

GENERAL NOTES

BUILDING CODE
THE 2021 EDITION OF THE "INTERNATIONAL BUILDING CODE (IBC), AS ADOPTED OR AMENDED BY THE LOCAL BUILDING OFFICIAL OR JURISDICTION, SHALL GOVERN DESIGN AND CONSTRUCTION.

ENGINEER
THE TERM "ENGINEER," "EOR," AND/OR "SE" AS USED IN THESE STRUCTURAL DOCUMENTS SHALL MEAN BRIENEN STRUCTURAL ENGINEERS, P.S.

REFERENCE STANDARDS
ALL WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE REFERENCE STANDARDS AND CODES INDICATED IN THE DRAWINGS UNLESS NOTED OTHERWISE. REFERENCE TO ASTM AND OTHER STANDARDS SHALL MEAN THE LATEST EDITION AS OF THE BID DATE OR DATE OF OWNER-CONTRACTOR AGREEMENT, WHICHEVER IS LATER, UNLESS NOTED IN THESE DOCUMENTS OR DESIGNATED BY THE BUILDING CODE.

PRIME CONTRACT DRAWINGS
THE ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL, AND LANDSCAPING, AMONG OTHERS, ARE SUPPLEMENTARY TO THE ARCHITECTURAL DRAWINGS. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS TO THE PRIME CONTRACT DRAWINGS, STRUCTURAL DRAWINGS, AND OTHER SUPPLEMENTARY DRAWINGS.

OMISIONS/CONFLICTS
CONTRACTOR SHALL VERIFY ALL DIMENSIONS, FLOOR ELEVATIONS, DEPRESSIONS, FINISHES, STAIR DETAILS, GUARDRAILS, AND ETC. WITH OTHER DISCIPLINES INCLUDING ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL DRAWINGS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.

TYPICAL DETAILS
TYPICAL DETAILS SHOWN ON THE DRAWINGS SHALL APPLY UNLESS NOTED OTHERWISE. SOME TYPICAL DETAILS ARE CUT OR OTHERWISE REFERENCED IN THE DRAWINGS HOWEVER MOST OR NOT. WHERE TYPICAL DETAILS ARE NOTED ON THE DRAWINGS THE SPECIFIC DETAIL SHALL BE USED. WHERE NO DETAIL IS NOTED IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO CHOOSE THE APPROPRIATE DETAIL FROM THOSE PROVIDED.

CONSTRUCTION MEANS AND METHODS AND SAFETY
CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS/METHODS AND FOR VERIFYING STRUCTURAL CAPACITY PRIOR TO APPLYING CONSTRUCTION LOADING. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY AT THE SITE AND FOR PROVIDING THE STRENGTH AND STABILITY OF ALL PARTIALLY COMPLETED STRUCTURE CONFORMING TO ASCE 37 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION."

DESIGN CRITERIA

BUILDING CATEGORY:
STRUCTURAL RISK CATEGORY II

GRAVITY LOADS - BATTERY ROOM MAINTENANCE ACCESS CEILING
DEAD LOADS 20 PSF UNIFORM TOTAL (INCLUDES 8PSF FOR MEP)
LIVE LOADS 40 PSF UNIFORM (MAINTENANCE ACCESS)

SEISMIC LOADS
SITE CLASS = D (ASSUMED)
MAPPED SPECTRAL RESPONSE PARAMETERS
 $S_{D1} = 1.257 g$; $S_1 = 0.434 g$
 $S_{D2} = 1.006 g$; $S_{D1} = N/A$

ANALYSIS TYPE = SEISMIC DESIGN REQUIREMENTS OF ARCHITECTURAL COMPONENTS (ASCE 7-16, SECTION 13.5)

INTERIOR WALLS AND BATTERY ROOM CEILING
 $R_w = 1.0$
 $R_p = 2.5$
 $D_s = 2.0$
TOTAL SEISMIC WEIGHT, W = 12.7 KIPS
TOTAL SEISMIC FORCE (LRFD), F_p = 3.3 KIPS

REFERENCE STANDARDS

COLD-FORMED STEEL STANDARDS
SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
AISI S100-18(2020) w/ S2-20 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
AISI S202-20 - CODE OF STANDARD PRACTICE FOR COLD-FORMED STEEL STRUCTURAL FRAMING
AISI S220-20 - NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL NONSTRUCTURAL FRAMING
AISI S240-20 - NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL STRUCTURAL FRAMING
AISI S400-20 - NORTH AMERICAN STANDARD FOR SEISMIC DESIGN OF COLD-FORMED STEEL STRUCTURAL SYSTEMS

COLD-FORMED STEEL MATERIAL CRITERIA

MATERIAL
COLD-FORMED STEEL MATERIAL SHALL BE MANUFACTURED AND FORMED, PER ASTM A1009/A1009M FROM GALVANIZED ASTM A653 SS GRADE 50 STEEL FOR 54, 68 AND 97 MIL BASE THICKNESS MATERIAL, AND FROM GALVANIZED ASTM A653 SS GRADE 33 MATERIAL FOR 43 AND 33 MIL BASE THICKNESS MATERIAL, UNO, WHERE NOTED, PAINTED COLD-FORMED STEEL MATERIAL SHALL CONFORM TO ASTM A570 SS GRADE 80. MINIMUM COLD-FORMED STEEL ACCEPTANCE CRITERIA SHALL BE PER ICC-ES AC46.

COLD-FORMED STEEL FRAMING
ALL COLD-FORMED STEEL FRAMING SHALL BE IN ACCORDANCE WITH AISI "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS," AS AMENDED BY THE INTERNATIONAL BUILDING CODE AND SHALL STRICTLY CONFORM WITH ICC REPORT ER-4943P.

ALL COLD-FORMED STEEL PRODUCTS SHALL BE MANUFACTURED BY CURRENT MEMBERS OF THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA). MATERIAL DESIGNATIONS NOTED ON THE DRAWINGS, RELATING TO MEMBER TYPES AND SIZES OR MISCELLANEOUS FRAMING ITEMS, REFER TO PRODUCT IDENTIFICATION STANDARDS ADOPTED BY THE SSMA.

INSTALLATION
EACH JOIST, RAFTER, TRUSS AND STRUCTURAL WALL STUDS SHALL BE ALIGNED WITHIN 3/4" FROM CENTERLINE OF HORIZONTAL FRAMING MEMBER TO CENTERLINE OF VERTICAL FRAMING MEMBER, UNO, OR AS SPECIFIED IN FIGURE C1-1 OF THE AISI STANDARD "NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS". STRUCTURAL FRAMING MEMBERS SHALL BE INSTALLED PER ASTM C1007 AND NON-STRUCTURAL FRAMING MEMBERS PER ASTM C754.

CONCRETE BEARING SURFACES AT STRUCTURAL FRAMING SHALL PROVIDE A UNIFORM BEARING SURFACE WITH A MAXIMUM 1/4" GAP BETWEEN THE TRACK AND THE CONCRETE. STEEL BEARING SHIMS OR NON-SHRINK GROUT CAN BE USED TO ACHIEVE THIS REQUIREMENT. THE BOTTOM TRACK OF LOAD BEARING WALLS SHALL NOT EXTEND OVER THE EDGE OF FORMED CONCRETE BEARING SURFACES BELOW.

COLD-FORMED STEEL SHALL NOT BE IN DIRECT CONTACT WITH THE GROUND UNLESS NOTED OTHERWISE.

