

STRUCTURAL NOTES

GENERAL REQUIREMENTS

BUILDING CODE & REFERENCE STANDARDS: The "International Building Code" (IBC), 2018 Edition, as adopted and modified by the City of Puyallup, 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: Remodel to two existing residential amenity buildings within an apartment complex. Includes removal of first floor interior load bearing wall, a seismic retrofit of the first floor lateral force resisting system of both buildings, and a new site pergola roof cover structure.

DEFINITIONS: The following definitions apply to these general notes:

- "Structural Engineer of Record" (EOR) - The Structural 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.
- "Deferred Submittals - Deferred Submittal is engineering work to be designed-by-others or bidder-designed.

NOTE PRIORITIES: Notes on the individual drawings shall govern over these general notes.

SPECIFICATIONS: Refer to these notes, structural drawings, and architectural drawings which serve as specifications for this project.

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 WISHA. 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.

ADJACENT UTILITIES: The contractor shall determine the locations of all adjacent underground utilities prior to excavation. 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.

DEAD LOAD:

- Wood Floor = 15 psf
- Wood Roof = 15 psf
- Pergola Wood Roof = 8 psf

SNOW LOAD: The roof snow load is determined by using Chapter 7 of ASCE 7-16 in accordance with IBC Section 1608 and with the following factors:

- Ground Snow Load, P_g = 10 psf
- Snow Exposure Factor, C_e = 0.9
- Importance Factor, I_s = 1.0
- Thermal Factor, C_t = 1.0
- Slope Factor, C_s = 1.0

WIND DESIGN: Wind load is determined using Chapter 26 to 30 of ASCE 7-16 in accordance with IBC Section 1609 with the following factors:

- Basic Wind Speed (3-Second Gust) $V = 97$ MPH (Ultimate) / 75 MPH (ASD)
- Wind Importance Factor $I_w = 1.0$
- Exposure Category = B
- Components & Cladding Pressure = 19 PSF (Ultimate) Components & Cladding End Zone Pressure = 23 PSF (Ultimate)
- $K_zt = 1.0$
- Analysis Procedure - Directional Procedure per ASCE 7, Table 27-2.1

SEISMIC DESIGN: Earthquake design is determined using Chapter 12 ASCE 7-16 in accordance with IBC Chapter 16 with the following factors:

- Importance Factor $I_e = 1.0$
- Risk Category= II
- $S_s = 1.262$ g
- $S_1 = 0.434$ g
- Site Class = D
- Redundancy Factor, $\rho = 1.0$
- Seismic Design Category = D

Wood 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 7-16, Section 12.8
- $R = 6.5$
- $C_s = 0.155$
- $C_d = 4$
- $\phi = 3$

Pergola Roof Structure

- Basic Seismic Force Resisting System: G-01 (Cantilevered Column Systems) Timber Frames
- Analysis Procedure: Modal response spectrum analysis, per ASCE 7-16, Section 12.9
- $R = 1.5$
- $C_s = 0.673$
- $C_d = 1.5$
- $\phi = 1.5$
- $V_t = 0.99$ kips

Seismic demands on nonstructural components, structural components engineered as part of deferred submittals, and connections of those components to the primary structure shall be designed in accordance with the aforementioned building code, the general seismic criteria listed above, and the requirements of ASCE 7-16.

DESIGN BASE SHEAR: West Amenity Building Design Base Shear (Seismic Governed) (ASD) $V = 16.88$ K, East Amenity Building Design Base Shear (Seismic Governed) (ASD) $V = 17.79$ K

DEFLECTIONS:

Floor Total Load Deflection Limit:	L/360
Floor Live Load Deflection Limit:	L/480
Roof Total Load Deflection Limit:	L/240
Roof Live Load Deflection Limit:	L/360

LIVE LOADS:

Roof (Live)	20 PSF
Roof (Snow)	25 PSF
Balconies and Decks	60 PSF
Residential Floor	40 PSF

SUBMITTALS

SUBMITTALS: Shop Drawings shall be submitted to the Architect/EOR prior to any fabrication or construction for all structural items as noted below. The contractor shall review and place a shop drawings stamp on the submittal before forwarding to the EOR. Submittals shall be made in time to provide a minimum of one week for review by the EOR. Additional submittals required for this project are specified in the specific sections below. Reference the individual material section for information to be included in the submittal.

If the shop drawings differ from or add to the design of the Structural Drawings, they shall bear the seal and signature of the Washington State Registered Professional Engineer who is responsible for the design..

ALTERNATES: Product or manufacturer components specified in these drawings are used as the basis of design for this project. Alternates for specified items may be submitted to the EOR for review. However, contractor shall submit a current ICC-ESRI/APMO-ER report identifying that an alternative component has the same or greater load capacity than the specified item.

SHOP DRAWING REVIEW: Review by the Architect/EOR is for general compliance with the design concept and the contract documents. Dimensions and quantities are not reviewed by the EOR, and therefore, must be verified by the General Contractor. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures therefrom. The contractor remains responsible for details and accuracy; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a secure manner. When shop drawings (component design drawings) differ from or add to the requirements of the Structural drawings they shall be designed and stamped by the responsible SSE. Allow one week for EOR review time.

NON-STRUCTURAL COMPONENTS: Design, detailing and anchorage of all nonstructural components shall be in accordance with ASCE 7-16, Chapter 13 and the project specifications. Nonstructural components designed by others shall not induce torsional loading into supporting steel structural members without additional bracing of those members to eliminate torsional forces. Torsional bracing shall be designed by the nonstructural component designer and approved by the EOR. Anchorage to the primary structure is per the bidder-design contractor or supplier.

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.

SPECIAL INSPECTIONS: In addition to the inspections required by IBC Sec 110, a Special Inspector shall be hired by the Owner as an independent third-party inspector to perform the special inspections per IBC Ch. 17. Special inspections shall be performed by an approved testing agency as outlined in the Special Inspection Schedule, the contract documents, and/or the project specification. Special Inspections shall meet the requirements outlined in the specific materials sections of IBC Sec 1705. The contractor is responsible for scheduling the inspections, per the city/Building Official requirements. The EOR shall be independent of the special inspection process. All questions regarding Special Inspections shall be directed to the Building Department or an approved special inspection agency.

Special Inspections shall be performed for the following:

Concrete

- Periodic inspection of reinforcing steel and cast-in-place anchors
- Periodic verification of the use of the required design mix.

Wood

- Periodic inspection of anchor bolts, hold-downs, nailing size & spacing.

Special Cases

- Continuous inspection of post-installed anchors during installation of anchors and reinforcing bars installed in horizontal or upwardly inclined orientations to resist sustained tension loads.
- Periodic inspection of post-installed anchors during installation of anchors and reinforcing bars installed in vertical orientation.

SOILS AND FOUNDATIONS

REFERENCE STANDARDS: Conform to IBC Chapter 18 "Soils and Foundations."

GEOTECHNICAL INSPECTION: Site soil conditions, fill placement, and load-bearing requirements shall be as required by IBC Section 1705.6 and Table 1705.6. Assumed values shall be field verified by the Building Official 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 IBC Sections 1803.5.1 - 1803.5.6 and IBC Sections 1803.5.10 - 1803.5.11.

DESIGN SOIL VALUES: (Assumed)

Allowable Soil Bearing Pressure

- 1500 PSF DL + LL
- 2000 PSF DL + LL + Seismic/Wind

SLABS-ON-GRADE & FOUNDATIONS: All slabs-on-grade and foundations shall bear on structural compacted fill or competent native soil or as noted in these documents. Exterior perimeter footings shall bear not less than 18 inches below finish grade, or as required by the Building Official. Interior footings shall bear not less than 12 inches below finish floor.

COMPACTION: Unless otherwise specified by a Geotechnical Engineer, footings shall be placed on compacted material and shall be well-graded granular material with no more than 5% passing a #200 sieve. Fills placed shall be in maximum 8" lifts and all bearing soils shall be compacted to 95% maximum density at optimum moisture content using the Modified Proctor Test.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS: Conforms to the latest editions of the following:

- (1) ACI 318 "Building Code Requirements for Structural Concrete and Commentary".
- (2) 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.

TABLE OF MIX DESIGN REQUIREMENTS						
Member	Strength (psi)	Test Age (days)	Maximum Aggregate	Exposure Classification	Max W/C Ratio	Minimum Air Content
Foundations	2500	28	1"	F1, C0	0.45	4.5%

MIX DESIGN NOTES:

- (1) 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.
- (2) Cementitious Content: The use of fly ash, other pozzolans, silica fume, or slag shall conform to ACI 301 Sec 4.2.1 "Materials". Maximum amount of fly ash shall be 20% of total cementitious content unless reviewed and approved otherwise by EOR.
- (3) 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.
- (4) 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.
- (5) 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.
- (6) Shrinkage Limit: Concrete used in elevated slabs and beams shall have a shrinkage limit of 0.045% at 28 days measured in accordance with ASTM C157.
- (7) Non-chloride accelerator: Non-chloride accelerating admixture may be used in concrete slabs placed at ambient temperatures below 50F at the contractor's option.

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 fc.

MEASURING, MIXING, AND DELIVERY: Conform to ACI 301 Sec 4.3.

HANDLING, PLACING, CONSTRUCTING, AND CURING: Conform to ACI 301 Sec 5.

CONCRETE CURING: Provide curing compounds for concrete as follows:

- (1) All concrete must achieve 2500 PSI compressive strength before being subjected to freezing and thawing cycles.

CONSTRUCTION JOINTS: Conform to ACI 301 Sec 2.2.2.5, 5.1.2.3a, 5.2.2.1, and 5.3.2.6. Construction joints shall be located and detailed as on the construction drawings. Use of an acceptable adhesive, surface retarder, Portland cement grout, or roughening the surface is not required unless specifically noted on the drawings. Where shear bond is required, roughen surfaces to 1/4" amplitude.

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.

GROUTED REBAR AND ANCHOR BOLTS: Follow manufacturer's written instructions: drill holes in existing concrete to depth noted on plans or to depth as necessary to develop the strength of the rebar listed in the manufacturer's ICC-ESRI/APMO-ER report. Drill the hole diameter per manufacturer's instructions. Roughen sides of holes by percussive drilling methods. Holes shall be brushed and blown free of debris and surface residue before grouting operation. Special Inspection is required.

BONDING AGENT: Use Master Builders Concresive Liquid (LPL). Apply in accordance with manufacturer's instructions.

JOINT COMPOUND: Provide acid resistant silicone caulk where noted on the drawings. Submit product data for review.

TESTING AND ACCEPTANCE

Testing: Obtain samples and conduct tests in accordance with ACI 301 Sec 1.6.4.2. Additional samples may be required to obtain concrete strengths at alternate intervals than shown below.

- Cure 4 cylinders for 28-day test age. Test 1 cylinder at 7 days, test 2 cylinders at 28 days, and hold 1 cylinder in reserve for use as the EOR directs. After 56 days, unless notified by the EOR to the contrary, the reserve cylinder may be discarded without being tested for specimens meeting 28-day strength requirements.
- Acceptance: Strength is satisfactory when:
 - The averages of all sets of 3 consecutive tests equal or exceed the specified strength. No individual test falls below the specified strength by more than 500 psi. A "test" for acceptance is the average strength of the two cylinders tested at the specified test age.

CONCRETE REINFORCEMENT

REFERENCE STANDARDS: Conform to:

- (1) ACI 301 "Standard Specifications for Structural Concrete, Sec 3 "Reinforcement, and Reinforcement Supports."
- (2) IBC Chapter 19, Concrete.
- (3) ACI 318 and ACI 318R.
- (4) ACI SP-66 "ACI Detailing Manual" including ACI 315 "Details and Detailing of Concrete Reinforcement."
- (5) CRSI MSP-2 "Manual of Standard Practice."
- (6) ANSI/AWS D1.4 "Structural Welding Code - Reinforcing Steel."

SUBMITTALS: Conform to ACI 301 Sec 3.1.1 "Submittals, data, and drawings." Submit placing drawings showing fabrication dimensions and locations for placement of reinforcement and reinforcement supports.

MATERIALS:

Reinforcing Bars	ASTM A615, Grade 60, deformed bars.
Weldable Reinforcing Bars	ASTM A706, Grade 60, deformed bars.
Smooth Welded Wire Fabric	ASTM A185
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.

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	2"
Concrete exposed to earth or weather (#5 & smaller)	1-1/2"

SPICES & DEVELOPMENT LENGTH: Conform to ACI 301, Sec 3.3.2.7. Refer to "Lap Splice & Development Schedule" on plans for typical splices. Lap all continuous reinforcement and corner bars per Schedule. The splices and development lengths indicated on individual sheets control over the schedule. Use Class B splices unless otherwise noted. Mechanical connections may be used when approved by the EOR. WWP to be lapped a minimum 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.

CORNERS BARS: Provide matching-sized "L" corner bars for all horizontal wall and footing bars with the appropriate splice length, UNO.

WOOD FRAMING

REFERENCE STANDARDS: Conform to:

- (1) IBC Chapter 23 "WOOD."
- (2) NDS and NDS Supplement - "National Design Specification for Wood Construction."
- (3) 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-ESRI/APMO-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 inspection issued by the certifying agency.

MATERIALS:

Sawn Lumber: Conform to grading rules of WWPA, WCLIB, or NLGA. Finger jointed studs acceptable at interior non-structural walls only.

Member Use	Size	Species	Grade
Studs & Plates	2x, 3x	HF	No. 2
Posts	4x	HF	No. 2
Joists	2x	HF	No. 2
Beams	4x	HF	No. 2

Glued Laminated Timber: Conform to AITC 117 "Standard Specifications for Structural Glued Laminated Timber of Softwood Species, Manufacturing and Design" and ANSI/APTC A190.1 "Structural Glued Laminated Timber." Glued laminated member beams shall not be cambered other than the stock camber of 5/600", unless shown otherwise on the plans or specifications.

Member Use	Sizes	Species	Stress Class	Uses
Beams	All	DF/DF	24F-V4	Simple Spans
	All	DF/DF	24F-V8	Cantilever Spans

Wood Structural Sheathing (Plywood): Wood APA-rated structural sheathing includes: all veneer plywood, oriented strand board, waferboard, particleboard, T1-11 siding, and composites of veneer and wood-based material. Conform to Product Standards PS-1 and PS-2 of the U.S. Dept. of Commerce and the American Plywood Association (APA)

Minimum APA Rating				
Location	Thickness	Span Rating	Plywood Grade	Exposure
Roof	15/32"		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-ESRI/APMO-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. Unless noted otherwise all nails shall be full length common. 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

Size	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/Through-Bolts/Anchor Bolts: Conform to ASTM A307. Provide plate washers/BPS 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 rooftop 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."

- (1) Wall Framing (Unless noted otherwise on plans and details) All exterior 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 (2) 2x8 headers at all interior and exterior wall openings, unless noted otherwise on plan. Stitch-nail bundled studs with (2) 10d @ 12"OC. Provide solid blocking thru floors to supports below for bearing walls and piers. Attach bottom plates of stud walls to wood framing below with 16d @ 12"OC or to concrete with 3/8"-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.

- (2) Blocking: (Unless noted otherwise on plans and details) All blocking shall be full-height 2x at solid sawn framing systems or a full-height L-joint or roof truss.

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. Coat all ends of cut pressure treated framing with treatment complying with AWPA U1.

METAL CONNECTIONS/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.

ANCHORS

POST-INSTALLED ANCHORS: Provide post-installed anchors as specified in these drawings.

Use of alternate products, or of post-installed anchors at locations not shown in these drawings, is subject to the approval of the Architect/EOR. Submit proposed anchors to the Architect/EOR with an ICC-ESRI/APMO-ER report valid for the 2018 IBC or municipality where the building is to be constructed. Submitted ICC/IAPMO reports shall demonstrate that the anchors are suitable for use in cracked concrete. Use acrylic anchors of equivalent strength when base material falls below 40F. Install anchors in strict accordance with ICC-ESRI/APMO-ER report and manufacturer's instructions. Where anchors resist seismic loads, submitted ICC-ESRI/APMO-ER reports shall demonstrate that the anchors are suitable for the resistance of seismic loads.

CONCRETE SCREWS: Concrete screws shall be SIMPSON Titen HD or EOR approved equal with current ICC-ESRI/APMO-ER report. Install screws in accordance with manufacturer's instructions. Embedment lengths shall be as shown on the drawings.

RENOVATION

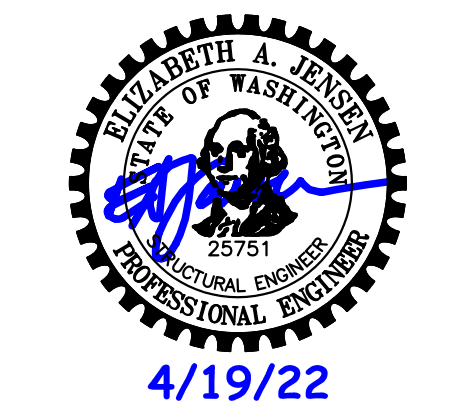
DEMOLITION: Contractor shall verify all existing conditions before commencing any demolition. Shoring shall be installed to support existing construction as required and, in a manner, suitable to the work sequences. Existing reinforcing shall be saved where and as noted on the plans. Saw cutting, if and where used, shall not cut existing reinforcing that is to be saved. 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.

- (1) All new openings through existing walls, slabs, and beams shall be accomplished by saw cutting wherever possible.
- (2) Contractor shall verify all existing conditions and location of members prior to cutting any openings.
- (3) Small round openings shall be accomplished by core drilling, if possible.
- (4) Where new reinforcing terminates at existing concrete, threaded bars into threaded expansion inserts in existing concrete shall be provided to match horizontal or vertical reinforcing, unless otherwise noted on plans.

ROT: Contractor shall check for rot at all exterior walls, existing toilet room floors and walls, areas showing water stains. All rot shall be removed and damaged members shall be replaced or repaired as directed by the EOR or Architect.

