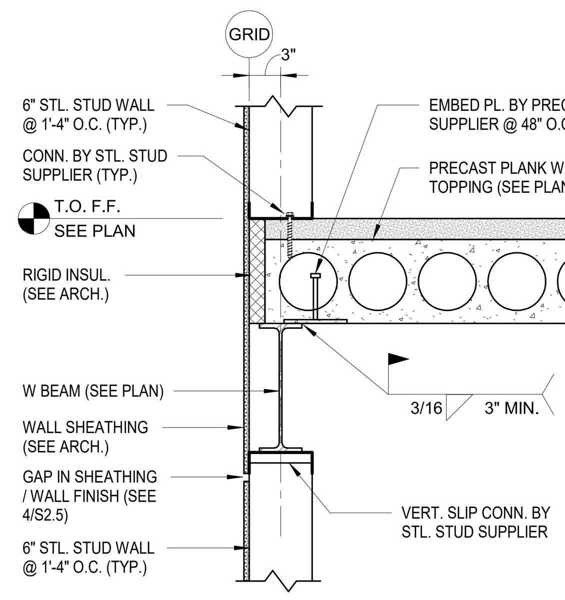
1 S2.5 ROOF FRAMING PLAN AREA "A"
1/8" = 1'-0"



8 S2.5 SECTION @ ROOF
3/4" = 1'-0"



9 S2.5 SECTION @ ROOF
3/4" = 1'-0"



10 S2.5 SECTION @ FLOOR
1" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. ROOF STRUCTURE ELEVATIONS VARY,SEE PLAN. (XXXX'-XX") INDICATES TOP OF STEEL ELEVATION AND JOIST BEARING ELEVATION UNLESS NOTED OTHERWISE. SEE ARCHITECTURAL DRAWINGS FOR ROOF SLOPES AND DRAINS.
2. STRUCTURAL ROOF DECK ON STEEL FRAMING IS 1.5B20 STEEL ROOF DECKING SPANNING BETWEEN FRAMING SUPPORTS, UNLESS NOTED OTHERWISE. SEE THE STEEL ROOF DECK SECTION OF THE GENERAL STRUCTURAL NOTES FOR ADDITIONAL DECK REQUIREMENTS.
3. ROOF DECK ON WOOD FRAMING IS 3x OR 4x (PER PLAN) TONGUE AND GROOVE WOOD DECKING. FASTEN WOOD DECKING TO EACH SUPPORT WITH (1) 40d TOENAIL AND (1) 60d FACENAIL. PROVIDE 7/16" ROOF DECK SHEATHING OVER 3x AND 4x TONGUE AND GROOVE WOOD DECKING. PLYWOOD SHEATHING SHALL BE FASTENED TO WOOD DECKING WITH 8d @ 6" ON CENTER AT ALL EDGES AND AT 12" ON CENTER IN FIELD.
4. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF ALL ROOF OPENINGS.
5. SEE TYPICAL DETAILS FOR FRAMING AND REINFORCING AROUND OPENINGS IN STEEL ROOF DECK ON SHEET S1.3. COORDINATE LOCATIONS AND SIZES OF ALL OPENINGS WITH MECHANICAL AND ARCHITECT PRIOR TO FABRICATION.
6. SEE MECHANICAL DRAWINGS FOR SIZE, LOCATION, WEIGHT AND CURB REQUIREMENTS AT ALL ROOFTOP MECHANICAL UNITS AND HANGING EQUIPMENT. COORDINATE FINAL LOCATIONS, SIZES AND WEIGHTS WITH JOIST SUPPLIER PRIOR TO FABRICATION.
7. "L-1" INDICATES STRUCTURAL LINTEL AT ARCHITECTURAL OR MECHANICAL WALL OPENING. SEE LINTEL SCHEDULE FOR STRUCTURAL FRAMING REQUIREMENTS. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS. ALL OPENINGS IN STUD WALLS ARE L-1, UNLESS NOTED OTHERWISE.
8. JOISTS DESIGNATED WITH AN 'SP' ARE SPECIAL JOISTS SUBJECTED TO LOADS IN ADDITION TO TYPICAL UNIFORM DESIGN LOADS AS INDICATED IN THE GENERAL STRUCTURAL NOTES. 'SP' JOISTS SHALL BE DESIGNED BY THE SUPPLIER FOR THE UNIQUE LOADING CONDITIONS AS INDICATED IN THE FRAMING PLANS, LOAD MAP PLANS AND SECTIONS AND DETAILS AS APPLICABLE.
9. JOIST BRACING AND BRIDGING IS NOT SHOWN ON PLANS FOR CLARITY. JOIST SUPPLIER SHALL DESIGN AND PROVIDE JOIST BRACING/BRIDGING AS REQUIRED.
10. "X-BRACE" INDICATES BRACED FRAME. SEE FRAMING ELEVATIONS ON SHEETS S5.1 AND S5.2 FOR STRUCTURAL REQUIREMENTS AT BRACED FRAMES.
11. STRUCTURAL ROOF DECK ON ENTRY VESTIBULE JOISTS SHALL BE 5/8" FIRE-TREATED ROOF SHEATHING.
12. "C.J." INDICATES RECOMMENDED LOCATION FOR VERTICAL CONTROL JOINTS IN CMU WALLS. SEE DETAIL 1/S1.2. CONTRACTOR SHALL PROVIDE FINAL PROPOSED JOINT LAYOUT TO ARCHITECT AND ENGINEER OF RECORD PRIOR FOR THEIR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. CONTROL JOINTS SHALL BE AT LEAST 2'-8" FROM EDGES OF WALL OPENINGS UNLESS NOTED OTHERWISE.

CMU LINTEL BEARING NOTES:

1. EXTEND BOND BEAM AND REINFORCING 2'-8" PAST EDGE OF OPENING ON EACH SIDE, U.N.O.
2. WHEN OPENING OCCURS CLOSE TO CORNER AND NOTE #1 CANNOT BE ACHIEVED, RETURN BOND BEAM AND REINFORCING 2'-0" MIN. AROUND CORNER.
3. SEE TYPICAL CMU SECTIONS AND DETAILS FOR ADDITIONAL STRUCTURAL REQUIREMENTS.

LINTEL SCHEDULE

Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

LEVEL 2 FLOOR FRAMING PLAN NOTES:

1. REFERENCE 2ND FLOOR ELEVATION IS 114'-0". TOP OF SLAB IS AT THE REFERENCE FLOOR ELEVATION, UNLESS NOTED OTHERWISE.
2. FLOOR FRAMING CONSISTS OF 2" NON-STRUCTURAL TOPPING OVER 8" PRECAST CONCRETE FLOOR PLANKS, UNLESS NOTED OTHERWISE.
3. TOP OF STRUCTURAL STEEL IS 8", 10", 12", OR 14" BELOW REFERENCE FLOOR ELEVATION, UNLESS NOTED OTHERWISE. WHERE ELEVATIONS OR DIMENSIONS FROM REFERENCE TOP OF STEEL ELEVATION ARE NOTED ON PLAN, THE STEEL FRAMING SHALL BE PLACE WITH THE TOP OF STEEL AT SPECIFIED ELEVATION (XXX'-XX") INDICATES TOP OF STEEL ELEVATION.
4. "L-1" INDICATES STRUCTURAL LINTEL AT ARCHITECTURAL OR MECHANICAL WALL OPENING. SEE LINTEL SCHEDULE FOR STRUCTURAL FRAMING REQUIREMENTS. SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS. ALL OPENINGS IN STUD WALLS ARE L-1, UNLESS NOTED OTHERWISE.
5. BEAM AND JOIST REACTIONS SPECIFIED ON FRAMING PLANS ARE DUE TO ALLOWABLE LOAD COMBINATIONS AS SPECIFIED IN SECTION 2.4 OF ASCE-7.
6. COORDINATE ALL MECHANICAL FLOOR PENETRATIONS WITH ARCHITECT AND MECHANICAL PRIOR TO FABRICATION.
7. SEE MECHANICAL DRAWINGS FOR SIZE, LOCATION, WEIGHT AND HOUSEKEEPING PAD REQUIREMENTS AT ALL MECHANICAL UNITS AND HANGING EQUIPMENT. VERIFY FINAL LOCATIONS, SIZES AND WEIGHTS PRIOR TO FABRICATION.
8. MECHANICAL TO COORDINATE ALL SMALL MECHANICAL WALL PENETRATIONS, WHERE LINTELS ARE NOT SHOWN AND SMALL OPENINGS IN FLOOR WHERE NOT SHOWN IN STRUCTURAL DRAWINGS, WITH PRECAST SUPPLIER.
9. PRECAST SUPPLIER SHALL DESIGN PRECAST FOR SPRINKLER PIPING. SPRINKLER PIPING DESIGN LOADS SHALL BE TAKEN AS THE WEIGHT OF THE WATER FILLED PIPE IN ADDITION TO A MINIMUM OF 250LBS APPLIED AT THE POINT OF HANGING. PRECAST SUPPLIER SHALL COORDINATE WITH SPRINKLER CONTRACTOR FOR SIZE AND LOCATION OF ALL SPRINKLER PIPING.
10. "X-BRACE" INDICATES BRACED FRAME. SEE FRAMING ELEVATIONS ON SHEETS S5.1 AND S5.2 FOR STRUCTURAL REQUIREMENTS AT BRACED FRAMES.

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JON E. AAMODT ENGINEER No. 42272
LICENSED PROFESSIONAL ENGINEER

printed name: Jon E. Aamodt
reg. #: 42272
sign date: 04-17-2023

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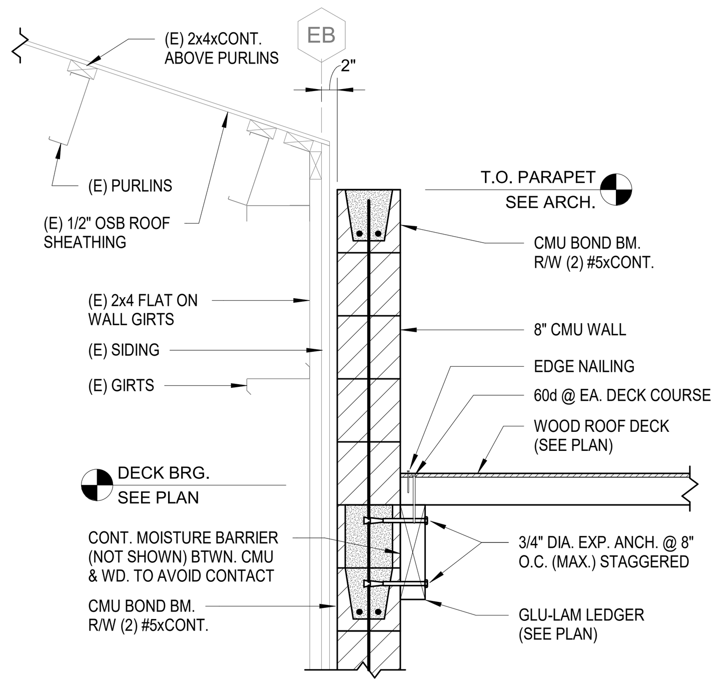
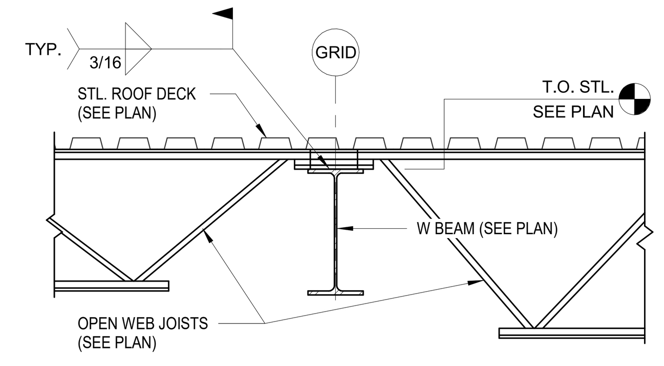
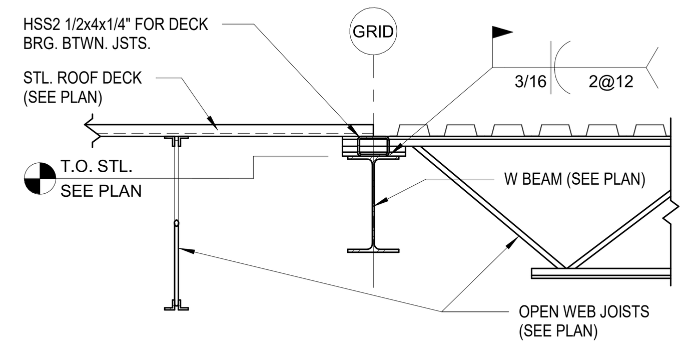
sheet number: S2.5



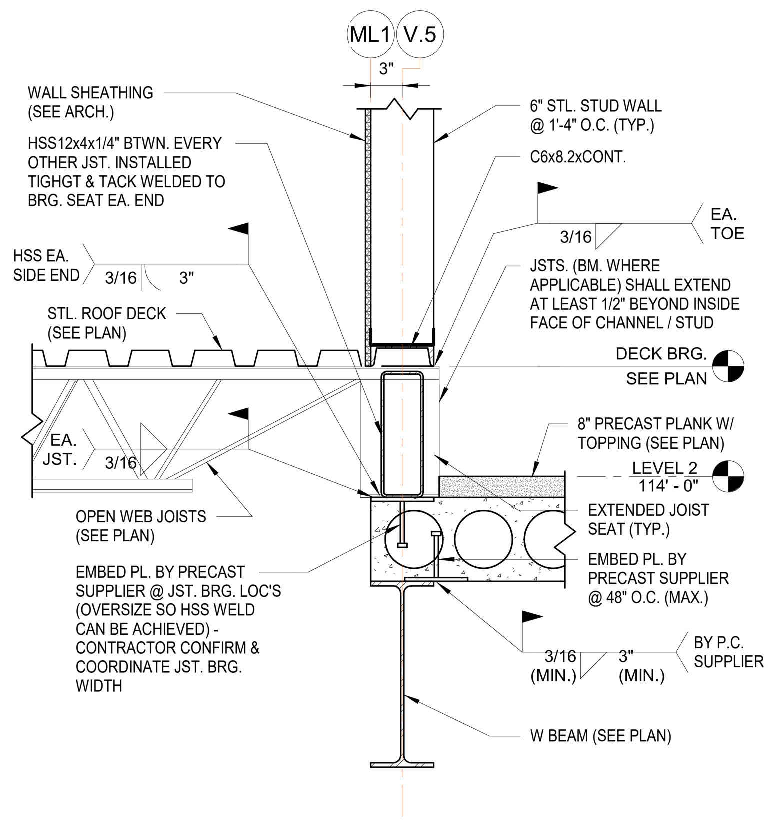
2 S2.6 SECTION @ ROOF
3/4" = 1'-0"



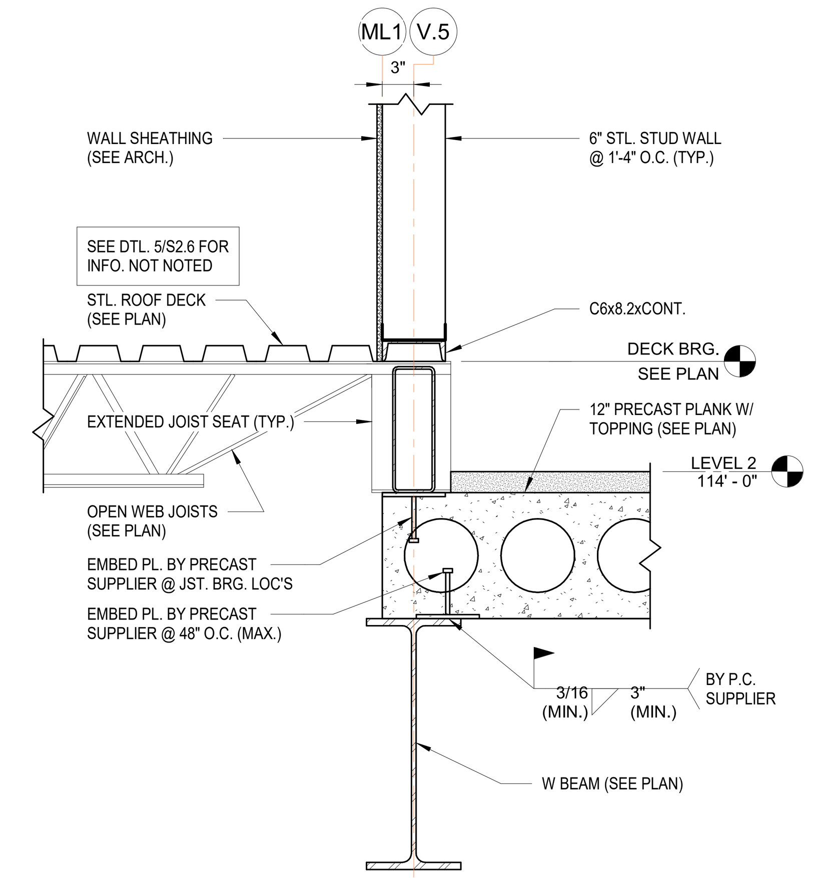
3 S2.6 SECTION @ ROOF
3/4" = 1'-0"



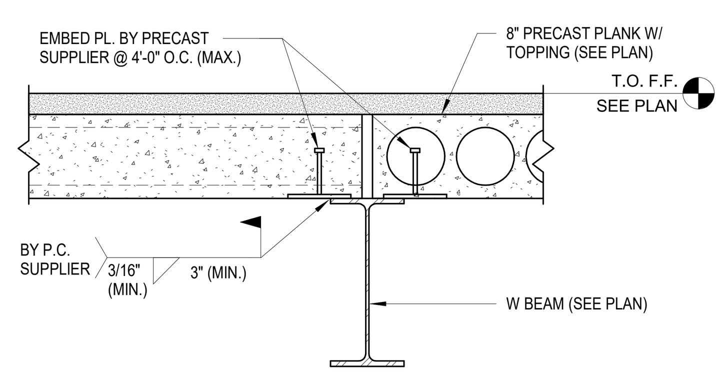
4 S2.6 SECTION @ ROOF
3/4" = 1'-0"



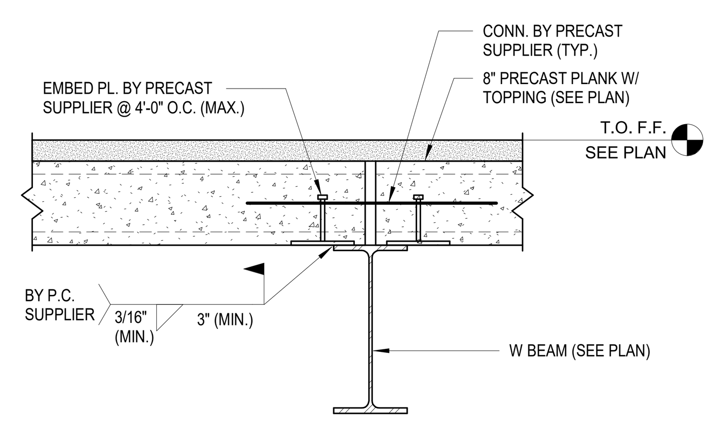
5 S2.6 SECTION @ FLOOR / ROOF
1" = 1'-0"



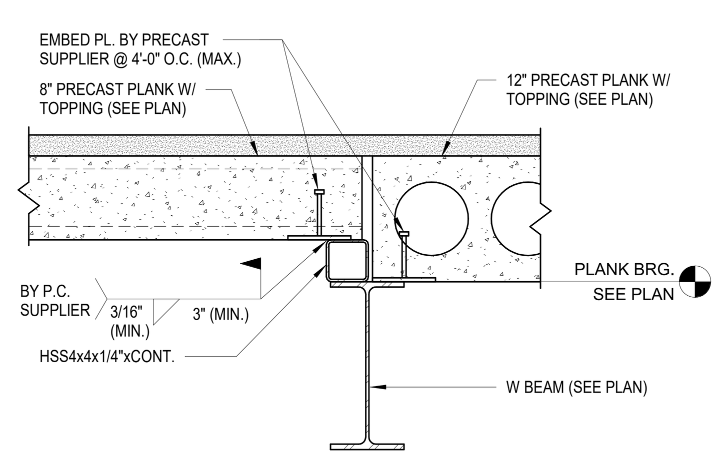
6 S2.6 SECTION @ FLOOR / ROOF
1" = 1'-0"



