

Code Requirements

ASCE 7-16

Codes

2015 IBC
AISC/ASD Sixteenth Edition
ACI 318-16
NDS 2015
SEAW Rapid Solutions Methodology for Wind Design

DESIGN LOADS

Wind Design

ANALYSIS PROCEDURE SEAW RAPID SOLUTIONS METHODOLOGY for WIND DESIGN
BUILDING CATEGORY = 1
WIND SPEED = 85 MPH
EXPOSURE = 'B'
TOPOGRAPHIC FACTOR Kzt = 1.3

Seismic Design

ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

Building Design Loads

SNOW LOAD = 25 SPF
ROOF (DL) = 15 PSF, (LL) 25 PSF
FLOOR (DL) = 12 PSF, (LL) = 40 PSF
EXTERIOR WALL (DL) = 15 PSF
INTERIOR WALL = 7.5 PSF
EXTERIOR DECK (DL) = 15 PSF, (LL) = 65 PSF
CORRIDORS, STAIRS, EXITS (DL) = 12 PSF, (LL) = 100 PSF

MATERIAL SPECIFICATIONS

Prefabricated Floor Trusses/Floor Joists (if required)

> Submit to engineer of record complete shop drawings and calculations stamped by a Washington State registered professional engineer for approval prior to fabrication.
> Provide for all temporary and permanent truss and joist bracing and bridging (per manufacturer's recommendations).
> Store and erect trusses in accordance with the manufacturer's details and installation recommendations.
> Substitution in prefabricated assemblies to be approved by engineer of record prior to installation.
> Plywood to be glue nailed to top flange of prefab floor joist or truss.
> Provide additional web reinforcing at TJI joists at or over supports.

Floor Loads (See loading table above)

Wood Notes

> New exterior walls to be framed with 2 x 4 or 2 X 6 studs @ 16" O.C. (unless noted otherwise).
> New interior walls to be framed with 2 x 4 studs @ 16" o.c. (unless noted otherwise).
> All frame nailing shall be in accordance with Table No. 2304.9.1, 2015 IBC
> When a girder is spliced over a support, an adequate tie shall be provided.
> Provide solid blocking over all supports.
> Provide fire blocking within framing cavity at 10'-0" vertically and horizontally). Fire stop openings around vents, pipes, ducts, chimneys, etc. with non-combustible materials.
> Framing anchors shall be provided to support joists which frame into the side of a wood girder or framing band.
> Wood members shall have sufficient bearing area based on allowable values for compression perpendicular to grain per 2001 NDS.
> Provide double joists under all interior bearing walls.
> Where boring through studs is required for plumbing or electrical wiring in bearing walls use 2 X 6 or double 2 X 4 studs.
> All joists, studs, blocking, bracing, and rafters shall be Hem Fir #2 or better; Fb = 850 psi (1000 psi repetitive), Fv = 75 psi
E = 1, 300,000

> All sawn beams, headers, posts, lintels, and girders which are 4" nominal width shall be Doug-Fir Larch #2 or better; Fb = 850 psi, Fv = 95 psi, E = 1, 600,000.
> All sawn beams, headers, posts, lintels, and girders which are 6" nominal width shall be Doug-Fir Larch #1 or better; Fb = 850 psi, Fv = 85 psi, E = 1, 600,000.
> All glue-laminated timbers to be kiln dried Doug-Fir top and bottom (24 F-V-4) for simple span beams; (24 F-V8) for multiple span or cantilever beams. Fb = 2400 psi, Fv = 165 psi, E = 1,800,000.
> All framing lumber shall be kiln dried to a maximum 19% moisture content prior to installation.
> Steel framing accessories and structural fasteners shall be as manufactured by Simpson Company (or approved equal). Connectors shall be installed in accordance with manufacturer's recommendations. Provide all plan designated manufacturer's connectors.
> Simpson Strong Tie connectors are specifically required to meet the structural calculations of this plan. Before substituting another brand, confirm load capacity based on reliable published testing data of calculations. The Engineer of Record should evaluate and give approval for substitution prior to installation.

Holdowns

> Holdowns to be by Simpson Company or equal. Any substitutions in hardware manufacturer must be approved by the Engineer of Record prior to installation.

Plywood Notes

> All plywood shall be installed per American Plywood Association standards.
> All plywood shall be A.P.A rated C-D Struct 1(min.).
> All panel edges to occur with long edges over wood supports, short edges to be blocked.
> All roof plywood to be ½" thick with span rating 24/0.
> Nail panels with 10d common nails at 12" o.c. in the field, 6" o.c. at all panel edges. Nail at 4" o.c. to all exterior walls and other shear walls.
> All floor plywood to be min ¾" thick with span rating 32/16.
> Nail panels with 10d. galv. nails at 6" o.c. at panel edges, 12" o.c. in the field. See Shear wall schedule for nailing patterns shear walls.
> At floor sub-floor glue floor plywood to floor joists with an approved elastomeric adhesive suitable for use in wet weather.
> See shear wall schedule and notes for wall plywood and nailing schedule.
> All plywood at waterproof decks to be pressure treated.
> Plywood floor and roof sheathing shall be laid up with face grain perpendicular to supports.
> All floor plywood shall be glue nailed to supporting joist in accordance with the American Plywood Association. Glue shall meet the requirements of Adhesive Specification AFG-01.

Concrete/Foundation Notes

> Foundation design is in accordance with chapter 19 of the 2015 IBC
All work shall be performed in accordance with all current building and safety codes.
> Concrete strengths shall be verified by standard 28-day cylinder tests, unless approved otherwise.
> Anchor bolts to be 5/8" diameter with 10" embedment @ 48" o.c. (see shear wall schedule for anchor bolt size and spacing at other than P1-6" shearwalls). All anchor bolts to be ASTM A-307.
> ALLOWABLE SOIL BEARING PRESSURE = 15000 PSF
> Backfill behind unbraced retaining walls prior to attaching floor diaphragm.
> Exterior footings to be entrenched a minimum of 18" below existing grade and bear on firm undisturbed soil.
> All reinforcing bars to be Grade 60 deformed bars. The tie wire is to be 16 Ga. double annealed wire. Lap all reinforcing 36 diameters. At corners of walls extend horizontal bars 2" from outside face of wall and lap with elbow bars of 30 diameters at the same size and spacing. Provide 2-#5 bars around all wall openings. Provide footing dowels to match vertical reinforcing.

Concrete cover

3"	concrete poured against earth
2"	formed concrete with earth backfill
1 1/2"	outside face of walls exposed to weather, slabs on a moisture barrier
1"	walls, outside face

> Provide 4" diameter perforated PVC drain in granular fill at the base of all new exterior footings (existing and new).

Concrete mix

Mix design shall be in conformance with ACI-318-99. Submit mix designs to engineer of record 2 weeks prior to placement indicating where each concrete mix is used and the maximum aggregate size.

type	f'c	max.water/cem.ratio	min. non-air ent. air ent. sks/cu.yd.
figs		.65	.42 6
found.walls	2500		
slab on grade	3000	.65	.50 5 ½

> Water reducing mixtures may be incorporated into the mix designs in accordance with ASTM C 494 and manufacturer's recommendations.

>Water/Cement ratio shall be measured by weight and shall be based on the total cementitious material. Water/Cement ration shall be determined by the supplier based on the strength requirements and shall not exceed the maximum water/cement ratio shown above.

General Notes

> Contractor will call for inspection prior to placing any footing and foundation wall concrete.
> Provide rigid insulation around the perimeter of all slabs within heated spaces.
> Permanent cut and fill slopes should not exceed 2:1 (H:V).
> All reinforcing shall be detailed in accordance with ACI detailers manual.
> All excavations shall be adequately barricaded and marked. All work area and surfaces shall be cleaned upon completion of the project. All debris and waste materials shall be removed off the site to an approved disposal area by the contractor.
-Use air -entrained (3%-6%) in all flat work exposed to weather.- Master flow 928 or equal.
> Provide minimum of 1/2" air space between non-pressure treated wood and concrete, or provide waterproofing membrane between concrete and non-pressure treated wood.
> Top of concrete to be field verified by contractor.
> Contractor to field verify existing grade cut and soil conditions with before proceeding with concrete retaining wall forming and reinforcing steel placement.
> Contractor shall be responsible for all safety precautions and the methods, techniques, sequences or procedures required to perform the work.
>In the case of discrepancies between the drawings and the anticipated field conditions the contractor shall notify the architect before proceeding with construction.
>DO NOT SCALE the architects or engineer's drawings -- noted dimensions take precedence over scaled dimensions.

Fasteners

Fasteners for pressure treated wood must be ZMAX hot dipped galvanized (G185) or stainless steel.

Prefabricated Roof Trusses (if required)

> Submit complete shop drawings and calculations stamped by a Washington State registered professional engineer for approval prior to fabrication.
> Design for the spans and conditions shown on plans.
> Deflections under total loads not to exceed L/360.
> Provide for all temporary and permanent truss bracing and bridging.
> Store and erect trusses in accordance with the manufacturer's recommendations.

Roof Dead Load = (15 psf)

Live Load = (25 psf)

Bottom chord Dead Load = 7 psf

Top Chord uplift = 7 psf

STRUCTURAL STEEL/WELDING

STEEL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 22 OF THE 2015 IBC
SUBSTITUTION OF MEMBER SIZES OR STEEL GRADE WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERECTION AIDS AND JOINT PREPARATIONS THAT INCLUDE BUT ARE NOT LIMITED TO ERECTION ANGLES, LIFT HOLES AND OTHER AIDS, WELDING PROCEDURES REQUIRED ROOF OPENINGS, ROOF FACE DIMENSIONS, GROOVE ANGLES, BACKING BARS, SCOPES, SURFACE ROUGHNESS VALUES AND UNEQUAL PARTS.
EXPANSION BOLTS SHALL BE ICBO APPROVED AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
UNLESS OTHERWISE SPECIFIED ON DRAWINGS OR DETAILS, SIZE AND EMBEDMENT DEPTHS SHALL BE APPROVED THE THE ENGINEER OF RECORD.

MATERIALS

STRUCTURAL STEEL ATM A 992GRADE50
CONNECTION MATERIAL, ASTM A 36
EMBEDDED ITEMS,
CHANNELS, ANGLES, BASE PLATES
STRUCTURAL TUBES ASTM A 500, GRADE B
STRUCTURAL BOLTS ASTM A 325-N
WOOD CONNECTION BOLTS ASTM A 307
ANCHOR BOLTS ASTM A 307
THREADED RODS ASTM A 36
WELDING ELECTRODES 70ksi, LOW HYDROGEN

BEAM CAMBER NOTED ON DRAWINGS IS THE UPWARD CAMBER REQUIRED IN THE BEAM AS DELIVERED TO THE JOB SITE. THE CONTRACTOR SHALL CONSIDER CAMBER LOSS DUE TO SHIPPING AND HANDLING.