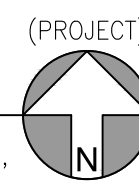


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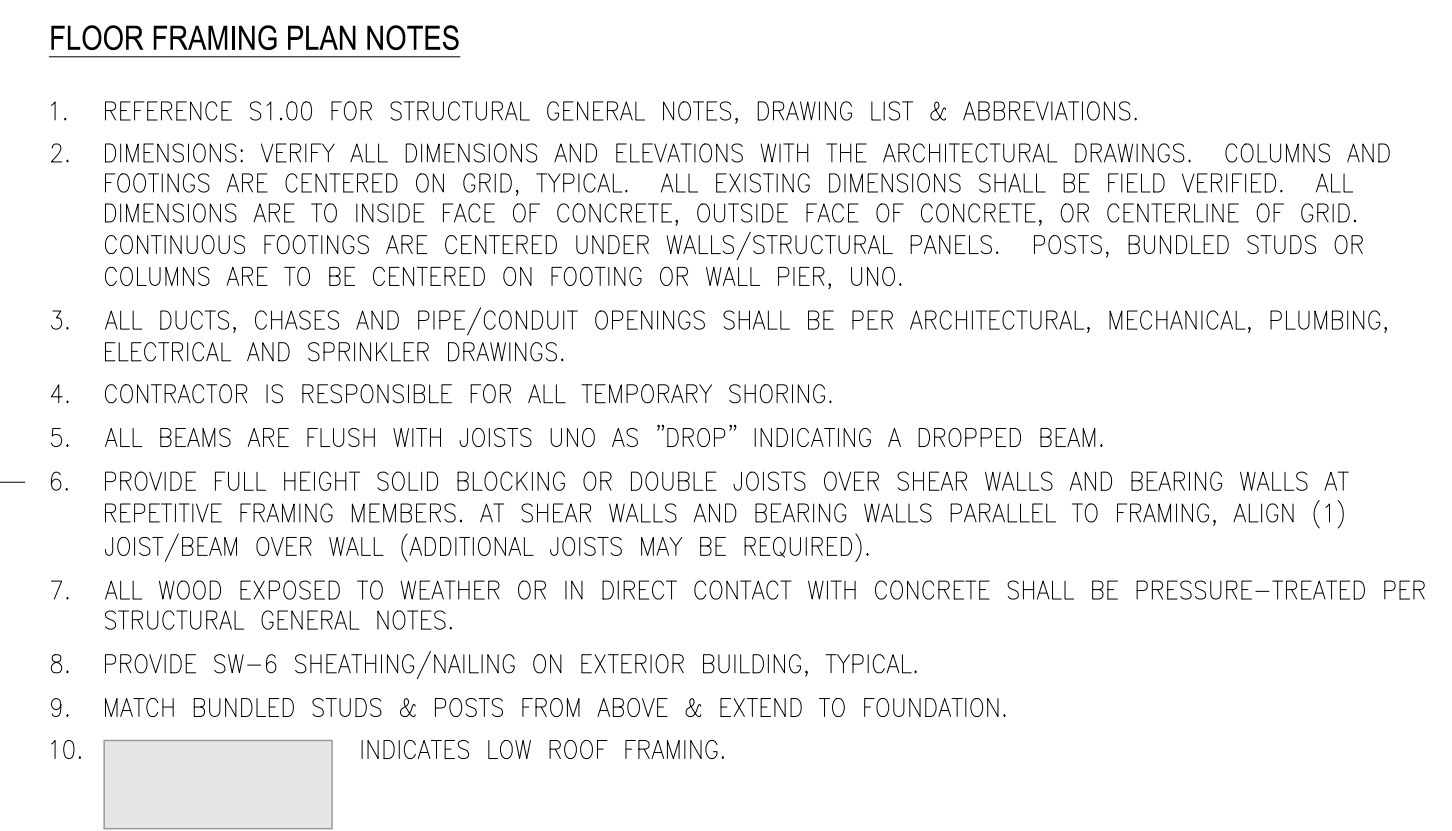
RIVER TRAIL EAST & WEST
AMENITY REFRESH
1617 E MAIN
PUYALLUP, WA 98072

PROJECT #:	22-015
DRAWN BY:	MB



- S 2.0
WEST

4/19/22



PROJECT #:	22-015
DRAWN BY:	MB
DESIGNED BY:	JCW
DATE:	DESCRIPTION
04.19.2022	PERMIT

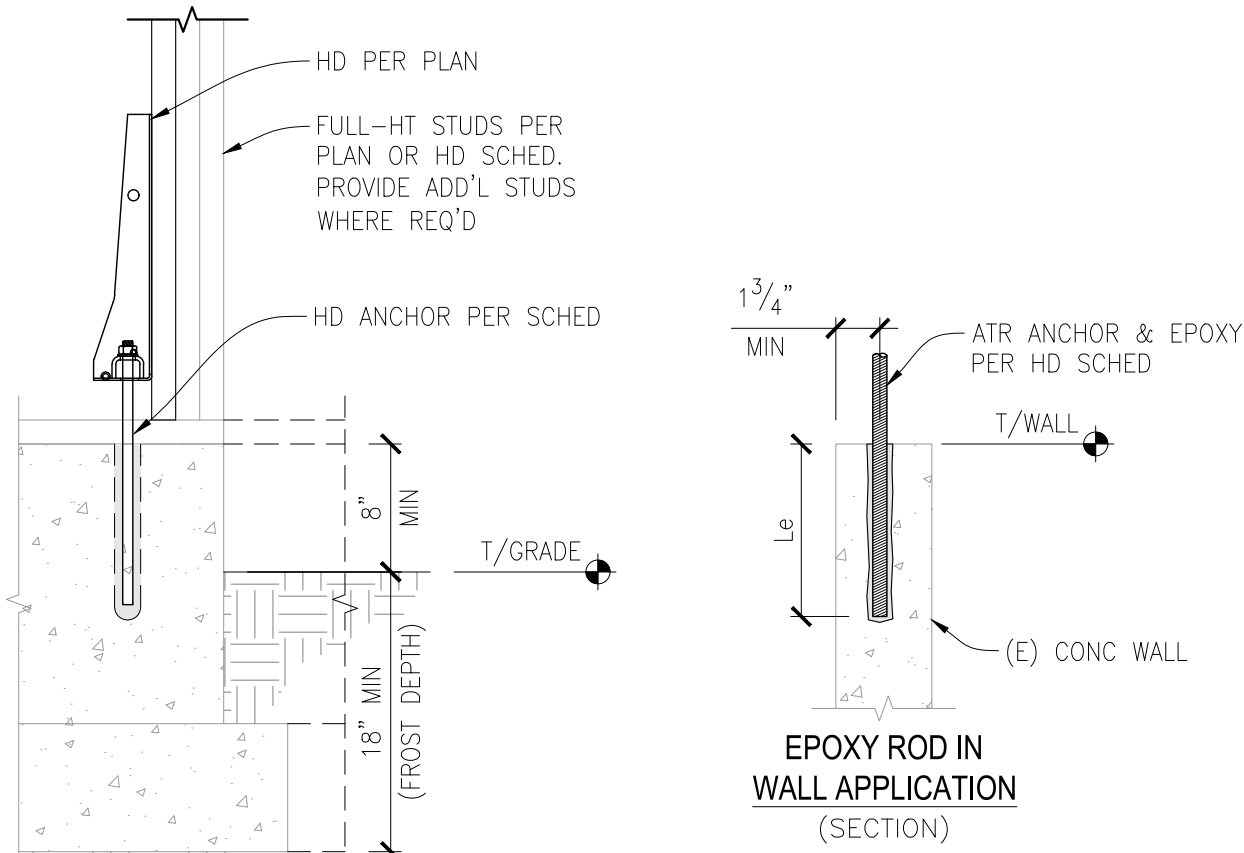
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SHEET TITLE:

STRUCTURAL
UPPER FLOOR
FRAMING PLAN

SHEET NUMBER:

S 2.1
WEST

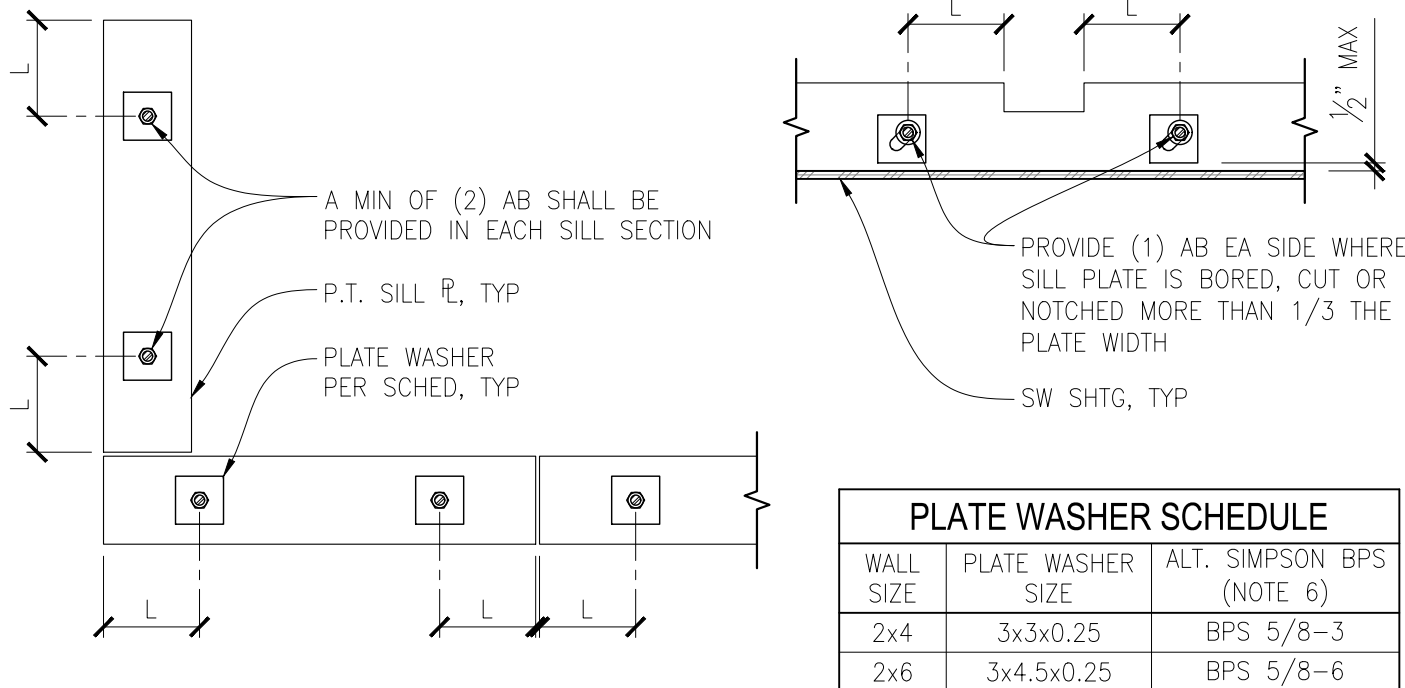


SHEAR WALL HOLDOWN CONNECTION (NO RIM)

SCALE: NTS

1273x

1

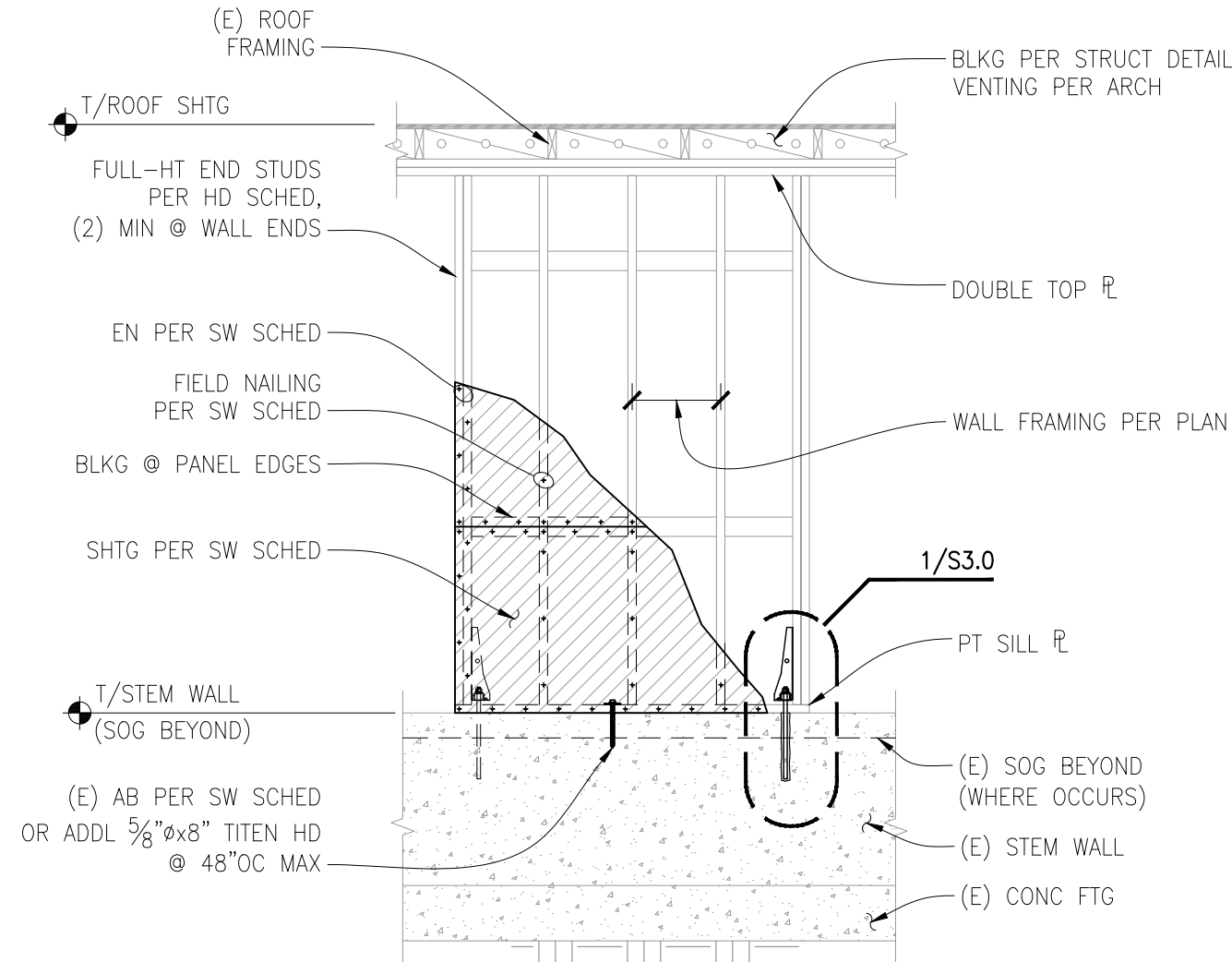


PLAN VIEW -
TYPICAL ANCHOR BOLT INSTALLATION

SCALE: NTS

1271x

2

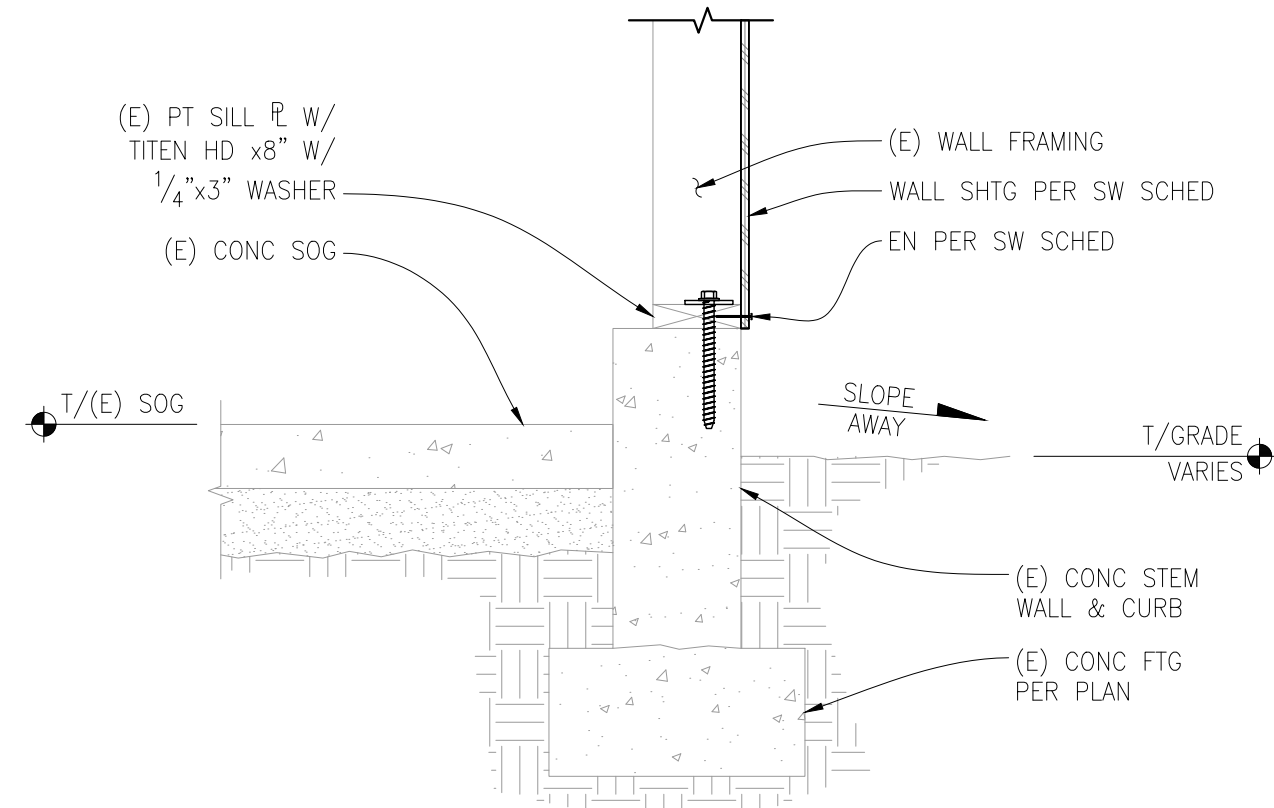


TYPICAL SHEAR WALL ELEVATION

SCALE: NTS

1261x

4



TYPICAL SHEARWALL @
EXISTING FOOTING & STEMWALL WITH SLAB-ON-GRADE

SCALE: NTS

3041x

5

HOLDOWN SCHEDULE (HF-WIND)						
MARK	MODEL # ⁽¹⁾	ALLOWABLE UPLIFT (LBS)			STUD FASTENERS	CONCRETE ANCHOR ⁽³⁾
		MID WALL	CORNER	END WALL		
2	HDU2-SDS2.5		2215		(2) 2x	(6) 1/4"x8x2 1/2" SDS

- NOTES:
- HOLDOWNS SPECIFIED ARE AS MANUFACTURED BY SIMPSON STRONG-TIE CO. INC.; ACCEPTABLE EQUIVALENT PRODUCT SUBSTITUTIONS ARE AVAILABLE FROM OTHER MANUFACTURERS WITH EOR APPROVAL. FOLLOW ALL MANUFACTURER GUIDELINES NECESSARY TO ACHIEVE FULL ICC DESIGN VALUES.
 - REFERENCE PLANS FOR ADDITIONAL STUD REQUIREMENTS WHERE OCCURS.
 - HOLDOWN SHALL BE INSTALLED TIGHT TO STUDS WITHOUT FILLERS OR NOTCHING. DO NOT BEND ANCHORS.
 - ANCHORS SHALL BE ALL-THREAD RODS EMBEDDED INTO EXISTING CONCRETE WITH SIMPSON SET-3G EPOXY. AND 12" MIN EMBED IN (E) STEM WALL, 6" MIN EMBED IN (E) THICKENED SLAB FOOTING.
 -  INDICATES HOLDOWN ON PLAN, TYP.