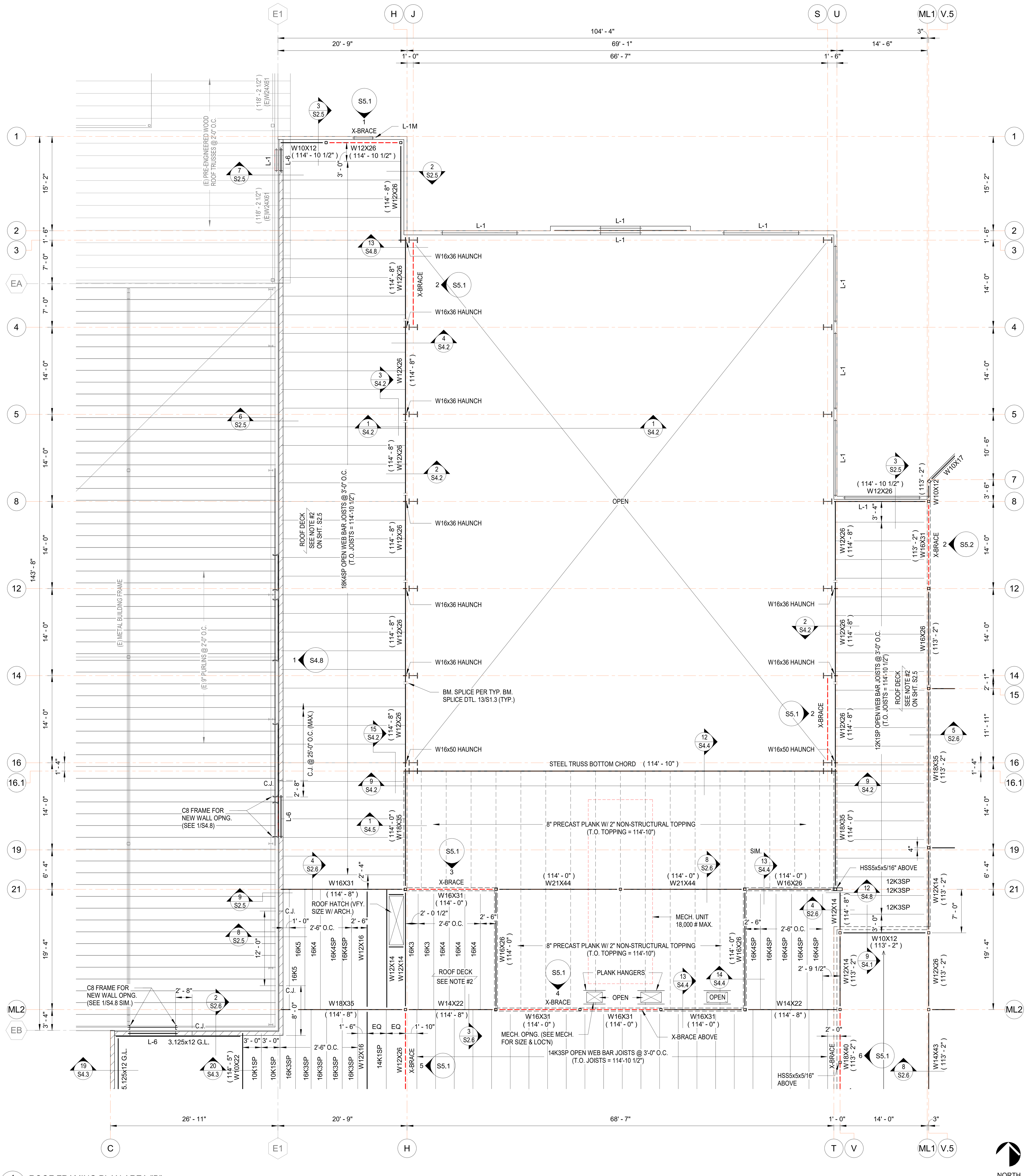
7 S2.6 SECTION @ FLOOR
1" = 1'-0"



8 S2.6 SECTION @ FLOOR
1" = 1'-0"



9 S2.6 SECTION @ FLOOR
1" = 1'-0"



1 S2.6 ROOF FRAMING PLAN AREA "B"
1/8" = 1'-0"

LEVEL 2 FLOOR FRAMING PLAN NOTES:
SEE SHEET S2.5 FOR PLAN NOTES

ROOF FRAMING PLAN NOTES:
SEE SHEET S2.5 FOR PLAN NOTES

LINTEL SCHEDULE

Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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checked by: TDR

STATE OF MICHIGAN · JON E. AAMODT · ENGINEER · No. 42272 · LICENSED PROFESSIONAL ENGINEER

printed name: Jon E. Aamodt
reg. #: 42272
sign date: 04-17-2023

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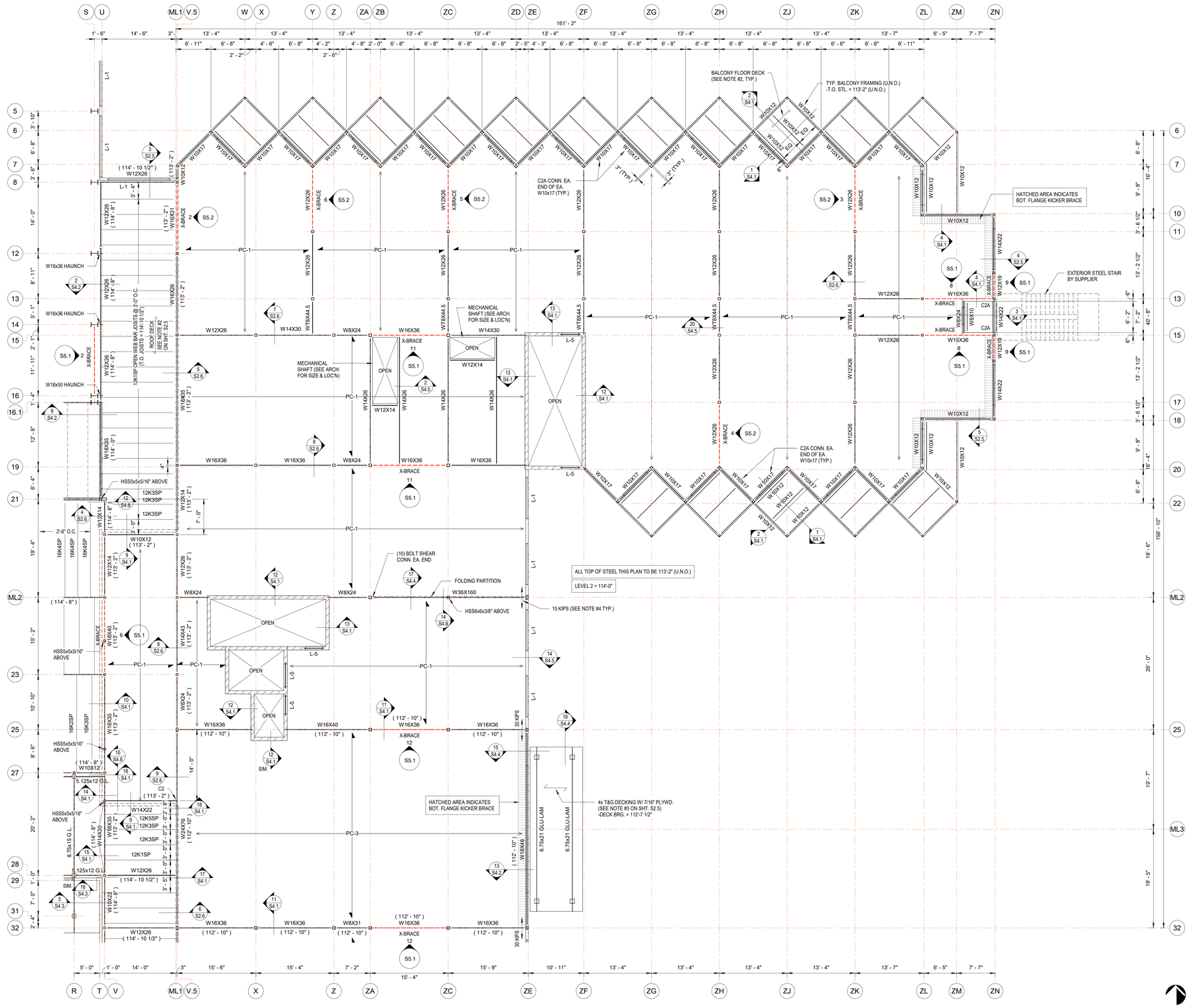

1 S2.7 ROOF FRAMING / LEVEL 2 FLOOR FRAMING PLAN AREA "C"
1/8" = 1'-0"

LEVEL 2 FLOOR FRAMING PLAN NOTES:

1. "PC-X" INDICATES PRECAST PLANK. SEE PRECAST PLANK SCHEDULE FOR REQUIREMENTS.
2. BALCONY FLOOR FRAMING CONSISTS OF CONCRETE ON 2 0C20GA. GALVANIZED FLOOR DECK. SEE SECTIONS AND ARCHITECTURAL DRAWINGS FOR TOP OF CONCRETE ELEVATION AND FLOOR SLOPE.
3. SEE SHEET S2.5 FOR ADDITIONAL PLAN NOTES.
4. PRECAST SUPPLIER SHALL DESIGN FOR LATERAL WIND CHORD FORCE ON GRID "ZE" AS NOTED ON DRAWINGS.

ROOF FRAMING PLAN NOTES:
SEE SHEET S2.5 FOR PLAN NOTES

PRECAST PLANK SCHEDULE

MARK	Description	Comments
PC-1	8" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-2	8" PRECAST PLANK W/ NO TOPPING	
PC-3	12" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-4	12" PRECAST PLANK W/ NO TOPPING	
PC-5	8" PRECAST PLANK W/ 1" NON-STRUCTURAL TOPPING	

LINTEL SCHEDULE

Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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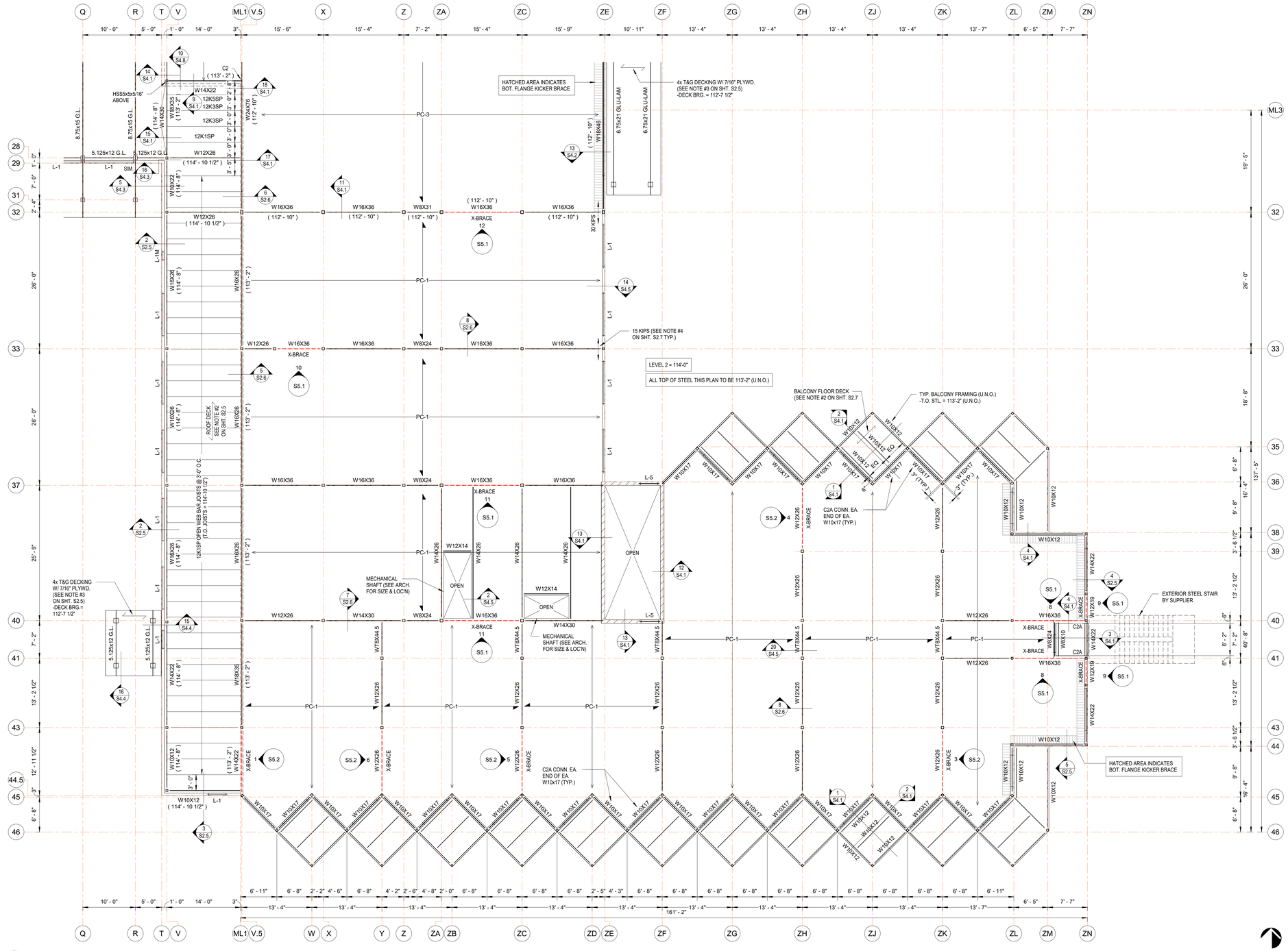
sheet number: S2.7



1 S2.8 ROOF FRAMING / LEVEL 2 FLOOR FRAMING PLAN AREA "D"
1/8" = 1'-0"

LEVEL 2 FLOOR FRAMING PLAN NOTES:
SEE SHEET S2.7 FOR PLAN NOTES

ROOF FRAMING PLAN NOTES:
SEE SHEET S2.5 FOR PLAN NOTES

PRECAST PLANK SCHEDULE		
MARK	Description	Comments
PC-1	8" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-2	8" PRECAST PLANK W/ NO TOPPING	
PC-3	12" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-4	12" PRECAST PLANK W/ NO TOPPING	
PC-5	8" PRECAST PLANK W/ 1" NON-STRUCTURAL TOPPING	

LINTEL SCHEDULE		
Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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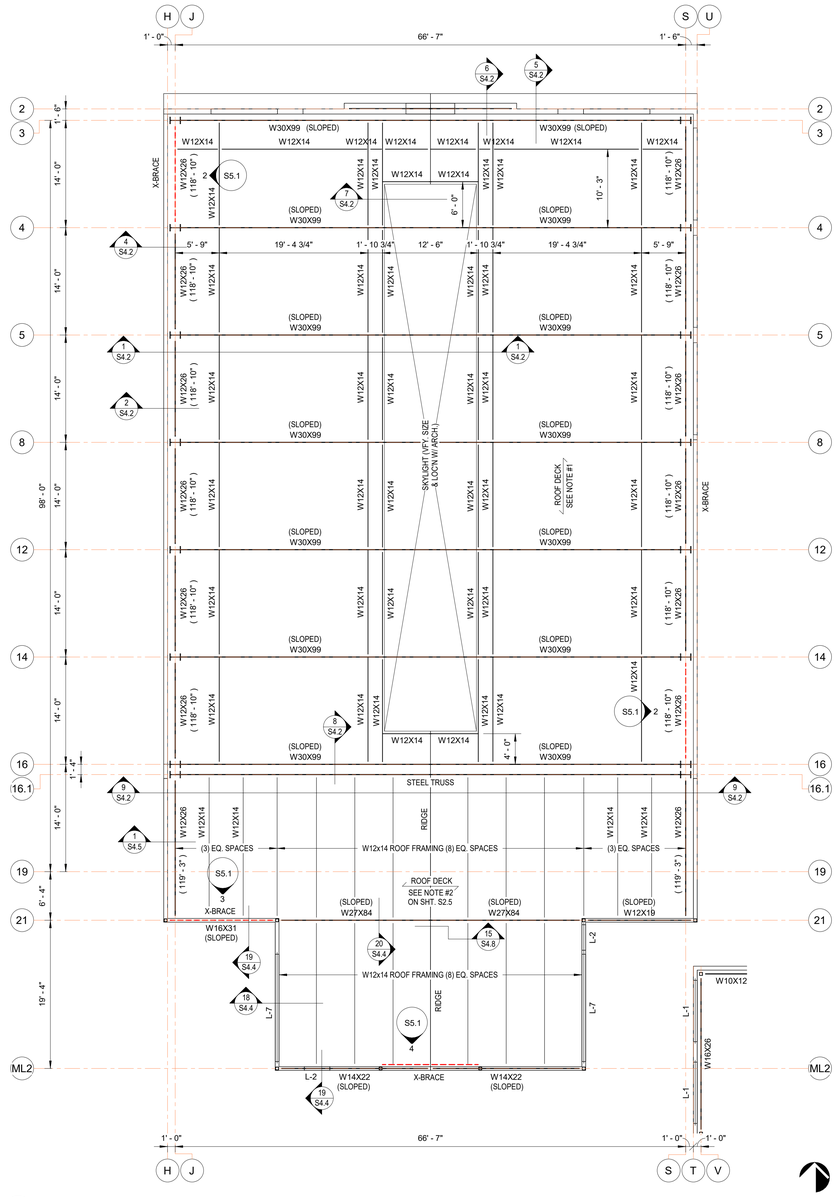
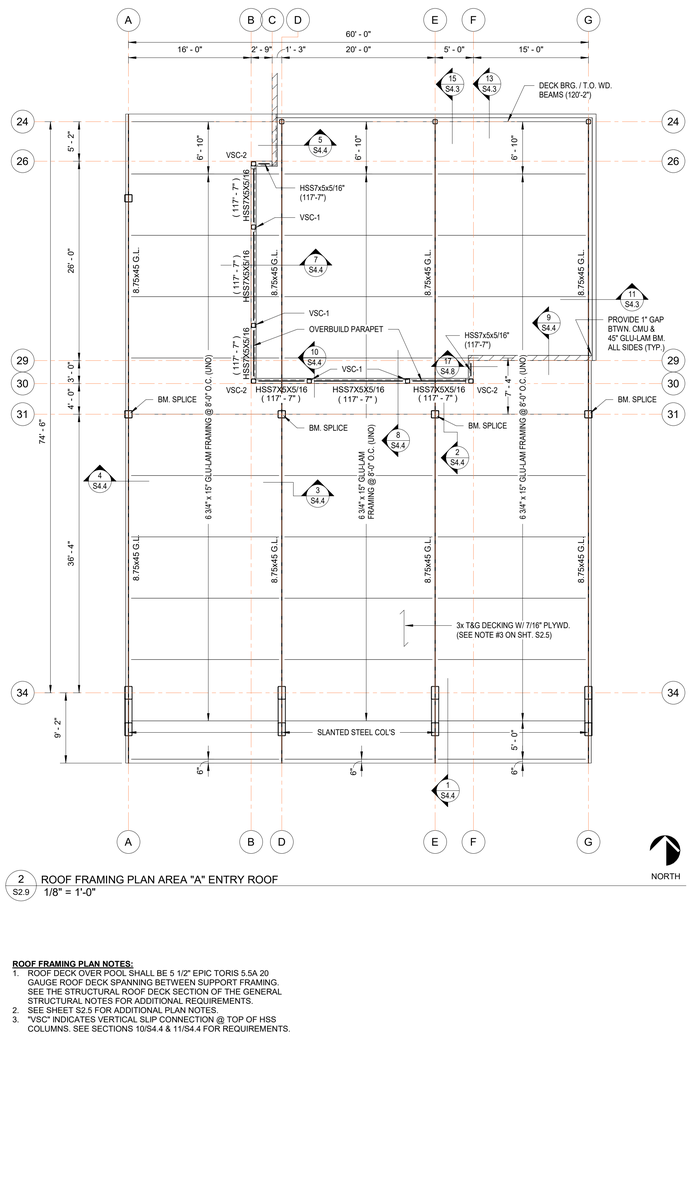
sheet number: S2.8



1 S2.9 ROOF FRAMING PLAN AREA "B" POOL ROOF
1/8" = 1'-0"

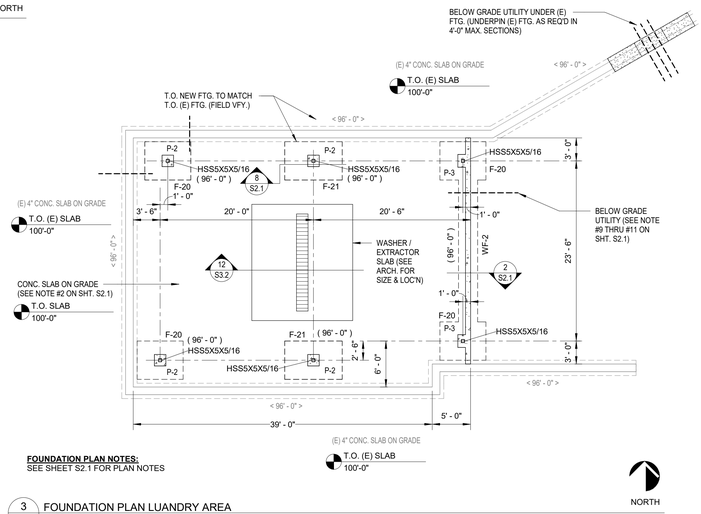
NORTH



2 S2.9 ROOF FRAMING PLAN AREA "A" ENTRY ROOF
1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

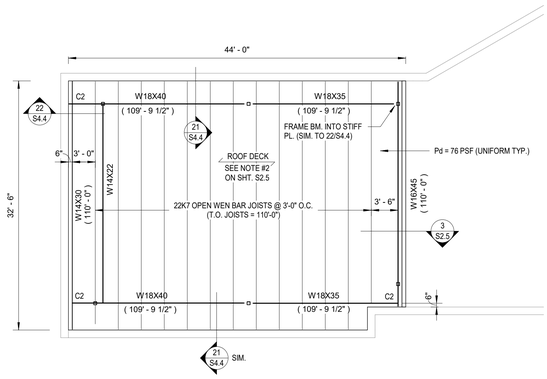
1. ROOF DECK OVER POOL SHALL BE 5 1/2" EPIC TORIS 5.5A 20 GAUGE ROOF DECK SPANNING BETWEEN SUPPORT FRAMING. SEE THE STRUCTURAL ROOF DECK SECTION OF THE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.
2. SEE SHEET S2.5 FOR ADDITIONAL PLAN NOTES.
3. "VSC" INDICATES VERTICAL SLIP CONNECTION @ TOP OF HSS COLUMNS. SEE SECTIONS 10/S4.4 & 11/S4.4 FOR REQUIREMENTS.