SCREWS
FOR STEEL-TO-STEEL CONNECTIONS AND FOR STRUCTURAL SHEATHING-TO-STEEL CONNECTIONS SHALL BE SELF-TAPPING, SELF-DRILLING FASTENERS IN COMPLIANCE WITH ASTM C1513 AND SHALL HAVE A TYPE II COATING IN ACCORDANCE WITH ASTM B633 "ELECTRO-DEPOSITED COATING OF ZINC ON IRON AND STEEL." SELF-PIERCING SCREWS PER ASTM C1002 ARE PERMITTED FOR CONNECTION OF .33 MILS STEEL OR THINNER. THE SCREW MANUFACTURER SHALL PROVIDE VERIFICATION OF THE FASTENERS' RESISTANCE TO HYDROGEN EMBRITTLEMENT. SCREWS SHALL CONFORM TO SA6178 "STANDARD SPECIFICATION FOR SELF-DRILL TAPPING SCREWS". SCREW ACCEPTANCE SHALL BE BASED ON ICC-ES AC118 "ACCEPTANCE CRITERIA FOR TAPPING SCREW FASTENERS".

SCREW CONNECTIONS SHALL BE IN COMPLIANCE WITH THE AISI STANDARD "NORTH AMERICAN STANDARD FOR COLD-FORMED STEEL FRAMING - GENERAL PROVISIONS, 2007 EDITION". SCREW CONNECTIONS SHALL BE MADE FROM THE LIGHTER MATERIAL INTO THE THICKER MATERIAL, UNO. SCREWS SHALL EXTEND THROUGH THE STEEL CONNECTION A MINIMUM OF THREE EXPOSED THREADS AND SHALL HAVE MINIMUM CENTER-TO-CENTER SPACING AND EDGE DISTANCES OF THREE TIMES THE NOMINAL SCREW DIAMETER. SCREWS SHALL BE INSTALLED AND TIGHTENED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AND SHALL NOT CAUSE PERMANENT SEPARATION BETWEEN COMPONENTS. SHEATHING FASTENERS SHALL MAINTAIN A MINIMUM 3/8" EDGE DISTANCE IN SHEATHING AND SHALL HAVE THEIR HEADS FLUSH WITH THE SHEATHING (BUT NO MORE THAN 1/16" BELOW THE SURFACE OF THE SHEATHING).

STRIPPED SCREWS IN DIRECT TENSION SHALL BE CONSIDERED INEFFECTIVE AND SHALL BE REPLACED. STRIPPED SCREWS IN SHEAR THAT CONSTITUTE MORE THAN 25% OF THE TOTAL SCREWS IN THE CONNECTION SHALL BE CONSIDERED INEFFECTIVE AND SHALL BE REPLACED. STRIPPED SCREWS ARE PERMITTED TO BE REMOVED AND REPLACED WITH SCREWS OF THE NEXT LARGER DIAMETER.

MINIMUM SCREW SIZES IN COLD-FORMED STEEL TABLE	
CONNECTION	MINIMUM SCREW SIZE
METAL TO METAL (68 MILS)	#10-16 (#3 POINT)
METAL TO METAL (33 MILS - 54 MILS)	#8-18 (#2 POINT)
APA SHEATHING (PLYWOOD)	#8-18 (#2 POINT) FLAT HEAD w/ 0.292"x3" HEAD MIN
GWB OR GYPSUM SHEATHING	#6 x 1" (#2 POINT) DRYWALL
SIMPSON HARDWARE	PER SIMPSON CATALOG

COLD FORMED STEEL CONNECTORS
COLD-FORMED STEEL CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY THE SIMPSON STRONG-TIE COMPANY. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER, LENGTH, TYPE, AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. FILL ALL HOLES WITH FASTENERS AS SPECIFIED BY THE MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

CONCRETE SCREW-TYPE ANCHORS
SCREW-TYPE ANCHORS INTO CONCRETE SHALL BE "HILTI KH-EZ" INSTALLED PER ICC REPORT NUMBER ESR-3027 OR "SIMPSON TITEN HD" INSTALLED PER ICC REPORT NUMBER ESR-2713.

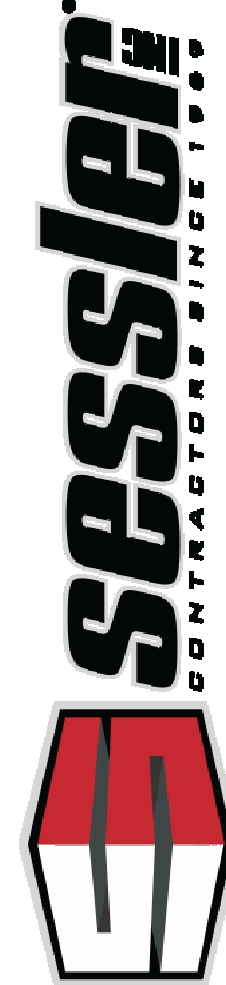
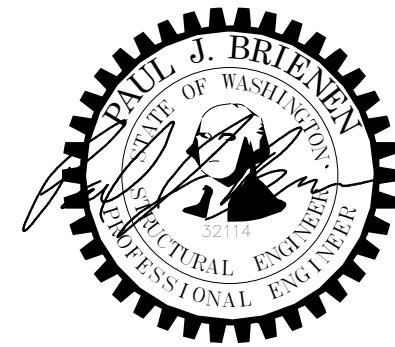
COLD-FORMED STEEL FRAMING NOTES

INTERIOR PARTITION FRAMING SCHEDULE NOTES

- FULLY-SHEATH EACH FACE OF STUDS FULL-HEIGHT OR PROVIDE BRIDGING/BRACING AT 48" OC MAX UNLESS NOTED OTHERWISE. STUD TYPES DENOTED AS "COMPOSITE" IN WALL SCHEDULES SHALL BE FULLY-SHEATHED ON EACH FACE OF STUDS FULL-HEIGHT PER RECOMMENDATIONS AND REQUIREMENTS BY THE STUD MANUFACTURER. WHERE WALLS ARE NOT FULLY-SHEATHED FULL-HEIGHT, STUD TYPES DENOTED AS "COMPOSITE" SHALL NOT BE USED.
- ALL STUDS SHALL FULLY BEAR ON BOTTOM TRACK -- SHIM WHERE NECESSARY.
- TOP/BOTTOM TRACK PENETRATIONS OR CLIPPED FLANGES UP TO 2/3" TRACK WIDTH ARE STRUCTURALLY ACCEPTABLE WHEN 16" CLEAR FROM ANY JAMB STUDS. ADD ANCHOR ON EITHER SIDE OF OPENING IF PAF IS INTERRUPTED. WALL STUDS, CRIPPLE STUDS, JAMBS, HEADERS AND SILLS SHALL NOT BE SPICED.
- ALL COLD-FORMED STEEL STUDS, TRACKS AND LIGHT GAGE ANGLES SHALL CONFORM TO ASTM A653 SS GRADE 50 (Fy=50KSI) FOR 118, 97, 68 AND 54 MILS MEMBERS AND ASTM A653 SS GRADE 33 (Fy=30KSI) FOR 43 MILS AND LIGHTER MEMBERS. EXCEPTION: MEMBERS WITH "SFS" AND "SFT" DESIGNATIONS SHALL BE "SUPREME" MEMBERS AS MANUFACTURED BY SCAFCO AND CONFORM TO ASTM A653 SS GRADE 50 MOD 57 (Fy=57KSI). "VXS" AND "VXT" MEMBERS SHALL "VIPER-X" MEMBERS AS MANUFACTURED BY CEMCO AND CONFORM TO ASTM A653 SS (Fy= 57KSI).
- SHOTPIPS SHALL BE ONE OF THE FOLLOWING UNLESS NOTED OTHERWISE:
 - HILTI X-U POWDER-ACTUATED FASTENERS (PAF), EMBEDDED 3/4" INTO CONCRETE. INSTALL FASTENERS PER REQUIREMENTS FROM ICC-ES REPORT ESR-2289 AND ALL MANUFACTURER RECOMMENDATIONS.
 - HILTI X-GHP GAS-ACTUATED FASTENERS, EMBEDDED 5/8" INTO CONCRETE. INSTALL FASTENERS PER REQUIREMENTS FROM ICC-ES REPORT ESR-1752 AND ALL MANUFACTURER RECOMMENDATIONS.
 - HILTI X-P B3 ELECTROMECHANICAL-DRIVEN FASTENERS, EMBEDDED 5/8" INTO CONCRETE. INSTALL FASTENERS PER REQUIREMENTS FROM ICC-ES REPORT ESR-1752 AND ALL MANUFACTURER RECOMMENDATIONS.
 - SHOTPIPS INSTALLED IN STRUCTURAL STEEL SHALL BE DRIVEN TO WHERE THE POINT OF THE FASTENER PENETRATES THE STEEL BASE MATERIAL.
- FOR ALL SHOTPIPS UNLESS NOTED OTHERWISE:
 - MINIMUM SPACING IN CONCRETE SHALL BE 4" OC.
 - MINIMUM EDGE DISTANCE IN CONCRETE SHALL BE 3".
 - MINIMUM SPACING IN STEEL SHALL BE 1 1/2" OC.
 - MINIMUM EDGE DISTANCE IN STEEL SHALL BE 1/2".
- CONCRETE SCREWS SHALL BE HILTI KWIK-CON II+ HEX WASHER HEAD. SEE DETAILS FOR REQUIRED EMBEDMENTS. ALL DRILLING IN CONCRETE SHALL CONFORM TO REQUIREMENTS BY BUILDING ENGINEERING OF RECORD. DO NOT DAMAGE REINFORCING.
- SHEET-METAL SCREWS (SMS) SHALL BE SELF-TAPPING, SELF-DRILLING FASTENERS IN COMPLIANCE WITH ASTM C1513 AND SHALL HAVE A TYPE II COATING IN ACCORDANCE WITH ASTM B633.
- ANCHOR TOP TRACKS AND BOTTOM TRACKS TO SUPPORTING STRUCTURE PER SCHEDULE. ALL SUPPORTING STRUCTURES SHALL BE REVIEWED BY OTHERS FOR LOADS IMPOSED BY NEW METAL STUD FRAMING.
- AT FIREPROOFING IT IS ACCEPTABLE TO INSTALL TOP TRACK DIRECTLY TO FIREPROOFING AS LONG AS NO MORE THAN 1/4" GAP PERSISTS BETWEEN TRACK AND STRUCTURAL SUPPORT.
- IF IS STRUCTURALLY ACCEPTABLE TO USE A THICKER FRAMING MEMBER PROVIDED THE WEB SIZE REMAINS UNCHANGED AND FLANGE SIZE REMAINS UNCHANGED OR IS INCREASED.