HOLDOWN SCHEDULE (6" MIN STEM WALL)

SCALE: NTS

1616H

6

WOOD-FRAMED SHEAR WALL SCHEDULE												
FOR HEM-FIR FRAMING W/ 8d COMMON NAILS (2018 IBC) & SIMPSON CATALOG 2021-2023												
SINGLE-SIDED	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)	
	(3)	(10,11,12)	(4,5)		(6)		(1,2,7)		(8,9)		SEISMIC	WIND
	SW-6	1 5/32"	8d @ 6"OC	16d SINKER @ 5"OC	LTP5 @ 16"OC	1 1/4"	2x	2x	5/8" @ 48"OC 5/8" @ 60"OC	P.T. 2x P.T. 3x	241	339
	SW-4	1 5/32"	8d @ 4"OC	(2) ROWS 16d SINKER @ 6"OC, STAGGERED	LTP5 @ 10"OC	1 3/4"	2x	2x	5/8" @ 32"OC 5/8" @ 40"OC	P.T. 2x P.T. 3x	353	495

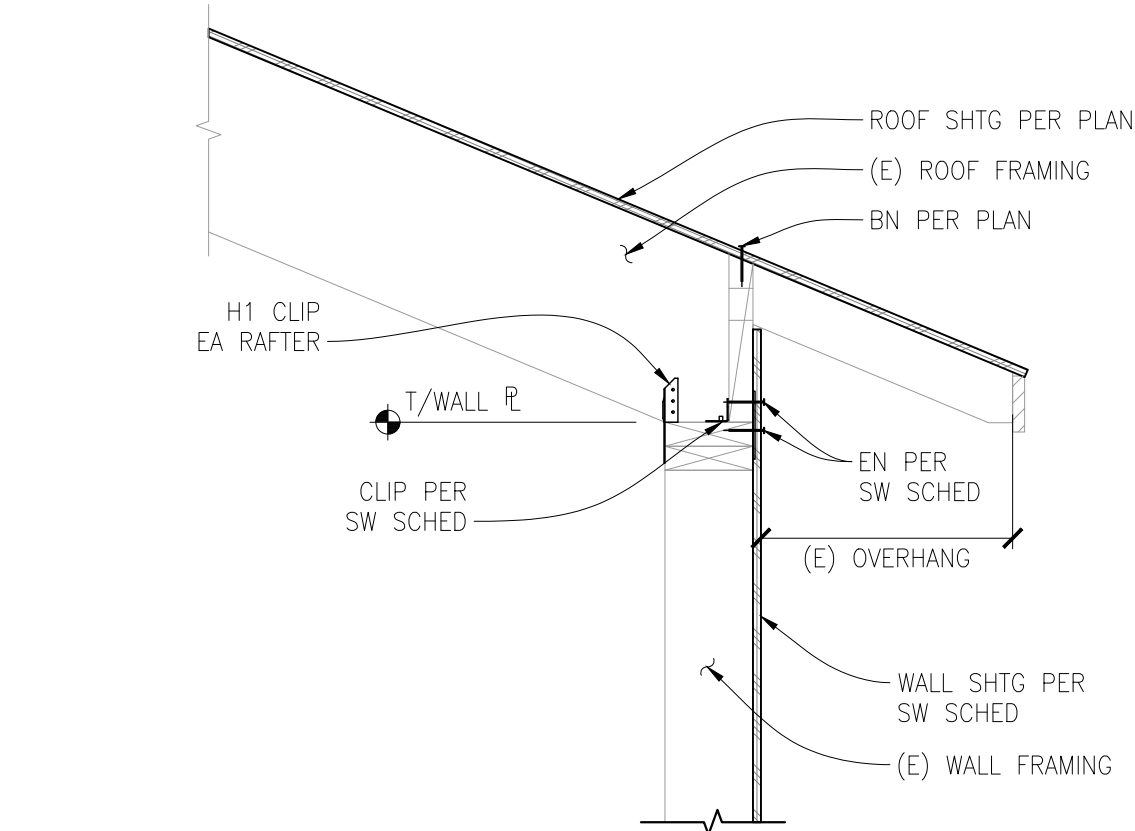
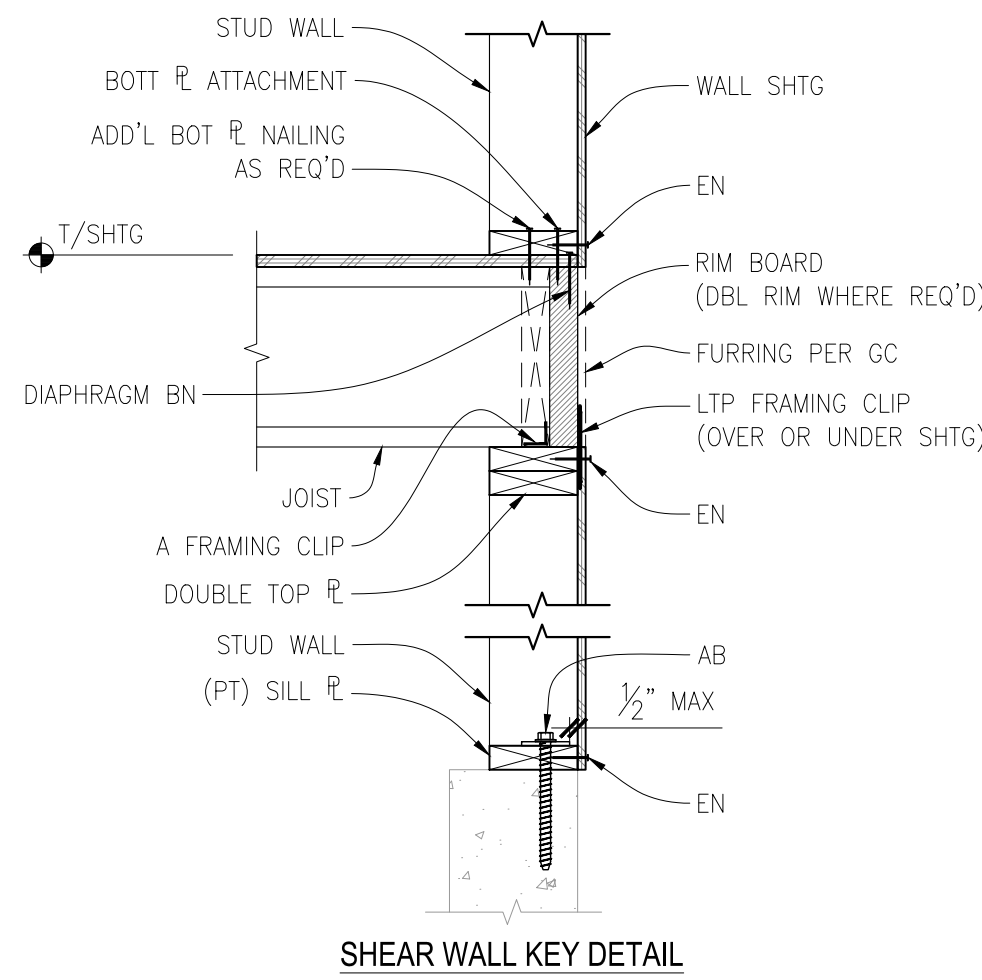
- NOTES:
- ALL NAILS ARE COMMON, UNO. REFERENCE GENERAL STRUCTURAL NOTES FOR NAIL DIAMETER AND LENGTH.
 - REFERENCE SHEAR WALL KEY DETAIL FOR DESCRIPTION OF TERMS.
 - PROVIDE SHEAR WALL SHEATHING AND NAILING FOR ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF SHEAR WALLS ARE TYPICALLY AT WINDOWS, DOORWAYS OR AS SHOWN ON PLAN.
 - EDGE NAILING IS REQUIRED AT ALL HOLDOWN POSTS. EDGE NAILING IS REQUIRED TO EACH STUD USED IN BUILT-UP HOLDOWN POSTS. REFERENCE HOLDOWN SCHEDULE & DETAILS FOR ADDITIONAL INFORMATION.
 - INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS UNO IN SCHEDULE. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH FIELD NAILING AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND FIELD NAILING AT 6"OC WHERE STUDS ARE SPACED AT 24"OC.
 - 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"x0x1 1/2" NAILS WHERE CLIPS ARE ATTACHED DIRECTLY TO FRAMING. USE 0.131"x0x2 1/2" WHERE CLIPS ARE INSTALLED OVER SHEATHING.
 - (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.
 - ANCHOR BOLTS SHALL BE PROVIDED WITH HOT-DIPPED GALVANIZED STEEL PLATE WASHERS PER 2/S3.0. 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: 5/8"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.
 - THE TOP EDGE OF THE WOOD STRUCTURAL PANEL SHALL BE ATTACHED TO THE UPPER TOP PLATE WITH EDGE NAILING, 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 WITH EDGE NAILING.
 - REFERENCE DETAIL BELOW FOR STAGGERED NAIL AND SCREW SPACING AT RIM BOARDS.
 - WALL TYPE ACCEPTABLE WITH TRUSJOIST AND BOISE CASCADE RIM JOIST AND BLOCKING.

WOOD-FRAMED SHEAR WALL SCHEDULE

SCALE: NONE

1608x

12

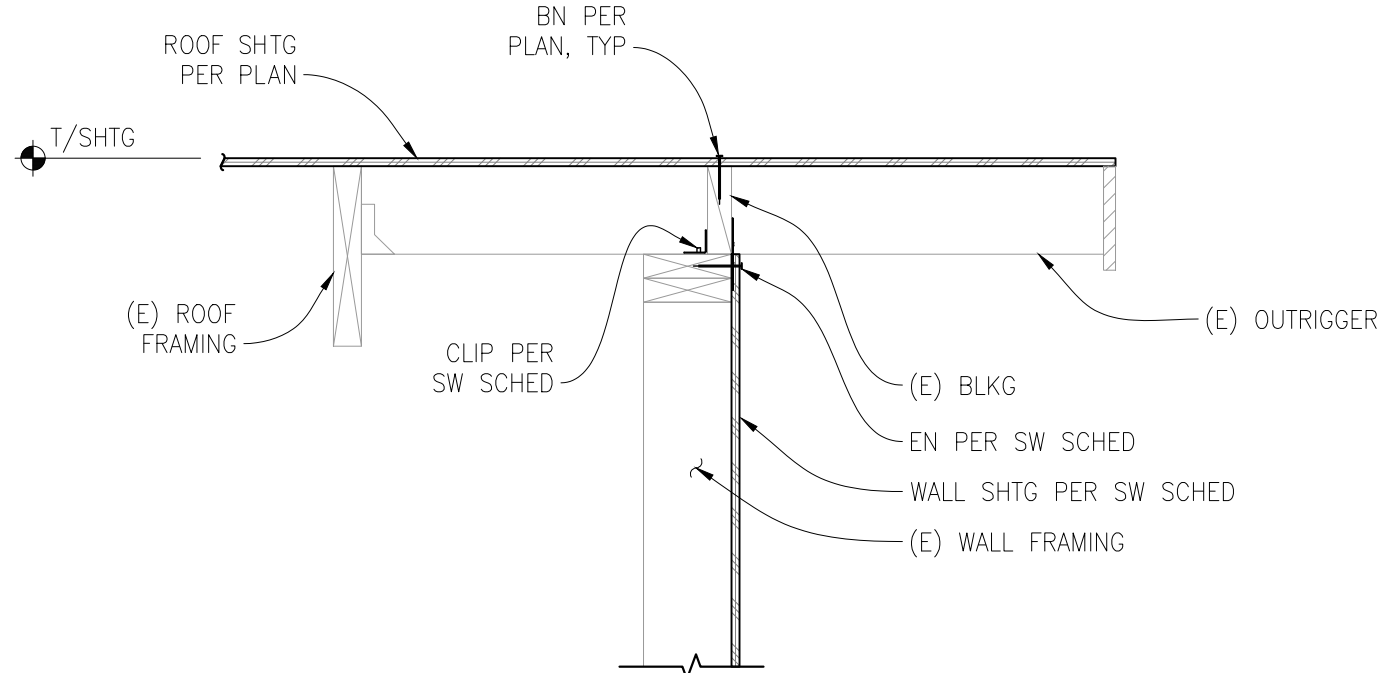


EXTERIOR SHEAR WALL
PERPENDICULAR TO EXISTING ROOF RAFTER

SCALE: NTS

6513x

9



EXTERIOR SHEAR WALL
PARALLEL TO EXISTING ROOF RAFTER

SCALE: NTS

6504x

10

RIVER TRAIL EAST & WEST

AMENITY REFRESH

1617 E MAIN
PUYALLUP, WA 98372

PROJECT #: 22-015
DRAWN BY: MB
DESIGNED BY: JCW
DATE: 04.19.2022
DESCRIPTION: PERMIT

JURISDICTIONAL STAMP:

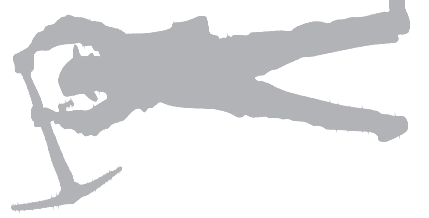
SHEET TITLE:

STRUCTURAL
SECTIONS & DETAILS

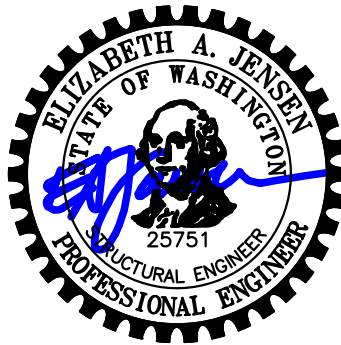
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S3.0

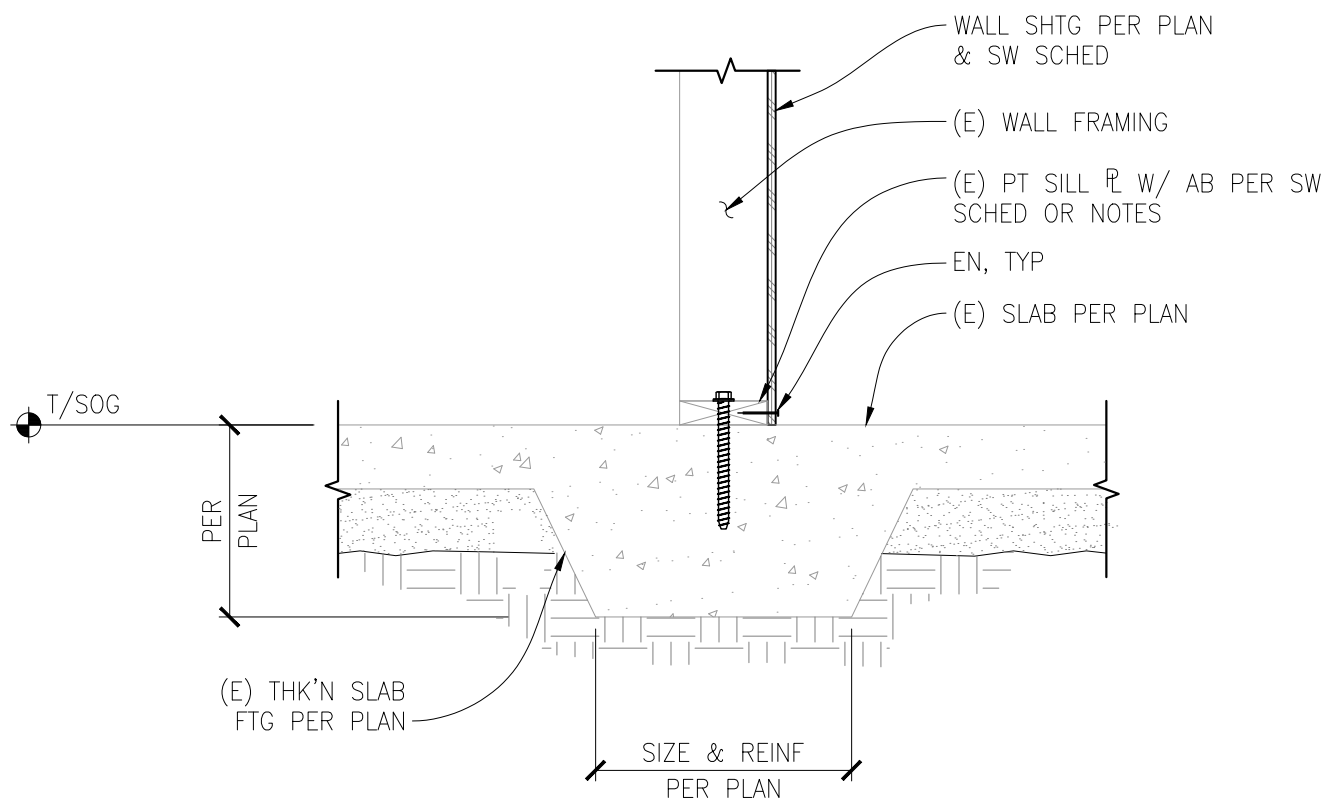
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425.828.4200