FOUNDATION PLAN NOTES:
SEE SHEET S2.1 FOR PLAN NOTES

3 S2.9 FOUNDATION PLAN LUANDRY AREA
1/8" = 1'-0"

NORTH



4 S2.9 ROOF FRAMING PLAN LAUNDRY AREA
1/8" = 1'-0"

NORTH

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11386 WEST LAKESHORE DRIVE
BRIMLEY, MI 49715

project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

STATE OF MICHIGAN
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LICENSED PROFESSIONAL ENGINEER

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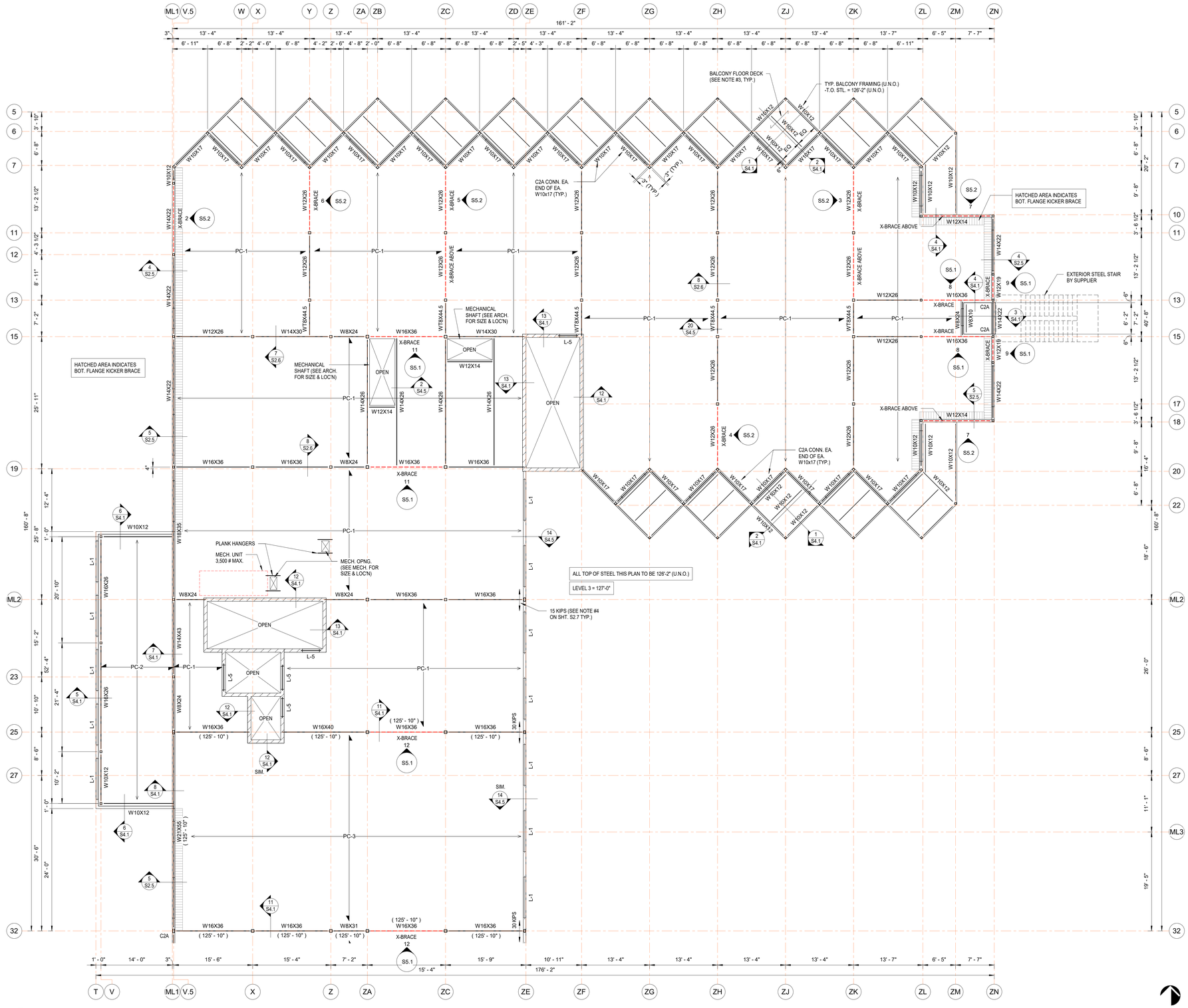
sheet title: POOL - ENTRY - LAUNDRY FRAMING AND FOUNDATION PLANS

sheet number: S2.9



1 S2.10 LEVEL 3 FLOOR FRAMING PLAN AREA "C"
1/8" = 1'-0"

LEVEL 3 FLOOR FRAMING PLAN NOTES:

1. REFERENCE 3RD FLOOR ELEVATION IS 127'-0". TOP OF SLAB IS AT THE REFERENCE FLOOR ELEVATION, UNLESS NOTED OTHERWISE.
2. "PC-X" INDICATES PRECAST PLANK. SEE PRECAST PLANK SCHEDULE FOR REQUIREMENTS.
3. BALCONY FLOOR FRAMING CONSISTS OF CONCRETE ON 2.0C20GA. GALVANIZED FLOOR DECK. SEE SECTIONS AND ARCHITECTURAL DRAWINGS FOR TOP OF CONCRETE ELEVATION AND FLOOR SLOPE.
4. SEE SHEET S2.5 FOR ADDITIONAL PLAN NOTES.

PRECAST PLANK SCHEDULE

MARK	Description	Comments
PC-1	8" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-2	8" PRECAST PLANK W/ NO TOPPING	
PC-3	12" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-4	12" PRECAST PLANK W/ NO TOPPING	
PC-5	8" PRECAST PLANK W/ 1" NON-STRUCTURAL TOPPING	

LINTEL SCHEDULE

Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING. SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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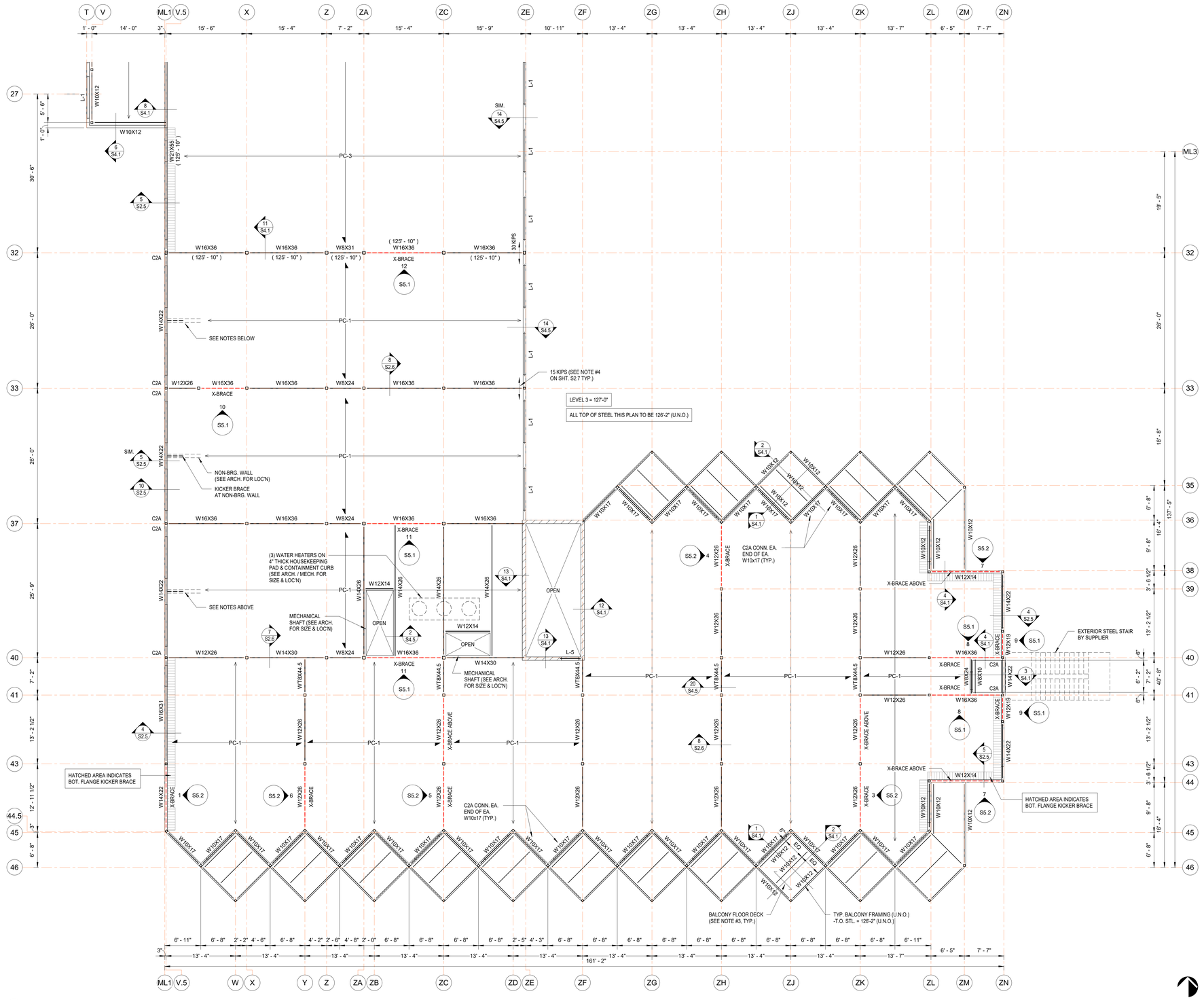
sheet title: LEVEL 3 FLOOR FRAMING PLAN AREA "C"

sheet number: S2.10



1 S2.11 LEVEL 3 FLOOR FRAMING PLAN AREA "D"
1/8" = 1'-0"

LEVEL 3 FLOOR FRAMING PLAN NOTES:
SEE SHEET S2.10 FOR PLAN NOTES

PRECAST PLANK SCHEDULE		
MARK	Description	Comments
PC-1	8" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-2	8" PRECAST PLANK W/ NO TOPPING	
PC-3	12" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-4	12" PRECAST PLANK W/ NO TOPPING	
PC-5	8" PRECAST PLANK W/ 1" NON-STRUCTURAL TOPPING	

LINTEL SCHEDULE		
Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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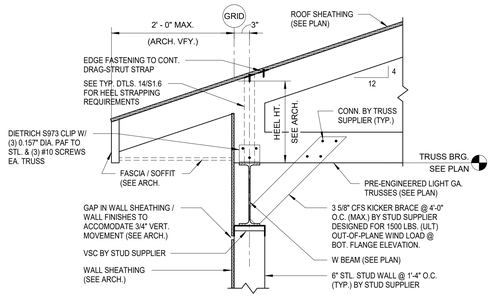
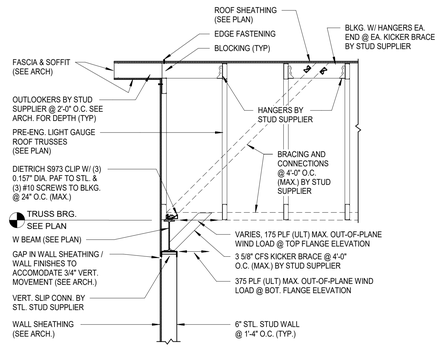
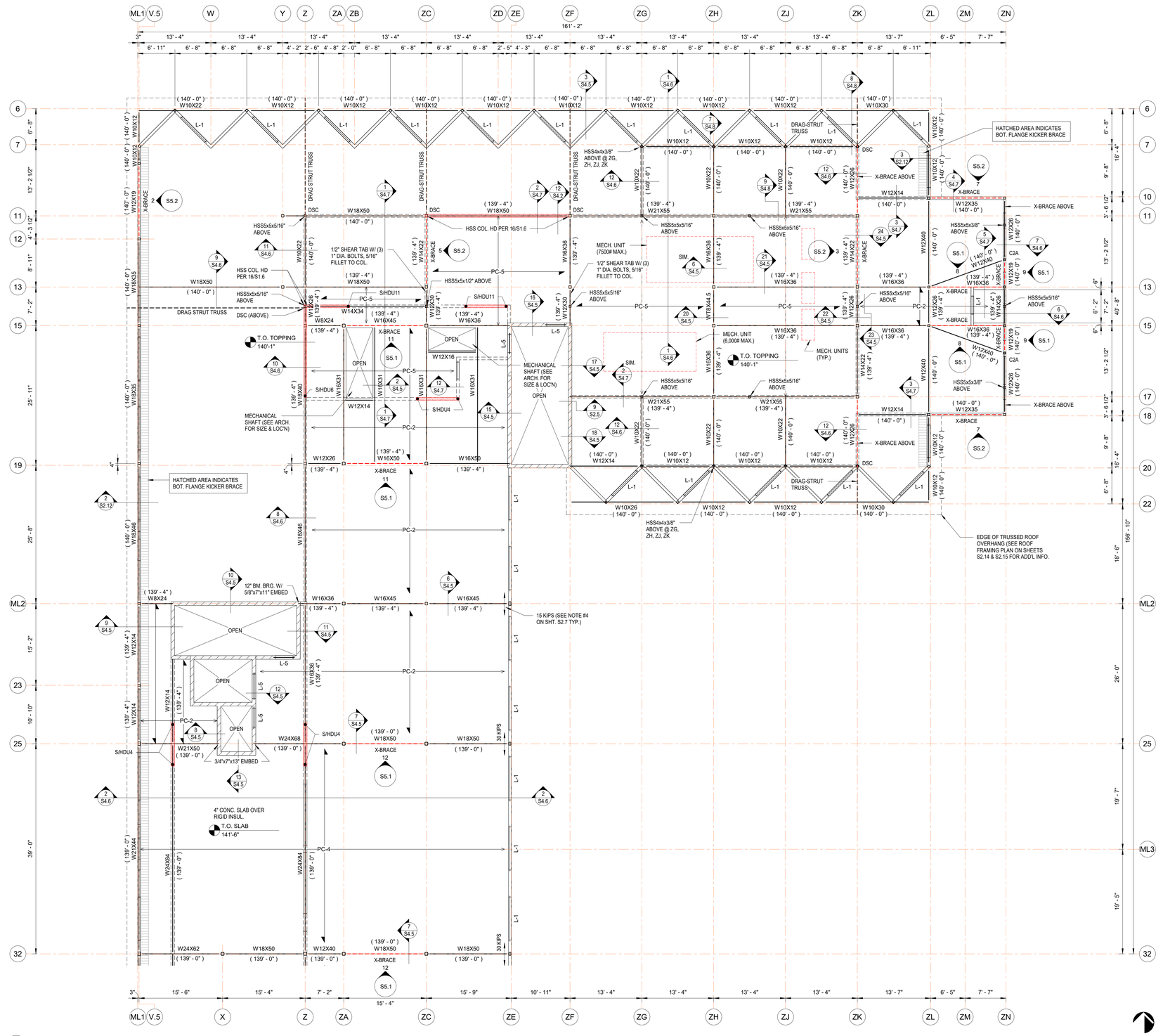
sheet number: S2.11



2 S2.12 SECTION @ ROOF
1" = 1'-0"



3 S2.12 SECTION @ ROOF
1/2" = 1'-0"



1 S2.12 PENTHOUSE FLOOR FRAMING PLAN AREA "C"
1/8" = 1'-0"

LEVEL 2 FLOOR FRAMING PLAN NOTES:

1. REFERENCE PENTHOUSE FLOOR ELEVATION IS AS NOTED. TOP OF SLAB IS AT THE REFERENCE FLOOR ELEVATION, UNLESS NOTED OTHERWISE.
2. "PC-X" INDICATES PRECAST PLANK. SEE PRECAST PLANK SCHEDULE FOR REQUIREMENTS.
3. SEE SHEET S2.5 FOR ADDITIONAL PLAN NOTES.
4. "DSC" INDICATES DRAG STRUT CONNECTION. SEE 12/S4.2 FOR REQUIREMENTS.
5. "HDU" AND "HD" INDICATES HOLDOWN @ END OF SHEAR WALL ABOVE. SEE TYPICAL DETAILS ON SHEET S1.6 FOR REQUIREMENTS.

ROOF FRAMING PLAN NOTES:
SEE SHEET S2.5 FOR PLAN NOTES

PRECAST PLANK SCHEDULE		
MARK	Description	Comments
PC-1	8" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-2	8" PRECAST PLANK W/ NO TOPPING	
PC-3	12" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-4	12" PRECAST PLANK W/ NO TOPPING	
PC-5	8" PRECAST PLANK W/ 1" NON-STRUCTURAL TOPPING	

LINTEL SCHEDULE		
Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING. SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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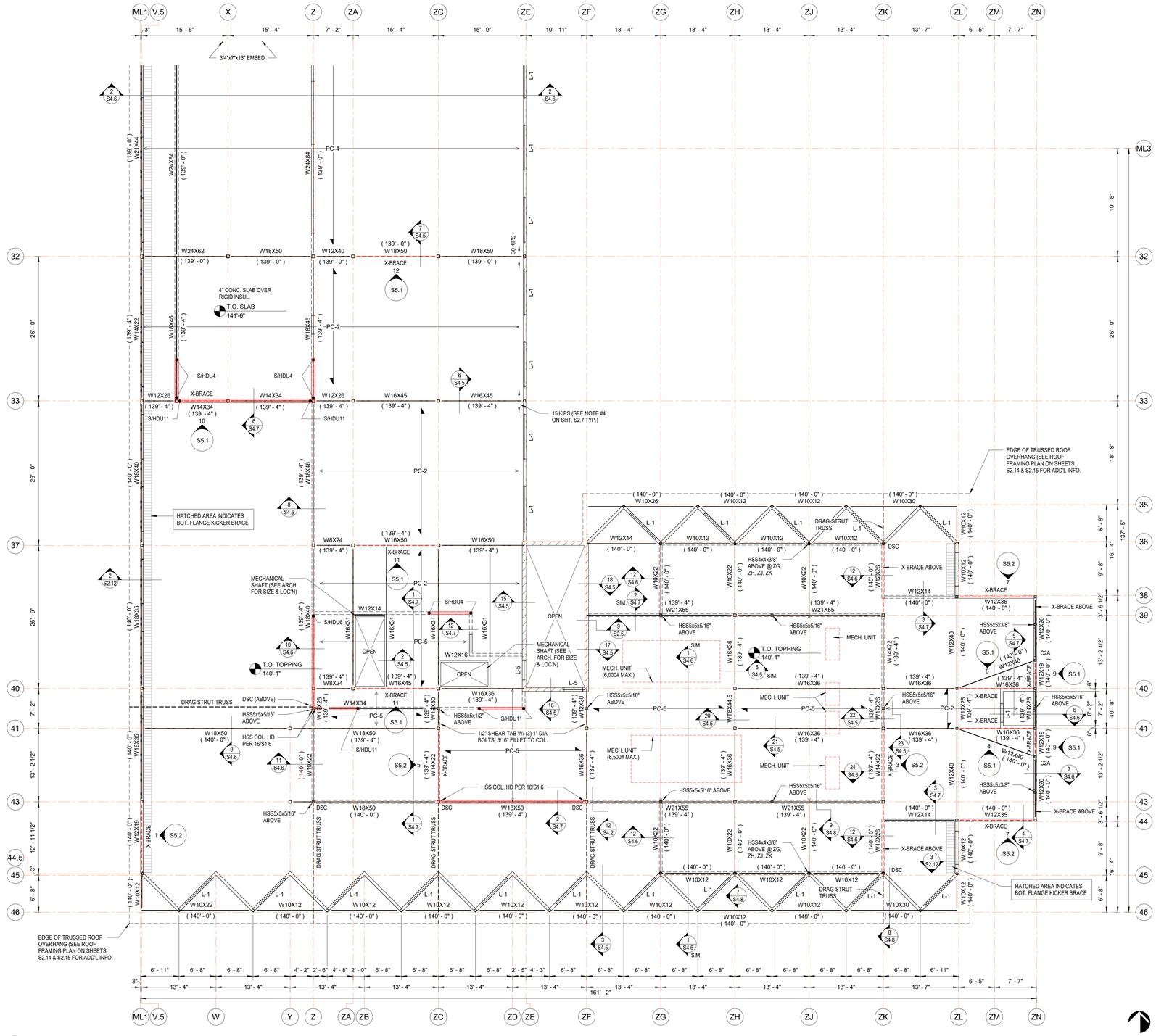

1 S2.13 PENTHOUSE FLOOR FRAMING PLAN AREA "D"
1/8" = 1'-0"

PENTHOUSE FLOOR FRAMING PLAN NOTES:
SEE SHEET S2.12 FOR PLAN NOTES

ROOF FRAMING PLAN NOTES:
SEE SHEET S2.5 FOR PLAN NOTES

PRECAST PLANK SCHEDULE		
MARK	Description	Comments
PC-1	8" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-2	8" PRECAST PLANK W/ NO TOPPING	
PC-3	12" PRECAST PLANK W/ 2" NON-STRUCTURAL TOPPING	
PC-4	12" PRECAST PLANK W/ NO TOPPING	
PC-5	8" PRECAST PLANK W/ 1" NON-STRUCTURAL TOPPING	

LINTEL SCHEDULE		
Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.

