

STRUCTURAL NOTES

GENERAL REQUIREMENTS

BUILDING CODE & REFERENCE STANDARDS: THE "INTERNATIONAL BUILDING CODE" (IBC), 2018 EDITION, AS ADOPTED AND MODIFIED BY THE CITY OF MERCER ISLAND, GOVERNS THE DESIGN AND CONSTRUCTION OF THIS PROJECT. REFERENCE TO A SPECIFIC SECTION IN THE CODE DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE ENTIRE MATERIALS REFERENCE STANDARDS NOTED BELOW. THE LATEST EDITION OF THE MATERIALS REFERENCE STANDARDS SHALL BE USED.

SCOPE OF STRUCTURAL WORK: STRUCTURAL DESIGN OF NEW SINGLE FAMILY RESIDENCE.

DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THESE GENERAL NOTES:

- "ENGINEER OF RECORD" (EOR) - THE ENGINEER WHO IS LEGALLY RESPONSIBLE FOR STAMPING & SIGNING THE STRUCTURAL DOCUMENTS FOR THE PROJECT. THE EOR IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM.
- "SPECIALTY STRUCTURAL ENGINEER" (SSE) - A LICENSED PROFESSIONAL ENGINEER, NOT THE EOR, WHO PERFORMS SPECIALTY STRUCTURAL ENGINEERING SERVICES NECESSARY TO COMPLETE THE STRUCTURE, WHO HAS EXPERIENCE AND TRAINING IN THE SPECIFIC SPECIALTY. THE GENERAL CONTRACTOR, SUBCONTRACTOR, OR SUPPLIER WHO IS RESPONSIBLE FOR THE DESIGN, FABRICATION AND INSTALLATION OF SPECIALTY-ENGINEERED ELEMENTS SHALL RETAIN THE SSE. SUBMITTALS SHALL BE STAMPED AND SIGNED BY THE SSE. DOCUMENTS STAMPED AND SIGNED BY THE SSE SHALL BE COMPLETED BY OR UNDER THE DIRECT SUPERVISION OF THE SSE WITH A PE OR SE LICENSE ISSUED BY THE STATE OF WASHINGTON.

NOTE PRIORITIES: NOTES ON THE INDIVIDUAL DRAWINGS SHALL GOVERN OVER THESE GENERAL NOTES.

STRUCTURAL DETAILS: THE STRUCTURAL DRAWINGS ARE INTENDED TO SHOW THE GENERAL CHARACTER AND EXTENT OF THE PROJECT AND ARE NOT INTENDED TO SHOW ALL DETAILS OF THE WORK.

ARCHITECTURAL DRAWINGS: REFER TO THE ARCHITECTURAL DRAWINGS FOR INFORMATION INCLUDING, BUT NOT LIMITED TO: DIMENSIONS, ELEVATIONS, SLOPES, DOOR AND WINDOW OPENINGS, NON-BEARING WALLS, STAIRS, CURBS, DRAINS, DEPRESSIONS, RAILINGS, WATERPROOFING, FINISHES AND OTHER NONSTRUCTURAL ITEMS.

STRUCTURAL RESPONSIBILITIES: THE EOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE PRIMARY STRUCTURE IN ITS COMPLETED STATE.

CONTRACTOR RESPONSIBILITIES: THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND ALL JOB RELATED SAFETY STANDARDS SUCH AS OSHA AND WSHA. THE CONTRACTOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL THE STRUCTURE IS COMPLETED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN THE CONSTRUCTION DOCUMENTS AND THE REQUIREMENTS FOR EXECUTING IT PROPERLY.

DISCREPANCIES: IN CASE OF DISCREPANCIES BETWEEN THESE GENERAL NOTES, THE CONTRACT DRAWINGS AND SPECIFICATIONS, AND/OR REFERENCE STANDARDS, THE EOR SHALL DETERMINE WHICH SHALL GOVERN. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR BEFORE PROCEEDING WITH THE WORK. ACCORDINGLY, ANY CONFLICT IN OR BETWEEN THE CONTRACT DOCUMENTS SHALL NOT BE A BASIS FOR ADJUSTMENT IN THE CONTRACT PRICE.

SITE VERIFICATION: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE PRIOR TO FABRICATION AND/OR CONSTRUCTION. CONFLICTS BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE EOR BEFORE PROCEEDING WITH THE WORK. ALL UNDERGROUND UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO EXCAVATION OR DRILLING.

ADJACENT UTILITIES: THE CONTRACTOR SHALL DETERMINE THE LOCATIONS OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO EXCAVATION OR PILE PLACEMENT. ANY UTILITY INFORMATION SHOWN ON THE DRAWINGS AND DETAILS IS APPROXIMATE AND NOT NECESSARILY COMPLETE.

DESIGN CRITERIA

CONSTRUCTION LOADS: LOADS ON THE STRUCTURE DURING CONSTRUCTION SHALL NOT EXCEED THE DESIGN LOADS OR THE CAPACITY OF THE PARTIALLY COMPLETED CONSTRUCTION.

SNOW LOAD: THE ROOF SNOW LOAD IS DETERMINE BY USING CHAPTER 7 OF ASCE 7-10 IN ACCORDANCE WITH IBC SECTION 1608 AND WITH THE FOLLOWING FACTORS:

MINIMUM ROOF DESIGN LOAD 25 PSF WITHOUT DRIFT
GROUND SNOW LOAD, PG = 20 PSF
IMPORTANCE FACTOR, IS = 1.0
THERMAL FACTOR, CT = 1.0

DEFLECTIONS:

ROOF / FLOOR TOTAL LOAD DEFLECTION LIMIT: L/240
ROOF / FLOOR LIVE LOAD DEFLECTION LIMIT: L/360

LIVE LOADS:

ROOF (LIVE) 20 PSF
ROOF (SNOW) 25 PSF

WIND DESIGN: WIND LOAD IS DETERMINED USING CHAPTER 28 OF ASCE 7-16 IN ACCORDANCE WITH IBC SECTION 1609 WITH THE FOLLOWING FACTORS:

BASIC WIND SPEED (3-SECOND GUST) V = 110 MPH
WIND IMPORTANCE FACTOR IW = 1.0 RISK CATEGORY = II
EXPOSURE CATEGORY = B GCPI = ±0.18

FOR COMPONENTS & CLADDING AS DEFERRED SUBMITTAL, THE DESIGN WIND PRESSURES FOR DETERMINING FORCES ON COMPONENTS AND CLADDING SHALL BE 40 PSF UNLESS OTHERWISE DETERMINED USING CHAPTER 30 OF ASCE 07-10 IN ACCORDANCE WITH IBC SECTION 1609 BY THE [WASHINGTON] STATE REGISTERED PROFESSIONAL ENGINEER WHO IS RESPONSIBLE FOR THE DESIGN OF SUCH ELEMENTS.

SEISMIC DESIGN: EARTHQUAKE DESIGN IS DETERMINED USING CHAPTER 12 ASCE 7-10 IN ACCORDANCE WITH IBC CHAPTER 16 WITH THE FOLLOWING FACTORS:

IMPORTANCE FACTOR IE = 1.0
RISK CATEGORY = II
SS = 1.437 G SDS = 0.958 G
S1 = 0.499 G SD1 = N/A
SITE CLASS = D SEISMIC DESIGN CATEGORY = D

WOOD STRUCTURE (SUPER-STRUCTURE)

BASIC SEISMIC FORCE RESISTING SYSTEM: A-15 (BEARING WALL SYSTEMS) LIGHT-FRAMED WALLS WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE, PER ASCE 7-10, SECTION 12.8
R=6.5
CS=0.147
W = 2.5

TESTS & INSPECTIONS

INSPECTIONS: ALL CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL IN ACCORDANCE WITH IBC SEC 110. THE CONTRACTOR SHALL COORDINATE ALL REQUIRED INSPECTIONS WITH THE BUILDING OFFICIAL. SUBMIT COPIES OF ALL INSPECTION REPORTS TO THE ARCHITECT/EOR FOR REVIEW. THE BUILDING OFFICIAL MAY ACCEPT INSPECTION OF AND REPORTS BY APPROVED INSPECTION AGENCIES IN LIEU OF BUILDING OFFICIAL'S INSPECTIONS. THE CONTRACTOR SHALL OBTAIN APPROVAL OF BUILDING OFFICIAL TO USE THE THIRD-PARTY INSPECTION AGENCY AND CONTRACTOR SHALL ALERT THE ARCHITECT/EOR AS SUCH.

SOILS AND FOUNDATIONS

REFERENCE STANDARDS: CONFORM TO IBC CHAPTER 18 "SOILS AND FOUNDATIONS."

GEOTECHNICAL INSPECTION: THE GEOTECHNICAL ENGINEER OR THIRD-PARTY INSPECTOR SHALL INSPECT ALL PREPARED SOIL BEARING SURFACES PRIOR TO PLACEMENT OF CONCRETE AND REINFORCING STEEL AND PROVIDE A LETTER TO THE OWNER STATING THAT SOILS ARE ADEQUATE TO SUPPORT THE "ALLOWABLE FOUNDATION PRESSURE" SHOWN BELOW. SOIL COMPACTION SHALL BE SUPERVISED BY AN APPROVED TESTING AGENCY OR GEOTECHNICAL E ENGINEER. SITE SOIL CONDITIONS, FILL PLACEMENT, AND LOAD-BEARING REQUIREMENTS SHALL BE AS REQUIRED BY SECTION 1705.6 AND TABLE 1705.6 ASSUMED VALUES SHALL BE FIELD VERIFIED BY THE BUILDING OFFICIAL OR THE GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE. THE BUILDING OFFICIAL SHALL BE PERMITTED TO WAIVE THE REQUIREMENT FOR A GEOTECHNICAL INVESTIGATION WHERE SATISFACTORY DATA FROM ADJACENT AREA IS AVAILABLE THAT DEMONSTRATES AN INVESTIGATION IS NOT NECESSARY FOR ANY OF THE CONDITIONS IN SECTIONS 1803.5.1 - 1803.5.6 AND SECTIONS 1803.5.10 - 1803.5.11.

DESIGN SOIL VALUES: (ASSUMED)
ALLOWABLE SOIL BEARING PRESSURE
2,500 PSF DL + LL

SLABS-ON-GRADE & FOUNDATIONS: ALL SLABS-ON-GRADE AND FOUNDATIONS SHALL BEAR ON STRUCTURAL COMPACTED FILL OR COMPETENT NATIVE SOIL PER THE GEOTECHNICAL REPORT OR AS NOTED IN THESE DOCUMENTS. EXTERIOR PERIMETER FOOTINGS SHALL BEAR NOT LESS THAN 18 INCHES BELOW FINISH GRADE, OR AS REQUIRED BY THE GEOTECHNICAL ENGINEER AND THE BUILDING OFFICIAL. INTERIOR FOOTINGS SHALL BEAR NOT LESS THAN 12 INCHES BELOW FINISH FLOOR.

FOUNDATION STEM WALLS: UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE MAXIMUM UNBALANCED SOIL CONDITION FOR ALL FOUNDATION STEM WALLS (DIFFERENCE IN ELEVATION BETWEEN INTERIOR AND EXTERIOR SOIL GRADES) SHALL BE 2'-6". MAINTAIN A MINIMUM 8" SEPARATION BETWEEN FINISH GRADE AND UNTREATED WOOD FRAMING.

BACKFILLING: BACKFILL BEHIND RETAINING AND FOUNDATION WALLS SHALL BE OF FREE-DRAINING MATERIAL PLACED IN MAXIMUM LOOSE LIFTS OF 12" OR AS DIRECTED BY THE GEOTECHNICAL REPORT. BACKFILL BEHIND WALLS SHALL NOT BE PLACED BEFORE THE WALL IS PROPERLY SUPPORTED BY THE FLOOR SLAB OR TEMPORARY BRACING. BACKFILL SHALL BE COMPACTED USING HAND-OPERATED EQUIPMENT ONLY. THE CONTRACTOR SHALL REFRAIN FROM OPERATING HEAVY EQUIPMENT BEHIND RETAINING AND FOUNDATION WALLS WITHIN A DISTANCE EQUAL TO OR GREATER THAN THE HEIGHT OF THE WALL, UNLESS OTHERWISE APPROVED BY THE EOR. ALL TOPSOIL ORGANICS AND LOOSE SURFACE SOIL SHALL BE REMOVED FROM BENEATH FILL SUPPORTING CONCRETE SLAB OR PAVING.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: CONFORMS TO THE LATEST EDITIONS OF THE FOLLOWING:

- ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY".
- IBC CHAPTER 19.

FIELD REFERENCE: THE CONTRACTOR SHALL KEEP A COPY OF ACI FIELD REFERENCE MANUAL, SP-15, "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) WITH SELECTED ACI AND ASTM REFERENCES."

CONCRETE MIXTURES: CONFORM TO ACI 318 CHAPTER 19 "CONCRETE: DESIGN AND DURABILITY REQUIREMENTS."

MATERIALS: CONFORM TO ACI 318 CHAPTERS 19 & 20.

SUBMITTALS: PROVIDE ALL SUBMITTALS REQUIRED BY ACI 301 SEC 4.1.2. SUBMIT MIX DESIGNS FOR EACH MIX IN THE TABLE BELOW.

MEMBER	TABLE OF MIX DESIGN REQUIREMENTS			EXPOSURE	MAX	
	STRENGTH	TEST AGE	MAXIMUM			
	MINIMUM	(DAYS)	AGGREGATE	CLASSIFICATION	W/C RATIO	AIR CONTENT
FOUNDATION ELEMENTS	3,500	28	1"	F1, C0	0.45	4.5%

MIX DESIGN NOTES:

- W/C RATIO: WATER-CEMENTITIOUS MATERIAL RATIOS SHALL BE BASED ON THE TOTAL WEIGHT OF CEMENTITIOUS MATERIALS. RATIOS NOT SHOWN IN THE TABLE ABOVE ARE CONTROLLED BY STRENGTH REQUIREMENTS.
- CEMENTITIOUS CONTENT: THE USE OF FLY ASH, OTHER POZZOLANS, SILICA FUME, OR SLAG SHALL CONFORM TO ACI 301 SEC 4.2.2.9B. MAXIMUM AMOUNT OF FLY ASH SHALL BE 20% OF TOTAL CEMENTITIOUS CONTENT UNLESS REVIEWED AND APPROVED OTHERWISE BY EOR.
- AIR CONTENT: CONFORM TO ACI 301 SEC 4.2.2.4. HORIZONTAL EXTERIOR SURFACES IN CONTACT WITH THE SOIL REQUIRE ENTRAINED AIR. USE EXPOSURE CATEGORY F0, S0, W0, AND C0 UNLESS NOTED OTHERWISE. TOLERANCE IS +/- 1.5%. AIR CONTENT SHALL BE MEASURED AT POINT OF PLACEMENT.
- EXPOSURE CLASSIFICATION: THE MIX DESIGN PROVIDED SHALL MEET THE REQUIREMENTS OF ACI 318 CHAPTER 19, BASED ON THE EXPOSURE CLASSIFICATION INDICATED IN THE TABLE ABOVE.
- SLUMP: UNLESS OTHERWISE SPECIFIED OR PERMITTED, CONCRETE SHALL HAVE AT THE POINT OF DELIVERY, A SLUMP OF 4" +/- 1". FOR ADDITIONAL CRITERIA, REFERENCE ACI 301 SEC 4.2.2.2.

FORMWORK: CONFORM TO ACI 301 SEC 2 "FORMWORK AND FORM ACCESSORIES." REMOVAL OF FORMS SHALL CONFORM TO SEC 2.3.2 EXCEPT STRENGTH INDICATED IN SEC 2.3.2.5 SHALL BE 0.75 F'C.

MEASURING, MIXING, AND DELIVERY: CONFORM TO ACI 301 SEC 4.3.

HANDLING, PLACING, CONSTRUCTING, AND CURING: CONFORM TO ACI 301 SEC 5.

EMBEDDED ITEMS: POSITION AND SECURE IN PLACE EXPANSION JOINT MATERIAL, ANCHORS AND OTHER STRUCTURAL AND NON-STRUCTURAL EMBEDDED ITEMS BEFORE PLACING CONCRETE. CONTRACTOR SHALL REFER TO MECHANICAL, ELECTRICAL, PLUMBING, AND ARCHITECTURAL DRAWINGS AND COORDINATE ALL OTHER EMBEDDED ITEMS.

CONCRETE REINFORCEMENT

REFERENCE STANDARDS: CONFORM TO:

- ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE "SEC 3" REINFORCEMENT, AND REINFORCEMENT SUPPORTS."
- IBC CHAPTER 19, CONCRETE.
- ACI 318 AND ACI 318R.
- ACI SP-66 "ACI DETAILING MANUAL" INCLUDING ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
- CRSI MSP-2 "MANUAL OF STANDARD PRACTICE."
- ANSI/AWS D1.4 "STRUCTURAL WELDING CODE - REINFORCING STEEL."

MATERIALS:

REINFORCING BARS ASTM A615, GRADE 60, DEFORMED BARS.
DEFORMED WELDED WIRE FABRIC ASTM A497
BAR SUPPORTS CRSI MSP-2, CHAPTER 3 "BAR SUPPORTS."
TIE WIRE 16.5 GAGE OR HEAVIER, BLACK ANNEALED.

FABRICATION: CONFORM TO ACI 301, SEC 3.2.2 "FABRICATION," AND ACI SP-66 "ACI DETAILING MANUAL."

WELDING: BARS SHALL NOT BE WELDED UNLESS AUTHORIZED. WHEN AUTHORIZED, CONFORM TO ACI 301, SEC 3.2.2.2. "WELDING" AND PROVIDE ASTM A706, GRADE 60 REINFORCEMENT.

PLACING: CONFORM TO ACI 301, SEC 3.3.2 "PLACEMENT." PLACING TOLERANCES SHALL CONFORM TO SEC 3.3.2.1 "TOLERANCES."

CONCRETE COVER: CONFORM TO THE FOLLOWING COVER REQUIREMENTS FROM ACI 301, TABLE 3.3.2.3.

- CONCRETE CAST AGAINST EARTH 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER (#5 & SMALLER) 1-1/2"
- CONCRETE EXPOSED TO EARTH OR WEATHER (#6 & LARGER) 2"
- TIES IN COLUMNS AND BEAMS 1-1/2"
- BARS IN SLABS AND WALLS 3/4"

LAP & DEVELOPMENT SCHEDULE (CONCRETE STRENGTH FC = UP TO 4,500)

BAR DESIGNATION	LAP LENGTH, LS	DEVELOPMENT LENGTH, LD
#4	32"	24"
#5	39"	30"
WWF	8" ON ALL SIDES AND EDGES	

FIELD BENDING: CONFORM TO ACI 301 SEC 3.3.2.8. "FIELD BENDING OR STRAIGHTENING." BAR SIZES #3 THROUGH #5 MAY BE FIELD BENT COLD THE FIRST TIME. OTHER BARS REQUIRE PREHEATING. DO NOT TWIST BARS.

WOOD FRAMING

REFERENCE STANDARDS: CONFORM TO:

- IBC CHAPTER 23 "WOOD."
- NDS AND NDS SUPPLEMENT - "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION."
- ANSI/TPI 1 "NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION."
- BCSI 2013 "BUILDING COMPONENT SAFETY INFORMATION."

ALTERNATES: ALTERNATES FOR SPECIFIED ITEM MAY BE SUBMITTED TO THE EOR FOR REVIEW. CONTRACTOR SHALL SUBMIT A CURRENT ICC-ES/RIAPMO-ER REPORT IDENTIFYING THAT AN ALTERNATIVE COMPONENT HAS THE SAME OR GREATER LOAD CAPACITY THAN THE SPECIFIED ITEM.

IDENTIFICATION: ALL SAWN LUMBER AND PRE-MANUFACTURED WOOD PRODUCTS SHALL BE IDENTIFIED BY THE GRADE MARK OR A CERTIFICATE OF MATERIALS:

SAWN LUMBER: CONFORM TO GRADING RULES OF WFWA, WCLIB, OR NLGA. FINGER JOINTED STUDS ACCEPTABLE AT INTERIOR NON-STRUCTURAL WALLS ONLY.

MEMBER USE	SIZE	SPECIES	GRADE
STUDS & PLATES	2X4, 2X6	HF	NO. 2
POSTS	4X4	HF	NO. 2
POSTS	6X	DF	NO. 1
BEAMS & HEADERS	4X8 - 4X12	HF	NO. 2
BEAMS & HEADERS	6X	DF	NO. 1

GLUED LAMINATED TIMBER: CONFORM TO AITC 117 "STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFTWOOD SPECIES, MANUFACTURING AND DESIGN" AND ANSI/AITC A190.1 "STRUCTURAL GLUED LAMINATED TIMBER." GLUED LAMINATED MEMBER BEAMS SHALL NOT BE CAMBERED, UNLESS SHOWN OTHERWISE ON THE PLANS OR SPECIFICATIONS.

MEMBER USE	SIZES	SPECIES	STRESS CLASS	USES
BEAMS	ALL	DF/DF	24F-V4	ALL SPANS

ENGINEERED WOOD PRODUCTS (EWP): THE FOLLOWING MATERIALS ARE BASED ON LUMBER MANUFACTURED BY [TRUSJOIST BY WEYERHAEUSER, REDBUILT]. TRUS-JOIST BY WEYERHAEUSER WAS USED AS THE BASIS OF DESIGN FOR THIS PROJECT. ALTERNATE PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY HAVE CURRENT ICC-ES/RIAPMO-ER APPROVAL FOR EQUIVALENT OR GREATER LOAD AND STIFFNESS PROPERTIES AND ARE REVIEWED AND APPROVED BY THE EOR. A HUD MATERIAL RELEASE FORM IS REQUIRED FOR ALL MANUFACTURED WOOD PRODUCTS LISTED BELOW.

- LAMINATED VENEER LUMBER (LVL): CONFORM TO ICC ES REPORT NO. [ESR-1387/ESR-2993], CCMC REPORT NO. [12627-R/13485-R], OR NES REPORT NO. NER-481.
- PARALLEL STRAND LUMBER (PSL): CONFORM TO ICC ES REPORT NO. ESR-1387, CCMC REPORT NO. 11161-R, OR NES REPORT NO. NER-481. USE 2.2E UNLESS NOTED OTHERWISE.
- LAMINATED STRAND LUMBER (LSL): CONFORM TO ICC ES REPORT NO. ESR-1387, CCMC REPORT NO. 12627-R, OR NES REPORT NO. NER-481.
- OPEN WEB WOOD TRUSS (OWWT): CONFORM TO ICC ES REPORT NO. [PFC-4354/ESR-1774] OR NES REPORT NO. NER-148. THE MANUFACTURER SHALL DESIGN THE JOISTS FOR THE SPANS AND CONDITIONS SHOWN ON THE PLANS. JOISTS SHALL HAVE WOOD CHORDS AND EITHER WOOD OR METAL WEBS.

WOOD STRUCTURAL SHEATHING (PLYWOOD): WOOD APA-RATED STRUCTURAL SHEATHING INCLUDES: ALL VENEER PLYWOOD, ORIENTED STRAND BOARD, WAFFERBOARD, PARTICLEBOARD, T1-11 SIDING, AND COMPOSITES OF VENEER AND WOOD BASED MATERIAL. CONFORM TO PRODUCT STANDARDS PS-1-95 AND PS-2-92 OF THE U.S. DEPT. OF COMMERCE AND THE AMERICAN PLYWOOD ASSOCIATION (APA)

LOCATION	THICKNESS	SPAN RATING	MINIMUM APA RATING	
			PLYWOOD GRADE	EXPOSURE
ROOF	15/32"	24/16	C-D	1
FLOOR	23/32" T&G	24 OC	STURD-I-FLOOR	1
WALLS	15/32"	32/16	C-D	1

JOIST HANGERS AND CONNECTORS: SIMPSON STRONG-TIE COMPANY INC. AS SPECIFIED IN THEIR LATEST CATALOGS WAS USED AS THE BASIS OF DESIGN FOR THIS PROJECT. ALTERNATE CONNECTORS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY HAVE CURRENT ICC-ES/RIAPMO-ER APPROVAL FOR EQUIVALENT OR GREATER LOAD CAPACITIES AND ARE REVIEWED AND APPROVED BY THE EOR PRIOR TO ORDERING. CONNECTORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE 1/2 OF THE NAILS OR BOLTS IN EACH MEMBER. NAIL STRAPS TO WOOD FRAMING AS LATE AS POSSIBLE IN THE FRAMING PROCESS TO ALLOW THE WOOD TO SHRINK AND THE BUILDING TO SETTLE.

NAILS AND STAPLES: CONFORM TO IBC SEC 2303.6 "NAILS AND STAPLES." UNLESS NOTED ON PLANS, NAIL PER IBC TABLE 2304.10.1. UNLESS NOTED OTHERWISE ALL NAILS SHALL BE COMMON. NAIL SIZES SPECIFIED ON THE DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

COMMON NAILS	LENGTH	DIAMETER
8D	2-1/2"	0.131"
10D	3"	0.148"
16D	3-1/2"	0.162"
16D SINKER	3-1/4"	0.148"

LAG BOLTS/BOLTS: CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.

