

# GENERAL STRUCTURAL NOTES

(THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE PLANS)

## CRITERIA

- ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2015 EDITION).
- DESIGN LOADING CRITERIA:  
HANDRAILS AND GUARDS ..... 50 PLF  
GUARDRAILS/BALCONY RAILS ..... 200 LBS  
GUARDRAILS/BALCONY RAILS CONCENTRATED LOAD ..... 40 PSF  
RESIDENTIAL - ONE AND TWO-FAMILY DWELLINGS  
FLOOR LIVE LOAD ..... 40 PSF  
MISCELLANEOUS LOADS  
DECKS ..... 1.5 x AREA SERVED  
DEFLECTION CRITERIA  
LIVE LOAD DEFLECTION ..... L/360  
TOTAL LOAD DEFLECTION ..... L/240  
ENVIRONMENTAL LOADS  
SNOW ..... C<sub>s</sub>=1.0, I<sub>s</sub>=1.0, C<sub>i</sub>=1.1, P<sub>g</sub>=25 PSF, P<sub>f</sub>=20 PSF  
WIND ..... ASCE 7-16, MIN. WIND SPEED CATEGORY II, EXPOSURE 'C', Kz=1  
EARTHQUAKE ..... ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE  
LATERAL SYSTEM: LIGHT FRAMED SHEAR WALLS, SITE CLASS=D,  
S<sub>s</sub>=1.375, S<sub>ds</sub>=1.042, S<sub>i</sub>=0.524, S<sub>1i</sub>=0.524, C<sub>s</sub>=1.0, SDC D, I<sub>e</sub>=1.0, R<sub>w</sub>=6.5

SEE PLANS FOR ADDITIONAL LOADING CRITERIA

- STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. ARCHITECTURAL DRAWINGS ARE THE PRIME CONTRACT DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATION THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE GENERAL CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE GENERAL CONTRACTOR'S RISK.
- PRIMARY STRUCTURAL ELEMENTS NOT DIMENSIONED ON THE STRUCTURAL PLANS AND DETAILS SHALL BE LOCATED BY THE ARCHITECTURAL PLANS AND DETAILS. VERTICAL DIMENSION CONTROL IS DEFINED BY THE ARCHITECTURAL WALL SECTIONS, BUILDING SECTION, AND PLANS. DETAILING AND SHOP DRAWING PRODUCTION FOR STRUCTURAL ELEMENTS WILL REQUIRE DIMENSIONAL INFORMATION CONTAINED IN BOTH ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE CONTRACTOR'S WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES TO THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.
- CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. CONFORM TO ASCE 31-14 "DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION".
- CONTRACTOR-CREATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.
- DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED. SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. ALL TYPICAL NOTES AND DETAILS SHOWN ON DRAWINGS SHALL APPLY, UNLESS NOTED OTHERWISE. TYPICAL DETAILS MAY NOT NECESSARILY BE INDICATED ON THE PLANS BUT SHALL STILL APPLY AS DESCRIBED IN THE DETAILS. WHERE TYPICAL DETAILS ARE NOTED ON THE PLANS, THE SPECIFIED TYPICAL DETAIL SHALL BE USED. WHERE NO TYPICAL DETAIL IS NOTED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CHOOSE THE APPROPRIATE TYPICAL DETAIL FROM THOSE PROVIDED OR REQUEST ADDITIONAL INFORMATION. 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.
- SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.  
CONNECTOR PLATE WOOD ROOF TRUSSES  
CONTRACTOR SHALL SUBMIT WALL ELEVATION DRAWINGS OF AT LEAST 1/8" = 1'-0" SCALE INDICATING LOCATIONS OF CONNECTION EMBEDMENTS AND WALL OPENINGS FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WALL ELEVATION DRAWINGS WITH REINFORCEMENT SHOP DRAWINGS.  
APPROVED SETS OF ALL SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE BUILDING DEPARTMENT.
- SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY 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 IDENTICAL THERETO. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY, REPRODUCIBLE WILL BE MARKED AND RETURNED WITHIN TWO WEEKS OF RECEIPT WITH A NOTATION INDICATING THAT THE SUBMITTAL HAS BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE BUILDING. THE SUBMITTED ITEMS SHALL NOT BE INSTALLED UNTIL THEY HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

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 DRAWING 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.

DEFERRED SUBMITTALS: SHOP DRAWINGS AND CALCULATIONS OF DEFERRED SUBMITTALS SHALL BE STAMPED AND SIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF WASHINGTON AND SHALL BE APPROVED BY THE COMPETENT DESIGNER PRIOR TO REVIEW BY THE ARCHITECT OR ENGINEER OF RECORD FOR GENERAL CONFORMANCE. ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS SHALL BE INCLUDED. SHOP DRAWINGS SHALL INCLUDE THE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON THE BASIC STRUCTURE. DESIGN CALCULATIONS SHALL ACCOMPANY ALL DEFERRED SUBMITTALS. THE ARCHITECT OR CONTRACTOR SHALL FORWARD DEFERRED SUBMITTALS TO THE BUILDING OFFICIAL WHERE REQUIRED.

DEFERRED SUBMITTAL BUILDING COMPONENTS FOR THIS PROJECT SHALL INCLUDE:  
PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES

## QUALITY ASSURANCE

- SPECIAL INSPECTION SHALL BE PROVIDED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND SECTIONS 110 AND 1105 OF THE INTERNATIONAL BUILDING CODE BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE ARCHITECT, AND RETAINED BY THE BUILDING OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION IS REQUIRED UNLESS NOTED OTHERWISE.

CONCRETE CONSTRUCTION	PER TABLE 1105.3
SOIL CONDITIONS, FILL PLACEMENT, AND DENSITY	PER TABLE 1105.6
DRIVEN DEEP FOUNDATION	PER TABLE 1105.7
EXPANSION BOLTS AND THEREAD EXPANSION INSERTS	PER MANUFACTURER
EPOXY GROUTED INSTALLATIONS	PER MANUFACTURER

PERIODIC INSPECTION: INSPECTION SHALL BE PERFORMED AT INTERVALS NECESSARY TO CONFIRM THAT WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE WITH REQUIREMENTS. CONTINUOUS INSPECTION: INSPECTOR SHALL BE ON-SITE AND OBSERVE THE WORK REQUIRING INSPECTION AT ALL TIMES THAT WORK IS PERFORMED.

## GEOTECHNICAL

- FOUNDATION NOTES: ALLOWABLE SOIL PRESSURE AND LATERAL EARTH PRESSURE ARE ASSUMED AND THEREFORE MUST BE VERIFIED BY A QUALIFIED SOILS ENGINEER OR APPROVED BY THE BUILDING OFFICIAL. IF SOILS ARE FOUND TO BE OTHER THAN ASSUMED, NOTIFY THE STRUCTURAL ENGINEER FOR POSSIBLE FOUNDATION REDSIGN.

FOOTINGS SHALL BEAR ON FIRM UNDISTURBED EARTH AT LEAST 18" BELOW ADJACENT FINISHED GRADE. UNLESS OTHERWISE NOTED, FOOTINGS SHALL BE CENTERED BELOW COLUMNS OR WALLS ABOVE.

BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING, GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE.

ALLOWABLE SOIL PRESSURE	1500 PSF
LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)	55 PCF/95 PCF
ALLOWABLE PASSIVE EARTH PRESSURE (P <sub>s</sub> OF 15 INCLUDED)	300 PCF
COEFFICIENT OF FRICTION (P <sub>s</sub> OF 15 INCLUDED)	0.3

## RENOVATION

- DEMOLITION: CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS BEFORE COMMENCING ANY DEMOLITION. SHORING SHALL BE INSTALLED TO SUPPORT EXISTING CONSTRUCTION AS REQUIRED AND IN A MANNER SUITABLE TO THE WORK SEQUENCES. DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON EXISTING FLOOR SYSTEMS TO 40 PSF.
- CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER IF EXISTING CONDITIONS DETERMINED DURING WORK VARY FROM THE EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS.
- CONTRACTOR SHALL CHECK FOR DRY ROT AT ALL AREAS OF NEW WORK. ALL ROT SHALL BE REMOVED AND DAMAGED MEMBERS SHALL BE REPLACED OR REPAIRED AS DIRECTED BY THE STRUCTURAL ENGINEER OR ARCHITECT.

## CONCRETE

- CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH ACI 301, INCLUDING TESTING PROCEDURES. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH OF  $f'_c = 3000$  PSI AND MIX SHALL CONTAIN NOT LESS THAN 9-1/2 SACKS OF CEMENT PER CUBIC YARD AND SHALL BE PROPORTIONED TO PRODUCE A SLUMP OF 3" OR LESS. REQUIRED CONCRETE STRENGTH IS BASED ON THE DURABILITY REQUIREMENTS OF SECTION 104 OF THE IBC. DESIGN STRENGTH IS  $f'_c = 2500$  PSI.
- ALL CONCRETE WITH SURFACES EXPOSED TO HEATHER OR STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C681. TOTAL AIR CONTENT FOR FROST-RESISTANT CONCRETE SHALL BE IN ACCORDANCE WITH ACI 308-14, TABLE H3.2.1 MODERATE EXPOSURE. FL REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, FY = 60,000 PSI.
- DETAILING OF REINFORCING STEEL (INCLUDING HOOKS AND BENDS) SHALL BE IN ACCORDANCE WITH ACI 308-14 AND 308-14. LAP ALL REINFORCEMENTS IN ACCORDANCE WITH THE REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

- CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

FOOTINGS AND OTHER UNFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
FORMED SURFACES EXPOSED TO EARTH OR HEATHER (NO BARS OR LARGER)	2"
FORMED SURFACES EXPOSED TO EARTH OR HEATHER (NO BARS OR SMALLER)	1 1/2"
COLUMN TIES OR SPIRALS AND BEAM STRIPS	1 1/2"
SLABS AND WALLS (INT. FACE)	GREATER OF BAR DIAMETER PLUS 1/8" OR 3/4"

- CONCRETE WALL REINFORCING—PROVIDE THE FOLLOWING UNLESS DETAILED OTHERWISE:

6" WALLS	#4 @ 16 HORIZ.	#4 @ 16 VERTICAL	1 CURTAIN
8" WALLS	#4 @ 12 HORIZ.	#4 @ 16 VERTICAL	1 CURTAIN
10" WALLS	#4 @ 18 HORIZ.	#4 @ 16 VERTICAL	2 CURTAINS
12" WALLS	#4 @ 16 HORIZ.	#4 @ 16 VERTICAL	2 CURTAINS

- CAST-IN-PLACE CONCRETE: SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL CONCRETE WALLS. SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. EXE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES, BOTH CAST-IN-PLACE AND PRECAST.

- NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (3000 PSI MINIMUM).

## ANCHORAGE

- EXPANSION BOLTS INTO CONCRETE SHALL BE "STRONG-BOLT 2" WEDGE ANCHORS AS MANUFACTURED BY THE SIMPSON STRONG TIE COMPANY AND INSTALLED IN STRICT CONFORMANCE TO ICG-ES REPORT NUMBER ESR-3051, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. BOLTS INTO CONCRETE MASONRY OR BRICK MASONRY UNITS SHALL BE INTO FULLY GROUTED CELLS. PERIODIC SPECIAL INSPECTION IS REQUIRED TO VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, ANCHOR LOCATION, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS.

- EPOXY-GROUTED ITEMS (THREADED RODS OR REINFORCING BARS) SPECIFIED ON THE DRAWINGS SHALL BE INSTALLED USING "AT-40" AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH HANCO REPORT NO. ESR-C281. MINIMUM BASE MATERIAL TEMPERATURE IS 14 DEGREES F. RODS SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED. PERIODIC SPECIAL INSPECTION OF INSTALLATION IS REQUIRED TO VERIFY ANCHOR OR EMBEDDED BAR TYPE AND DIMENSIONS, LOCATION, ADHESIVE IDENTIFICATION AND EXPIRATION, HOLE CLEANING PROCEDURE, ANCHOR EMBEDMENT, AND ADHERENCE TO THE INSTALLATION INSTRUCTIONS. CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR HORIZONTAL AND OVERHEAD INSTALLATIONS.

- CONCRETE SCREW ANCHORS INTO CONCRETE AND CONCRETE MASONRY UNITS SHALL BE "TITEN HD" HEAVY DUTY SCREW ANCHOR AS MANUFACTURED BY THE SIMPSON STRONG-TIE COMPANY, INSTALLED IN STRICT ACCORDANCE WITH ICG-ES REPORT NO. ESR-2713 (CONCRETE), NO. ESR-1056 (CMU), INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. SCREW ANCHORS INTO CONCRETE MASONRY UNITS SHALL BE INTO FULLY GROUTED CELLS. SPECIAL INSPECTION IS REQUIRED.

## WOOD

- FRAMING LUMBER SHALL BE S-DRY, KD, OR MC-H, AND GRADED AND MARKED IN CONFORMANCE WITH NDLB STANDARD "GRADING RULES FOR WEST COAST LUMBER NO. 11", OR NWFA STANDARD, "WESTERN LUMBER GRADING RULES 2011". FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS (2X 4 3X MEMBERS) AND BEAMS	HEM-FIR NO. 2 MINIMUM BASE VALUE, F <sub>b</sub> = 850 PSI
(4X MEMBERS)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, F <sub>b</sub> = 1000 PSI
BEAMS (INCL. 6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, F <sub>b</sub> = 1350 PSI
POSTS (4X MEMBERS)	DOUGLAS FIR-LARCH NO. 2 MINIMUM BASE VALUE, F <sub>c</sub> = 1350 PSI
(6X AND LARGER)	DOUGLAS FIR-LARCH NO. 1 MINIMUM BASE VALUE, F <sub>c</sub> = 1000 PSI
STUDS, PLATES & MISG. FRAMING:	DOUGLAS FIR-LARCH NO. 2 OR HEM-FIR NO. 2

- GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ASTM AND ANSI/ITC STANDARDS. EACH MEMBER SHALL BEAR AN AITC OR APA-ENS IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC OR APA-ENS CERTIFICATE OF CONFORMANCE. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, F<sub>b</sub> = 2400 PSI, F<sub>v</sub> >265 PSI. ALL CANTILEVERED BEAMS SHALL BE DOUGLAS FIR COMBINATION 24F-V4, F<sub>b</sub> = 2400 PSI, F<sub>v</sub> = 265 PSI. CAMBER ALL SIMPLE SPAN GLULAM BEAMS, WITH SPANS OVER 30', TO 3500' RADIUS, UNLESS SHOWN OTHERWISE ON THE PLANS.

- MANUFACTURED LUMBER, PSL, LVL, AND LSL SHOWN ON PLAN ARE BASED PRODUCTS MANUFACTURED BY THE HETERMAEUSER CORPORATION IN ACCORDANCE WITH ICG-ES REPORT ESR-1301. MEMBERS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:

PSL (2.0E)	F <sub>b</sub> = 2400 PSI, E = 2000 KSI, F <sub>v</sub> = 240 PSI
LVL (2.0E)	F <sub>b</sub> = 2600 PSI, E = 2000 KSI, F <sub>v</sub> = 285 PSI
LSL (1.5E)	F <sub>b</sub> = 2525 PSI, E = 1550 KSI, F <sub>v</sub> = 310 PSI

ALTERNATE MANUFACTURED LUMBER MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. ALTERNATE MANUFACTURERS' PRODUCTS SHALL BE COMPATIBLE WITH THE JOIST HANGERS AND OTHER HARDWARE SPECIFIED ON PLANS, OR ALTERNATE HANGERS AND HARDWARE SHALL SUBMITTED FOR REVIEW AND APPROVAL. SUBSTITUTED ITEMS SHALL HAVE ICG-ES REPORT APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES.

MANUFACTURED LUMBER PRODUCTS SHALL BE INSTALLED WITH A MOISTURE CONTENT OF 12% OR LESS. THE CONTRACTOR SHALL MAKE PROVISIONS DURING CONSTRUCTION TO PREVENT THE MOISTURE CONTENT OF INSTALLED BEAMS FROM EXCEEDING 12%. EXCESSIVE DEFLECTIONS MAY OCCUR IF MOISTURE CONTENT EXCEEDS THIS VALUE.

- PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER IN ACCORDANCE WITH THE NATIONAL DESIGN STANDARD FOR METAL PLATE-CONNECTED WOOD TRUSS CONSTRUCTION (ANSI/PF 1) BY THE TRUSS PLATE INSTITUTE FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. LOADING SHALL BE AS FOLLOWS:

TOP CHORD LIVE LOAD	25 PSF
TOP CHORD DEAD LOAD	10 PSF
BOTTOM CHORD DEAD LOAD	10 PSF
TOTAL LOAD	45 PSF
WIND UPLIFT (TOP CHORD)	5 PSF
BOTTOM CHORD LIVE LOAD	10 PSF
BOTTOM CHORD LIVE LOAD DOES NOT ACT CONCURRENTLY WITH THE ROOF LIVE LOAD)	

WOOD TRUSSES SHALL UTILIZE APPROVED CONNECTOR PLATES (SANGRANAL OR EQUAL). SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. SUBMITTED DOCUMENTS SHALL BE SIGNED AND STAMPED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON. PROVIDE FOR SHAPES, BEARING POINTS, 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 MANUFACTURER UNLESS SPECIFICALLY INDICATED ON THE PLANS. PROVIDE 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 SHEATHING SHALL BE GRADE C-D, EXTERIOR GRUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH DOC PS 1 OR PS 2. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD.

ROOF SHEATHING SHALL BE 1/2" (NOMINAL) WITH SPAN RATING 32/6.

FLOOR SHEATHING SHALL BE 3/4" (NOMINAL) WITH SPAN RATING 48/24.

WALL SHEATHING SHALL BE 1/2" (NOMINAL) WITH SPAN RATING 24/0.

PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED T&G JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF FLOOR AND ROOF SHEATHING.

REFER TO WOOD FRAMING NOTES BELOW FOR TYPICAL NAILING REQUIREMENTS.

- ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE OR (2) LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER SHALL BE PROVIDED BETWEEN UNTREATED WOOD AND CONCRETE OR MASONRY.

- PRESERVATIVE TREATED WOOD SHALL BE TREATED PER ANPA STANDARD II TO THE USE CATEGORY EQUAL TO OR HIGHER THAN THE INTENDED APPLICATION. TREATED WOOD FOR ABOVE GROUND USE SHALL BE TREATED TO ANPA UC36. WOOD IN CONTINUOUS CONTACT WITH FRESH WATER OR SOIL SHALL BE TREATED TO ANPA UC4A. WOOD FOR USE IN PERMANENT FOUNDATIONS SHALL BE TREATED TO ANPA UC4B.

- WOOD TREATED FOR FIRE RESISTANCE SHALL MEET THE REQUIREMENTS OF ASTM E 84 OR UL 128 AND HAVE A LISTED FLAME SPREAD INDEX OF 25 OR LESS. FIRE RETARDANT TREATED LUMBER AND WOOD STRUCTURAL PANELS SHALL BE LABELED IN ACCORDANCE WITH IBC 2303.2.4. WOOD TREATED FOR FIRE PROTECTION FOR USE IN INTERIOR ABOVE GROUND CONSTRUCTION AND CONTINUOUSLY PROTECTED FROM HEATHER AND OTHER SOURCES OF MOISTURE SHALL BE TREATED TO ANPA UCFA. WOOD TREATED FOR FIRE PROTECTION FOR USE IN EXTERIOR ABOVE GROUND CONSTRUCTION AND SUBJECT TO WETTING OR OTHER SOURCES OF MOISTURE SHALL BE TREATED TO ANPA UCFB.

- FASTENERS AND TIMBER CONNECTORS USED WITH TREATED WOOD SHALL HAVE CORROSION RESISTANCE AS INDICATED IN THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

WOOD TREATMENT	CONDITION	PROTECTION
HAS NO AMMONIA CARRIER	INTERIOR DRY	600 GALVANIZED
CONTAINS AMMONIA CARRIER	INTERIOR DRY	610S OR A10S HOT DIPPED OR CONTINUOUS HOT-GALVANIZED PER ASTM A653
CONTAINS AMMONIA CARRIER	INTERIOR WET	TYPE 304 OR 316 STAINLESS
CONTAINS AMMONIA CARRIER	EXTERIOR	TYPE 304 OR 316 STAINLESS
AZCA	ANY	TYPE 304 OR 316 STAINLESS

INTERIOR DRY CONDITIONS SHALL HAVE MOISTURE CONTENT LESS THAN 18%. WOOD MOISTURE CONTENT IN OTHER CONDITIONS (INTERIOR WET, EXTERIOR WET, AND EXTERIOR DRY) IS EXPECTED TO EXCEED 18%. CONNECTORS AND THEIR FASTENERS SHALL BE THE SAME MATERIAL. COMPLY WITH THE TREATMENT MANUFACTURERS RECOMMENDATIONS FOR PROTECTION OF METAL.

- TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2014. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICG-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER FOR MAXIMUM LOAD CARRYING CAPACITY. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

ALL 2X JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LIS" SERIES JOIST HANGERS. ALL TJI JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "TIS" SERIES JOIST HANGERS. ALL DOUBLE-JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH "MIT" SERIES JOIST HANGERS.

WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER.

ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

- WOOD FASTENERS

A. NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
6d	2"	0.131"
8d	2 1/2"	0.131"
10d	3"	0.148"
12d	3 1/4"	0.148"
16d BOX	3 1/2"	0.135"

IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

NAILS - PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED. TOE-NAILS SHALL BE DRIVEN AT AN ANGLE OF 30 DEGREES WITH THE MEMBER AND STRIKEN 1/3 THE LENGTH OF THE NAIL FROM THE MEMBER END.

- ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND L&G BOLTS BEARING ON WOOD. INSTALLATION OF L&G BOLTS SHALL CONFORM TO THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH A LEAD BORE HOLE OF 60 TO 10 PERCENT OF THE SHANK DIAMETER. LEAD HOLES ARE NOT REQUIRED FOR 3/8" AND SMALLER L&G SCREWS.

- NOTCHES AND HOLES IN WOOD FRAMING:

- NOTCHES ON THE ENDS OF SOLID SAWN JOISTS AND RAFTERS SHALL NOT EXCEED ONE-FOURTH THE JOIST DEPTH. NOTCHES IN THE TOP OR BOTTOM OF SOLID SAWN JOISTS SHALL NOT EXCEED ONE-SIXTH THE DEPTH AND SHALL NOT BE LOCATED IN THE MIDDLE THIRD OF THE SPAN. HOLES BORED IN SOLID SAWN JOISTS AND RAFTERS SHALL NOT BE WITHIN 2 INCHES OF THE TOP OR BOTTOM OF THE JOIST, AND THE DIAMETER OF ANY SUCH HOLE SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE JOIST.

- IN EXTERIOR WALLS AND BEARING PARTITIONS, ANY WOOD STUD IS PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25 PERCENT OF ITS WIDTH. A HOLE NOT GREATER IN DIAMETER THAN 40 PERCENT OF THE STUD WIDTH IS PERMITTED TO BE BORED IN ANY WOOD STUD. IN NO CASE SHALL THE EDGE OF THE BORED HOLE BE NEARER THAN 5/8 INCH TO THE EDGE OF THE STUD. BORED HOLES SHALL NOT BE LOCATED AT THE SAME SECTION OF STUD AS A CUT OR NOTCH.

- NOTCHES AND HOLES IN MANUFACTURED LUMBER AND PREFABRICATED PLYWOOD WEB JOISTS SHALL BE PER THE MANUFACTURERS RECOMMENDATIONS UNLESS OTHERWISE NOTED.

- WOOD FRAMING NOTES—THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS.

A. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE INTERNATIONAL BUILDING CODE, THE AITC "TIMBER CONSTRUCTION MANUAL" AND THE AWC "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION". MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO IBC TABLE 2304.10.1. COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS.

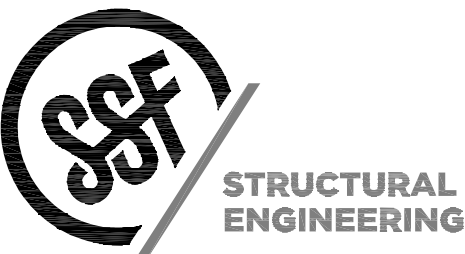
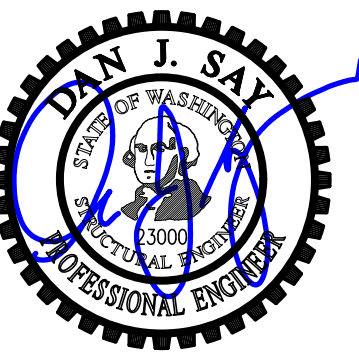
- WALL FRAMING: REFER ARCHITECTURAL DRAWINGS FOR THE SIZE OF ALL WALLS. ALL STUDS SHALL BE SPACED AT 16" O.C. UNO. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS, AND AT BEAM OR HEADER BEARING LOCATIONS. TWO 2X8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS NOT OTHERWISE NOTED. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW. PROVIDE CONTINUOUS SOLID BLOCKING AT MID-HEIGHT OF ALL STUD WALLS OVER 10'-0" IN HEIGHT.

ALL WALLS SHALL HAVE A SINGLE BOTTOM PLATE AND A DOUBLE TOP PLATE. END NAIL TOP PLATE TO EACH STUD WITH TWO 16d NAILS, AND TOENAIL OR END NAIL EACH STUD TO BOTTOM PLATE WITH TWO 16d NAILS. FACE NAIL DOUBLE TOP PLATE WITH 16d @ 12" O.C. AND LAP MINIMUM 4'-0" AT JOINTS AND PROVIDE EIGHT 16d NAILS @ 4" O.C. EACH SIDE JOINT.

ALL STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH TWO ROWS OF 16d NAILS @ 12" ON-CENTER, OR ATTACHED TO CONCRETE BELOW WITH 5/8" DIAMETER ANCHOR BOLTS @ 4'-0" ON-CENTER EMBEDDED 1" MINIMUM UNLESS INDICATED OTHERWISE. INDIVIDUAL MEMBERS OF BUILT-UP POSTS SHALL BE NAILED TO EACH OTHER WITH TWO ROWS OF 16d @12" ON-CENTER. UNLESS OTHERWISE NOTED, GYPSUM HALFBROAD SHALL BE FASTENED TO THE INTERIOR SURFACE OF ALL STUDS AND PLATES WITH NO. 6 x 1 1/4" TYPE 5 OR W SCREWS @ 8" ON-CENTER. UNLESS INDICATED OTHERWISE, 1/2" (NOMINAL) APA RATED SHEATHING (SPAN RATING 24/0) SHALL BE NAILED TO ALL EXTERIOR SURFACES WITH 8d NAILS @ 6" ON-CENTER AT PANEL EDGES AND TOP AND BOTTOM PLATES (BLOCK IN-SUPPORTED EDGES) AND TO ALL INTERMEDIATE STUDS AND BLOCKING WITH 16d NAILS @ 12" ON-CENTER ALLOW 1/8" SPACING AT ALL PANEL EDGES AND PANEL ENDS.

- FLOOR AND ROOF FRAMING: PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS THAT EXTEND OVER MORE THAN HALF THE JOIST LENGTH AND AROUND ALL OPENINGS IN FLOORS OR ROOFS UNLESS OTHERWISE NOTED. PROVIDE SOLID BLOCKING AT ALL BEARING POINTS. TOE-NAIL JOISTS TO SUPPORTS WITH TWO 16d NAILS. ATTACH TIMBER JOISTS TO FLUSH HEADERS OR BEAMS WITH SIMPSON METAL JOIST HANGERS IN ACCORDANCE WITH NOTES ABOVE. NAIL ALL MULTIPLE JOIST BEAMS TOGETHER WITH TWO ROWS 16d @ 12" ON-CENTER.