SEAL:



4/19/22



TYPICAL INTERIOR THICKENED
SLAB FOOTING AT BEARING / SHEAR WALL

SCALE: NTS

3061x

1

LAP SPLICE & DEVELOPMENT SCHEDULE					
BAR SIZE	DEVELOPMENT LENGTH, Ld		CLASS B SPLICE, Ls		Ldh
	STANDARD	TOP	STANDARD	TOP	
(3) (3)					
F _c = 2500 psi					
#3	18	24	24	32	9
#4	24	32	32	42	12
#5	30	39	39	51	15
#6	36	47	47	62	18
#7	53	69	69	90	21
#8	60	78	78	102	24
#9	68	88	89	115	28
#10	77	100	101	130	31
#11	85	110	111	143	34

NOTES:

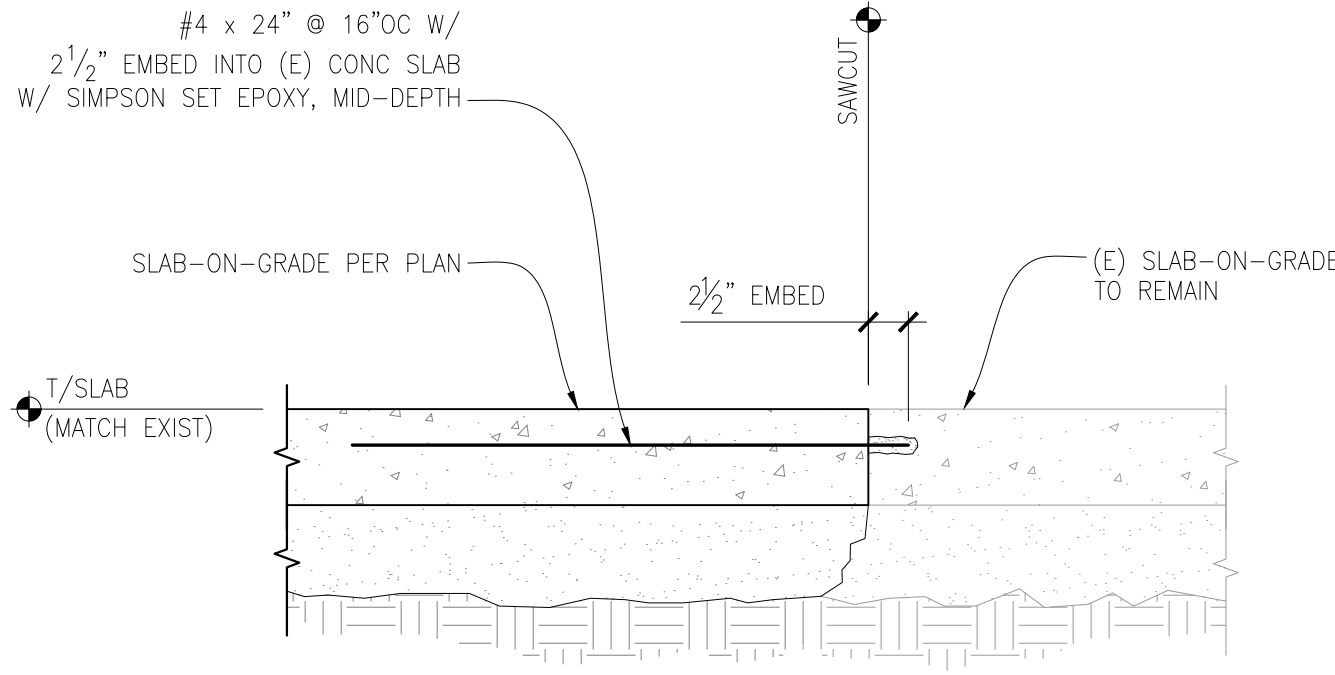
- VALUES FOR UNCOATED REINFORCING AND NORMAL WEIGHT CONCRETE WITH CLEAR SPACING > db, CLEAR COVER > db AND MINIMUM STIRRUPS OR TIES THROUGHOUT Ld OR CLEAR SPACING > 2db AND CLEAR COVER > db.
- DEVELOP ALL REINFORCING IN STRUCTURAL SLABS WITH MINIMUM DEVELOPMENT LENGTH Ld.
- TOP BAR = HORIZONTAL BAR WITH MORE THAN 12" OF FRESH CONCRETE BELOW OR AS NOTED ON DOCUMENTS AS "TOP BAR".
- UNO, ALL LAPS SHALL BE MINIMUM CLASS B.
- ALL TABULATED VALUES ARE IN INCHES.
- Ldh = HOOKED BAR DEVELOPMENT LENGTH.

TYPICAL LAP SPLICE &
DEVELOPMENT LENGTH SCHEDULE

SCALE: N.T.S.

1131x

2

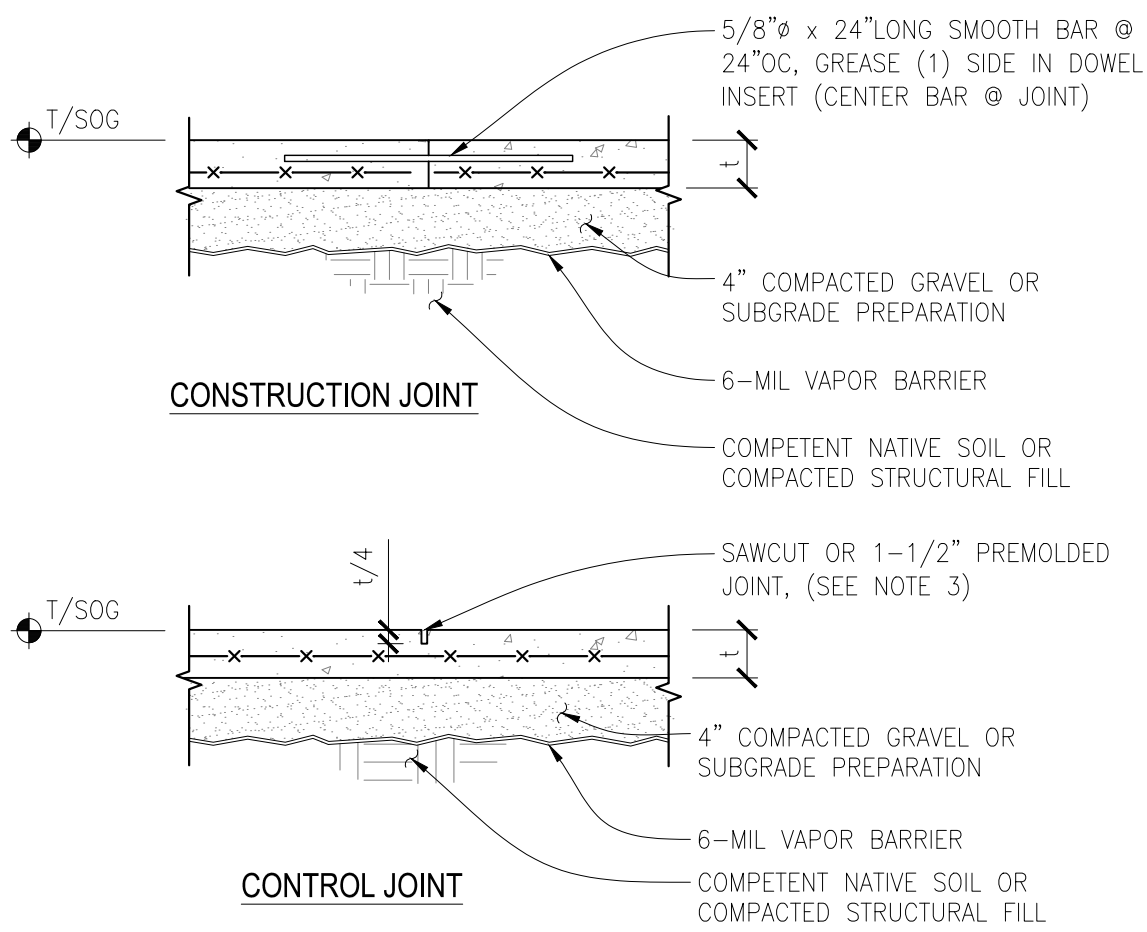


NEW SLAB TO EXISTING SLAB-ON-GRADE

SCALE: NTS

2001x

3



NOTES:

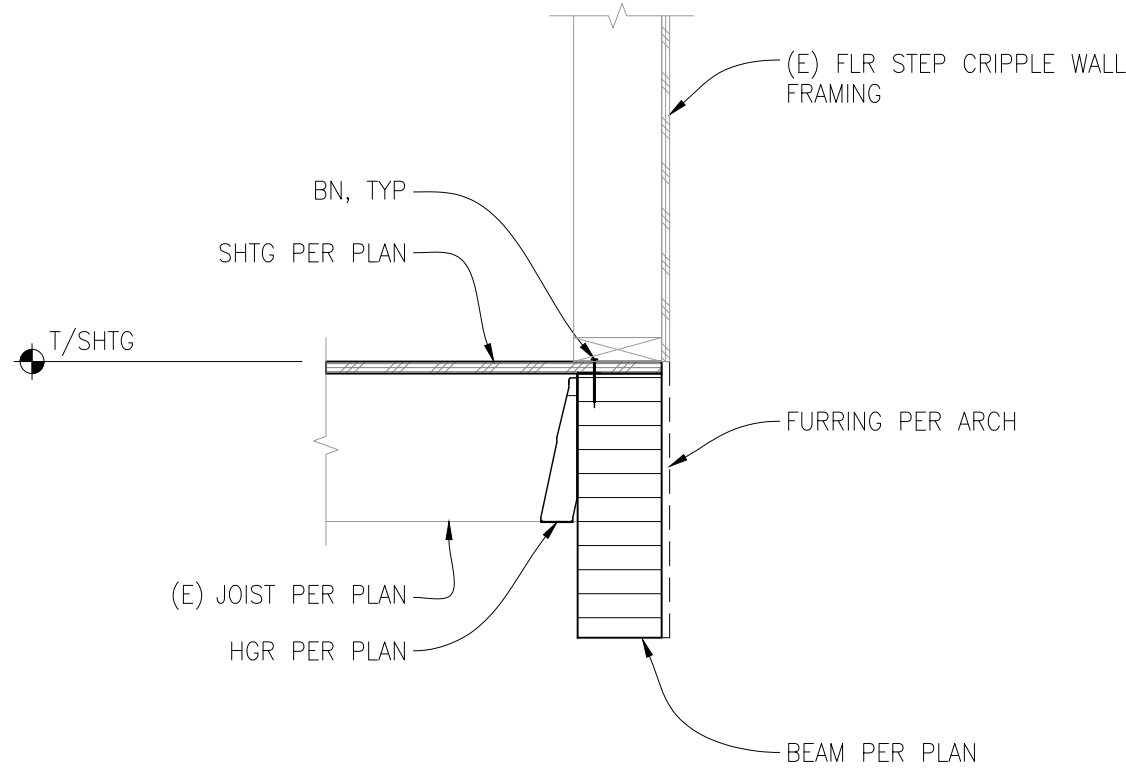
- REFERENCE PLAN FOR SLAB THICKNESS (t, IN INCHES) AND REINFORCING.
- CONTROL JOINTS TO BE SPACED BETWEEN 21 AND 31 FEET ON CENTER, EACH WAY, UNLESS NOTED OTHERWISE. RATIO OF LONG, SIDE TO SHORT SIDE OF ADJACENT JOINTS SHALL NOT EXCEED 1:1.25.
- USE "SOFTCUT SAW" AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OF CONCRETE EDGES. SAWCUT ALONG SHORT DIRECTION OF POUR FIRST.

TYPICAL SLAB-ON-GRADE JOINT DETAILS

SCALE: NTS

3151x

4

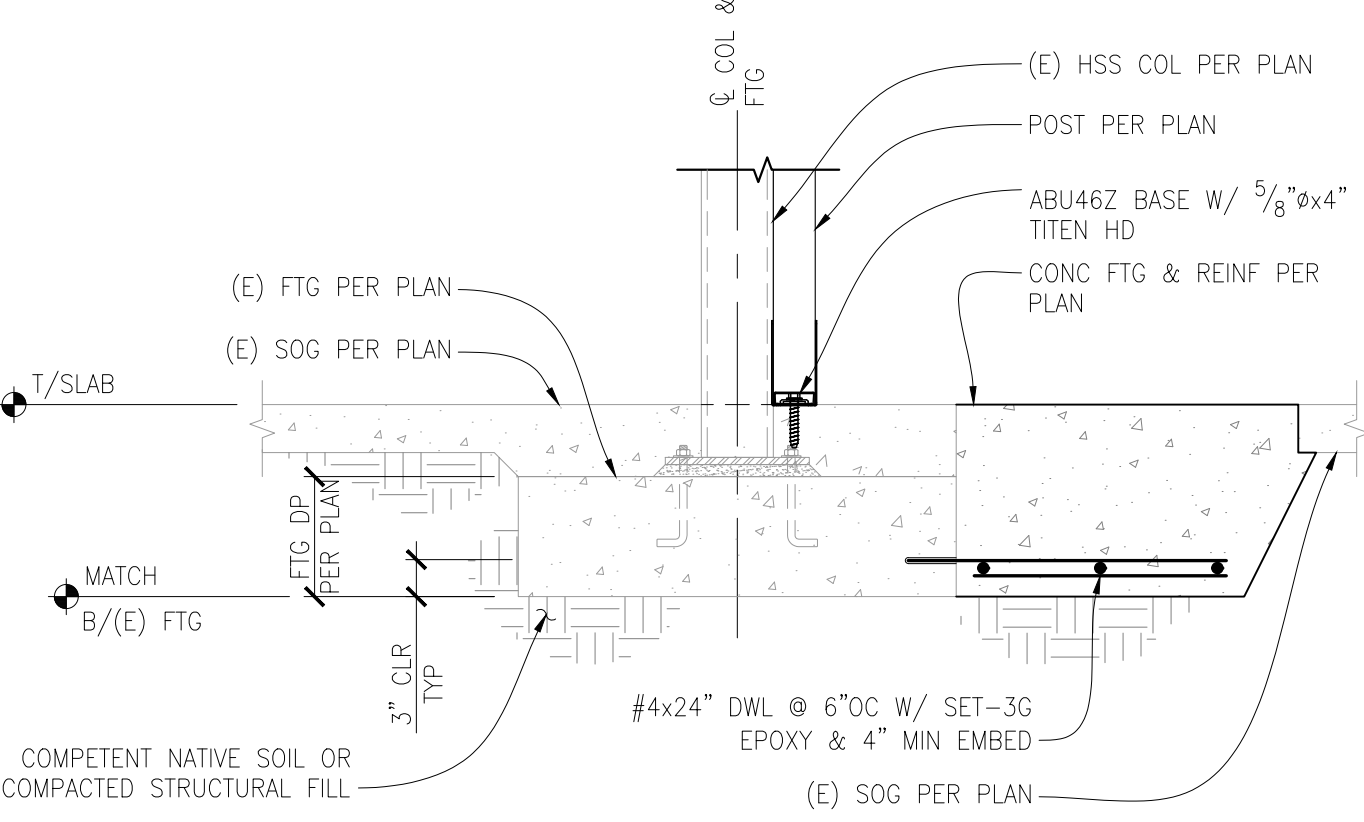


WOOD WALL TO WOOD BEAM

SCALE: NTS

6609x mod

5

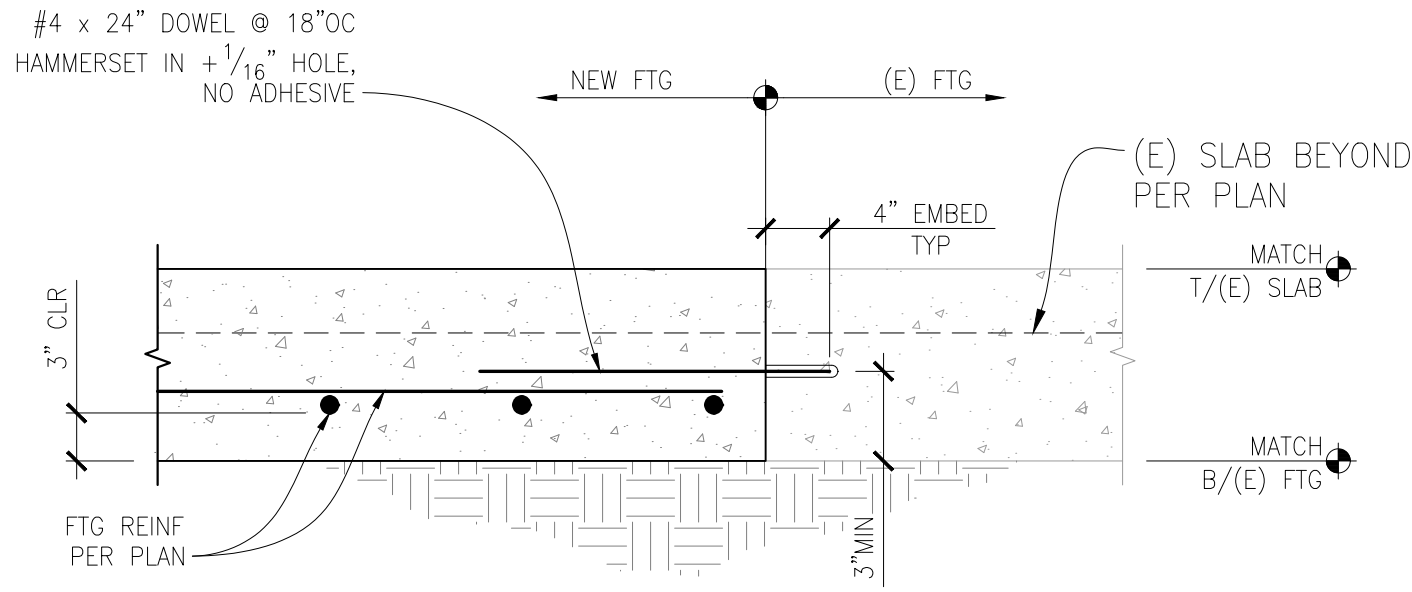


TYPICAL FOOTING AT HSS COLUMN

SCALE: NTS

5103x mod

6



NOTE:

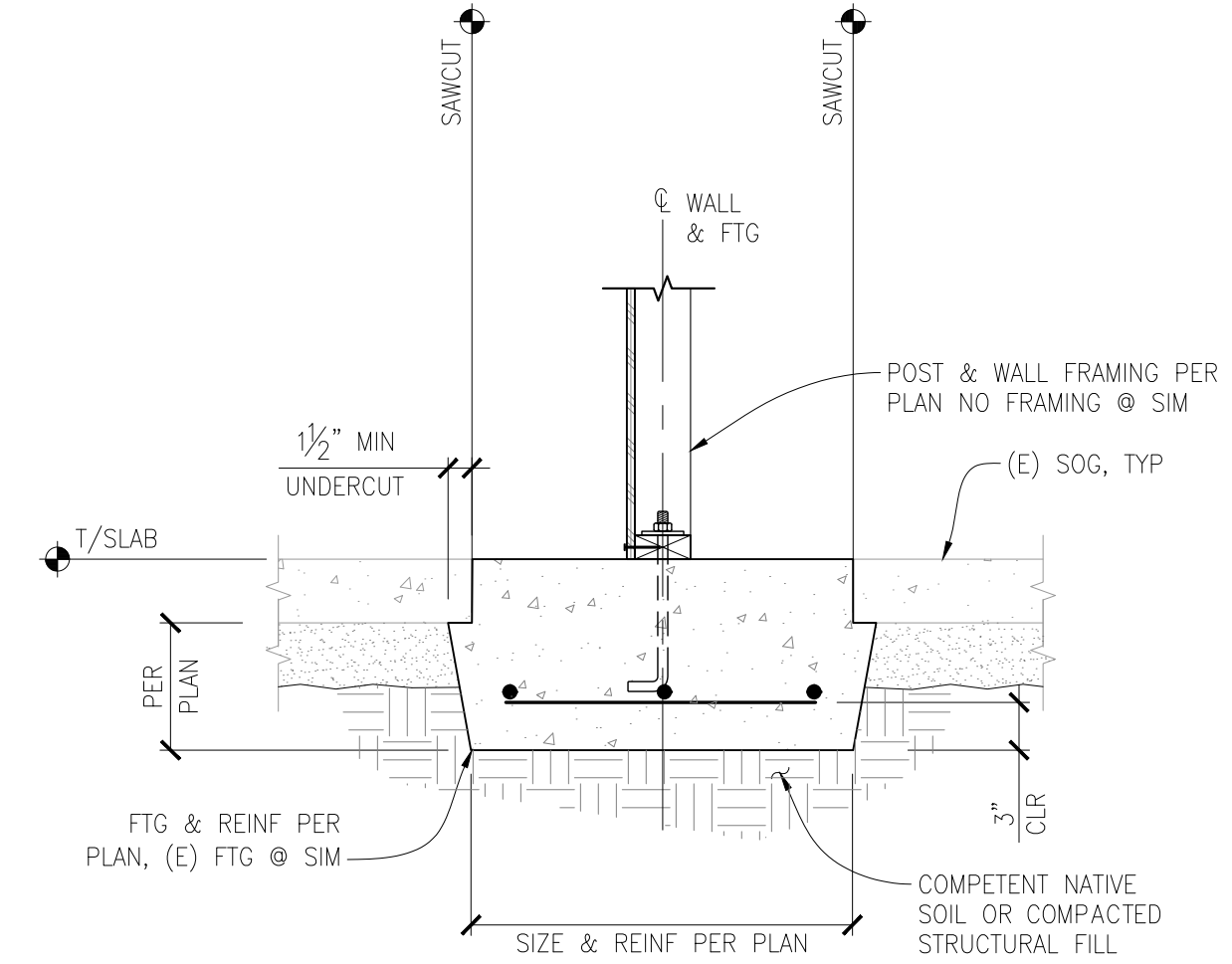
VERTICAL STEM WALL REINFORCING NOT SHOWN FOR CLARITY.

NEW FOUNDATION CONNECTION TO EXISTING

SCALE: NTS

2004x mod

7

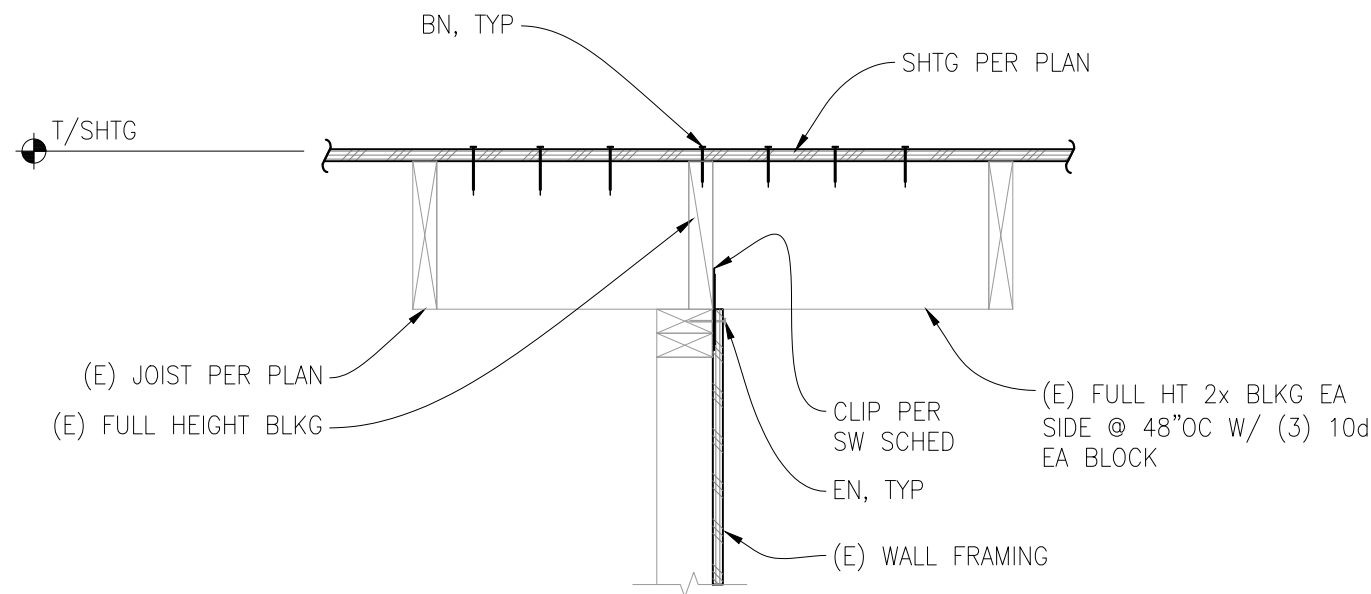


NEW FOOTING/ POST AT EXISTING SLAB

SCALE: 1" = 1'-0"

3061x mod

8

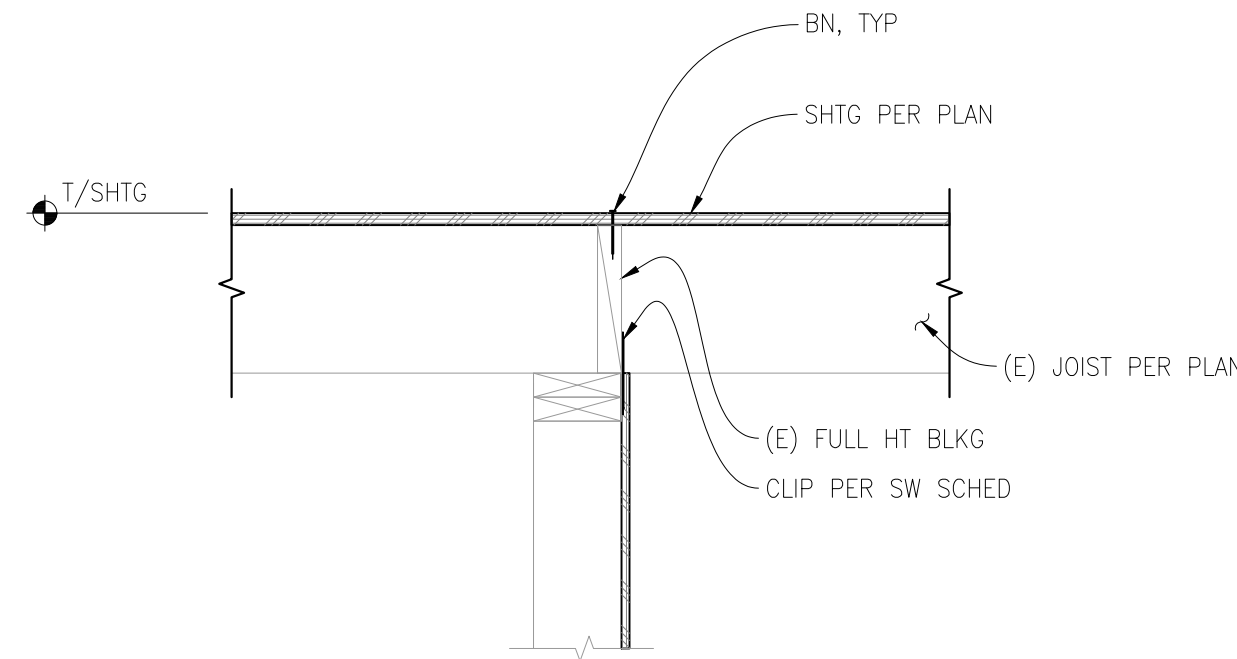


INTERIOR SHEAR WALL I-JOISTS PARALLEL

SCALE: NTS

6332x mod

9

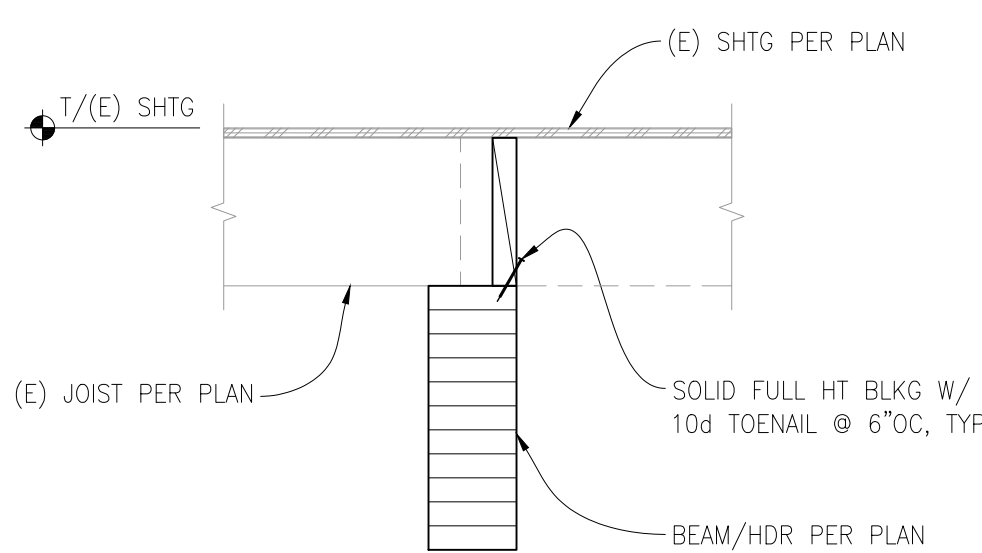


INTERIOR SHEAR WALL W/ I-JOIST PERPENDICULAR

SCALE: NTS

6331x mod

10

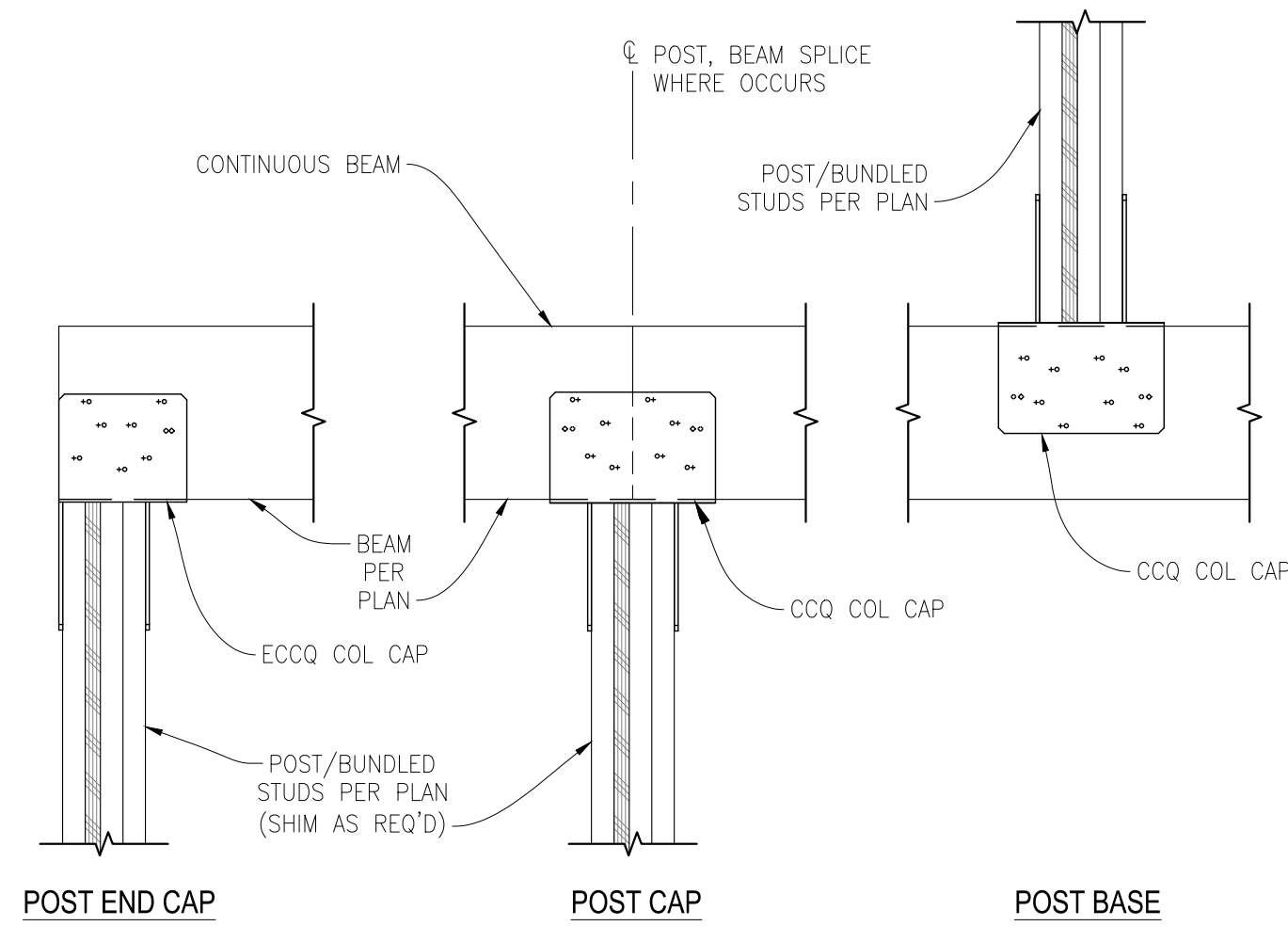


DROPPED BEAM WITH JOISTS PERPENDICULAR

SCALE: NTS

6349x mod

11



NOTE:

FLOOR/ROOF SHTG NOT SHOWN FOR CLARITY.

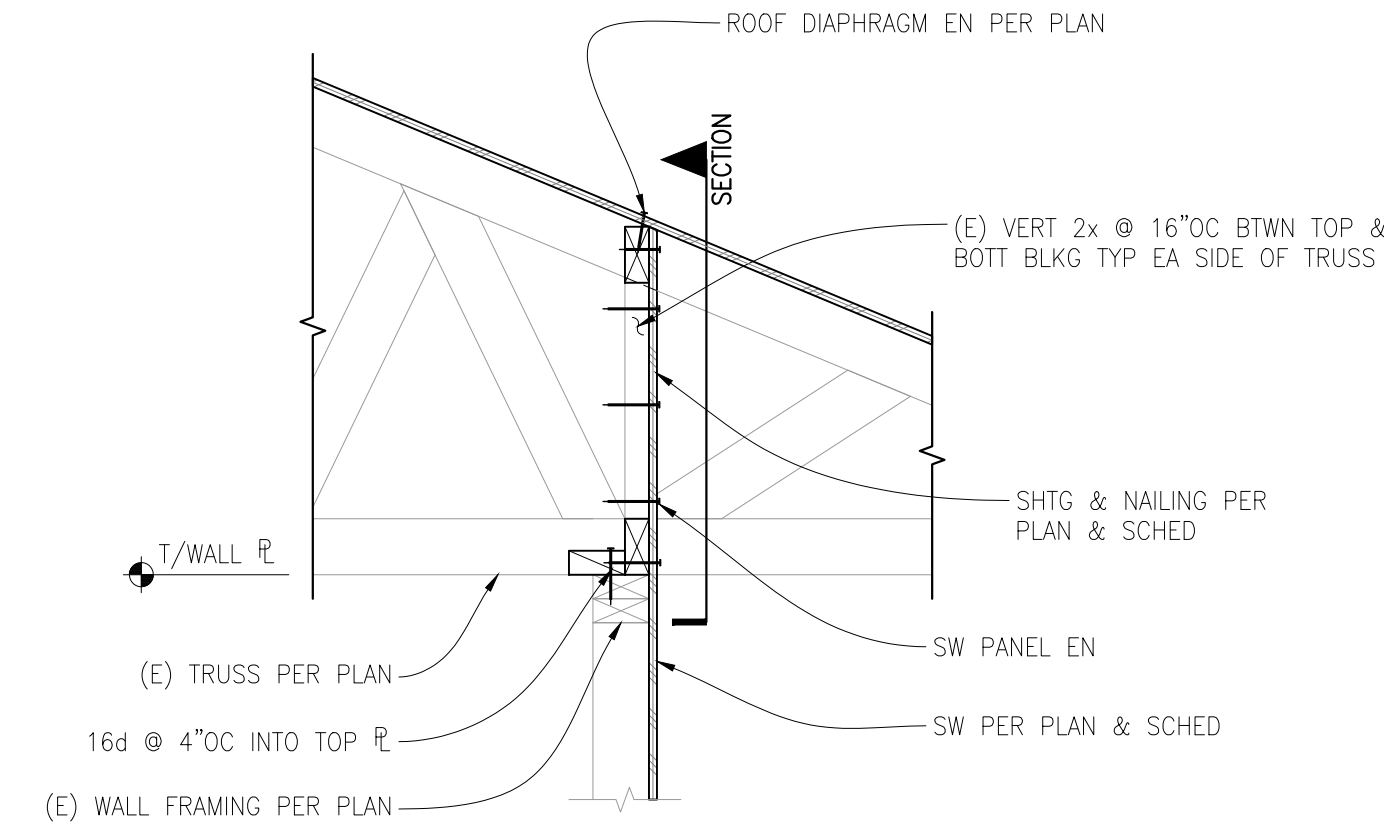
TYPICAL POST TO BEAM CONNECTION

SCALE: NTS

6030x

12

SEAL:



INTERIOR
SHEAR WALL PERPENDICULAR TO ROOF TRUSS

SCALE: NTS.