WOOD HOLDOWNS: HOLDOWNS SPECIFIED ARE AS MANUFACTURED BY SIMPSON STRONG-TIE COMPANY INC. ADDITIONAL FRAMING MEMBERS SHALL BE PROVIDED PER THE MANUFACTURER'S REQUIREMENTS. ACCEPTABLE EQUIVALENT PRODUCT SUBSTITUTIONS ARE AVAILABLE FROM OTHER MANUFACTURERS WITH EOR APPROVAL. DO NOT COUNTERSINK HOLDOWN BOLTS.

NAILING REQUIREMENTS: PROVIDE MINIMUM NAILING IN ACCORDANCE WITH IBC TABLE 2304.10.1 "FASTENING SCHEDULE" EXCEPT AS NOTED ON THE DRAWINGS. NAILING FOR ROOF/FLOOR DIAPHRAGMS/SHEAR WALLS SHALL BE PER DRAWINGS. NAILS SHALL BE DRIVEN FLUSH AND SHALL NOT FRACTURE THE SURFACE OF SHEATHING.

STANDARD LIGHT-FRAME CONSTRUCTION: UNLESS NOTED ON THE DRAWINGS, CONSTRUCTION SHALL CONFORM TO IBC SEC 2308 "CONVENTIONAL LIGHT-FRAME CONSTRUCTION" AND IBC SEC 2304 "GENERAL CONSTRUCTION REQUIREMENTS."

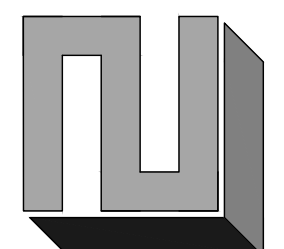
- WALL FRAMING (UNLESS NOTED OTHERWISE ON PLANS AND DETAILS) ALL INTERIOR WALLS SHALL BE 2X4 @ 16"OC AND ALL EXTERIOR WALLS SHALL BE 2X6 @ 16"OC. PROVIDE (2) BUNDLED STUDS MIN AT WALL ENDS AND EACH SIDE OF ALL OPENINGS. ALL SOLID SAWN LUMBER BEAMS AND HEADERS SHALL BE SUPPORTED BY A MINIMUM OF (1) TRIM AND (1) KING STUD AND ALL GLULAM OR ENGINEERED WOOD BEAMS AND HEADERS BY (2) TRIM AND (2) KING STUDS. PROVIDE MINIMUM 4X10) HEADERS AT ALL INTERIOR AND EXTERIOR WALL OPENINGS. STITCH-NAIL BUNDLED STUDS WITH (2) 10D @ 12"OC. PROVIDE SOLID BLOCKING THRU FLOORS TO SUPPORTS BELOW FOR BEARING WALLS AND POSTS. ATTACH BOTTOM PLATES OF STUD WALLS TO WOOD FRAMING BELOW WITH 16D @ 12"OC OR TO CONCRETE WITH 5/8"-DIA. ANCHOR BOLTS X 7" EMBEDMENT AT 48"OC. REFER TO SHEAR WALL SCHEDULE FOR SPECIFIC SHEATHING, STUD, AND NAILING REQUIREMENTS AT SHEAR WALLS. PROVIDE GYPSUM SHEATHING ON INTERIOR SURFACES AND PLYWOOD SHEATHING ON EXTERIOR SURFACES.
- ROOF/FLOOR FRAMING: (UNLESS NOTED OTHERWISE ON PLANS AND DETAILS) PROVIDE DOUBLE JOISTS/RAFTERS UNDER ALL PARALLEL BEARING PARTITIONS AND SOLID BLOCKING AT ALL BEARING POINTS. PROVIDE DOUBLE JOISTS AROUND ALL ROOF/FLOOR OPENINGS. MULTI-JOISTS/RAFTERS SHALL BE STITCH-NAILED TOGETHER WITH (2)10D @ 12"OC. PROVIDE ROOF SHEATHING EDGE CLIPS CENTERED BETWEEN FRAMING AT UNBLOCKED PLYWOOD EDGES. ALL FLOOR SHEATHING SHALL HAVE TONGUE AND GROOVE JOINTS OR BE SUPPORTED BY SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF ROOF/FLOOR SHEATHING. ROOF/FLOOR SHEATHING SHALL BE LAID FACE GRAIN PERPENDICULAR TO FRAMING MEMBERS.

MOISTURE CONTENT: WOOD MATERIAL USED FOR THIS PROJECT SHALL HAVE MAXIMUM MOISTURE CONTENT OF 19% EXCEPT FOR THE PRESSURE-TREATED WOOD SILL PLATE.

PRESERVATIVE TREATMENT: WOOD MATERIALS ARE REQUIRED TO BE "TREATED WOOD" UNDER CERTAIN CONDITIONS IN ACCORDANCE WITH IBC SEC 2304.12 "PROTECTION AGAINST DECAY AND TERMITES." CONFORM TO THE APPROPRIATE STANDARDS OF THE AMERICAN WOOD-PRESERVERS ASSOCIATION (AWPA) FOR SAWN LUMBER, GLUED LAMINATED TIMBER, ROUND POLES, WOOD PILES, AND MARINE PILES. FOLLOW AMERICAN LUMBER STANDARDS COMMITTEE (ALSC) QUALITY ASSURANCE PROCEDURES. PRODUCTS SHALL BEAR THE APPROPRIATE MARK.

METAL CONNECTORS/PT WOOD: ALL METAL HARDWARE AND FASTENERS IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE STAINLESS STEEL TYPE 316L. AT THE OWNER'S RISK AND DISCRETION, HOT-DIPPED GALVANIZED METAL HARDWARE AND FASTENERS MAY BE INVESTIGATED FOR USE IN LIEU OF STAINLESS STEEL PROVIDED THAT THE FINISH HAS A MINIMUM ZINC CONTENT OF AT LEAST 1.85 OZ./SF AND ITS USE IS COORDINATED BY THE CONTRACTOR AND WOOD SUPPLIER FOR THE EXPECTED ENVIRONMENT AND MOISTURE EXPOSURE FOR APPROPRIATE USE BASED ON THE METHOD OF PRESERVATIVE TREATMENT OF THE WOOD.

L2 ENGINEERS
DESIGN AND PLANNING
17848 NE 198TH PLACE
WOODVILLE, WA 98072



REVISION

DATE



02/22/2021

CHEN RESIDENCE
5024 MERCER WAY, MERCER ISLAND, WA 98040
GENERAL STRUCTURAL NOTES

CHK BY: LZE
DRW BY: TNT

SCALE: AS SHOWN
BAR = 1"
FULL SIZE

DATE: 02/22/2021

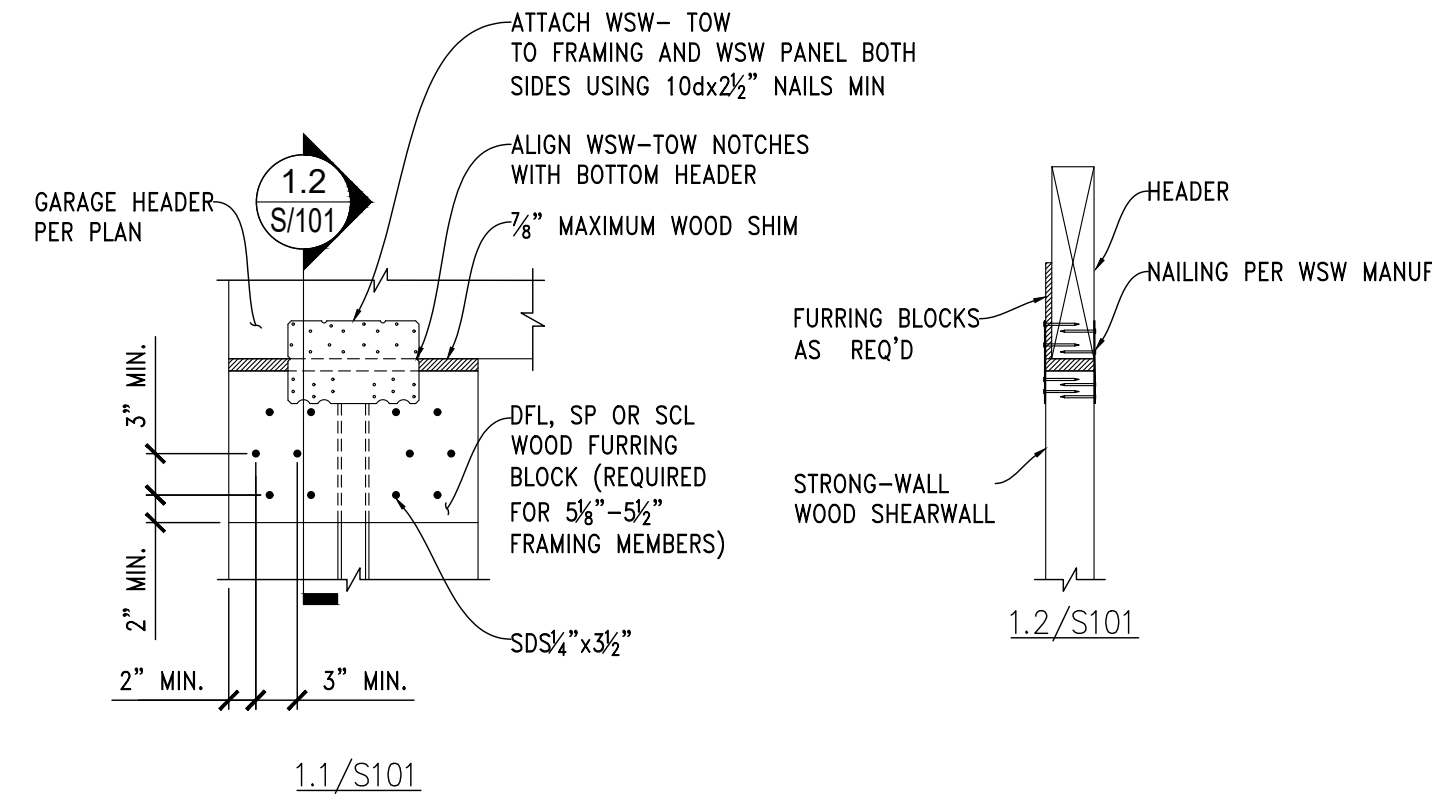
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SHEET: 1 OF 10

DWG NO: S100

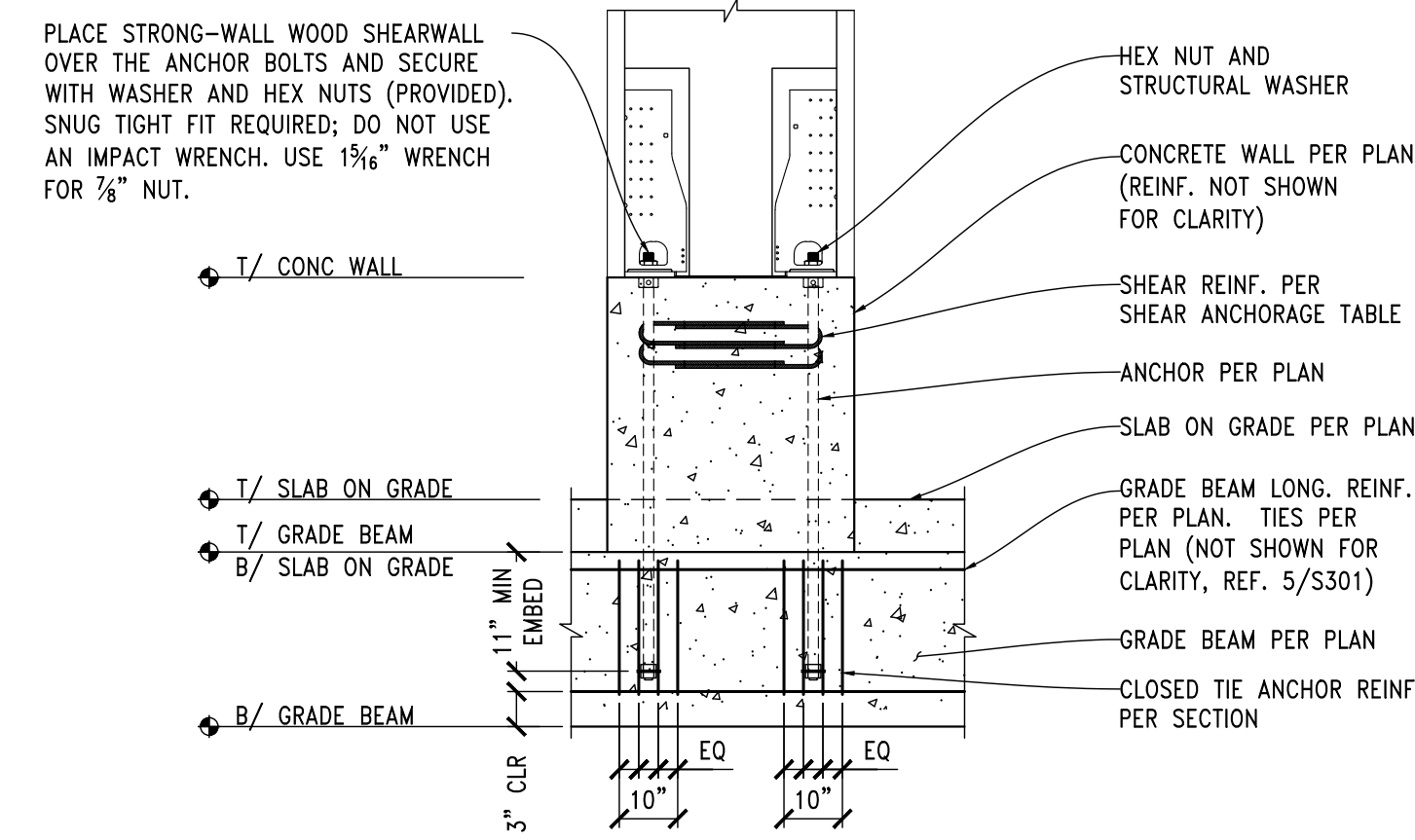
CHECK SET - NOT FOR CONSTRUCTION

STRUCTURAL ABBREVIATIONS			
&	AND	IF	INSIDE FACE
@	AT	IN	INCH
#	NUMBER	INT	INTERIOR
AB	ANCHOR BOLT	INV	INVERT
ABV	ABOVE	KIP, K	1,000 POUNDS
ADD'L	ADDITIONAL	KSI	KIPS PER SQUARE INCH
ADJ	ADJACENT	LB	POUND
ALT	ALTERNATE	Ld	DEVELOPMENT LENGTH
APPROX	APPROXIMATE(LY)	LL	LIVE LOAD
ARCH	ARCHITECT(URAL)	LLH	LONG LEG HORIZONTAL
ATR	ALL-THREADED ROD	LLV	LONG LEG VERTICAL
B/	BOTTOM OF	LONGIT	LONGITUDINAL
BN	BOUNDARY NAILING	Ls	LAP SPLICE LENGTH
BLDG	BUILDING	LSL	LAMINATED STRAND LUMBER
BLKG	BLOCKING	LVL	LAMINATED VENEER LUMBER
BM	BEAM	MAX	MAXIMUM
BOTT	BOTTOM OF	MECH	MECHANICAL
BR	BRACE	MFR	MANUFACTURER
BRG	BEARING	MIN	MINIMUM
BTWN	BETWEEN	MISC	MISCELLANEOUS
C	STANDARD CHANNEL	MTL	METAL
CC	CENTER TO CENTER	(N)	NEW
CDF	CONTROLLED DENSITY FILL	NIC	NOT IN CONTRACT
CP	CAST IN PLACE	NOM	NOMINAL
CJ	CONSTRUCTION OR CONTROL JOINT	NTE	NOT TO EXCEED
CJP	COMPLETE JOINT PENETRATION	NTS	NOT TO SCALE
CL	CENTERLINE	OC	ON CENTER
CLR	CLEAR(ANCE)	OD	OUTSIDE DIAMETER
CMU	CONCRETE MASONRY UNIT	OPNG	OPENING
COL	COLLUMN	OPP	OPPOSITE
CONC	CONCRETE	OSB	ORIENTED STRAND BOARD
CONN	CONNECTION	OWSJ	OPEN WEB STEEL JOIST
CONST	CONSTRUCTION	OWWJ	OPEN WEB WOOD JOIST
CONT	CONTINUOUS	PC	PRECAST
CTRD	CENTERED	PCF	POUNDS PER CUBIC FOOT
CTSK	COUNTERSINK	PL	PLATE
d	PENNY (NAILS)	PERP	PERPENDICULAR
DBL	DOUBLE	PLY	PLYWOOD
DEMO	DEMOLITION	PRE-MFR	PRE-MANUFACTURED
DET	DETAIL	PS	PRESTRESSED
DF	DOUGLAS FIR	PSI	POUNDS PER SQUARE INCH
DIA	DIAMETER	PSL	PARALLEL STRANDED LUMBER
DIAG	DIAGONAL	PT	PRESSURE TREATED
DL	DEAD LOAD	R	RADIUS
DN	DOWN	REF	REFERENCE
DP	DEPTH	REINF	REINFORCING
DWG(S)	DRAWING(S)	REQ'D	REQUIRED
DWL(S)	DOWEL(S)	RET	RETAINING
EA	EACH	RJ	ROOF JOIST
EF	EACH FACE	RT	ROOF TRUSS
EN	EDGE NAILING	REV	REVISION
EL	ELEVATION	SCHED	SCHEDULE
EMBED	EMBEDMENT	SECT	SECTION
ENGR	ENGINEER	SHTG	SHEATHING
EQ	EQUAL(LY)	SIM	SIMILAR
EW	EACH WAY	SOG	SLAB ON GRADE
EXIST. (E)	EXISTING	SPEC	SPECIFICATION
EXP	EXPANSION	SQ	SQUARE
EXT	EXTERIOR	SS	STAINLESS STEEL
FB	FLAT BAR	STD	STANDARD
FD	FLOOR DRAIN	STIFF	STIFFENER
FIN	FINISH	STL	STEEL
FJ	FLOOR JOIST	STRUCT	STRUCTURAL
FLR	FLOOR	SW	SHEAR WALL
FDN	FOUNDATION	SYM	SYMMETRICAL
FT	FOOT, FEET	T/	TOP OF
FTG	FOOTING	T&B	TOP AND BOTTOM
GA	GAUGE	T&G	TONGUE AND GROOVE
GALV	GALVANIZED	THK	THICK
GB	GRADE BEAM	THRU	THROUGH
GEN	GENERAL	T.J	TRUSS JOIST
GEOTECH	GEOTECHNICAL	TOW	TOP OF WALL
GLB	GLUE LAMINATED BEAM	TRANSV	TRANSVERSE
GRTG	GRATING	TYP	TYPICAL
GT	GRID TRUSS	UNO	UNLESS NOTED OTHERWISE
HD	HOLDOWN	VERT	VERTICAL
HDR	HEADER	W	WIDE FLANGE, WIDE
HF	HEM FIR	W/	WITH
HORIZ	HORIZONTAL	W/O	WITHOUT
HSS	HOLLOW STRUCTURAL SECTION	WFW	WELDED WIRE FABRIC
HT	HEIGHT	X-STR	EXTRA STRONG
ID	INSIDE DIAMETER	XX-STR	DOUBLE EXTRA STRONG



NOTES
MATCH PLATE FROM HEADER TO T/ PLATE

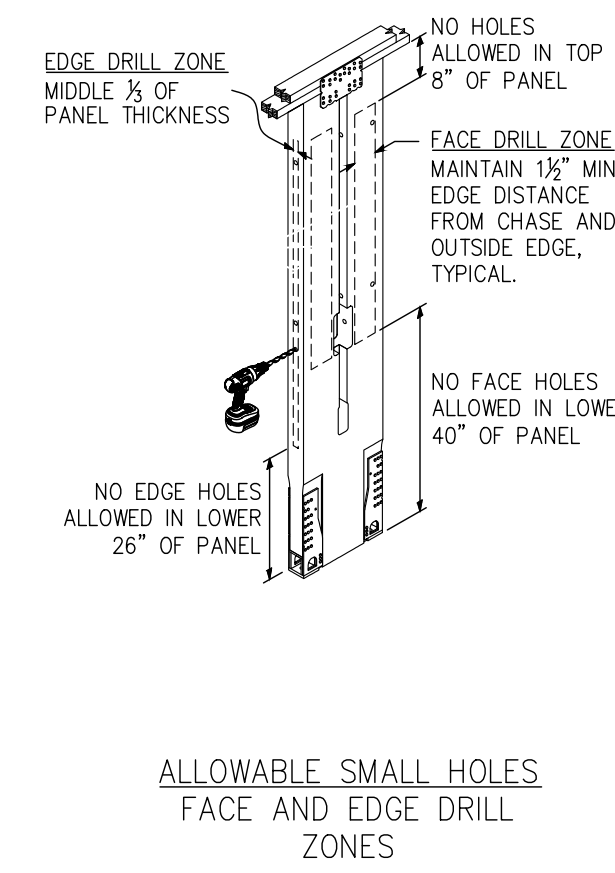
1 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL STRONG WALL TOP CONNECTION



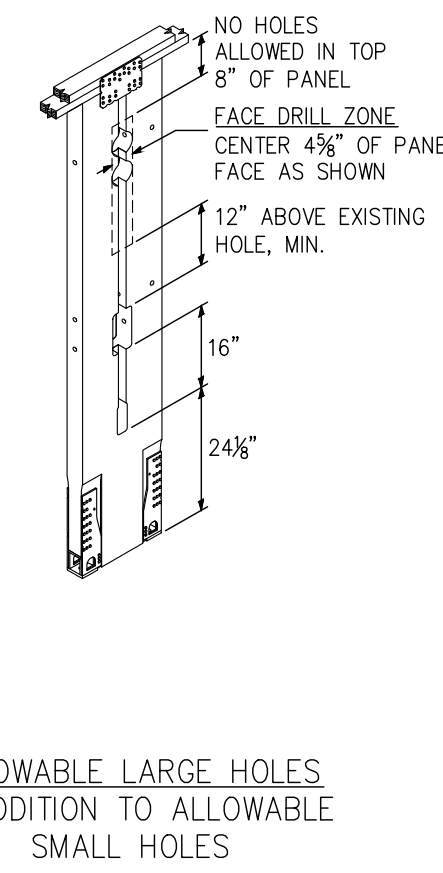
3 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL STRONG WALL ANCHORAGE - ELEVATION

MODEL	L ₁ OR L ₂ (ft.)	SEISMIC ³		WIND ⁴			
		SHEAR REINFORCEMENT	MINIMUM CURB/STEM WALL WIDTH (in.)	SHEAR REINFORCEMENT	MINIMUM CURB/STEM WALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD, V (lb.) ⁴	
						UNCRAKED	CRACKED
WSW12	10%	(1) #3 HAIRPIN	8 ⁵	SEE NOTE 6	6	1,035	740
WSW18	15	(1) #3 HAIRPIN	8 ⁵	(1) #3 HAIRPIN	6	HAIRPIN REINFORCEMENT ACHIEVES MAXIMUM ALLOWABLE SHEAR LOAD OF THE WSW	
WSW24	19	(2) #3 HAIRPINS	8 ⁵	(1) #3 HAIRPIN	6		