UNLESS OTHERWISE NOTED ON THE PLANS, PLYWOOD ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH GRAIN PERPENDICULAR TO SUPPORTS AND NAILED AT 6" ON-CENTER WITH 8d NAILS TO FRAMED PANEL EDGES, STRIPS AND OVER STUD WALLS AS SHOWN ON PLANS AND @ 12" ON-CENTER TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED T&G JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF



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Revisions: \_\_\_\_\_ Date: \_\_\_\_\_  
 △ PERMIT. REV. 10/30/2020

Project Title:

Modifications to  
**LAWLER RESIDENCE**  
 8466 N MERCER WAY,  
 MERCER ISLAND, WA, 98040

Sheet Title:  
 BSMT. FOUNDATION PLAN

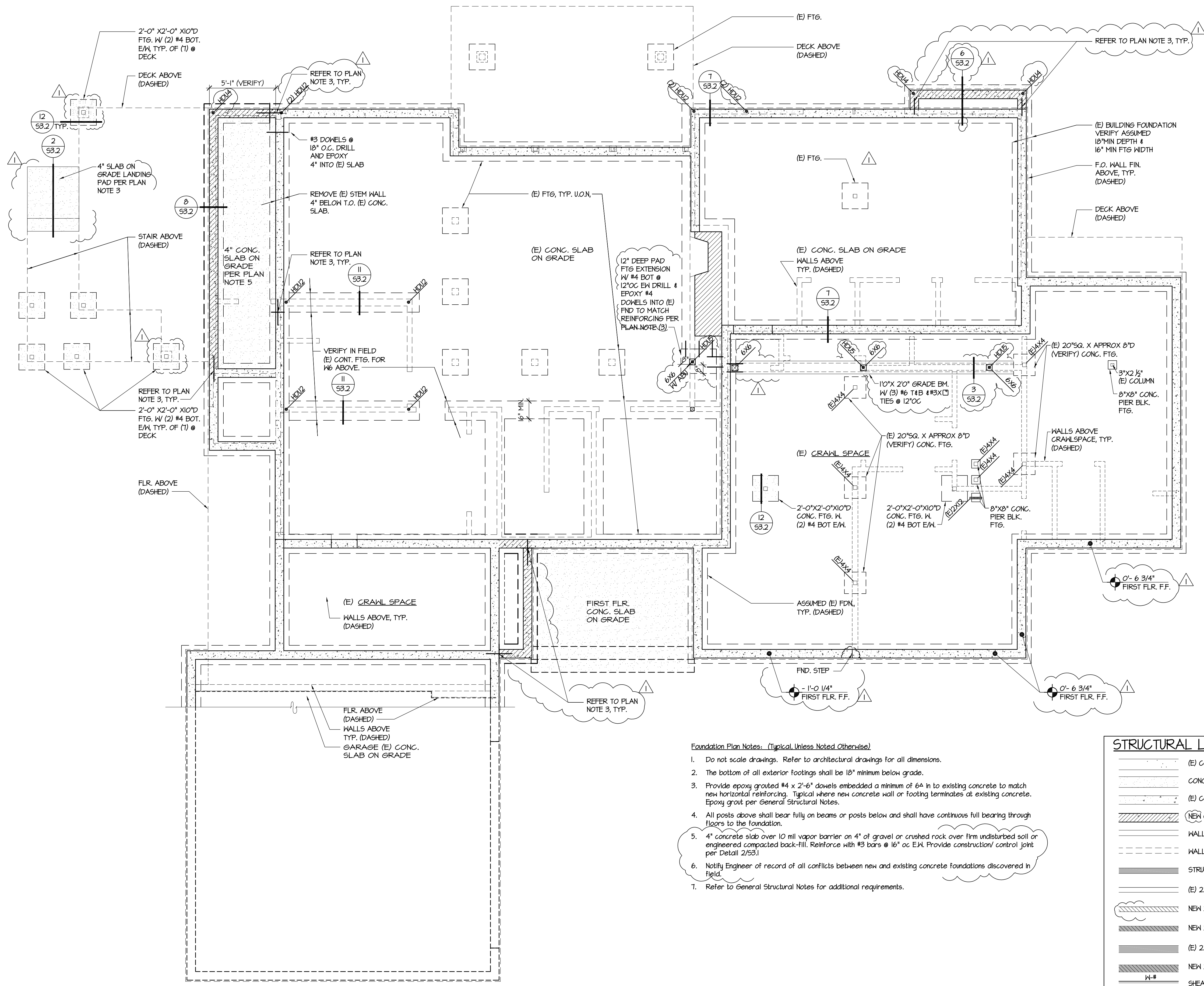
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Project No.: 20-05

Date: 6/30/2020

Sheet Number:

**S2.1**

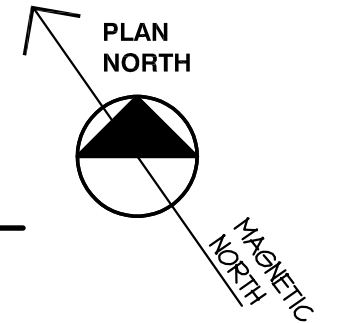


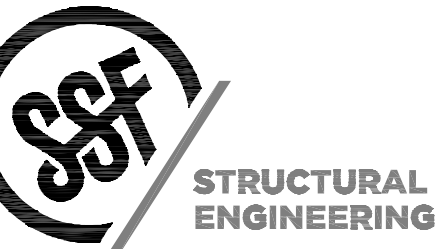
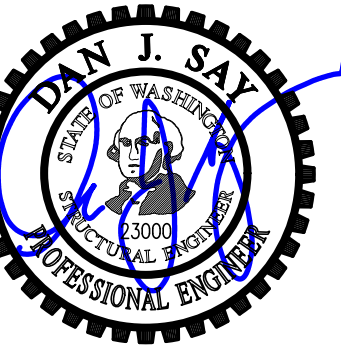
**Foundation Plan Notes:** (Typical Unless Noted Otherwise)

1. Do not scale drawings. Refer to architectural drawings for all dimensions.
2. The bottom of all exterior footings shall be 18" minimum below grade.
3. Provide epoxy grouted #4 x 2'-6" dowels embedded a minimum of 6" in to existing concrete to match new horizontal reinforcing. Typical where new concrete wall or footing terminates at existing concrete. Epoxy grout per General Structural Notes.
4. All posts above shall bear fully on beams or posts below and shall have continuous full bearing through floors to the foundation.
5. 4" concrete slab over 10 mil vapor barrier on 4" of gravel or crushed rock over firm undisturbed soil or engineered compacted back-fill. Reinforce with #3 bars @ 16" oc E/W. Provide construction/ control joint per Detail 2/53.1.
6. Notify Engineer of record of all conflicts between new and existing concrete foundations discovered in field.
7. Refer to General Structural Notes for additional requirements.

**STRUCTURAL LEGEND**

	(E) CONG. SLAB (FOR REFERENCE ONLY)		INDICATES BEAM/HANGER
	CONG. SLAB (FOR REFERENCE ONLY)		INDICATES TRUSS/HANGER
	(E) CONG. WALL (FOR REFERENCE ONLY)		INDICATES INTERIOR HEADER
	(NEW) CONG. WALL (FOR REFERENCE ONLY)		POST BELOW (FOR REFERENCE ONLY)
	WALL BELOW (FOR REFERENCE ONLY)		POST ABOVE (FOR REFERENCE ONLY)
	WALL ABOVE (FOR REFERENCE ONLY)		INDICATES SPAN & DIRECTION OF FRAMING
	STRUCTURAL BEARING WALL BELOW		INDICATES EXTENT OF FRAMING
	(E) 2X4 NON BEARING WALL		C516 STRAP OVER PLYWOOD, NAIL STRAP THROUGH PLYWOOD TO FRAMING BELOW REFER TO 5/54.1
	NEW 2X4 NON BEARING WALL		HDU HOLDOWN PER SCHEDULE 3/53.1 & 4/53.1
	NEW 2X4 BEARING WALL		
	(E) 2X6 BEARING WALL		
	NEW 2X6 BEARING WALL		
	SHEAR WALL, REFER TO 12/54.1		





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Revisions: \_\_\_\_\_ Date: \_\_\_\_\_  
 1. PERMIT REV. 10/30/2020

Project Title: \_\_\_\_\_

Modifications to  
**LAWLER RESIDENCE**  
 8456 N MERCER WAY,  
 MERCER ISLAND, WA, 98040

Sheet Title:  
FIRST FLOOR FRAMING PLAN  
FDN. PLAN

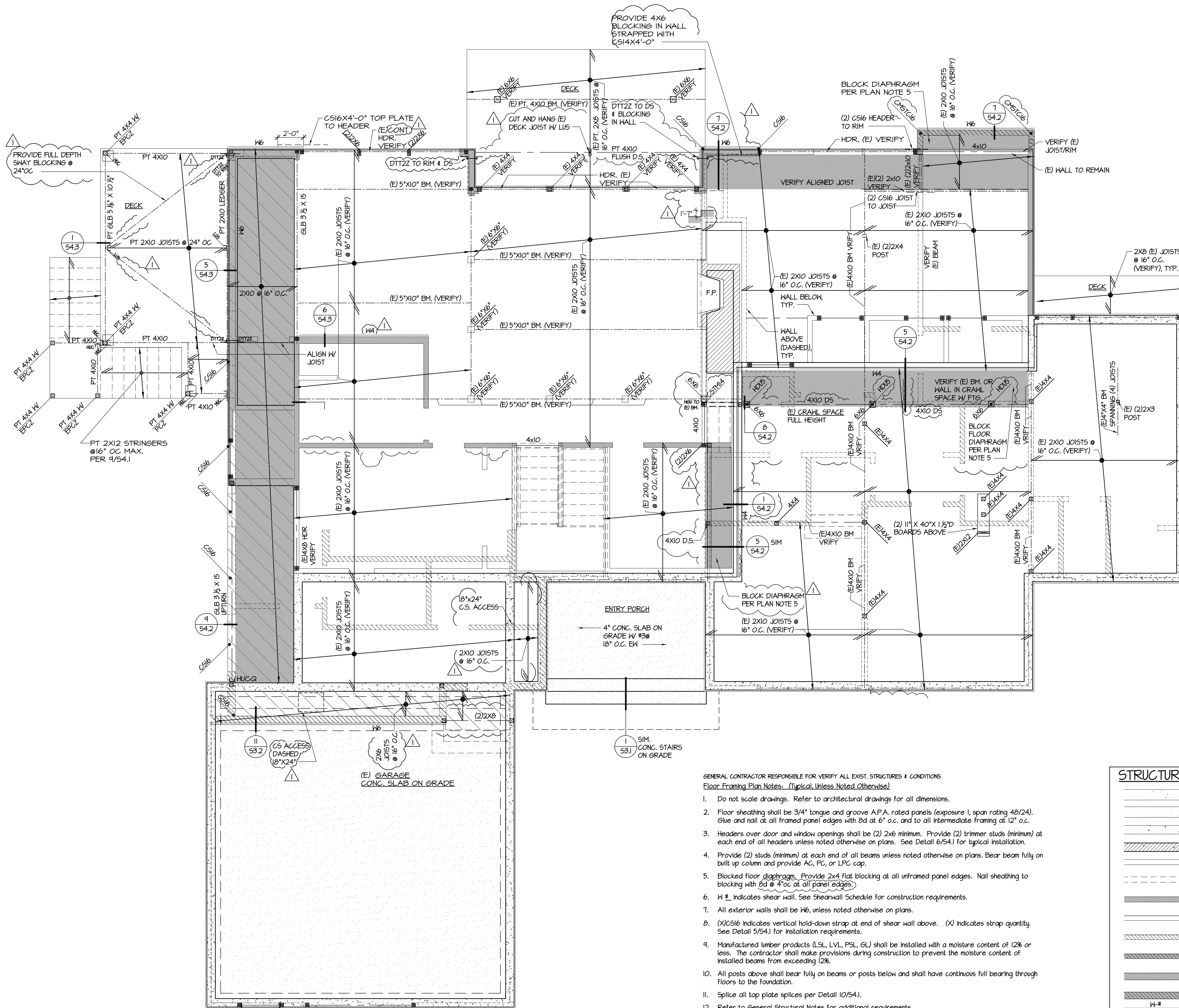
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Project No.: 20-05

Date: 6/30/2020

Sheet Number:

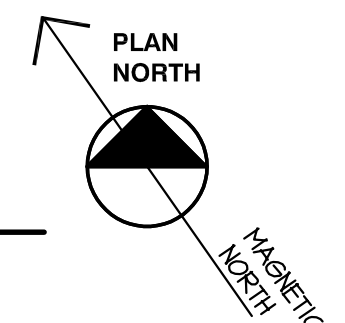
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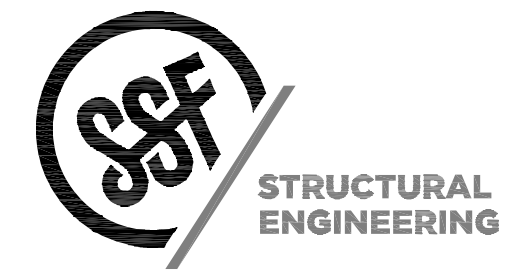
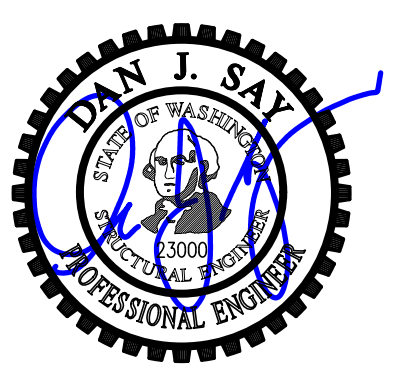


- GENERAL CONTRACTOR RESPONSIBLE FOR VERIFY ALL EXIST. STRUCTURES & CONDITIONS  
 Floor Framing Plan Notes: (Typical, Unless Noted Otherwise)
- Do not scale drawings. Refer to architectural drawings for all dimensions.
  - Floor sheathing shall be 3/4" tongue and groove A.P.A. rated panels (exposure 1, span rating 48/24). Glue and nail at all framed panel edges with 8d @ 6" o.c. and to all intermediate framing at 12" o.c.
  - Headers over door and window openings shall be (2) 2x6 minimum. Provide (2) trimmer studs (minimum) at each end of all headers unless noted otherwise on plans. See Detail 6/54.1 for typical installation.
  - Provide (2) studs (minimum) at each end of all beams unless noted otherwise on plans. Bear beam fully on built up column and provide AC, FC, or LFC cap.
  - Blocked floor diaphragm. Provide 2x4 flat blocking at all unframed panel edges. Nail sheathing to blocking with 8d @ 4" o.c. at all panel edges.
  - W # indicates shear wall. See Shearwall Schedule for construction requirements.
  - All exterior walls shall be W6, unless noted otherwise on plans.
  - (X)CS16 indicates vertical hold-down strap at end of shear wall above. (X) indicates strap quantity. See Detail 5/54.1 for installation requirements.
  - Manufactured lumber products (LSL, LVL, PSL, GLU) shall be installed with a moisture content of 12% or less. The contractor shall make provisions during construction to prevent the moisture content of installed beams from exceeding 12%.
  - All posts above shall bear fully on beams or posts below and shall have continuous full bearing through floors to the foundation.
  - Splice all top plate splices per Detail 10/54.1.
  - Refer to General Structural Notes for additional requirements.

STRUCTURAL LEGEND	
(E) CONC. SLAB (FOR REFERENCE ONLY)	INDICATES BEAM/HANGER
CONC. SLAB (FOR REFERENCE ONLY)	INDICATES TRUSS/HANGER
(E) CONC. WALL (FOR REFERENCE ONLY)	INDICATES INTERIOR HEADER
NEW CONC. WALL (FOR REFERENCE ONLY)	POST BELOW (FOR REFERENCE ONLY)
WALL BELOW (FOR REFERENCE ONLY)	POST ABOVE (FOR REFERENCE ONLY)
WALL ABOVE (FOR REFERENCE ONLY)	INDICATES SPAN & DIRECTION OF FRAMING
STRUCTURAL BEARING WALL BELOW	INDICATES EXTENT OF FRAMING
(E) 2X4 NON BEARING WALL	CS16 STRAP OVER PLYWOOD. NAIL STRAP THROUGH PLYWOOD TO FRAMING BELOW REFER TO 5/54.1
NEW 2X4 NON BEARING WALL	DS INDICATES DRAG STRUT
NEW 2X4 BEARING WALL	
(E) 2X6 BEARING WALL	
NEW 2X6 BEARING WALL	
W-#	SHEAR WALL, REFER TO 12/54.1

**1 FIRST FLR. FRAMING/FNDN. PLAN**  
SCALE: 1/4" = 1'-0"





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 Δ PERMIT REV. 10/30/2020

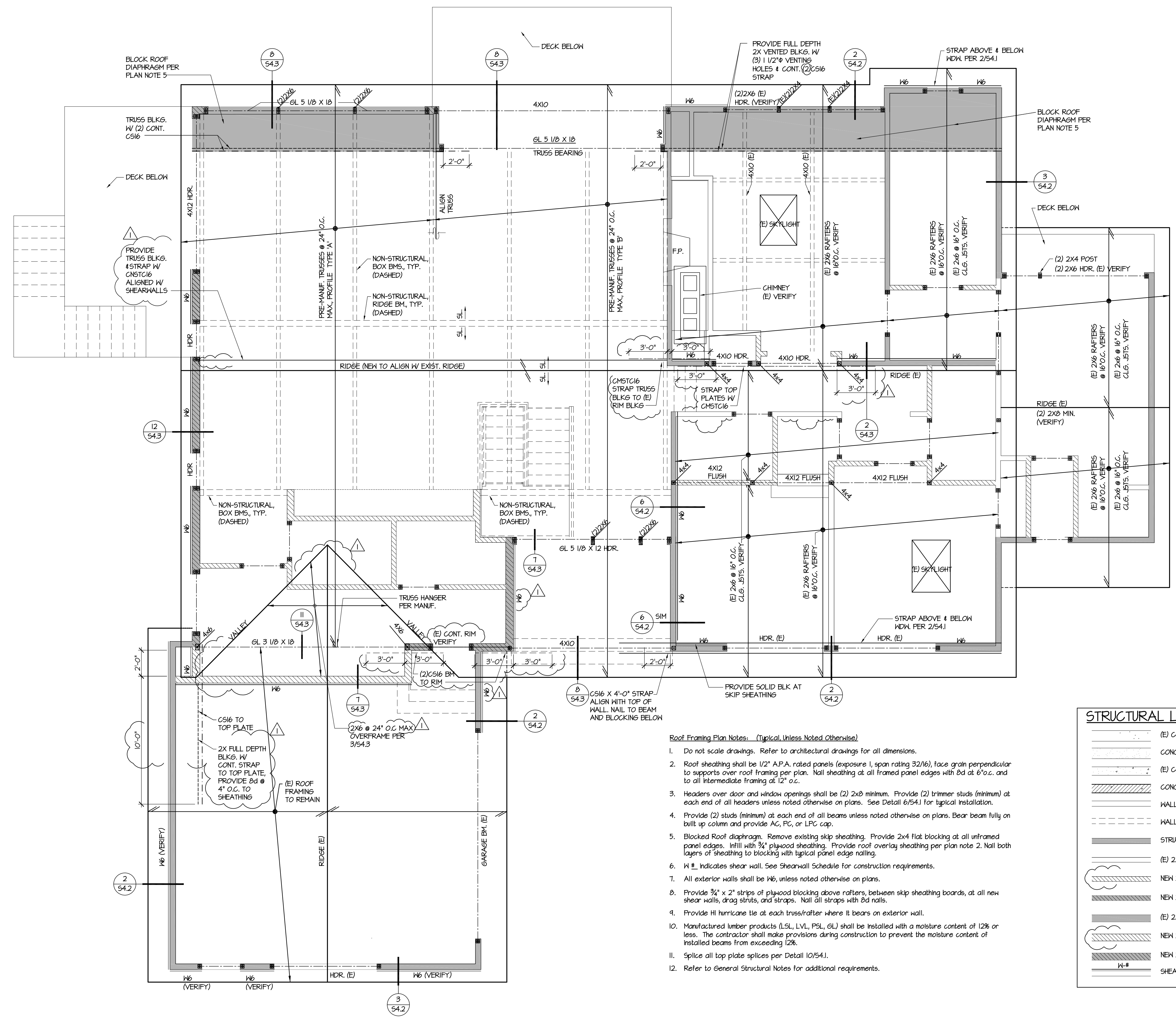
Project Title: \_\_\_\_\_

Modifications to  
**LAWLER RESIDENCE**  
 8466 N MERCER WAY,  
 MERCER ISLAND, WA, 98040

Sheet Title:  
ROOF FRAMING PLAN

Scale: 1/4" = 1'-0"  
 Project No.: 20-05  
 Date: 6/30/2020  
 Sheet Number:

**S2.3**

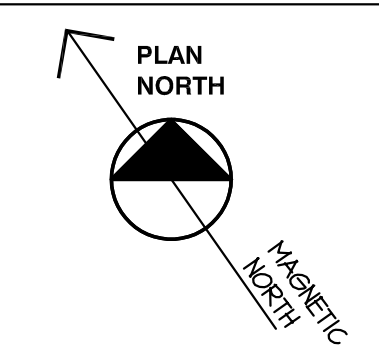


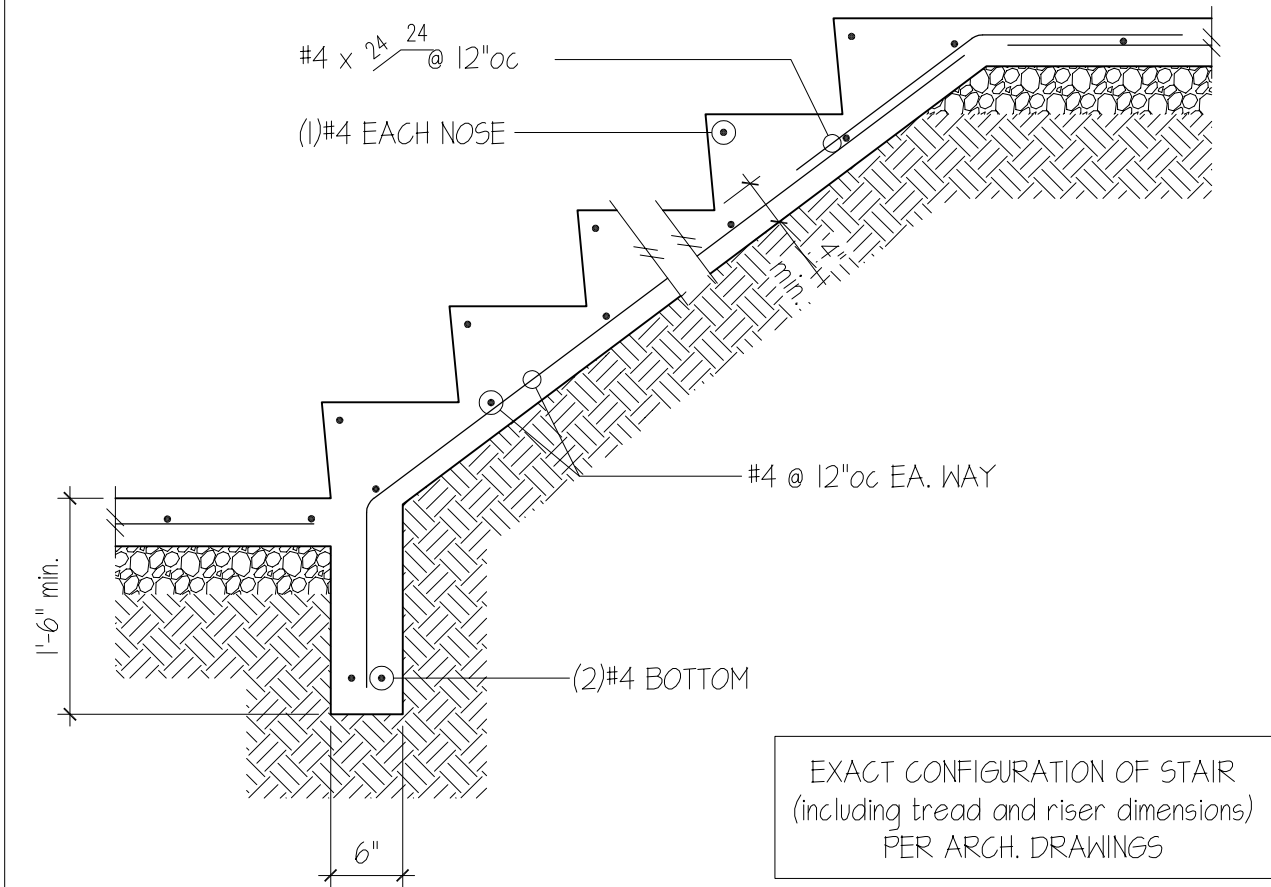
- Roof Framing Plan Notes:** (Typical Unless Noted Otherwise)
- Do not scale drawings. Refer to architectural drawings for all dimensions.
  - Roof sheathing shall be 1/2" A.P.A. rated panels (exposure 1, span rating 32/16), face grain perpendicular to supports over roof framing per plan. Nail sheathing at all framed panel edges with 8d @ 6" o.c. and to all intermediate framing at 12" o.c.
  - Headers over door and window openings shall be (2) 2x8 minimum. Provide (2) trimmer studs (minimum) at each end of all headers unless noted otherwise on plans. See Detail 6/54.1 for typical installation.
  - Provide (2) studs (minimum) at each end of all beams unless noted otherwise on plans. Bear beam fully on built up column and provide AC, PC, or LPC cap.
  - Blocked Roof diaphragm. Remove existing skip sheathing. Provide 2x4 flat blocking at all unframed panel edges. Infill with 3/4" plywood sheathing. Provide roof overlay sheathing per plan note 2. Nail both layers of sheathing to blocking with typical panel edge nailing.
  - W # indicates shear wall. See Shearwall Schedule for construction requirements.
  - All exterior walls shall be W6, unless noted otherwise on plans.
  - Provide 3/4" x 2" strips of plywood blocking above rafters, between skip sheathing boards, at all new shear walls, drag struts, and straps. Nail all straps with 8d nails.
  - Provide Hi hurricane tie at each truss/rafter where it bears on exterior wall.
  - Manufactured lumber products (LSL, LVL, PSL, GL) shall be installed with a moisture content of 12% or less. The contractor shall make provisions during construction to prevent the moisture content of installed beams from exceeding 12%.
  - Splice all top plate splices per Detail 10/54.1.
  - Refer to General Structural Notes for additional requirements.