CEILING JOIST FRAMING NOTES:

- THE



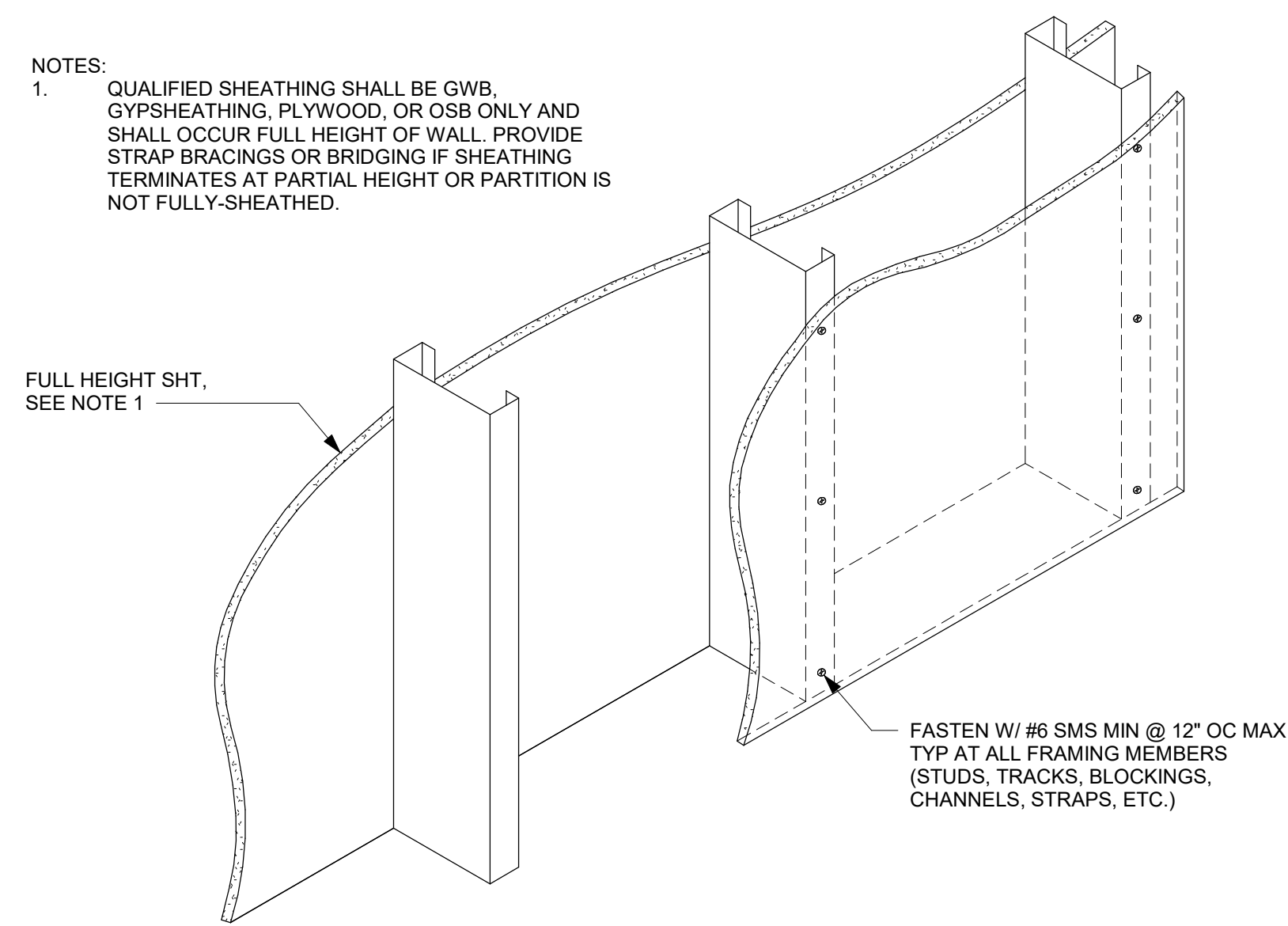
CENTERIS VOLTAGE PARK 173 BATTERY ROOM EXPANSION