5 DETAIL
SCALE: 3/4"=1'-0"
STRONG WALL ANCHORAGE SCHEDULE

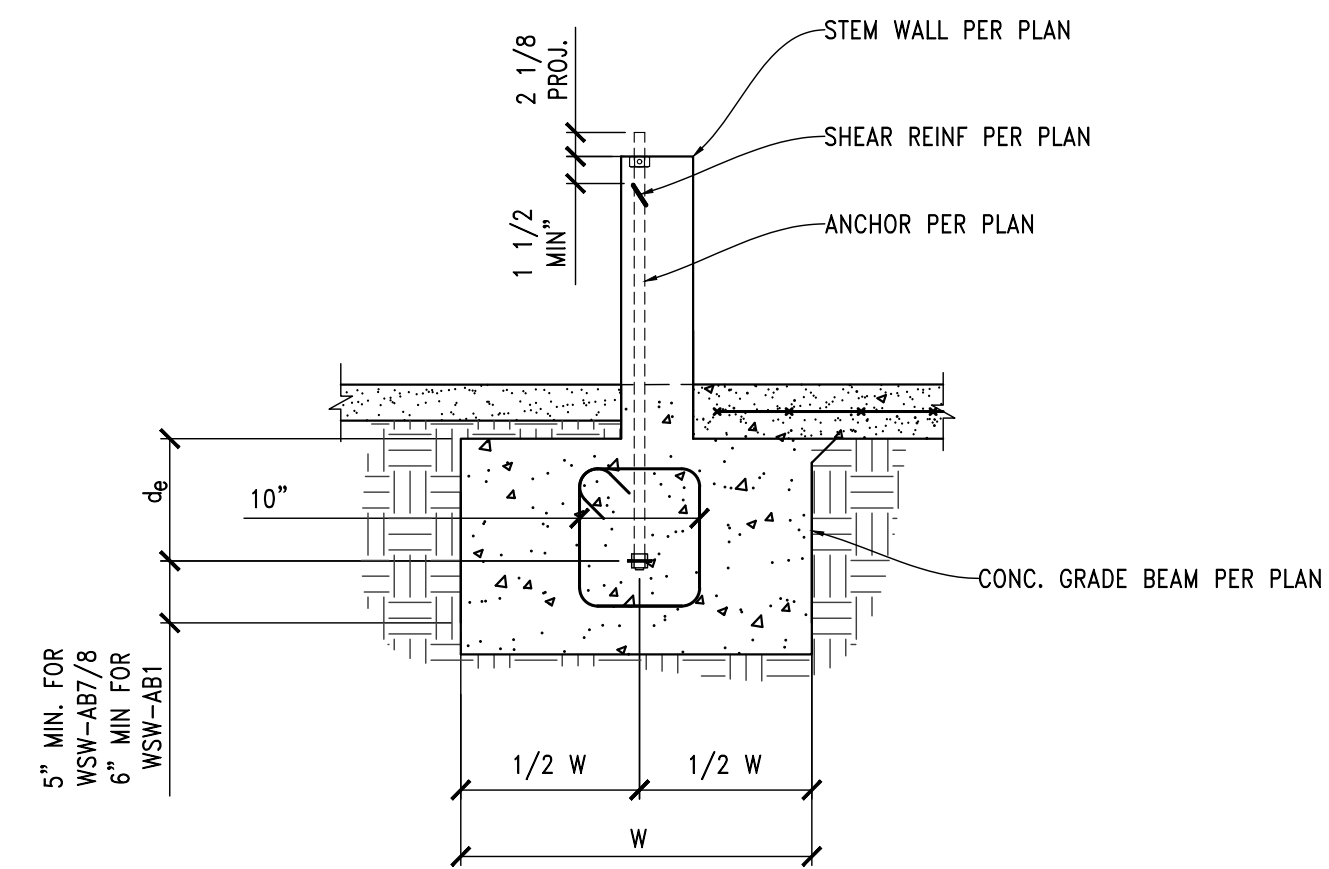


ALLOWABLE SMALL HOLES
FACE AND EDGE DRILL ZONES

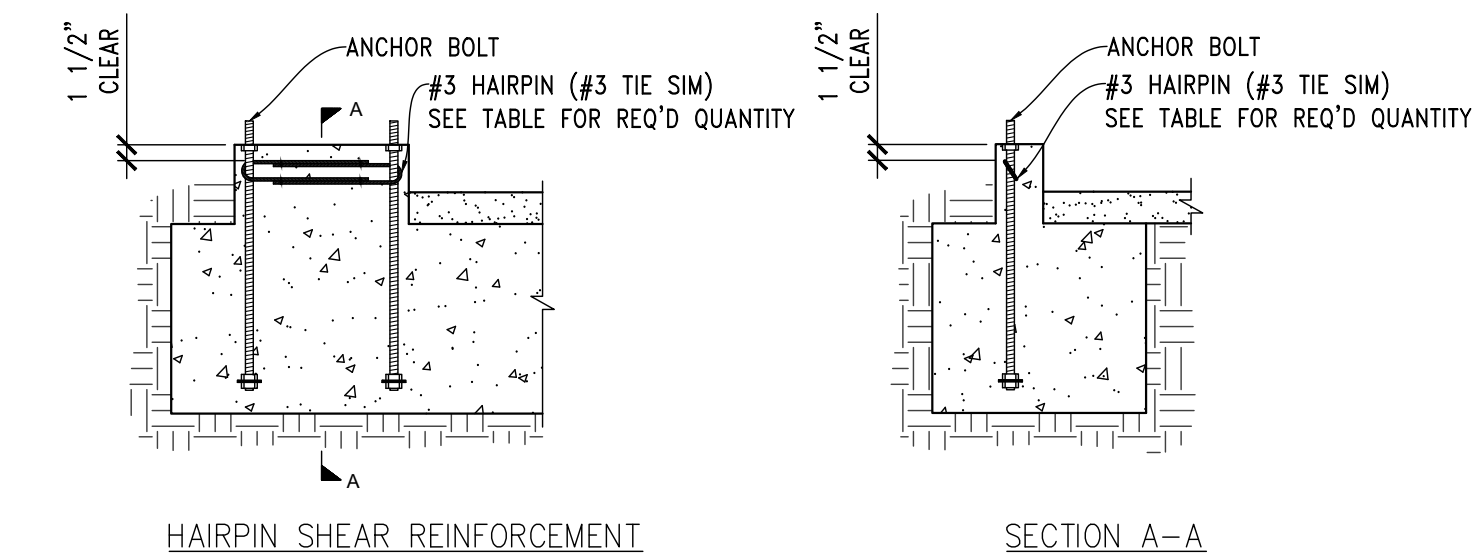
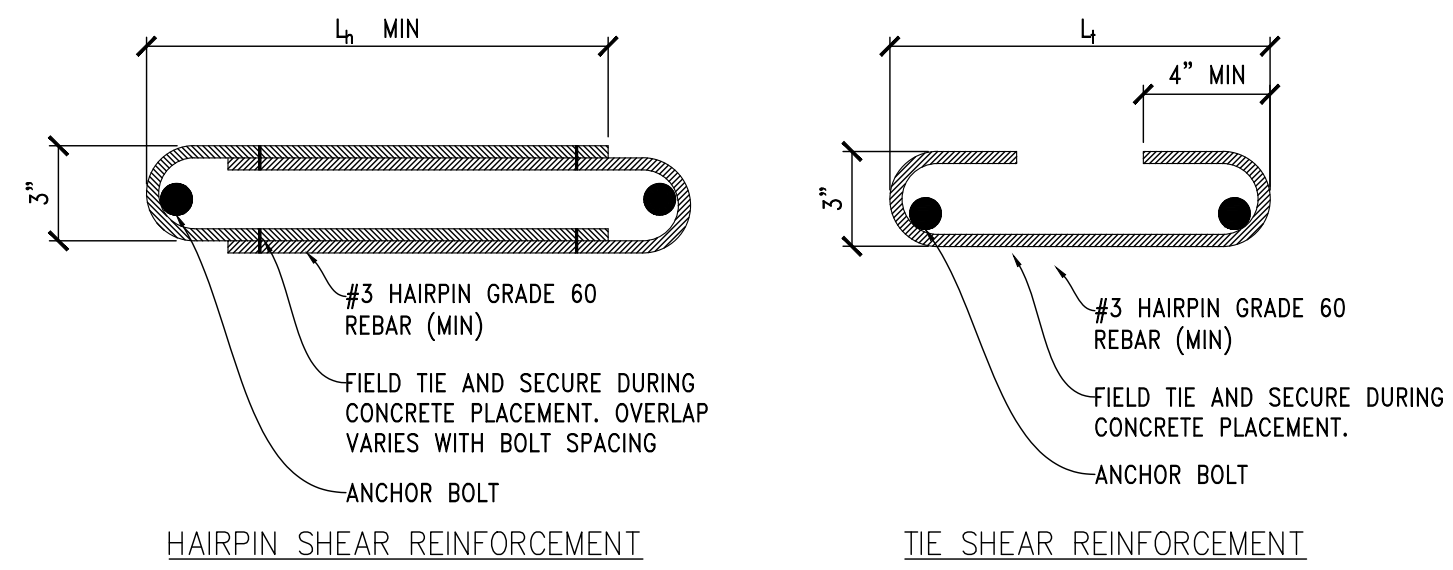


ALLOWABLE LARGE HOLES
IN ADDITION TO ALLOWABLE SMALL HOLES

2 DETAIL
SCALE: 3/4"=1'-0"
ALLOWABLE STRONG WALL HOLES



4 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL STRONGWALL ANCHORAGE - SECTION



6 DETAIL
SCALE: 3/4"=1'-0"
STRONG WALL ANCHORAGE SHEAR REINFORCEMENT

CHECK SET - NOT FOR CONSTRUCTION

DATE	REVISION



CHK BY: LZE
DRW BY: TNT

SCALE: AS SHOWN
BAR = 1"
FULL SIZE

DATE: 02/22/2021

JOB NO: 20-084

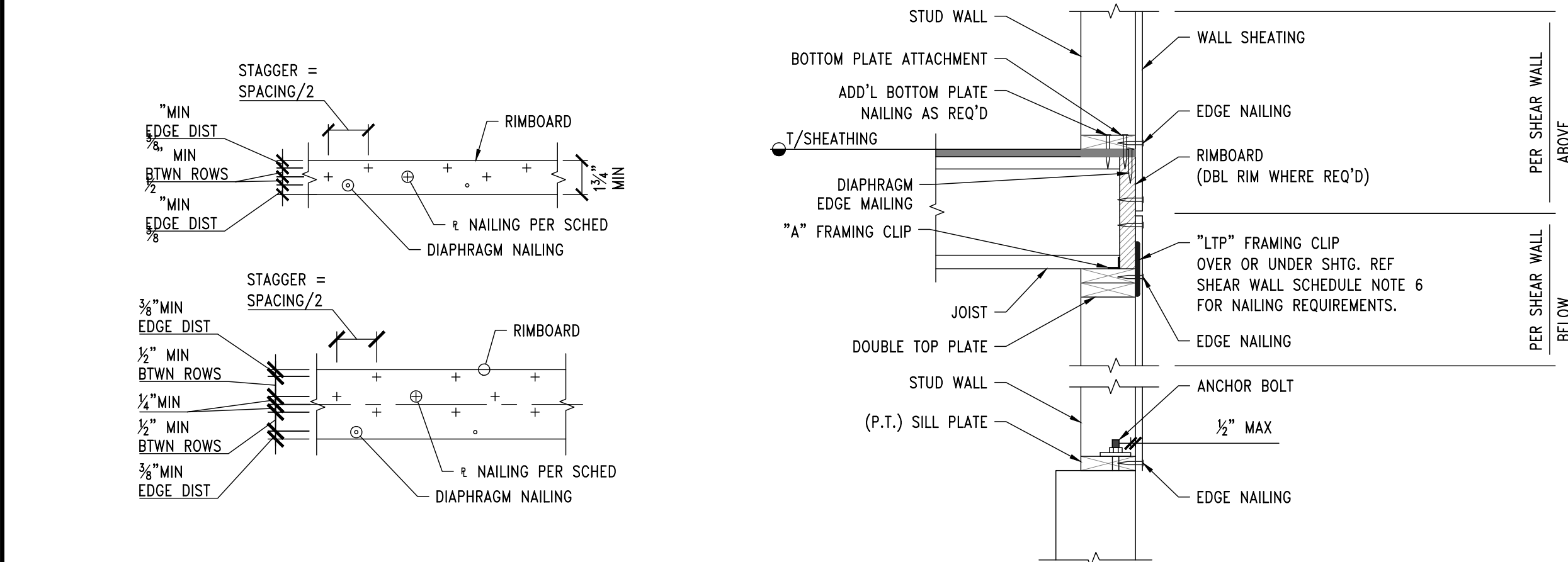
SHEET: 2 OF 10

DWG NO: S101

WOOD-FRAMED SHEAR WALL SCHEDULE										
FOR HEM-FIR FRAMING W/ 8d COMMON NAILS (2015 IBC)										
SW TYPE	WALL SHEATHING APA RATED	EDGE NAILING	BOTTOM PLATE ATTACHMENT	FRAMING CLIP TO WALL BELOW	MINIMUM RIM BOARD THICKNESS	FRAMING AT PANEL EDGES	BLOCKING AT ALL PANEL EDGES	ANCHOR BOLT TO CONCRETE FOUNDATION	SILL PLATE AT FOUNDATION	ALLOWABLE SHEAR WALL CAPACITY (PLF)
SW6	15/32"	8d @ 6" OC	16d SINKER @ 5" OC	LTP5 @ 18" OC	1 1/4"	2X	2X	5/8" DIA @ 48" OC 5/8" DIA @ 60" OC	PT 2X PT 3X	242 339
SW4	15/32"	8d @ 4" OC	(2) ROWS 16d SINKER @ 6" OC, STAGGERED	LTP5 @ 12" OC	1 3/4"	2X	2X	5/8" DIA @ 32" OC 5/8" DIA @ 40" OC	PT 2X PT 3X	353 495
SW3	15/32"	8d @ 3" OC	(2) ROWS 16d SINKER @ 6" OC, STAGGERED	LTP5 @ 10" OC	1 3/4"	2X	2X	5/8" DIA @ 24" OC 5/8" DIA @ 32" OC	PT 2X PT 3X	456 637
SW2	15/32"	8d @ 2" OC	(2) ROWS 16d SINKER @ 4" OC, STAGGERED	LTP5 @ 6" OC	3 1/2"	3X	3X OR FLAT 2X	5/8" DIA @ 18" OC 5/8" DIA @ 24" OC	PT 2X PT 3X	595 832
2SW4	15/32" BOTH SIDES	8d @ 4" OC	(3) ROWS 16d SINKER @ 6" OC, STAGGERED	LTP5 @ 6" OC	3 1/2"	3X	3X	5/8" DIA @ 24" OC	PT 3X	707 990
2SW3	15/32" BOTH SIDES	8d @ 3" OC	(3) ROWS 16d SINKER @ 4" OC, STAGGERED	LTP5 @ 8" OC & A35 @ 8" OC	3 1/2"	3X	3X	5/8" DIA @ 16" OC	PT 3X	911 1274
2SW2	15/32" BOTH SIDES	8d @ 2" OC	(3) ROWS 16d SINKER @ 4" OC, STAGGERED	LTP5 @ 6" OC & A35 @ 6" OC	3 1/2"	3X	3X	5/8" DIA @ 12" OC	PT 3X	1190 1469

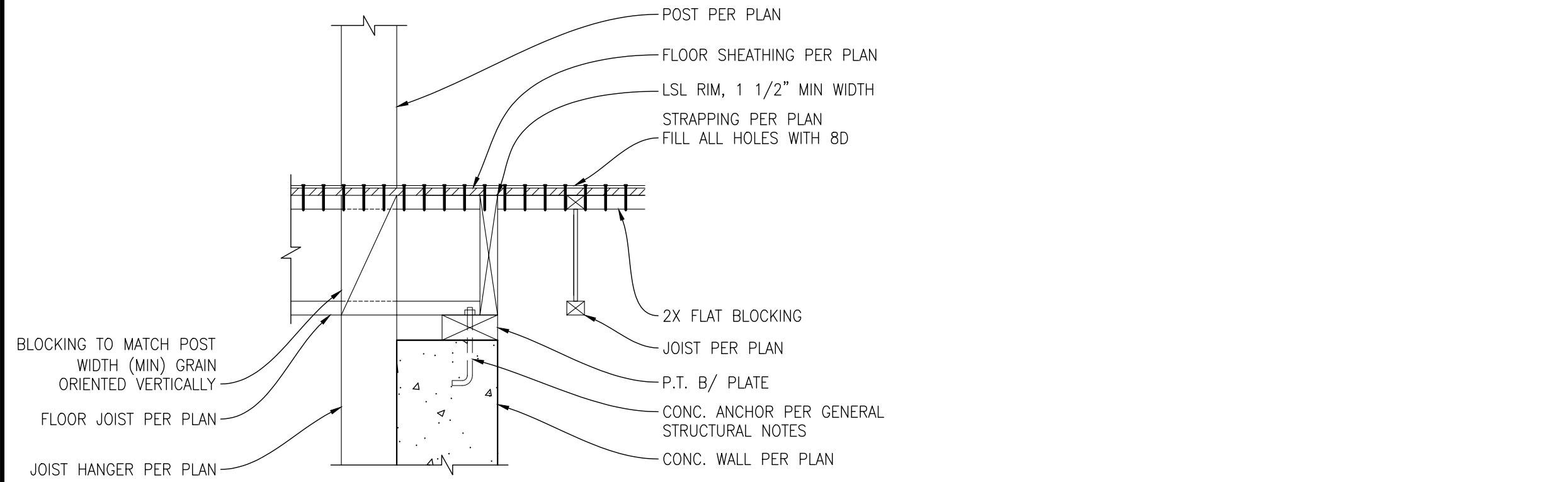
SHEAR WALL SCHEDULE NOTES:

- ALL NAILS ARE COMMON, UNO. REFERENCE GENERAL STRUCTURAL NOTES FOR NAIL DIAMETER AND LENGTH.
- REFERENCE SHEAR WALL KEY DETAIL FOR DESCRIPTION OF TERMS.
- PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF SHEAR WALLS ARE TYPICALLY AT WINDOWS, DOORWAYS OR AS SHOWN ON PLAN.
- EDGE NAILING IS REQUIRED AT ALL HOLDDOWN POSTS. EDGE NAILING IS REQUIRED TO EACH STUD USED IN BUILT-UP HOLDDOWN POSTS. REFERENCE HOLDDOWN SCHEDULE & DETAILS FOR ADDITIONAL INFORMATION.
- INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS UNO IN SCHEDULE. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH EDGE NAILING AT 12" OC WHERE STUDS ARE SPACED AT 16" OC AND EDGE NAILING AT 6" OC WHERE STUDS ARE SPACED AT 24"
- SIMPSON STRONG-TIE "A35" MAY BE USED IN LIEU OF "LTP5." "LTP5" CLIPS SHALL BE ORIENTED LENGTHWISE (HORIZONTAL) AT PLATE TO RIM. USE 0.131"x0.125" NAILS WHERE "LTP" TYPE CLIPS ARE ATTACHED DIRECTLY TO FRAMING AS OPPOSED TO OVER SHEATHING. USE 0.131"x0.25" NAILS WHERE "LTP" TYPE CLIPS ARE INSTALLED OVER SHEATHING. REFERENCE DETAIL 2/S102 FOR CLARIFICATION.
- (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF SINGLE 3x STUD. DOUBLE 2x STUDS SHALL BE SECURED TOGETHER WITH FASTENERS OF THE SAME DIAMETER AND SPACING AS THE BOTTOM PLATE ATTACHMENT PER SCHEDULE.
- WHERE SHEATHING IS APPLIED ON BOTH SIDES OF A SHEAR WALL AND NAIL SPACING IS LESS THAN 6" OC ON EITHER SIDE, THE WIDTH OF THE NAILED FACE OF THE FRAMING MEMBER SHALL BE 3" NOMINAL OR GREATER AT ADJOINING PANEL EDGES AND NAILS AT ALL PANEL EDGES SHALL BE STAGGERED. ALTERNATIVELY, PANELS SHALL BE STAGGERED SO THAT EDGE JOINTS ON OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUD.
- ANCHOR BOLTS SHALL BE PROVIDED WITH HOT-DIPPED GALVANIZED STEEL PLATE WASHERS PER DETAILS ON DRAWINGS. EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE. PROVIDE AN ANCHOR BOLT AT EACH END OF EACH PLATE AND SHALL BE AT LEAST 7 TIMES THE ANCHOR BOLT DIAMETER FROM THE ENDS OF THE PLATE, BUT NOT MORE THAN 1/2 THE TABULATED ANCHOR BOLT SPACING OR 12", WHICHEVER IS LESS. SEE ANCHOR BOLT DETAIL FOR PLATE WASHER REQUIREMENTS. [ALT: 3/8"x8" TITEN HD ANCHOR SCREWS MAY BE USED IN LIEU OF ANCHOR BOLTS AT EXISTING CONCRETE, WITH PLATE WASHER & SPACING REQUIREMENTS PER SCHEDULE.]
- PROVIDE HOT-DIPPED GALVANIZED NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC.) AT ALL PRESSURE TREATED LUMBER. REFERENCE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
- PANELS MAY BE INSTALLED HORIZONTALLY IF STUDS ARE SPACED AT 16" OC MAX.
- STAGGER EDGE NAILING.
- THE TOP EDGE OF THE WOOD STRUCTURAL PANEL SHALL BE ATTACHED TO THE UPPER TOP PLATE. ROOF OR UPPER LEVEL UPLIFT CONNECTORS SHALL BE ON THE SAME SIDE OF THE WALL AS THE SHEATHING.
- THE BOTTOM EDGE OF THE WOOD STRUCTURAL PANEL SHALL EXTEND TO AND BE ATTACHED TO THE BOTTOM OR SILL PLATE.
- REFERENCE DETAIL BELOW FOR STAGGERED NAIL AND SCREW SPACING AT RIM BOARDS.
- WALL TYPE ACCEPTABLE WITH TRUSS/JOIST AND BOISE CASCADE RIM JOIST AND BLOCKING.
- PROVIDE PLATE WASHERS AT EACH ANCHOR BOLT THAT IS NOT LESS THAN 0.229" X 3" X 3".
- FOR SW2, 3x FRAMING MEMBERS AND BLOCKING MUST BE PROVIDED AT ADJOINING PANEL EDGES, AND NAILS MUST BE STAGGERED AT PANEL EDGES.



4 DETAIL
SCALE: NTS
TYPICAL RIM NAILING

5 DETAIL
SCALE: NTS
TYPICAL SHEAR WALL SECTION



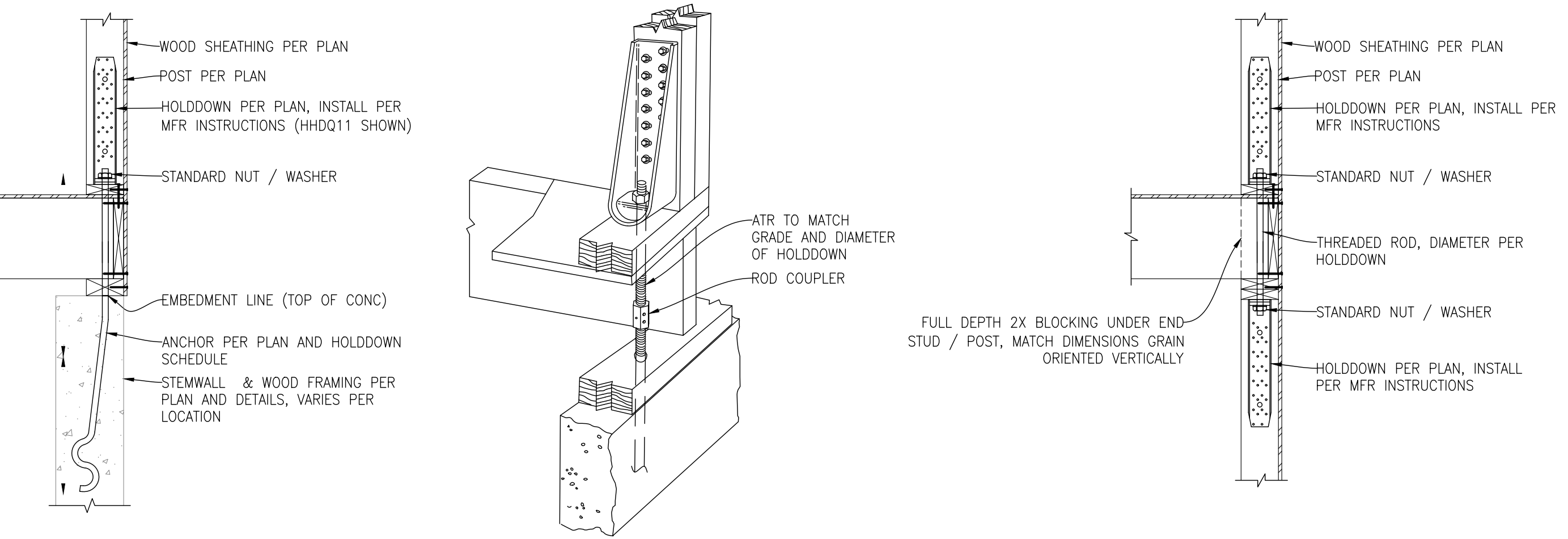
6 DETAIL
SCALE: 1"=1'-0"
DIAPHRAGM STRAPPING

CHECK SET - NOT FOR CONSTRUCTION

HOLDDOWN SCHEDULE (HF)							
MARK	MODEL #	ALLOWABLE UPLIFT			MIN END STUDS	STUD FASTENERS	CONCRETE ANCHOR
		MID WALL	CORNER	END WALL			
HDU2	HDU2-SDS2.5	2,215			(2) 2X	(6) 1/4X2 1/2 SDS	SSTB16
HDU4	HDU4-SDS2.5	3,285			(2) 2X	(10) 1/4X2 1/2 SDS	SSTB16
HDU5	HDU5-SDS2.5	4,340			(2) 2X	(14) 1/4X2 1/2 SDS	SSTB20
HDU8	HDU8-SDS2.5	5,820			(2) 2X	(20) 1/4X2 1/2 SDS	SSTB
HDU11	HDU11-SDS2.5	8,030			4X6	(30) 1/4X2 1/2 SDS	PAB8
HDU14	HDU14-SDS2.5	9,260			4X6	(36) 1/4X2 1/2 SDS	PAB8

HOLDDOWN SCHEDULE NOTES:

- REFERENCE FOUNDATION PLAN NOTE 1 FOR HOLDDOWNS AT EXISTING FOUNDATION LOCATIONS
- HOLDDOWNS SPECIFIED ARE BY SIMPSON STRONGTIE
- REFERENCE PLANS FOR ADDITIONAL STUD REQUIREMENTS WHERE OCCUR
- PROVIDE 1/4" X 3" SQ PLATE WASHER BETWEEN STANDARD DOUBLE NUTS. EMBED LENGTH EQUAL TO TOP OF CONCRETE DOWN TO TOP OF PLATE WASHER
- INCREASE FOOTING DEPTH LOCALLY AS REQUIRED TO ACHIEVE REQUIRED EMBEDMENT DEPTH AS SPECIFIED BY HOLDDOWN MANUFACTURER
- AT POST INSTALL HDU8 LOCATION, EPOXY SET F1554 GRADE 36 X 7/8" DIAMETER X 18" LONG ALL THREAD ROD WITH SIMPSON SET XP.