**STRUCTURAL LEGEND**

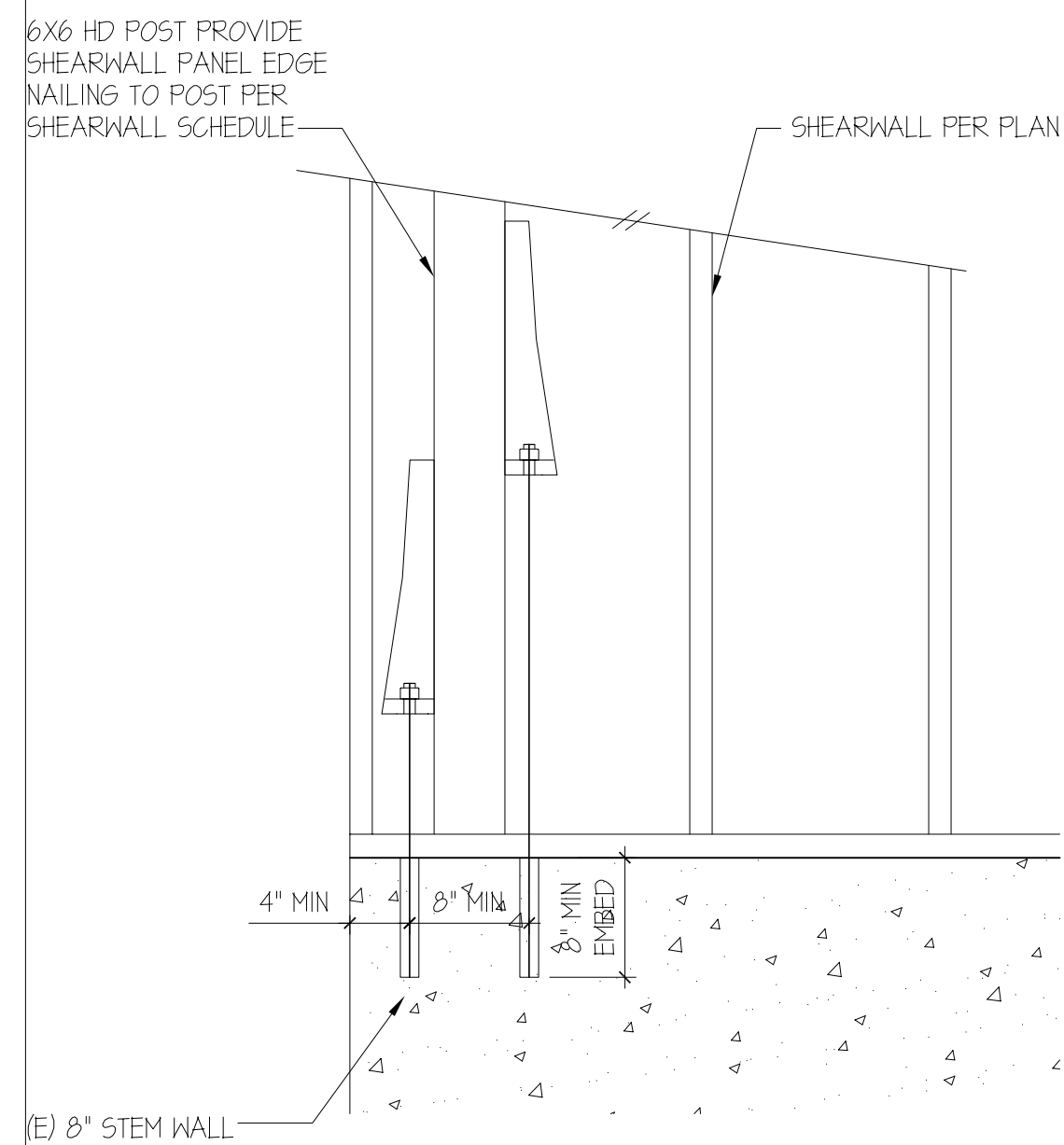
	(E) CONG. SLAB (FOR REFERENCE ONLY)		INDICATES BEAM/HANGER
	CONC. SLAB (FOR REFERENCE ONLY)		INDICATES TRUSS/HANGER
	(E) CONG. WALL (FOR REFERENCE ONLY)		INDICATES INTERIOR HEADER
	CONC. WALL (FOR REFERENCE ONLY)		POST BELOW (FOR REFERENCE ONLY)
	WALL BELOW (FOR REFERENCE ONLY)		POST ABOVE (FOR REFERENCE ONLY)
	WALL ABOVE (FOR REFERENCE ONLY)		INDICATES SPAN & DIRECTION OF FRAMING
	STRUCTURAL BEARING WALL BELOW		INDICATES EXTENT OF FRAMING
	(E) 2X4 NON BEARING WALL		CS16 STRAP OVER PLYWOOD. NAIL STRAP THROUGH PLYWOOD TO FRAMING BELOW REFER TO 5/54.1
	NEW 2X4 NON BEARING WALL		
	NEW 2X4 BEARING WALL		
	(E) 2X6 BEARING WALL		
	NEW 2X6 NON BEARING WALL		
	NEW 2X6 BEARING WALL		
	W # SHEAR WALL, REFER TO 12/54.1		

**1 ROOF FRAMING PLAN**  
SCALE: 1/4" = 1'-0"

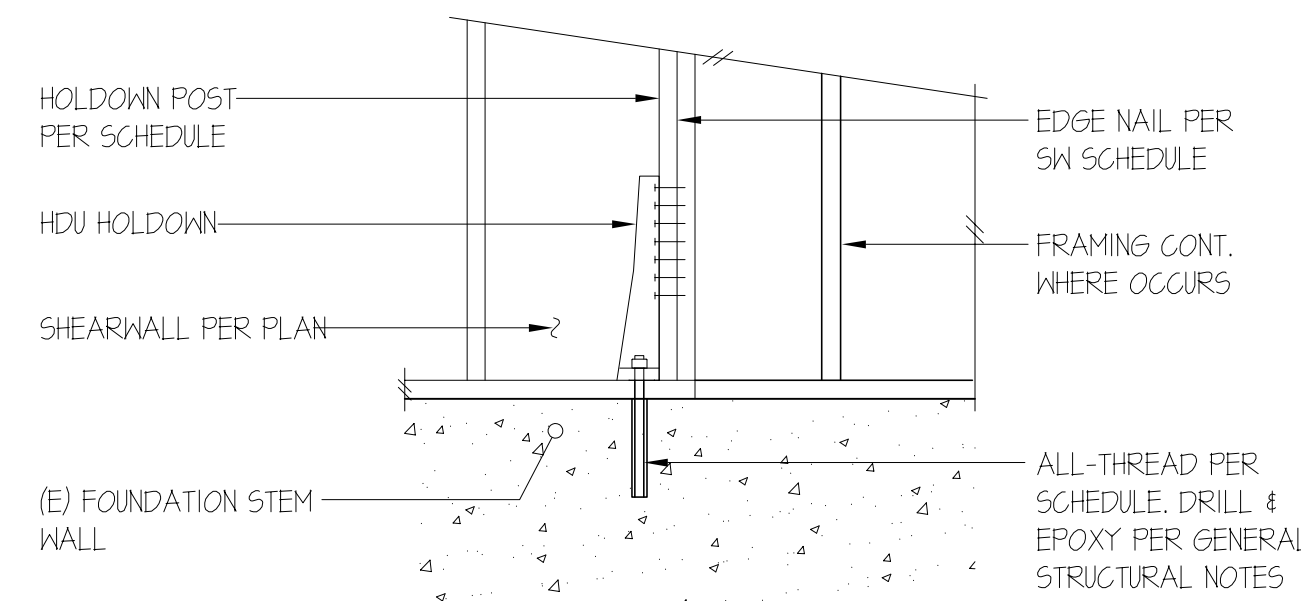




1 TYPICAL STAIR ON GRADE  
SCALE: 3/4" = 1'-0"



2 (2) HDU 4 INSTALL  
SCALE: 1" = 1'-0"

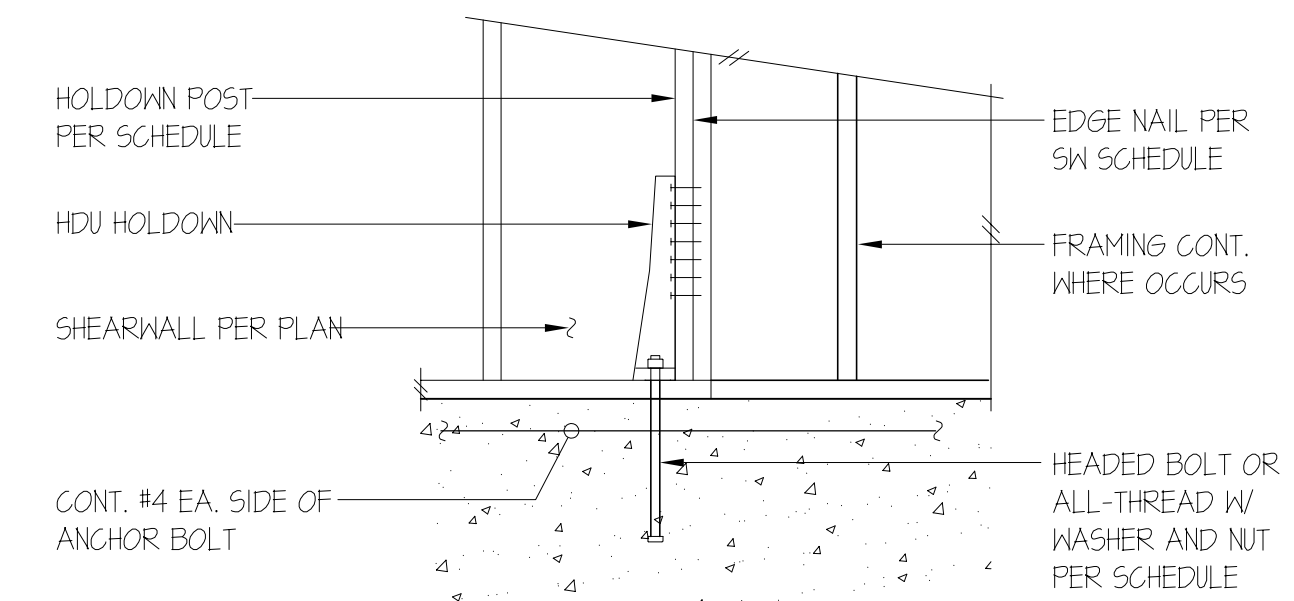


Holdown Schedule

Plan Mark	Screws	Anchor Bolt	A.B. Embed	Holdown Pos <sup>ⓐ</sup> if 2x4	if 2x6
HDU2-SDS25	(6)SDS 1/4"x2 1/2"	5/8" $\phi$	8"	(2) 2x4	(2) 2x6
(2) HDU2-SDS25	(10)SDS 1/4"x2 1/2"	5/8" $\phi$	8"	4x6	6x6

- ⓐ MINIMUM SIZE OF POST AT END OF WALL UNLESS OTHERWISE NOTED ON FRAMING PLANS.
- ⓑ SEE 2/53.1 FOR DOUBLE HD INSTALL

3 EPOXIED HDU HOLDOWN  
SCALE: 3/4" = 1'-0"

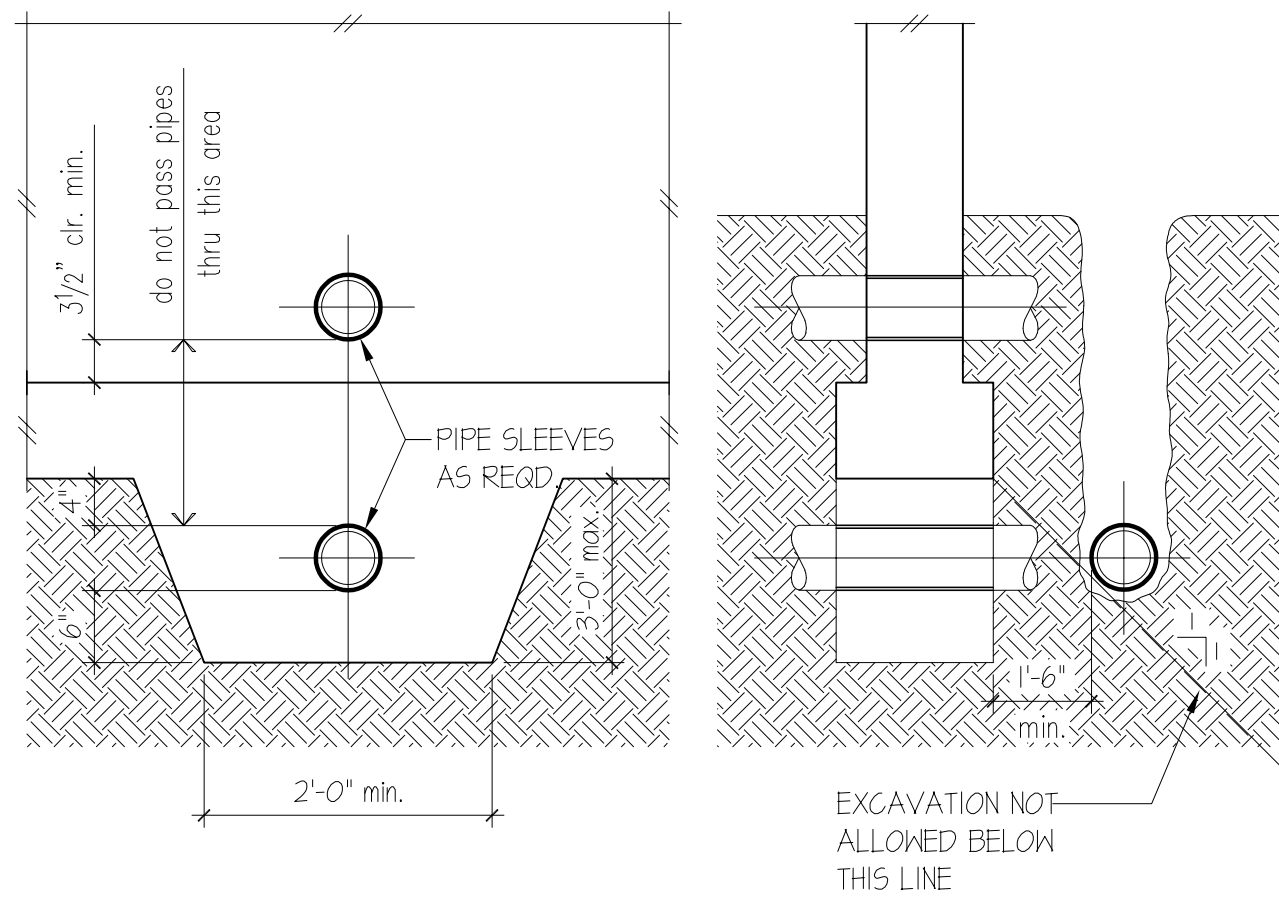


Holdown Schedule

Plan Mark	Screws	Anchor Bolt	A.B. Embed	Holdown Pos <sup>ⓐ</sup> if 2x4	if 2x6
HDU2-SDS25	(6)SDS 1/4"x2 1/2"	5/8" $\phi$	12"	(2) 2x4	(2) 2x6
HDU4-SDS25	(10)SDS 1/4"x2 1/2"	5/8" $\phi$	16"	4x4	4x6
HDU5-SDS25	(14)SDS 1/4"x2 1/2"	5/8" $\phi$	5E5/8x24	4x4	4x6

- ⓐ MINIMUM SIZE OF POST AT END OF WALL UNLESS OTHERWISE NOTED ON FRAMING PLANS.

4 TYPICAL HDU HOLDOWN  
SCALE: 3/4" = 1'-0"



5 PIPE & TRENCH LOCATIONS  
SCALE: 3/4" = 1'-0"

Reinforcing Splice and Development Length Schedule

For  $f'_c = 3000$  psi, Grade 60 Reinforcing

(I) Minimum Straight Development Length ( $l_d$ )

Bar Size	Top Bars	Other Bars
#3	21"	16"
#4	28"	22"
#5	36"	27"
#6	43"	33"
#7	62"	48"
#8	71"	55"
#9	80"	62"
#10	90"	70"
#11	100"	77"

(II) Minimum Lap Splice Lengths ( $l_s$ )

Bar Size	Top Bars	Other Bars
#3	28"	21"
#4	37"	28"
#5	46"	36"
#6	56"	43"
#7	81"	62"
#8	93"	71"
#9	104"	80"
#10	118"	90"
#11	131"	100"

TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

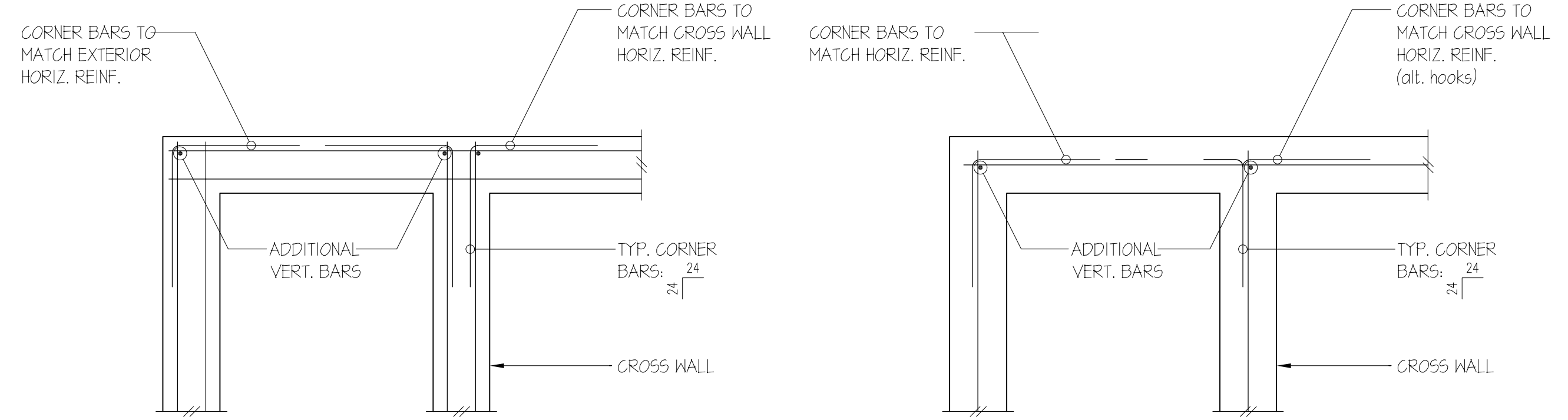
IF CLEAR CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR, OR THE CENTER TO CENTER SPACING IS NOT GREATER THAN 3 BAR DIAMETERS, THEN LENGTHS SHALL BE INCREASED BY 50%

(III) Minimum Embedment Lengths ( $l_{dh}$ ) For Standard End Hooks

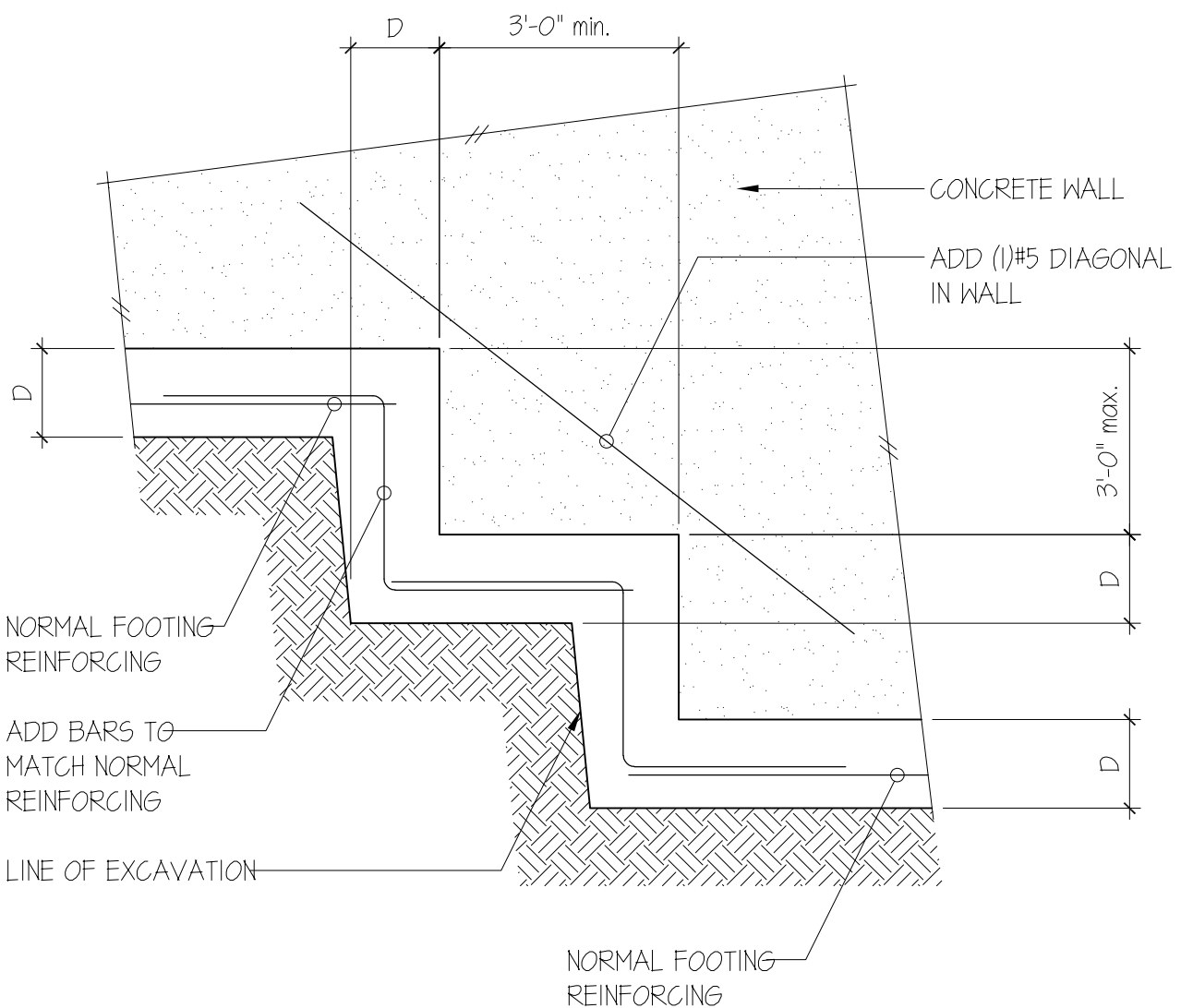
Bar Size	Length
#3	6"
#4	8"
#5	10"
#6	12"
#7	13"
#8	15"
#9	17"
#10	19"
#11	22"

- 1. SIDE COVER MUST BE EQUAL TO OR GREATER THAN 2"
- 2. END COVER FOR 90° HOOKS MUST BE EQUAL TO OR GREATER THAN 2"

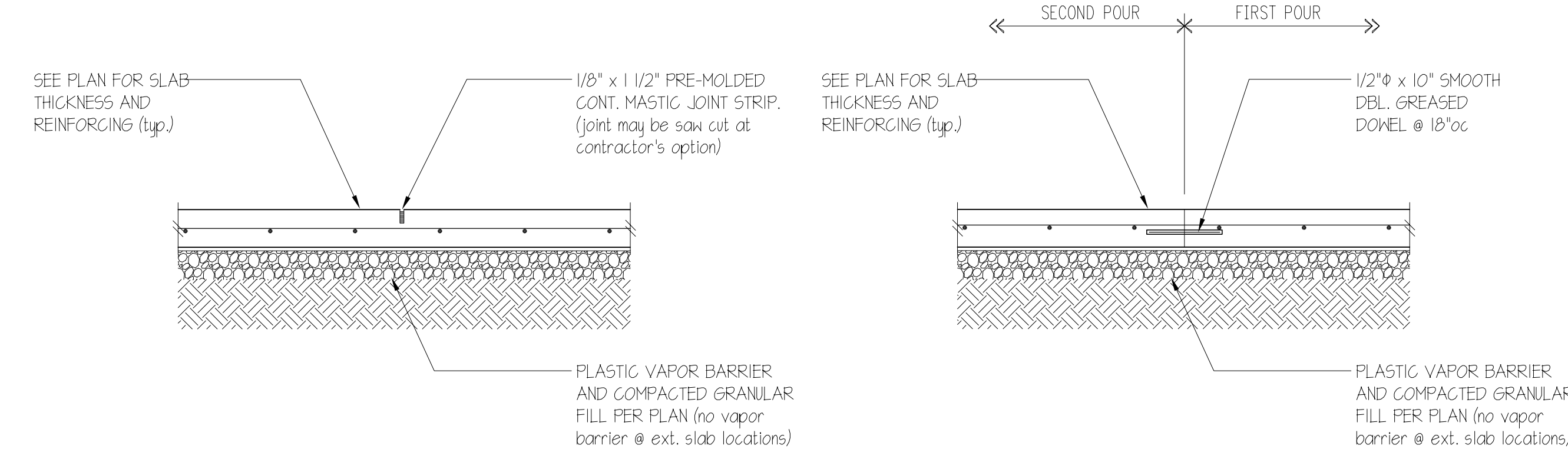
10 REINFORCING SPLICE LENGTH & DEVELOPMENT LENGTH (3000 PSI)  
SCALE: 3/4" = 1'-0"



8 TYPICAL CORNER BARS AT CONCRETE WALLS AND FOOTINGS  
SCALE: 3/4" = 1'-0"

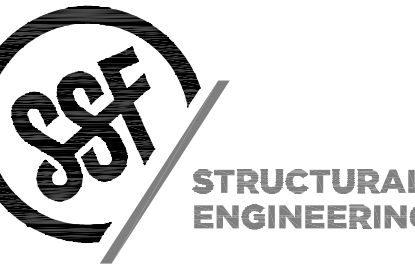
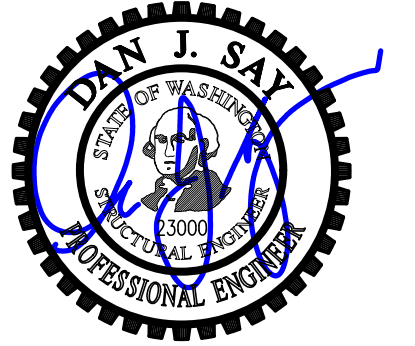


9 TYPICAL STEPPED FOOTING  
SCALE: 3/4" = 1'-0"



PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLABS ON GRADE TO BREAK UP SLAB INTO RECTANGULAR AREAS OF 250 SQUARE FEET OR LESS. AREAS TO BE APPROX. SQUARE AND HAVE NO ACUTE ANGLES. JOINT LOCATIONS TO BE APPROVED BY THE ARCHITECT.