STRUCTURAL STEEL AND CONNECTIONS EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION IN COMPLIANCE WITH ASTM A 123. ALL FIELD WELDS ON GALVANIZED MATERIAL SHALL BE COATED WITH BRUSH APPLIED ZINC-RICH PAINT COMPLYING WITH ASTM A 780 (GALVAON OR EQUIVALENT).



A Custom Residence for

Gregg Petrie

2431 60th Avenue SE, Mercer Island WA

Stephen Tapp
Architect / P.E.

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2330 East Madison Street
Seattle, Washington

This work was prepared by me or under my supervision.

Sheet Contents:

Scale: as noted

Date: 5/13/20

Job no.: T20B3

Drawn by: STT

Sheet no.:

S-1.0

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SHEAR WALL NOTES - WALLS

PX-X INDICATES SHEAR WALL. SEE LEGEND.

SEE SHEAR WALL SCHEDULE FOR SHEAR WALL NOTES, ANCHOR BOLT PLACEMENT, PRESSURE TREATED SILL SIZES, AND INSTALLATION

DETAILS.
NOTIFY ENGINEER OF ANY REVISIONS TO SHEAR WALL OR FIELD MODIFICATIONS DUE TO UNFORESEEN CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.

DIAPHRAGM SHEATHING NAILS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING.

THE FASTENERS USED IN THE SHEAR WALL DESIGN ARE 10d COMMONS OR 10d GALVANIZED BOX NAILS. ANY FASTENER SUBSTITUTION WILL HAVE TO BE REVIEWED BY ENGINEER PRIOR TO CONSTRUCTION.

SOLID BLOCK BELOW SHEAR WALLS ABOVE.

◆ INDICATES SHEAR WALL TIE DOWN STRAP BETWEEN THE SHEAR WALL ABOVE AND THE FRAMING ABOVE OR THE WALLS BELOW.

Shear Wall Notes - Foundation

(▲) indicates 'Simpson' holdown location (see manufacturer's installation requirements). Holdown anchors are to be installed at the end of plywood shear panels.

See Shear Wall Schedule for shear wall notes, schedules, anchor bolt placement, and pressure treated sill sizes.

All shear wall panels other than P1-6" are to be installed with pressure treated 3X sills.

All holdown 4X or 6X posts to be Doug fir #2 or better.

Anchor bolts to be minimum 5/8"d. X 10" @ 48" o.c. (unless noted otherwise in Anchor Bolt Shear Wall Schedule, Sheet #S-1).

Concrete strength f'c = 3000 psi for concrete exposed to the elements.
Concrete strength f'c = 2500 psi for concrete not exposed to elements.

Notify engineer of any revisions to shear wall or holdown plan or field modifications due to unforeseen conditions before proceeding with construction.

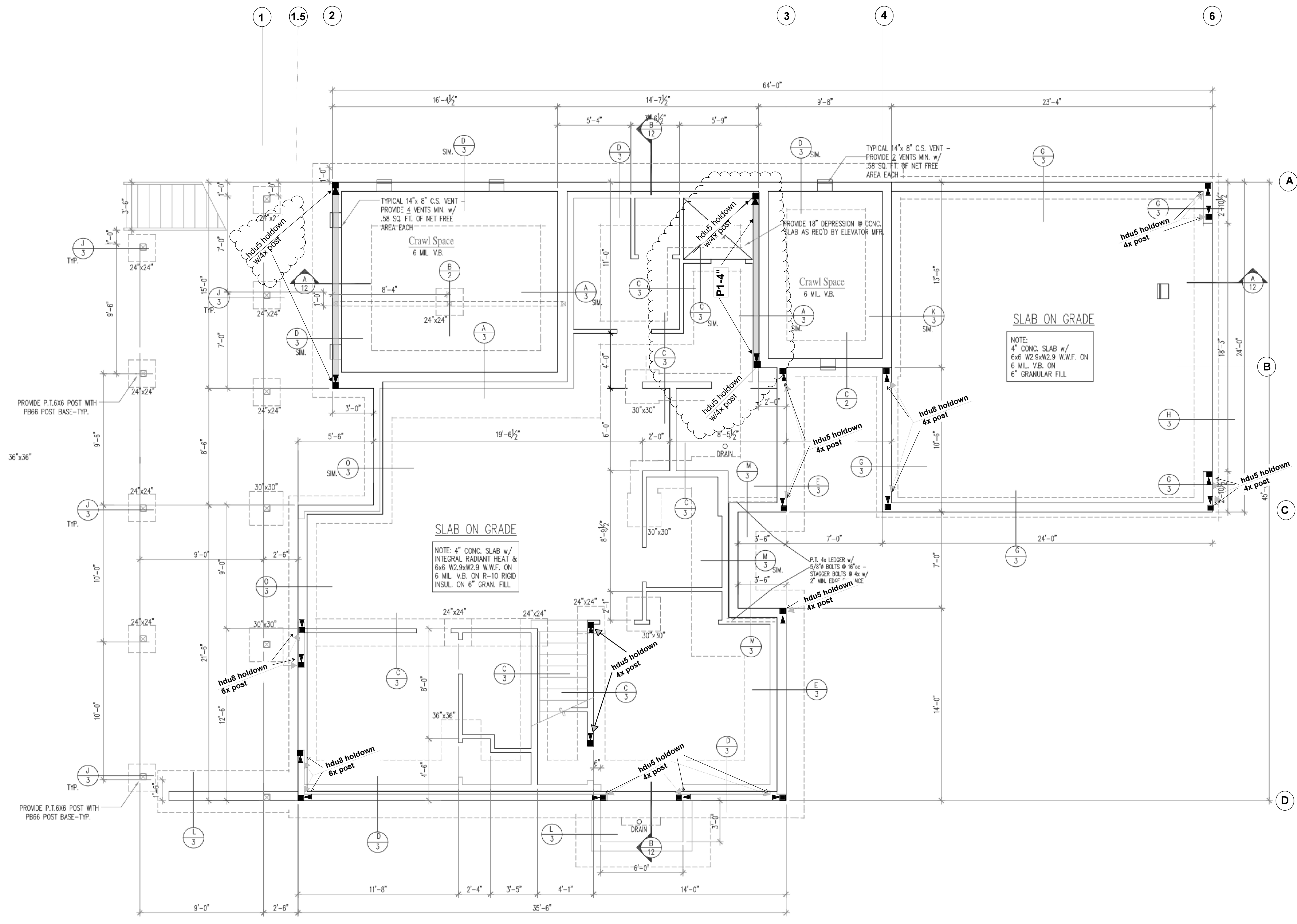
Increase depth of foundation at holdown anchor bolts to insure proper concrete coverage.

Simpson Strong Tie connectors are specifically required to meet the structural calculations of this plan. Before substituting another brand, confirm load capacity based on reliable published testing data of calculations. The Engineer of Record should evaluate and give approval for substitution prior to installation.

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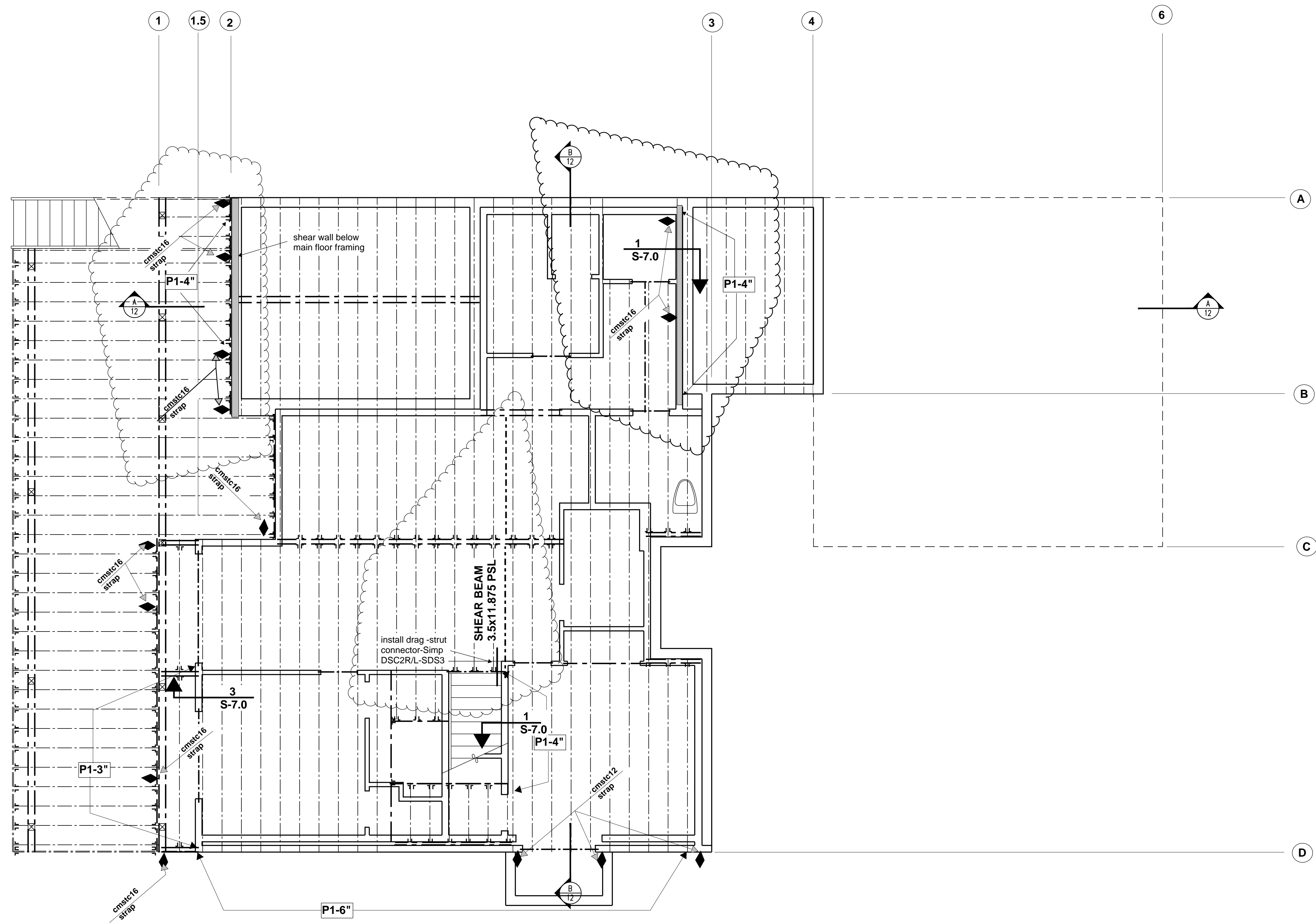
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Holdown Location Plan
1/4" = 1'-0"





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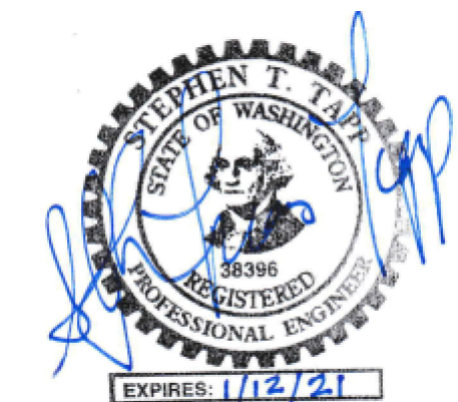
THE FASTENERS USED IN THE SHEAR WALL DESIGN ARE 10d COMMONS OR 10d GALVANIZED BOX NAILS. ANY FASTENER SUBSTITUTION WILL HAVE TO BE REVIEWED BY ENGINEER PRIOR TO CONSTRUCTION.