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sheet number: S2.13

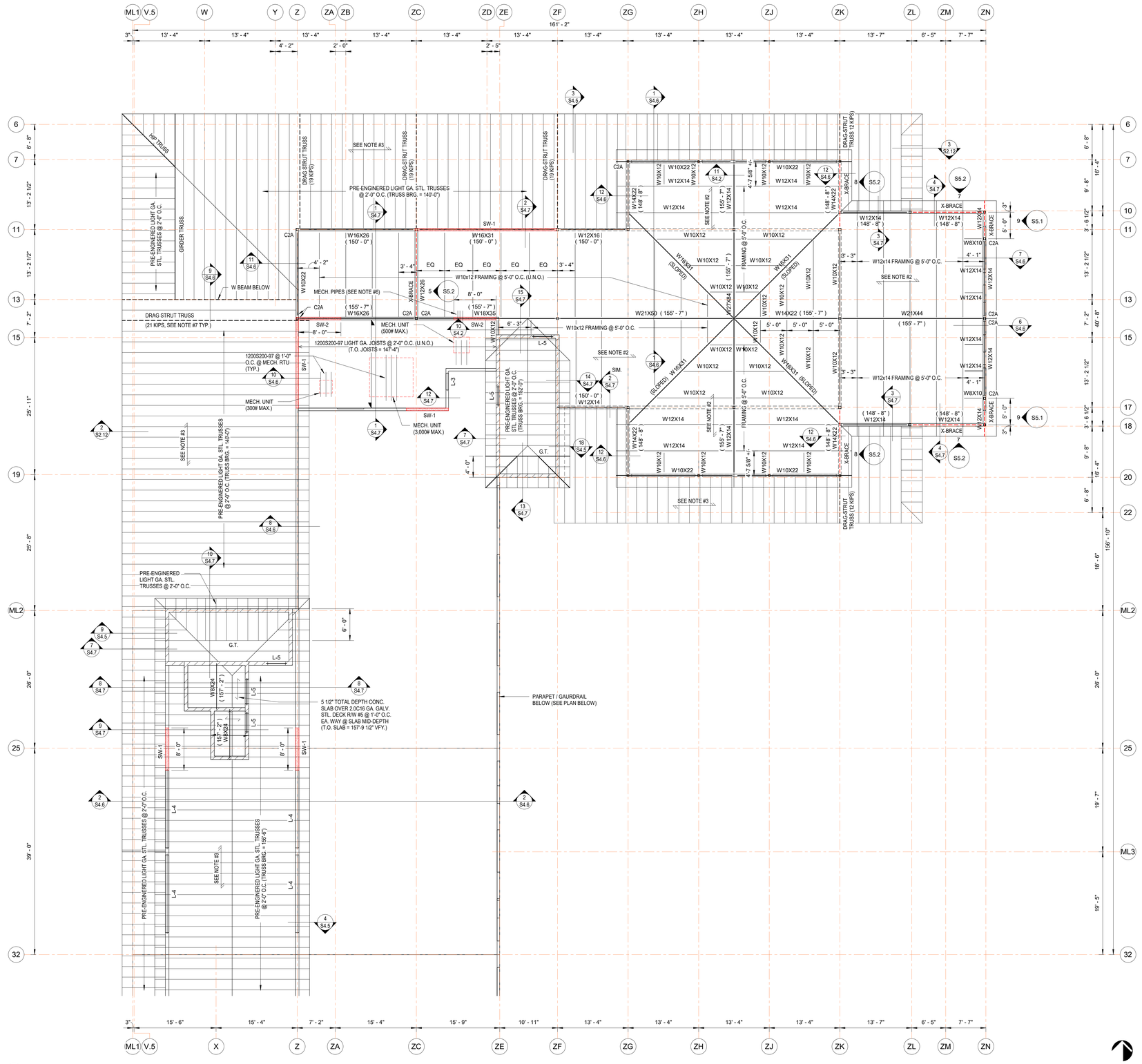
ROOF FRAMING PLAN NOTES:

1. ROOF STRUCTURE ELEVATIONS VARY, SEE PLAN. (XXX'-XX") INDICATES TOP OF STEEL ELEVATION UNLESS NOTED OTHERWISE, SEE ARCHITECTURAL DRAWINGS FOR ROOF SLOPES AND DRAINS.
2. STRUCTURAL ROOF DECK ON STEEL FRAMING IS 1.5B20 STEEL ROOF DECKING SPANNING BETWEEN FRAMING SUPPORTS, UNLESS NOTES OTHERWISE. SEE THE STEEL ROOF DECK SECTION OF THE GENERAL STRUCTURAL NOTES FOR ADDITIONAL DECK REQUIREMENTS.
3. STRUCTURAL ROOF DECK ON TRUSSES SHALL BE 5/8" FIRE-TREATED ROOF SHEATHING.
4. "SW-X" INDICATES LIGHT GAUGE FRAMED STEEL STUD SHEAR WALL SHEATHED WITH SURE-BOARD. SEE 13/S1.6 FOR SHEAR WALL SCHEDULE.
5. SEE SHEET S2.5 FOR ADDITIONAL PLAN NOTES.
6. MAXIMUM OF THREE MECHANICAL PIPES WITH MAXIMUM DIAMETER OF 3" MAY PASS THROUGH SHEAR WALL PROVIDED PIPES ARE LOCATED BETWEEN STUDS AND SOLID BLOCKING AND EDGE FASTENING ARE INSTALLED ALL SIDES OF OPENING.
7. DRAG-STRUT TRUSSES SHALL BE DESIGNED TO TRANSFER IN-PLANE LATERAL WIND LOAD NOTED ON PLAN FROM ROOF SHEATHING EDGE NAILING / TOP CHORD TO BOTTOM CHORD AND CONNECT TO STEEL COLUMNS AS INDICATED IN DRAG-STRUT CONNECTION DETAIL 12/S4.2.

LINTEL SCHEDULE

Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

(M) AFTER LINTEL MARK INDICATES LINTEL FOR MECHANICAL WALL OPENING.
SEE MECHANICAL FOR SIZE AND LOCATION OF ALL MECHANICAL OPENINGS.



1 S2.14 ENLARGED PLAN
1/8" = 1'-0"

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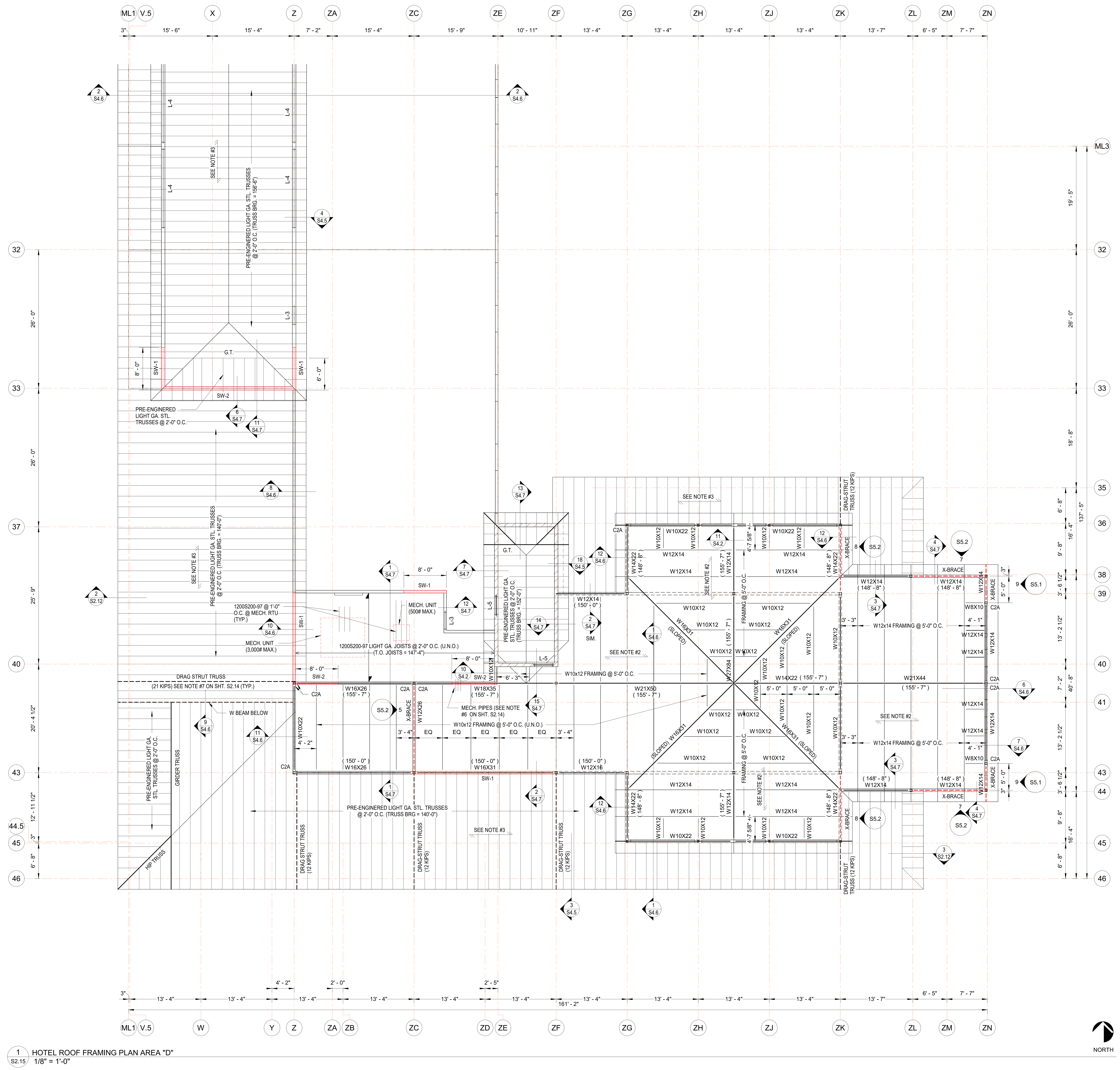
sheet number: S2.14



1 HOTEL ROOF FRAMING PLAN AREA "D"
S2.15 1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:
SEE SHEET S2.14 FOR PLAN NOTES

LINTEL SCHEDULE

Mark	Description	Comments
L-1	LINTEL BY STL. STUD SUPPLIER	
L-2	(2) 600S162-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-3	(2) 800S200-54 BOX BEAM W/ CONT. 16GA. TRACK T&B	
L-4	(2) 1600S250-118 BOX BEAM W/ CONT. 14GA. TRACK T&B	
L-5	16" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-6	24" DEEP BOND BEAM R/W (2) #5xCONT. BOTTOM	
L-7	(2) 800S200-97 BOX BEAM W/ CONT. 14GA. TRACK T&B	

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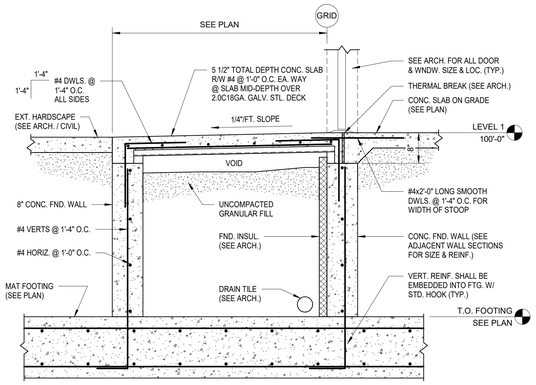
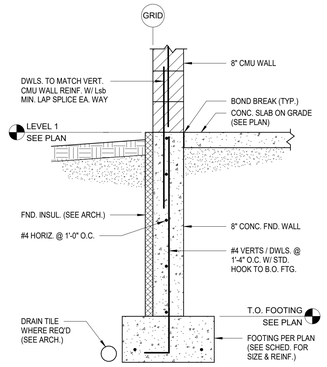
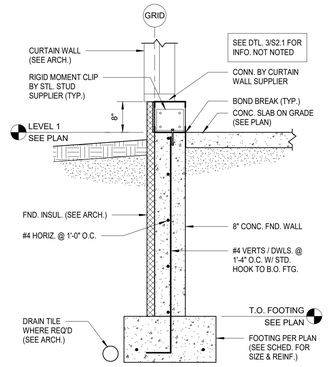


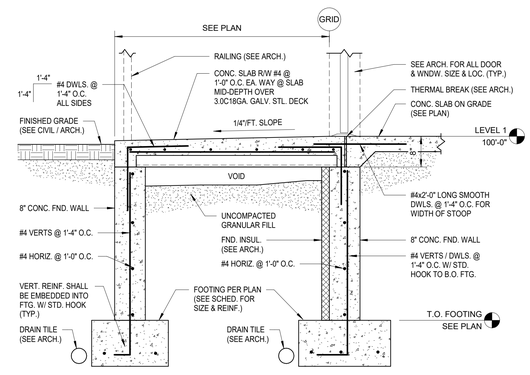
1 S3.1 SECTION @ STOOP
3/4" = 1'-0"



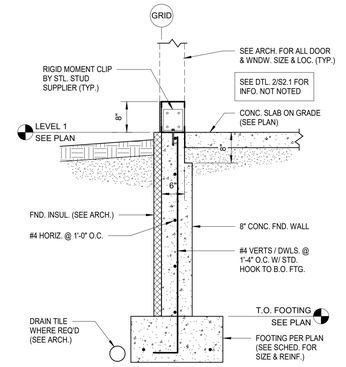
2 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



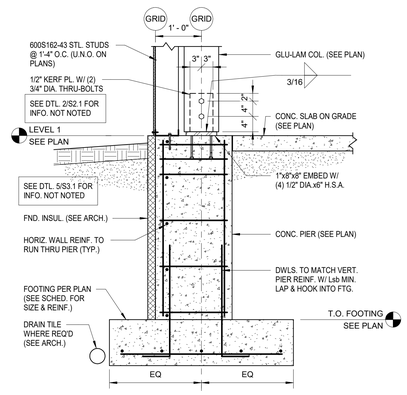
3 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



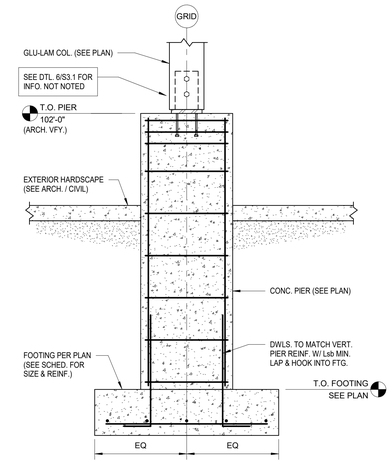
4 S3.1 SECTION @ STOOP
3/4" = 1'-0"



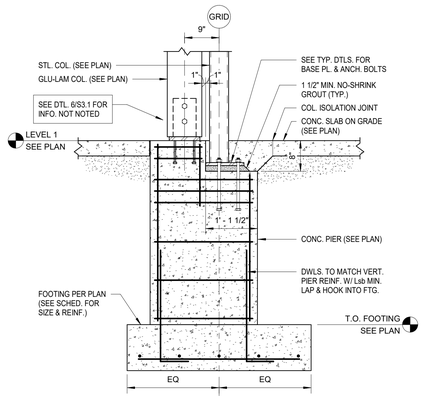
5 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



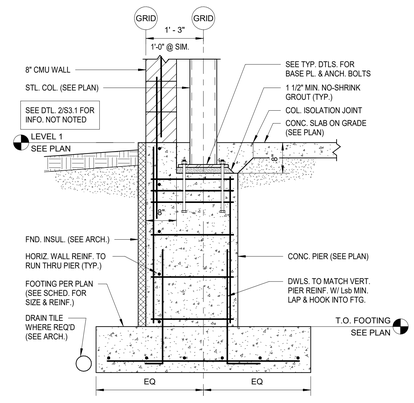
6 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



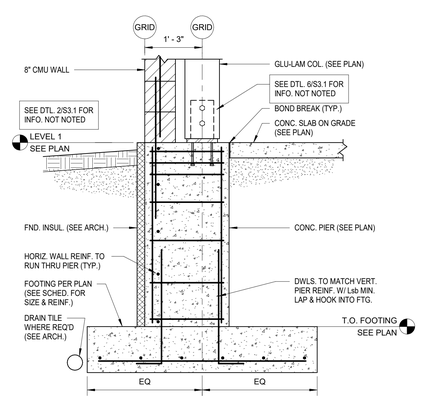
7 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



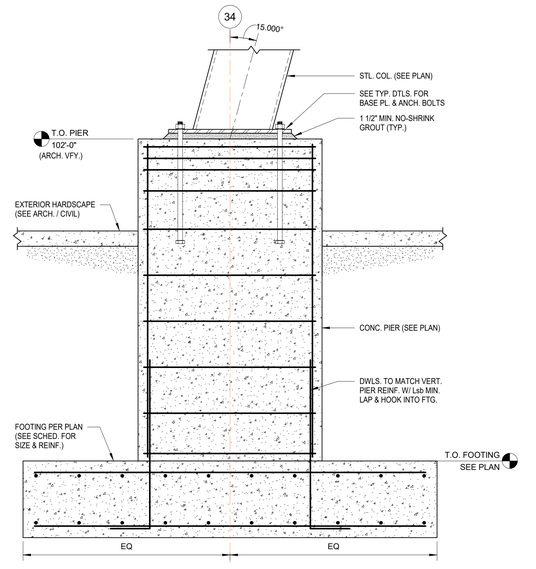
8 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



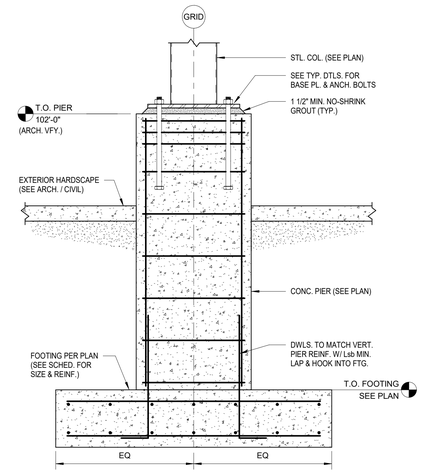
9 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



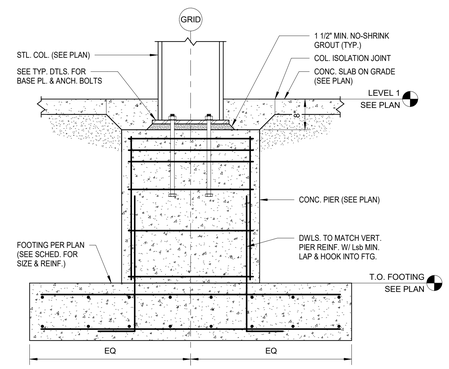
10 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



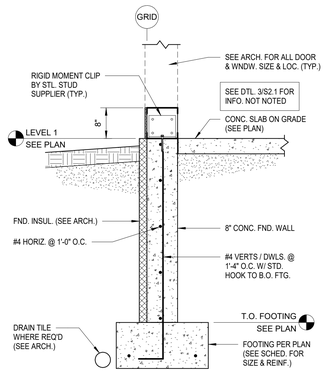
11 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



12 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



13 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"



14 S3.1 SECTION @ FOUNDATION
3/4" = 1'-0"

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project #: 22-538
date: 04-17-2023
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JON E. AAMODT
NUMBER
42272
LICENSED PROFESSIONAL ENGINEER

printed name: Jon E. Aamodt
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sign date: 04-17-2023

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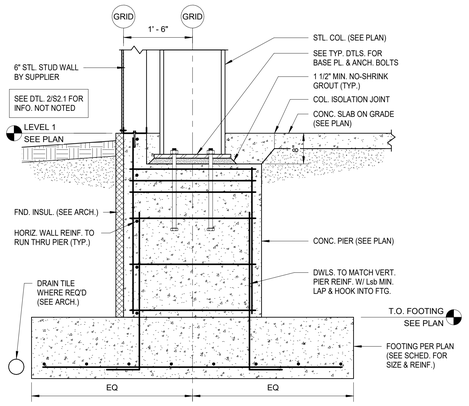
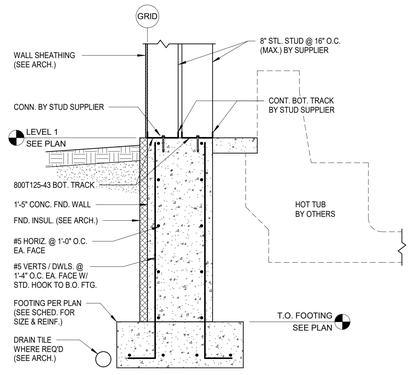
sheet title: FOUNDATION SECTIONS - DETAILS

sheet number: S3.1



1 S3.2 SECTION @ FOUNDATION
3/4" = 1'-0"



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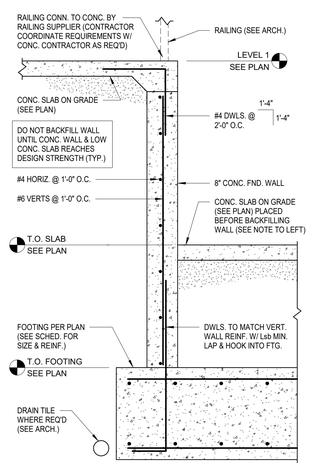