12 TYPICAL SLAB JOINTS  
SCALE: 3/4" = 1'-0"



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△ PERMIT. REV. 10/30/2020

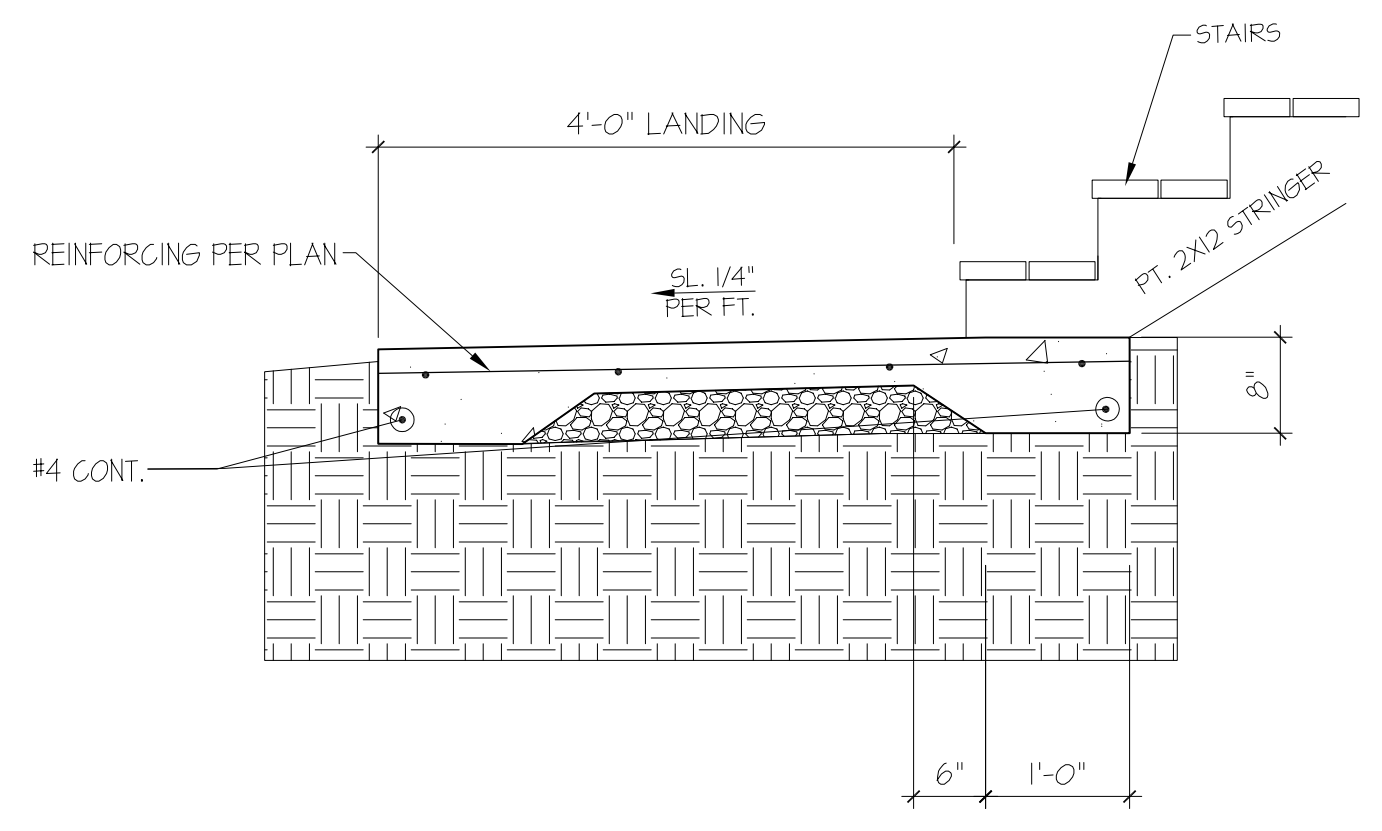
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Modifications to  
**LAWLER RESIDENCE**  
8466 N MERCER WAY,  
MERCER ISLAND, WA, 98040

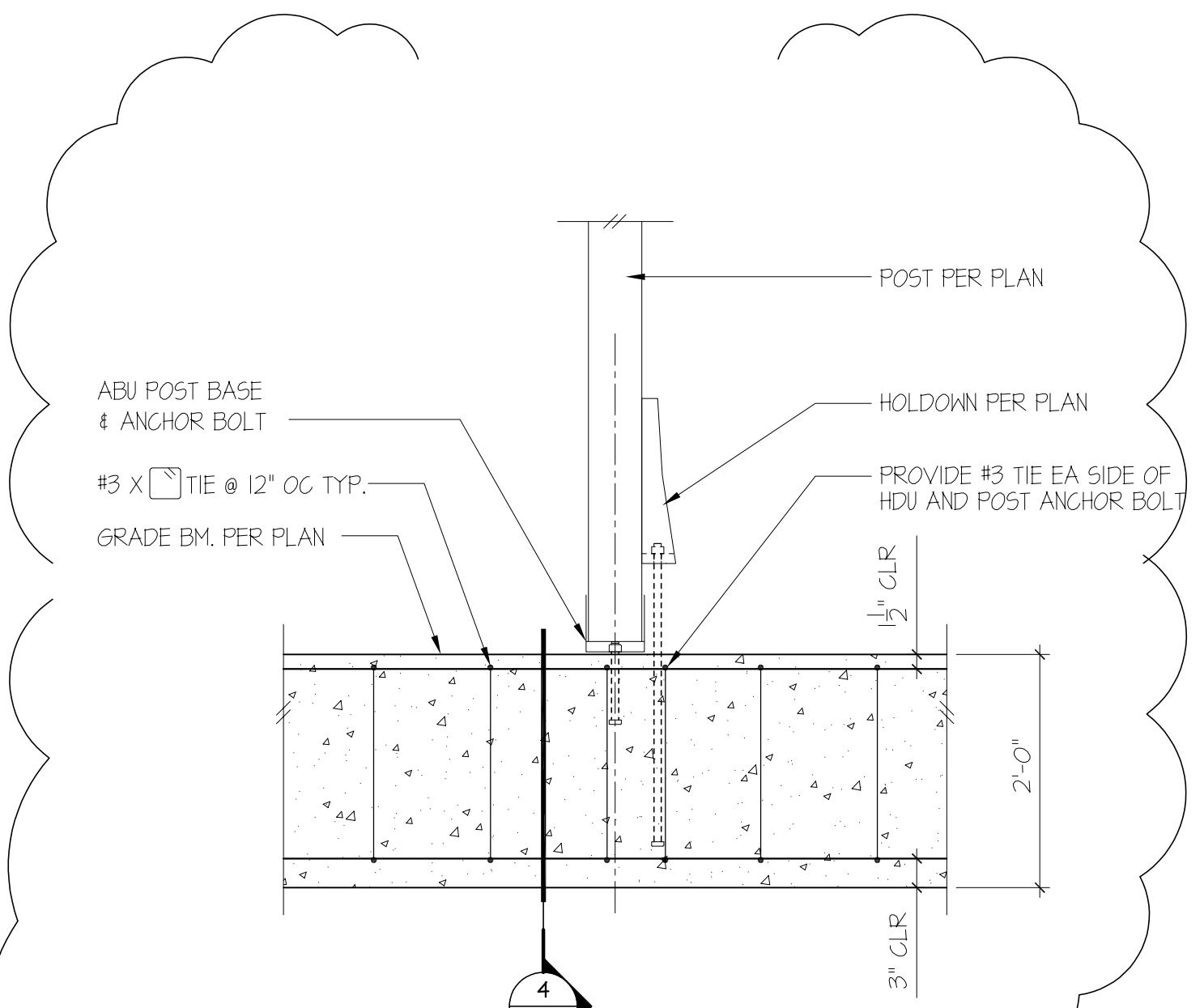
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CONCRETE STRUCTURAL DETAILS

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Project No.: 20-05  
Date: 6/30/2020  
Sheet Number:

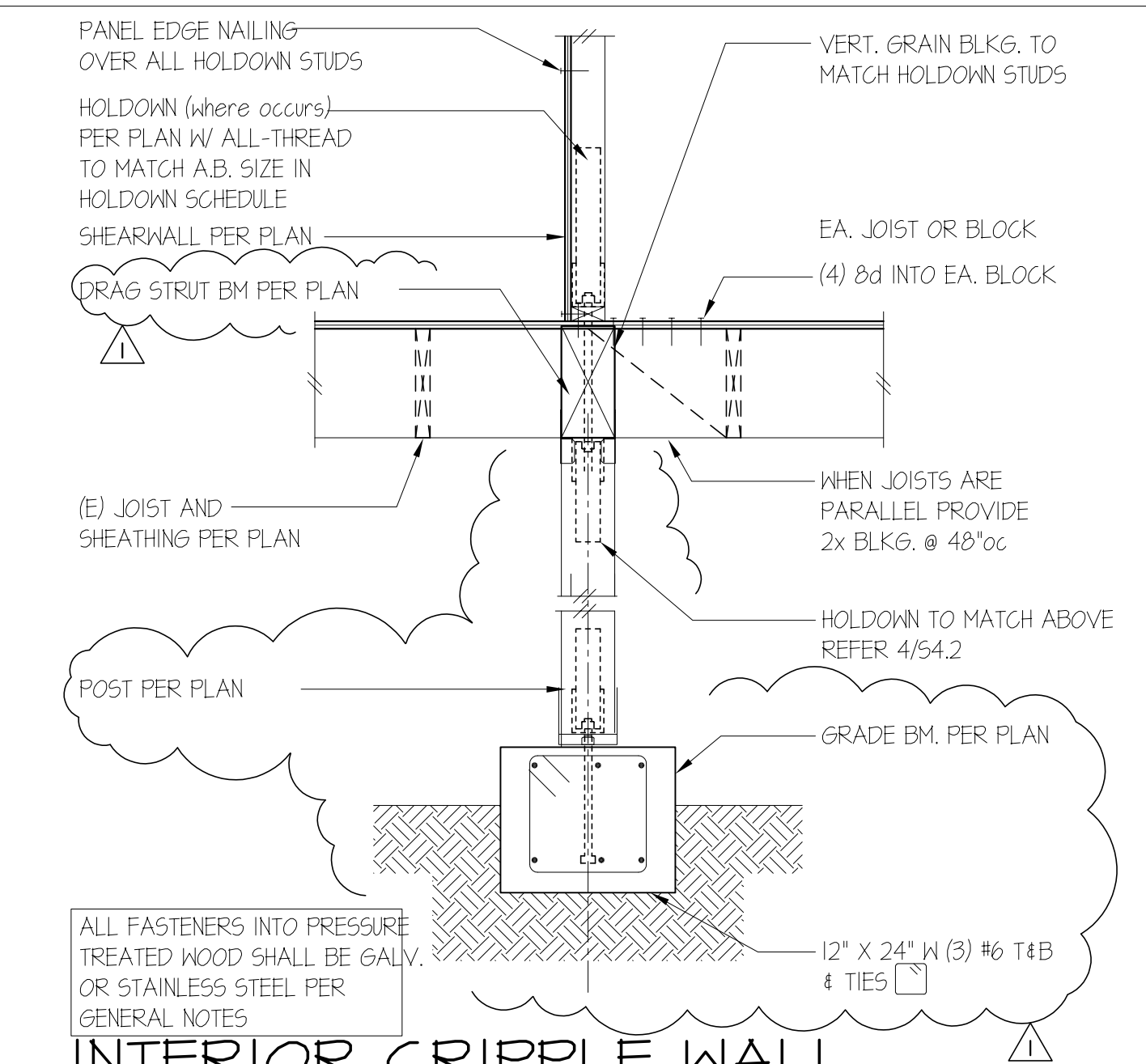
S3.1



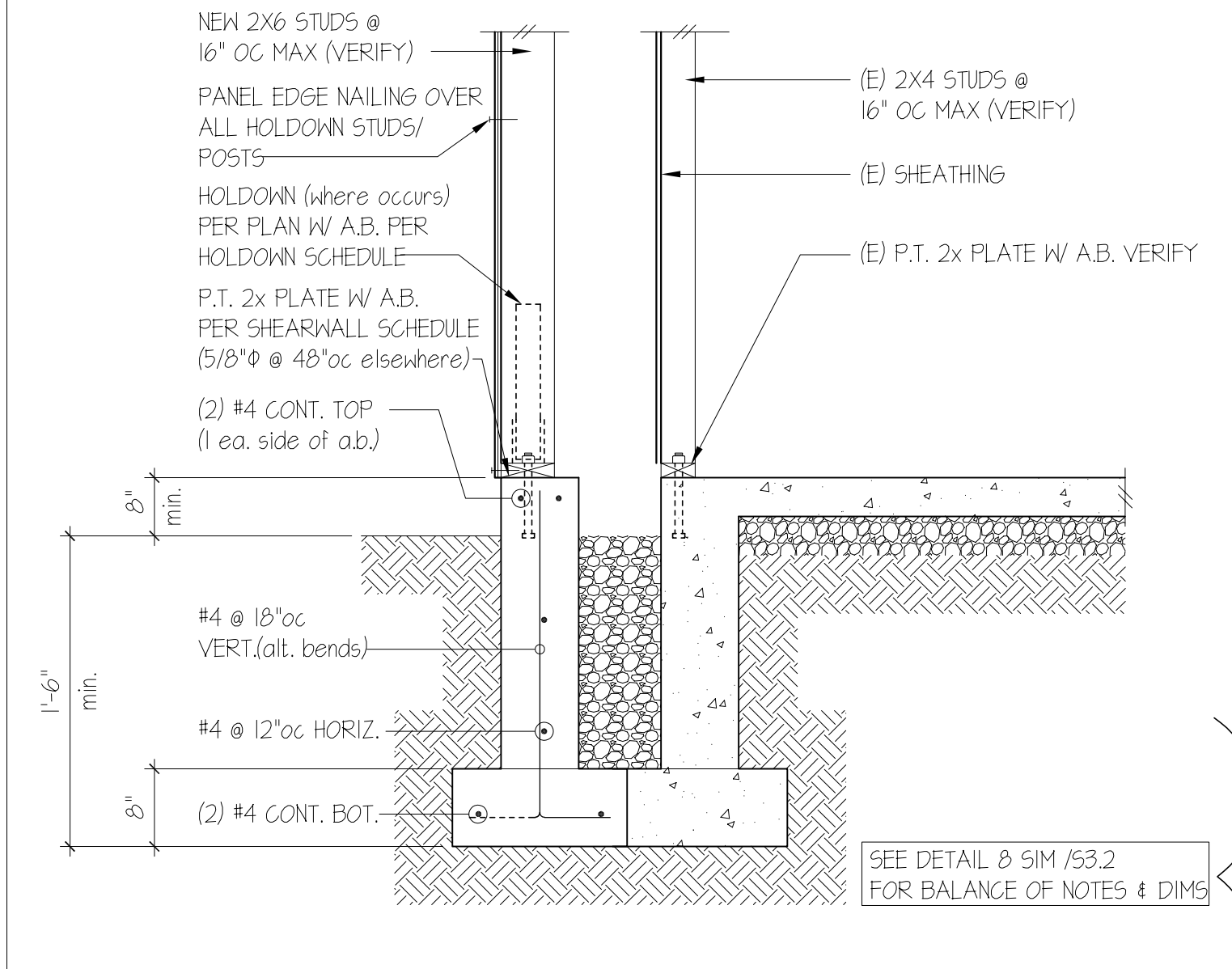
**2 DECK STAIR LANDING/ FTG**  
SCALE: 3/4" = 1'-0"



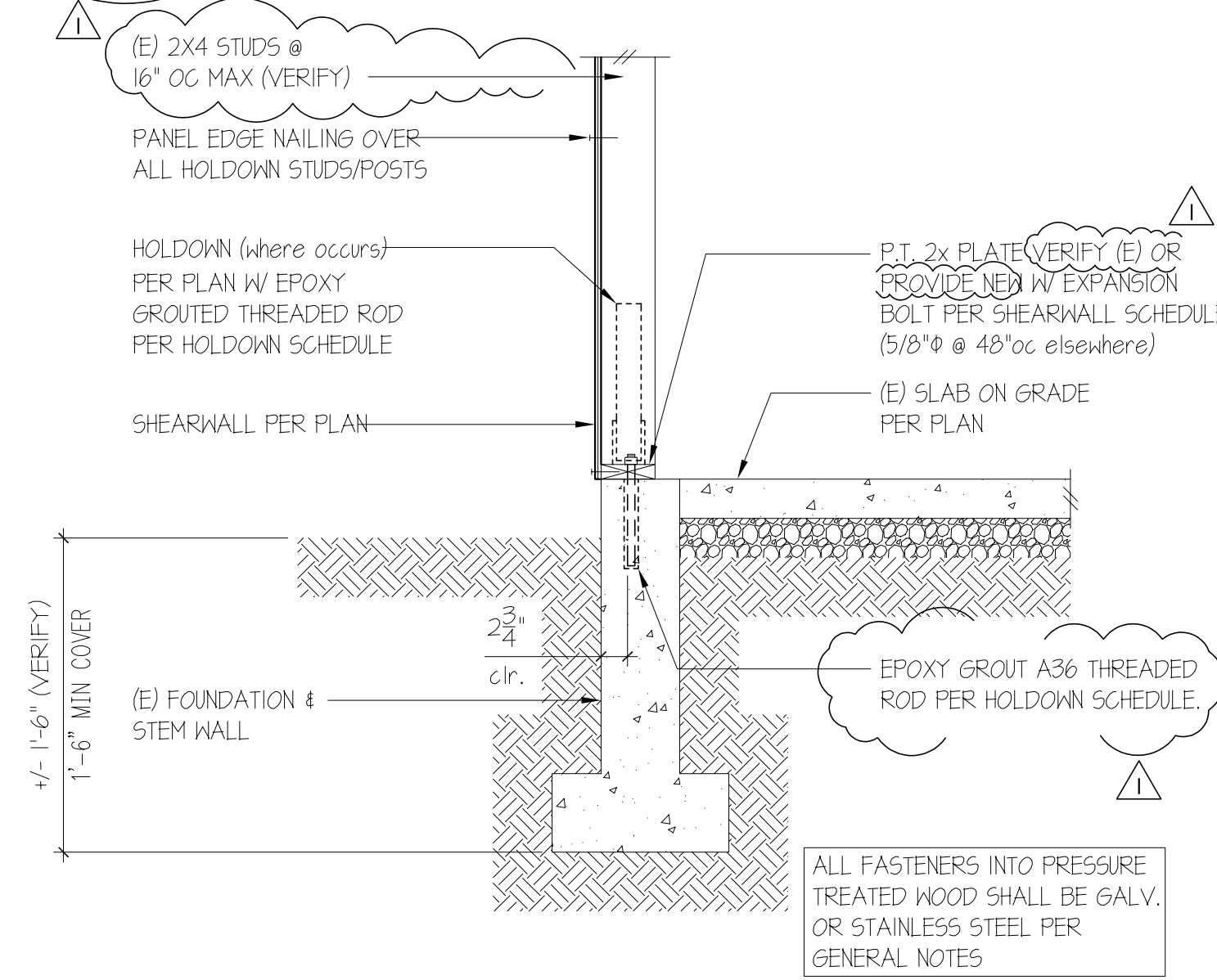
**3 GRADE BEAM @ CRAWL SPACE**  
SCALE: 3/4" = 1'-0"



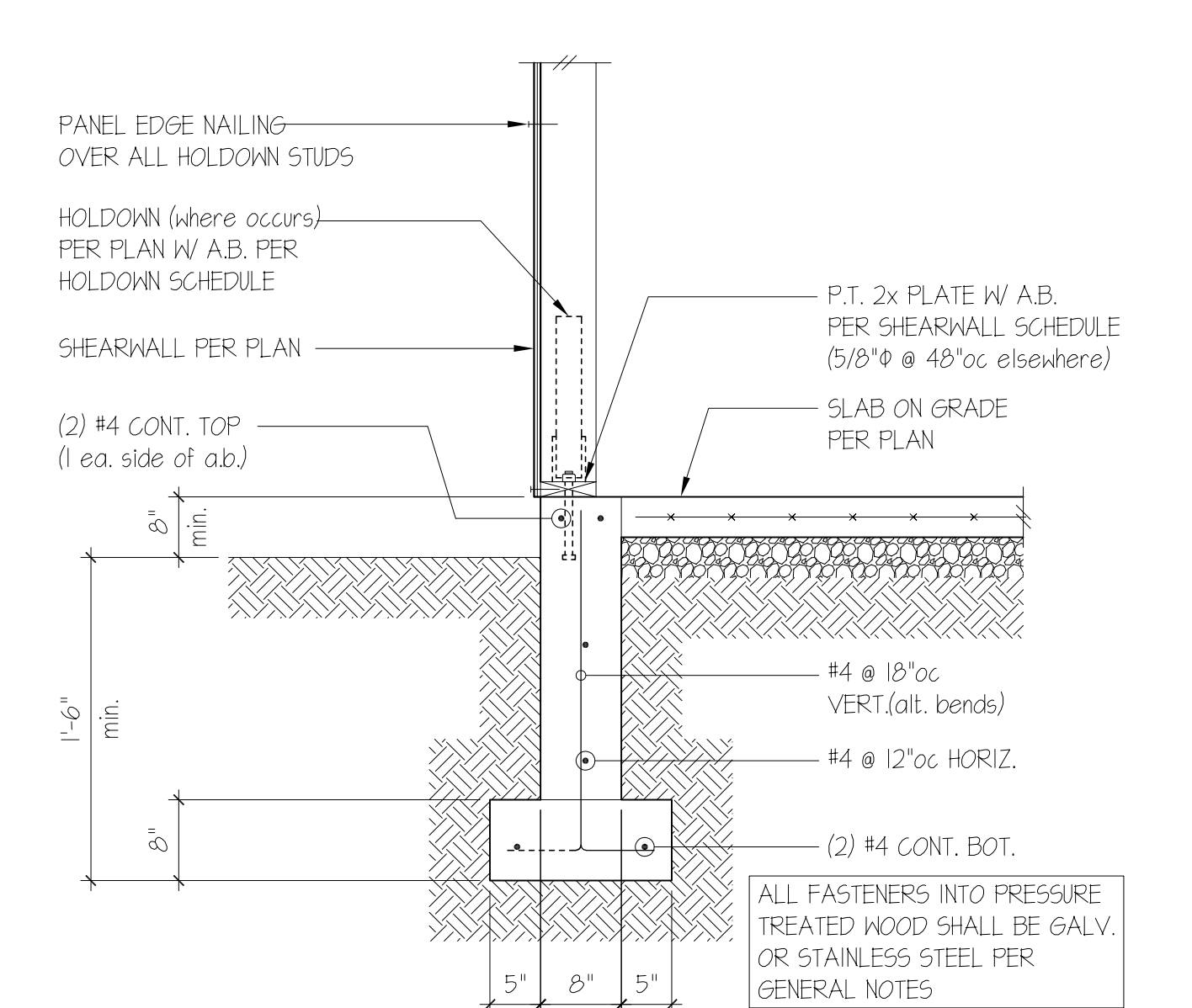
**4 INTERIOR CRIPPLE WALL AT CRAWL SPACE**  
SCALE: 3/4" = 1'-0"



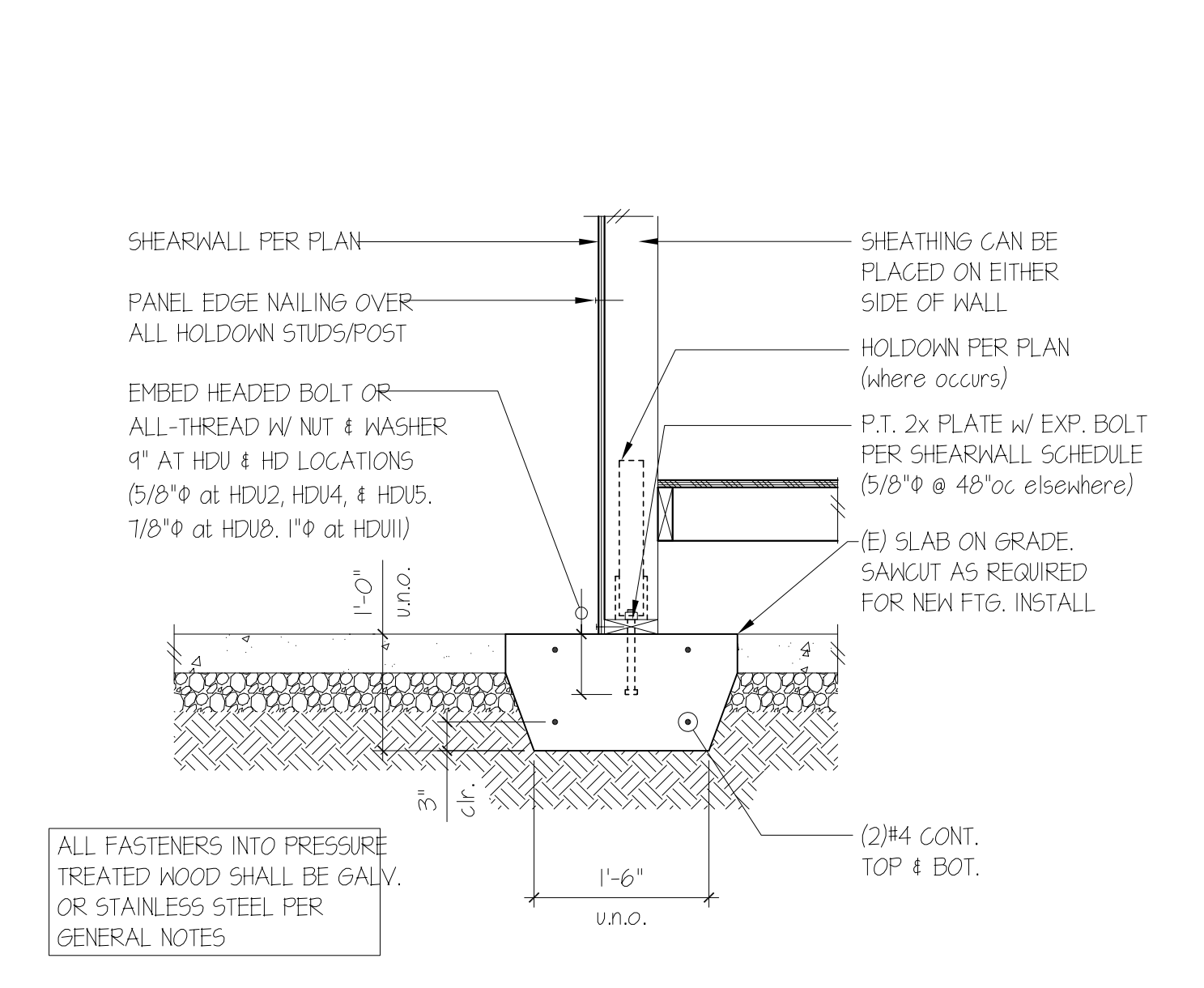
**6 NEW EXTERIOR WALL W/ NEW FOUNDATION**  
SCALE: 3/4" = 1'-0"



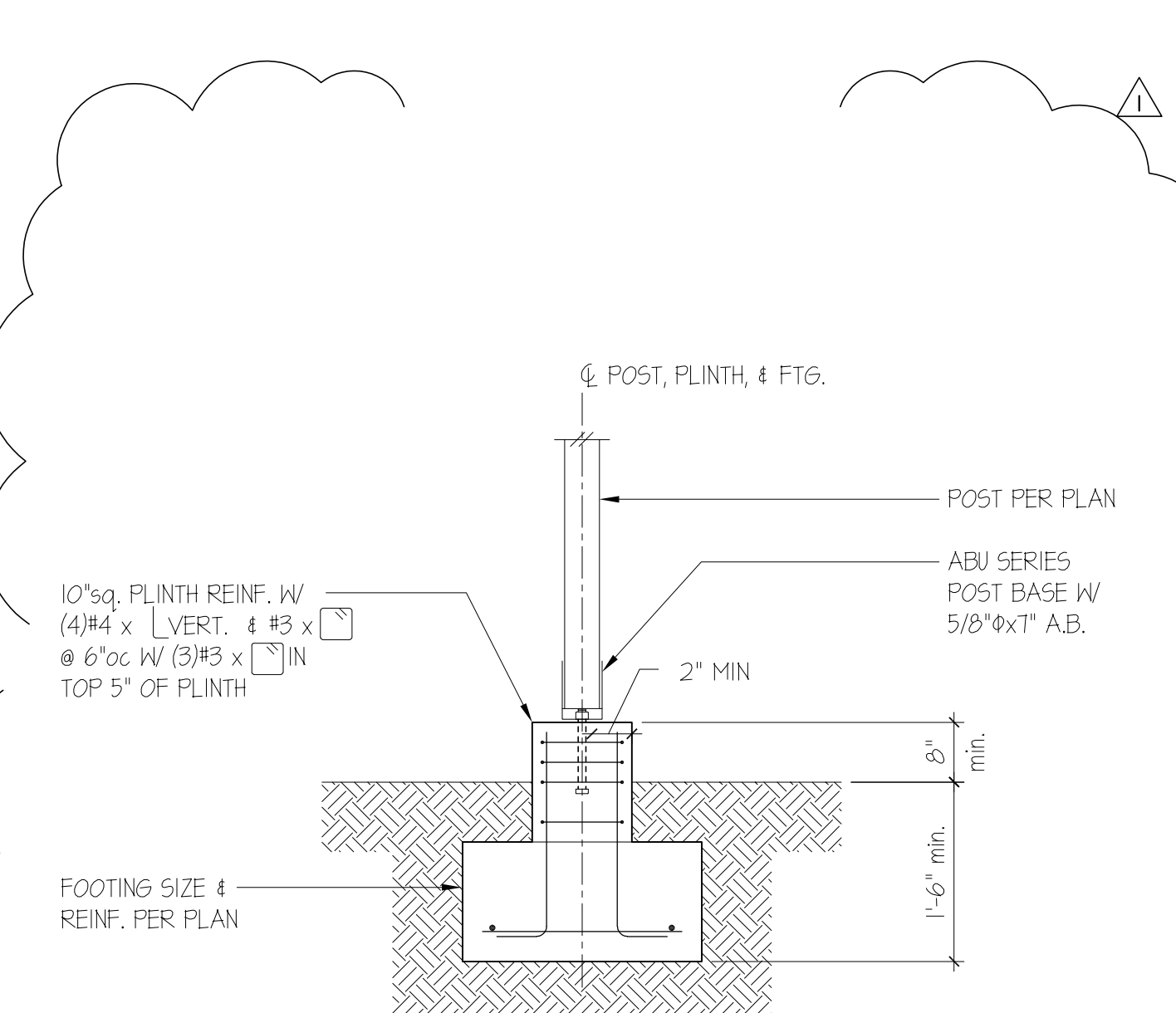
**7 EXTERIOR FRAMED WALL ON EXISTING FOUNDATION**  
SCALE: 3/4" = 1'-0"