6531x

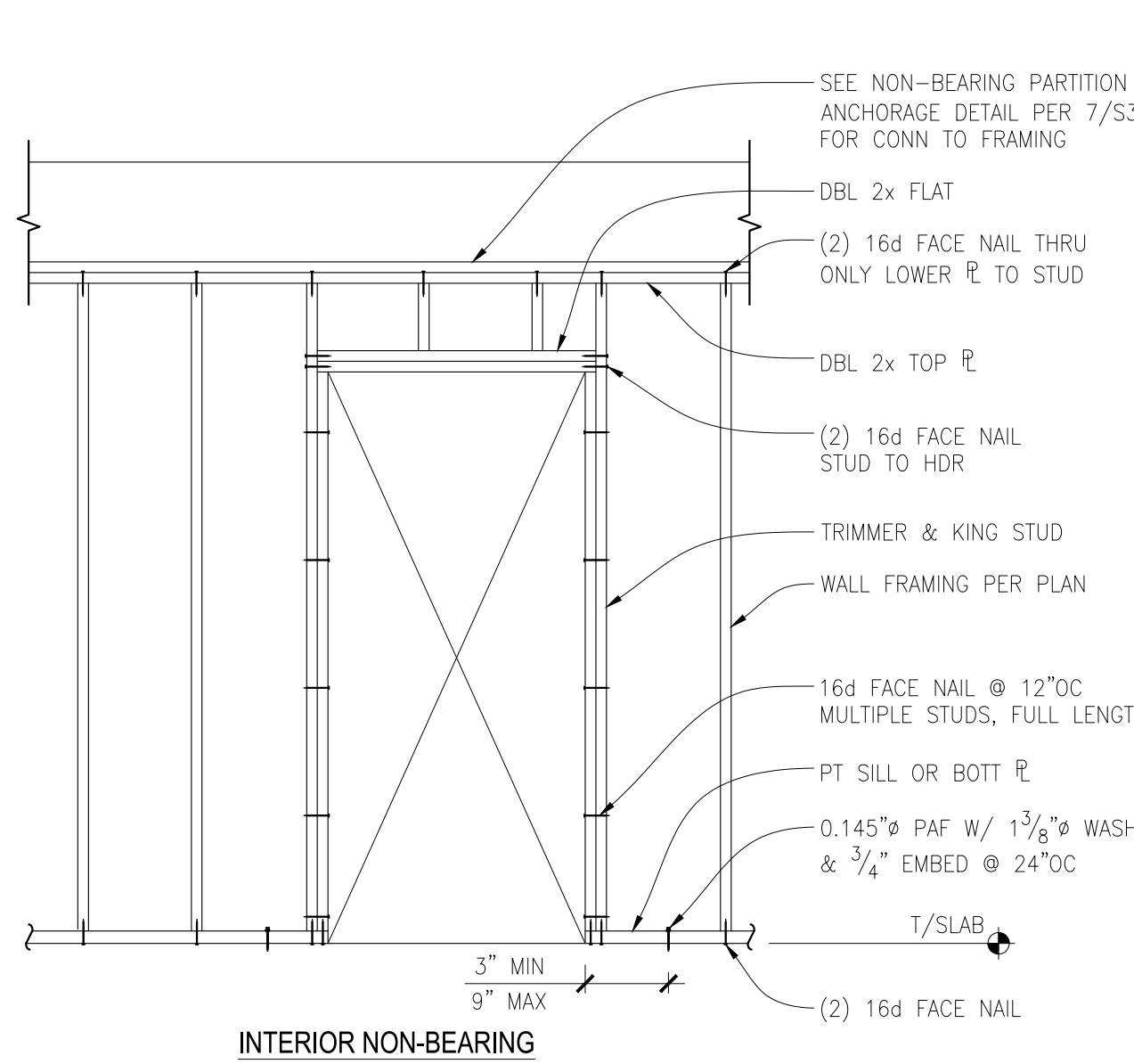
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NOTES:

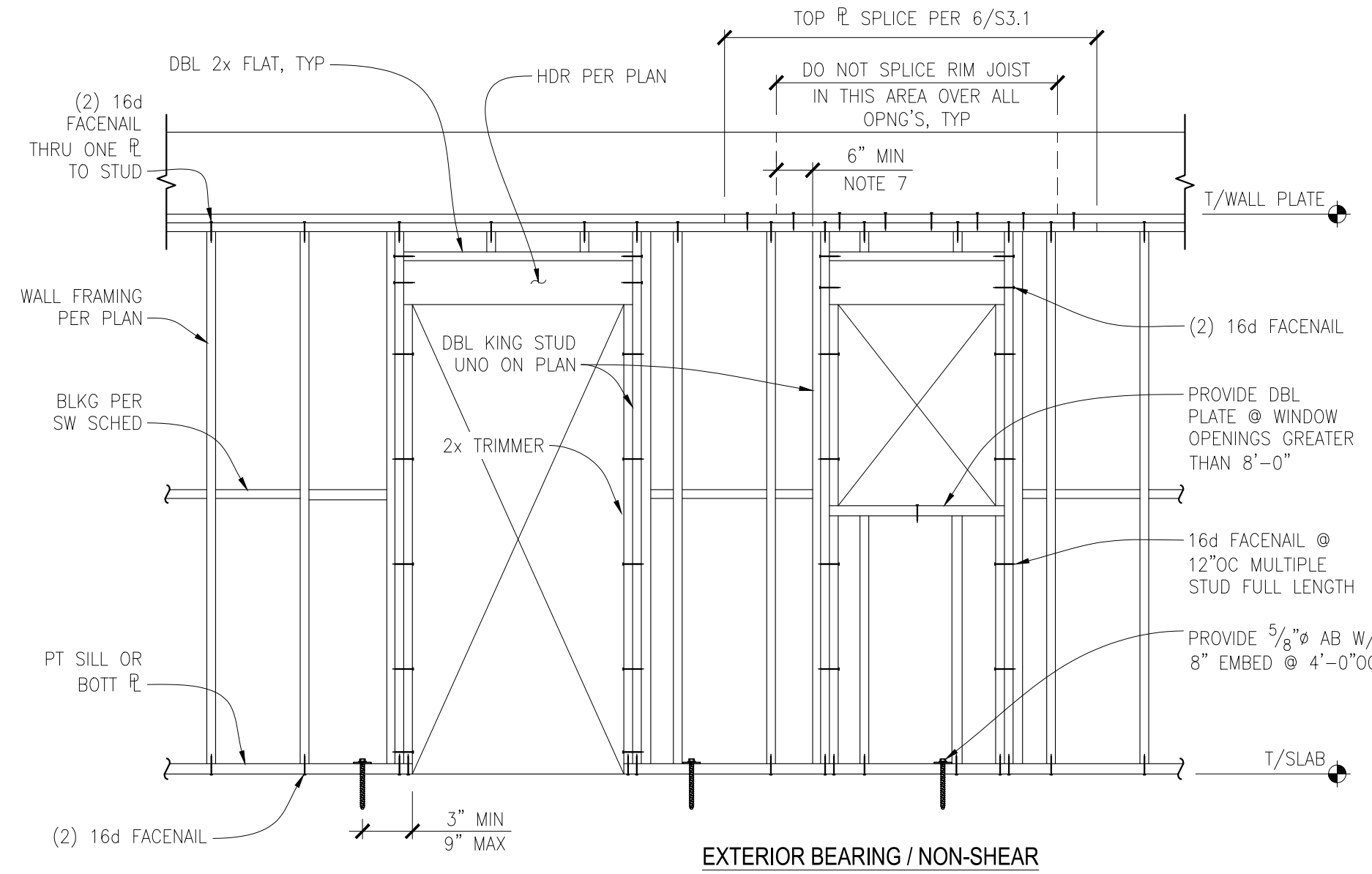
1. HEADERS, KING STUDS AND OTHER REFERENCES ON PLAN GOVERN OVER TYPICAL DETAILS.
2. REFERENCE SHEAR WALL NAILING DETAIL FOR ADDITIONAL INFORMATION.
3. REFERENCE SHEAR WALL SCHEDULE FOR CONNECTION AT TOP AND BOTTOM OF WALL.
4. COORDINATE KING AND TRIM STUDS WITH HOLDOWN STUDS.
5. ACCEPTABLE TO USE THREADED ANCHOR IN LIEU OF CAST-IN-PLACE ANCHOR BOLT.
6. RIM JOIST IS HEADER AT EXTERIOR AND CORRIDOR WALLS. DO NOT SPLICE OVER OPENINGS.
7. IF 6" OVERHANG NOT AVAILABLE, HANG RIM FROM INTERSECTING BEAM W/ SIMPSON HUC HANGER x SIZE OF RIM.
8. SILL PLATES TO BE PRESERVATIVE/PRESSURE TREATED WHERE IN CONTACT WITH CONCRETE EXPOSED TO WEATHER.
9. REFERENCE 4/S3.0 FOR SILL PLATE CONNECTION AT PLYWOOD SHEATHING.
10. NAILING NOT SHOWN SHALL BE AS INDICATED IN TABLE 2304.10.1 OF THE IBC.

TYPICAL STUD WALL FRAMING DETAILS

SCALE: NTS



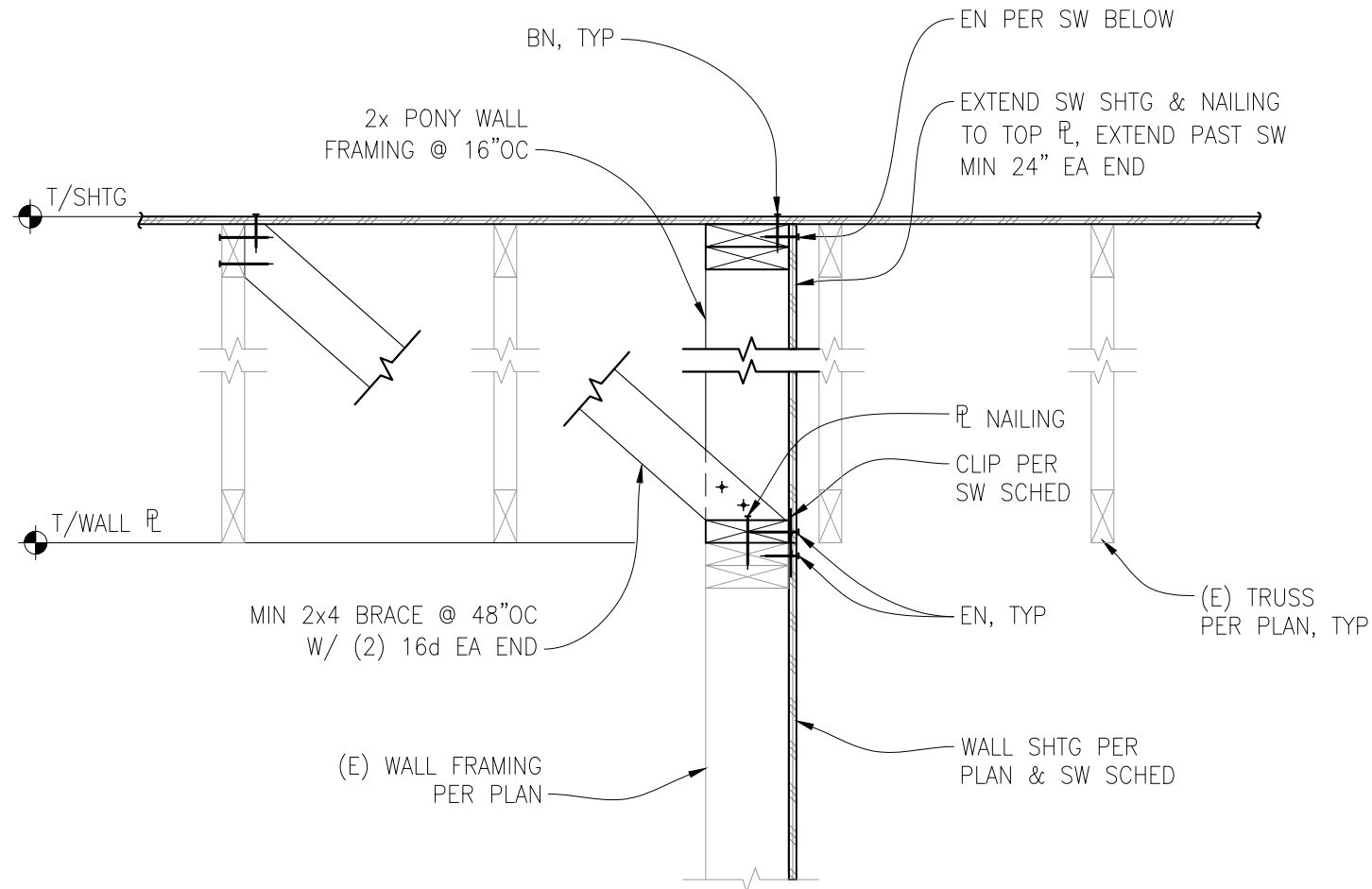
INTERIOR NON-BEARING



EXTERIOR BEARING / NON-SHEAR

1290n 1291w 1293w

4

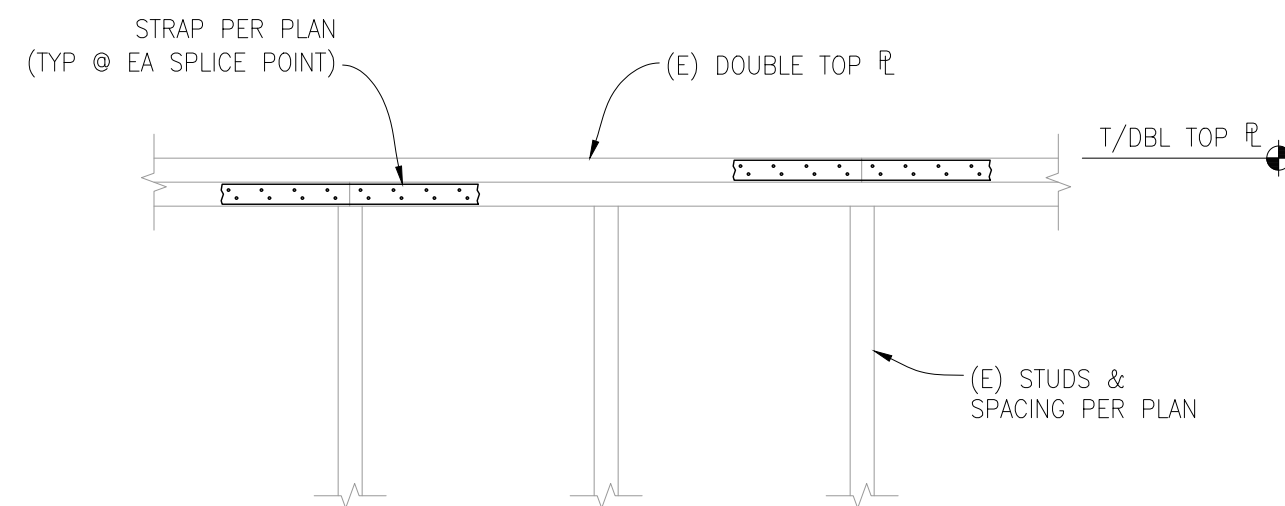


INTERIOR SHEAR WALL PARALLEL TO ROOF TRUSS

SCALE: NTS

6532x

5

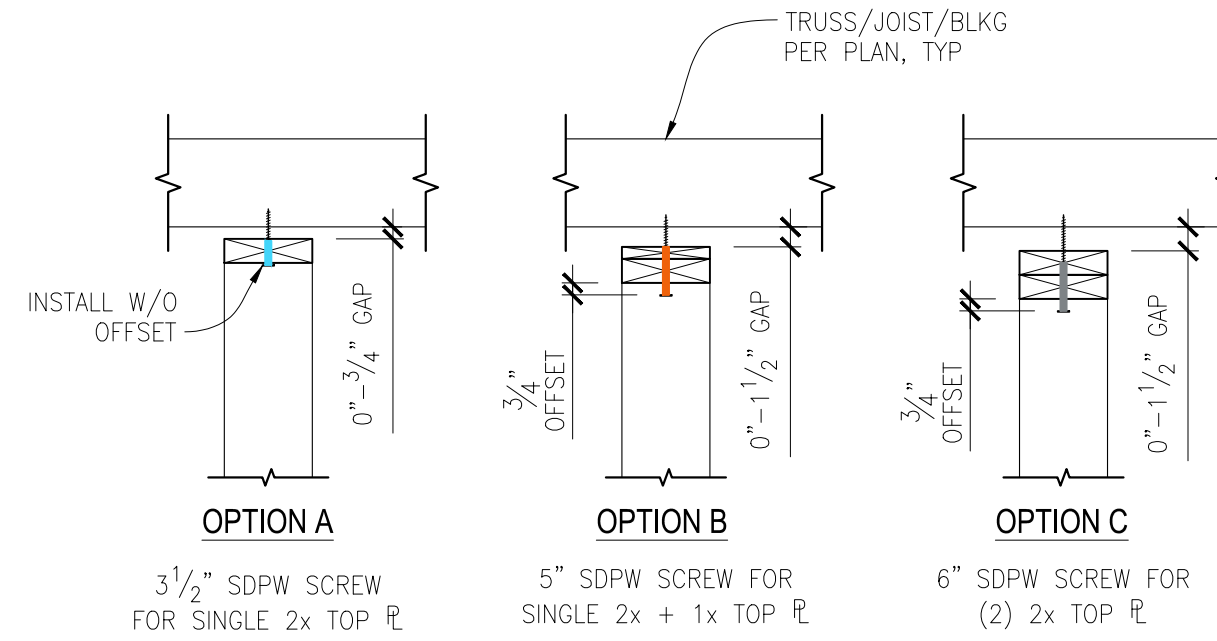


TYPICAL PLATE SPLICE DETAIL AT EXISTING WALLS

SCALE: NTS

2701x

6



NOTES:

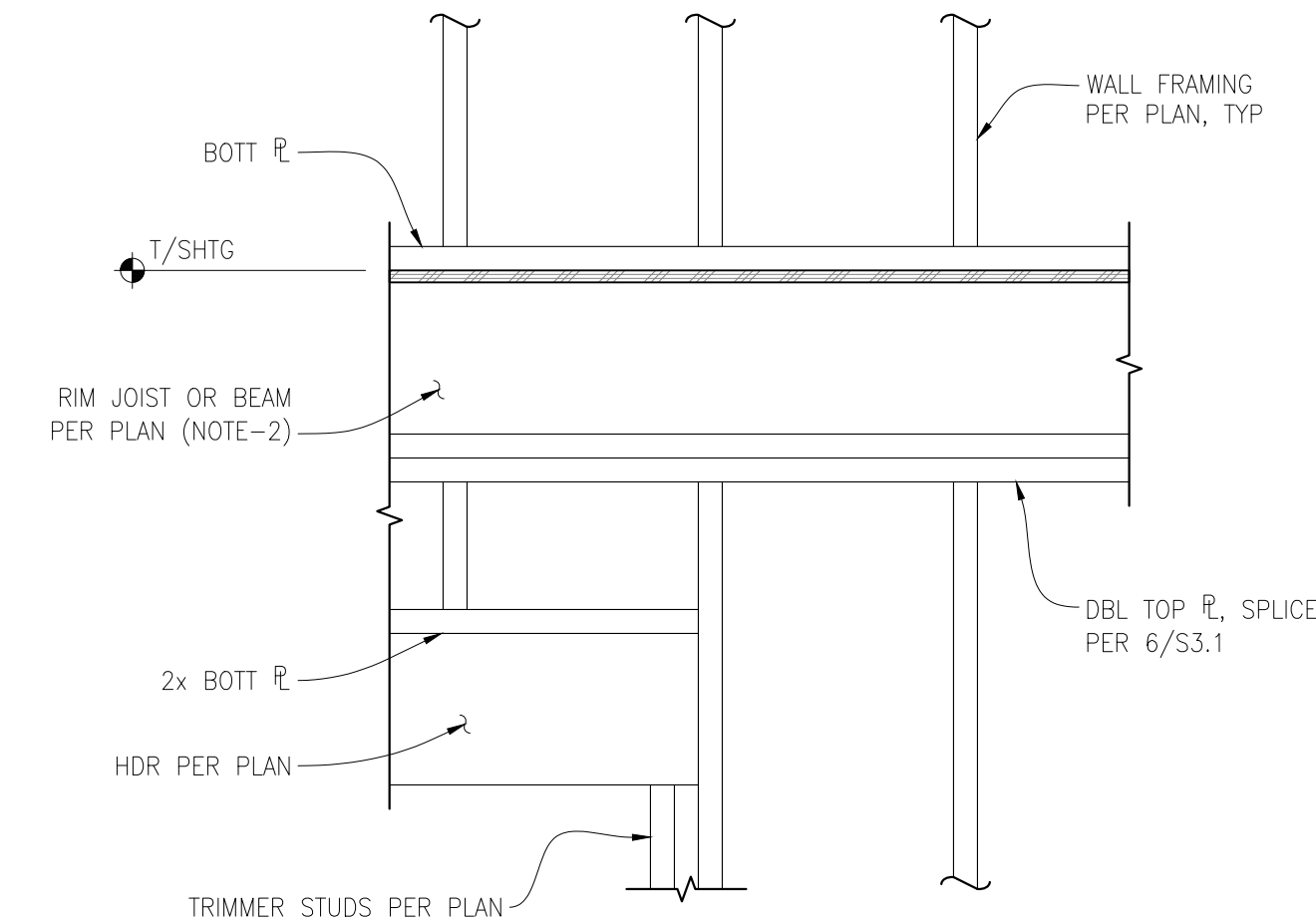
1. FLOAT THE CEILING DRYWALL END AS PER STANDARD INDUSTRY STANDARDS.
2. INSTALL SIMPSON SDPW SCREWS W/ OFFSET DRIVER BIT WITH 3/4" OFFSET TO ALLOW FOR VERTICAL MOVEMENTS UP AND DOWN.

TYPICAL INTERIOR
NON-BEARING WALL TOP PLATE ANCHORAGE

SCALE: NTS

6651x

7



NOTES:

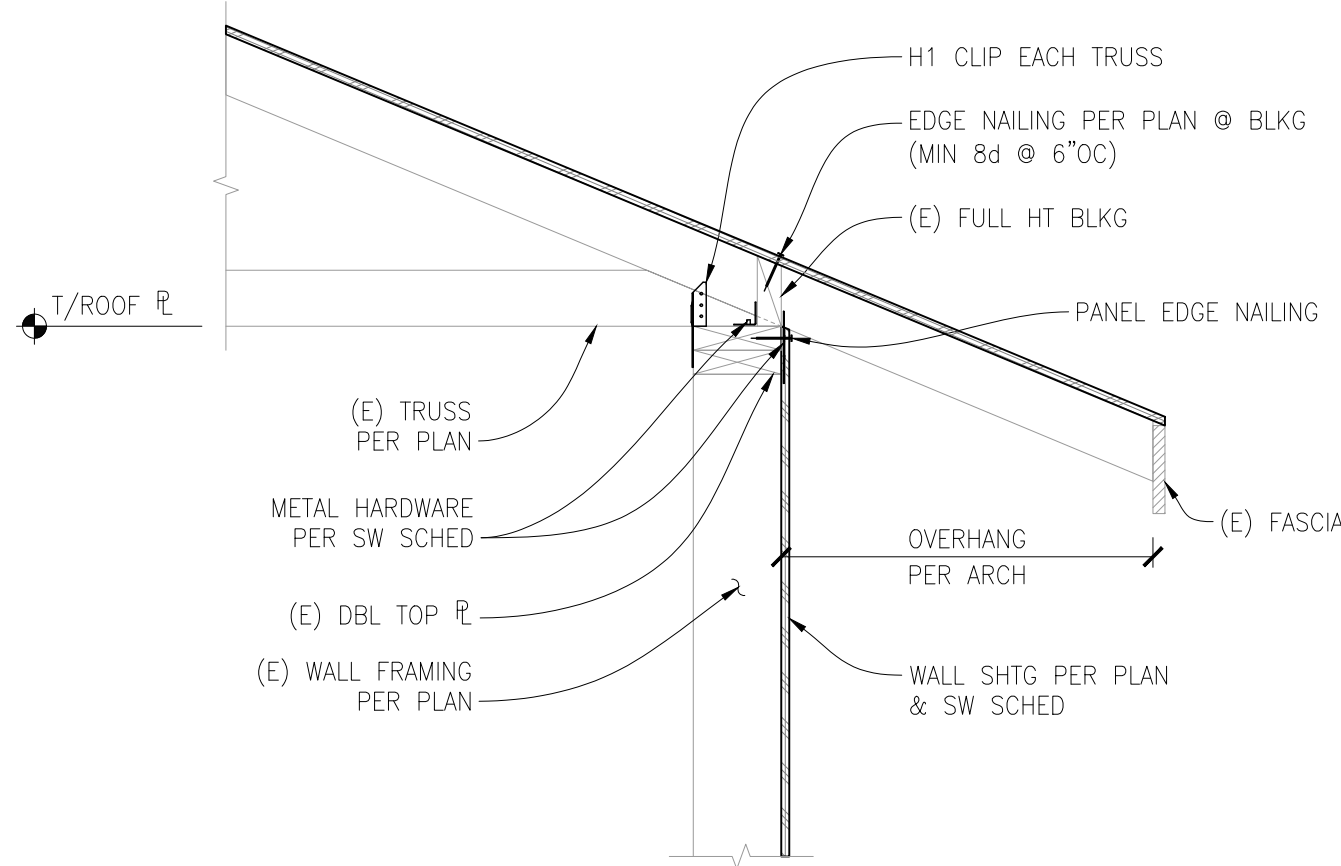
1. WALL SHEATHING NOT SHOWN FOR CLARITY
2. SIM AT ROOF.

TYPICAL HEADER FRAMING (DROPPED)

SCALE: NTS

6601x

8

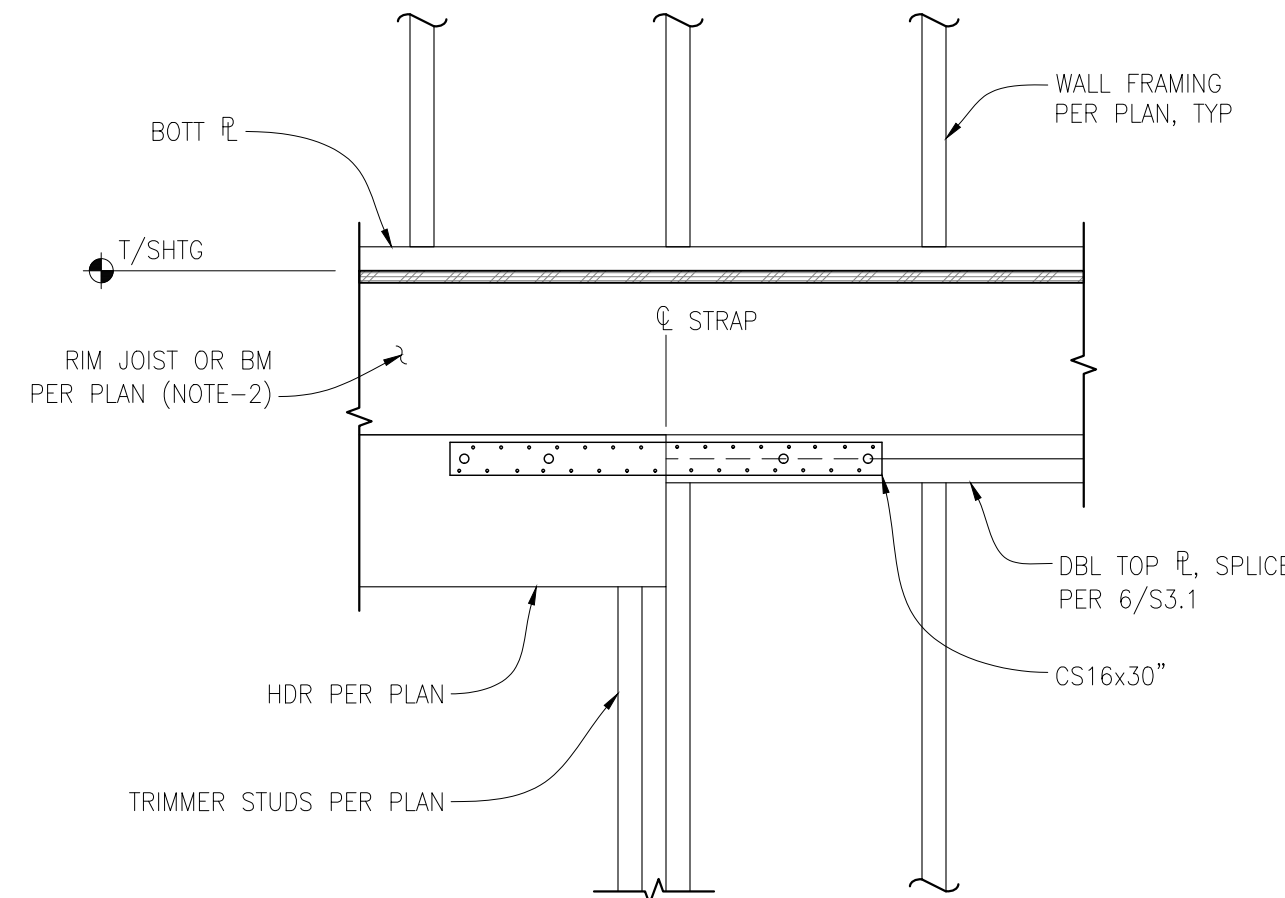


EXTERIOR SHEAR WALL
PERPENDICULAR TO ROOF TRUSS

SCALE: NTS

6501x

9



TYPICAL HEADER FRAMING (FLUSH)

SCALE: NTS

6602x

10

EXTERIOR/BEARING/SHEAR WALL STUDS			EXTERIOR/BEARING/SHEAR WALL STUDS		
STUD SIZE	MAX DEPTH OF EDGE CUT OR NOTCH	MIN STUD DEPTH REMAINING	STUD SIZE	MAX DIAMETER OF HOLE	MIN DEPTH REMAINING AFTER BORING
2x4	7/8"	2 5/8"	2x4	1 3/8"	5/8" EA SIDE OF HOLE
2x6	1 3/8"	4 1/8"	2x6	2 1/8"	5/8" EA SIDE OF HOLE
2x8	1 3/4"	5 1/2"	2x8	2 7/8"	5/8" EA SIDE OF HOLE

NON-BEARING WALL STUDS			NON-BEARING WALL STUDS		
STUD SIZE	MAX DEPTH OF EDGE CUT OR NOTCH	MIN STUD DEPTH REMAINING	STUD SIZE	MAX DIAMETER OF HOLE	MIN DEPTH REMAINING AFTER BORING
2x4	1 3/8"	2 1/8"	2x4	2"	5/8" EA SIDE OF HOLE
2x6	2 1/8"	3 3/8"	2x6	3 1/4"	5/8" EA SIDE OF HOLE
2x8	2 7/8"	4 3/8"	2x8	4 1/4"	5/8" EA SIDE OF HOLE

CUTTING AND NOTCHING WOOD STUDS

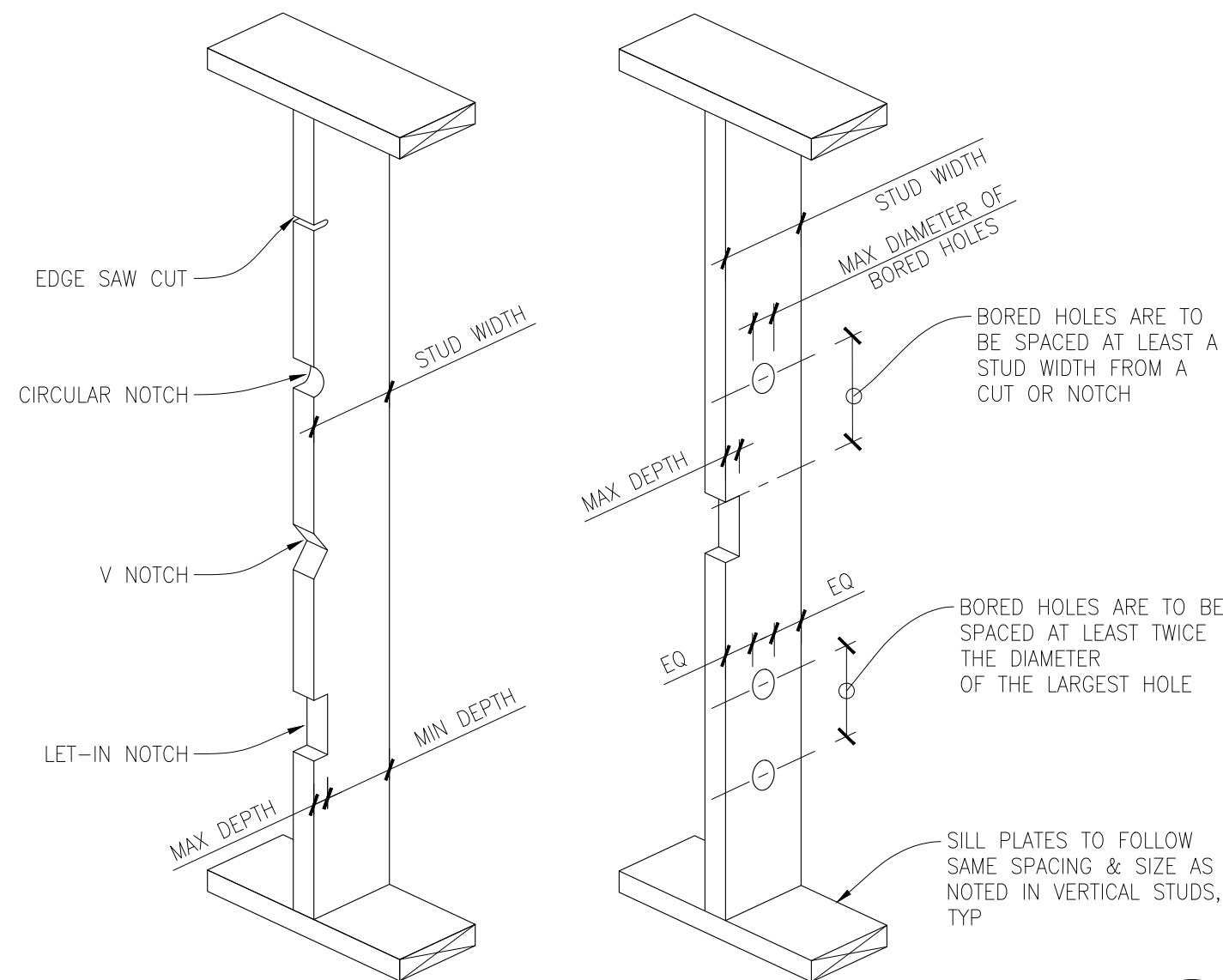
BORED HOLES IN WOOD STUDS

NOTES:

1. NO CUTTING, NOTCHING OR BORING IS ALLOWED IN SHEAR WALL HOLDOWN COMPRESSION STUDS OR PLATES.
2. BORINGS SHALL NOT BE MADE AT THE SAME SECTION WHERE A CUT OR NOTCH HAS BEEN MADE.
3. DO NOT NOTCH OR BORE MORE THAN THREE ADJACENT STUDS WITHOUT REVIEW AND APPROVAL BY EOR.