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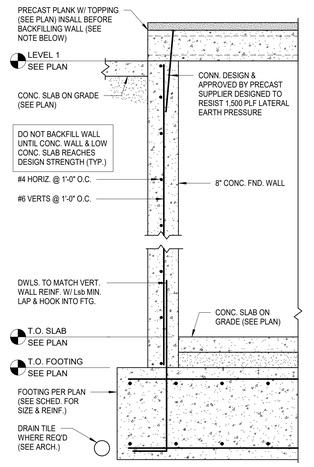
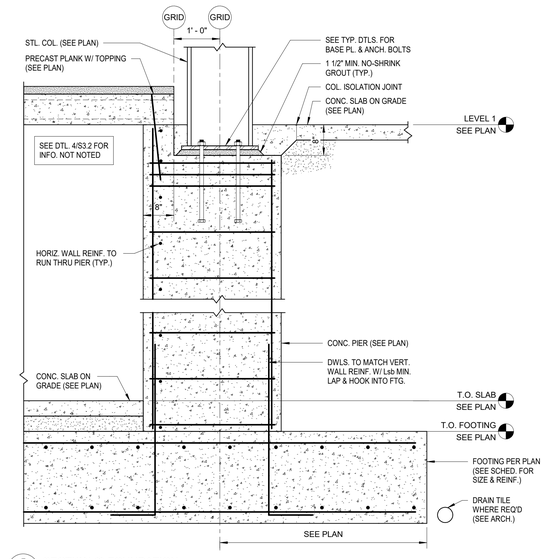
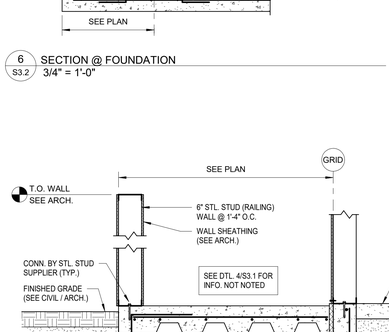


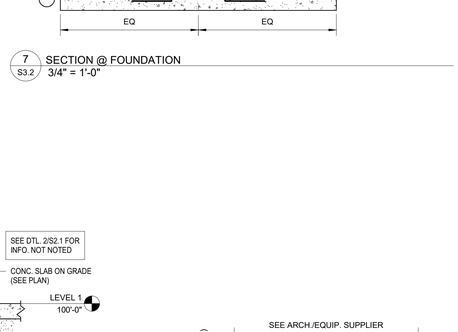
4 S3.2 SECTION @ FOUNDATION
3/4" = 1'-0"



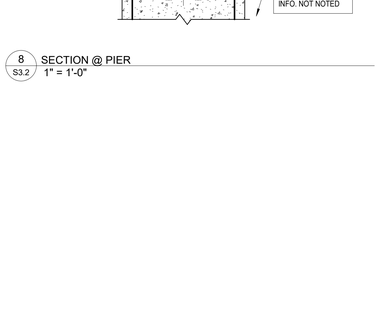
5 S3.2 SECTION @ FOUNDATION
3/4" = 1'-0"



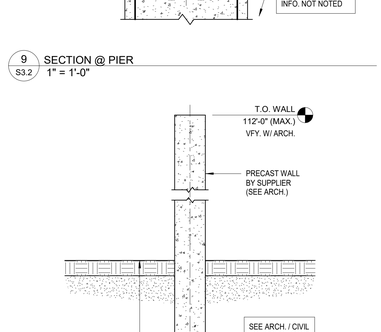
6 S3.2 SECTION @ FOUNDATION
3/4" = 1'-0"



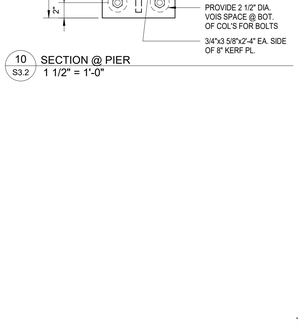
7 S3.2 SECTION @ FOUNDATION
3/4" = 1'-0"



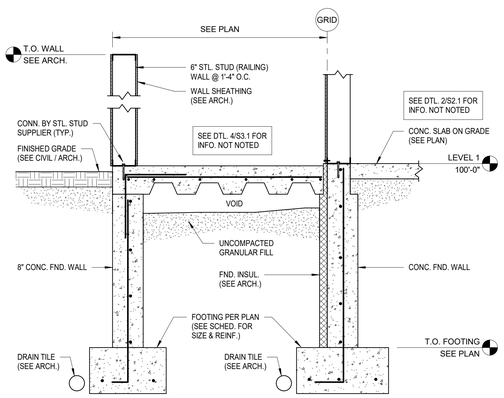
8 S3.2 SECTION @ PIER
1" = 1'-0"



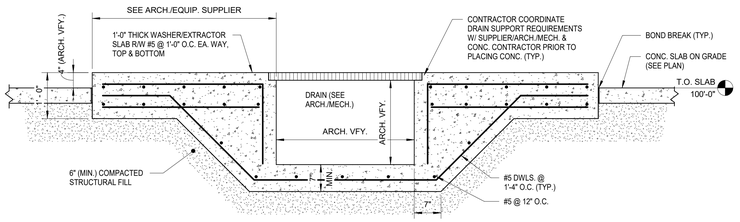
9 S3.2 SECTION @ PIER
1" = 1'-0"



10 S3.2 SECTION @ PIER
1 1/2" = 1'-0"

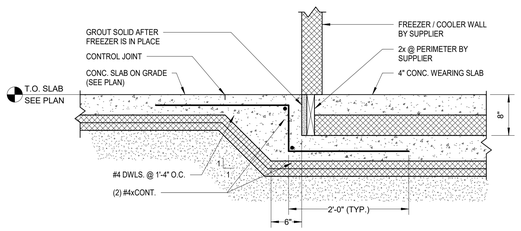


11 S3.2 SECTION @ STOOP
3/4" = 1'-0"



12 S3.2 SECTION @ WASHER/EXTRACTOR SLAB
3/4" = 1'-0"

13 S3.2 TYPICAL SECTION @ SERPENTINE SITE WALL
1/2" = 1'-0"



14 S3.2 SECTION @ FREEZER / COOLER
1" = 1'-0"

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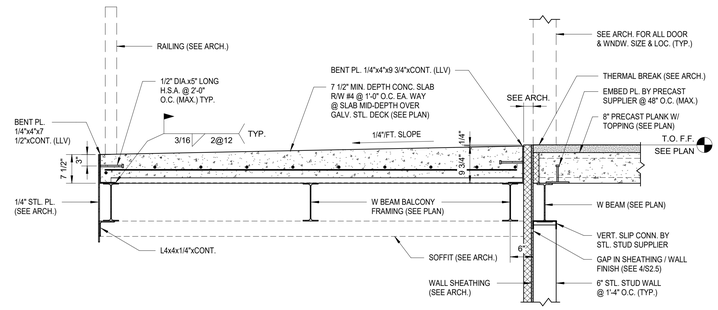
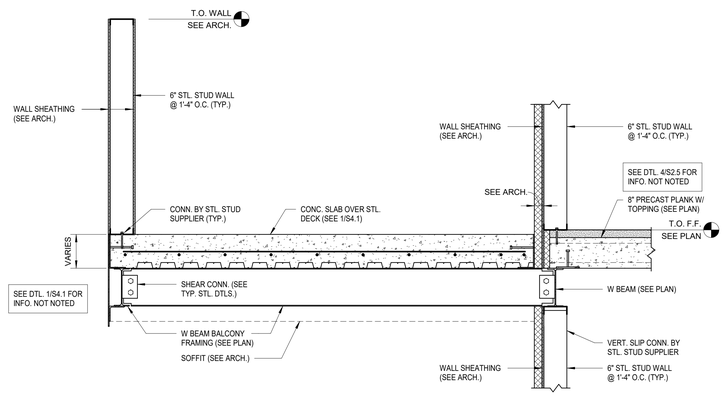
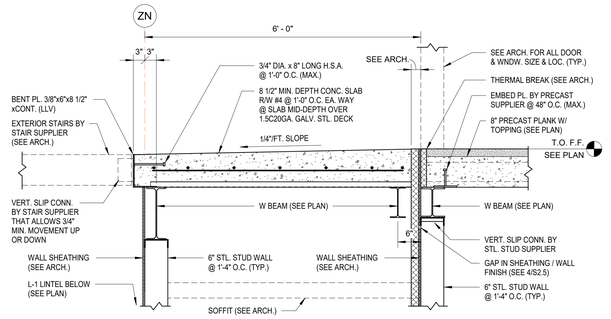


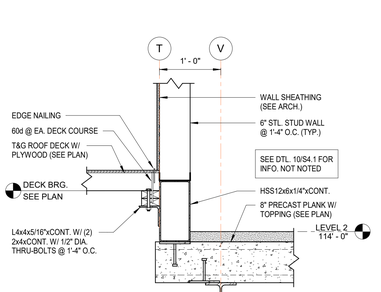
1 S4.1 SECTION @ BALCONY
3/4" = 1'-0"



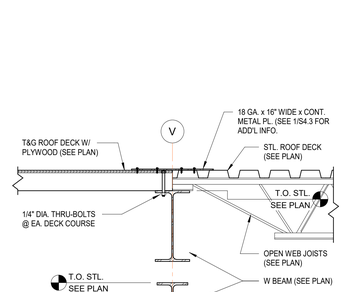
2 S4.1 SECTION @ BALCONY
3/4" = 1'-0"



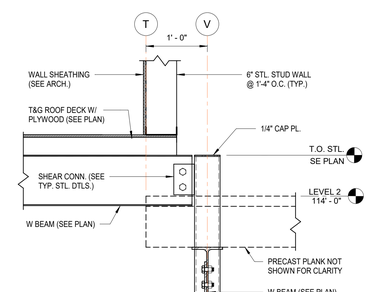
3 S4.1 SECTION @ FLOOR
3/4" = 1'-0"



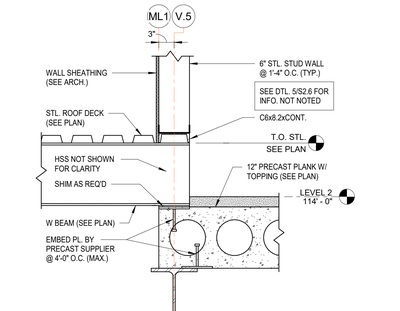
4 S4.1 SECTION @ BALCONY
1" = 1'-0"



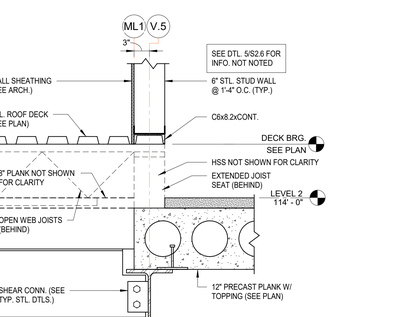
5 S4.1 SECTION @ ROOF
3/4" = 1'-0"



6 S4.1 SECTION @ ROOF
3/4" = 1'-0"



7 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"



8 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

9 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

10 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

11 S4.1 SECTION @ FLOOR
1" = 1'-0"

12 S4.1 SECTION @ FLOOR
1" = 1'-0"

13 S4.1 SECTION @ FLOOR
1" = 1'-0"

14 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

15 S4.1 SECTION @ ROOF
1" = 1'-0"

16 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

17 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

18 S4.1 SECTION @ FLOOR / ROOF
1" = 1'-0"

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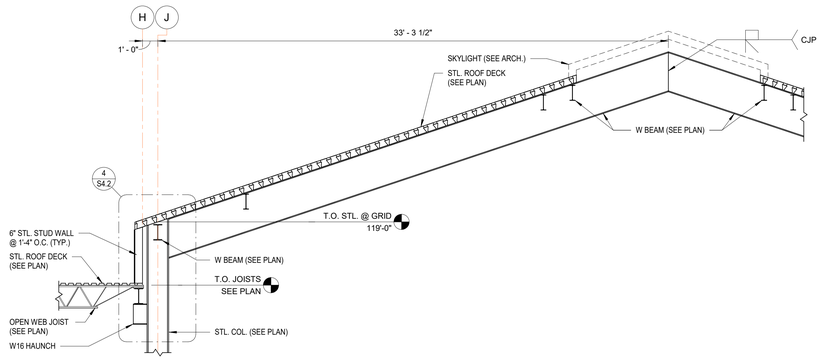
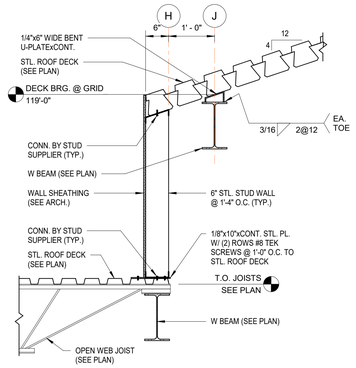
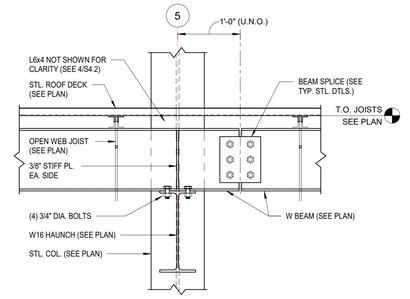


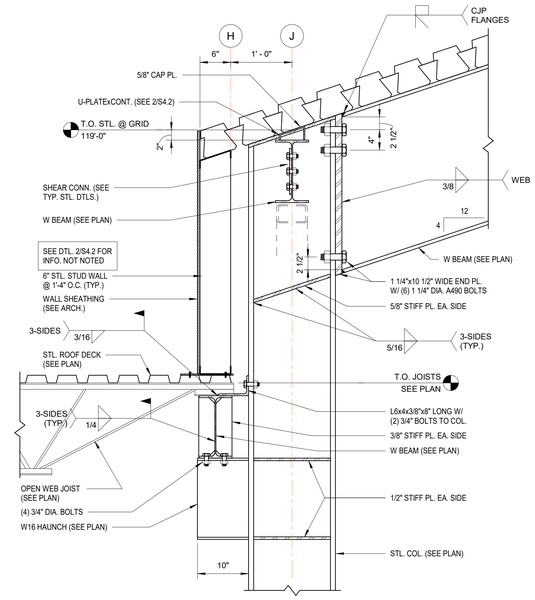
1 S4.2 SECTION @ POOL ROOF
1/4" = 1'-0"



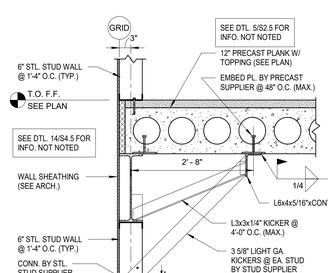
2 S4.2 SECTION @ POOL ROOF
3/4" = 1'-0"



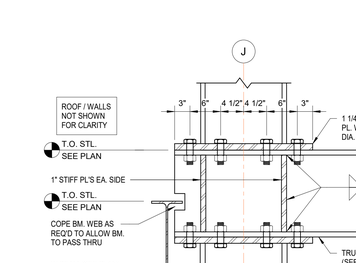
3 S4.2 SECTION @ ROOF
1" = 1'-0"



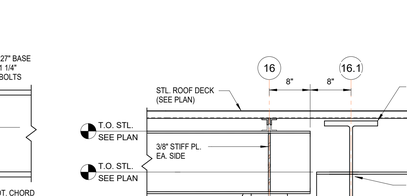
4 S4.2 SECTION @ POOL ROOF
1" = 1'-0"



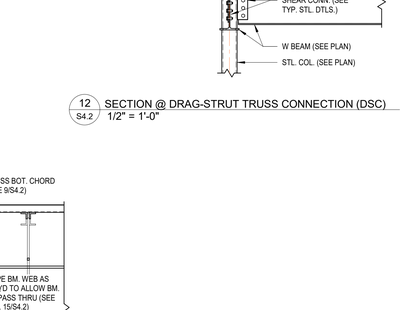
5 S4.2 SECTION @ POOL ROOF
3/4" = 1'-0"



6 S4.2 SECTION @ POOL ROOF
3/4" = 1'-0"



7 S4.2 SECTION @ POOL ROOF
1/2" = 1'-0"



8 S4.2 SECTION @ POOL ROOF
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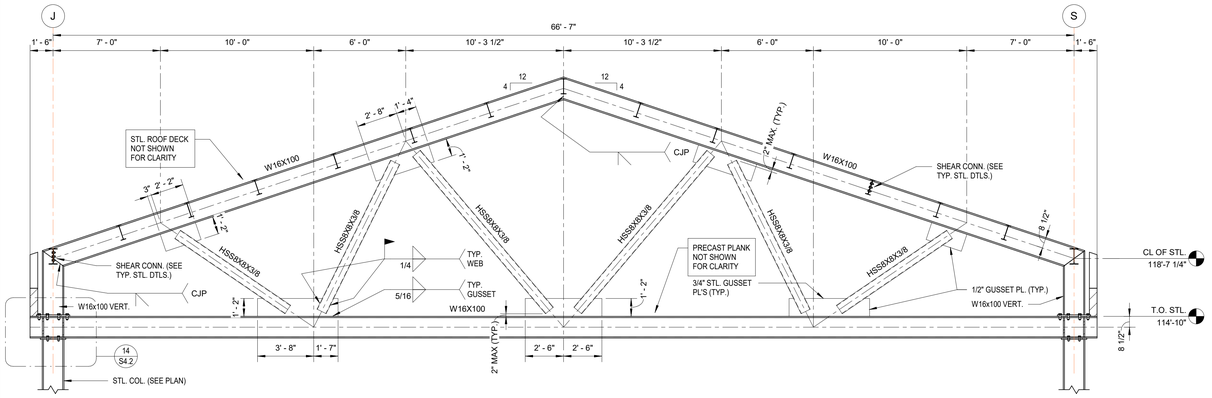
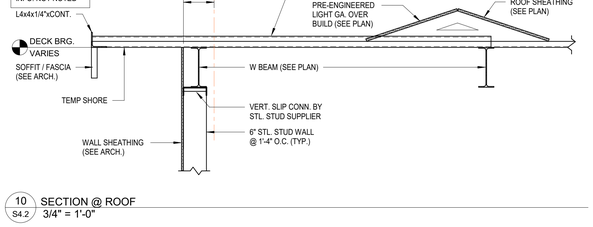
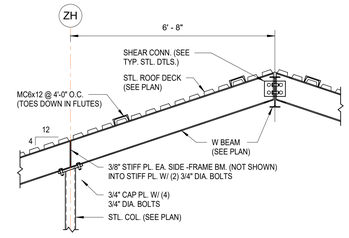


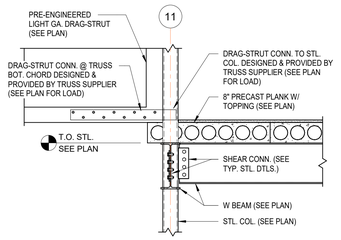
9 S4.2 SECTION @ STEEL TRUSS
1/4" = 1'-0"



10 S4.2 SECTION @ ROOF
3/4" = 1'-0"



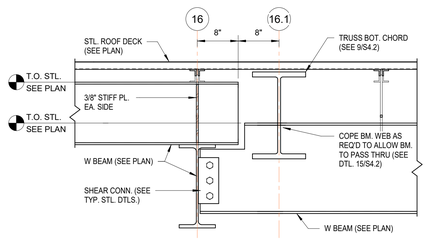
11 S4.2 SECTION @ ROOF
1/2" = 1'-0"



12 S4.2 SECTION @ DRAG-STRUT TRUSS CONNECTION (DSC)
1/2" = 1'-0"

13 S4.2 SECTION @ FLOOR
3/4" = 1'-0"

14 S4.2 SECTION @ ROOF
1" = 1'-0"



15 S4.2 SECTION @ ROOF
1" = 1'-0"

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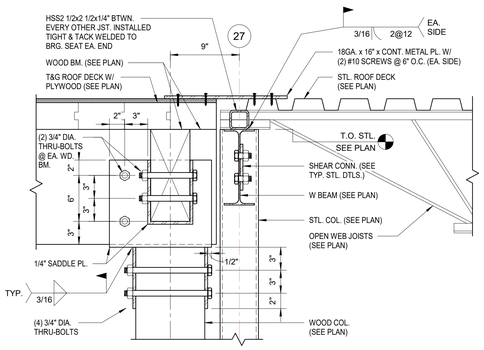
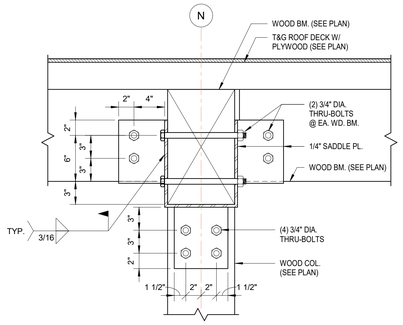


1 S4.3 SECTION @ ROOF
1 1/2" = 1'-0"



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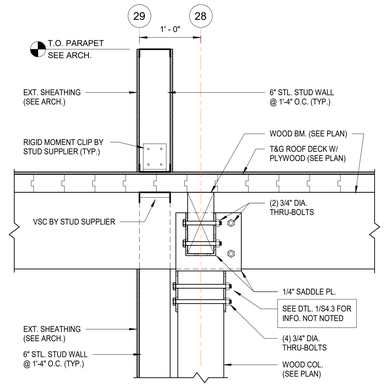