**8 EXTERIOR WALL W/ SLAB ON GRADE**  
SCALE: 3/4" = 1'-0"



**11 NEW INTERIOR WALL & FOUNDATION W/ EXISTING SLAB**  
SCALE: 3/4" = 1'-0"



**12 DECK OR CANOPY POST FOOTING - SQUARE**  
SCALE: 3/4" = 1'-0"

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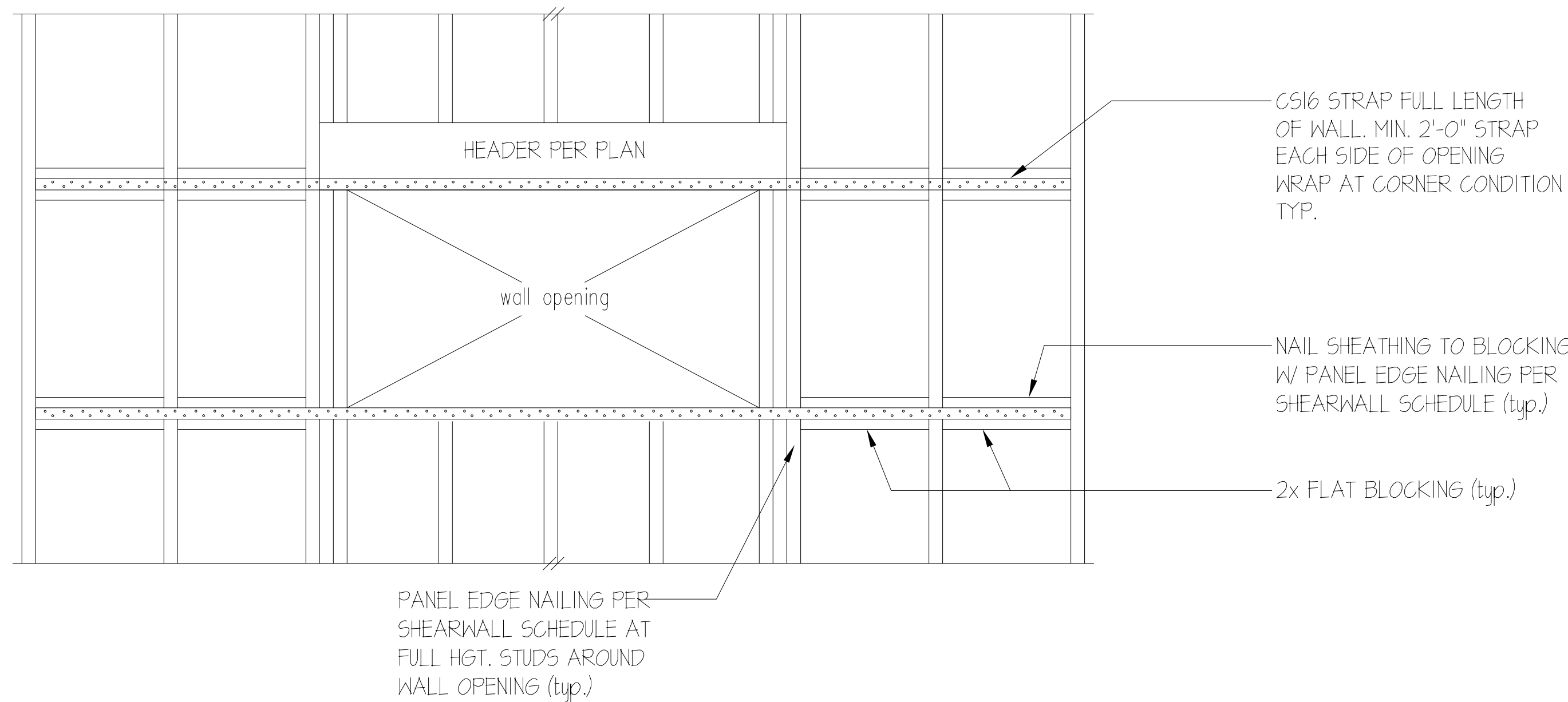
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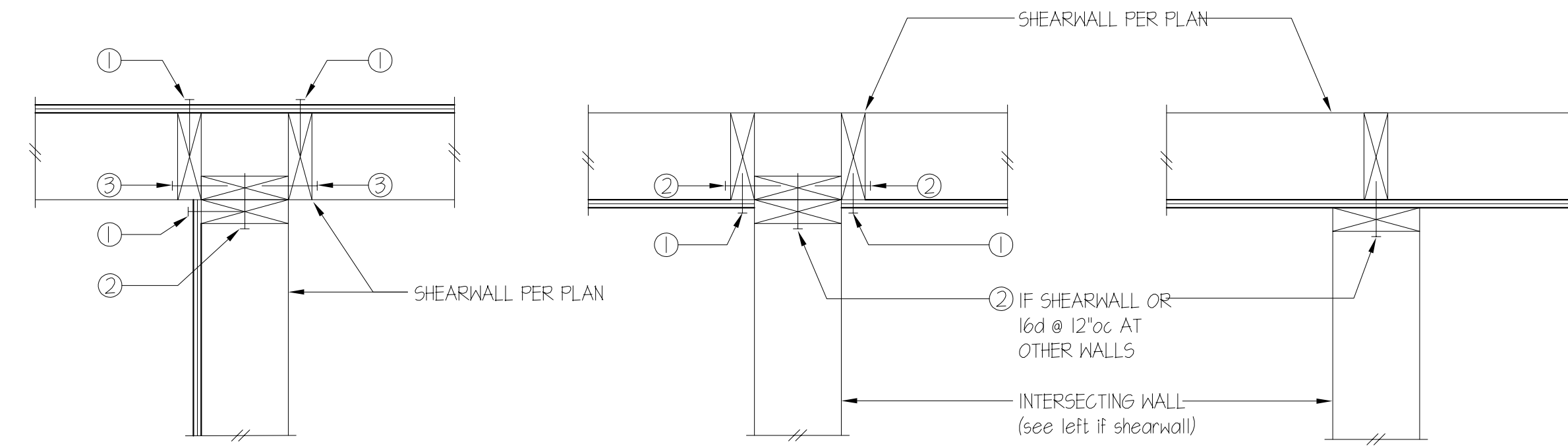
Sheet Title:  
**CONCRETE STRUCTURAL DETAILS**

Scale: **SCALE VARIES**  
 Project No.: 20-05  
 Date: 6/30/2020  
 Sheet Number:

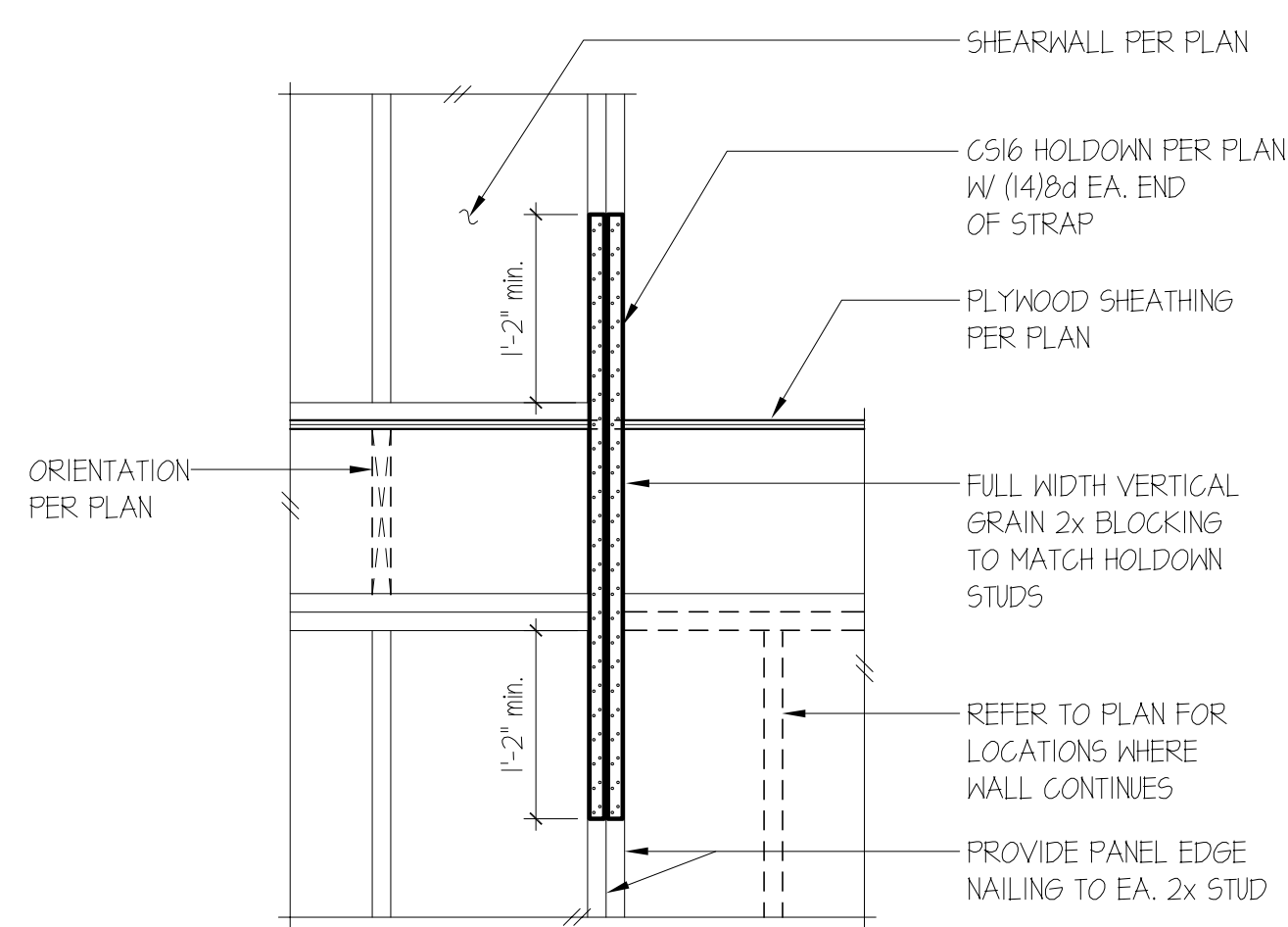
**S3.2**



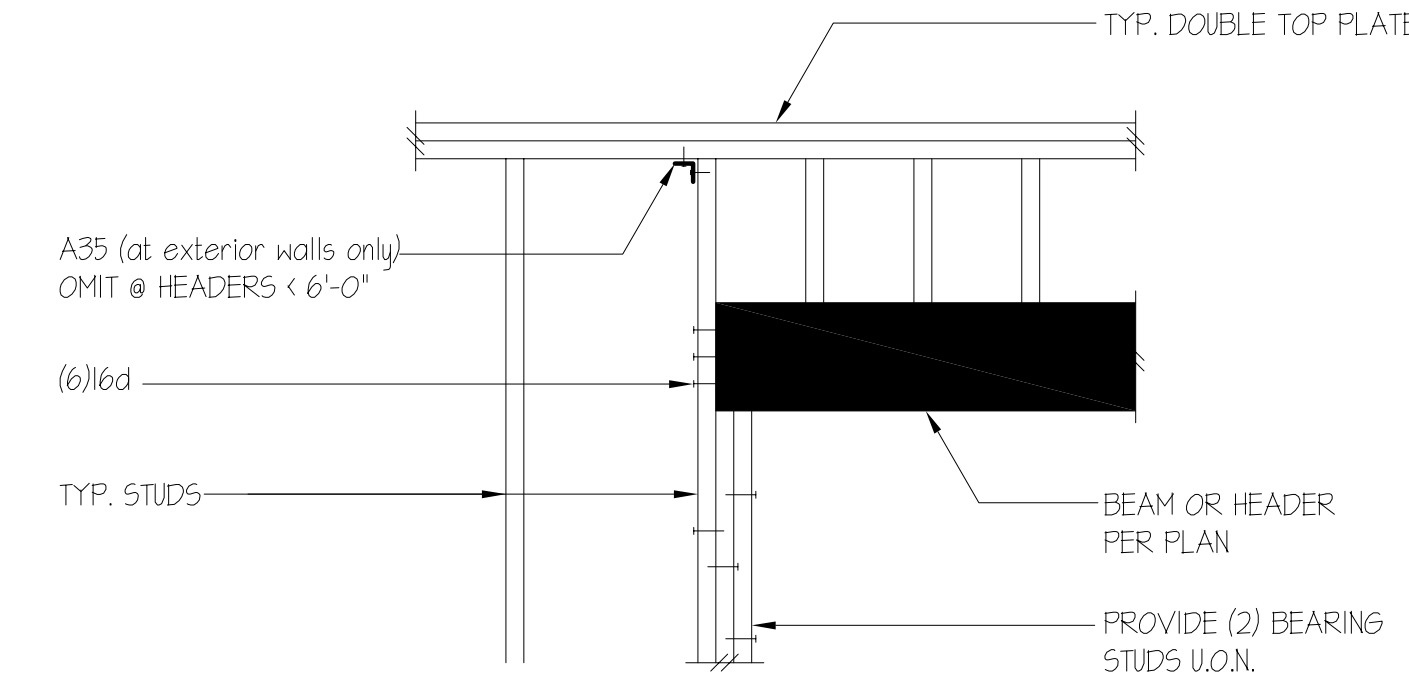
**2** CONTINUOUS STRAPS AT WALL OPENING (ABOVE & BELOW)  
SCALE: 1" = 1'-0"



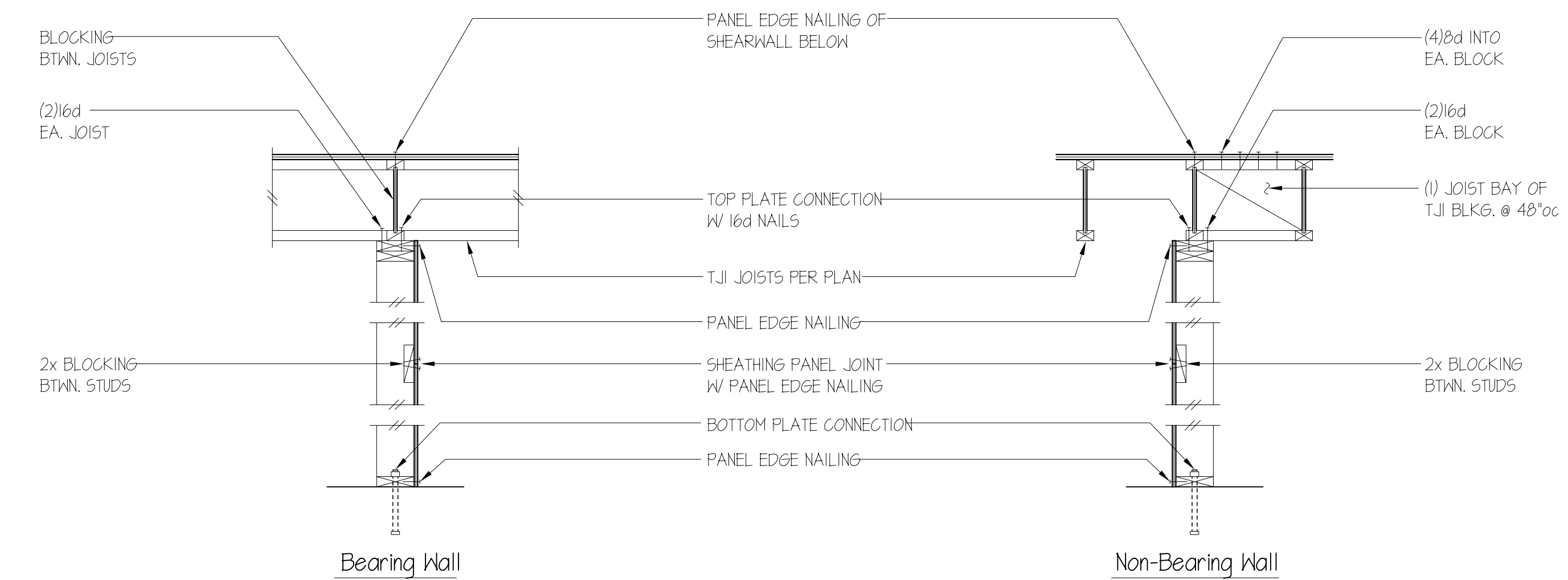
**4** TYPICAL SHEARWALL INTERSECTION  
SCALE: 3/4" = 1'-0"



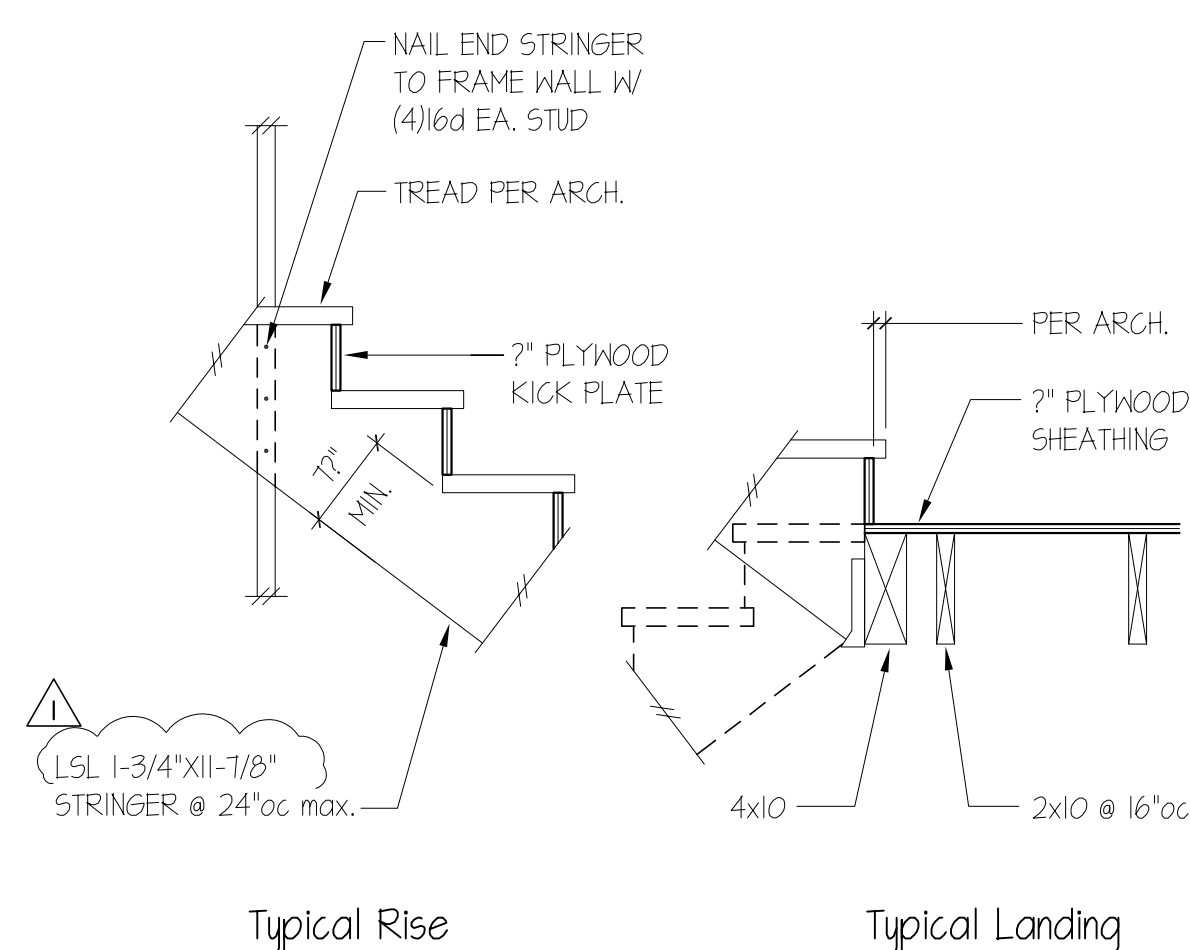
**5** TYPICAL CS16 HOLDDOWN  
SCALE: 3/4" = 1'-0"



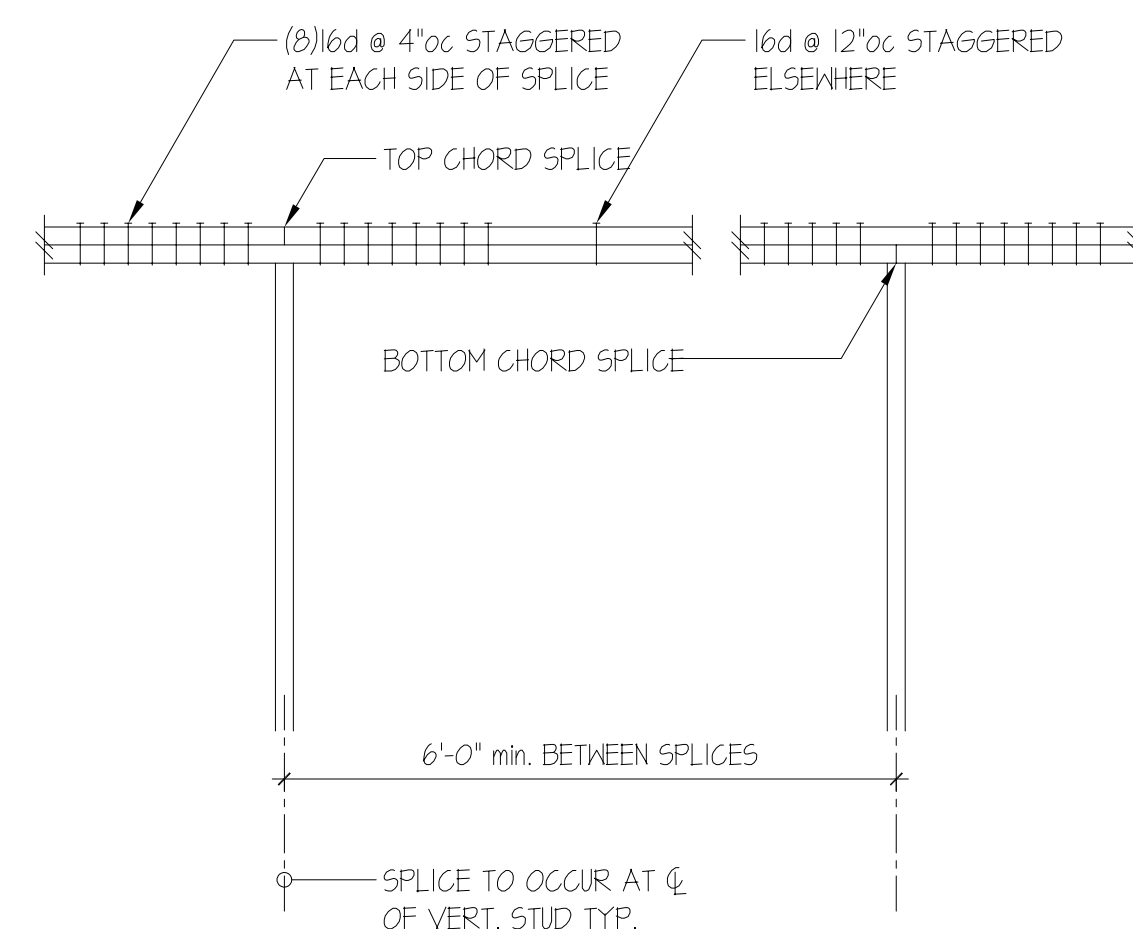
**6** TYPICAL HEADER SUPPORT W/ 2 BEARING STUDS  
SCALE: 3/4" = 1'-0"



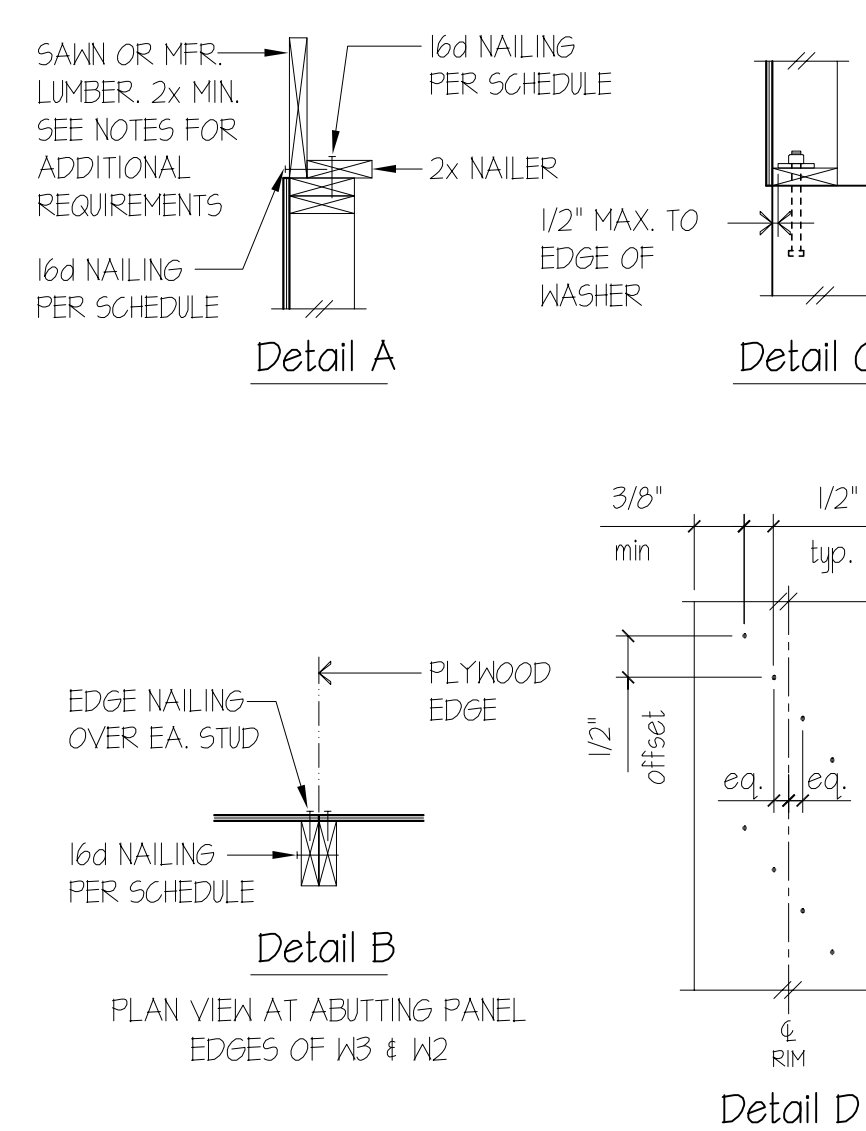
**8** TYPICAL SHEARWALL CONSTRUCTION (W/ TJI'S)  
SCALE: 3/4" = 1'-0"



**9** TYPICAL STAIR AND LANDING DETAIL  
SCALE: 3/4" = 1'-0"



**10** TYPICAL TOP PLATE SPLICE  
SCALE: 3/4" = 1'-0"



**12** SHEARWALL SCHEDULE - (SHEATHING ONE SIDE)  
SCALE: 3/4" = 1'-0"

Shearwall Schedule 000000

Mark	Sheathing	Panel Edge Nailing	Top Plate Connection		Base Plate Connection	
			if TJI	if Wood	at Wood	at Concrete
W6	15/32" CDX PLYWOOD	8d @ 6"oc	16d @ 6"oc	A35 @ 24"oc	16d @ 6"oc	7"φ A.B. @ 48"oc
W4	15/32" CDX PLYWOOD	8d @ 4"oc	16d @ 4"oc	A35 @ 16"oc	(2)rows 16d @ 6"oc	7"φ A.B. @ 32"oc
W3	15/32" CDX PLYWOOD	8d @ 3"oc	(2)rows 16d @ 4"oc	A35 @ 12"oc	(2)rows 16d @ 6"oc	7"φ A.B. @ 24"oc
W2	15/32" CDX PLYWOOD	8d @ 2"oc	(2)rows 16d @ 4"oc	A35 @ 9"oc	(2)rows 16d @ 4"oc	7"φ A.B. @ 16"oc

- BLOCK PANEL EDGES WITH 2x MIN. LAID FLAT AND NAIL PANELS TO INTERMEDIATE SUPPORTS WITH 8d @ 12"oc.
- 8d NAILS SHALL BE 0.131"φ x 2 1/2" (common) - 16d NAILS SHALL BE 0.135"φ x 3 1/2" (box)
- EMBED ANCHOR BOLTS AT LEAST 7". EXPANSION BOLTS MAY BE SUBSTITUTED FOR ANCHOR BOLTS WITH 4" EMBEDMENT. TITEN HD SCREW ANCHORS MAY BE SUBSTITUTED FOR ANCHOR BOLTS W/ 4" EMBEDMENT. ALL BOLTS SHALL HAVE 3" x 3" x 1/4" MIN. PLATE WASHERS. PLATE WASHERS SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE WITH SHEATHING. SEE DETAIL C.
- 3x STUDS OR DOUBLE STUDS NAILED TOGETHER W/ BASE PLATE NAILING ARE REQUIRED AT ABUTTING PANEL EDGES OF W3 AND W2. SEE DETAIL B. WHERE 3x STUDS ARE USED FOR W2, STAGGER NAILS AT ADJOINING PANEL EDGES.
- TWO STUDS MINIMUM ARE REQUIRED AT EACH END OF ALL SHEARWALLS AND ALL END STUDS SHALL RECEIVE PANEL EDGE NAILING. SEE PLANS AND HOLDOWN SCHEDULE FOR ALTERNATE REQUIREMENTS.
- ALL EXTERIOR WALLS SHALL BE W6, UNLESS NOTED OTHERWISE.
- 7/16" O.S.B. MAY BE SUBSTITUTED FOR 15/32" CDX.
- LTP4's (HORIZONTAL ORIENTATION) W/ 8d COMMON MAY BE SUBSTITUTED FOR A35's AT CONTRACTORS OPTION.
- A 2x NAILER ATTACHED W/ BASE PLATE NAILING PER DETAIL A MAY BE SUBSTITUTED FOR A35's AT CONTRACTORS OPTION.
- AT MULTI-ROW NAILING, MINIMUM OFFSET BETWEEN ROWS AND ROW SPACING 1/2", SEE DETAIL D.
- PROVIDE (3) ROWS 16d @ 6"oc AT LVL RIMS.