1023 39TH AVENUE SOUTH EAST
PUYALLUP WA 98374

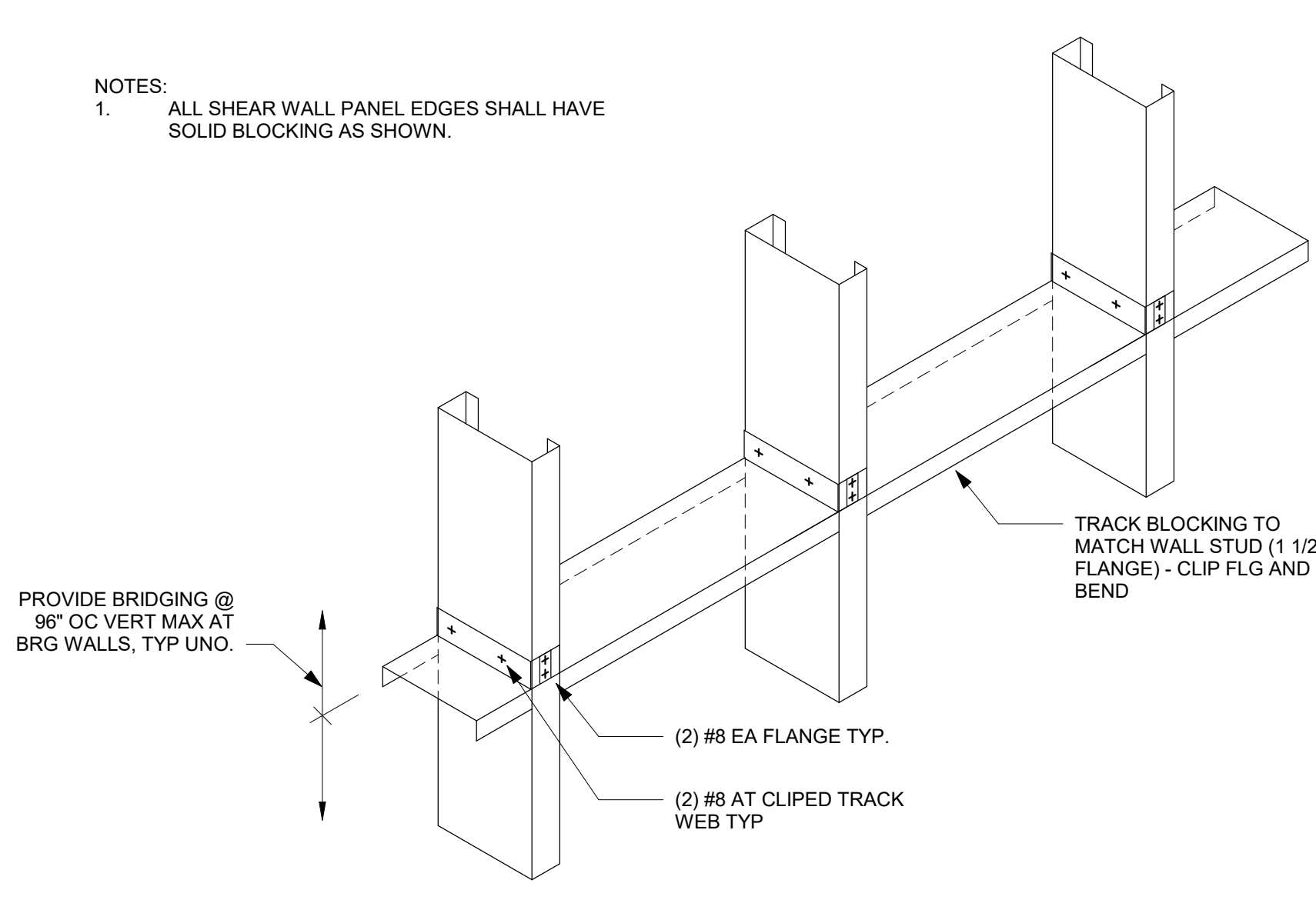
Δ Issue	Date
For Approval	10/10/2025
Job #	25212
Drawn	BJB
Checked	PJB

INTERIOR TYPICAL DETAILS

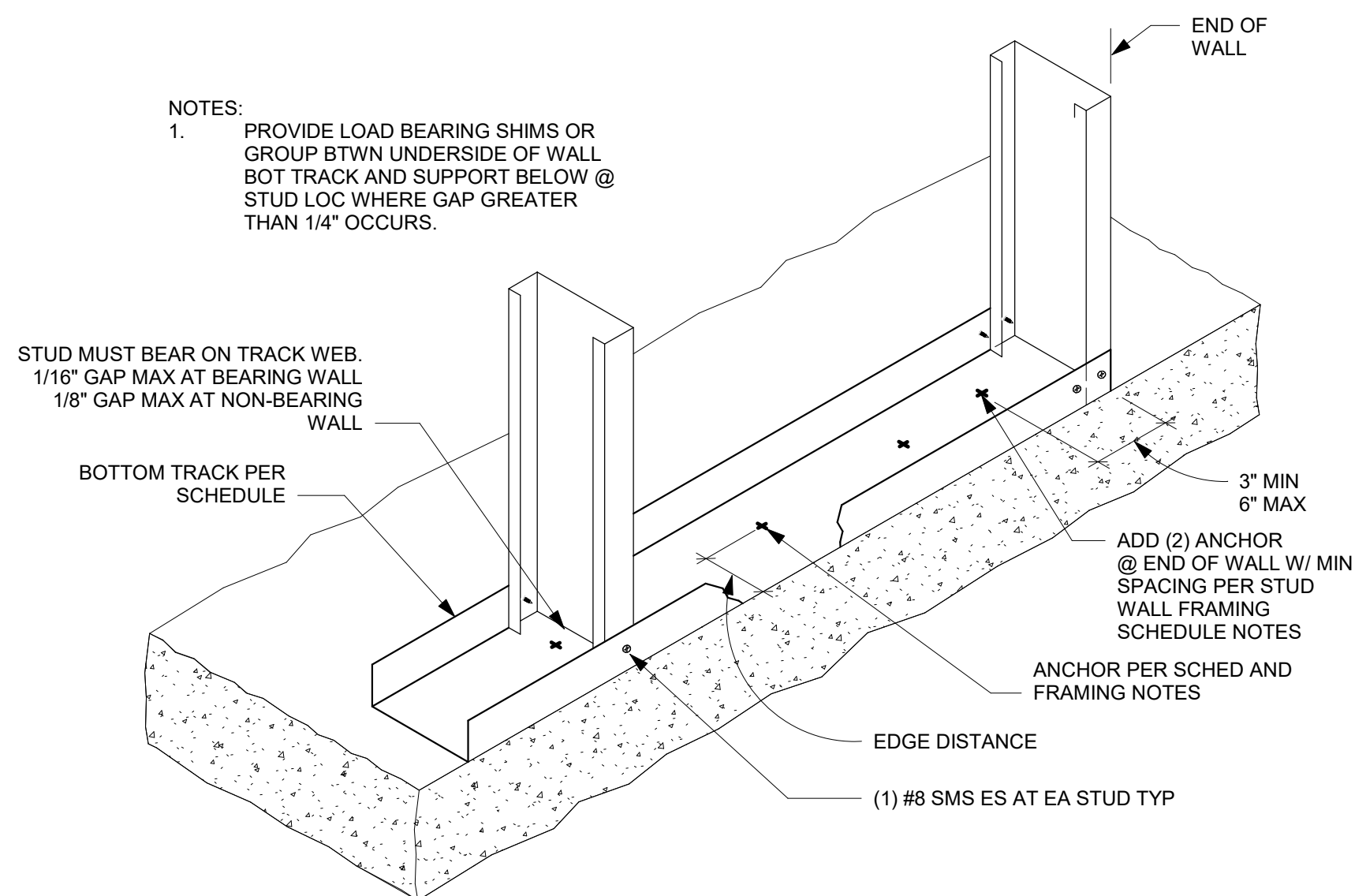
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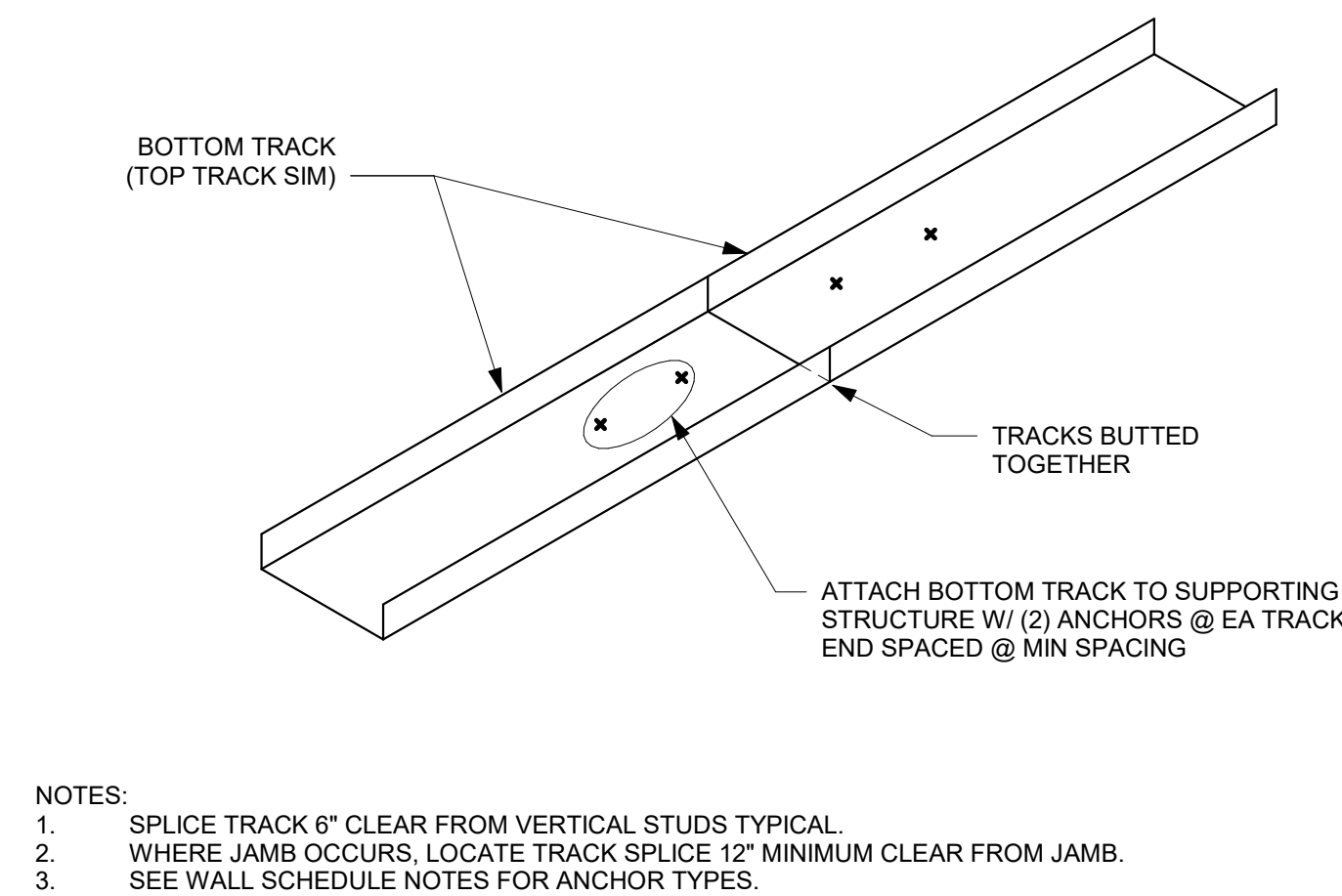
1 TYPICAL SHEATHINGS AT PARTITIONS