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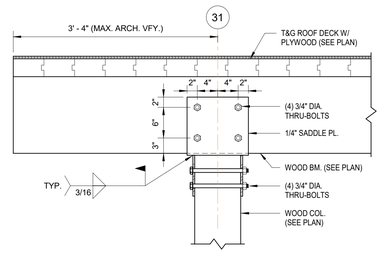

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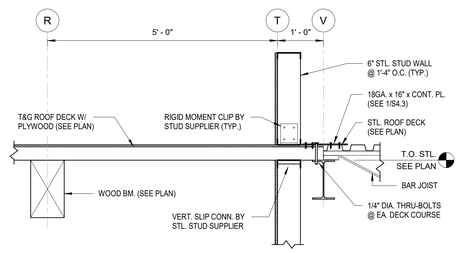
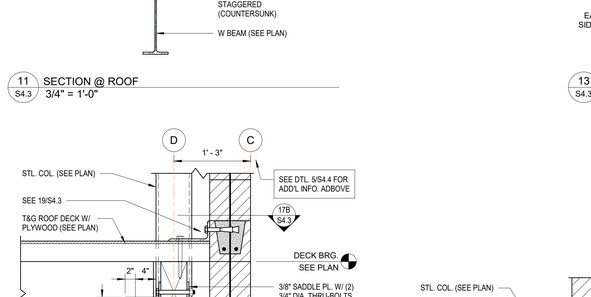


5 S4.3 SECTION @ ROOF
3/4" = 1'-0"



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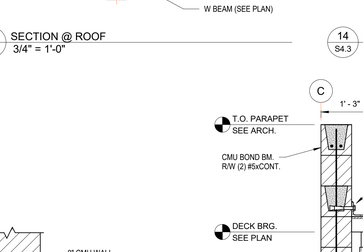

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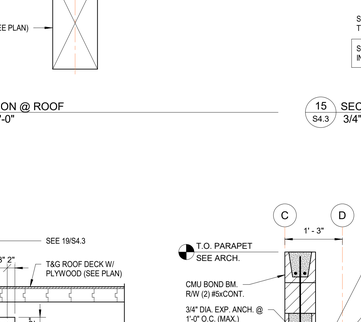

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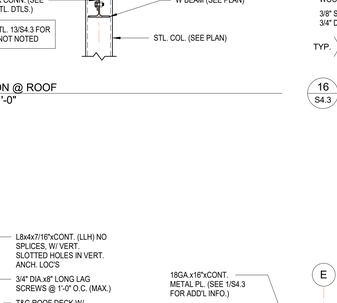

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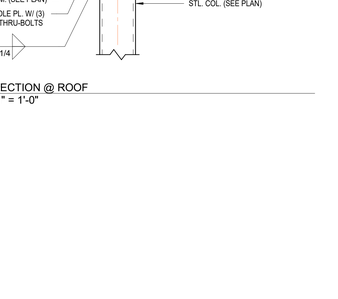
1" = 1'-0"



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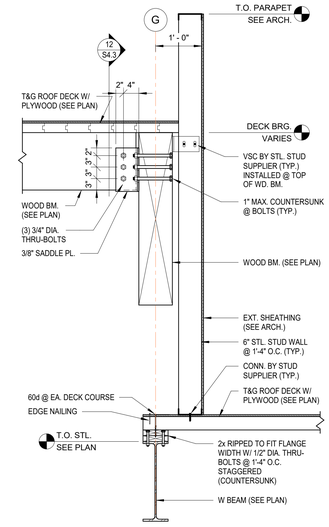
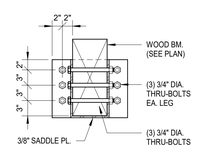
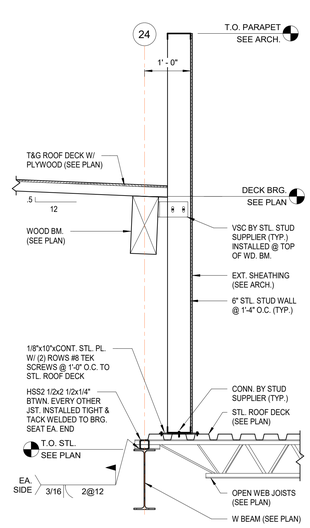


11 S4.3 SECTION @ ROOF
3/4" = 1'-0"



12 S4.3 SECTION @ ROOF
1" = 1'-0"



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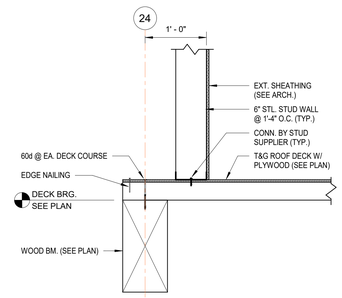
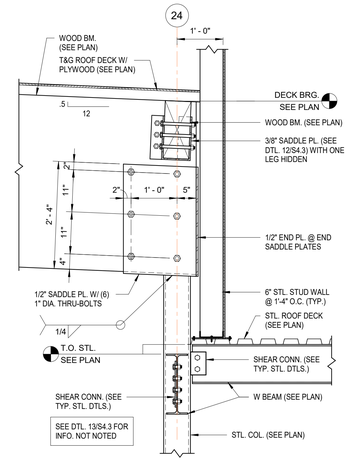


14 S4.3 SECTION @ ROOF
1" = 1'-0"



15 S4.3 SECTION @ ROOF
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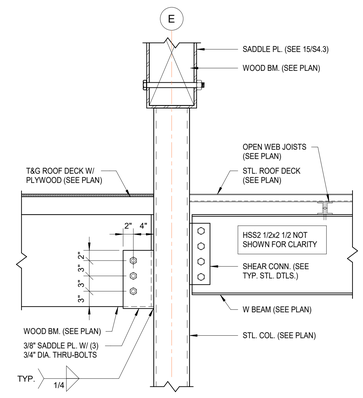
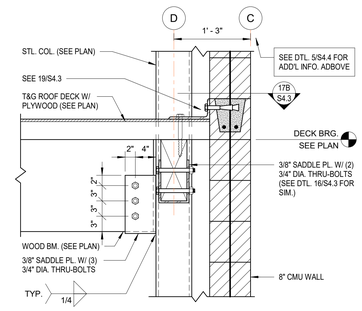


16 S4.3 SECTION @ ROOF
1" = 1'-0"



17 S4.3 SECTION @ ROOF
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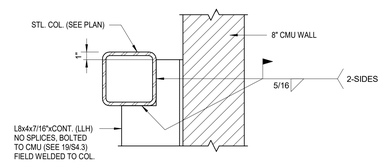

17B S4.3 SECTION @ ROOF
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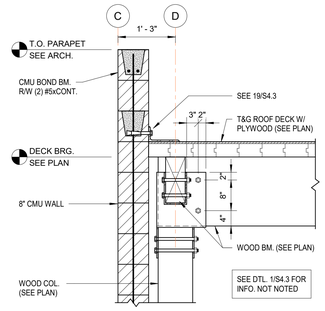

18 S4.3 SECTION @ ROOF
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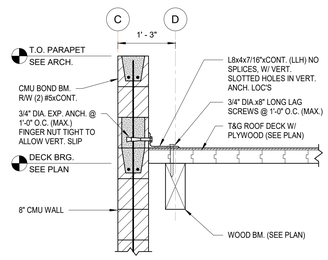
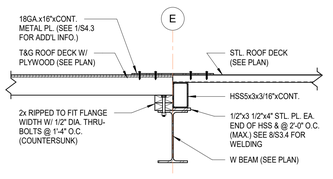


19 S4.3 SECTION @ ROOF
3/4" = 1'-0"



20 S4.3 SECTION @ ROOF
1" = 1'-0"

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project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

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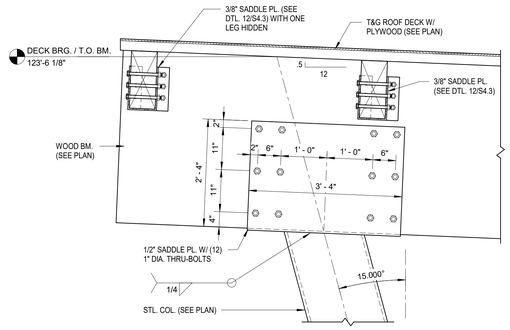
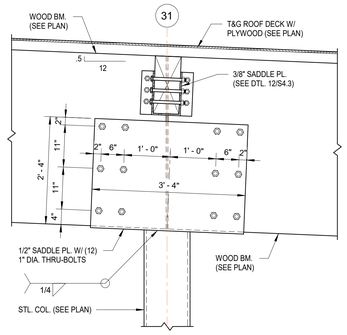
sheet title: FRAMING SECTIONS - DETAILS

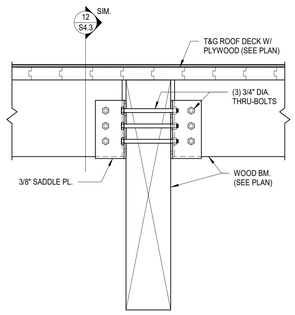
sheet number: S4.3



1 S4.4 SECTION @ ROOF
3/4" = 1'-0"



2 S4.4 SECTION @ ROOF
3/4" = 1'-0"



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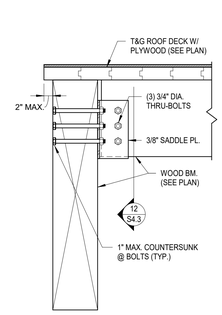

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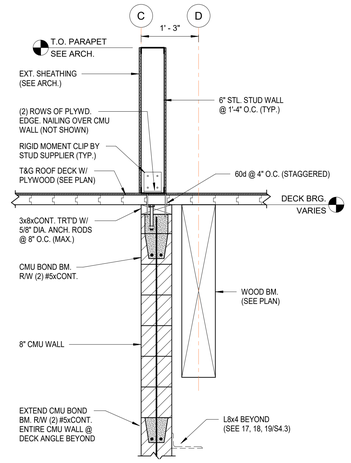
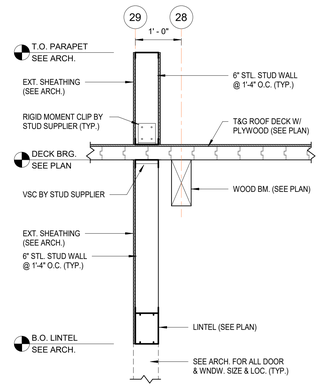
1" = 1'-0"



5 S4.4 SECTION @ ROOF
3/4" = 1'-0"



6 S4.4 SECTION @ ROOF
3/4" = 1'-0"

7 S4.4 SECTION @ ROOF
3/4" = 1'-0"

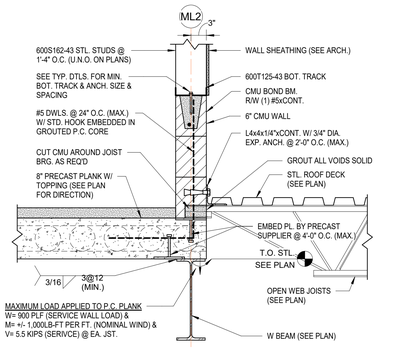
8 S4.4 SECTION @ ROOF
3/4" = 1'-0"

9 S4.4 SECTION @ ROOF
1" = 1'-0"

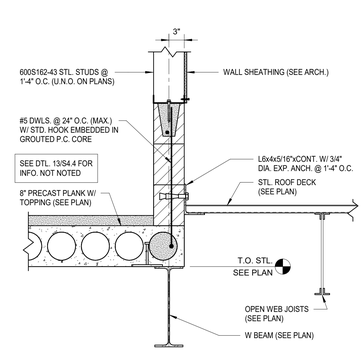
10 S4.4 SECTION @ ROOF
1 1/2" = 1'-0"

11 S4.4 SECTION @ ROOF
1 1/2" = 1'-0"

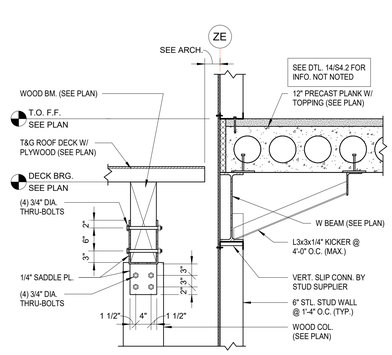
12 S4.4 SECTION @ FLOOR
1 1/2" = 1'-0"



13 S4.4 SECTION @ FLOOR / ROOF
1" = 1'-0"



14 S4.4 SECTION @ FLOOR / ROOF
1" = 1'-0"



15 S4.4 SECTION @ CANOPY
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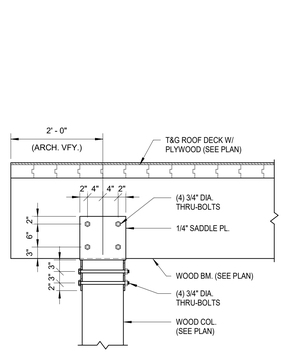
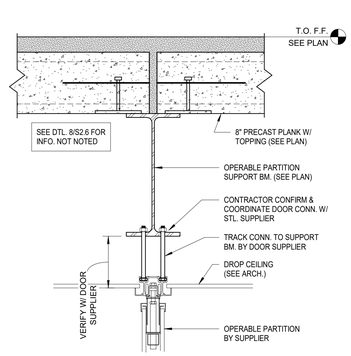


16 S4.4 SECTION @ CANOPY
3/4" = 1'-0"



17 S4.4 SECTION @ RESIDENT LIFT (CARE CENTER)
1 1/2" = 1'-0"

18 S4.4 SECTION @ ROOF
3/4" = 1'-0"

19 S4.4 SECTION @ ROOF
1" = 1'-0"

20 S4.4 SECTION @ ROOF
1 1/2" = 1'-0"

21 S4.4 SECTION @ ROOF
3/4" = 1'-0"

22 S4.4 SECTION @ ROOF
3/4" = 1'-0"

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project #: 22-538
date: 04-17-2023
drawn by: DWS
checked by: TDR

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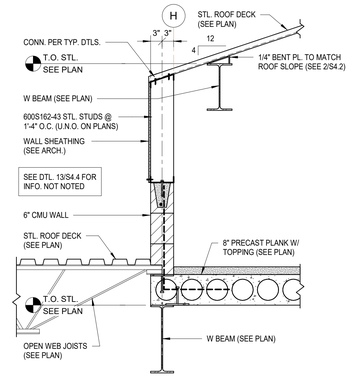
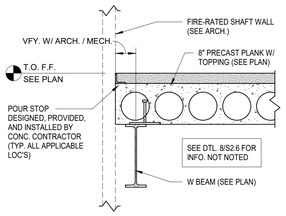


1 S4.5 SECTION @ FLOOR / ROOF
3/4" = 1'-0"



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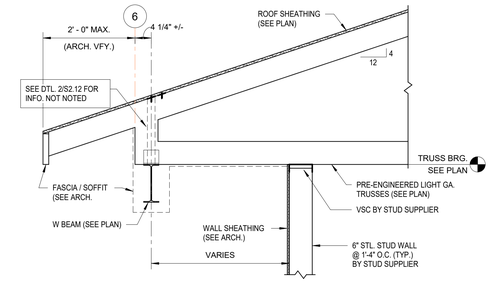
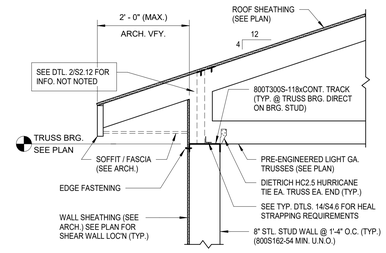
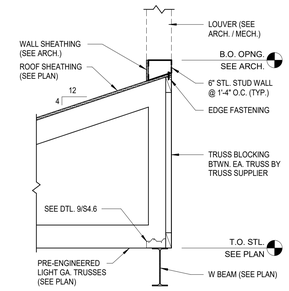


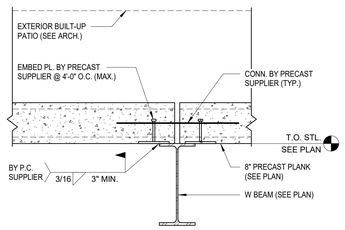
3 S4.5 SECTION @ ROOF
3/4" = 1'-0"



4 S4.5 SECTION @ ROOF
3/4" = 1'-0"



5 S4.5 SECTION @ ROOF
3/4" = 1'-0"



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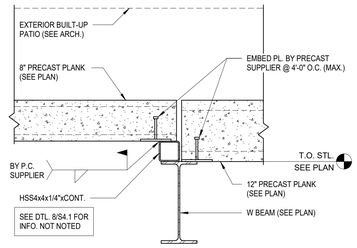

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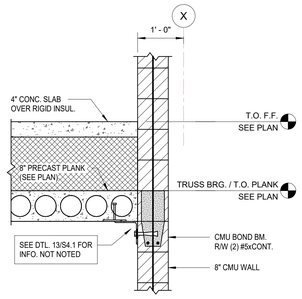

8 S4.5 SECTION @ ELEVATOR
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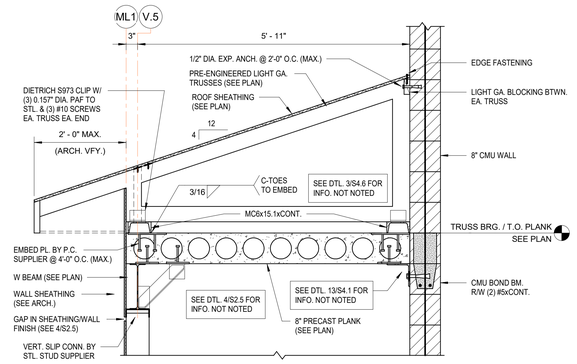
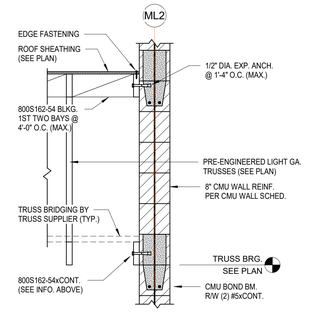
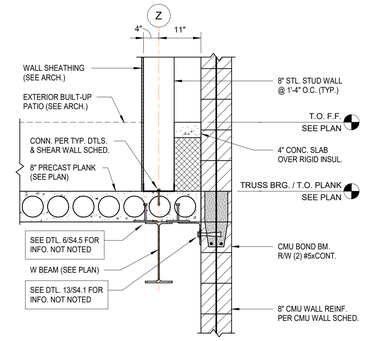


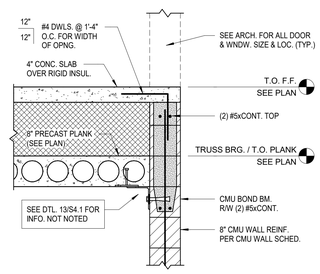
9 S4.5 SECTION @ ROOF
3/4" = 1'-0"



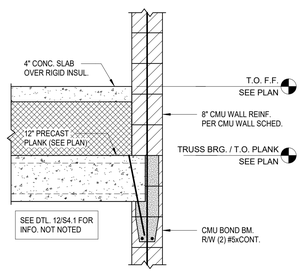
10 S4.5 SECTION @ ROOF
3/4" = 1'-0"



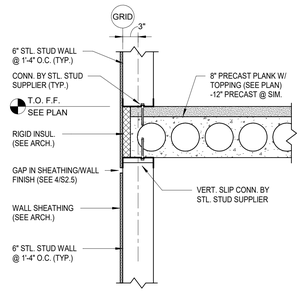
11 S4.5 SECTION @ ROOF / PATIO
3/4" = 1'-0"



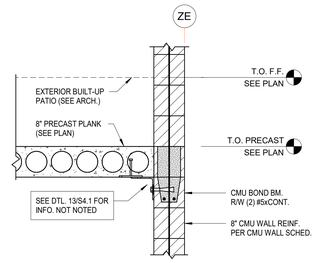
12 S4.5 SECTION @ ROOF / PATIO
3/4" = 1'-0"



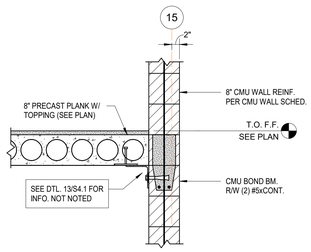
13 S4.5 SECTION @ ROOF / PATIO
3/4" = 1'-0"



14 S4.5 SECTION @ FLOOR
1" = 1'-0"



15 S4.5 SECTION @ ROOF / PATIO
3/4" = 1'-0"



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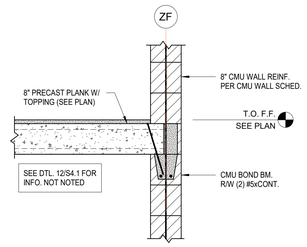