SOLID BLOCK BELOW SHEAR WALLS ABOVE.

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Lower Floor Shear Wall Plan

1/4" = 1'-0"



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 2431 60th Avenue SE, Mercer Island WA

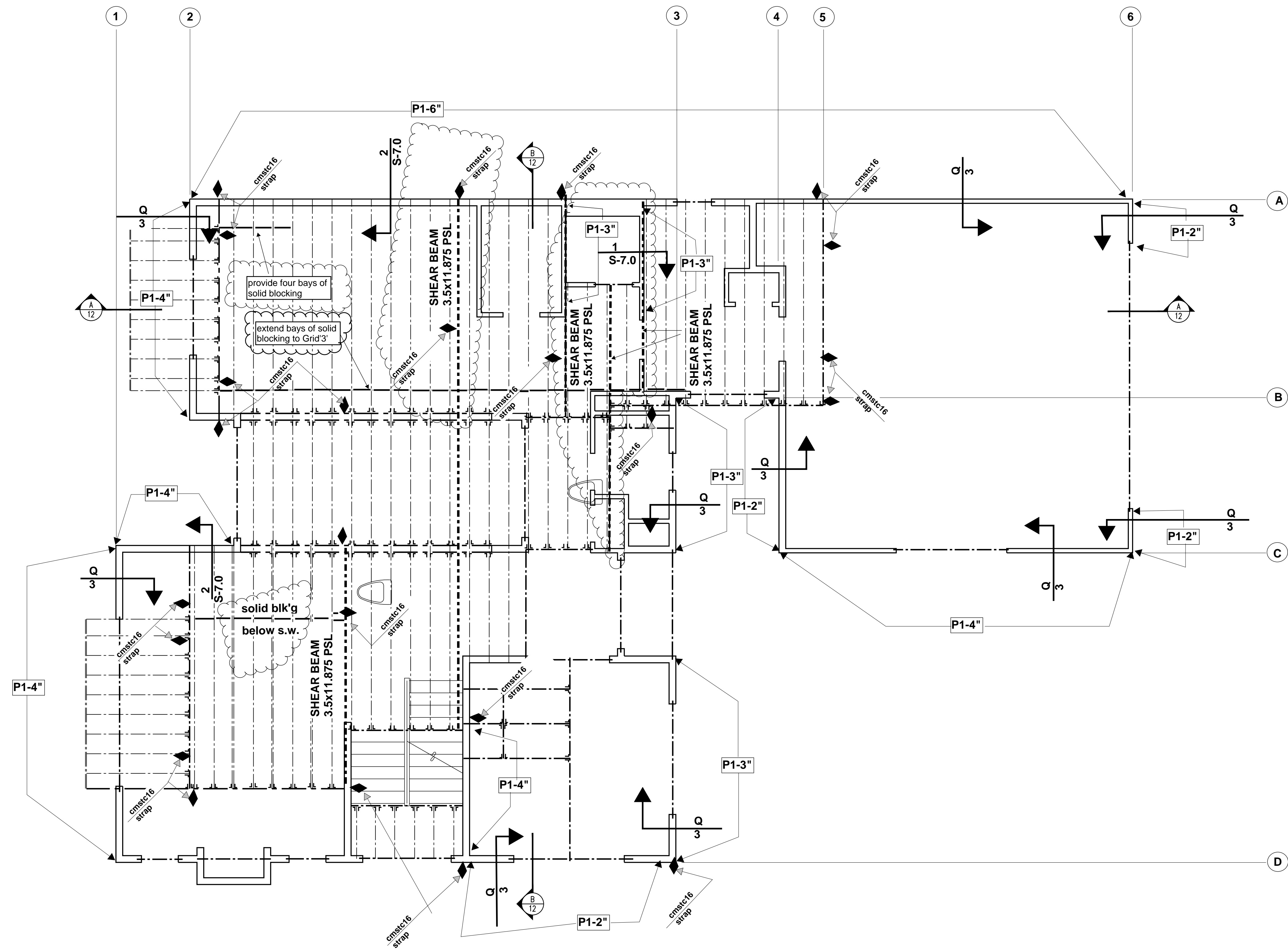
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Main Floor Shear Wall Plan

1/4" = 1'-0"

SHEAR WALL NOTES - WALLS

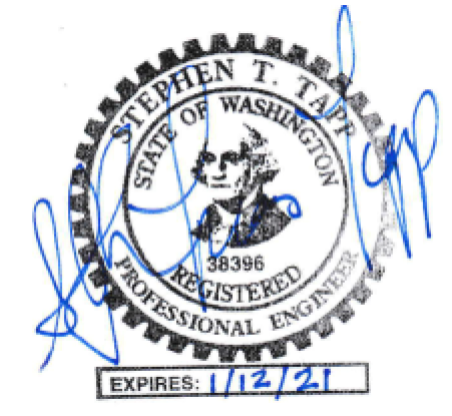
PX-X INDICATES SHEAR WALL. SEE LEGEND.

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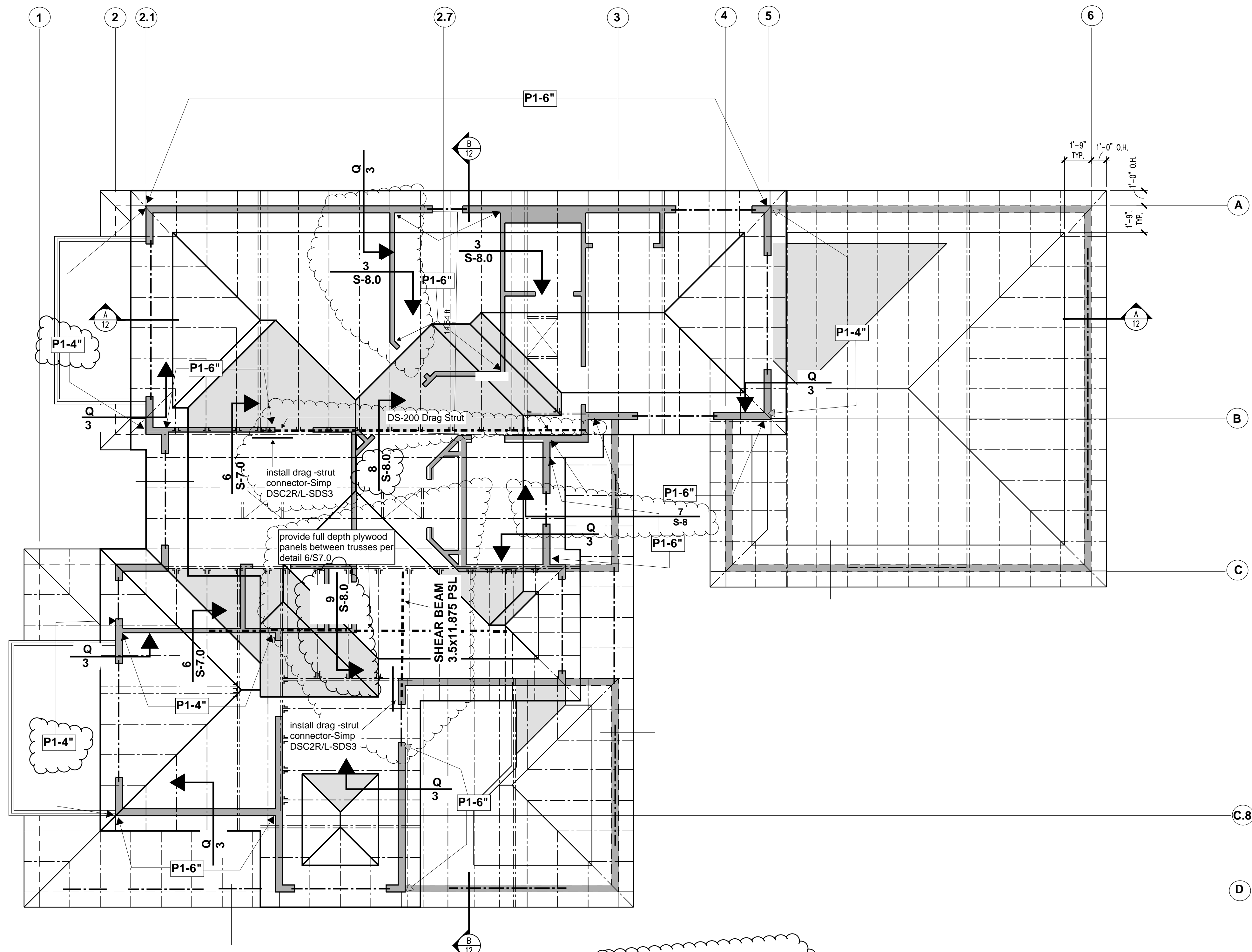
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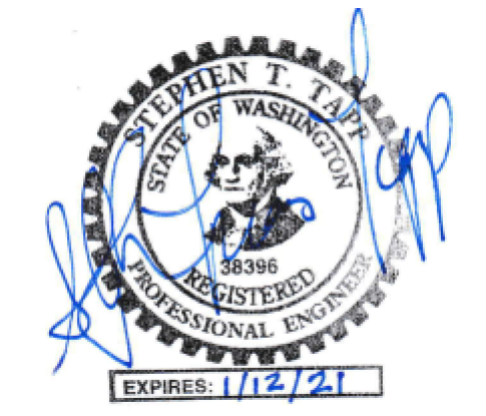


Upper Floor Shear Wall Plan
 1/4" = 1'-0"