- NOTE**
- FULL WIDTH AND DEPTH COMPRESSION BLOCKING (GRAIN ORIENTED VERTICALLY) SHALL BE REQUIRED IN FLOOR INTERSTITIAL SPACE UNDER COLUMNS, STUD PACKS, AND HOLDDOWNS.
 - RIM & COMPRESSION BLOCKING NOT SHOWN FOR CLARITY.

1 DETAIL
SCALE: NTS
TYPICAL HDU TYPE HOLDDOWN

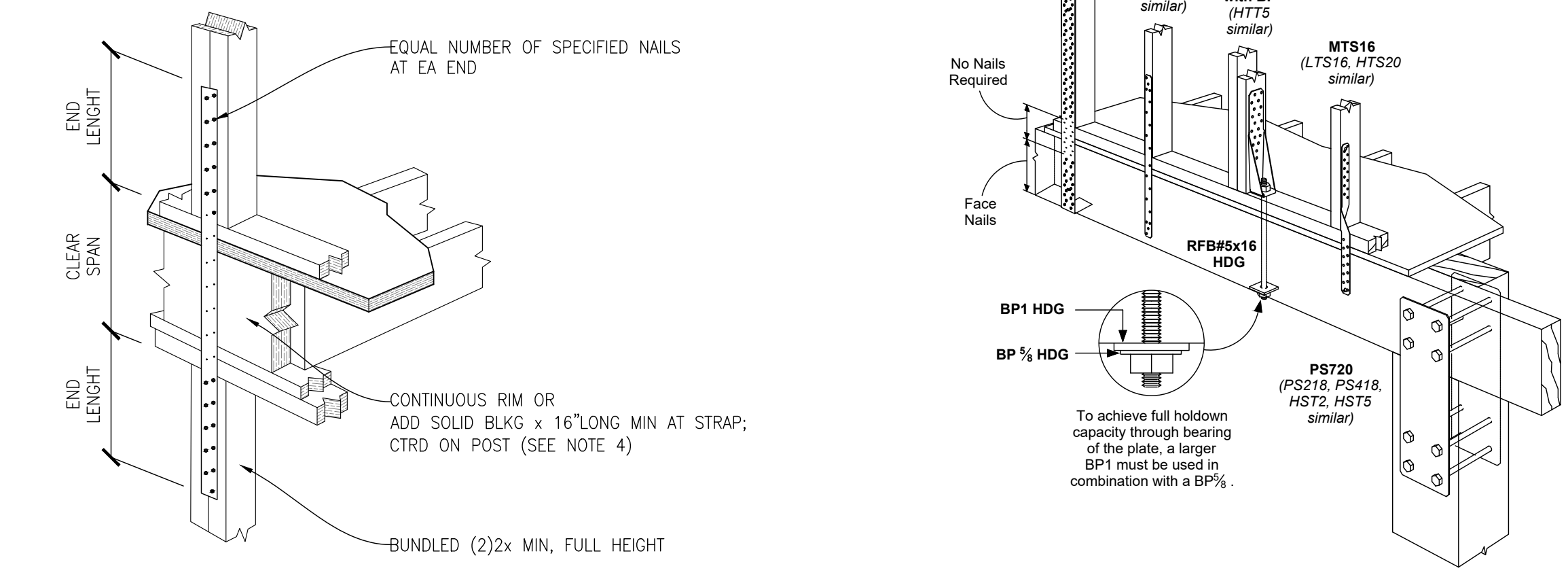
2 DETAIL
SCALE: NTS
TYPICAL HDU TYPE HOLDDOWN ISOMETRIC

3 DETAIL
SCALE: NTS
THRU FLOOR HOLDDOWN W/ HDU

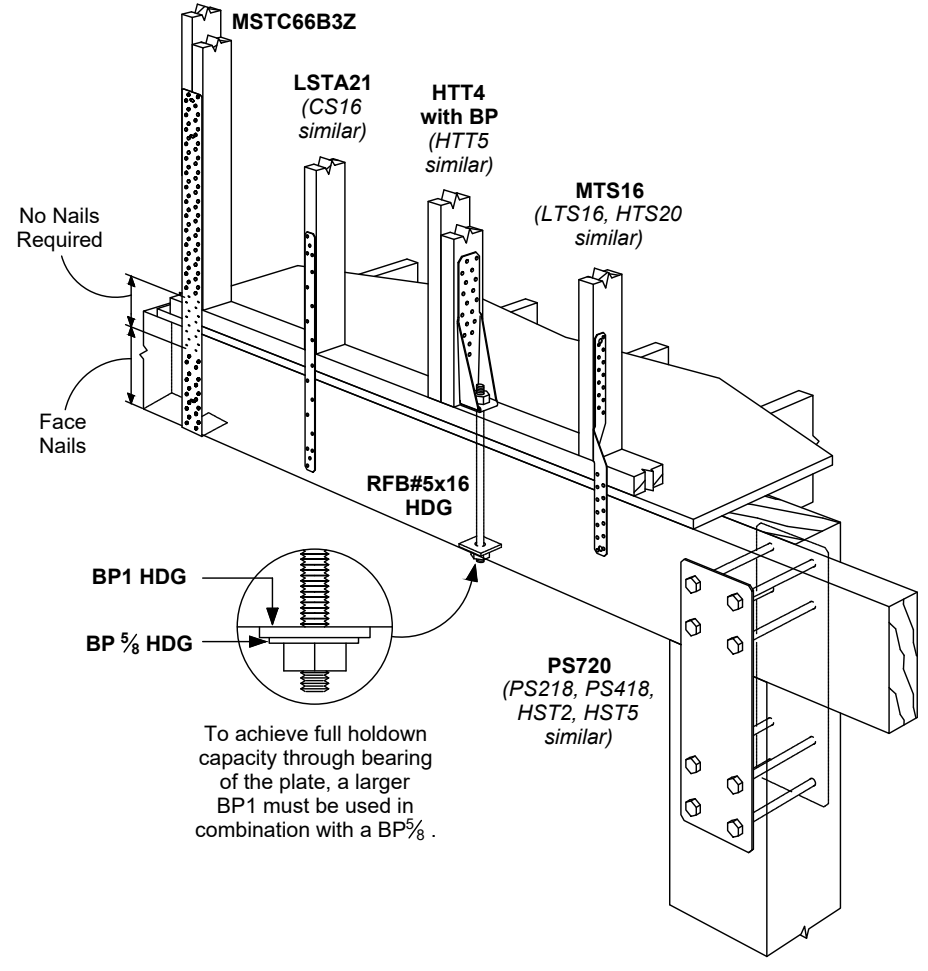
TIEDOWN STRAP SCHEDULE			
STRAP	MINIMUM END LENGTH	NAILING REQ'D AT EA END LENGTH	ALLOWABLE UPLIFT (LBS)
CS20	9"	(16) 0.131 x 2 1/2"	1,030
CS16	15"	(26) 0.131 x 2 1/2"	1,370
CS14	19"	(36) 0.131 x 2 1/2"	2,490
CMSTC16	25"	(56) 0.148 x 3"	4,585
CMST14	34"	(76) 0.148 x 3"	6,490
CMST12	44"	(98) 0.148 x 3"	9,215

TIE DOWN STRAP SCHEDULE NOTES:

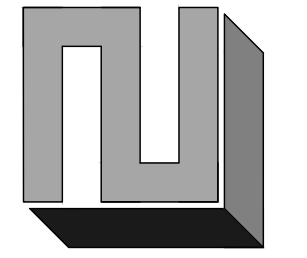
- FOLLOW ALL SIMPSON STRONG-TIE GUIDELINES NECESSARY TO ACHIEVE FULL ICC DESIGN VALUES.
- STRAP MAY BE INSTALLED OVER OR UNDER PLYWOOD.
- EDGE NAIL PLYWOOD TO STRAPPED POST.
- WHERE STRAPS OCCUR OVER FLOOR BEAM, REFER STRUCTURAL DRAWINGS FOR ADD'L DETAIL.
- ADDED BLKG MAY BE ELIMINATED WHERE FLOOR FRAMING IS DIRECTLY BETWEEN POST.
- NAILS NOT REQUIRED IN CLEAR SPAN.



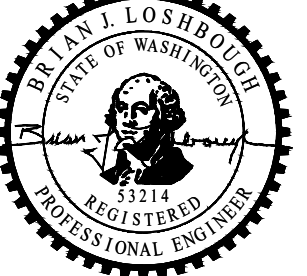
7 DETAIL
SCALE: NTS
TYPICAL FLOOR TO FLOOR STRAP



8 DETAIL
SCALE: NTS
FLOOR TO BEAM / RIM HOLDDOWNS



DATE	REVISION



CHK BY: LZE DRW BY: TNT

SCALE: AS SHOWN
BAR = 1" FULL SIZE

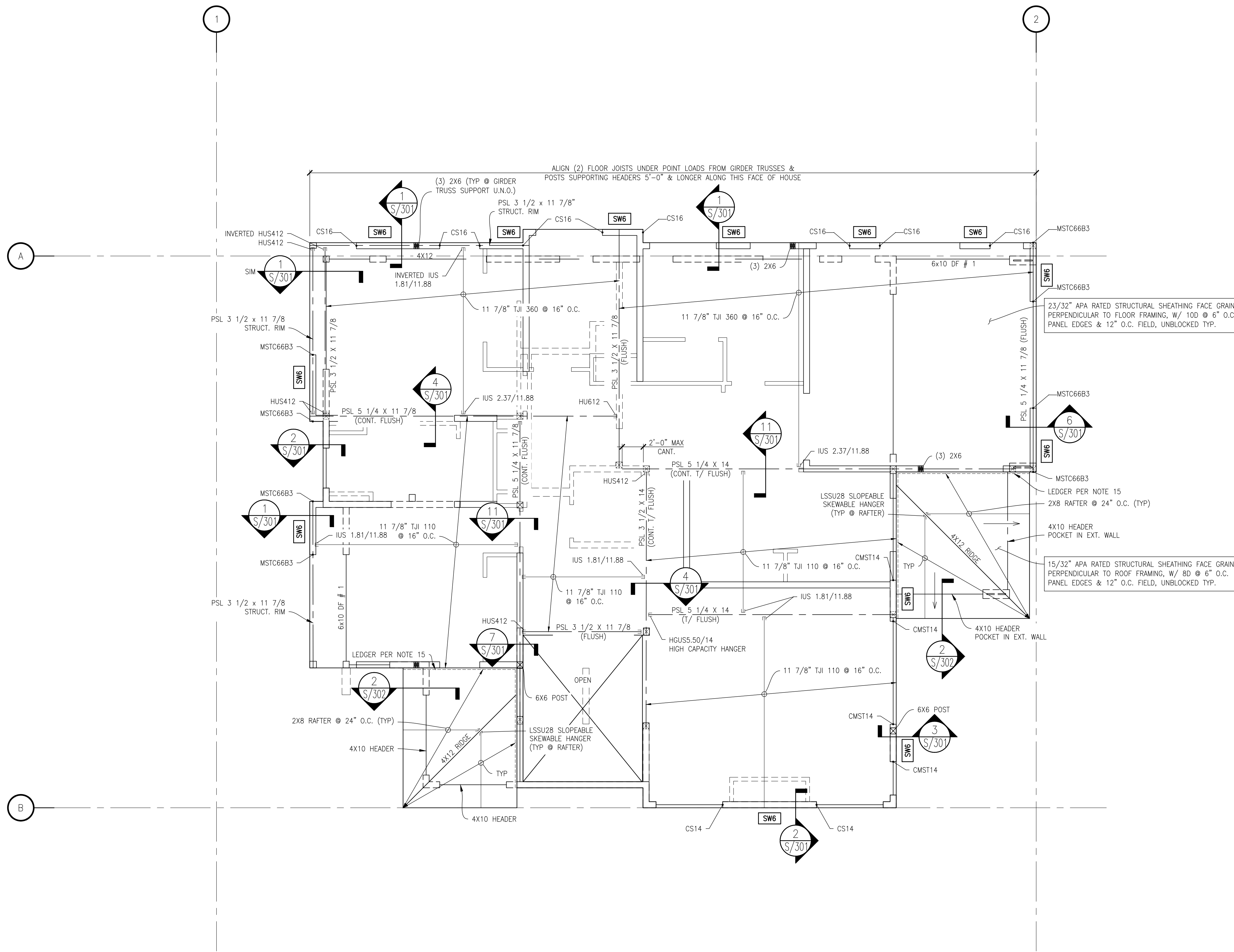
DATE: 02/22/2021

JOB NO: 20-084

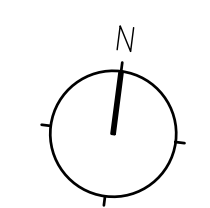
SHEET: 3 OF 10

DWG NO: S102

CHECK SET - NOT FOR CONSTRUCTION

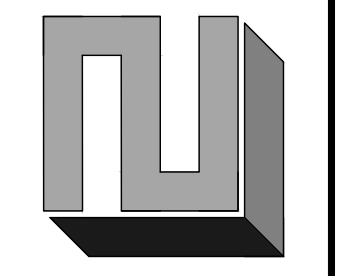


UPPER FLOOR FRAMING PLAN
 SCALE: 1/4"=1'-0"



- PLAN NOTES**
- DIMENSIONS: VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
 - ALL RIMS SHALL BE 1-3/4" LSL TYP. U.N.O.
 - MATCH BUNDLED STUDS FROM ABOVE TYP. U.N.O.
 - FLOOR SHEATHING SHALL BE 23/32" APA-RATED STURD-I-FLOOR T&G SHEATHING FACE GRAIN PERPENDICULAR TO FLOOR FRAMING, GLUE & NAIL W/ 10D @ 6" OC EDGES, 10D @ FIELD (UNBLOCKED), TYP.
 - FULLY BLOCK ALL REPETITIVE MEMBERS AT BEARING CONDITIONS, TYP.
 - ALL EXTERIOR WALLS SHALL BE SW-6, UNO ON PLAN.
 - PANEL EDGE NAIL SHEATHING TO FRAMING MEMBERS ALIGNED OVER SHEAR WALLS, TYP.
 - AT ALL WOOD-FRAMED, BEARING AND SHEAR WALLS, REFERENCE STUD GRADE, SIZES AND SPACING PER GENERAL NOTES.
 - ALL EXTERIOR WALLS SHALL BE FRAMED WITH 2X6 STUDS AT 16" ON CENTER, TYP. U.N.O.
 - PROVIDE LUS SERIES HANGERS AT ALL FLUSH FRAMED JOIST CONDITIONS, TYP. U.N.O.
 - PROVIDE ITS SERIES HANGERS AT ALL FLUSH FRAMED JOIST CONDITIONS, TYP. U.N.O.
 - ENGINEERED JOIST BRACING PER JOIST MANUFACTURER, TYP.
 - FULLY BLOCK FLOOR CAVITY AT ALL POINT LOADS. VERIFY POINT LOADS ARE SUPPORTED CONTINUOUSLY THROUGH FLOORS TO THE FOUNDATION.
 - ALL HEADERS TO BE 4x10 MINIMUM. HEADERS SHALL BE SUPPORTED BY (2) 2X STUDS MINIMUM, UNO ON PLAN.
 - 2X8 LEDGER FASTEN TO WOOD FRAMING W/ (2) 1/4" @ X 4 1/2 SDS @ 24" O.C.
 - SUPPORT BEAMS WITH (3) 2X STUDS MINIMUM, UNO ON PLAN.
 - TYP STAIR STRINGERS - 2X12 @ 12" O.C. W/ LSC ADJUSTABLE STRINGER CONNECTOR AT ENDS.
 - OFFSET JOISTS AS REQUIRED TO AVOID PLUMBING FIXTURES

- KEY**
- WALL BELOW
 - ==== WALL
 - SW# SHEAR WALL INDICATOR (REF. SHEAR WALL SCHEDULE)
 - XX HOLDDOWN
 - ⊠ POST
 - ⊠ POST BELOW
 - HANGER



DATE	REVISION



CHEN RESIDENCE
 5024 MERCER WAY, MERCER ISLAND, WA 98040
 UPPER FLOOR FRAMING PLAN

CHK BY: LZE
 DRW BY: TNT

SCALE: AS SHOWN
 BAR = 1"
 FULL SIZE

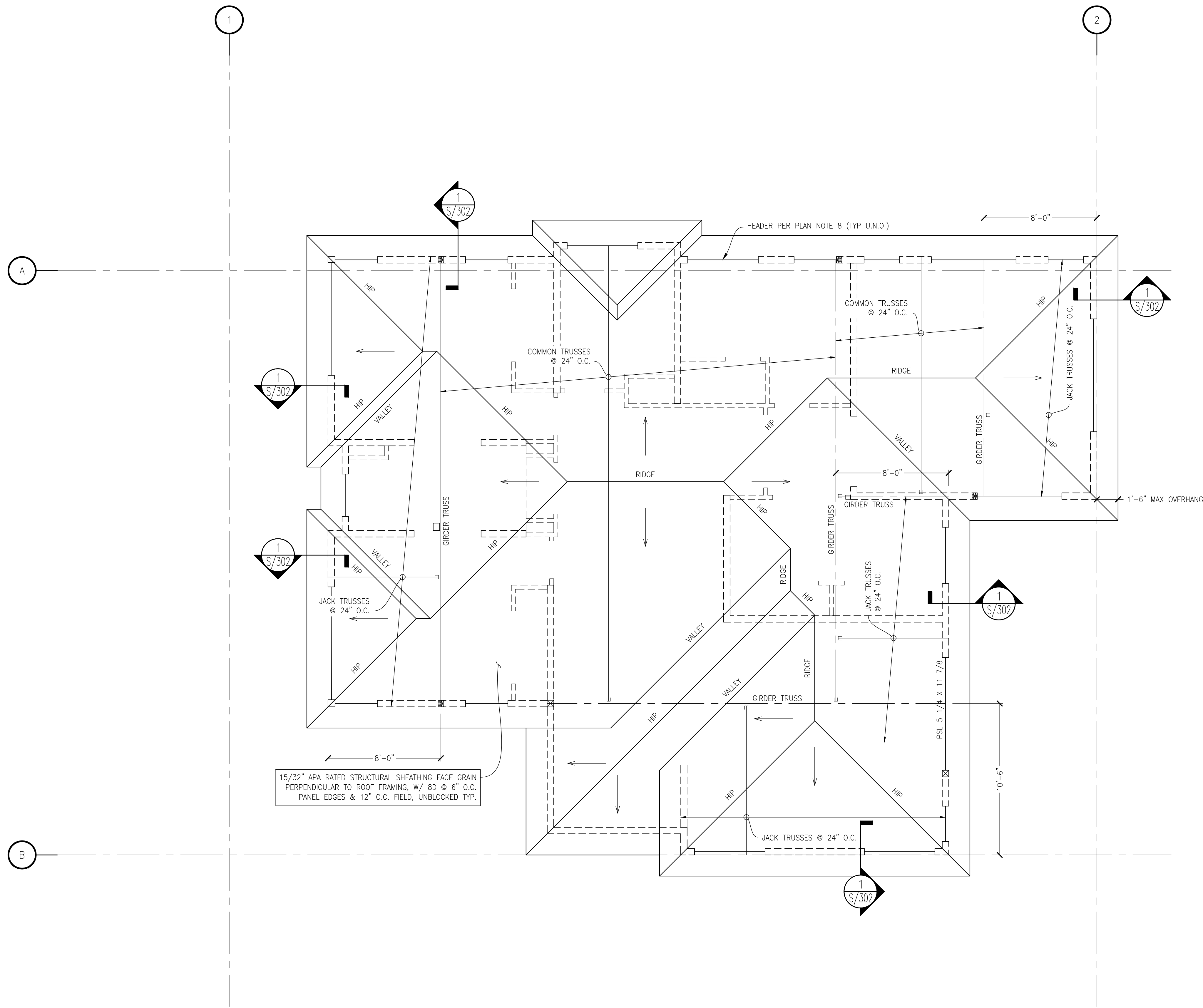
DATE: 02/22/2021

JOB NO: 20-084

SHEET: 6 OF 10

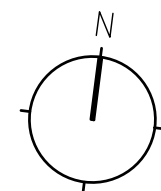
DWG NO: S202

CHECK SET - NOT FOR CONSTRUCTION



15/32" APA RATED STRUCTURAL SHEATHING FACE GRAIN PERPENDICULAR TO ROOF FRAMING, W/ 8D @ 6" O.C. PANEL EDGES & 12" O.C. FIELD, UNBLOCKED TYP.