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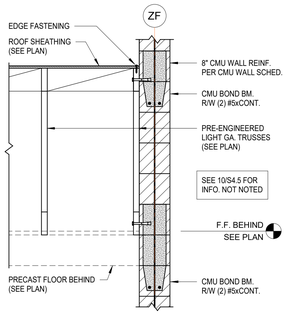
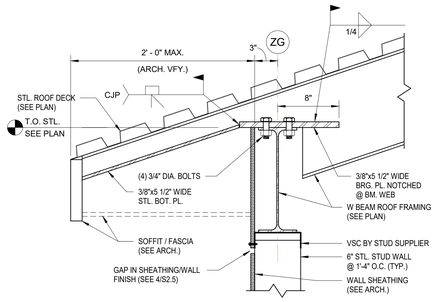
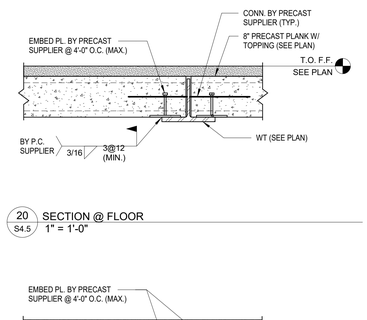
3/4" = 1'-0"



18 S4.5 SECTION @ ROOF
3/4" = 1'-0"



19 S4.5 SECTION @ ROOF
1 1/2" = 1'-0"



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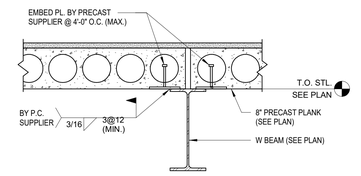

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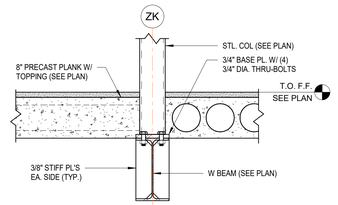

22 S4.5 SECTION @ FLOOR
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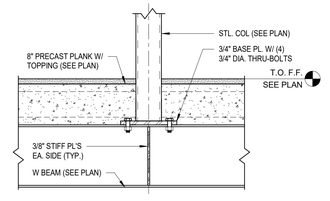
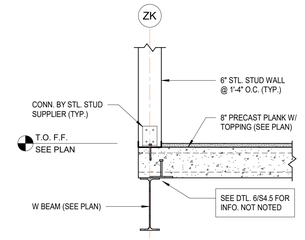


23 S4.5 SECTION @ FLOOR
1" = 1'-0"



24 S4.5 SECTION @ FLOOR
3/4" = 1'-0"

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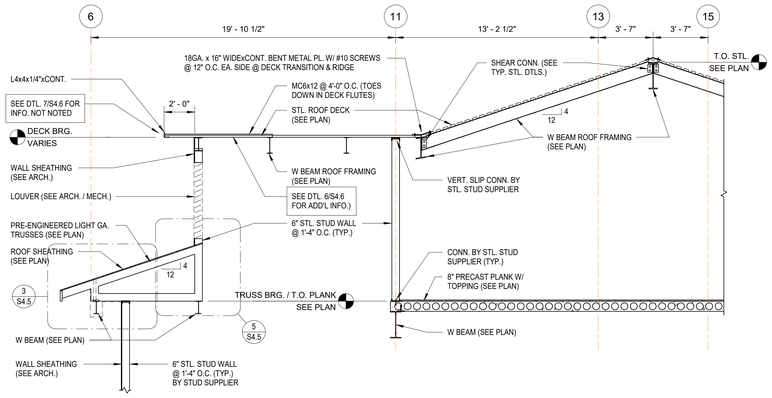
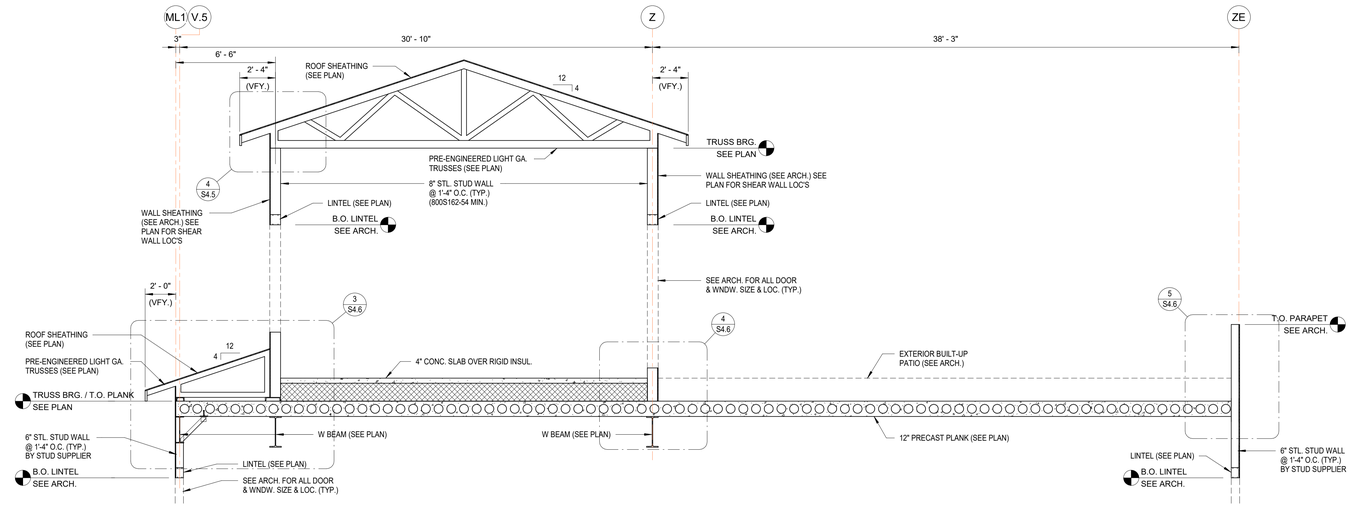
FRAMING SECTIONS - DETAILS

sheet title:

sheet number: S4.5



1 S4.6 SECTION @ ROOF
1/4" = 1'-0"



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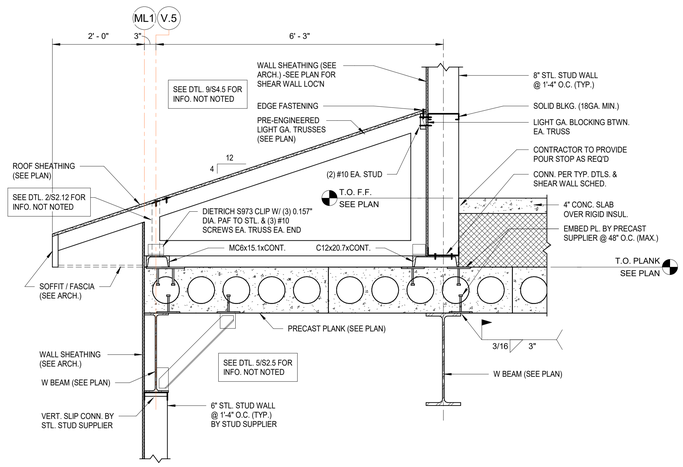
1/4" = 1'-0"



3 S4.6 SECTION @ ROOF
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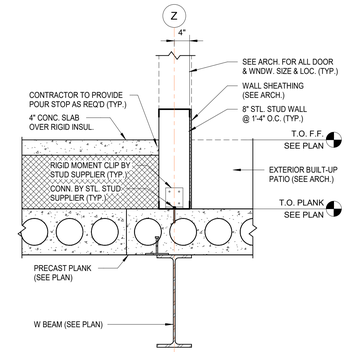
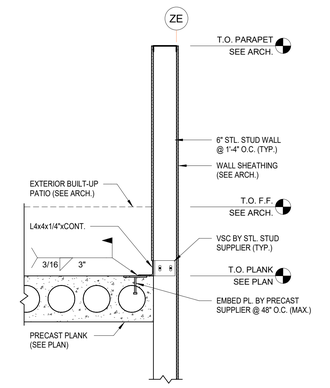


4 S4.6 SECTION @ ROOF / PATIO
3/4" = 1'-0"



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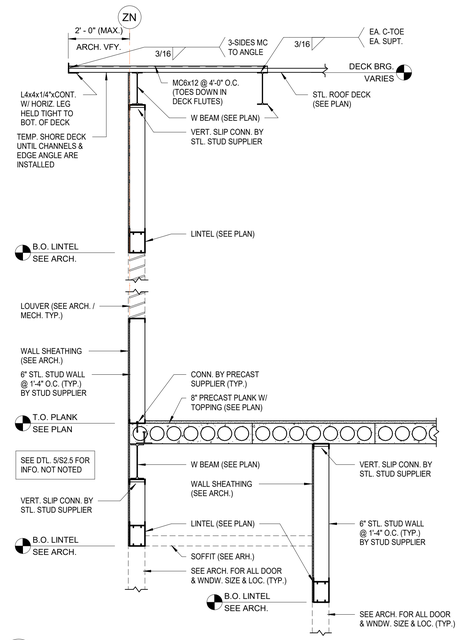

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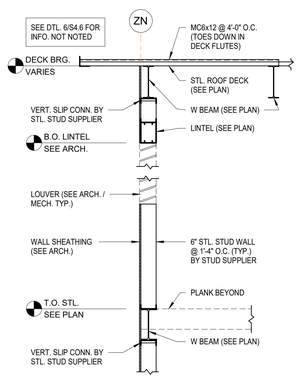
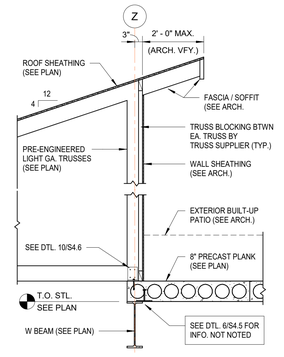
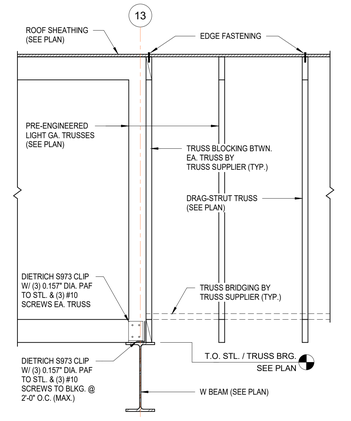
1/2" = 1'-0"



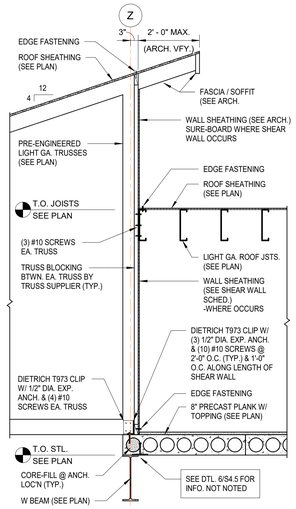
7 S4.6 SECTION @ ROOF
1/2" = 1'-0"



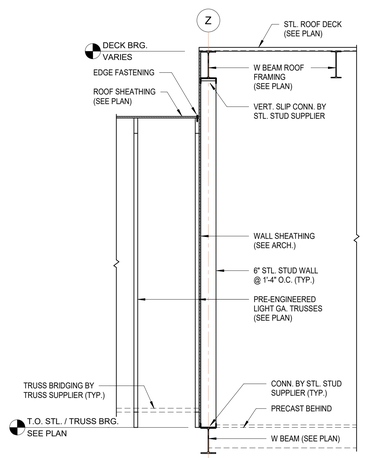
8 S4.6 SECTION @ ROOF / PATIO
1/2" = 1'-0"



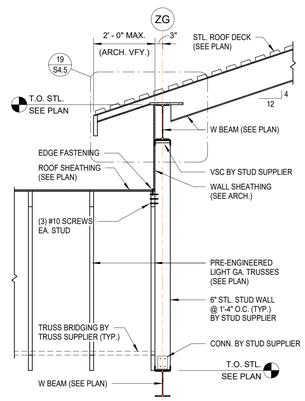
9 S4.6 SECTION @ ROOF
3/4" = 1'-0"



10 S4.6 SECTION @ ROOF
1/2" = 1'-0"



11 S4.6 SECTION @ ROOF
1/2" = 1'-0"



12 S4.6 SECTION @ ROOF
1/2" = 1'-0"

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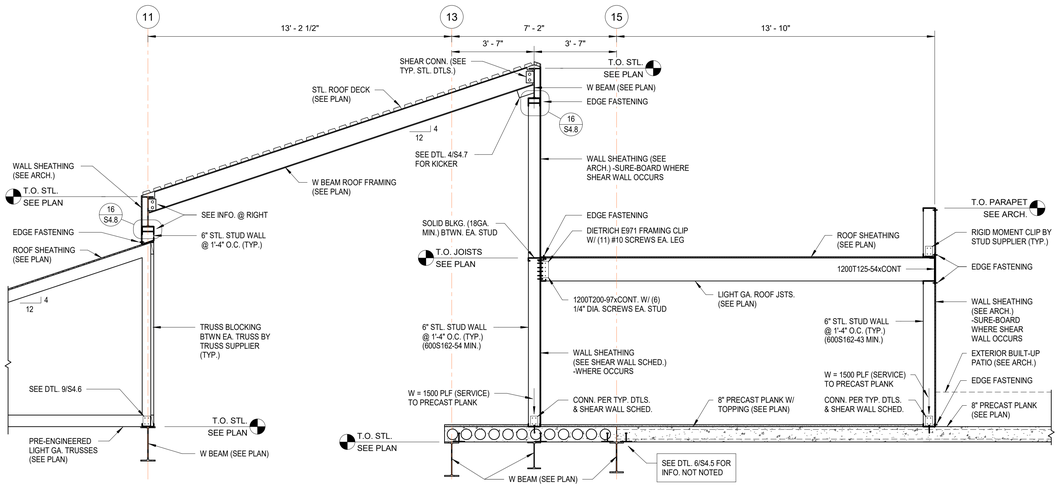
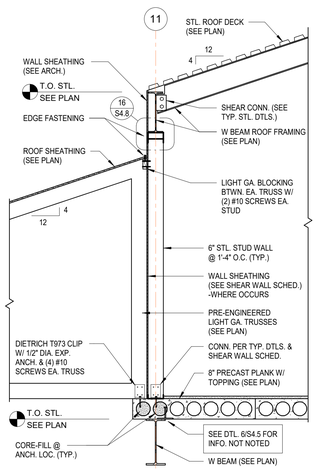


1 S4.7 SECTION @ ROOF
3/8" = 1'-0"



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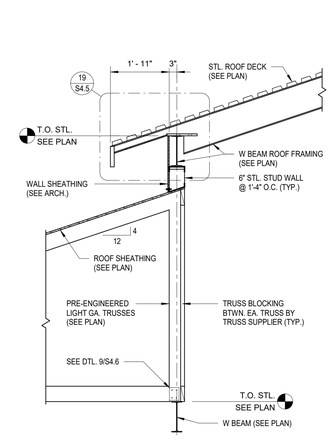

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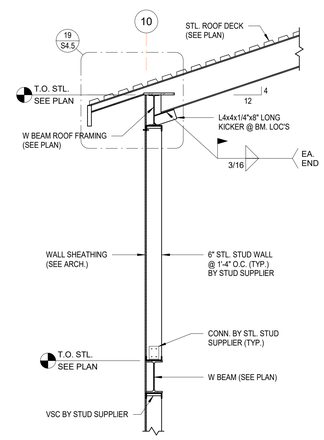
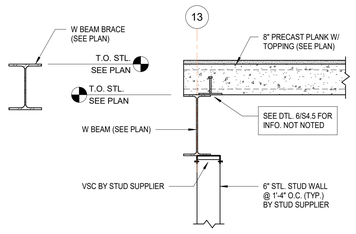


4 S4.7 SECTION @ ROOF
1/2" = 1'-0"



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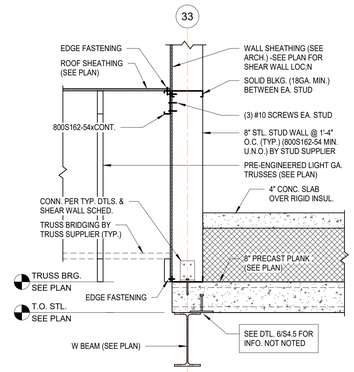

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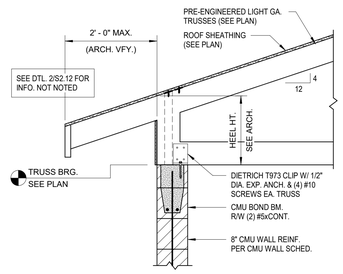
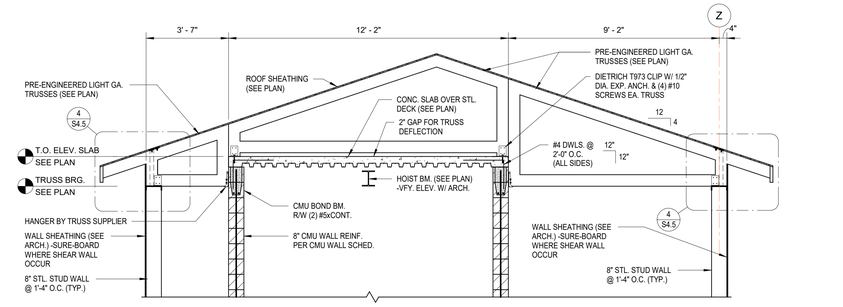
3/4" = 1'-0"



7 S4.7 SECTION @ ROOF
3/4" = 1'-0"



8 S4.7 SECTION @ ELEVATOR
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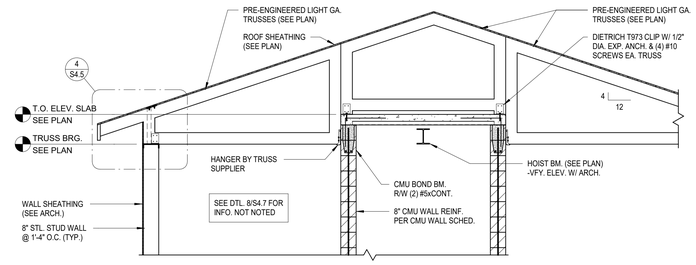
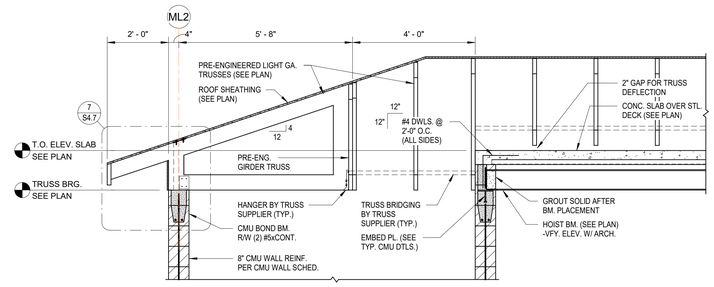
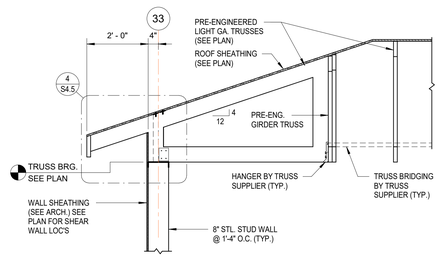


9 S4.7 SECTION @ ELEVATOR
3/8" = 1'-0"



10 S4.7 SECTION @ ELEVATOR
1/2" = 1'-0"



11 S4.7 SECTION @ ROOF
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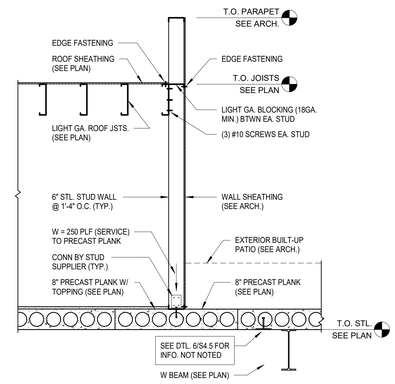
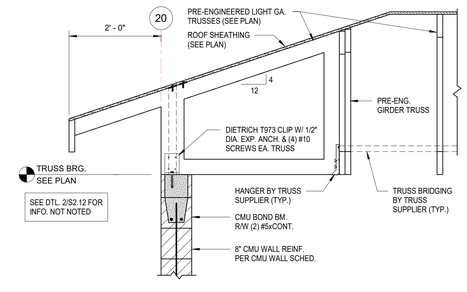


12 S4.7 SECTION @ ROOF
1/2" = 1'-0"



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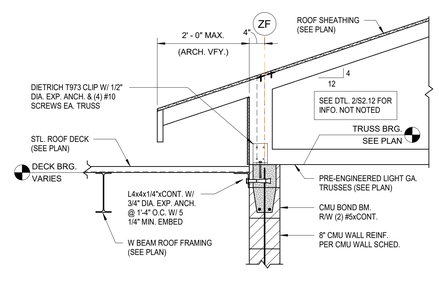
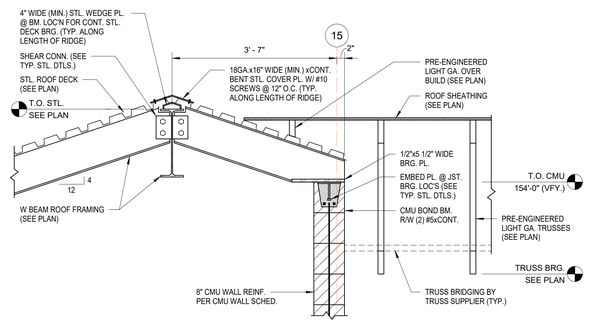
3/4" = 1'-0"