Shear Beam Schedule
 DS-200 3.5 x 14 2.0E PSL

SHEAR WALL NOTES - WALLS

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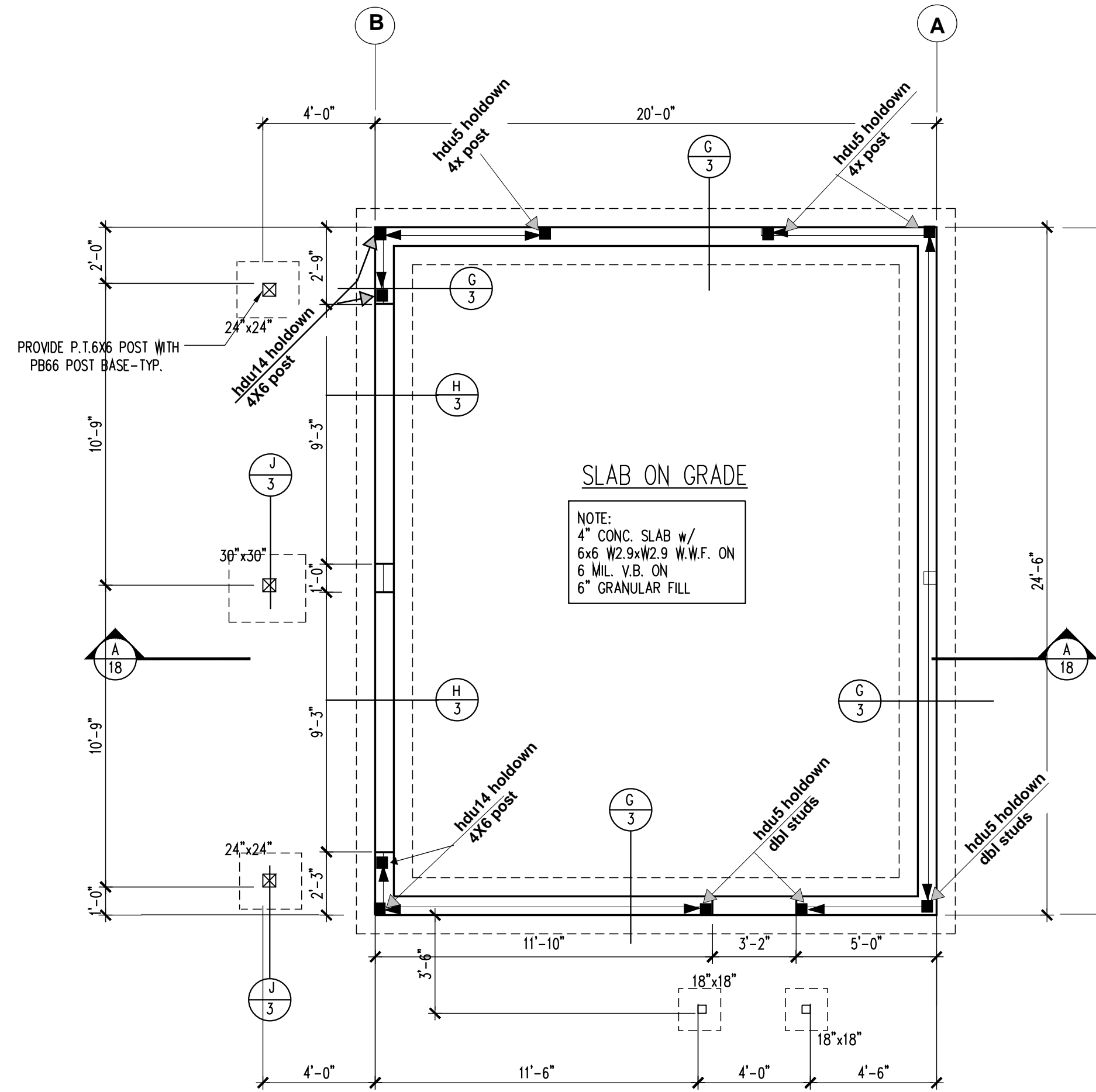
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ADU-Foundation Plan

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

Holddown Anchor Schedule

holddown	anchor
HDU5	SB5/8X24
HDU14	PAB8

SHEAR WALL NOTES - FOUNDATION

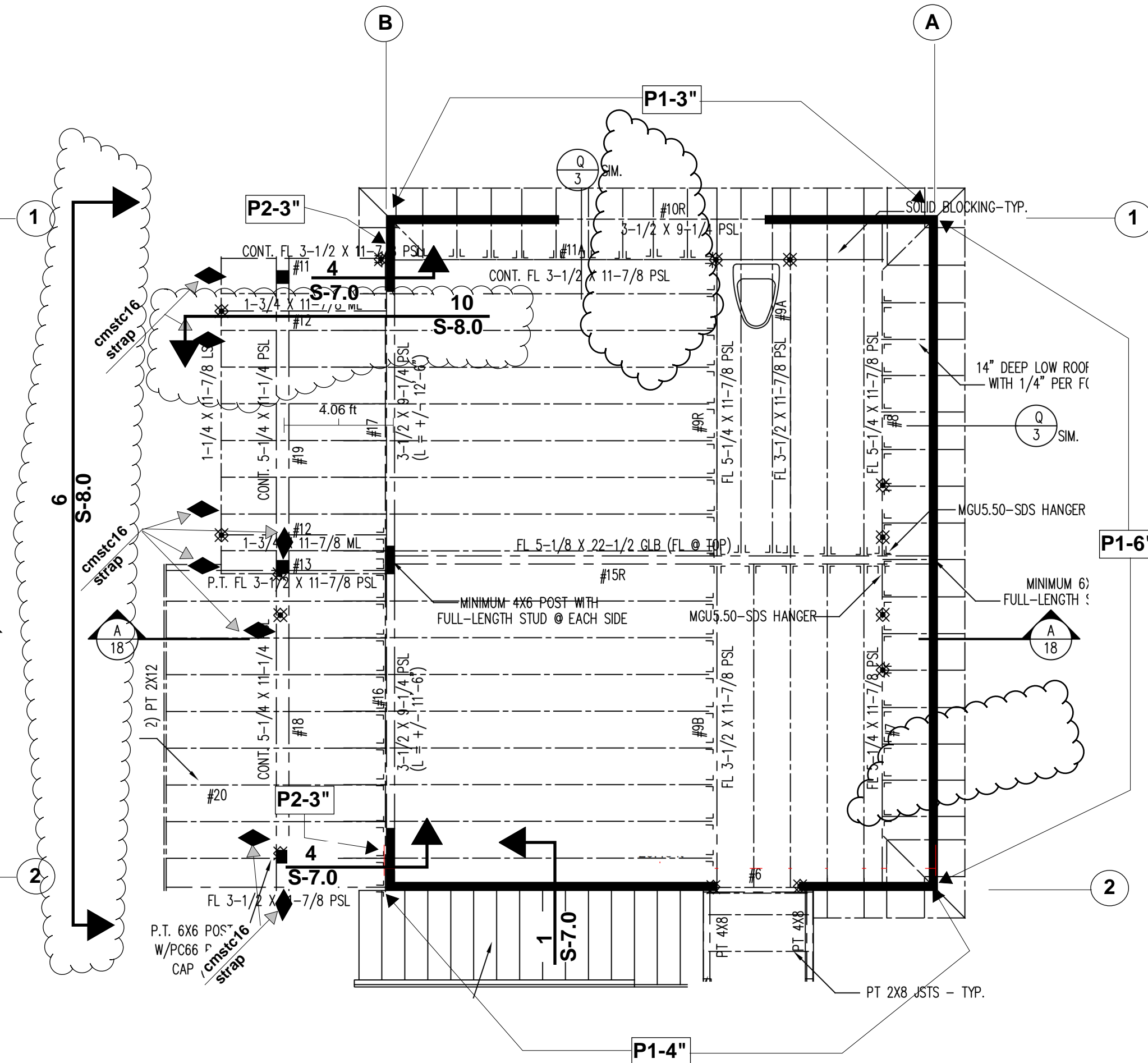
INDICATES 'SIMPSON' HOLDOWN LOCATION (SEE MANUFACTURER'S INSTALLATION REQUIREMENTS). HOLDOWN ANCHORS ARE TO BE INSTALLED AT THE END OF PLYWOOD SHEAR WALL PANELS.
SEE SHEAR WALL SCHEDULE FOR SHEAR WALL NOTES, SCHEDULES, ANCHOR BOLT PLACEMENT, AND PRESSURE TREATED SILL SIZES.
ALL SHEAR WALL PANELS OTHER THAN P1-6" ARE TO BE INSTALLED WITH PRESSURE TREATED 3X SILLS.
ANCHOR BOLTS TO BE MINIMUM 5/8"Ø X 10" @ 48" O.C. (UNLESS NOTED OTHERWISE IN ANCHOR BOLT SCHEDULE, SHEET S-3).
CONCRETE STRENGTH F'c = 3000 PSI FOR CONCRETE EXPOSED TO THE ELEMENTS.
CONCRETE STRENGTH F'c = 2500 PSI FOR CONCRETE NOT EXPOSED TO ELEMENTS.
NOTIFY ENGINEER OF ANY REVISIONS TO SHEAR WALL OR HOLDOWN PLAN OR FIELD MODIFICATIONS DUE TO UNFORESEEN CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.

INCREASE DEPTH OF FOUNDATION AT HOLDOWN ANCHOR BOLTS TO INSURE PROPER CONCRETE COVERAGE.

SIMPSON STRONG TIE CONNECTORS ARE SPECIFICALLY REQUIRED TO MEET THE STRUCTURAL CALCULATIONS OF THIS PLAN. BEFORE SUBSTITUTING ANOTHER BRAND, CONFIRM LOAD CAPACITY BASED ON RELIABLE PUBLISHED TESTING DATA OF CALCULATIONS. THE ENGINEER OF RECORD SHOULD EVALUATE AND GIVE APPROVAL FOR SUBSTITUTION PRIOR TO INSTALLATION.