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

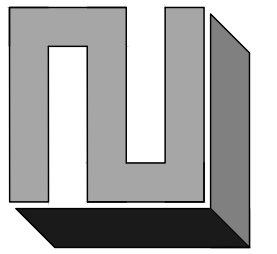


PLAN NOTES

1. DIMENSIONS: VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
2. ROOF SHEATHING SHALL BE 15/32" APA-RATED PLYWOOD STRUCTURAL SHEATHING FACE GRAIN PERPENDICULAR TO ROOF FRAMING, NAIL W/ 8D @ 6" OC EDGES, 8D @ 12" O.C. FIELD, UNBLOCKED, TYP.
3. ROOF DECK SHEATHING SHALL BE 23/32" APA-RATED PLYWOOD SHEATHING FACE GRAIN PERPENDICULAR TO ROOF FRAMING, NAIL W/ 10D @ 6" OC EDGES, 10D @ 12" O.C. FIELD, UNBLOCKED, TYP.
4. FULLY BLOCK ALL REPETITIVE MEMBERS AT BEARING CONDITIONS, TYP.
5. PROVIDE SIMPSON H1 AT ALL ROOF FRAMING TO EXTERIOR WALLS.
6. PANEL EDGE NAIL SHEATHING TO FRAMING MEMBERS ALIGNED OVER SHEAR WALLS, TYP.
7. TRUSS BRACING PER TRUSS MANUFACTURER, TYP.
8. SUPPORT GIRDER/MASTER TRUSSES WITH (3) 2X STUDS MINIMUM, TYP, U.N.O.
9. ALL EXTERIOR WALLS SHALL BE FRAMED WITH 2X6 STUDS AT 16" ON CENTER, TYP, U.N.O.
10. ALL EXTERIOR WALLS SHALL BE SW6, U.N.O.
11. AT ALL WOOD-FRAMED, BEARING AND SHEAR WALLS, REFERENCE STUD GRADE, SIZES AND SPACING PER GENERAL NOTES.
12. AT SHEAR WALLS PARALLEL TO FRAMING, ALIGN RAFTER OR BEAM PER PLAN OVER AND UNDER ALL SHEAR WALLS AND BEARING WALLS.
13. ALL HEADERS TO BE 4X8 MINIMUM. HEADERS SHALL BE SUPPORTED BY (2) 2X STUDS MINIMUM, UNO ON PLAN.
14. TYPICAL LEDGER SHALL BE 2X12 WITH (2) 3/4" DIAMETER X 5" LONG SDS SCREW CTR'D IN EACH STUD (STUDS @ 16" O.C.).
15. SUPPORT BEAMS WITH (3) 2X STUDS MINIMUM, UNO ON PLAN.
16. TYP STAIR STRINGERS - 2X12 @ 12" O.C. W/ LSC ADJUSTABLE STRINGER CONNECTOR AT ENDS
17. OPEN WEB WOOD TRUSS (OWWT) LOADING:
TRUSS SELF WEIGHT IS NOT INCLUDED IN DEAD LOADS. SELF WEIGHT SHALL BE DETERMINED BY TRUSS MANUFACTURER AND INCLUDED IN TRUSS CALCULATIONS.
TOP CHORD DEAD LOAD: 3 PSF
 LIVE LOAD: 60 PSF
 SNOW LOAD: 25 PSF
BOTTOM CHORD DEAD LOAD: 6 PSF

KEY

- WALL BELOW
- POST BELOW
- HANGER



REVISION	DATE



CHEN RESIDENCE
5024 MERCER WAY, MERCER ISLAND, WA 98040
ROOF FRAMING PLAN

CHK BY: LZE DRW BY: TNT

SCALE: AS SHOWN
BAR = 1"
FULL SIZE

DATE: 02/22/2021

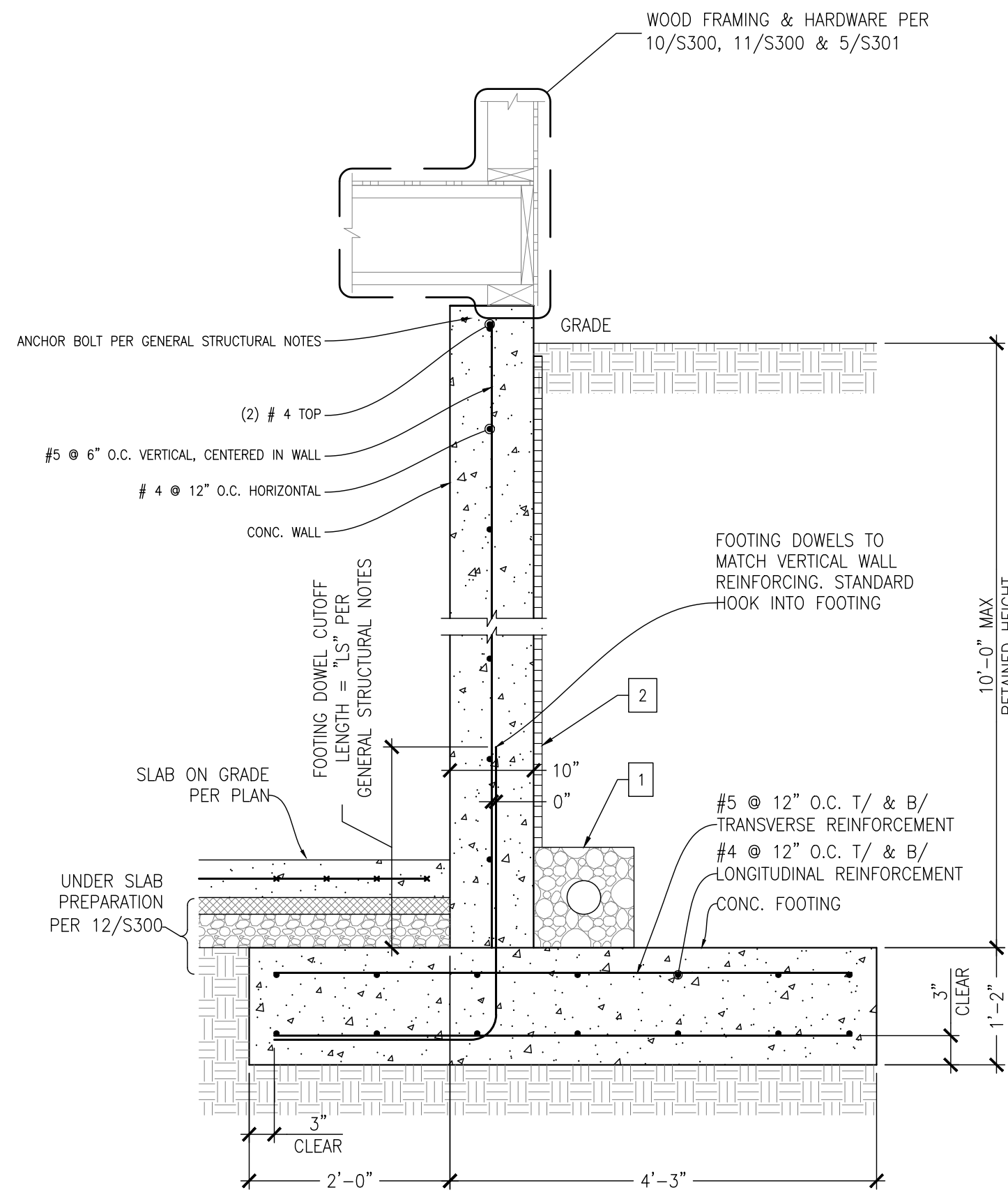
JOB NO: 20-084

SHEET: 7 OF 10

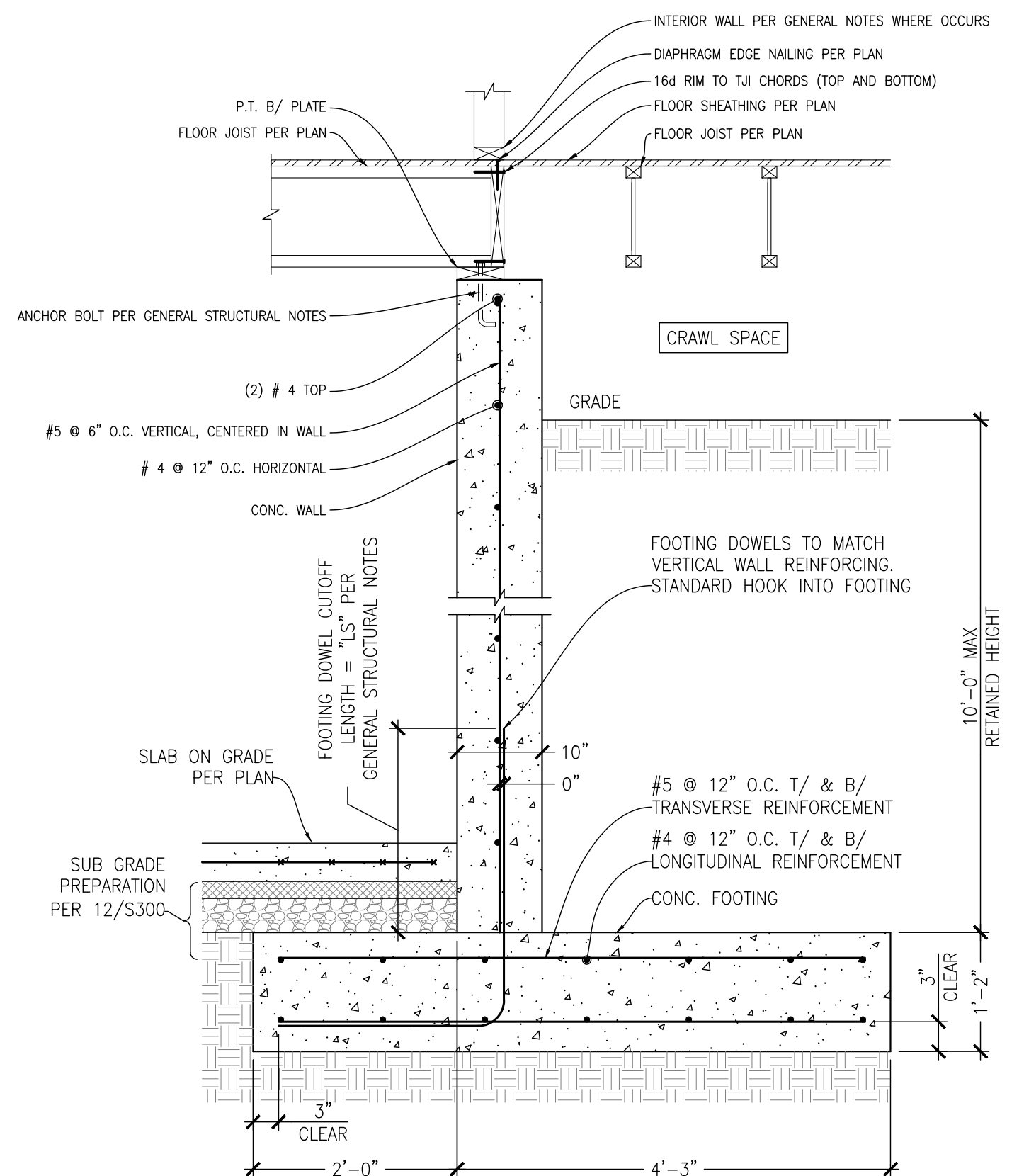
DWG NO: S203

WALL SECTION GENERAL NOTES:

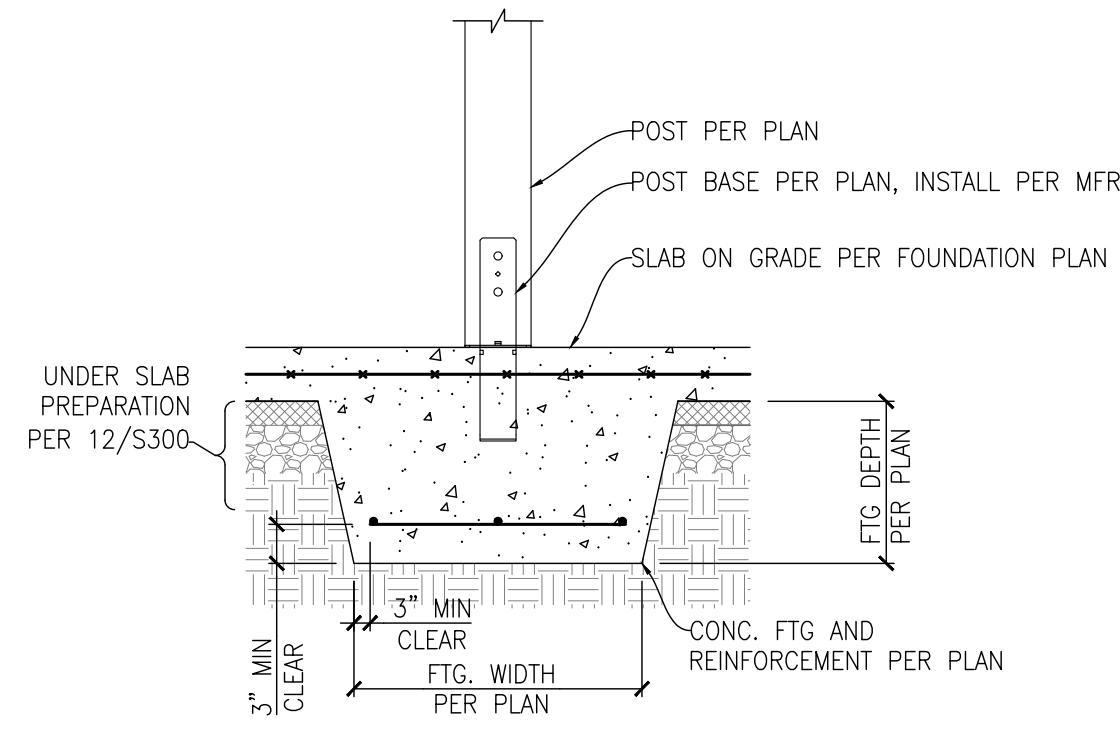
- 4" PERFORATED PVC FOOTING DRAIN WRAPPED IN FILTER FABRIC.
- APPLY PRE-FABRICATED DRAINAGE PANEL (MIRADRAIN 6000 OR EQUIVALENT) TO ALL PERIMETER RETAINING WALLS. EXTEND DRAINAGE PANEL OVER THE FULL HEIGHT OF THE WALL. A 12" THICK LAYER OF FREE-DRAINING GRANULAR FILL MAY BE USED IN LIEU OF THE DRAINAGE PANEL.
- ROOF AND SURFACE RUNOFF SHOULD NOT DISCHARGE INTO THE FOOTING DRAIN SYSTEM.
- SHORING WHERE REQUIRED PER OTHERS
- HEEL AND TOE NOT TO SCALE, BUILD ACCORDING TO DETAIL DIMENSIONS.
- HEAVY EQUIPMENT SURCHARGE NOT PERMITTED ADJACENT TO RETAINING WALL, HEEL SIDE.



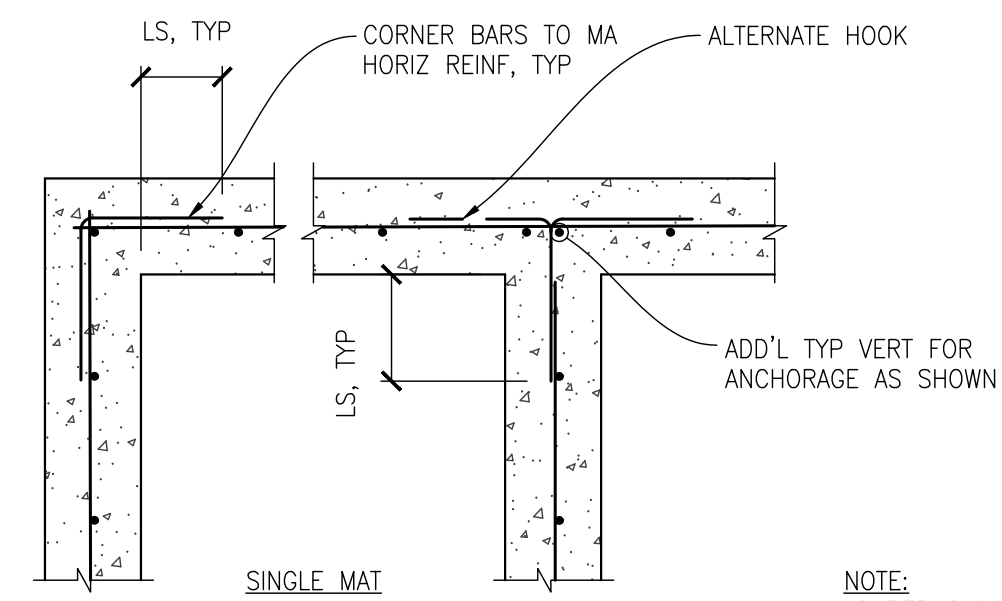
1 DETAIL
SCALE: 3/4"=1'-0"
EXTERIOR RETAINING WALL



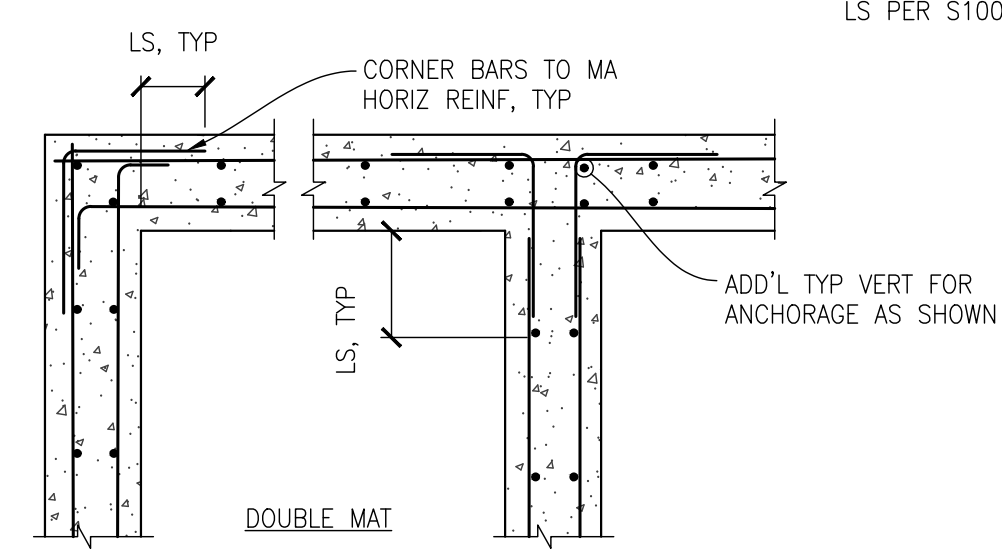
8 DETAIL
SCALE: 3/4"=1'-0"
INTERIOR RETAINING WALL



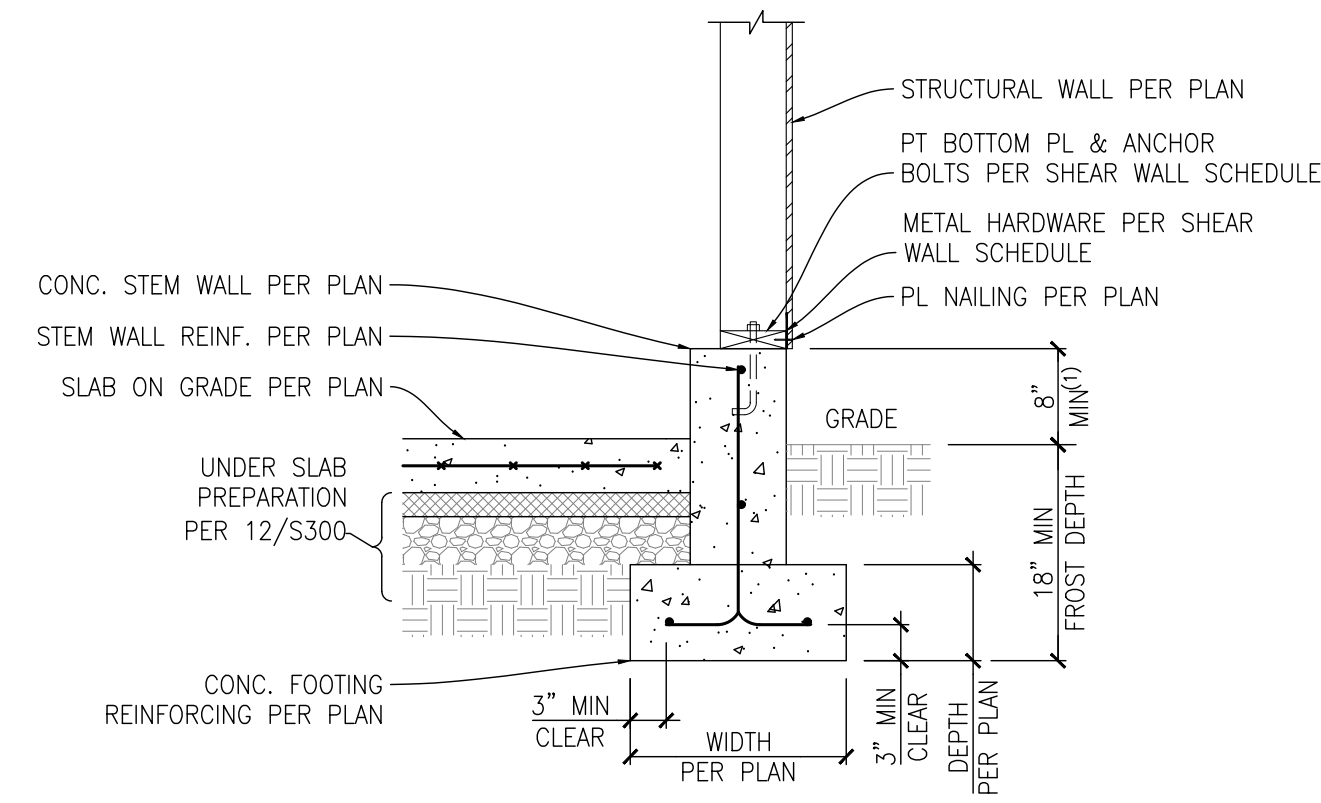
2 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL THICKENED SLAB



3 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL EXTERIOR STRIP FOOTING

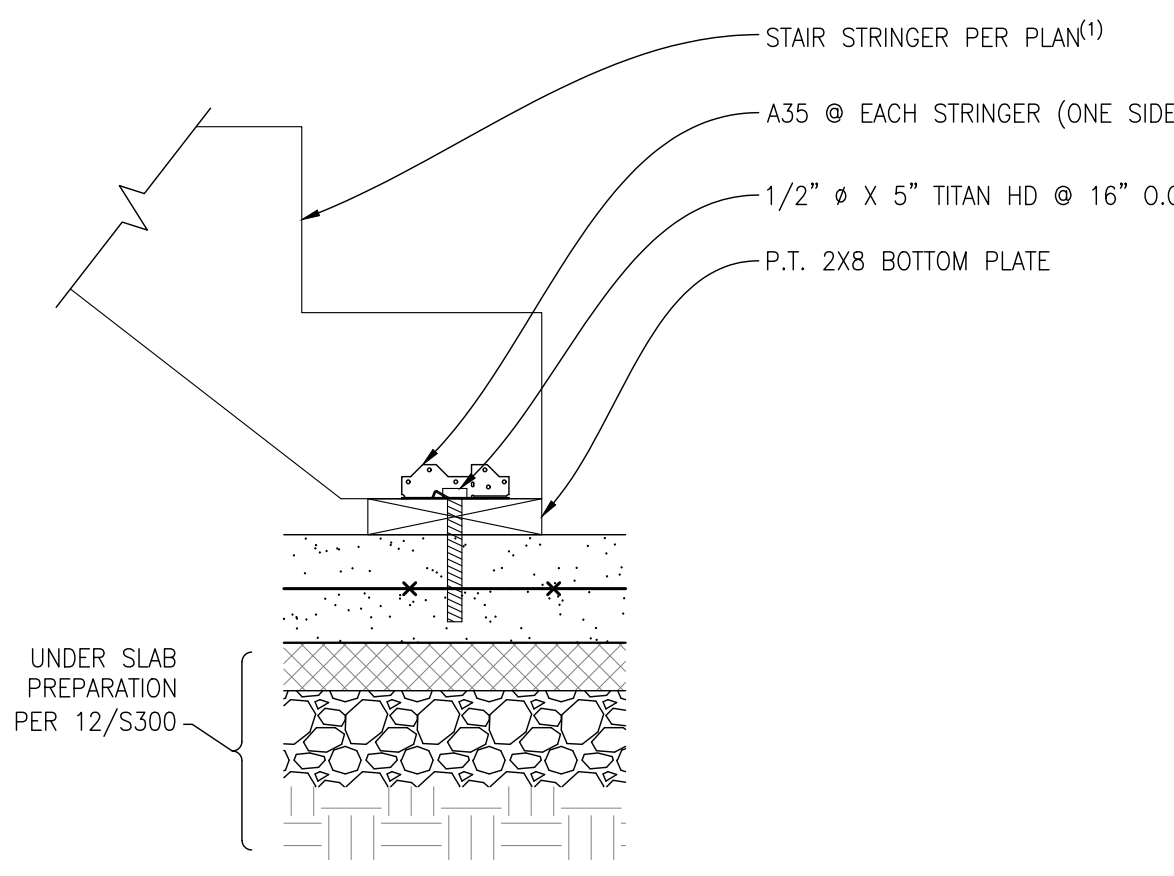


5 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL CORNER REINFORCING



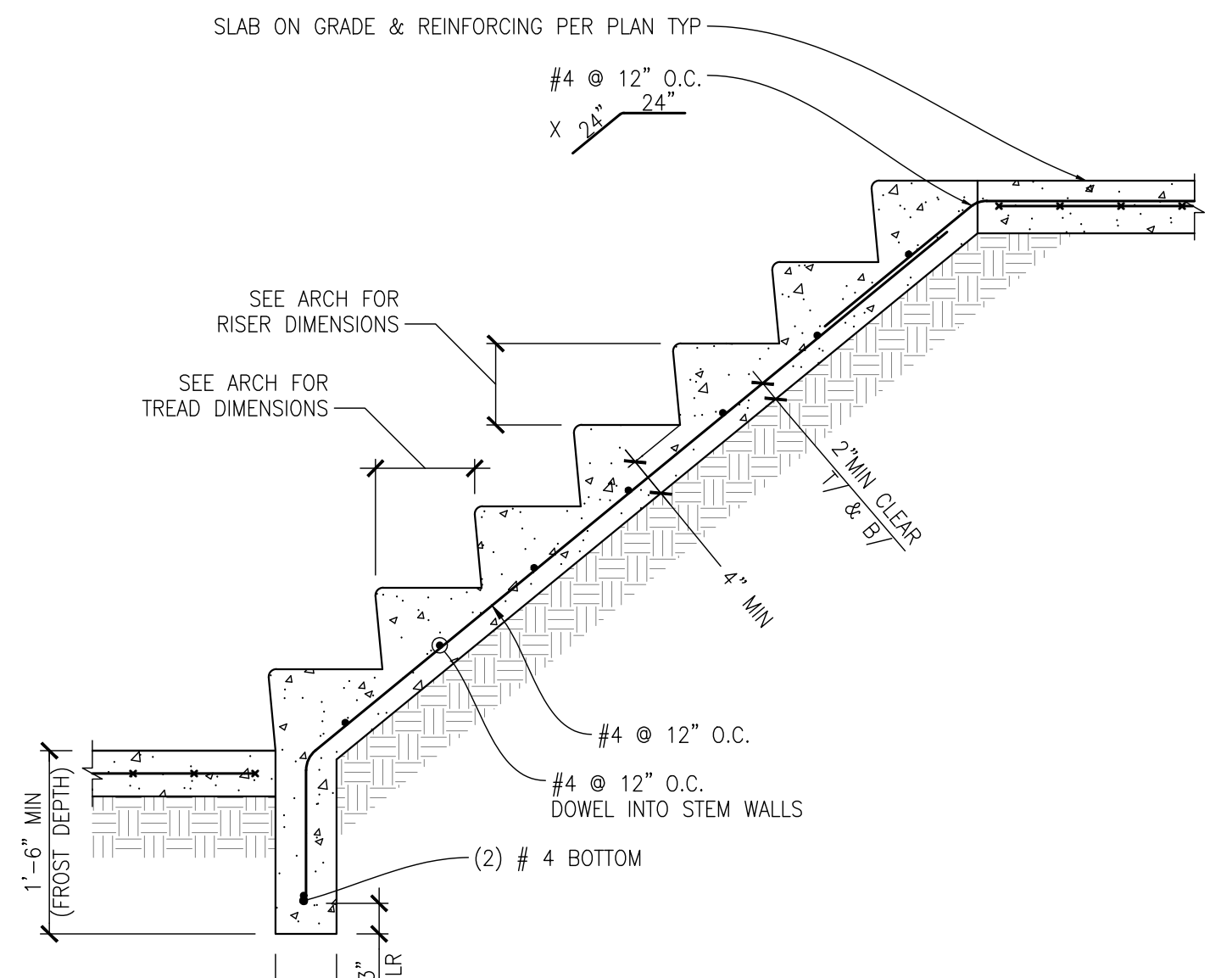
NOTE
1) 2'-6" MAXIMUM SOIL IMBALANCE, ELSE USE DETAIL 1/S300