14 S4.7 SECTION @ ROOF
3/4" = 1'-0"



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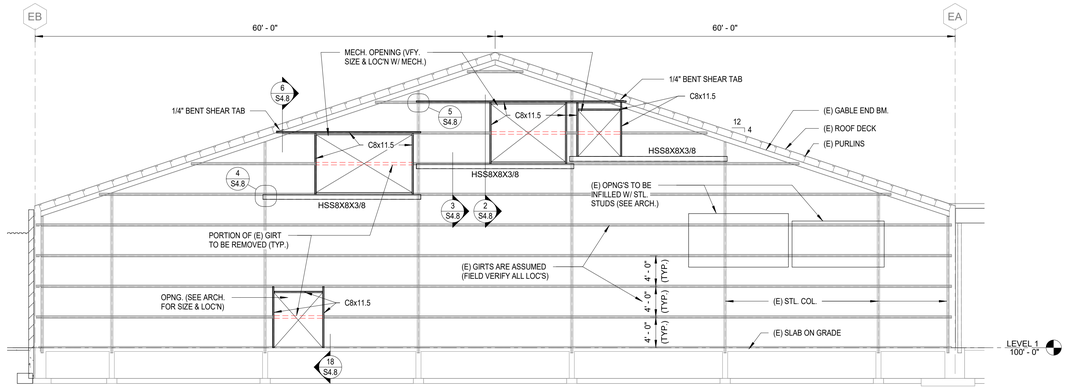
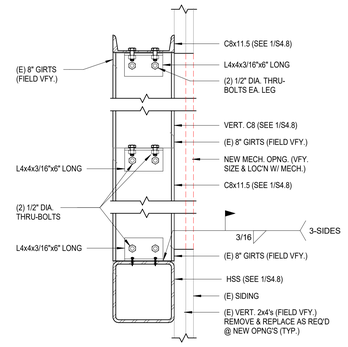


1 S4.8 EXISTING GABLE END WALL FRAMING
1/8" = 1'-0"



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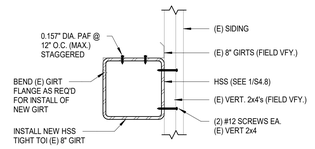

3 S4.8 SECTION @ NEW OPNG. IN EXIST. WALL
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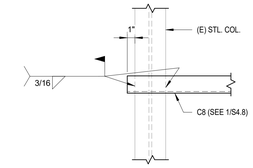

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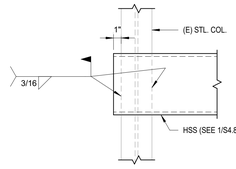

4 S4.8 SECTION @ NEW OPNG. IN EXIST. WALL
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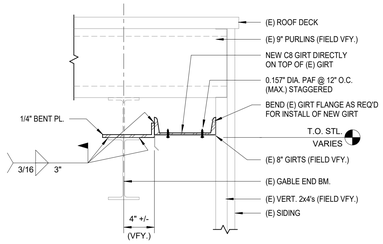
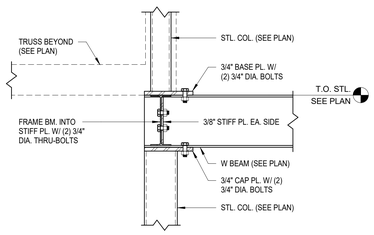


6 S4.8 SECTION @ NEW OPNG. IN EXIST. WALL
1 1/2" = 1'-0"



7 S4.8 SECTION @ ROOF
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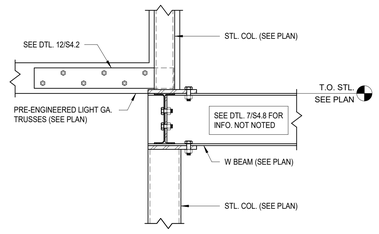

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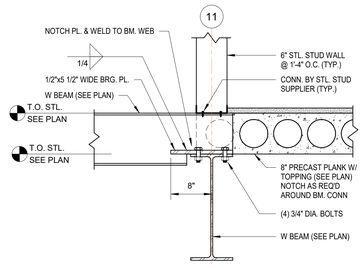

9 S4.8 SECTION @ ROOF
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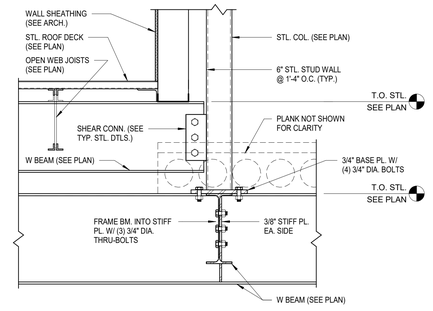
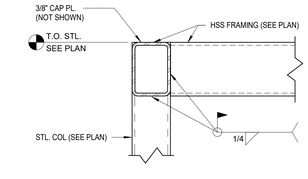
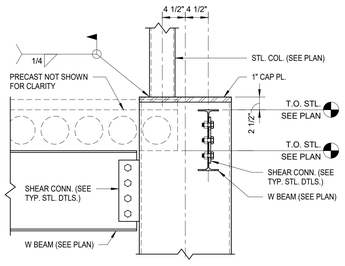


10 S4.8 SECTION @ ROOF
1" = 1'-0"



11 S4.8 SECTION @ ROOF
1 1/2" = 1'-0"



12 S4.8 SECTION @ ROOF
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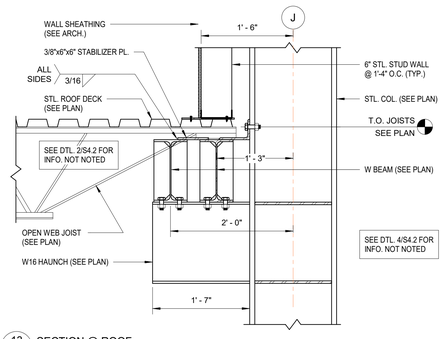

13 S4.8 SECTION @ ROOF
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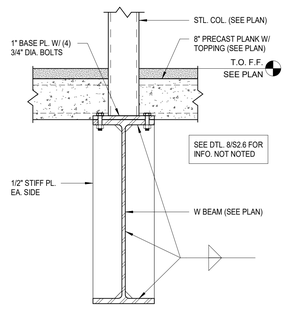

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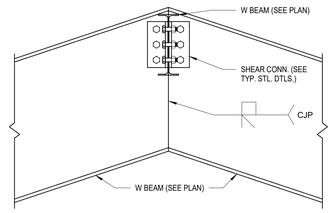

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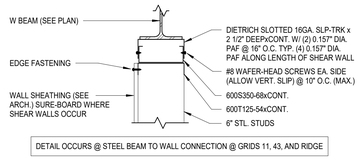

16 S4.8 SECTION @ ROOF
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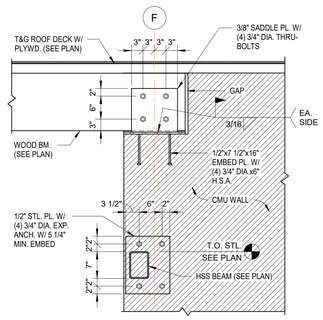
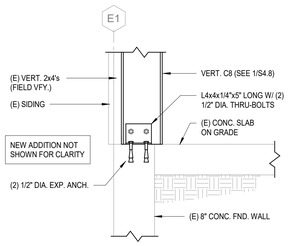


17 S4.8 SECTION @ ROOF
3/4" = 1'-0"



18 S4.8 SECTION @ FOUNDATION
1" = 1'-0"

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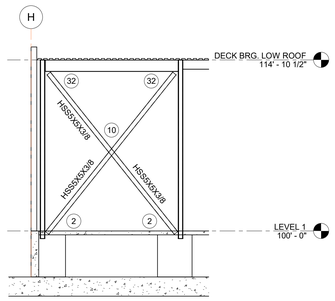
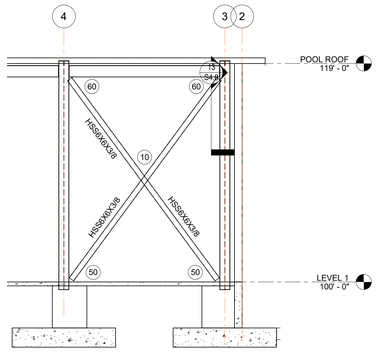
sheet title: FRAMING SECTIONS - DETAILS

sheet number: S4.8



1 S5.1 BRACE FRAME ELEVATION
3/16" = 1'-0"



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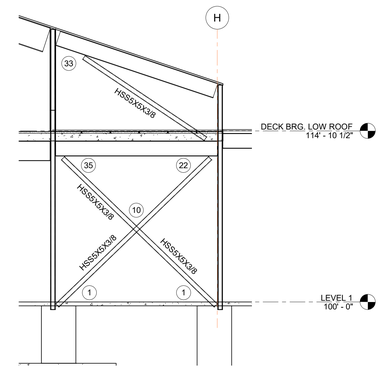

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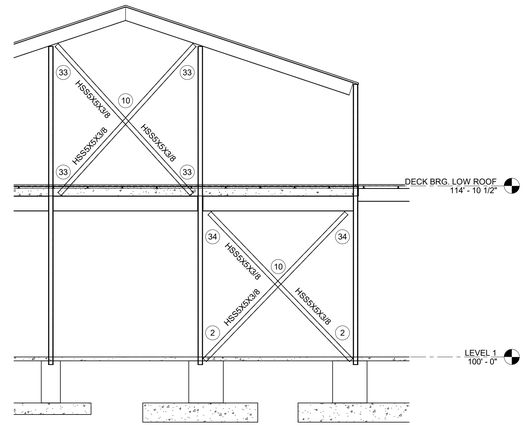

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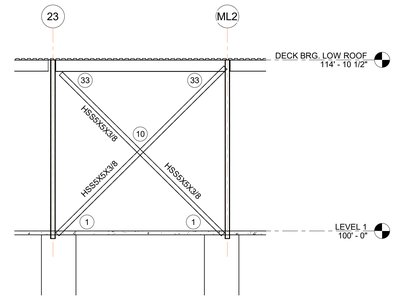
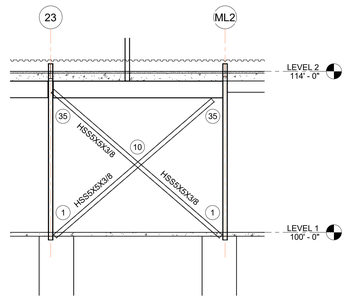


5 S5.1 BRACE FRAME ELEVATION
3/16" = 1'-0"



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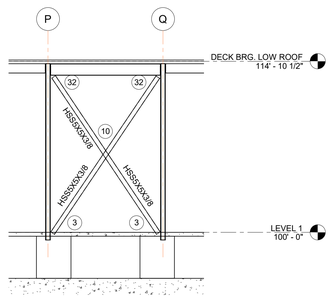
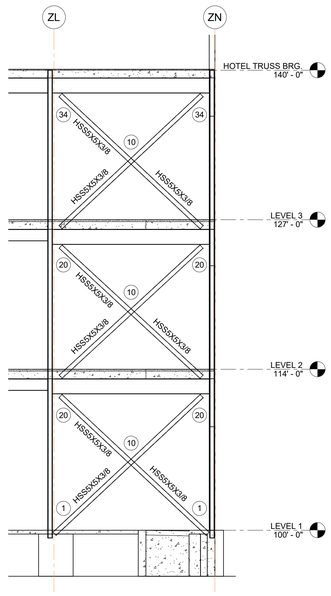
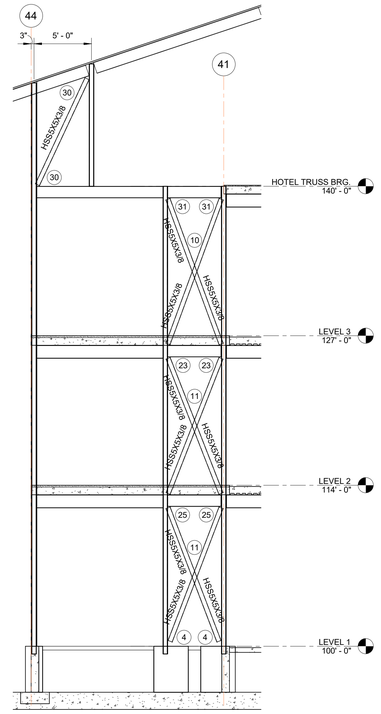
3/16" = 1'-0"



7 S5.1 BRACE FRAME ELEVATION
3/16" = 1'-0"



8 S5.1 BRACE FRAME ELEVATION
3/16" = 1'-0"



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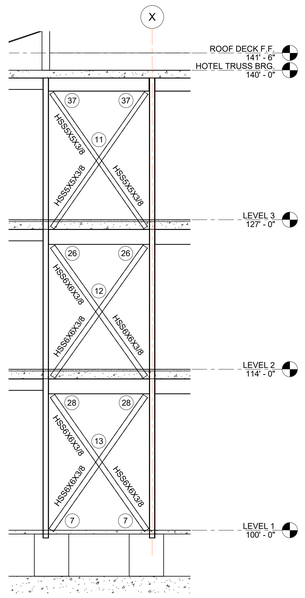
3/16" = 1'-0"



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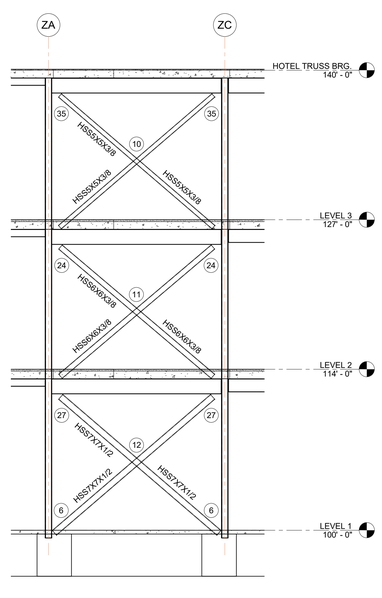
3/16" = 1'-0"



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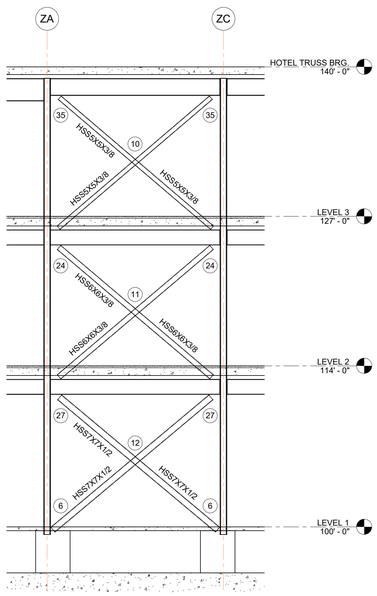
3/16" = 1'-0"



12 S5.1 BRACE FRAME ELEVATION
3/16" = 1'-0"

BRACED FRAME NOTES:

1. SEE FOUNDATION PLAN FOR PIERS, FOOTINGS & COLUMN SIZES.
2. SEE FLOOR & ROOF FRAMING PLANS FOR BEAM SIZES.
3. " (1) " INDICATES BRACED FRAME CONNECTION DETAILS. SEE SHEET S1.4

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6 APRIL 2023
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LICENSED PROFESSIONAL ENGINEER

printed name: Jon E. Aamodt
reg. #: 42272
sign date: 04-17-2023

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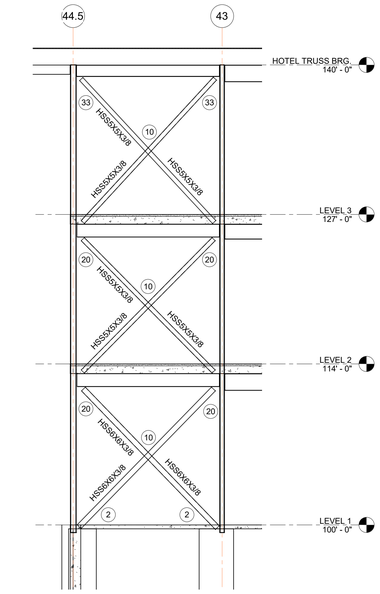
sheet number: S5.1



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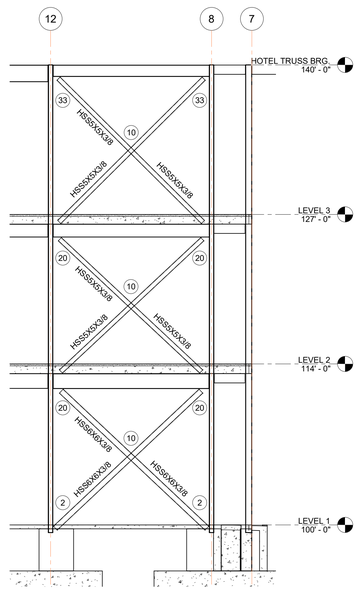

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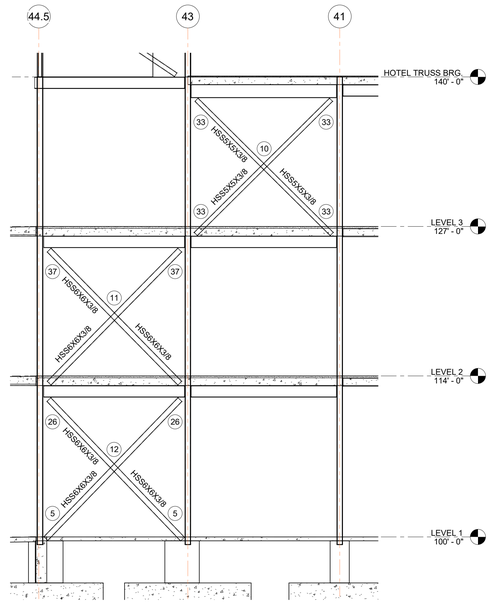

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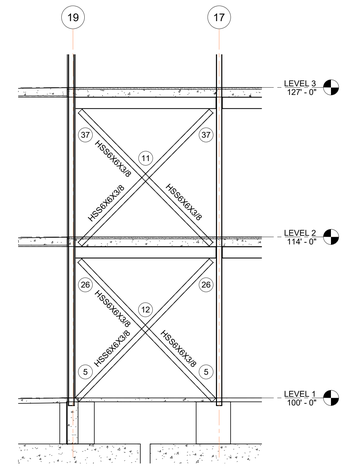

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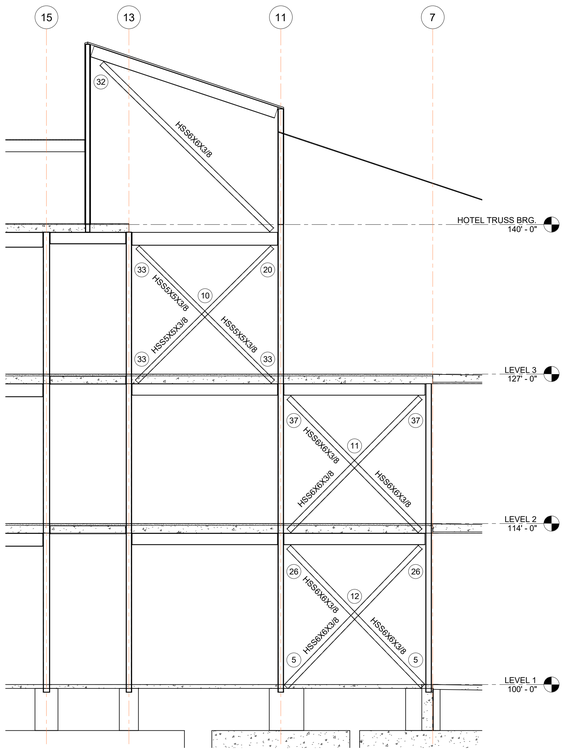
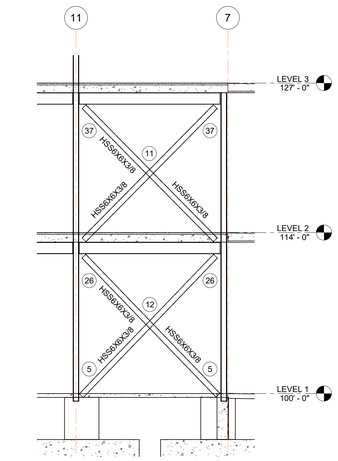
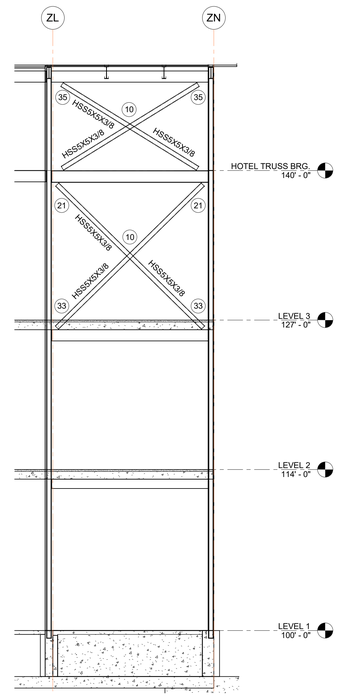


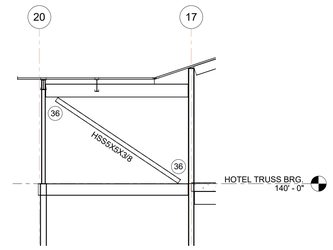
5 S5.2 BRACE FRAME ELEVATION
3/16" = 1'-0"



6 S5.2 BRACE FRAME ELEVATION
3/16" = 1'-0"



7 S5.2 BRACE FRAME ELEVATION
3/16" = 1'-0"



8 S5.2 BRACE FRAME ELEVATION
3/16" = 1'-0"

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sheet number: S5.2