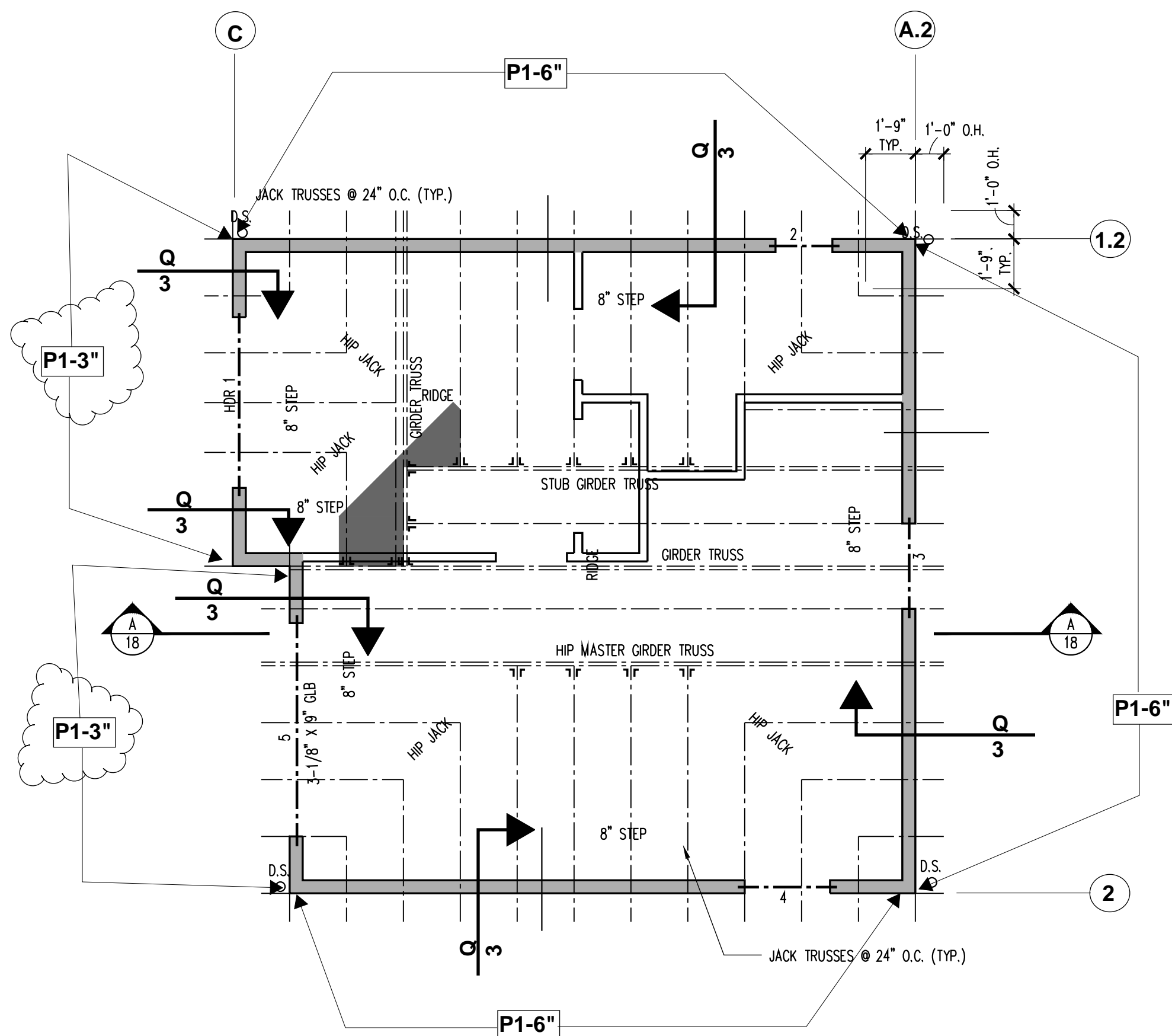
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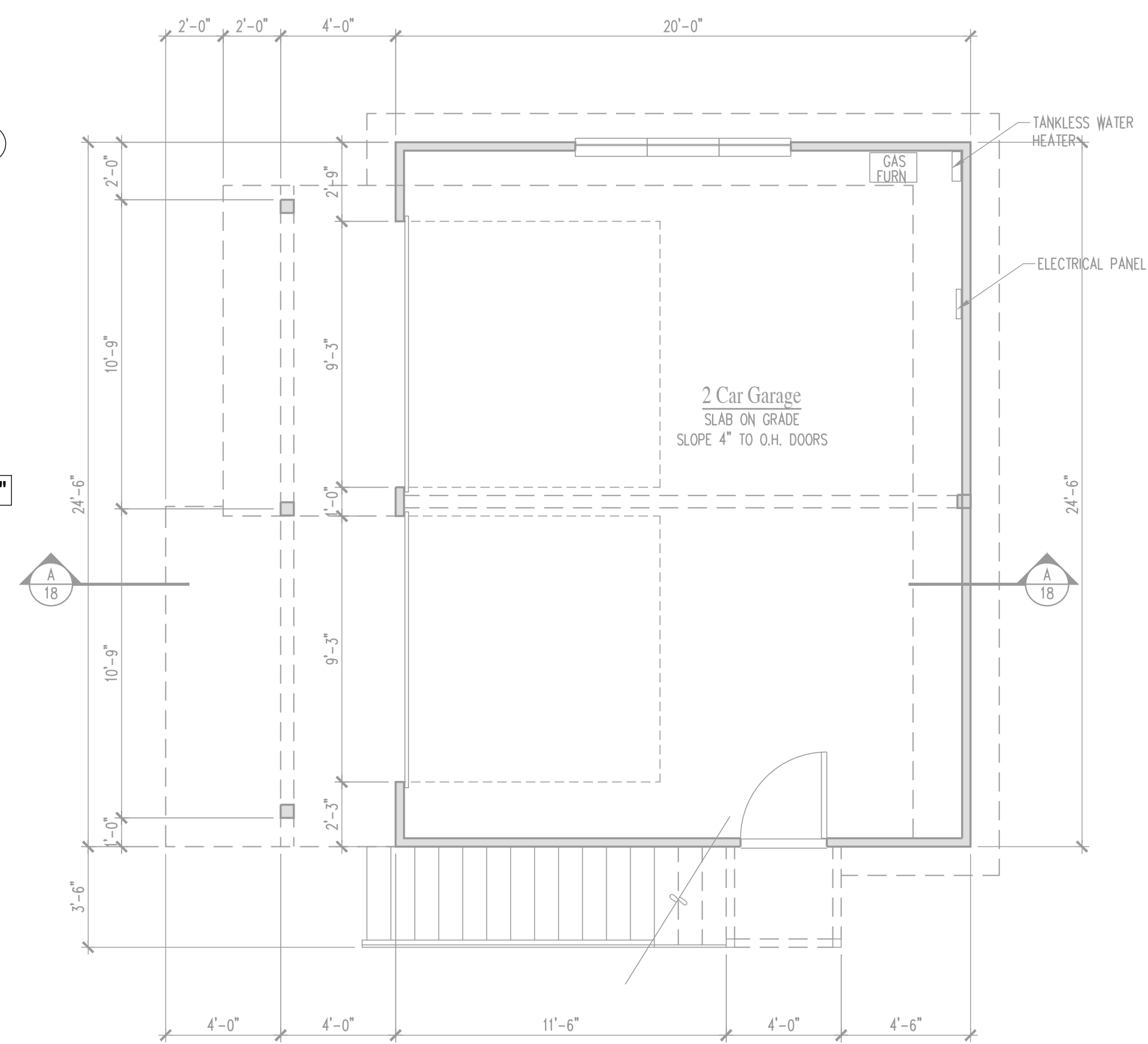
ADU Main Floor Shear Wall Plan

1/4" = 1'-0"



ADU Upper Floor Shear Wall Plan

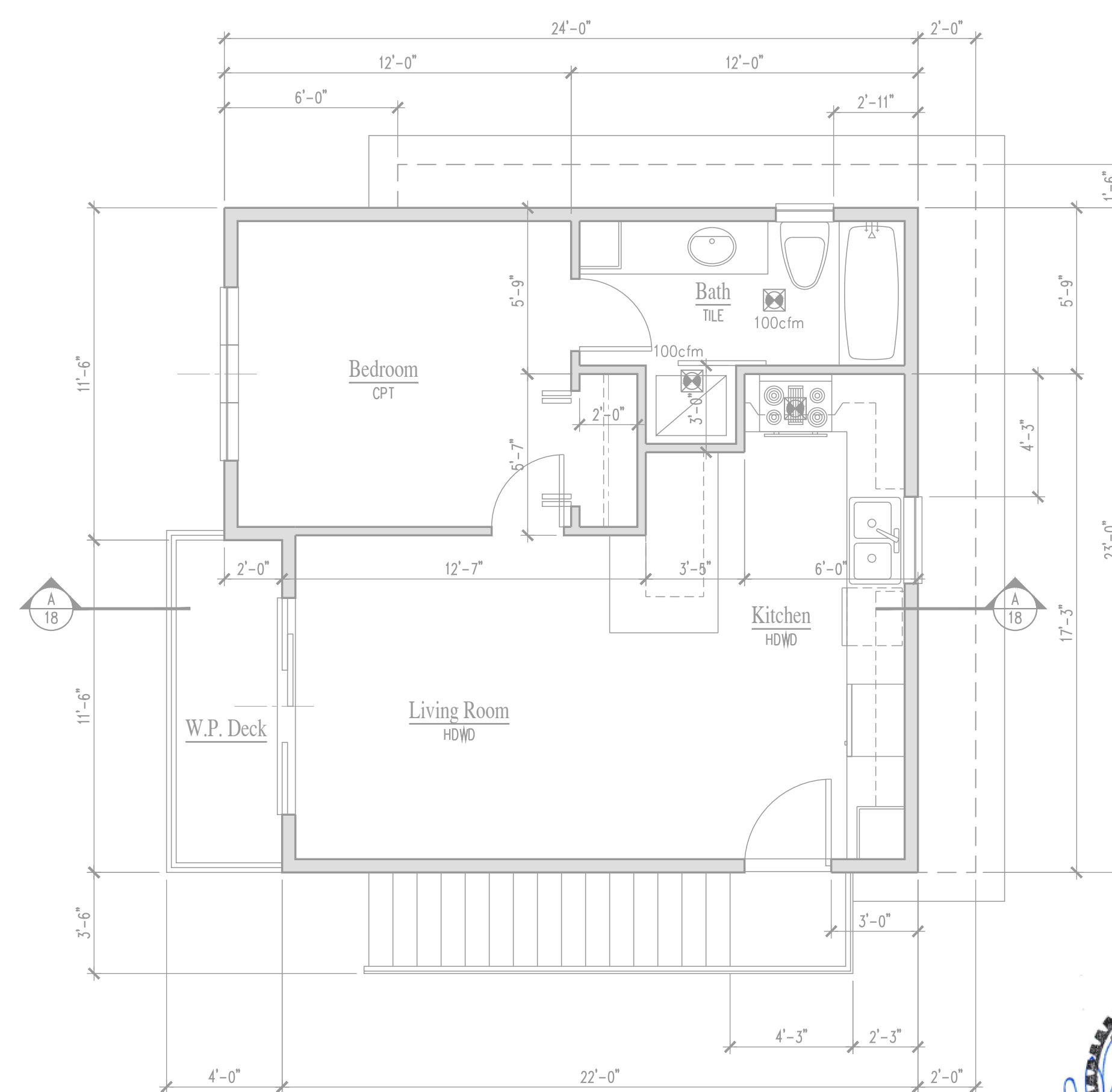
1/4" = 1'-0"



ADU-Garage Floor Plan

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

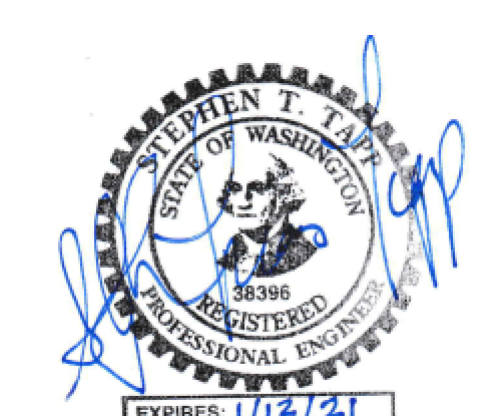
MAIN FLOOR AREA = 0000 S.F.
GARAGE AREA = 000 S.F.