6 DETAIL
SCALE: 1 1/2"=1'-0"
WOOD STRINGER TO SOG

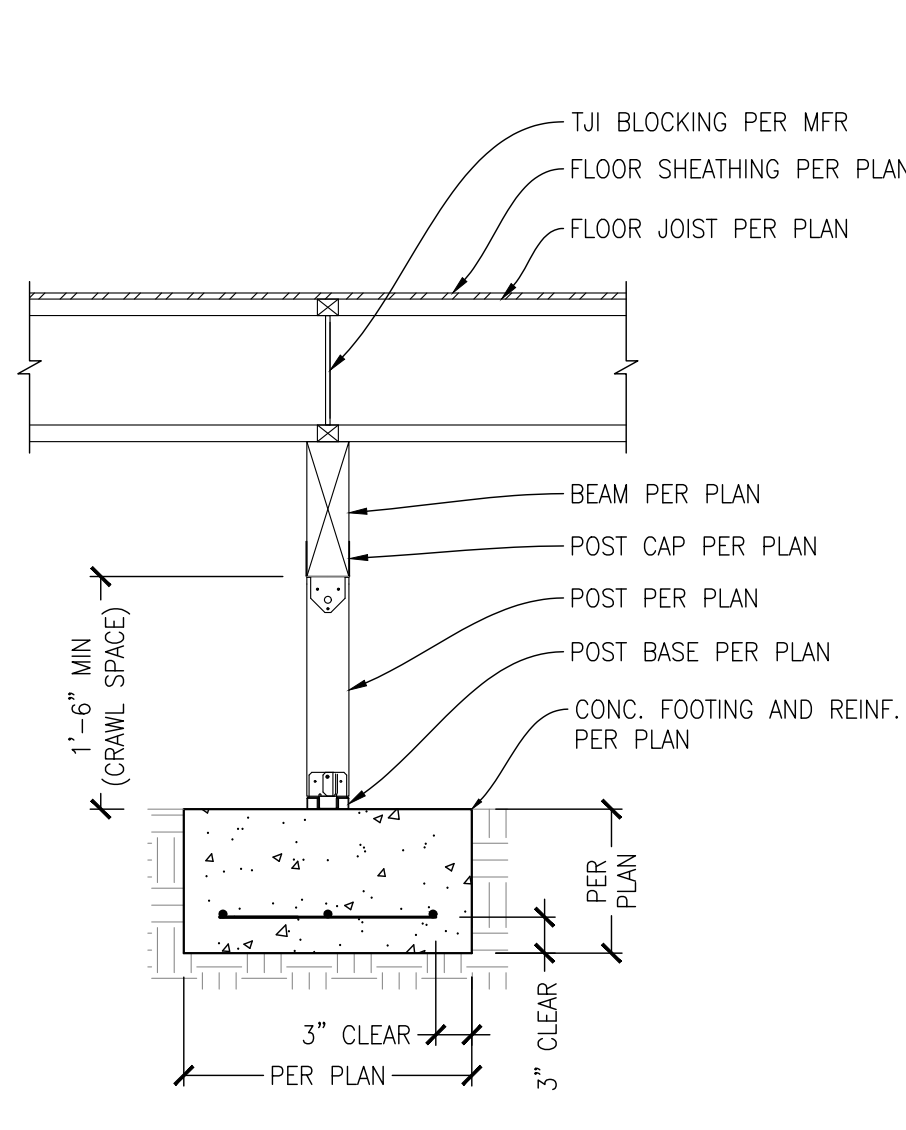


NOTE
NO STRIP FOOTING AT "SIM" CONDITION, EXTEND DOWNTURNED EDGE TO FROST DEPTH.

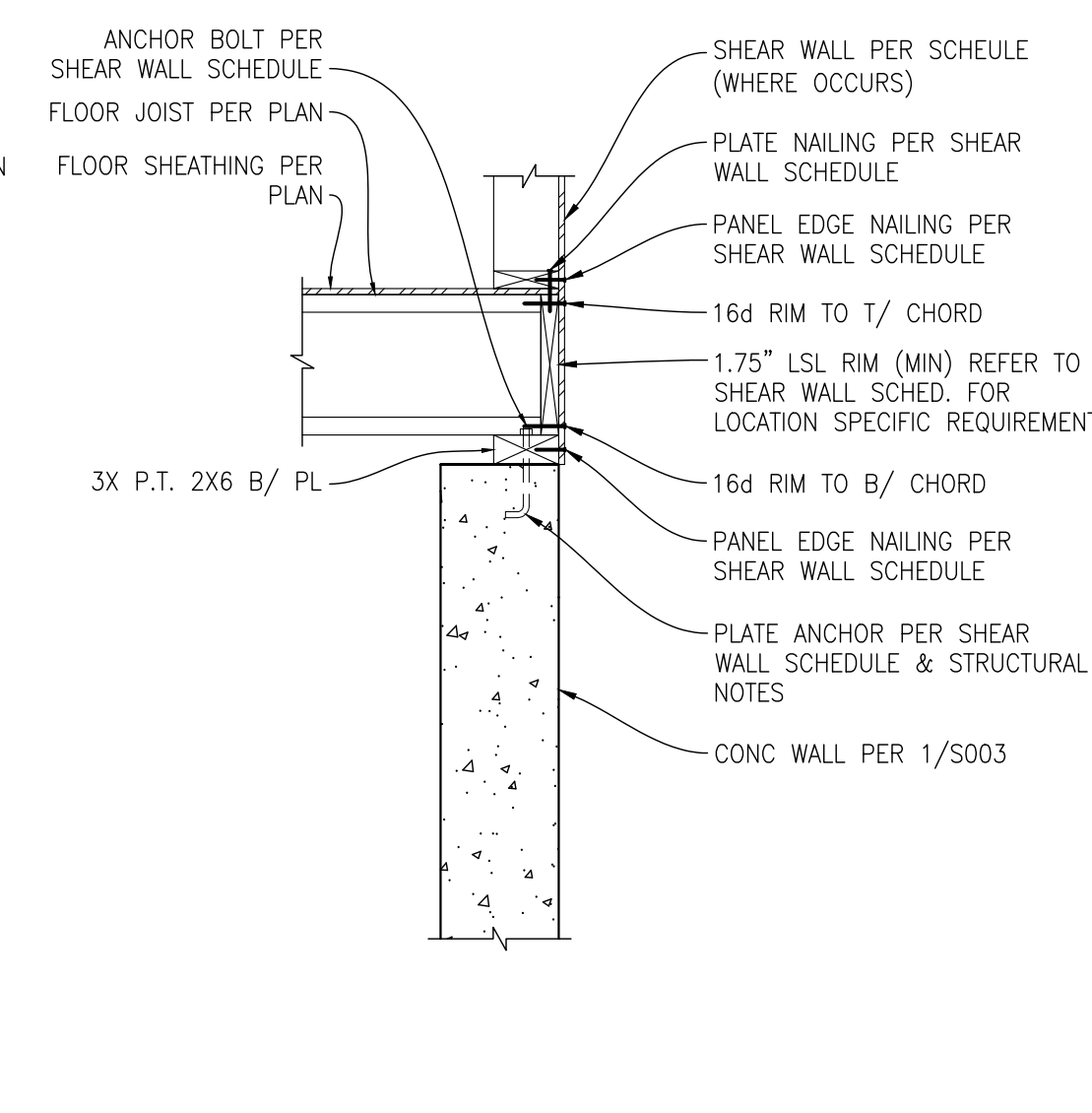
4 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL DOWNTURNED EDGE



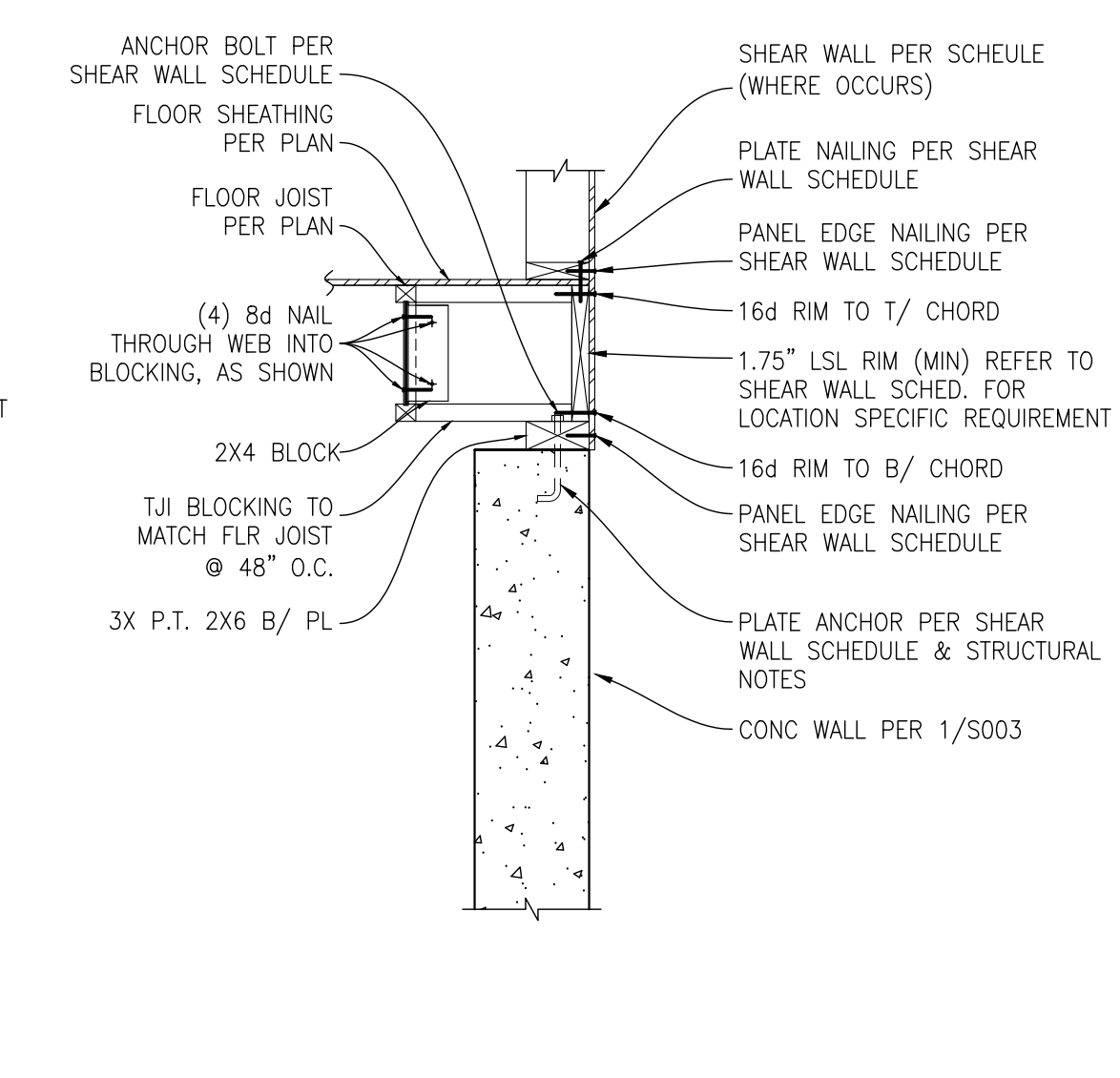
7 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL CONC. STAIR ON GRADE



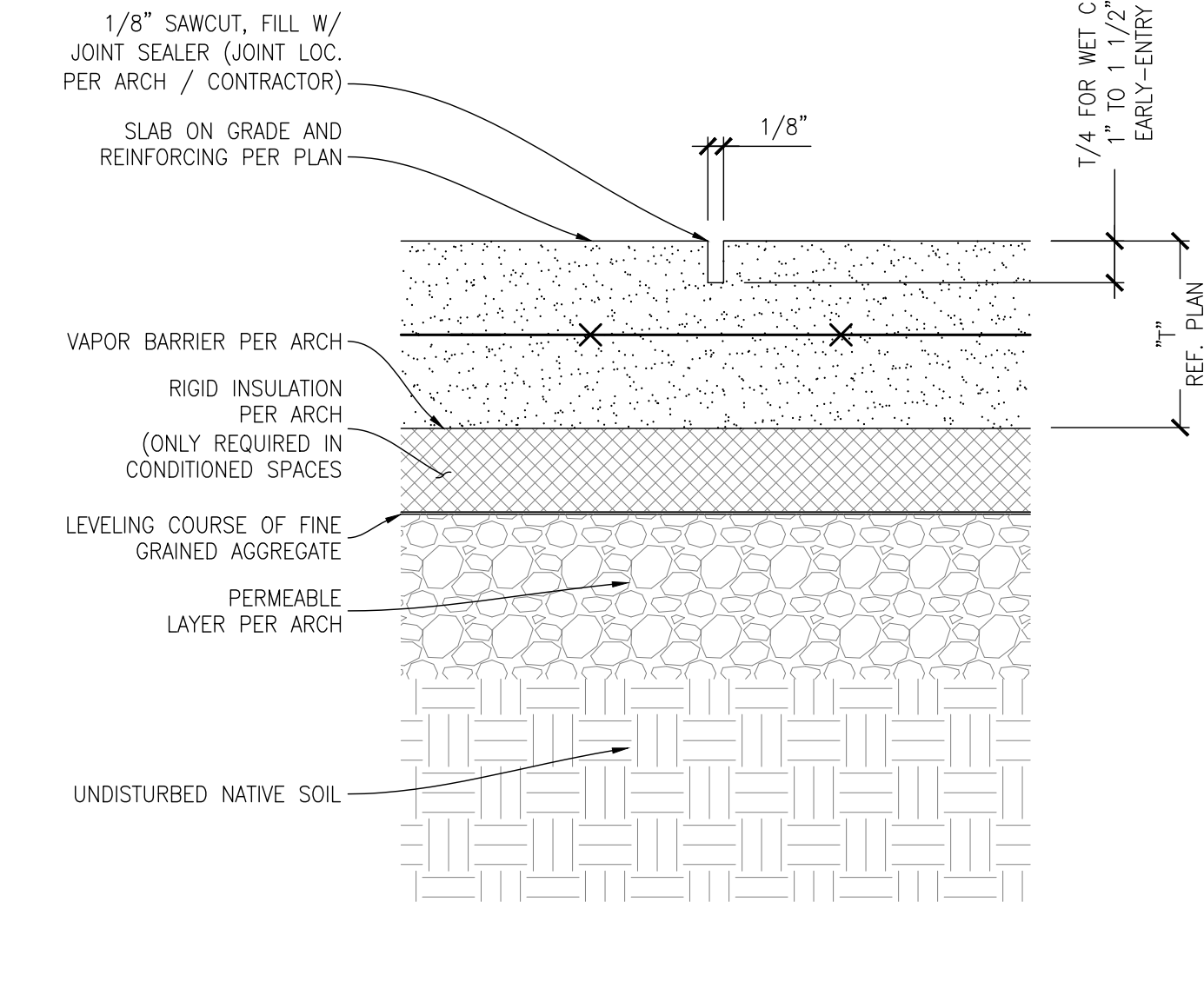
9 DETAIL
SCALE: 3/4"=1'-0"
ISOLATED POST BASE



10 DETAIL
SCALE: 3/4"=1'-0"
TJI PERP. TO CONC. WALL

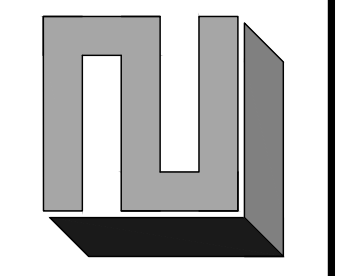


10 DETAIL
SCALE: 3/4"=1'-0"
TJI PARALLEL TO CONC. WALL

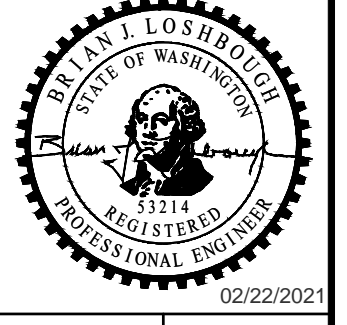


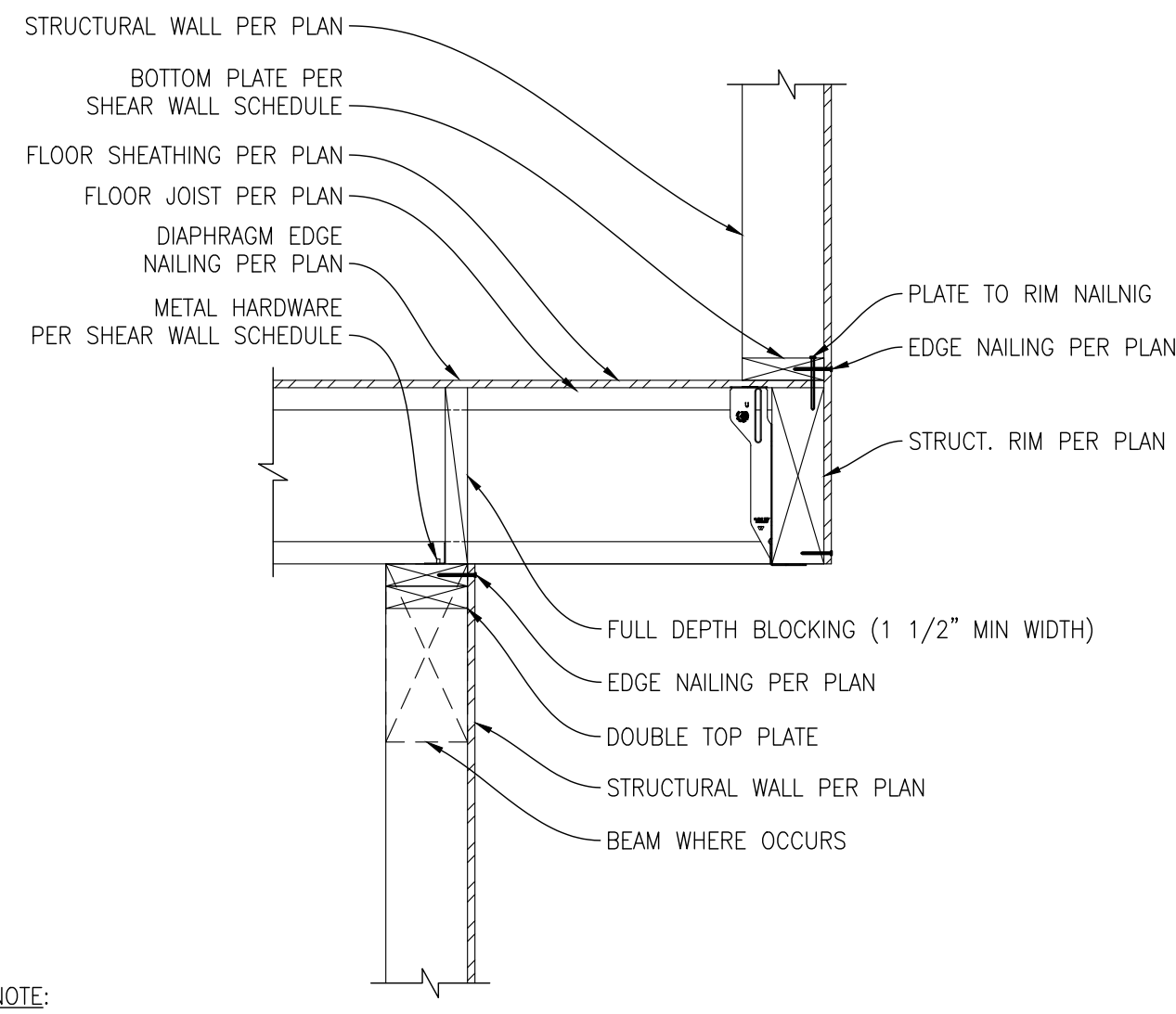
11 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL SAW CUT JOINT