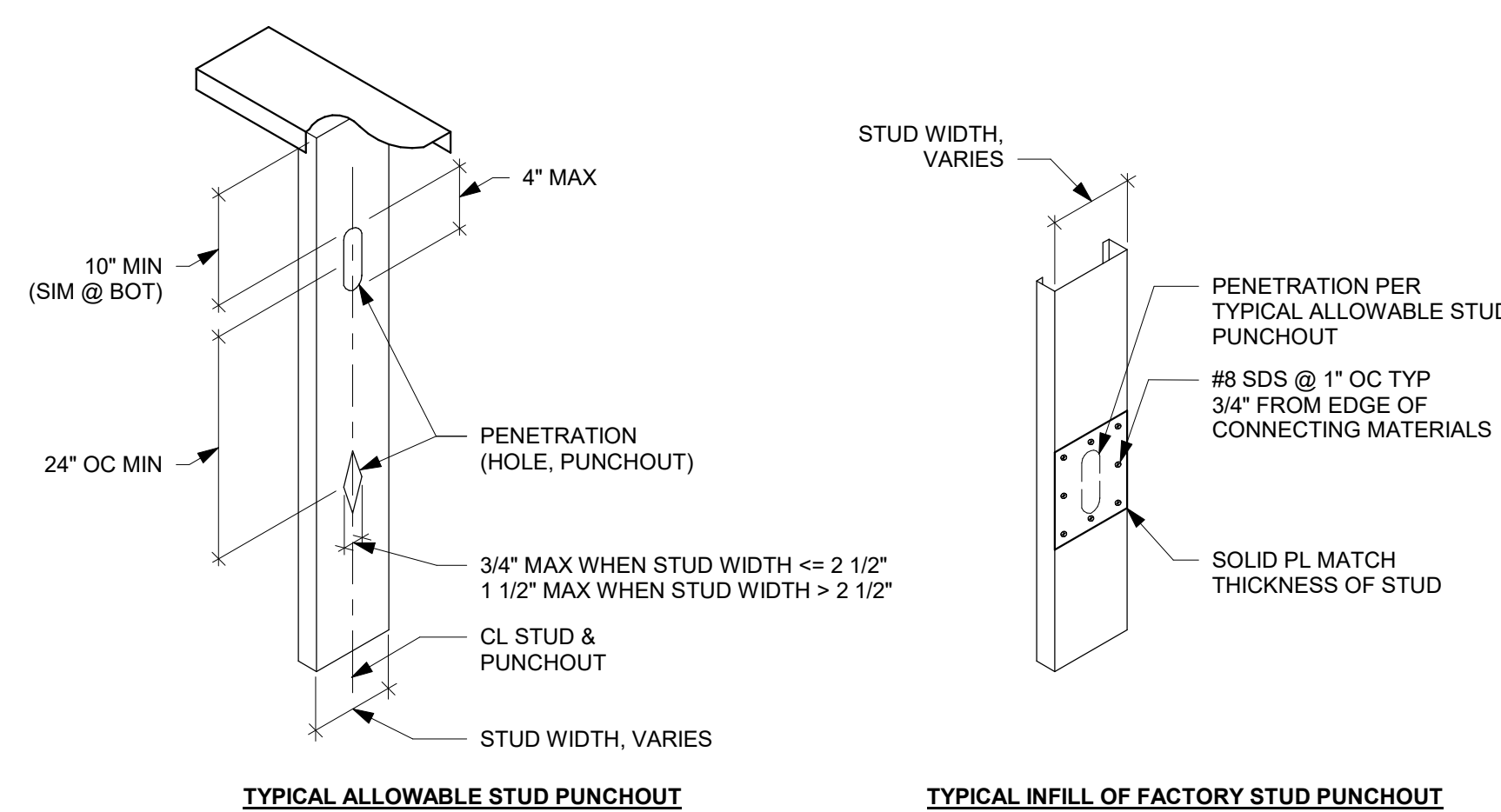
2 TYPICAL BLOCKING AT BEARING AND SHEAR WALLS