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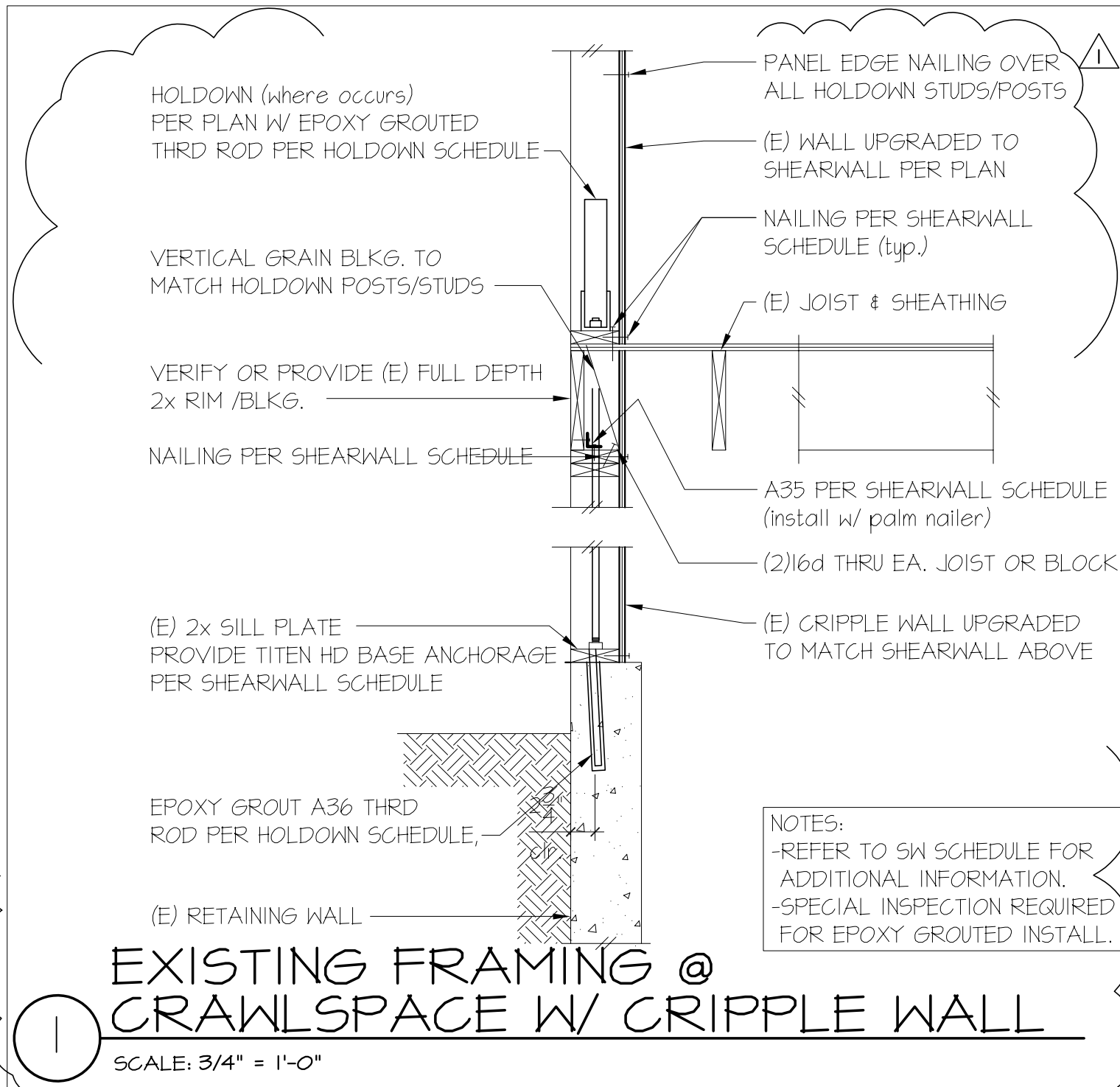
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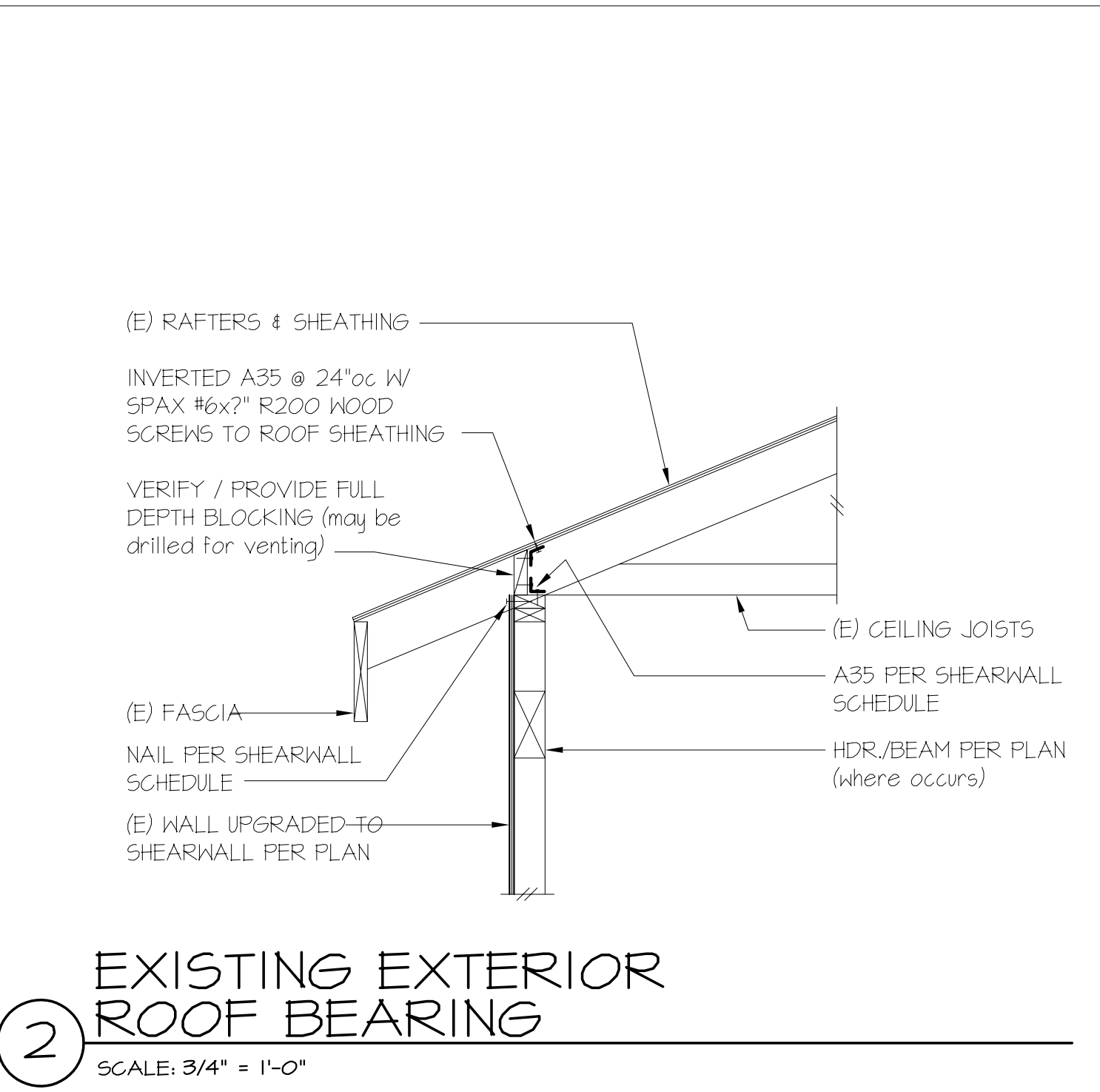
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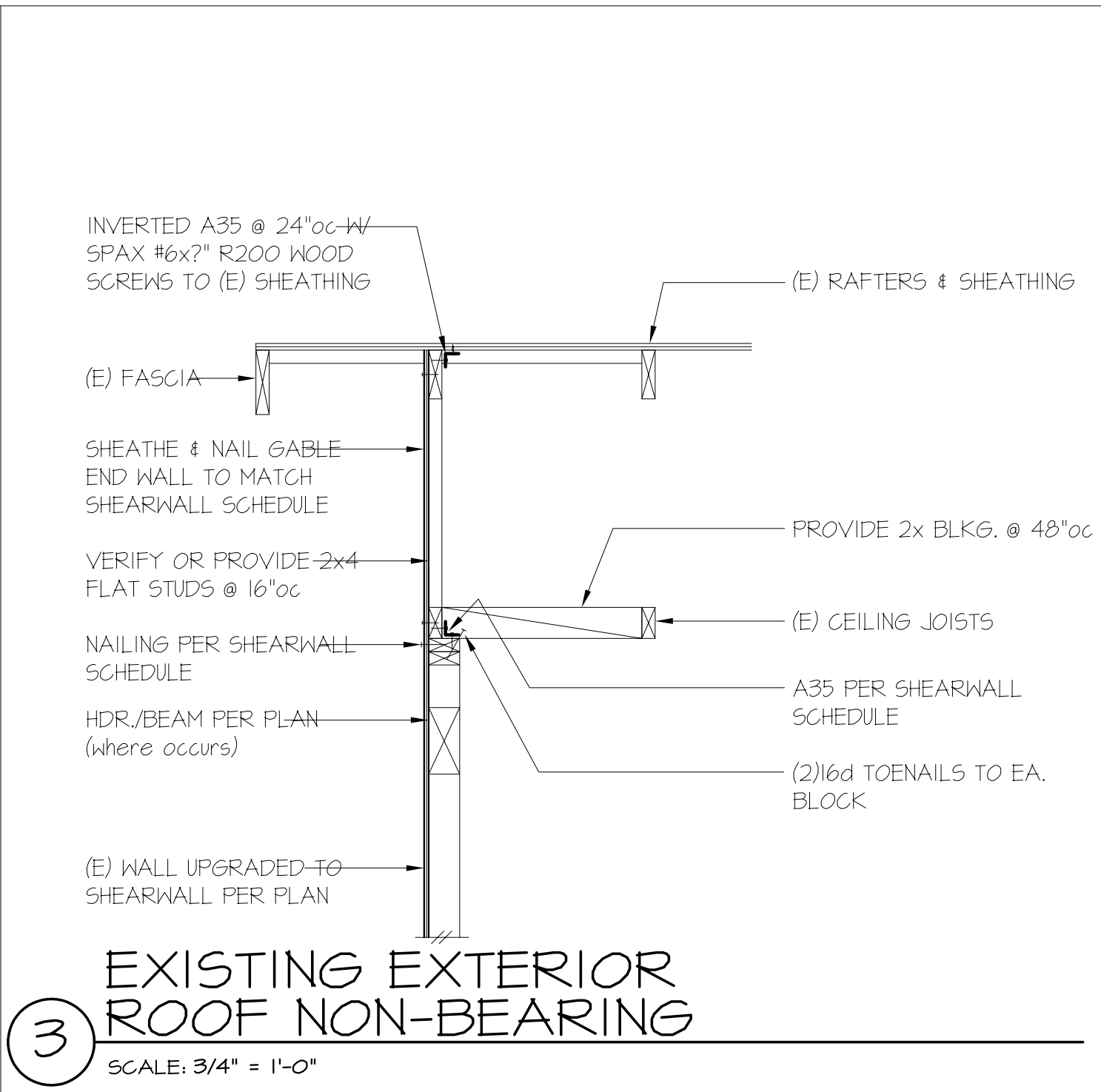
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Project No.: 20-05  
Date: 6/30/2020  
Sheet Number: \_\_\_\_\_



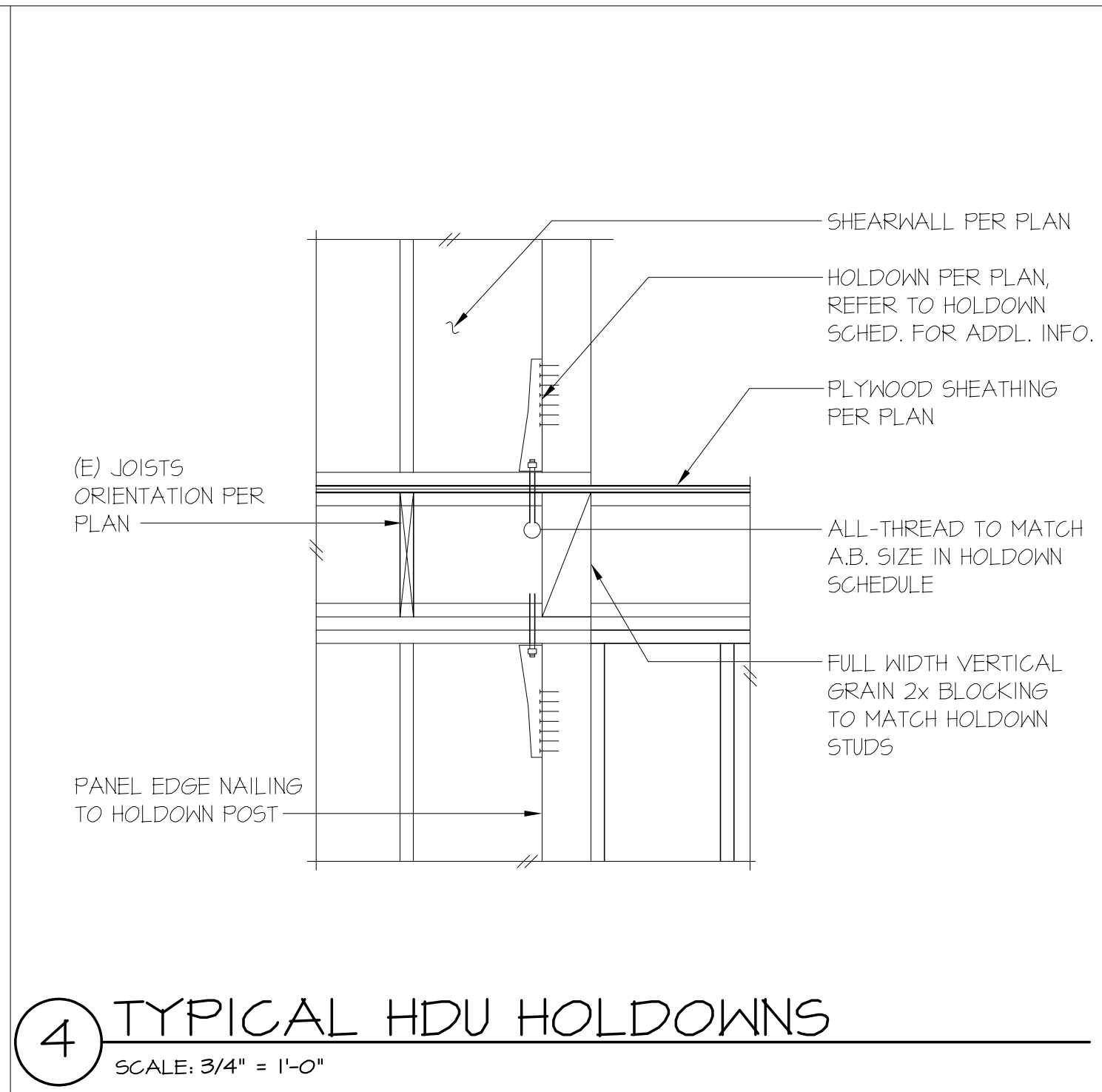
**1** EXISTING FRAMING @ CRAWLSPACE W/ CRIPPLE WALL  
SCALE: 3/4" = 1'-0"



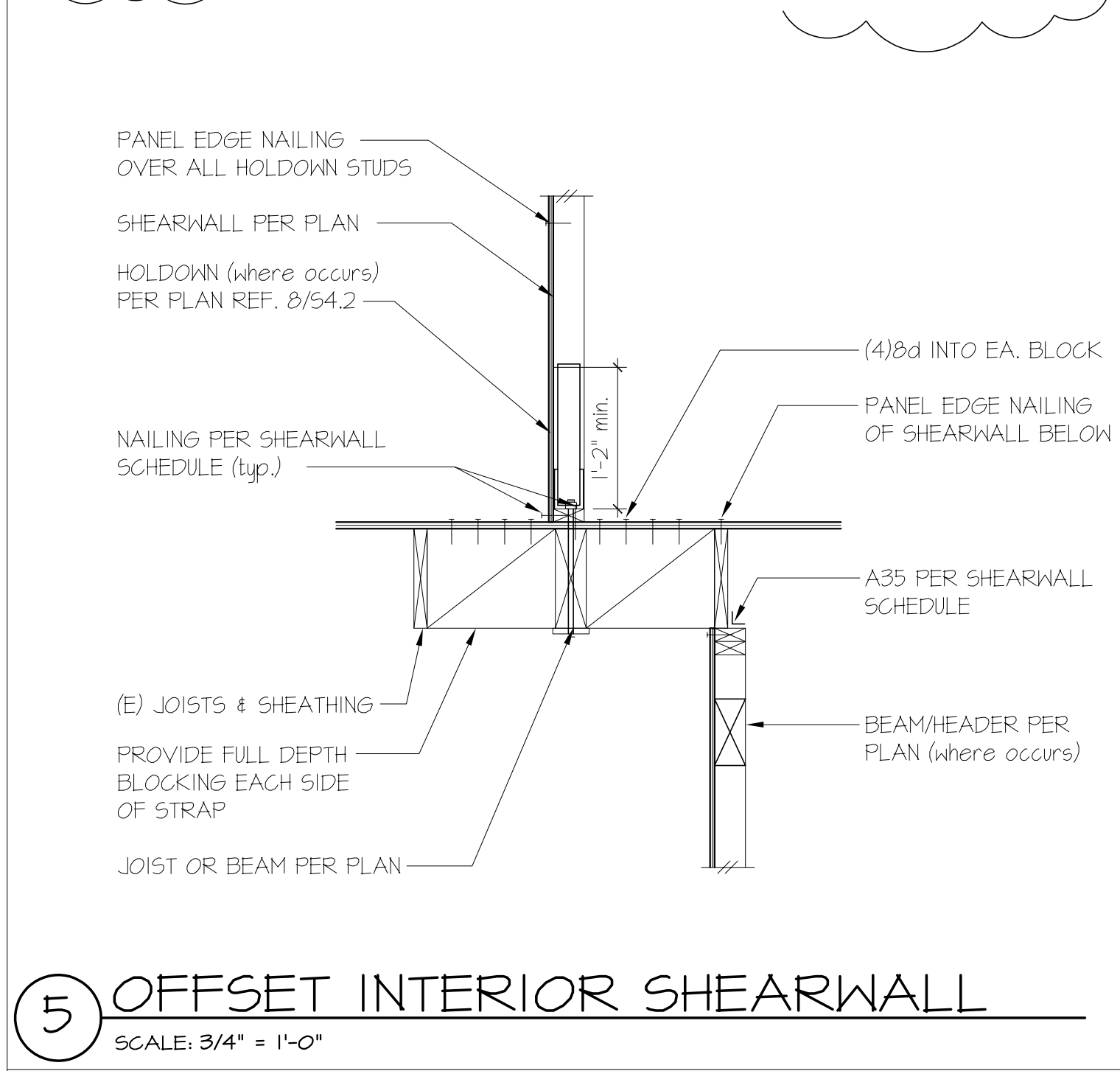
**2** EXISTING EXTERIOR ROOF BEARING  
SCALE: 3/4" = 1'-0"



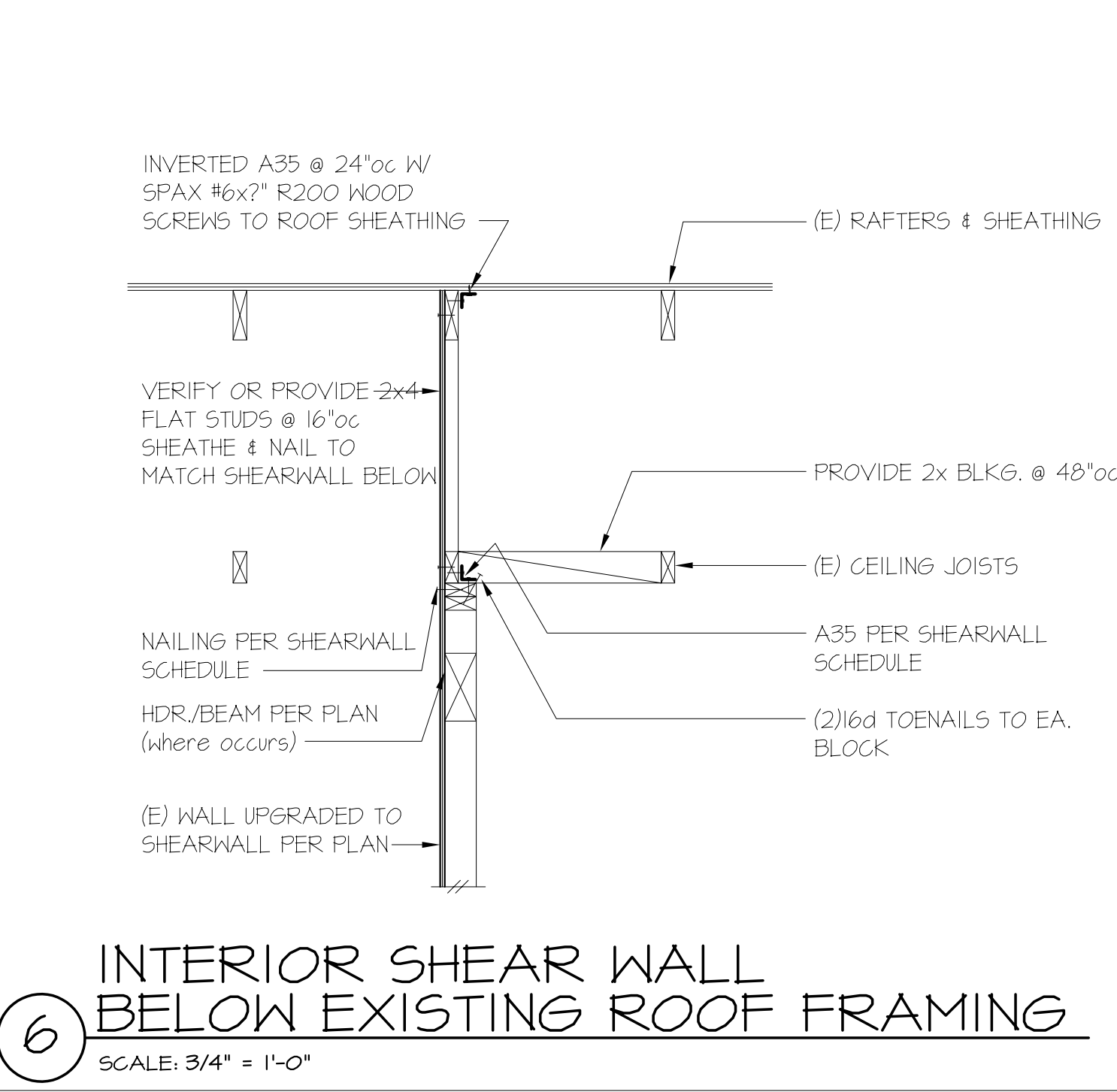
**3** EXISTING EXTERIOR ROOF NON-BEARING  
SCALE: 3/4" = 1'-0"



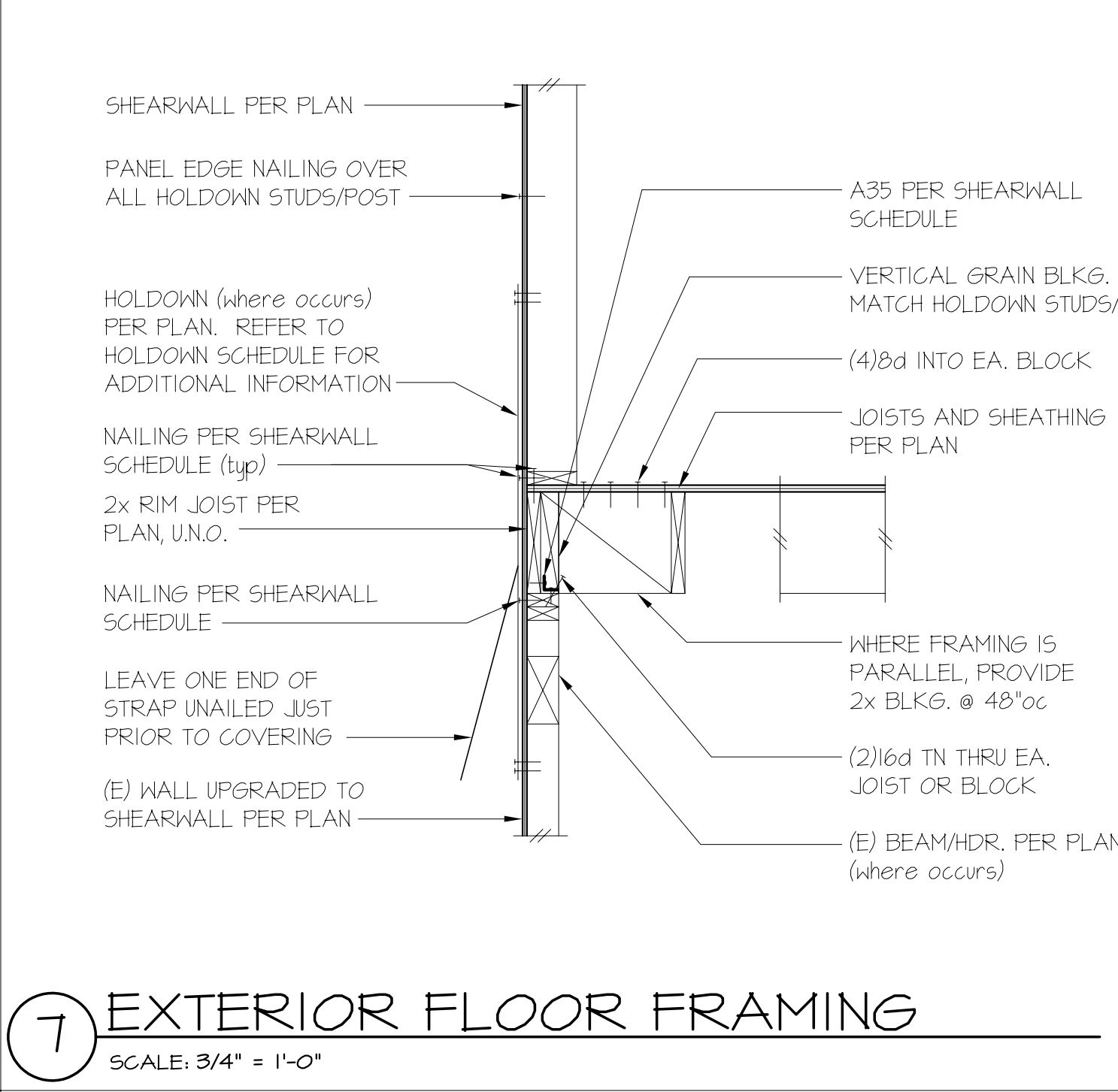
**4** TYPICAL HDU HOLDOWNS  
SCALE: 3/4" = 1'-0"