CHECK SET - NOT FOR CONSTRUCTION



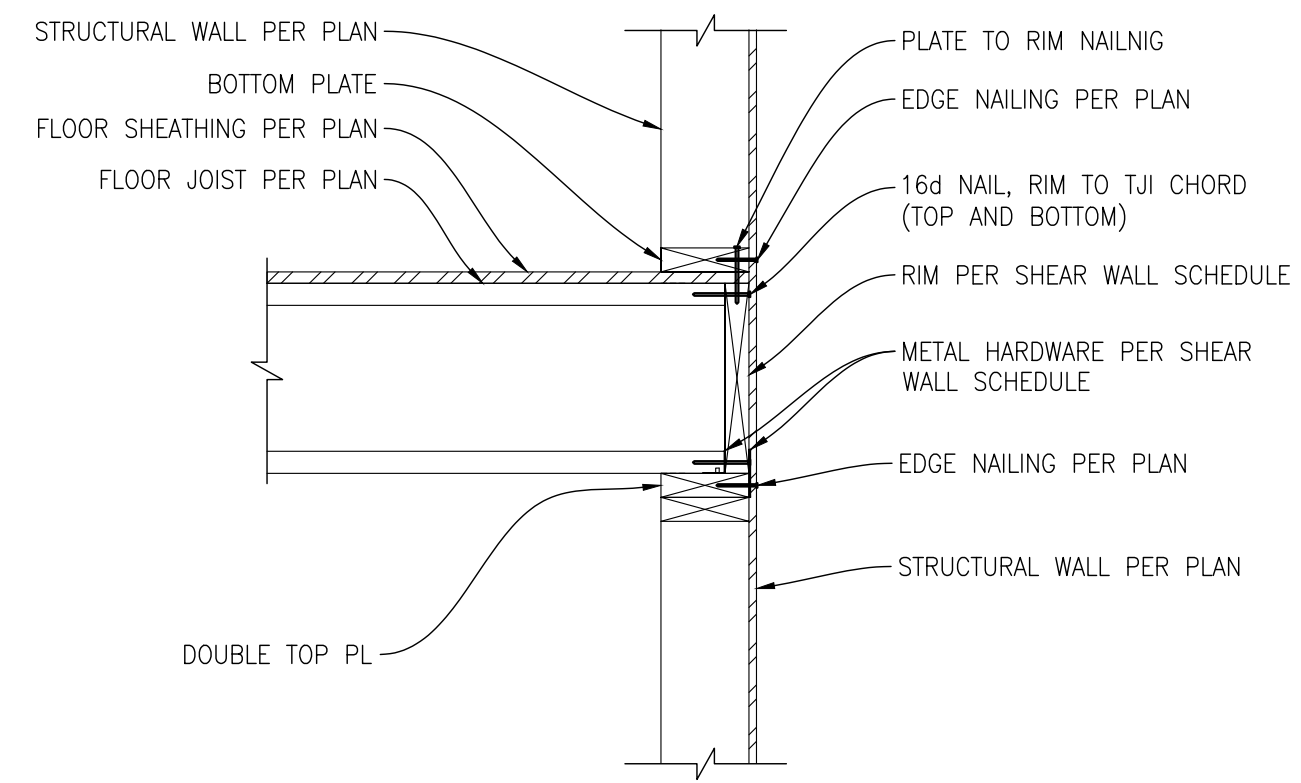
REVISION	DATE



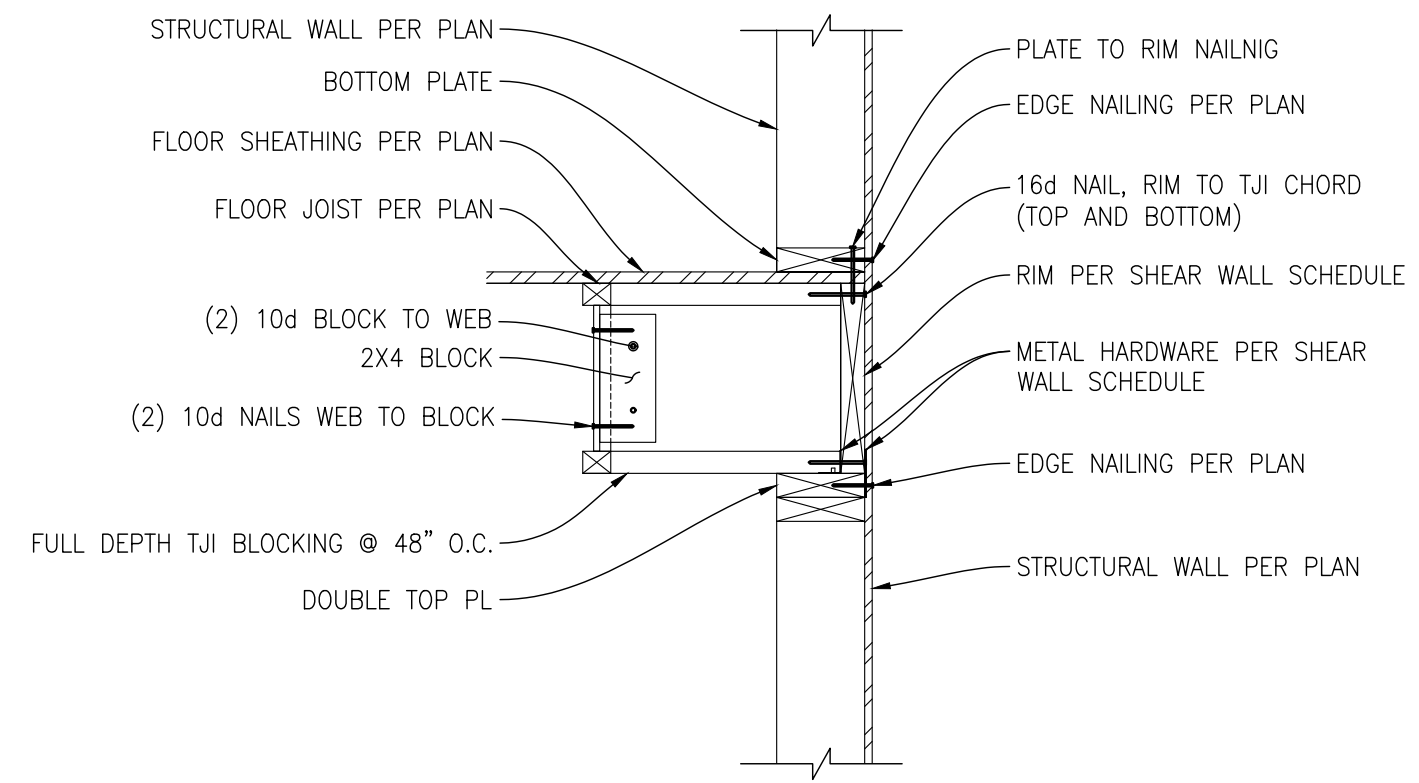


1 DETAIL
SCALE: 3/4"=1'-0"
CANTILEVERED FLOOR

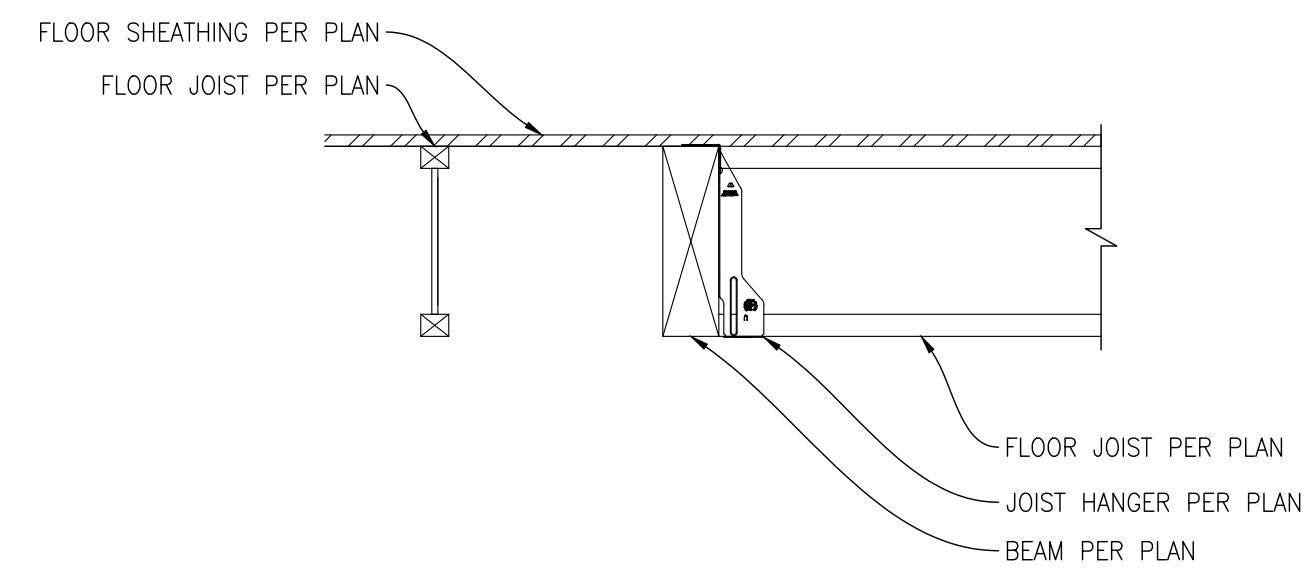
NOTE:
1. JOISTS PARALLEL TO WALL AT "SIM" CONDITION



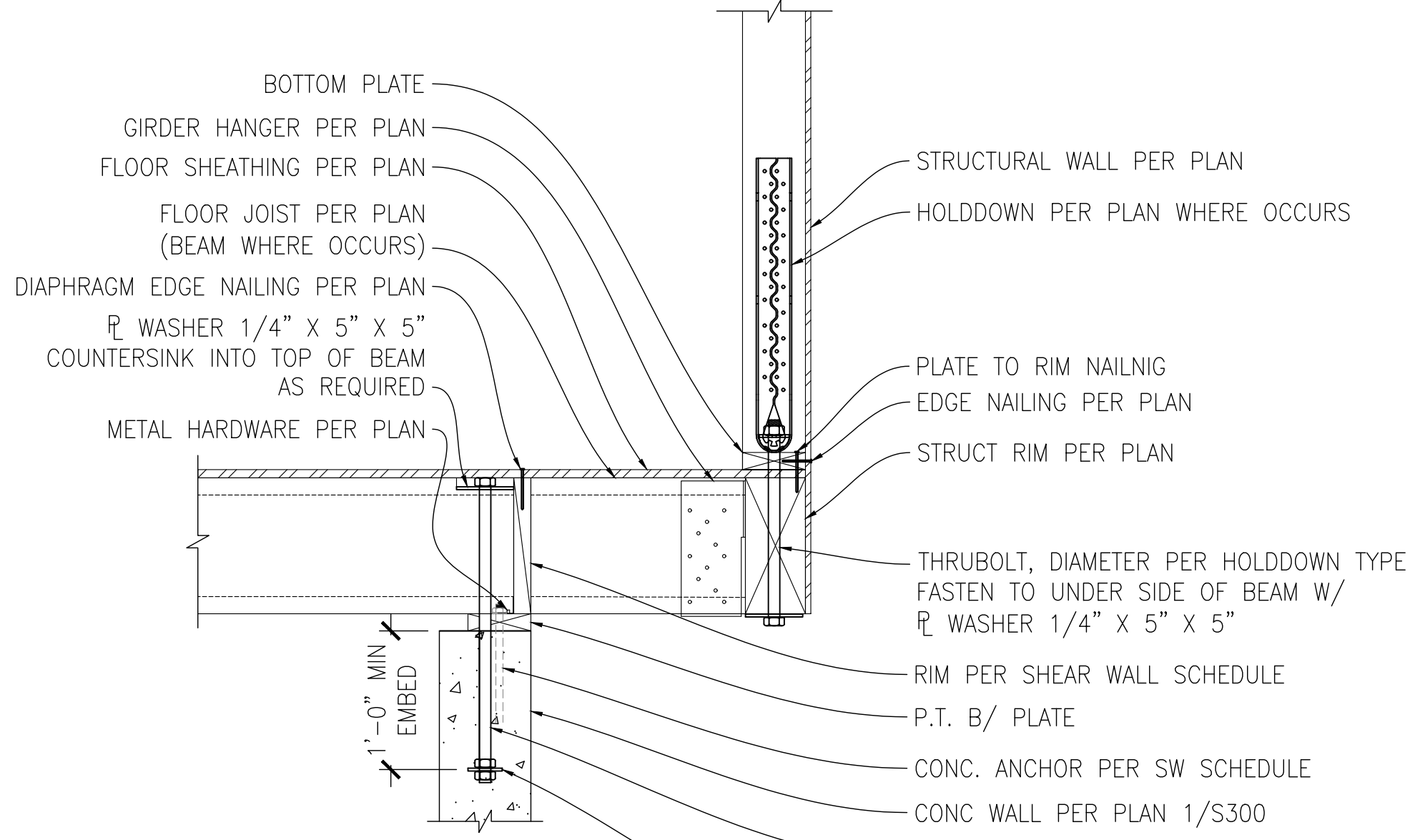
2 DETAIL
SCALE: 3/4"=1'-0"
TJI PERP TO WALL



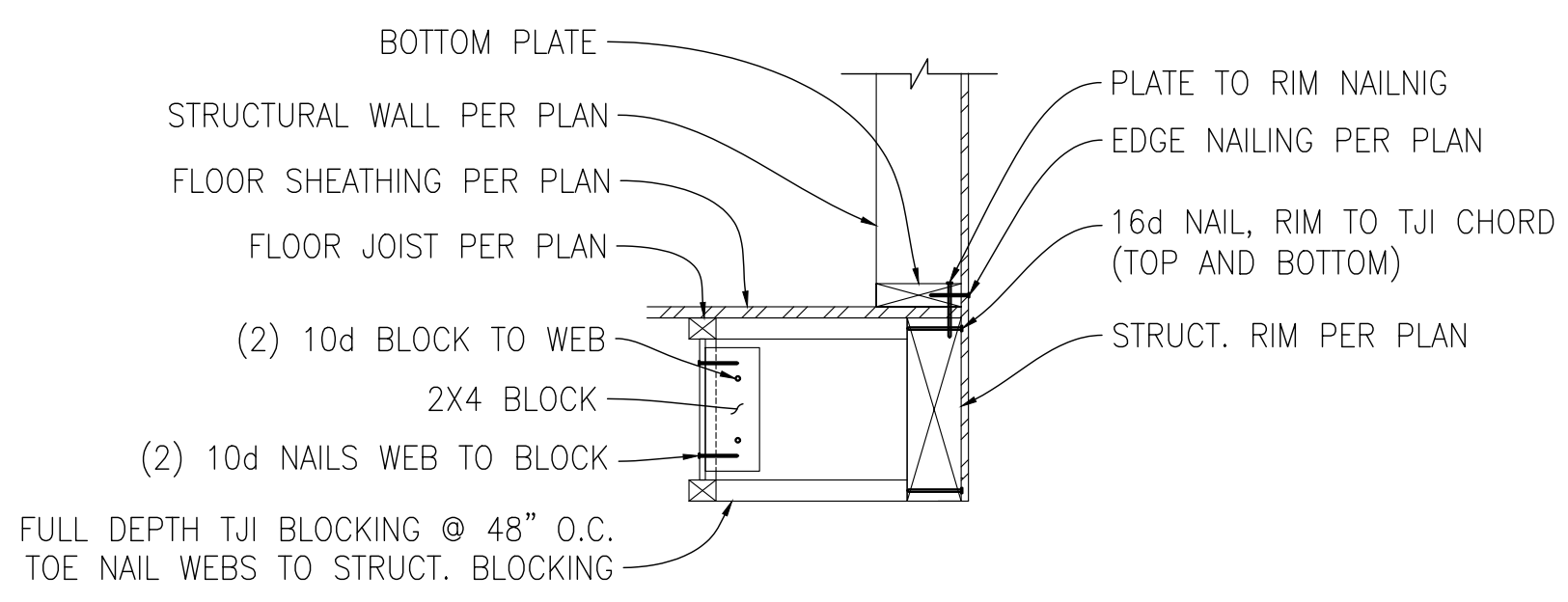
3 DETAIL
SCALE: 3/4"=1'-0"
TJI PARALLEL TO WALL



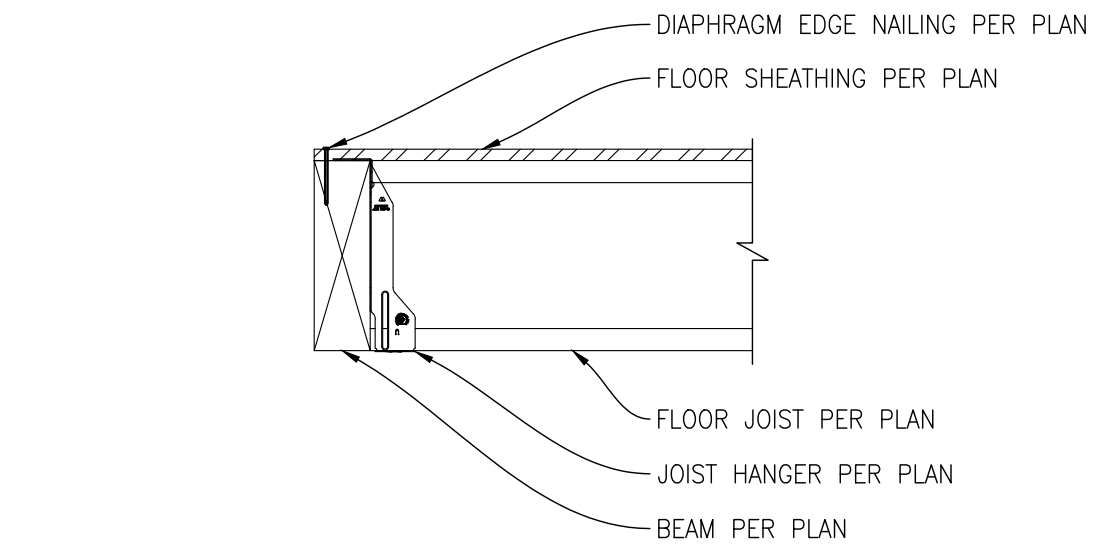
4 DETAIL
SCALE: 3/4"=1'-0"
JOIST TO BEAM



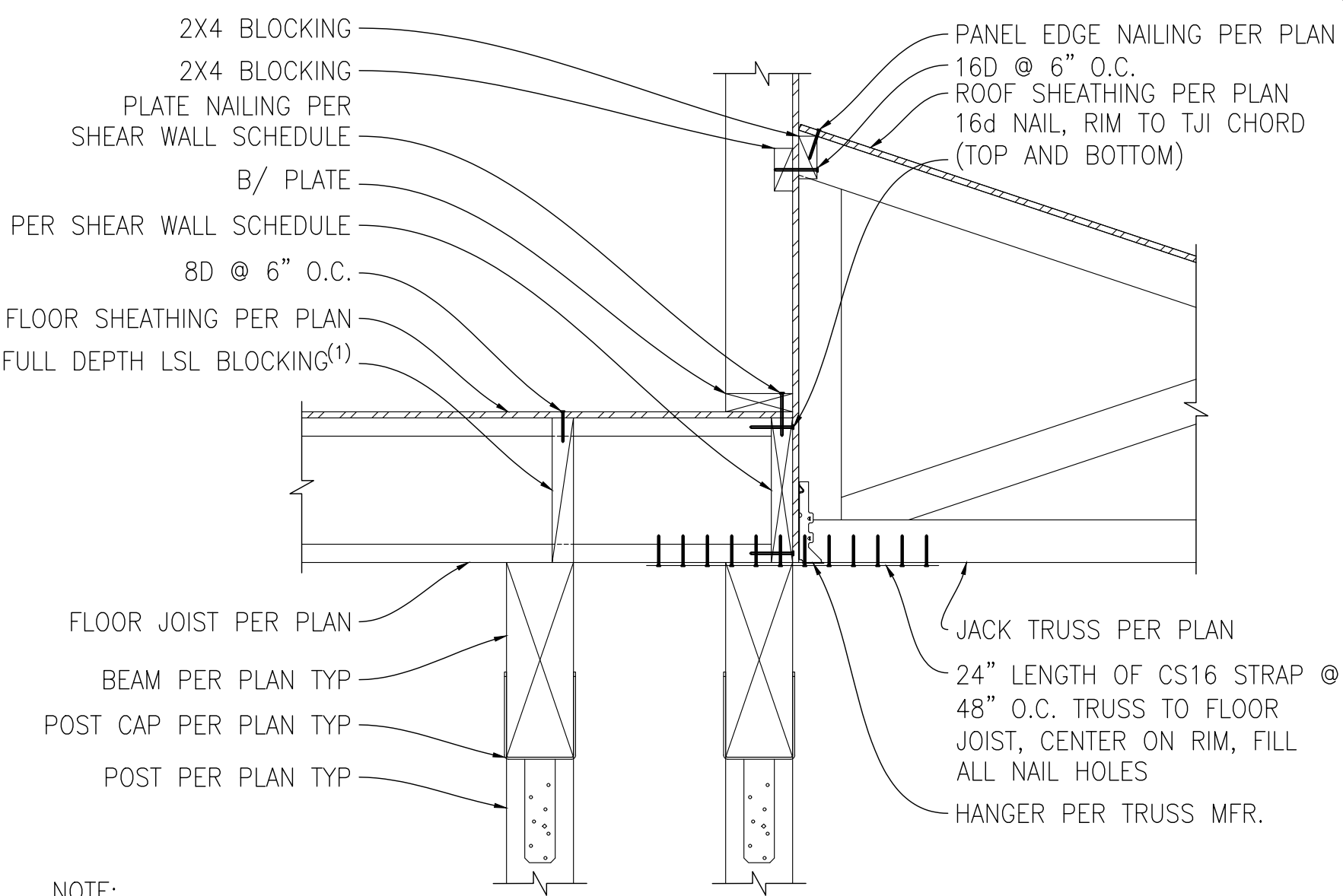
5 DETAIL
SCALE: 3/4"=1'-0"
UPLIFT TRANSFER BEAM



6 DETAIL
SCALE: 3/4"=1'-0"
TJI PARALLEL TO BEAM

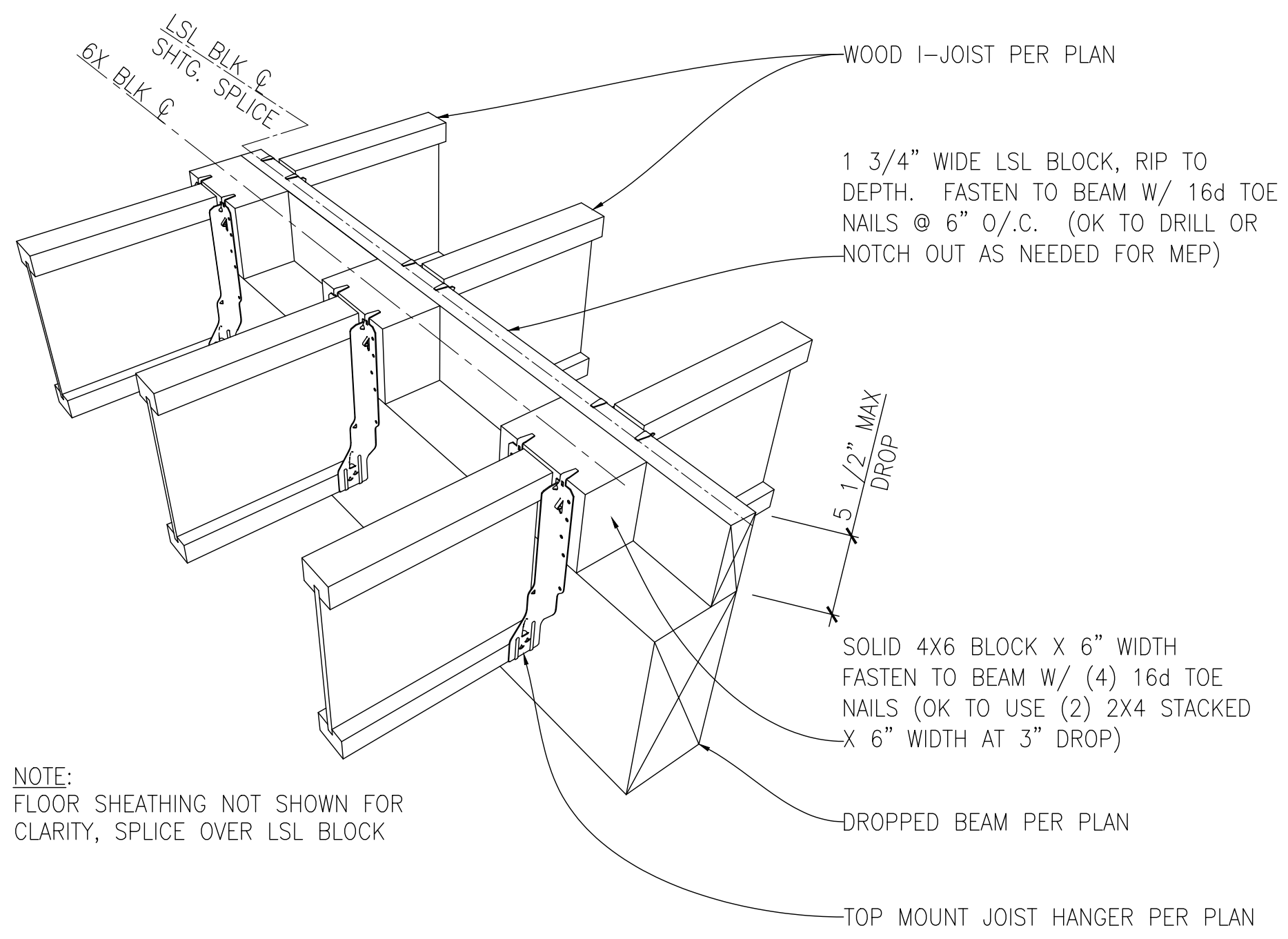


7 DETAIL
SCALE: 3/4"=1'-0"
TJI PERP. TO BEAM (ONE SIDE)



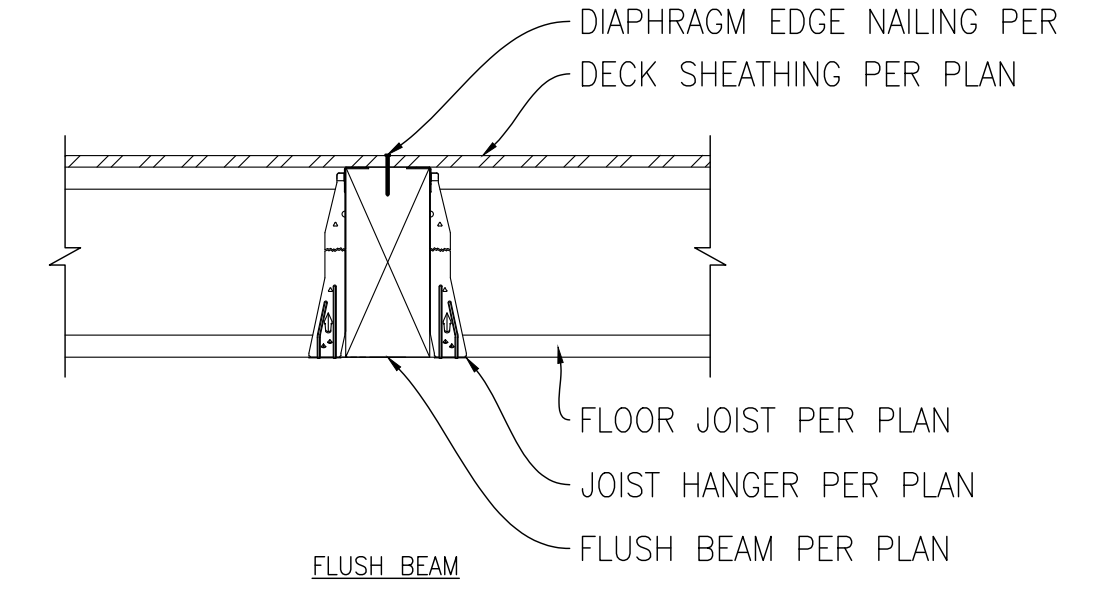
8 DETAIL
SCALE: 3/4"=1'-0"
EXTERIOR WALL TO JACK TRUSS CONNECTION

NOTE:
1. FASTEN RIM TO BEAM W/ A34 @ 48" O.C.