TYPICAL HOLES & NOTCHES IN WOOD STUDS

SCALE: NTS



1312x

12

RIVER TRAIL EAST & WEST

AMENITY REFRESH

1617 E MAIN
PUYALLUP, WA 98072

PROJECT #: 22-015
DRAWN BY: MB
DESIGNED BY: JCW
DATE: 04.19.2022
DESCRIPTION: PERMIT

JURISDICTIONAL STAMP:

SHEET TITLE:

STRUCTURAL
SECTIONS & DETAILS

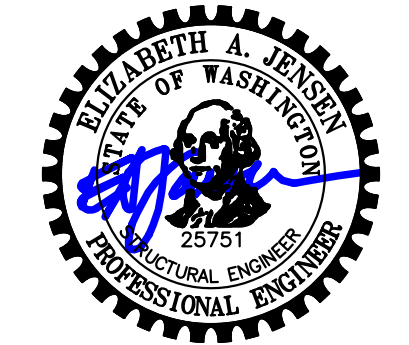
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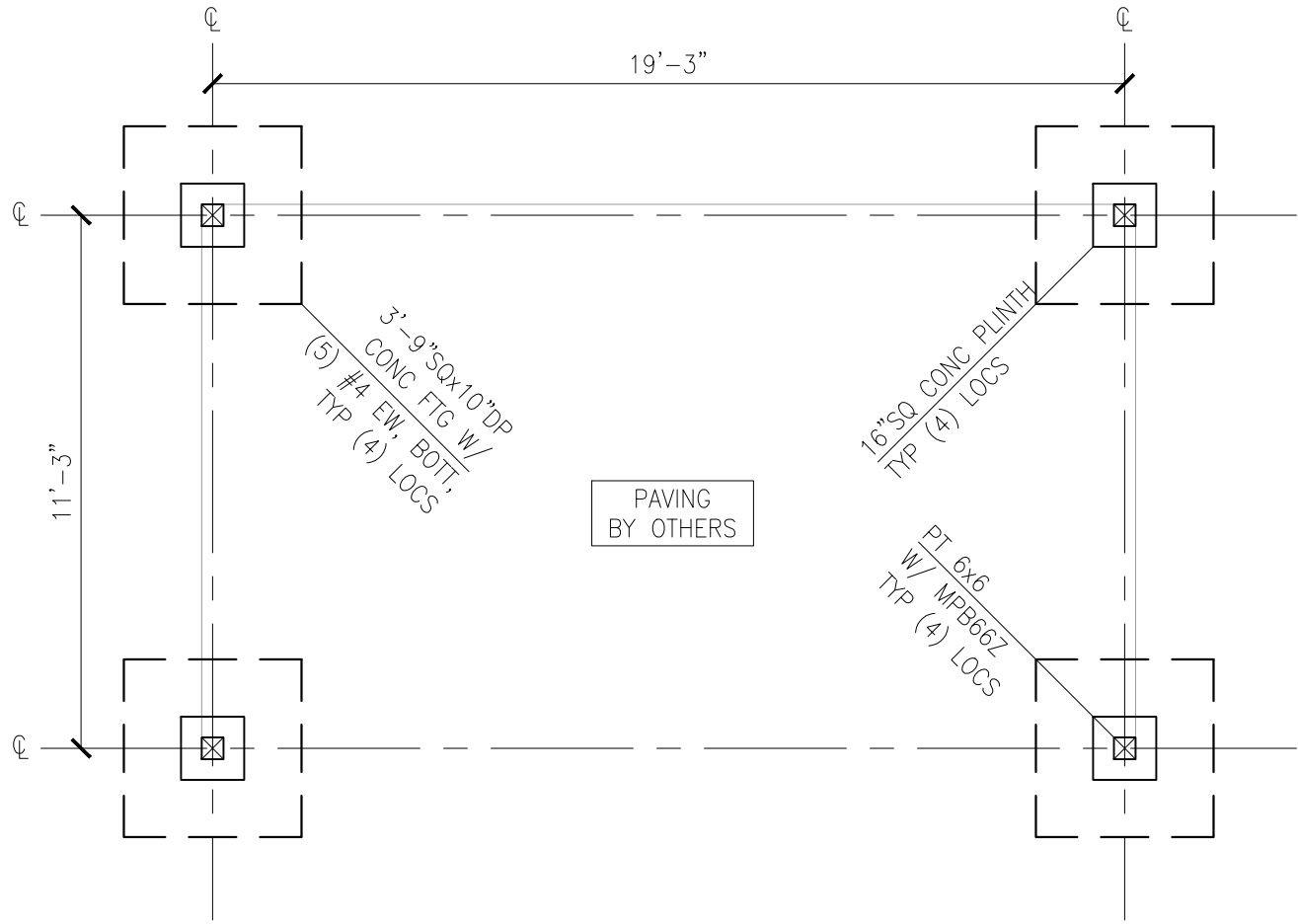
S3.2

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425.828.4200



SEAL:

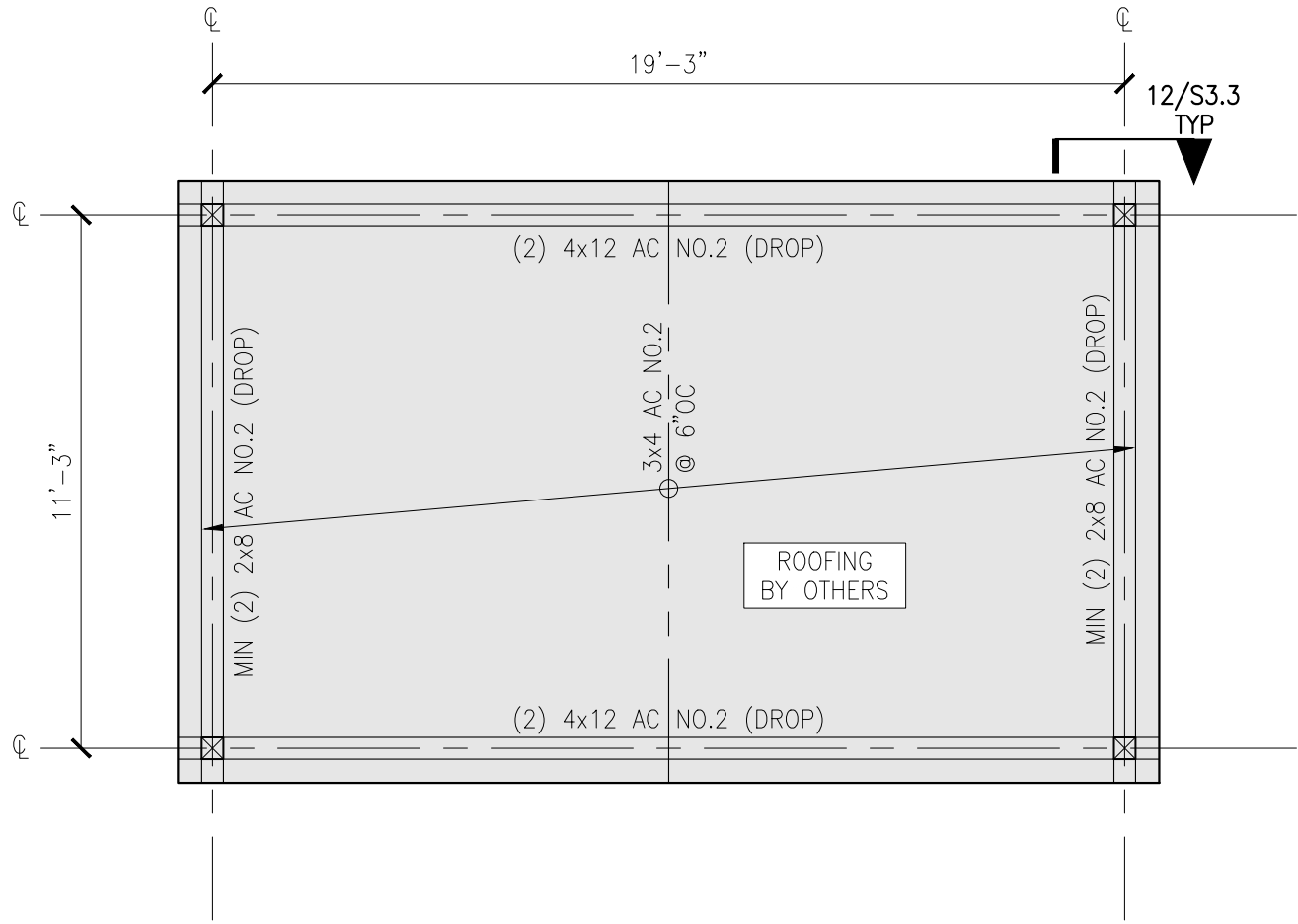




PERGOLA FOUNDATION PLAN

SCALE: 1/4" = 1'-0"

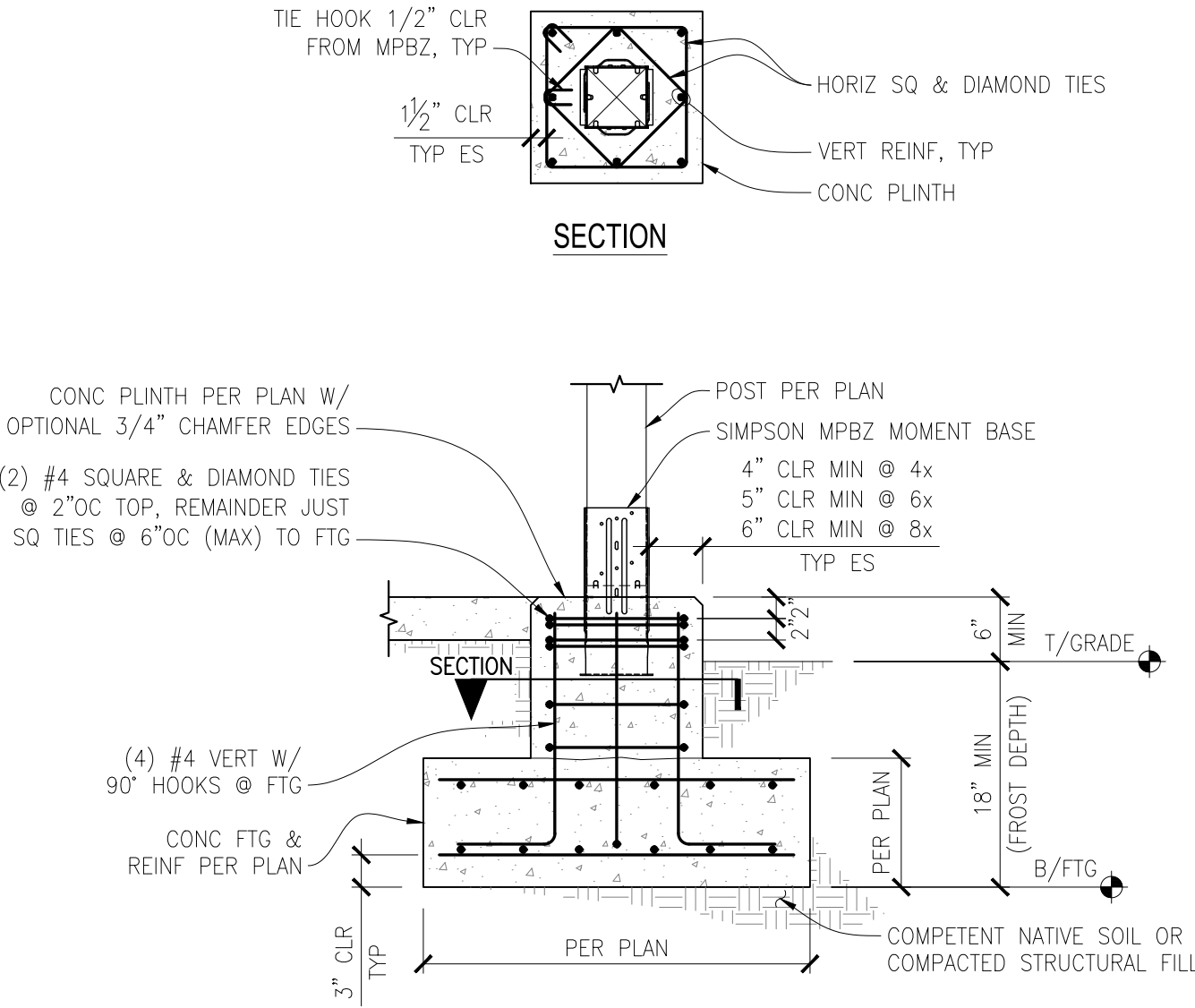
4



PERGOLA ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0"

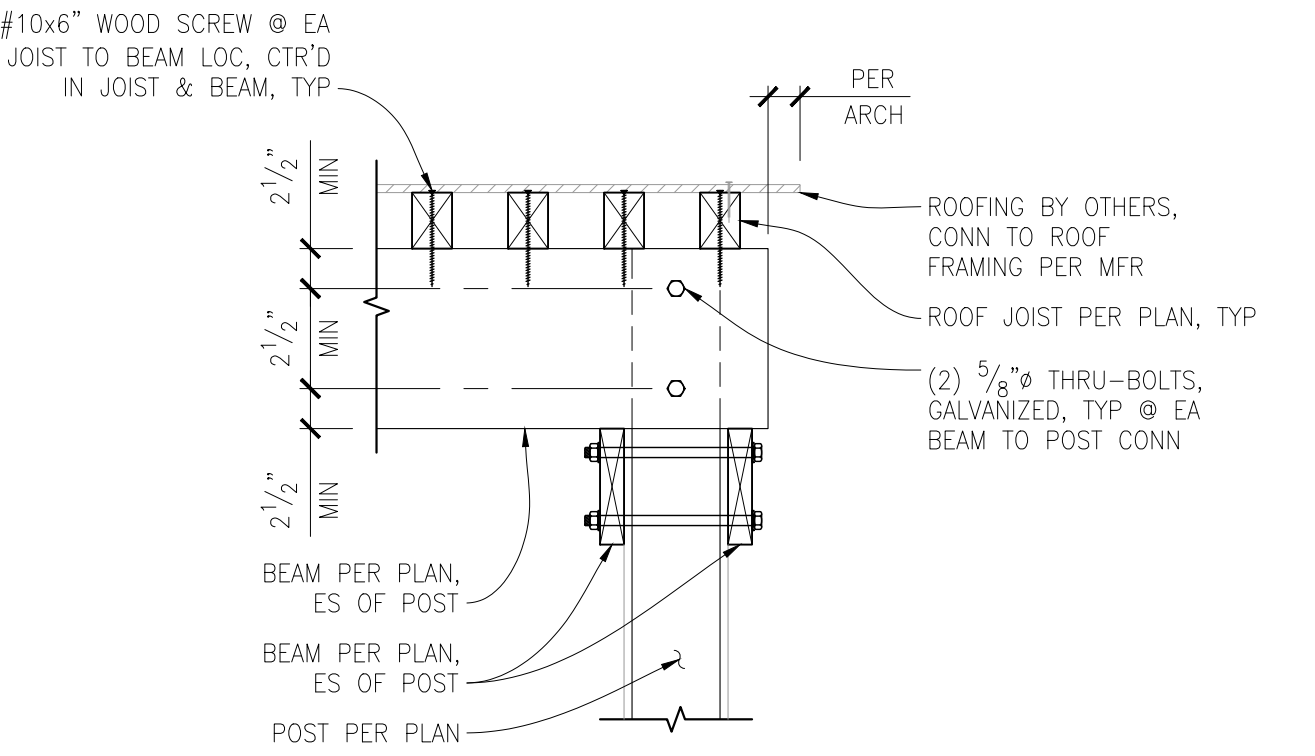
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PERGOLA FOOTING DETAIL

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

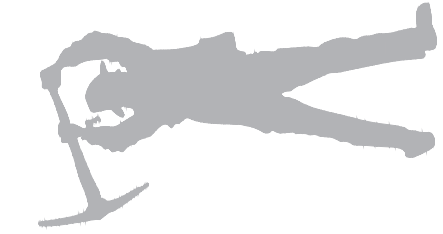
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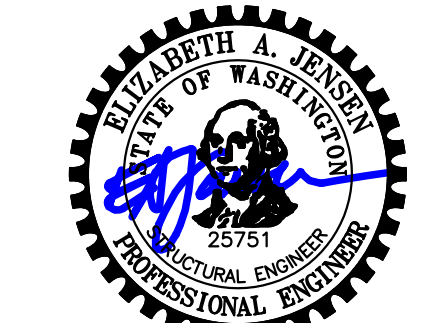
PERGOLA BEAM TO POST DETAIL

SCALE: 1" = 1'-0"

12



SEAL:



4/19/22

RIVER TRAIL EAST & WEST
AMENITY REFRESH
1617 E MAIN
PUYALLUP, WA 98372

PROJECT #: 22-015
DRAWN BY: MB
DESIGNED BY: JCW
DATE: 04.19.2022
DESCRIPTION: PERMIT

JURISDICTIONAL STAMP:

SHEET TITLE:

SITE PERGOLA
STRUCTURAL
SECTIONS & DETAILS

SHEET NUMBER:

S 3.3