ADU-Upper Floor Plan

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

UPPER FLOOR AREA = 0000 S.F.



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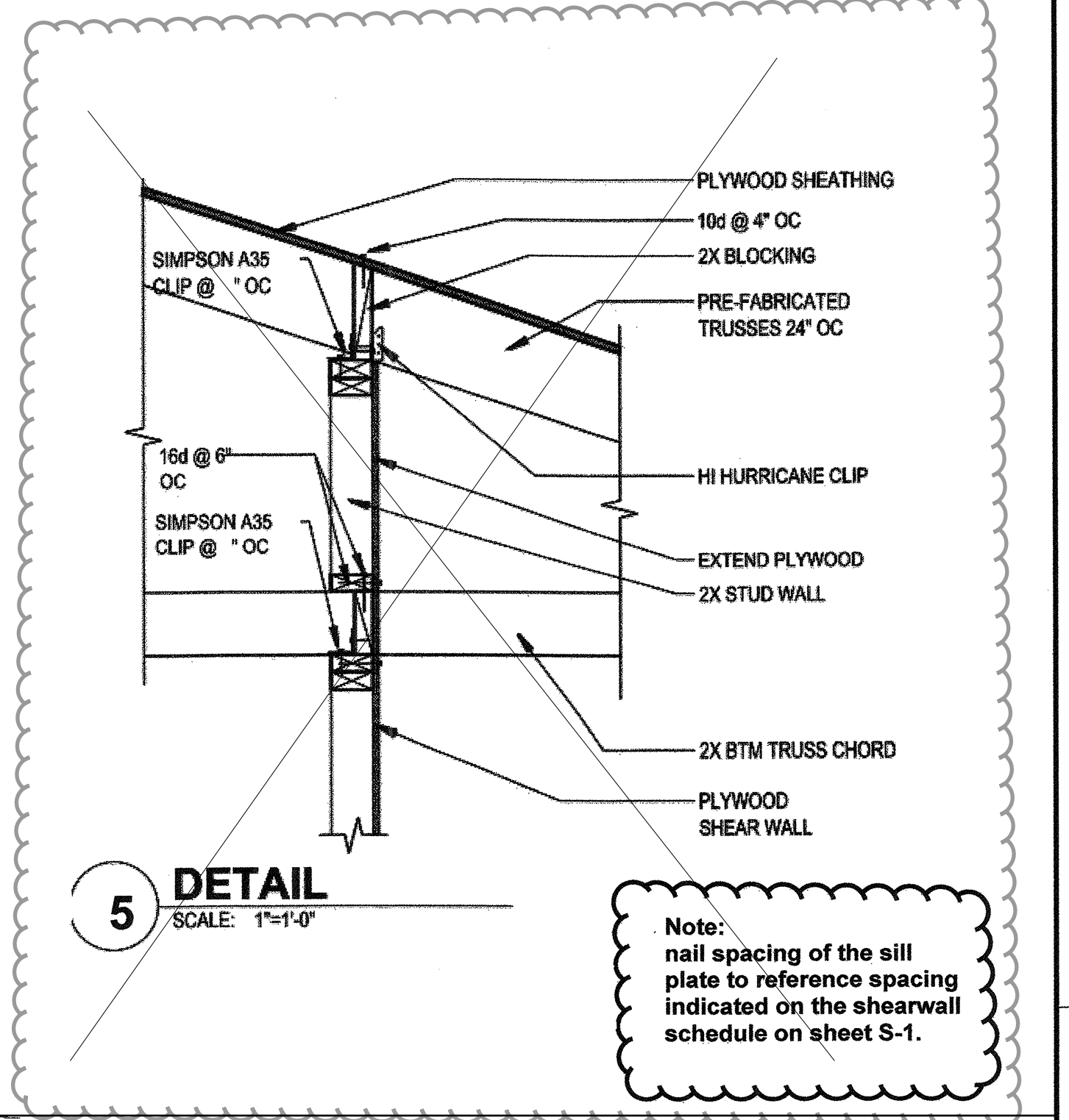