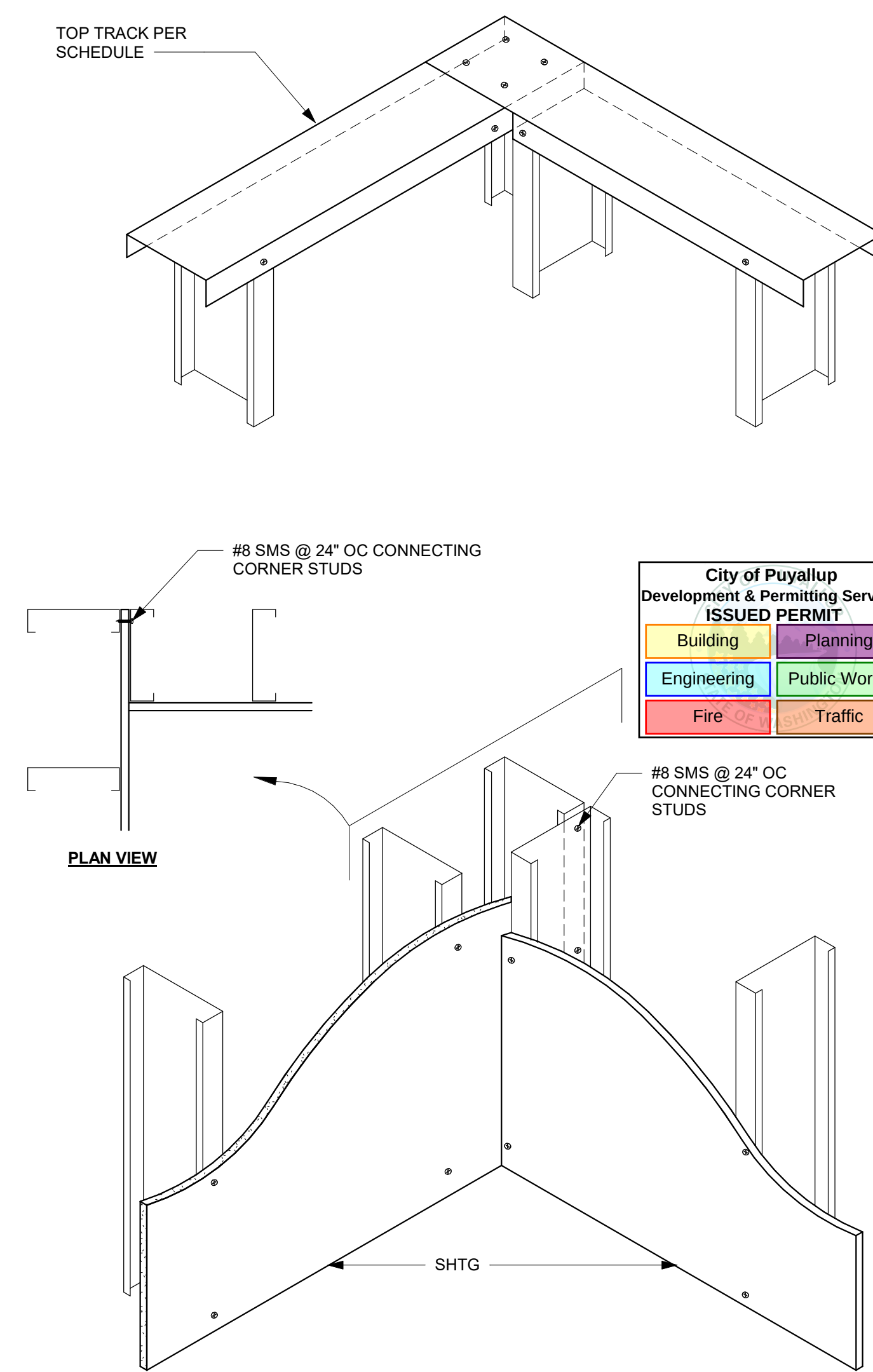
5 TYPICAL BOTTOM TRACK DETAIL UNO
NTS



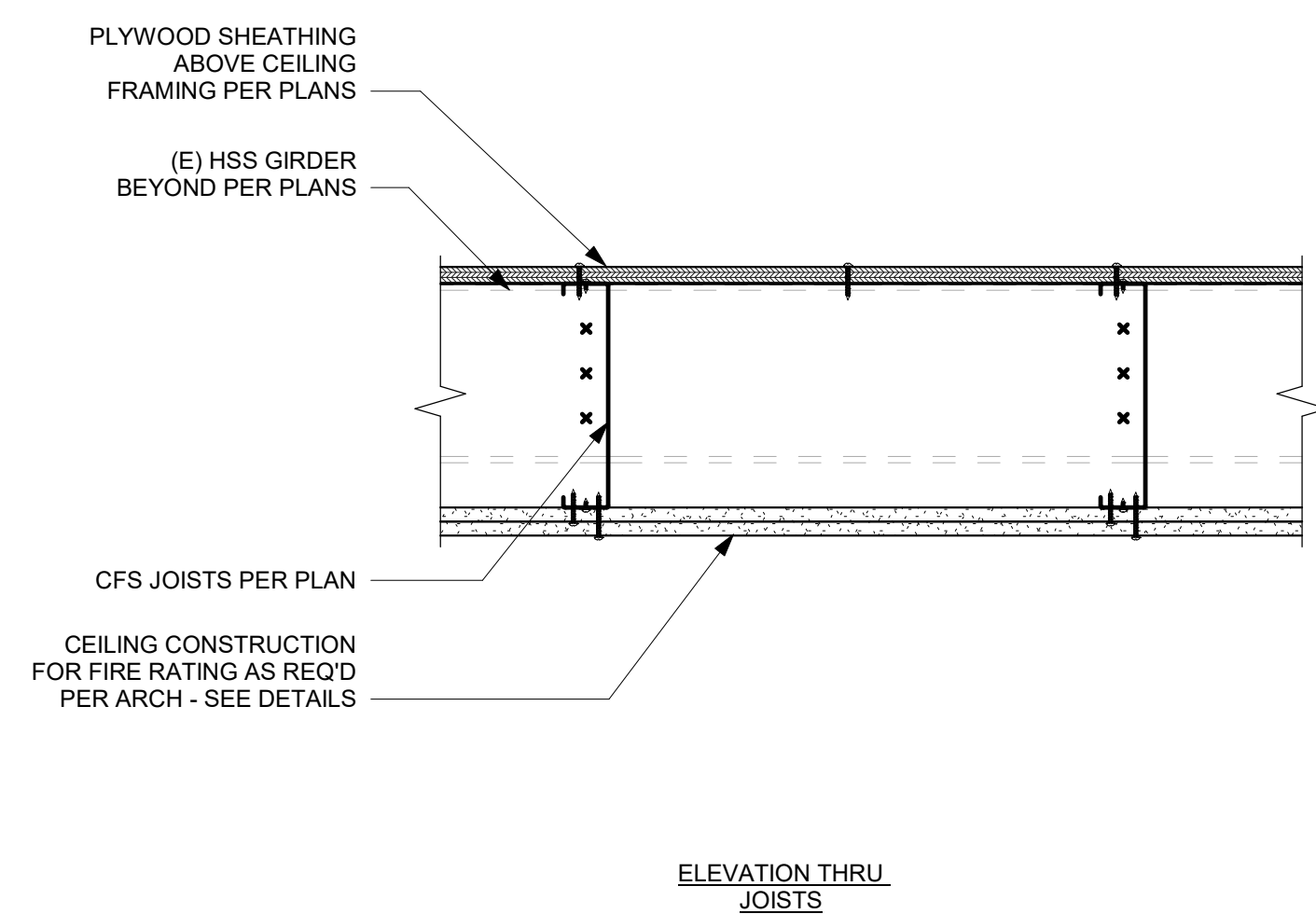
6 TYPICAL TRACK SPLICE



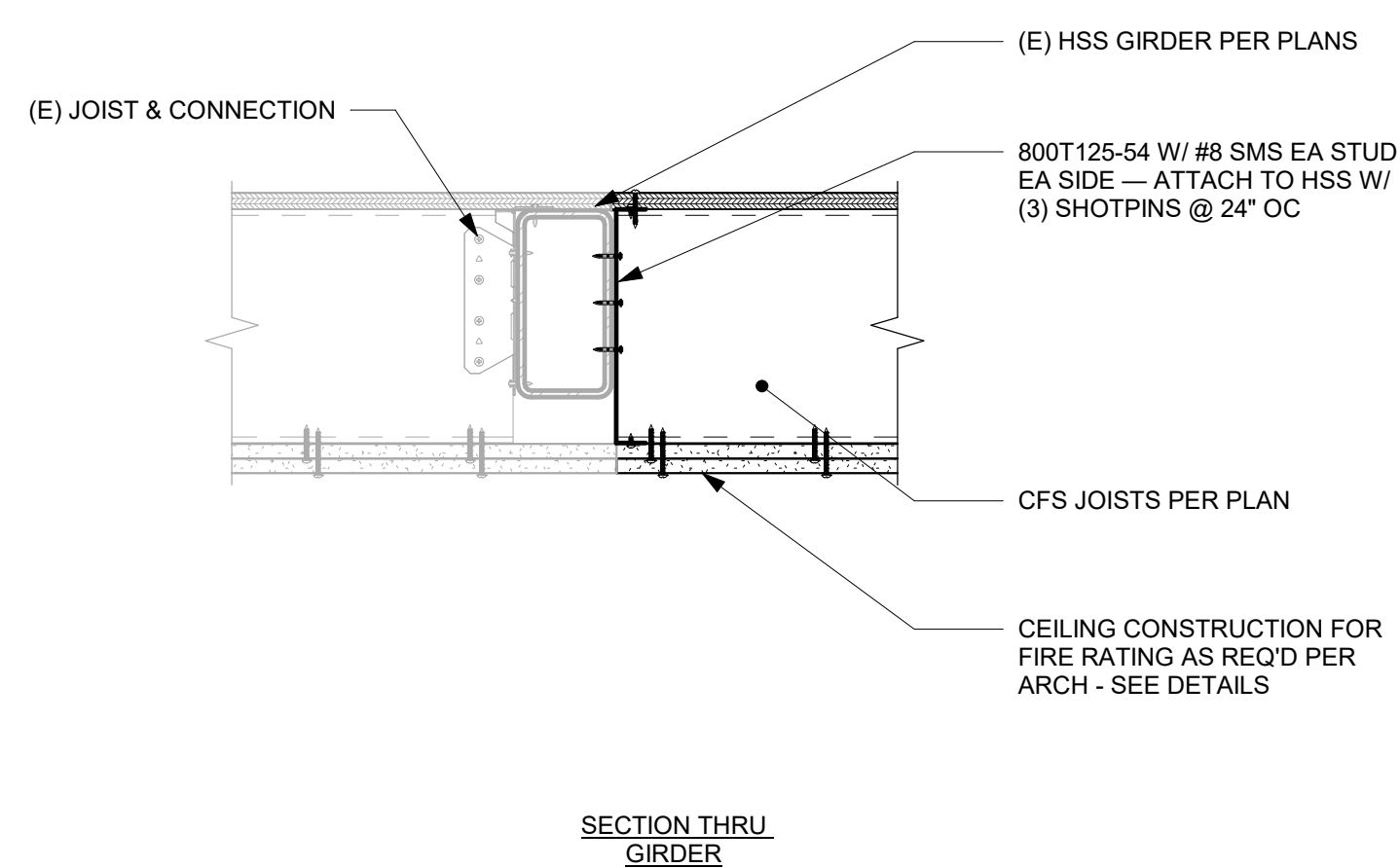
7 TYPICAL INT METAL STUD PUNCHOUT



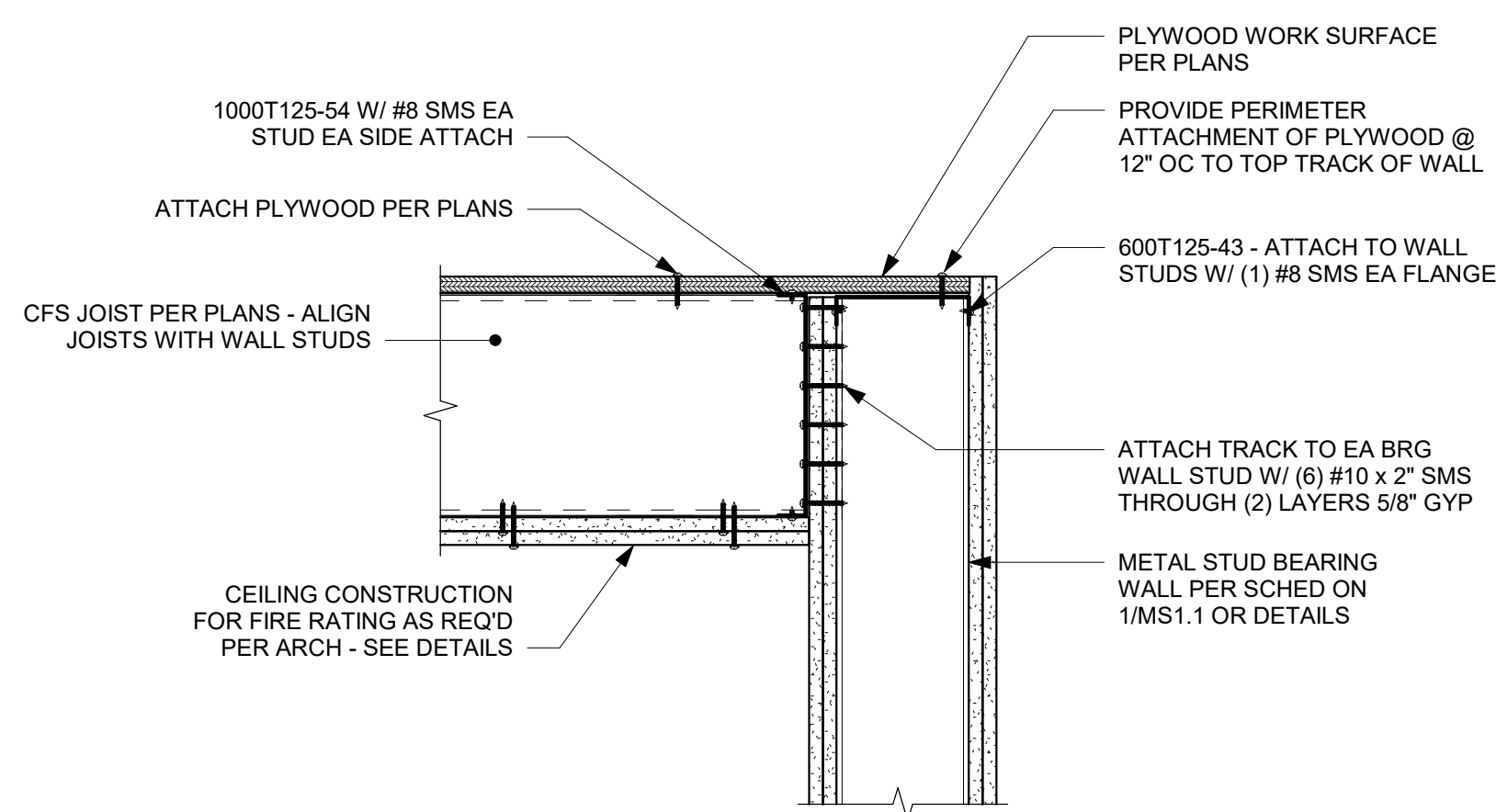
8 TYPICAL STUD WALL AT CORNER
NTS