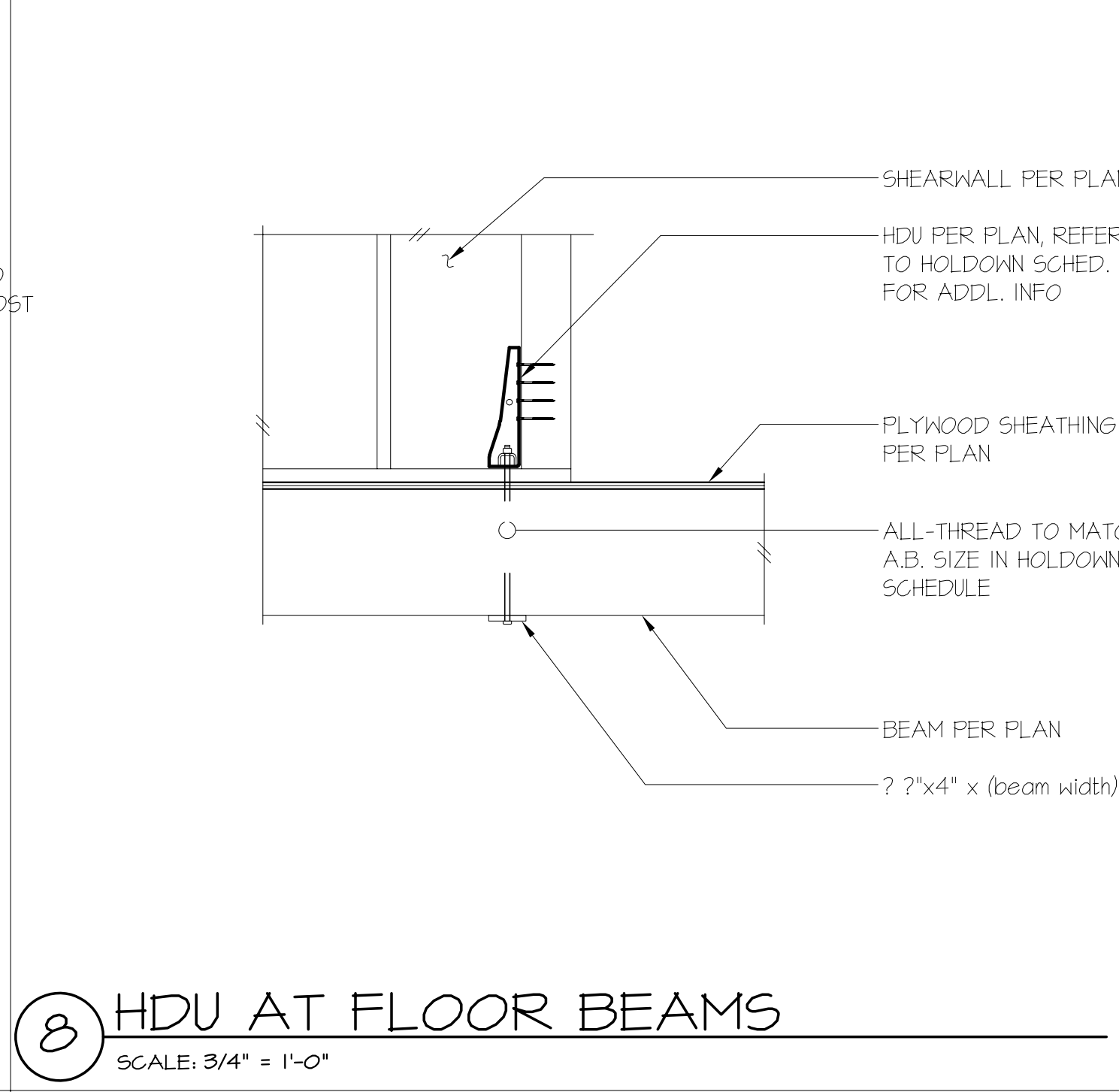
**5** OFFSET INTERIOR SHEARWALL  
SCALE: 3/4" = 1'-0"



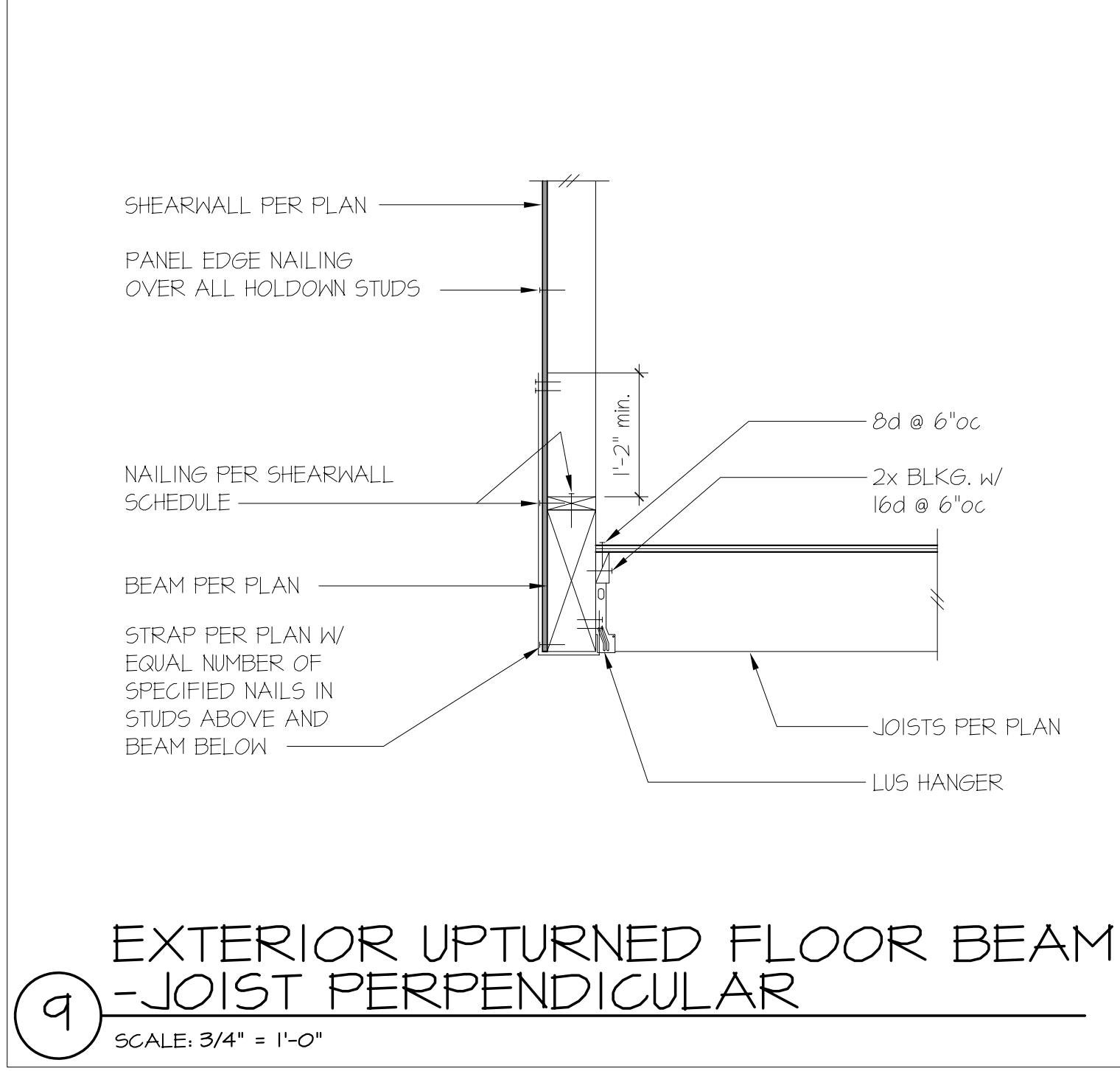
**6** INTERIOR SHEAR WALL BELOW EXISTING ROOF FRAMING  
SCALE: 3/4" = 1'-0"



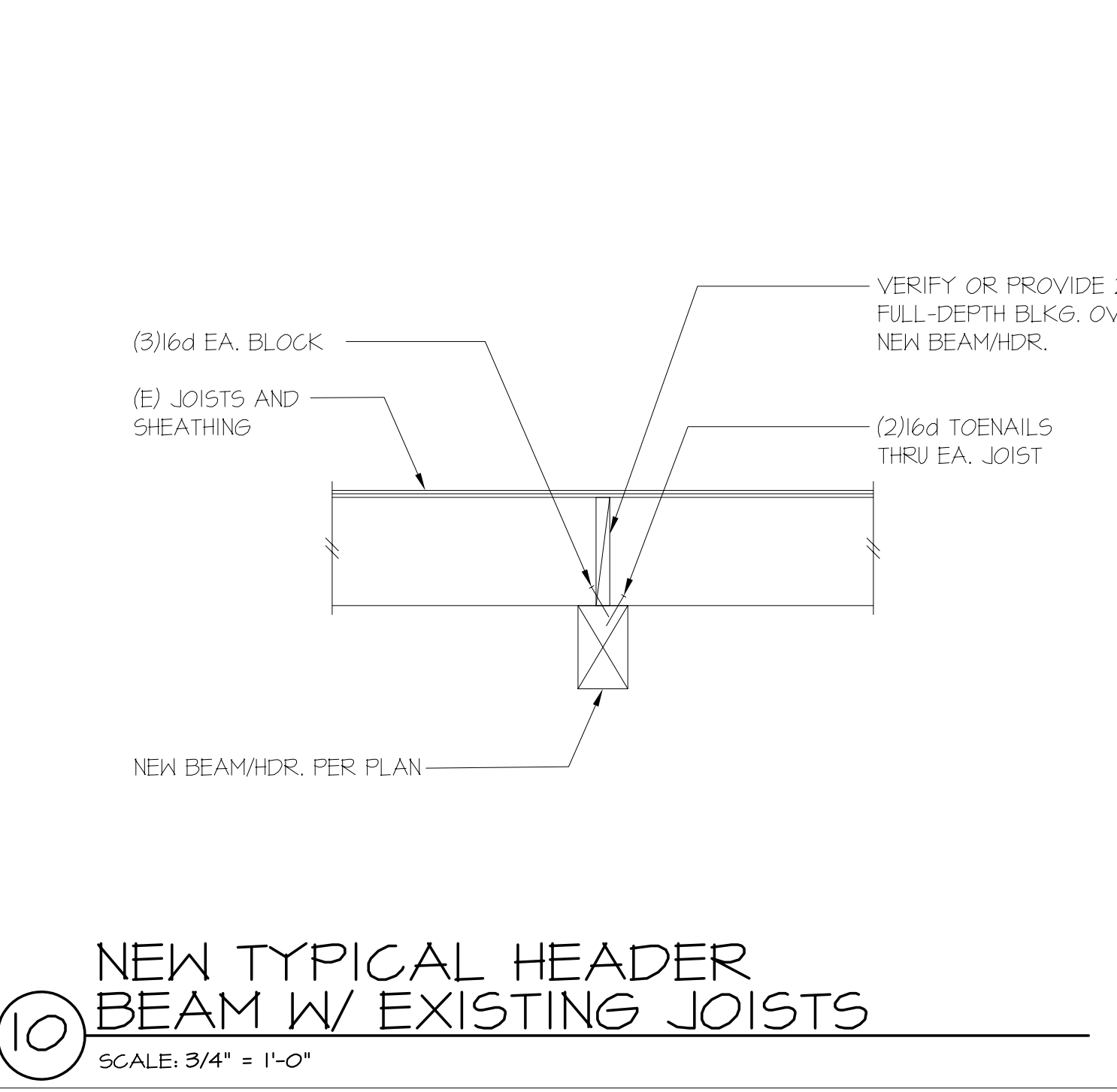
**7** EXTERIOR FLOOR FRAMING  
SCALE: 3/4" = 1'-0"



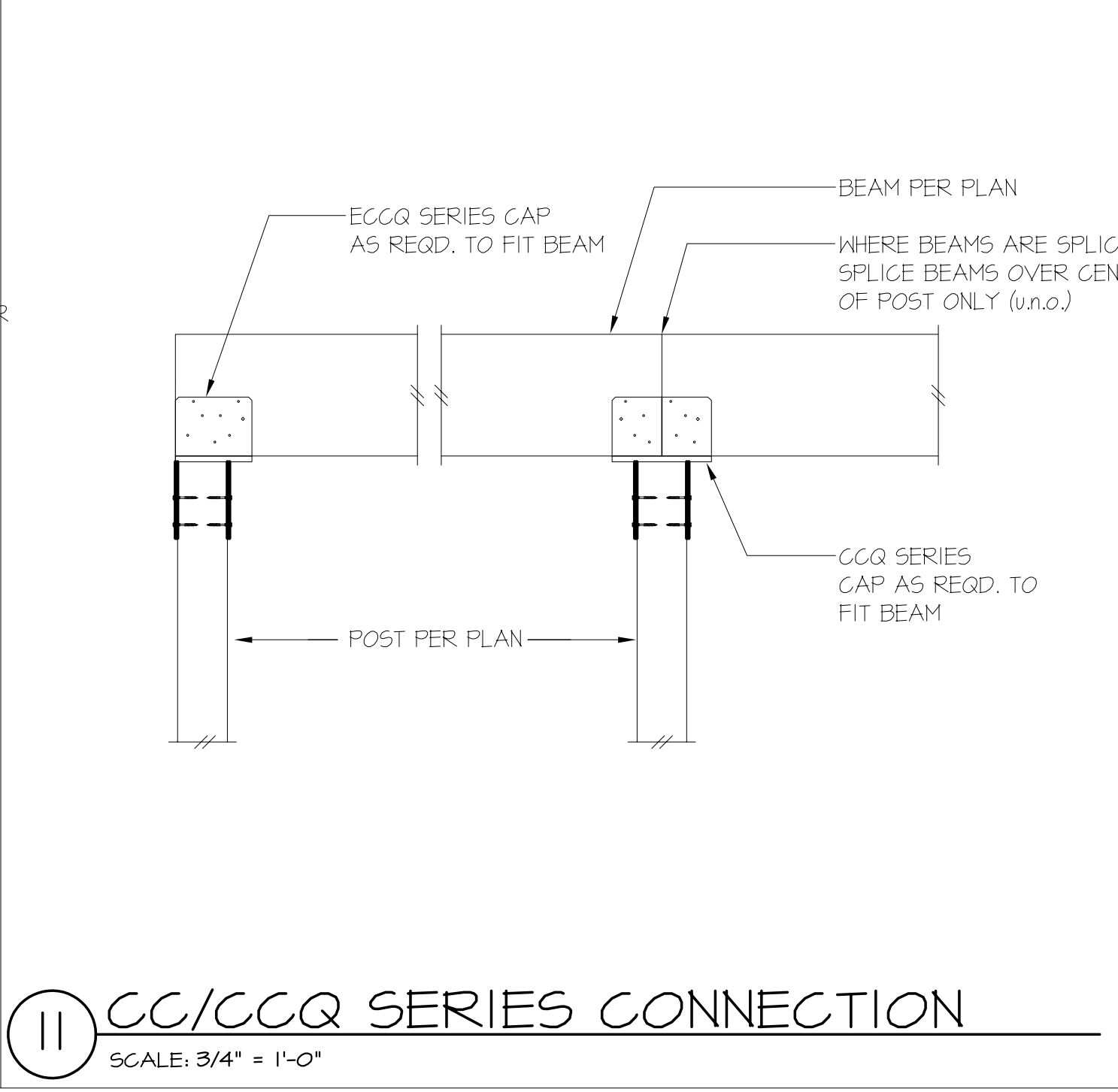
**8** HDU AT FLOOR BEAMS  
SCALE: 3/4" = 1'-0"



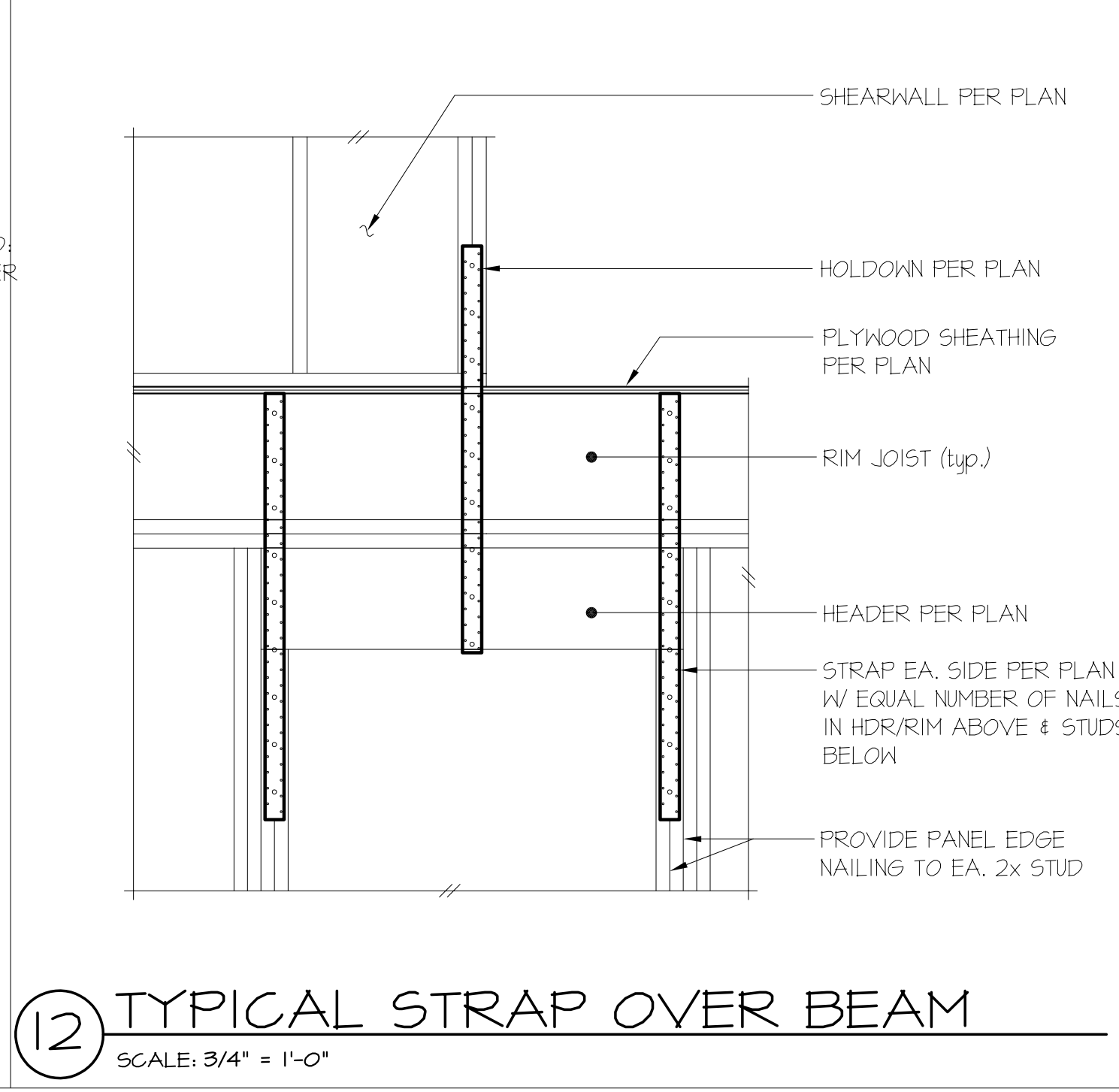
**9** EXTERIOR UPTURNED FLOOR BEAM -JOIST PERPENDICULAR  
SCALE: 3/4" = 1'-0"



**10** NEW TYPICAL HEADER BEAM W/ EXISTING JOISTS  
SCALE: 3/4" = 1'-0"



**11** CC/CCQ SERIES CONNECTION  
SCALE: 3/4" = 1'-0"



**12** TYPICAL STRAP OVER BEAM  
SCALE: 3/4" = 1'-0"

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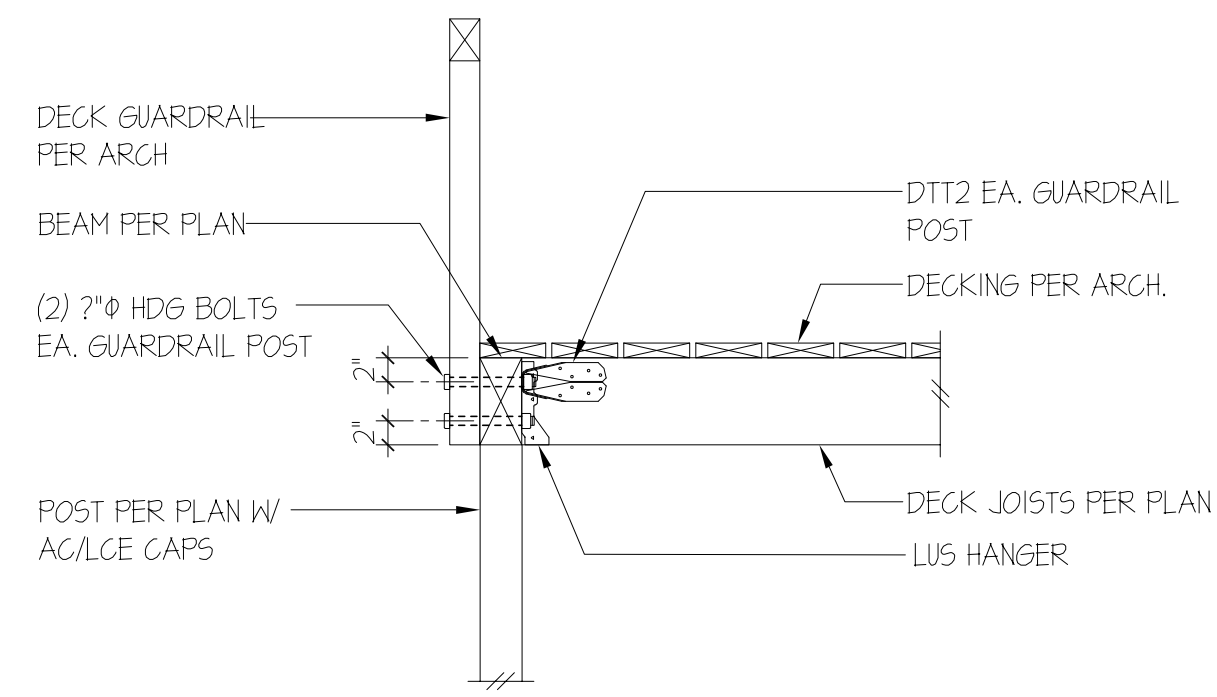
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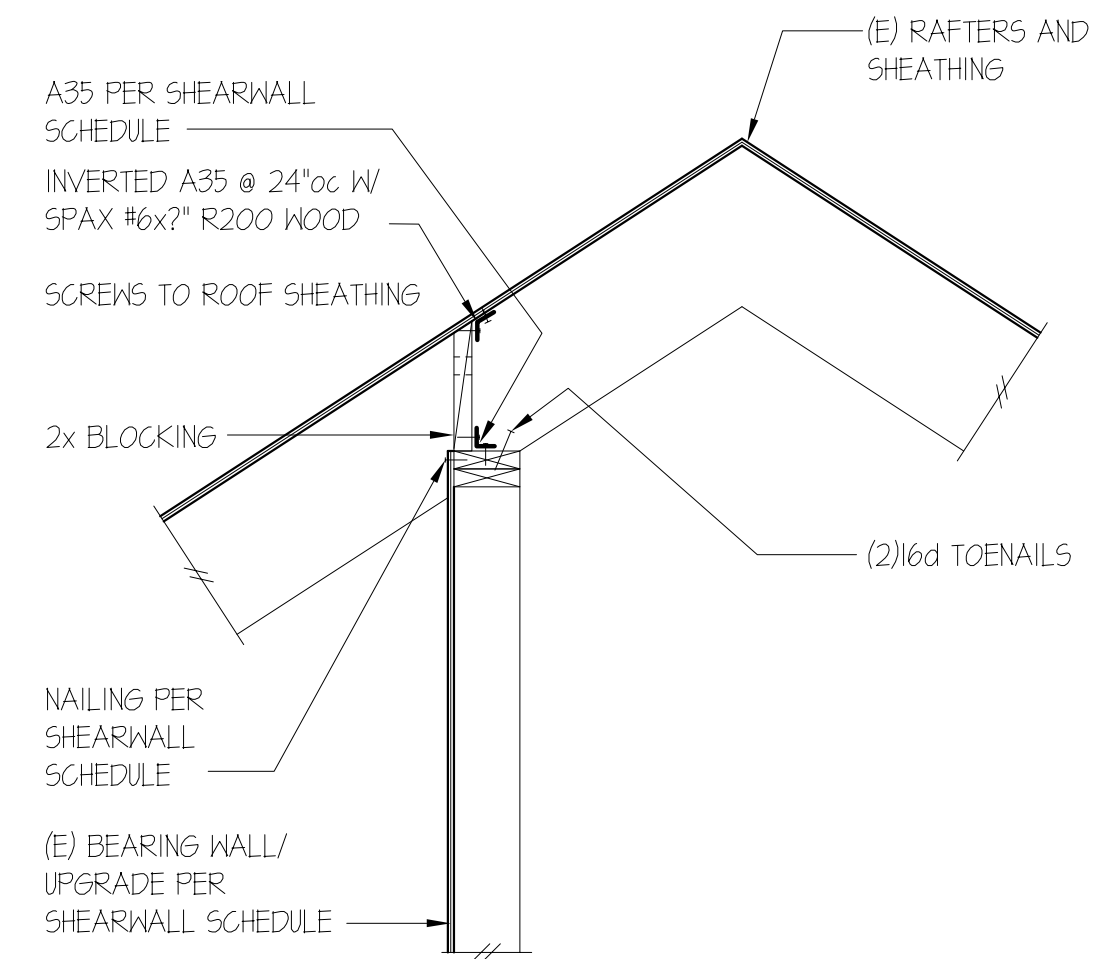
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Date: 8/30/2020  
Sheet Number:

**S4.2**

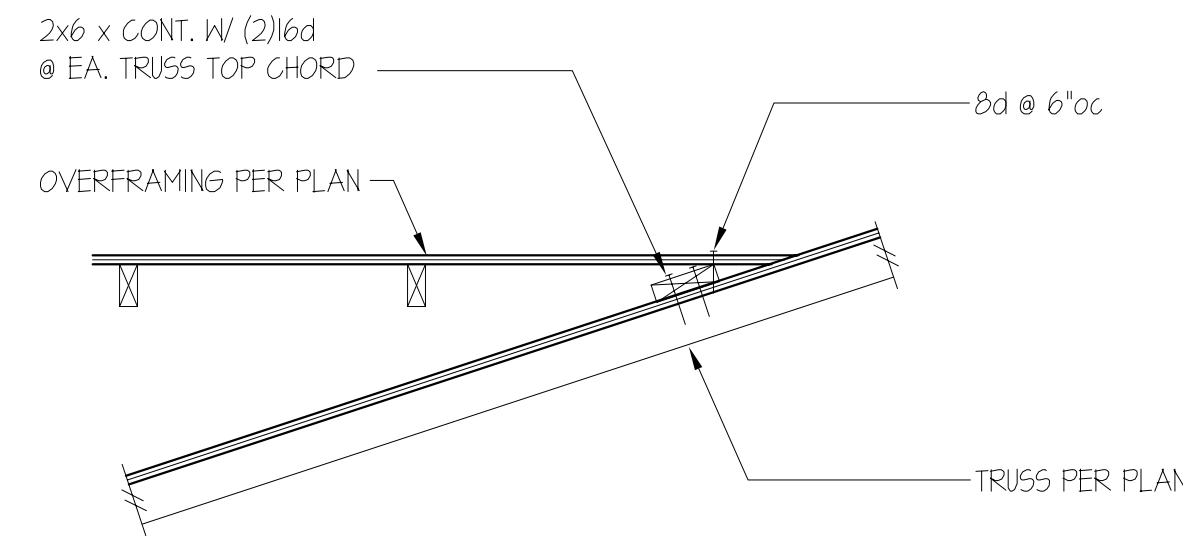




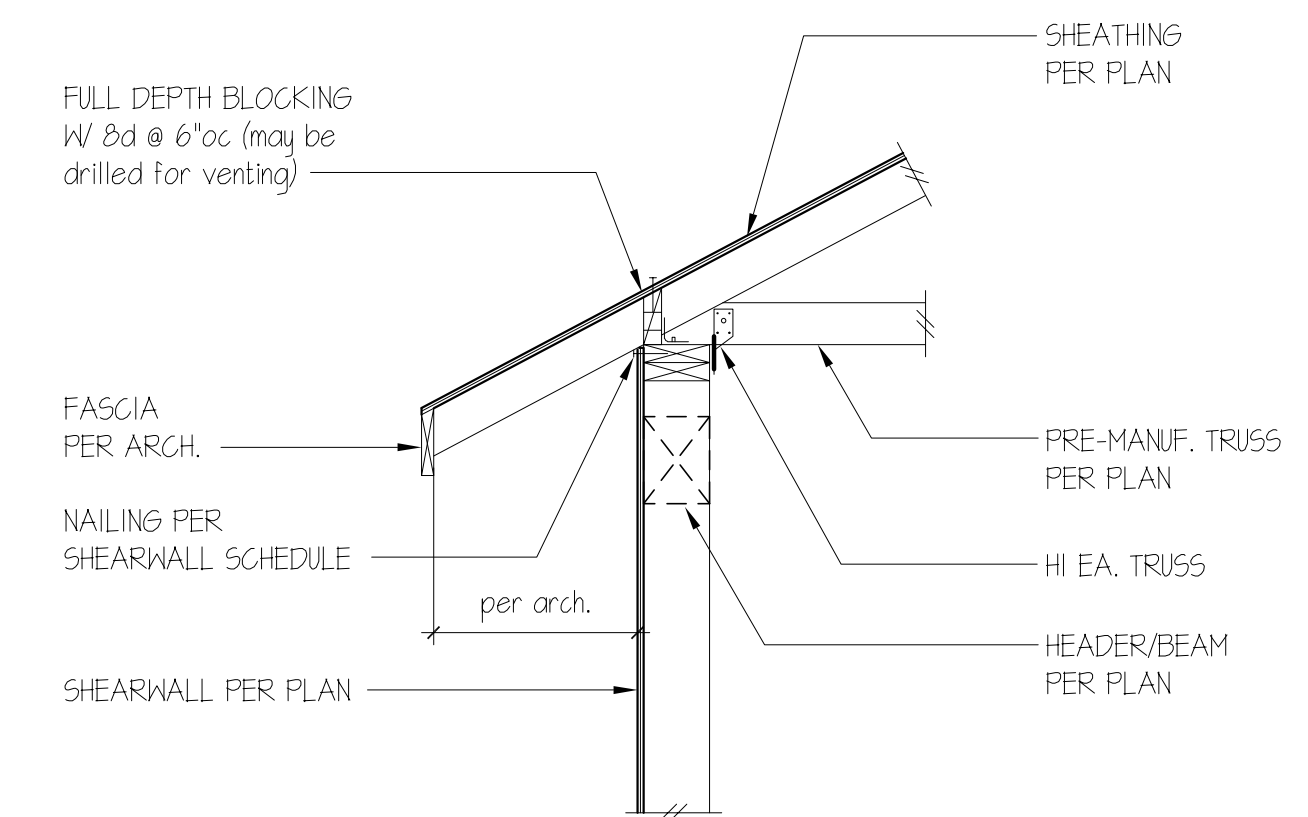
1 TYPICAL DECK W/ GUARDRAIL DETAIL  
SCALE: 3/4" = 1'-0"



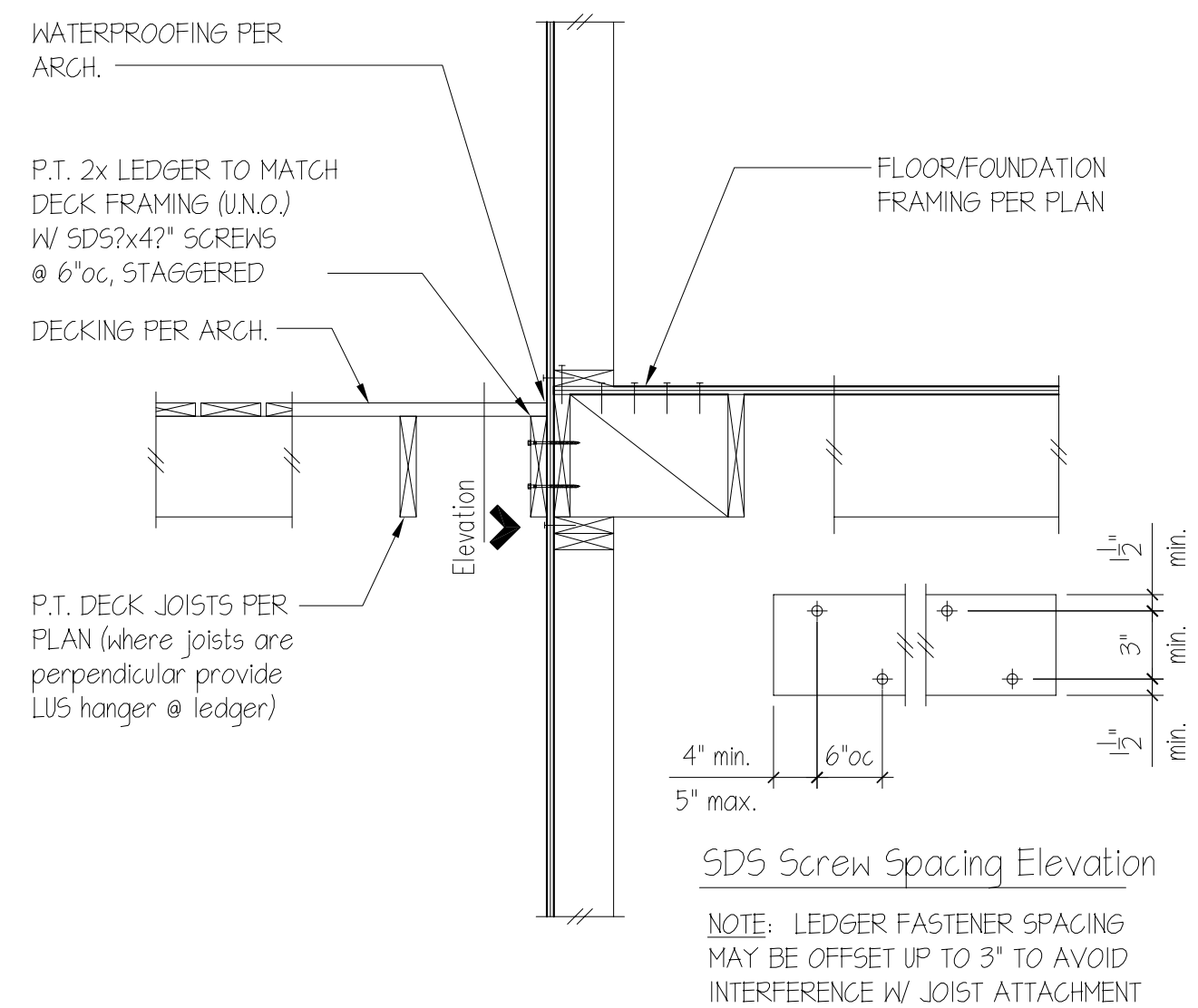
2 (E) OFFSET RIDGE  
SCALE: 3/4" = 1'-0"



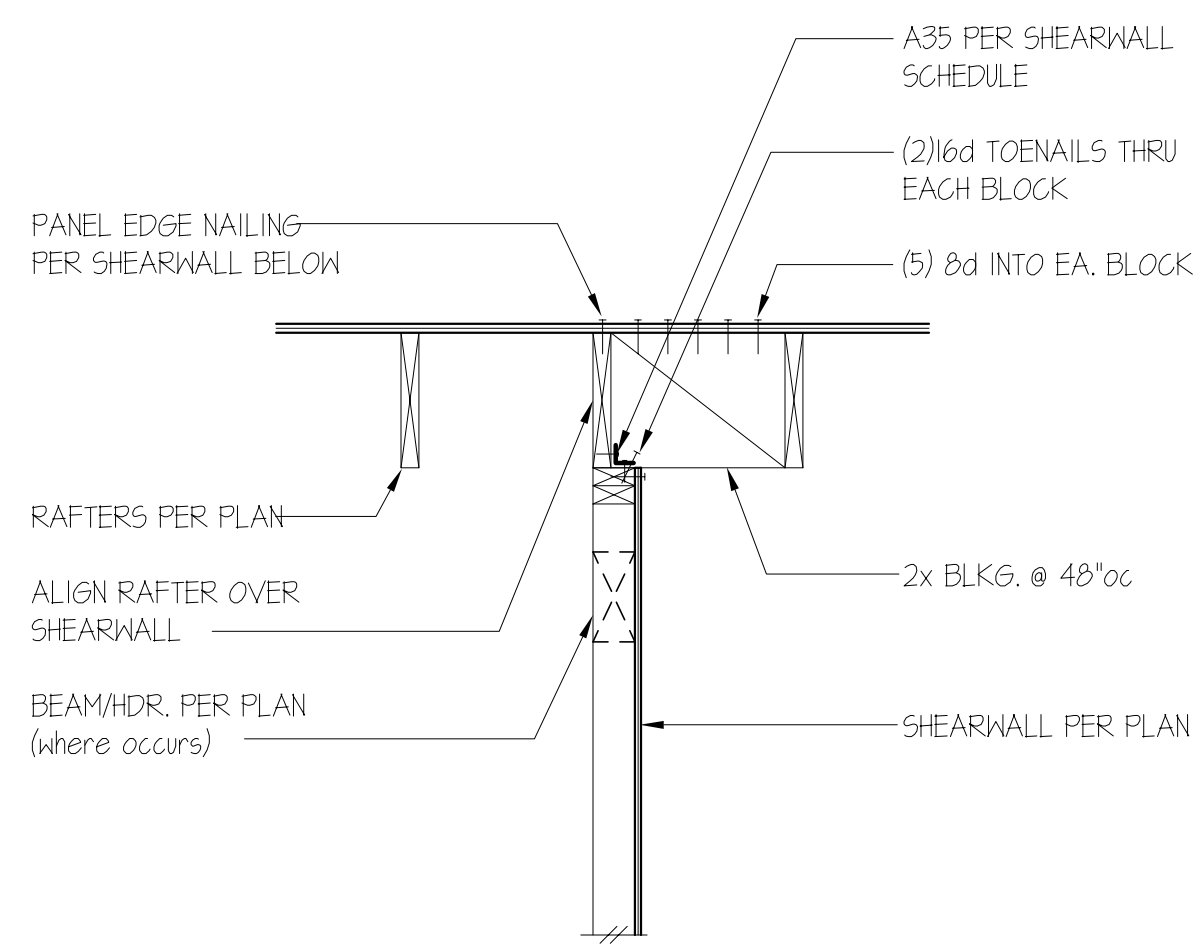
3 OVERFRAMING CONNECTION  
SCALE: 3/4" = 1'-0"



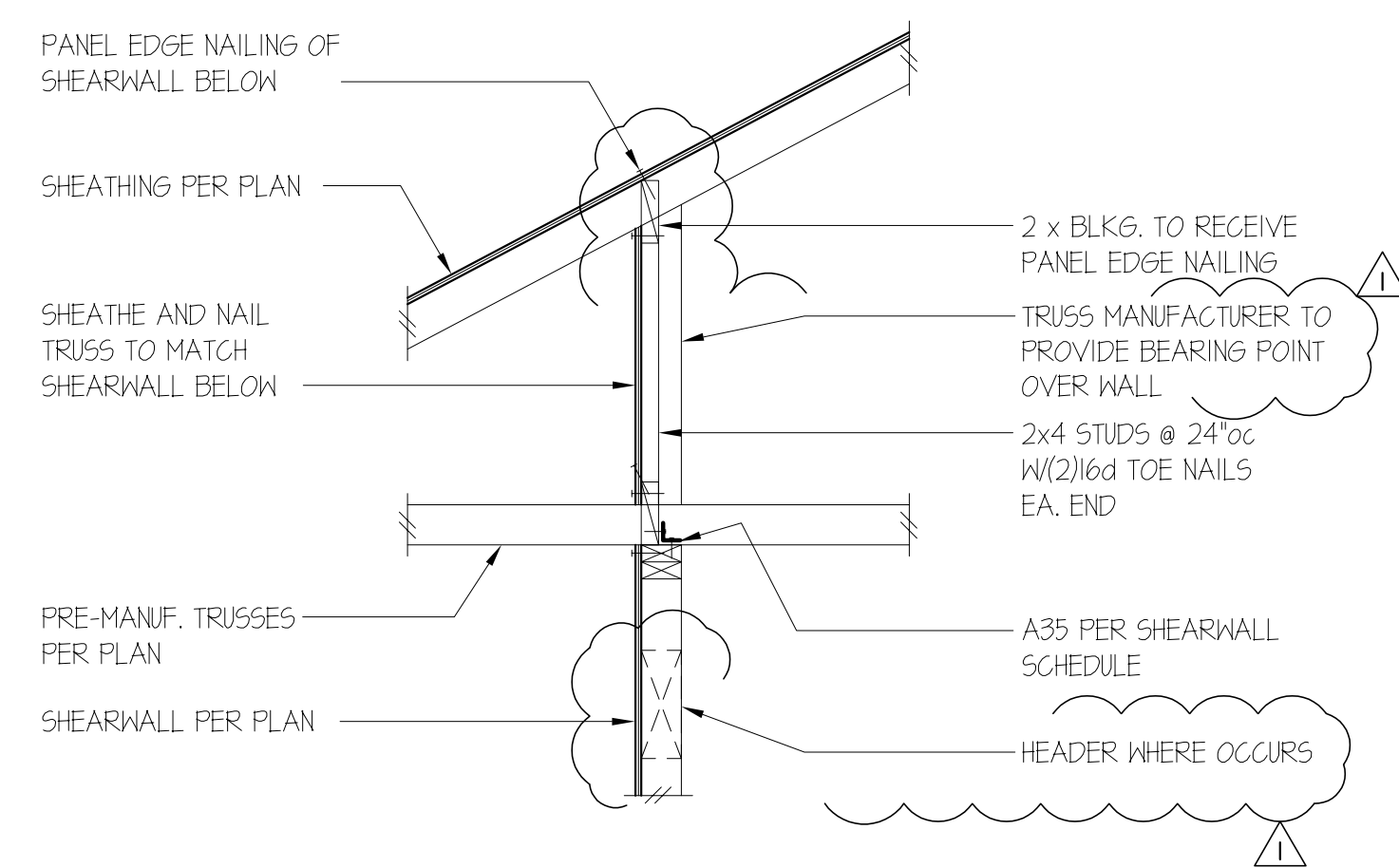
4 EXTERIOR BEARING WALL  
SCALE: 3/4" = 1'-0"



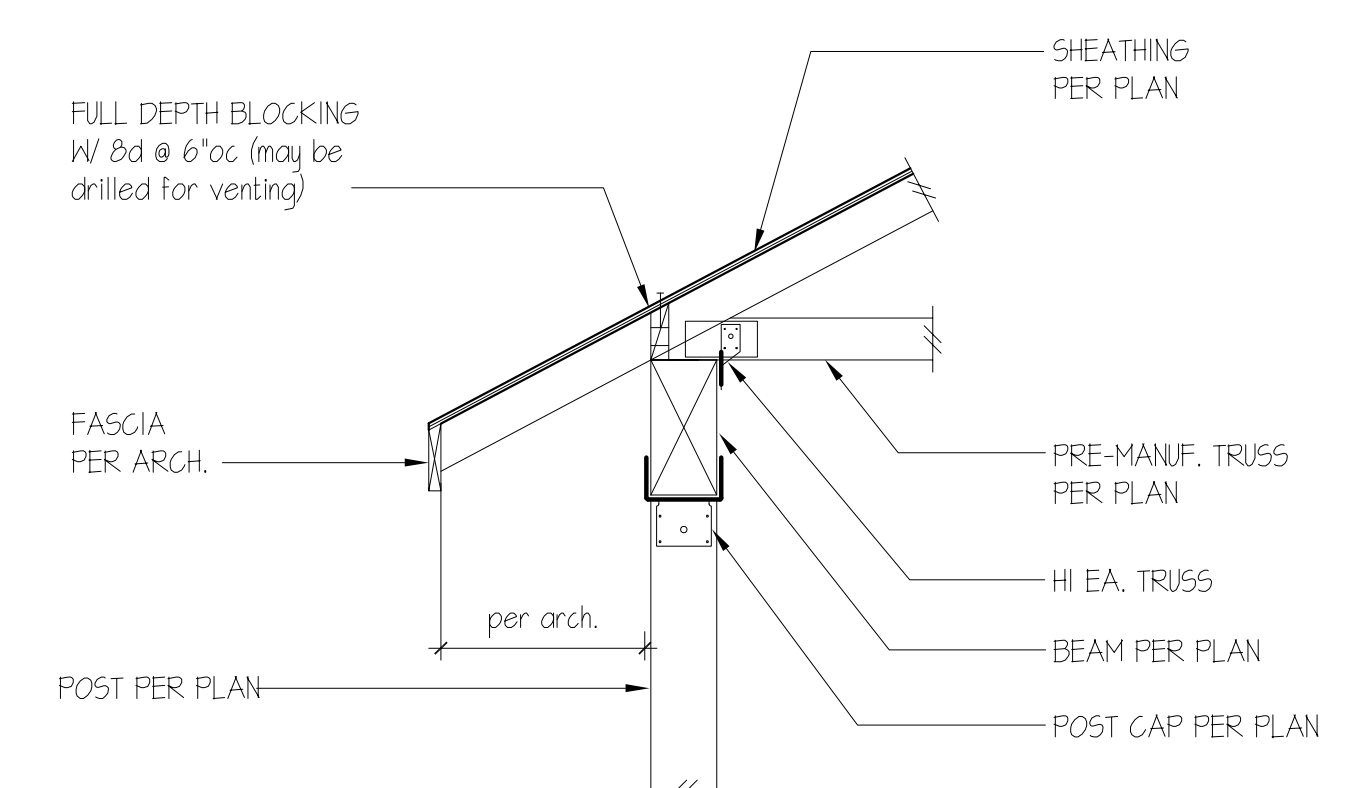
5 TYPICAL DECK LEDGER DETAIL  
SCALE: 3/4" = 1'-0"



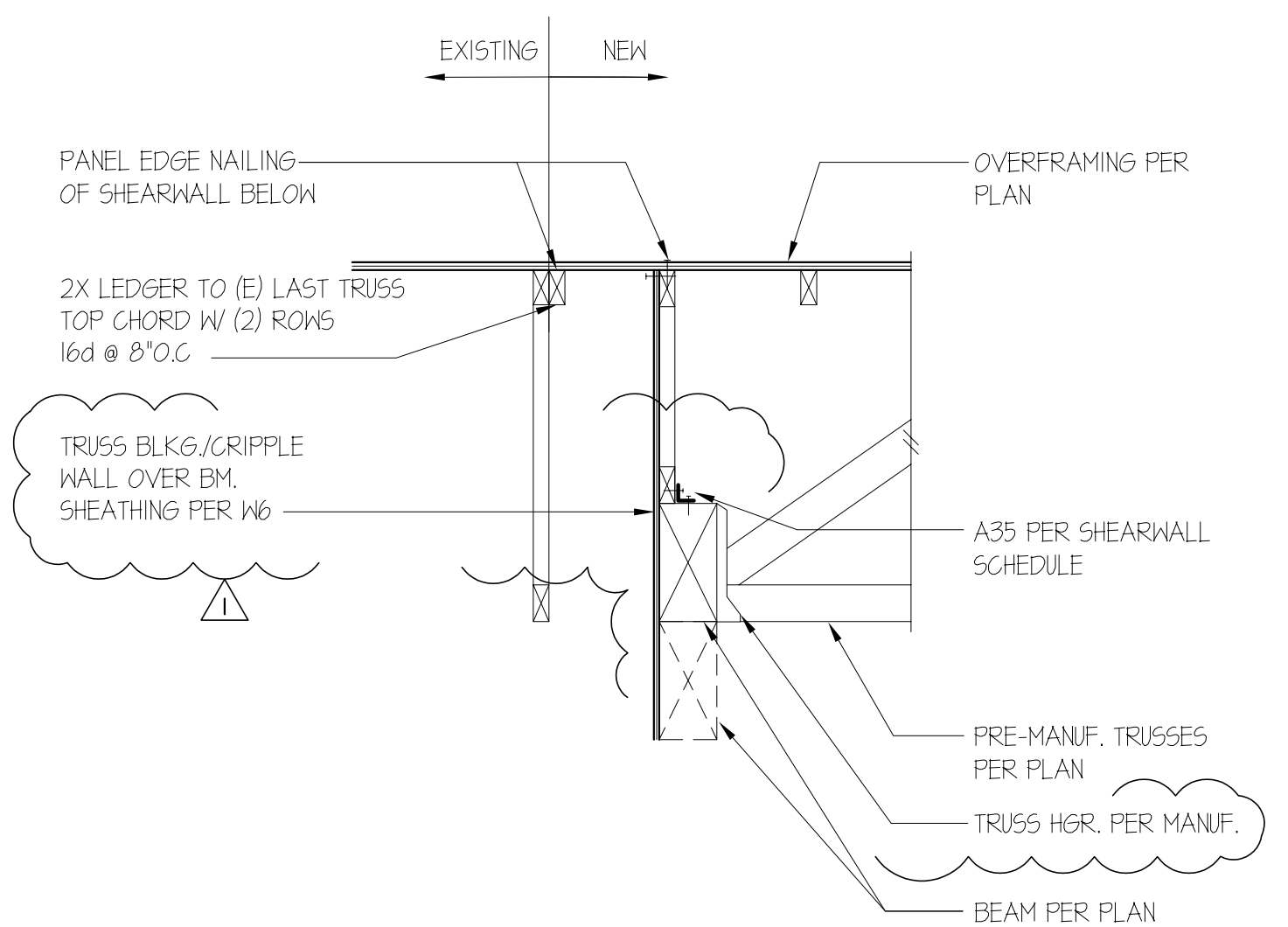
6 SHEAR WALL BELOW  
SCALE: 3/4" = 1'-0"



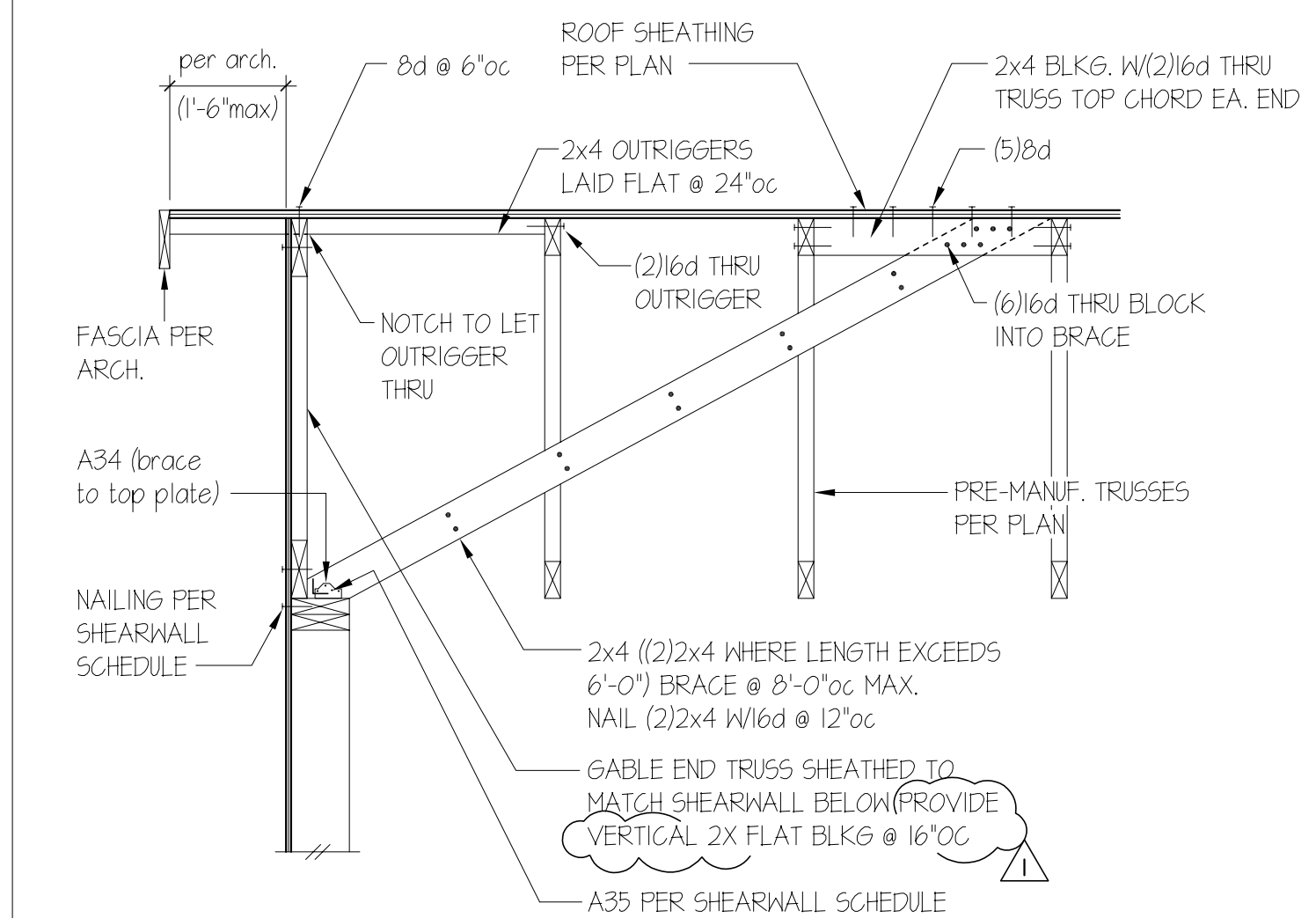
7 SHEARWALL EXTENSION THRU TRUSS DEPTH (PERPENDICULAR TO TRUSS)  
SCALE: 3/4" = 1'-0"



8 BEAM & POST  
SCALE: 3/4" = 1'-0"



11 CHANGE IN TRUSS DIRECTION OVER SHEARWALL  
SCALE: 3/4" = 1'-0"



12 EXTERIOR NON - BEARING WALL  
SCALE: 3/4" = 1'-0"

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Project Title: \_\_\_\_\_

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Scale: SCALE VARIES  
Project No.: 20-05  
Date: 8/30/2020  
Sheet Number:

**S4.3**