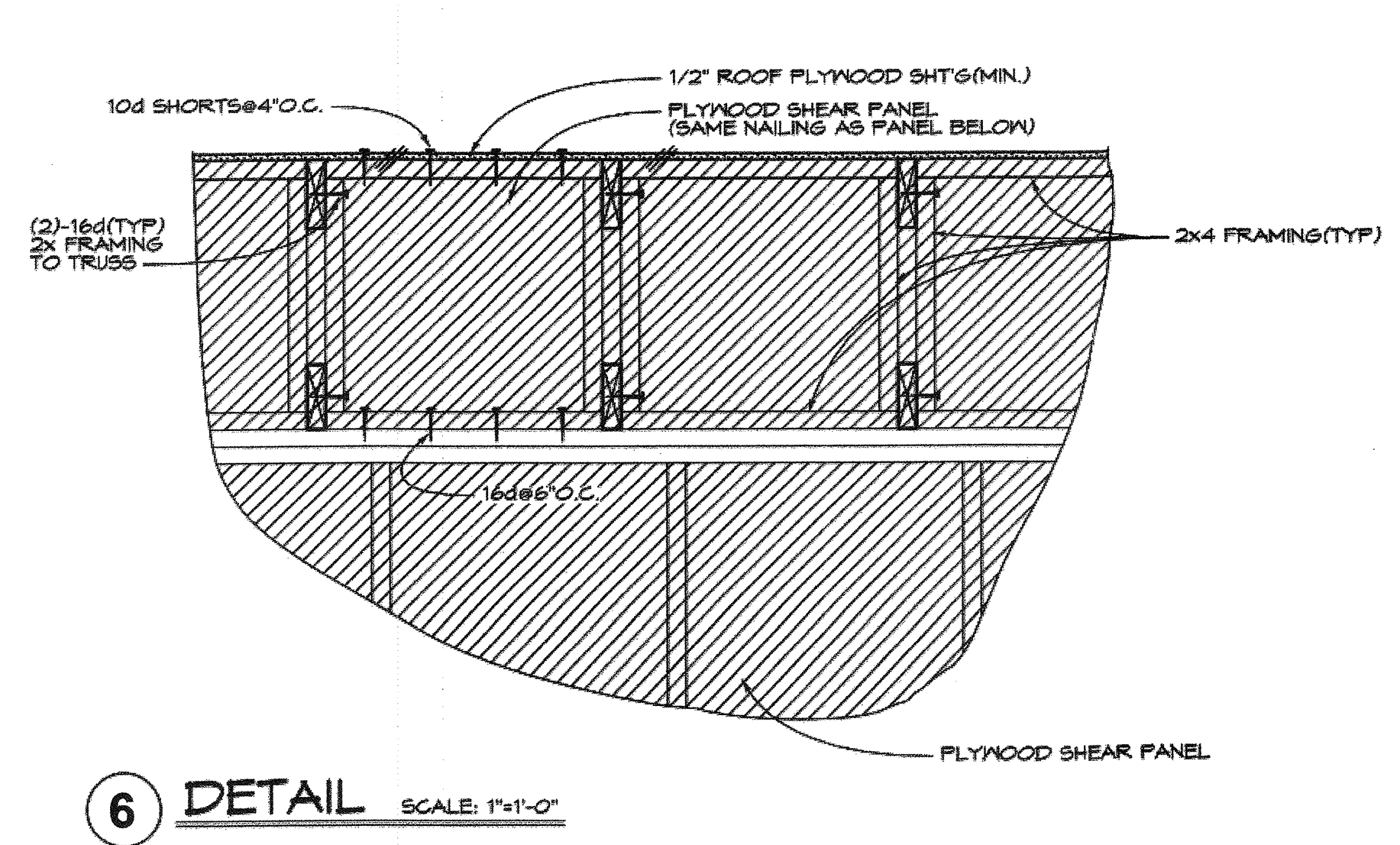
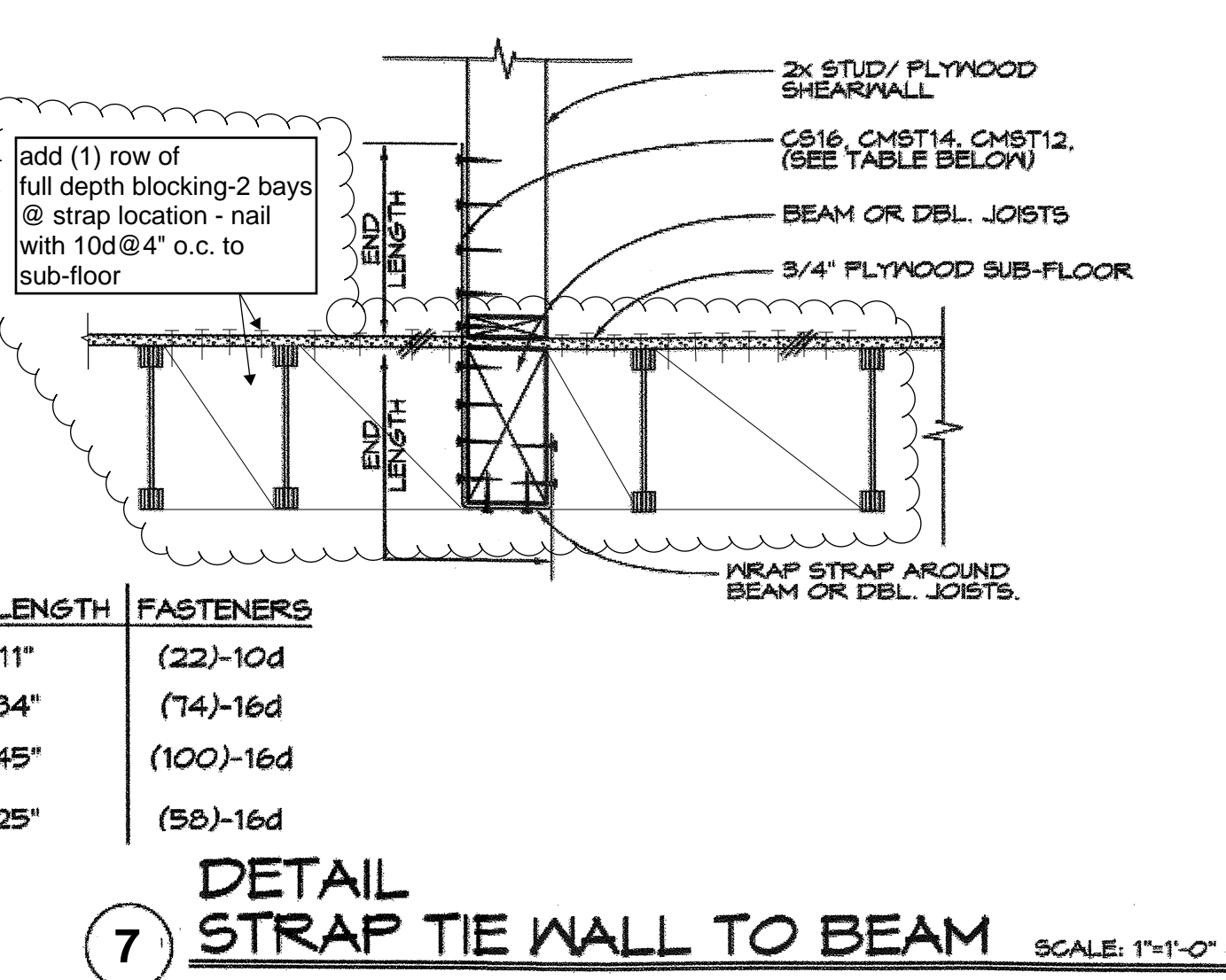
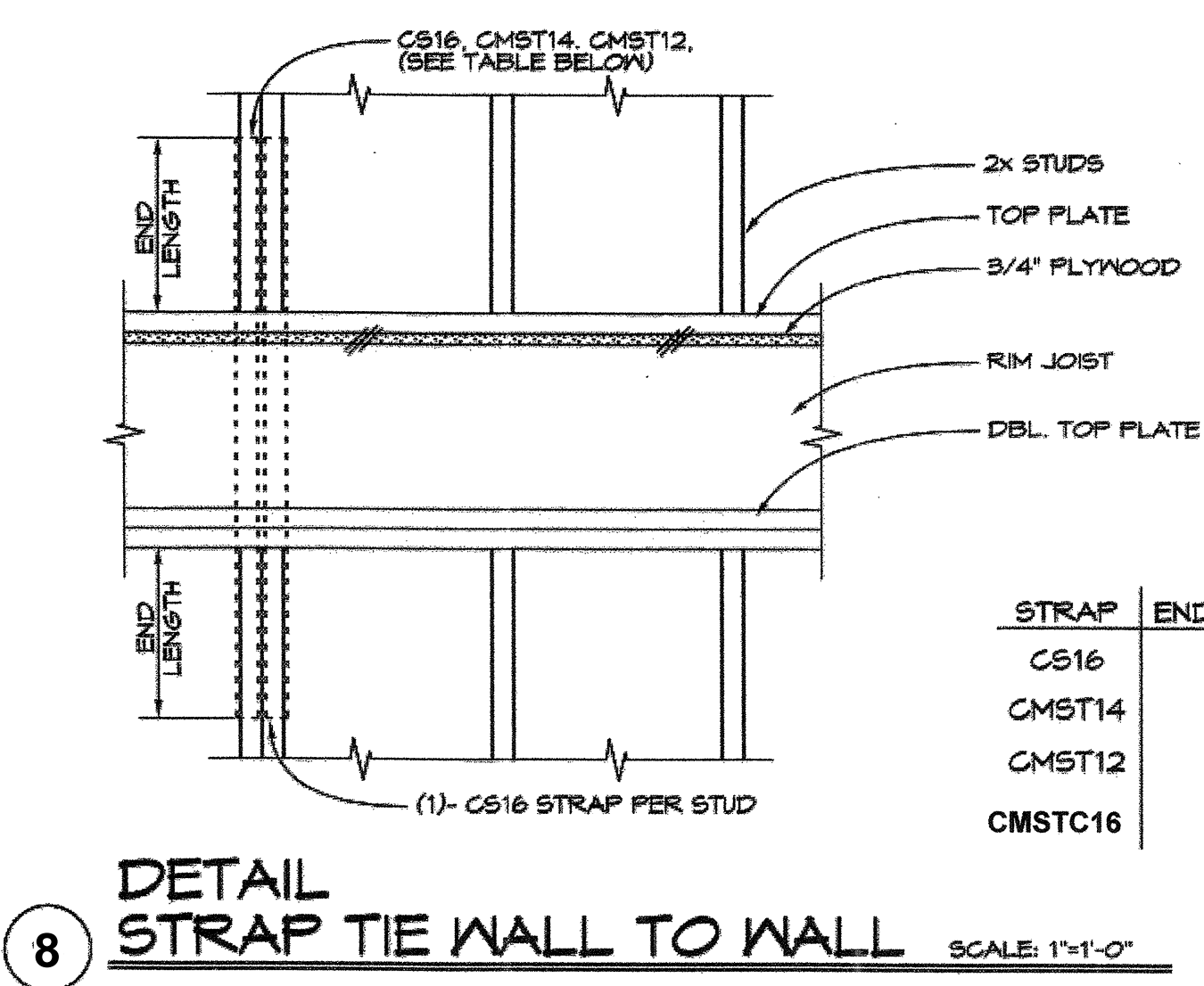
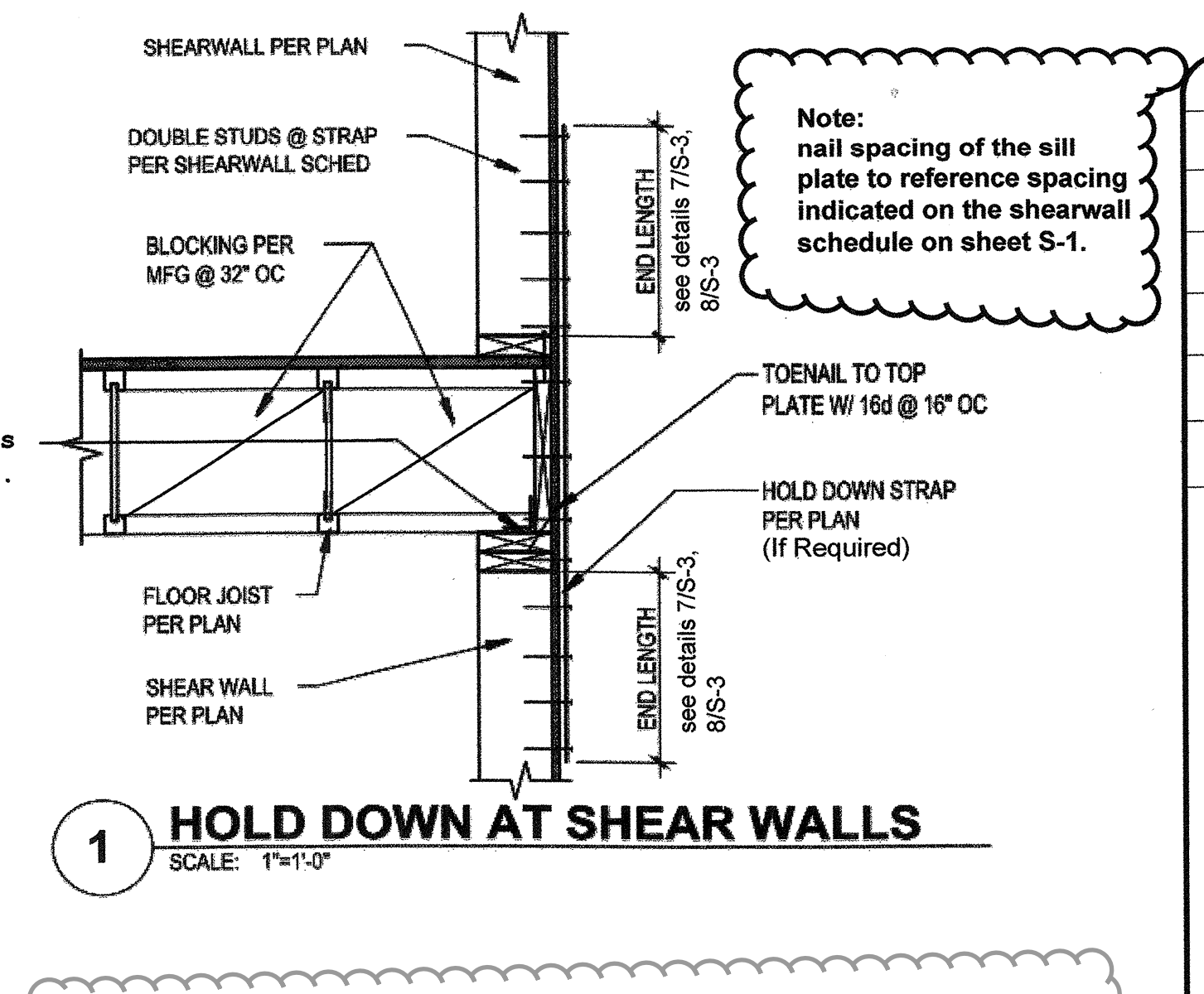
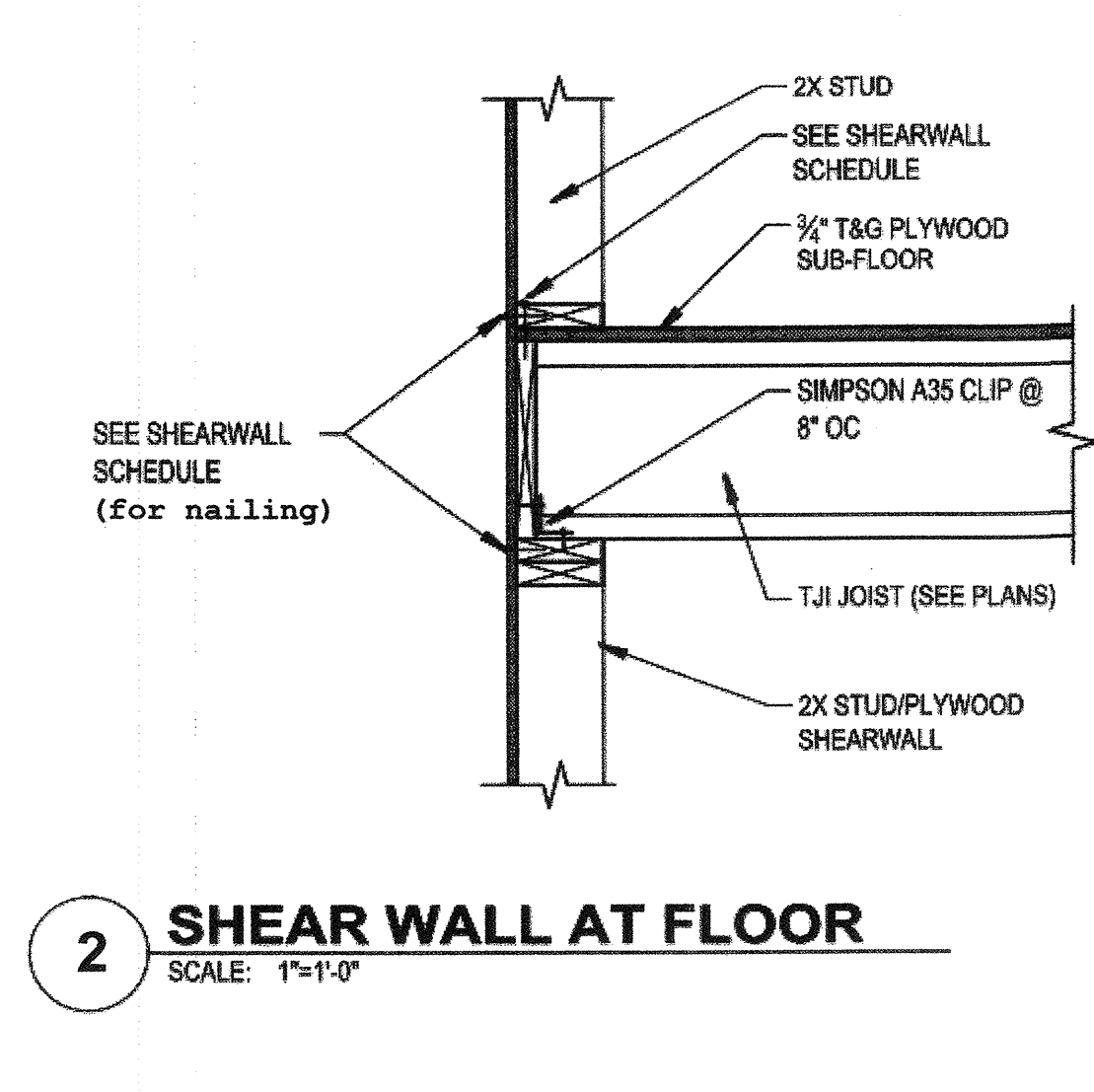