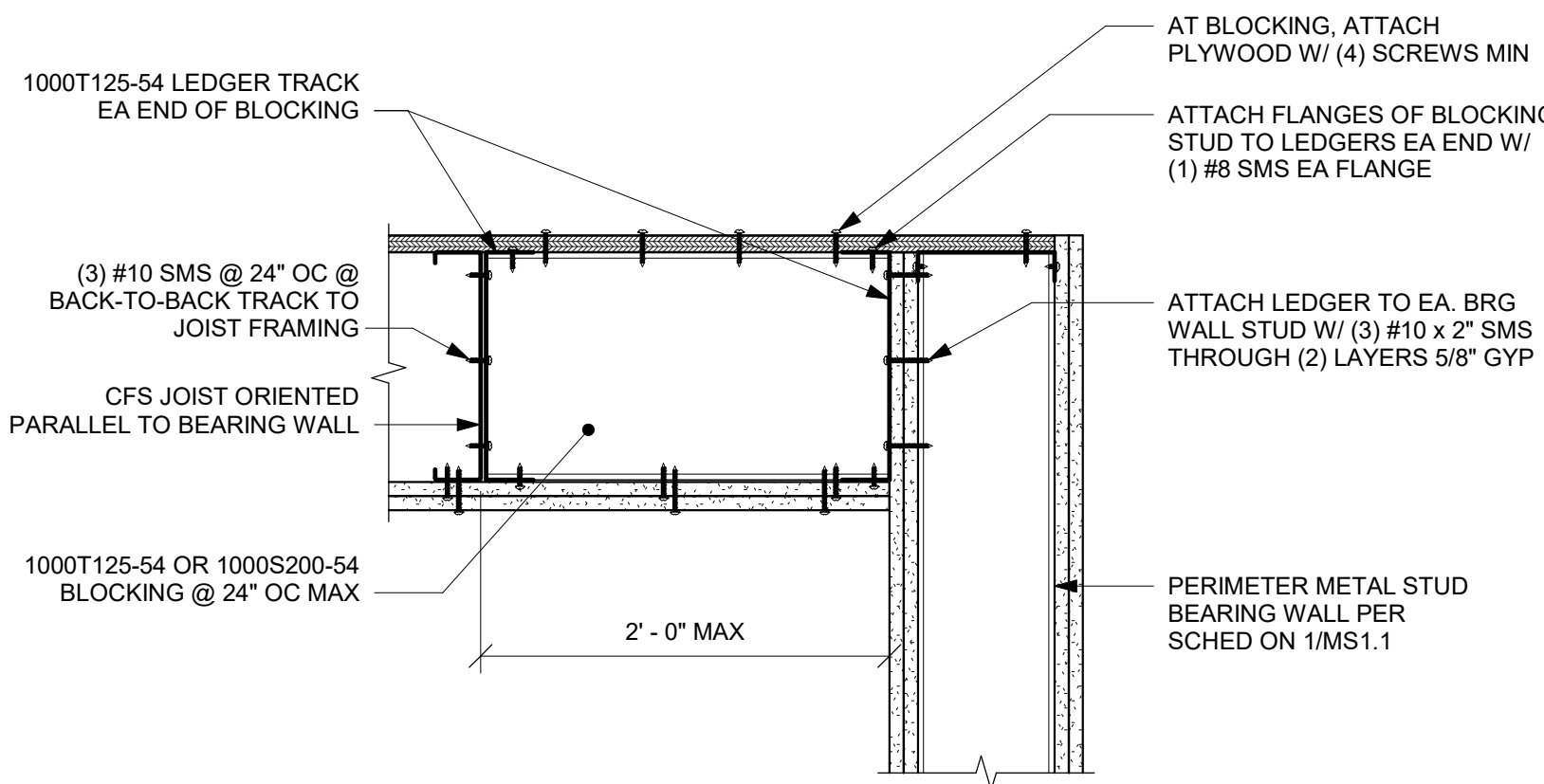
9 CFS JOIST TO (E) HSS GIRDER
NTS



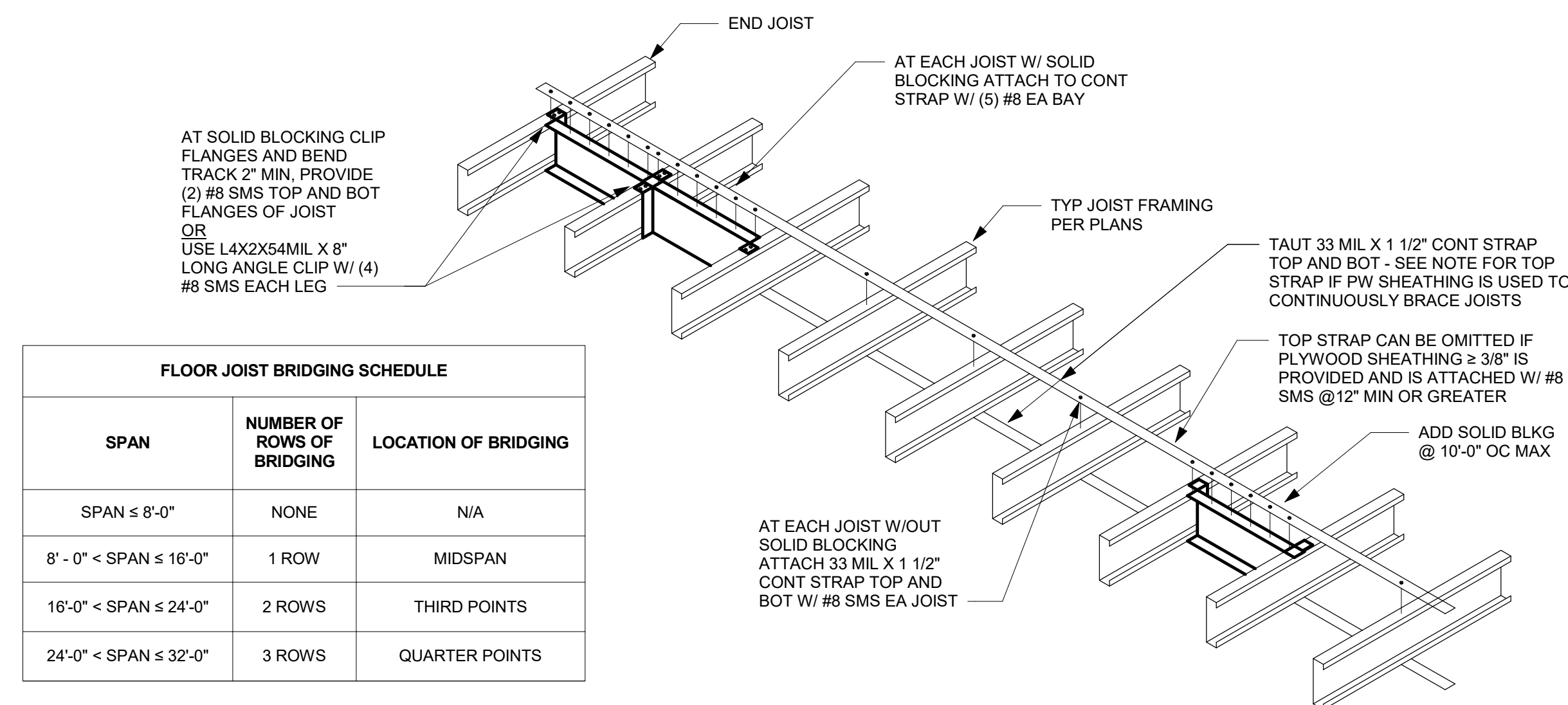
14 JOISTS PARALLEL TO PERIMETER BRG WALL
1 1/2" = 1'-0"



13 JOIST PERP TO PERIMETER BRG WALL
1 1/2" = 1'-0"



14 JOISTS PARALLEL TO PERIMETER BRG WALL
1 1/2" = 1'-0"



15 TYPICAL JOIST BRIDGING DETAIL
3/4" = 1'-0"

FLOOR JOIST BRIDGING SCHEDULE		
SPAN	NUMBER OF ROWS OF BRIDGING	LOCATION OF BRIDGING
SPAN ≤ 8'-0"	NONE	N/A
8' - 0" < SPAN ≤ 16'-0"	1 ROW	MIDSPAN
16'-0" < SPAN ≤ 24'-0"	2 ROWS	THIRD POINTS
24'-0" < SPAN ≤ 32'-0"	3 ROWS	QUARTER POINTS

NOTES:
1. ADD SOLID BLOCKING FOR (2) BAYS ADJACENT TO ALL OPENINGS AND AT ENDS OF JOIST SYSTEM