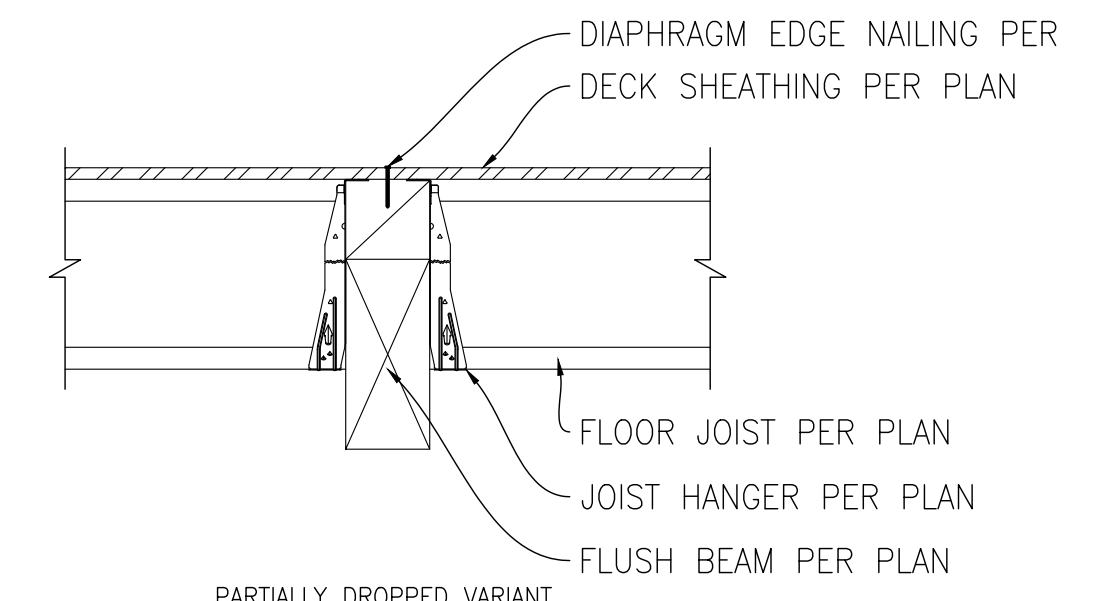


10 DETAIL
SCALE: NTS
JOIST TO BEAM / PARTIALLY DROPPED VARIANT

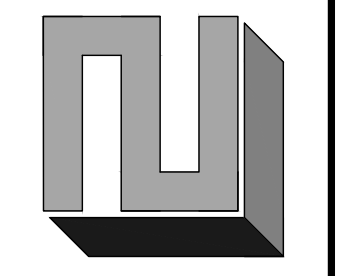
NOTE:
FLOOR SHEATHING NOT SHOWN FOR CLARITY, SPLICE OVER LSL BLOCK



11 DETAIL
SCALE: 3/4"=1'-0"
TJI PERP. TO BEAM (BOTH SIDES)



CHECK SET - NOT FOR CONSTRUCTION

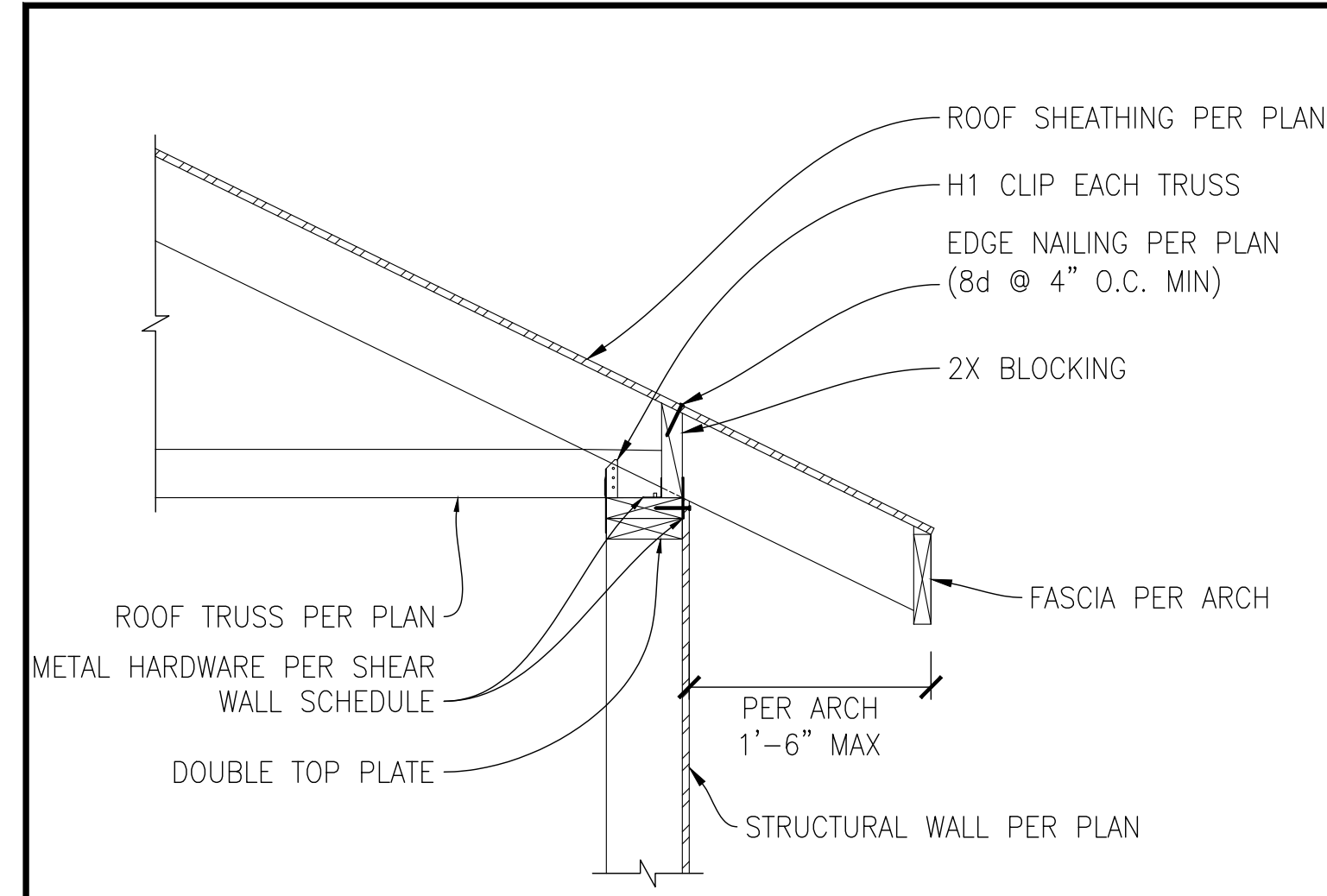


REVISION	DATE

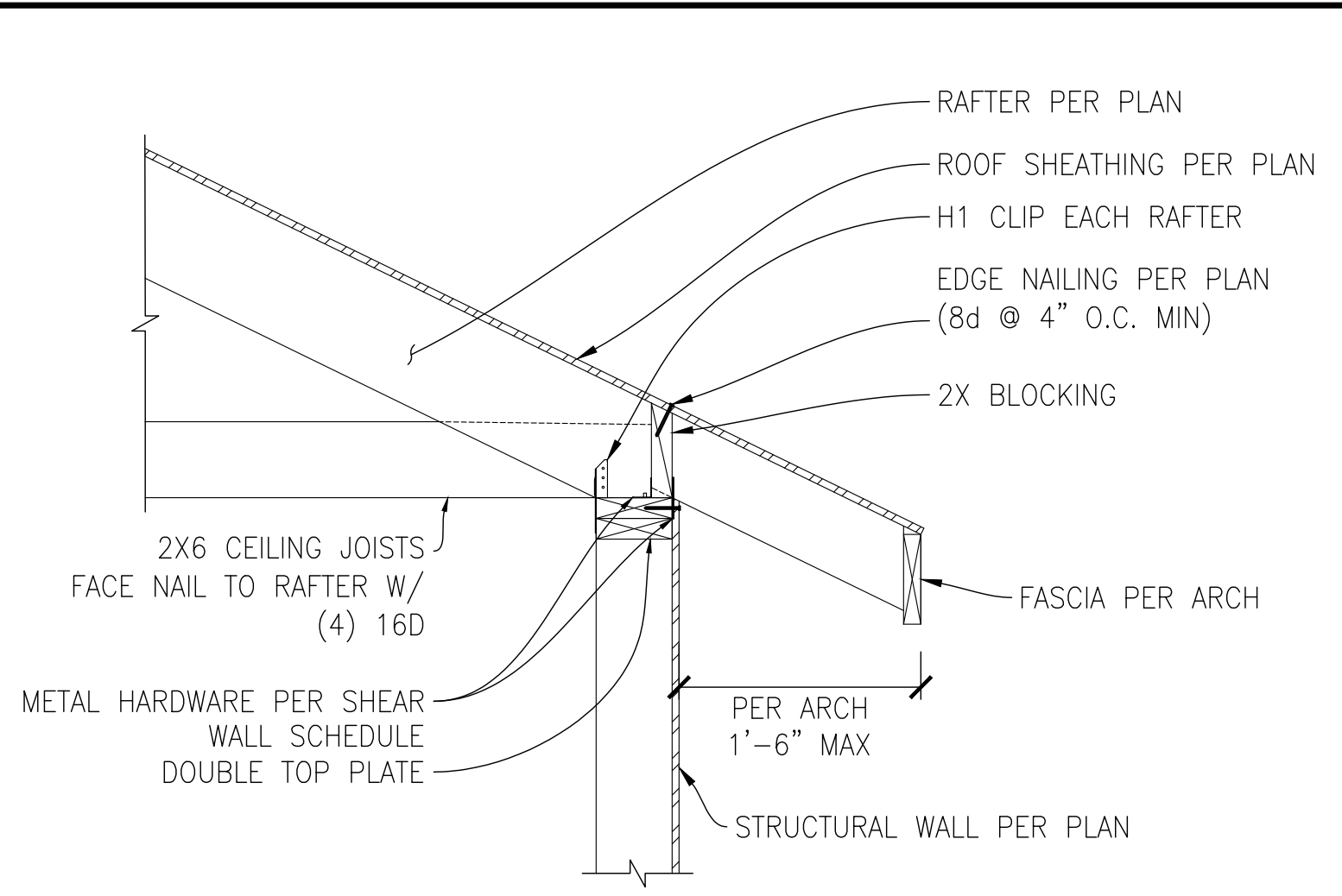


CHEN RESIDENCE
5024 MERCER WAY, MERCER ISLAND, WA 98040
STRUCTURAL DETAILS

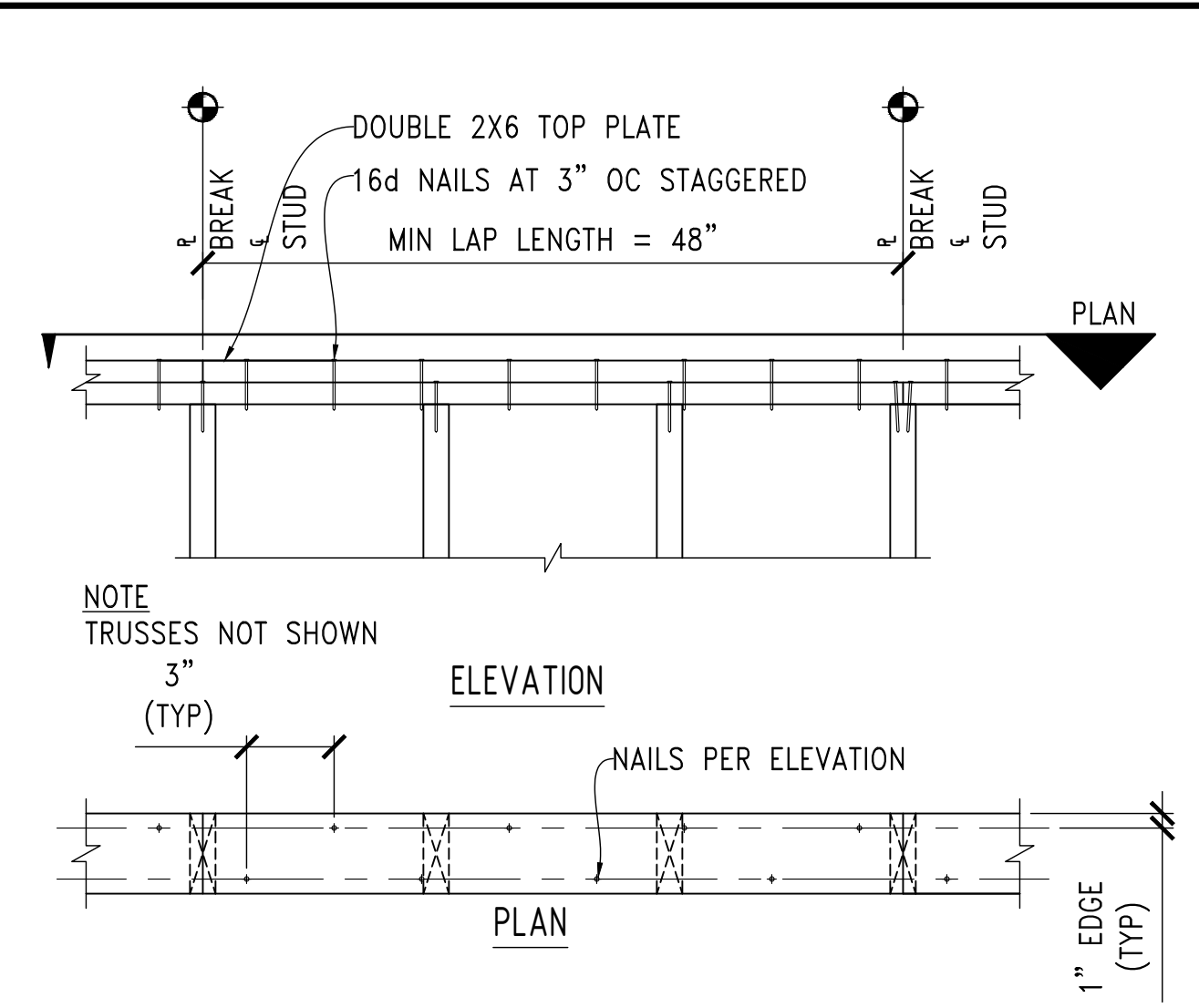
CHK BY: LZE	DRW BY: TNT
SCALE: AS SHOWN BAR = 1" FULL SIZE	
DATE: 02/22/2021	
JOB NO: 20-084	
SHEET: 9 OF 10	
DWG NO: S301	



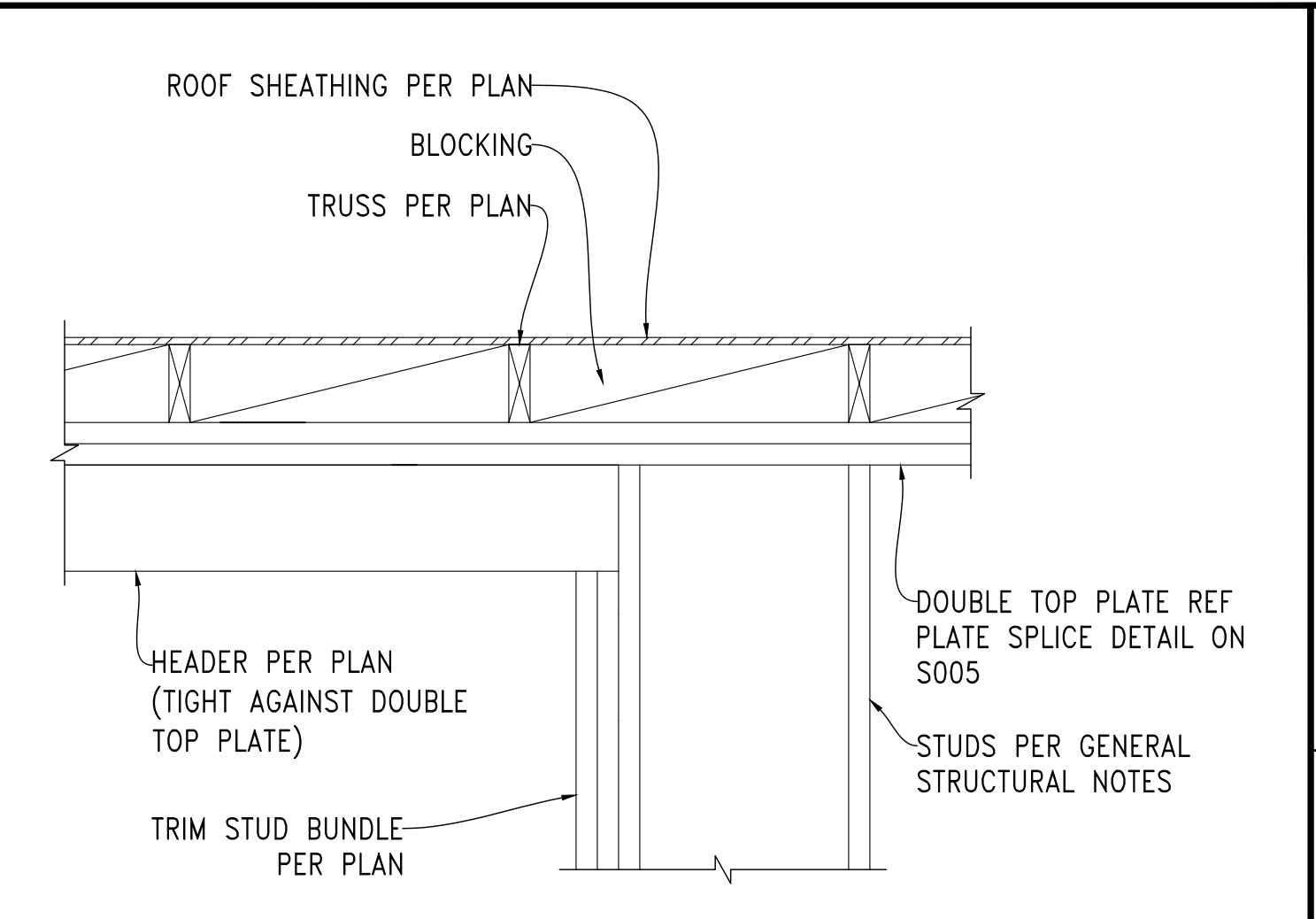
1 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL ROOF TRUSS PERP TO WALL



2 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL RAFTER PER TO WALL

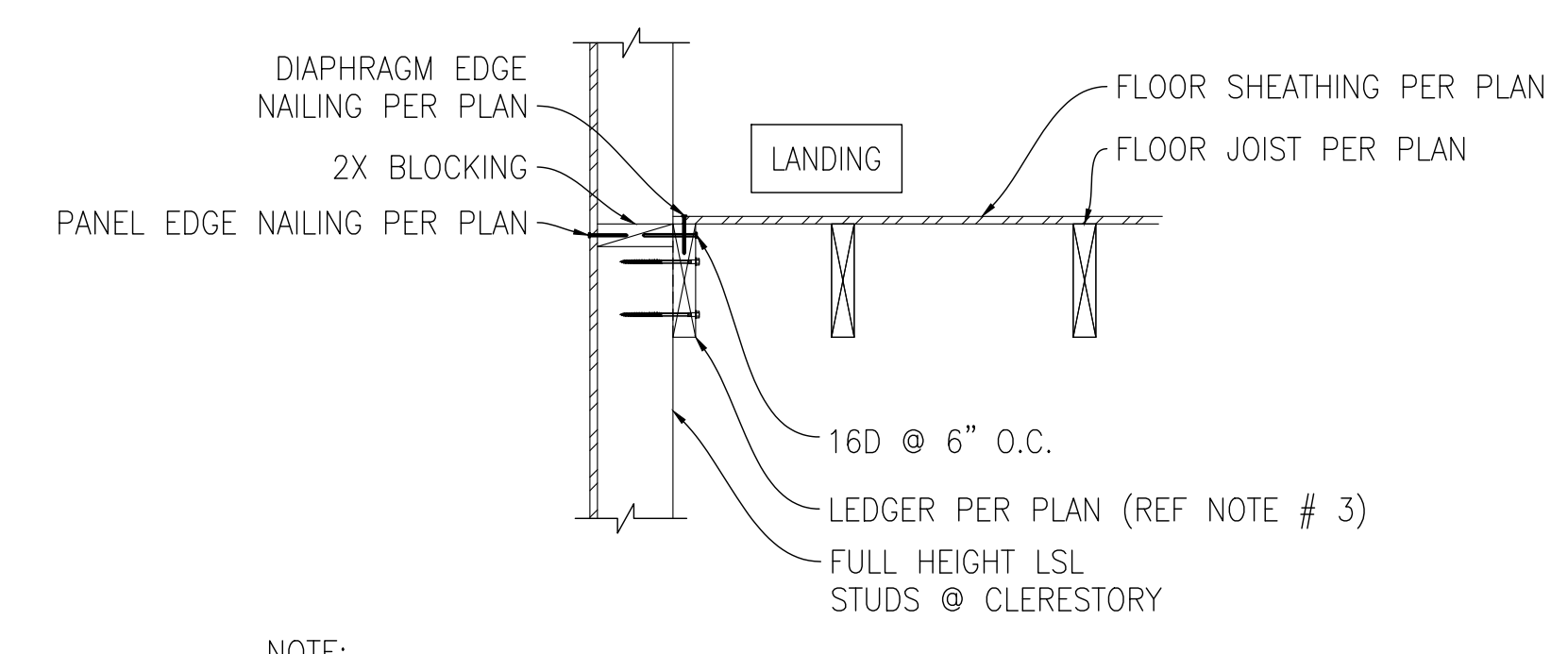


3 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL PLATE SPLICE

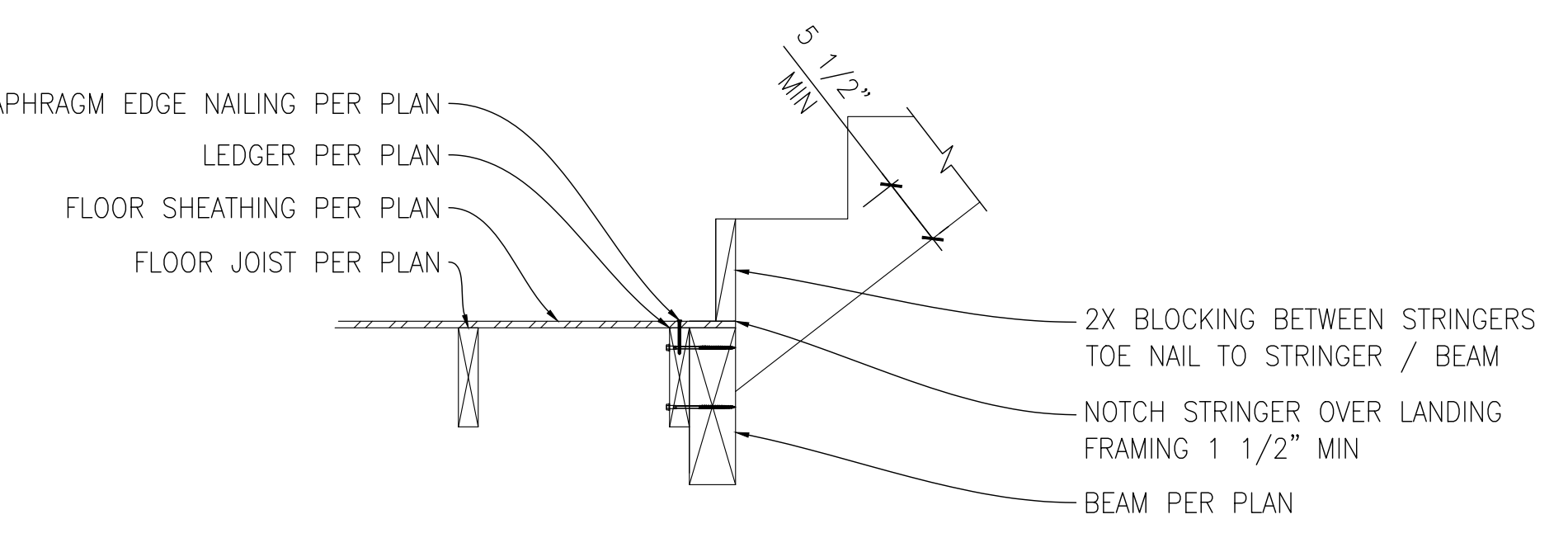


4 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL HEADER

- STAIR / LANDING FRAMING NOTES**
- RISE / RUN PER ARCHITECT
 - TREAD AND RISER PER ARCHITECT
 - CENTER LEDGER SCREWS IN PERIMETER WALLS IN LSL STUDS. POSITION SCREWS 1 1/2" MIN FROM T/ & B/ OF LEDGER RESPECTIVELY.
 - STAIR FRAMING SHOWS WOOD STRINGERS OPTION. STEEL STAIR FRAMING OR OTHER IS ACCEPTABLE, DESIGN PER OTHERS.

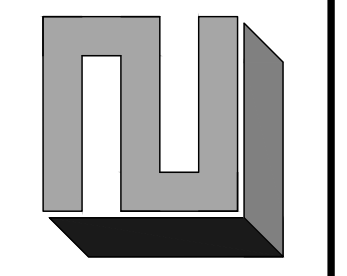


5 DETAIL
SCALE: 3/4"=1'-0"
TYPICAL LANDING FRAMING



6 DETAIL
SCALE: 3/4" = 1'-0"
TYPICAL STRINGER FRAMING

NOTE:
JOISTS PERP @ SIM CONDITION W/ JOIST HANGER PER PLAN AT SIM CONDITION



REVISION	DATE



CHEN RESIDENCE
5024 MERCER WAY, MERCER ISLAND, WA 98040
STRUCTURAL DETAILS

CHK BY: LZE	DRW BY: TNT
SCALE: AS SHOWN BAR = 1" FULL SIZE	
DATE: 02/22/2021	
JOB NO: 20-084	
SHEET: 10 OF 10	
DWG NO: S302	