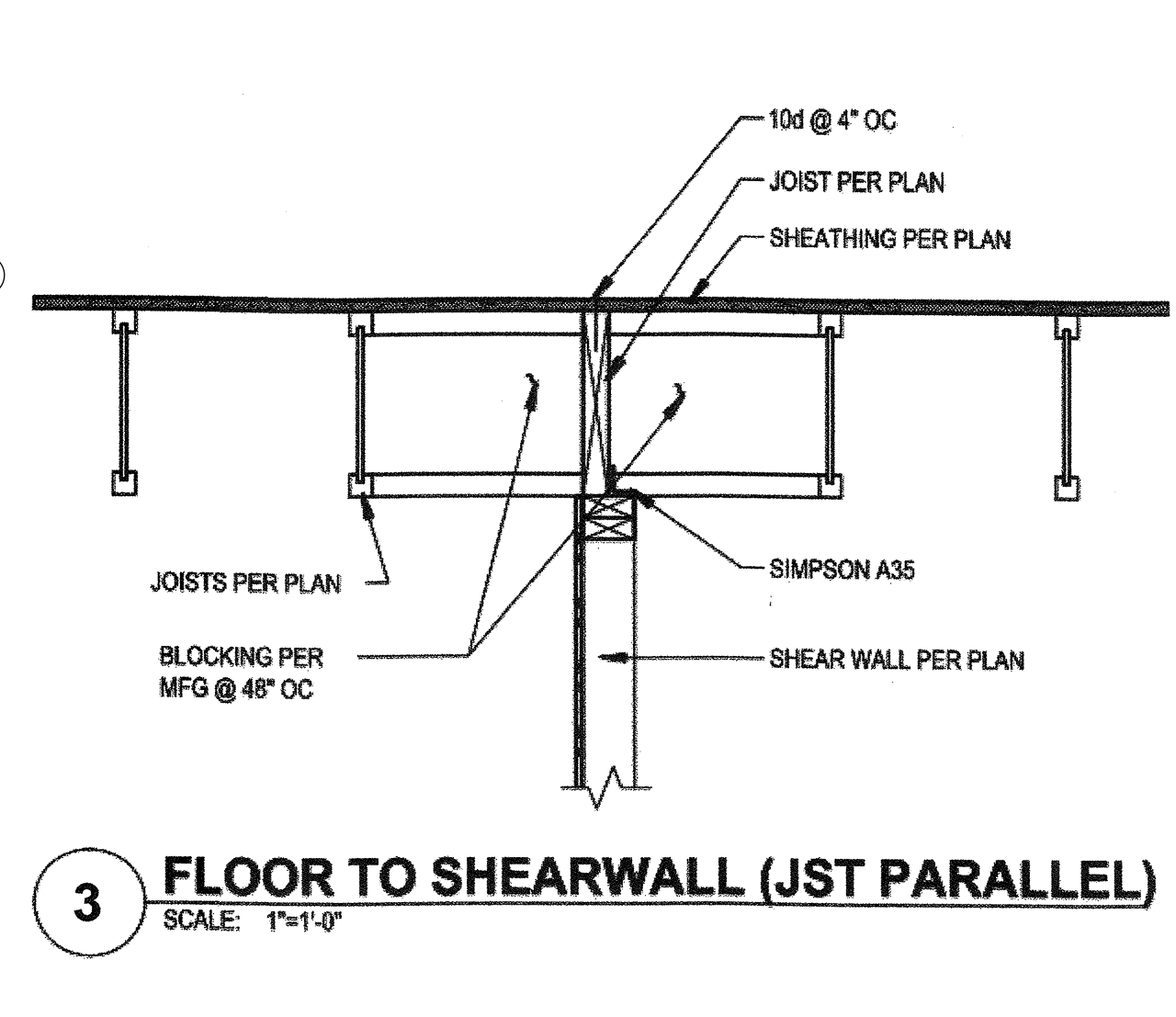
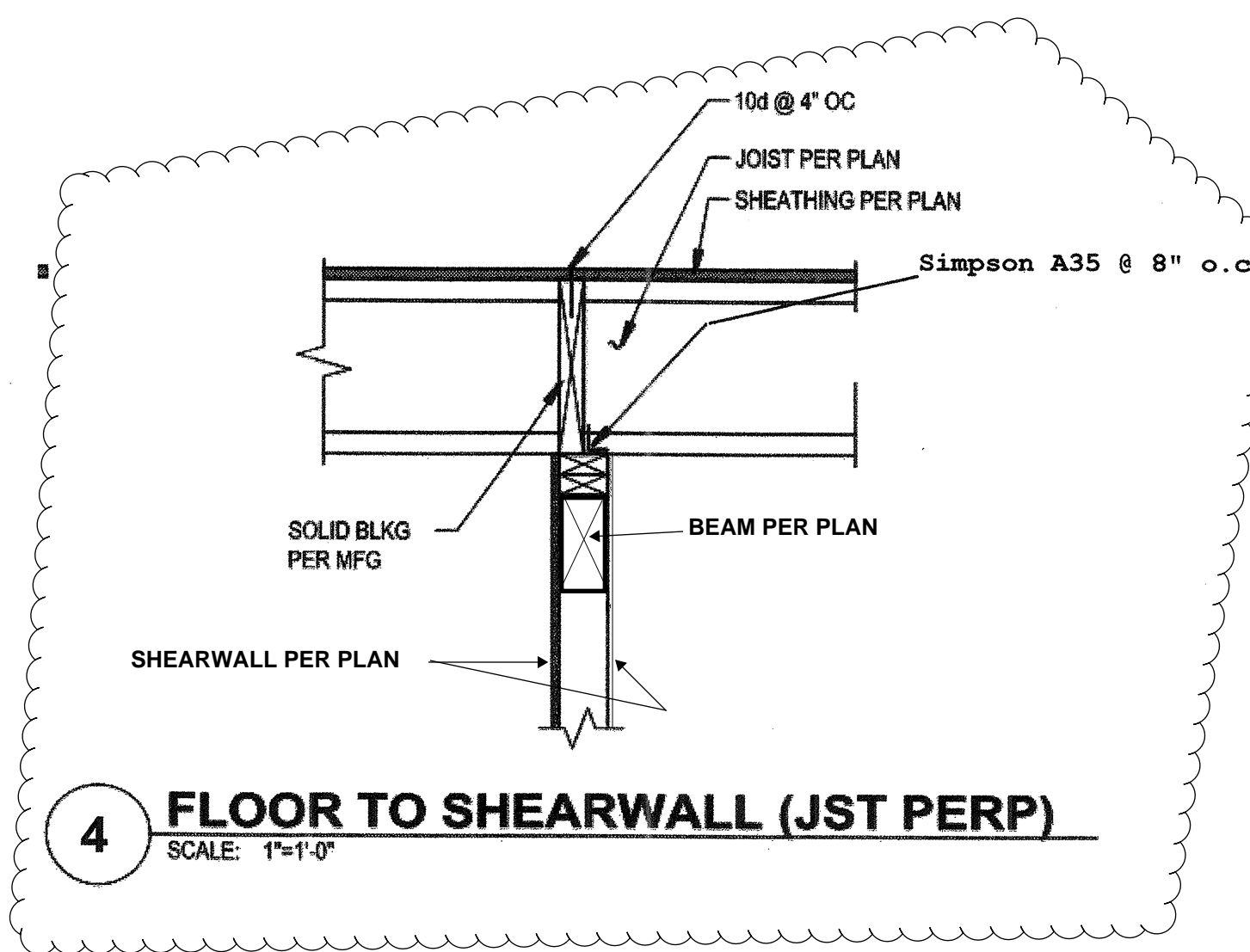
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Job no.: T20D3

Drawn by: STT

Sheet no.:

S-7.0



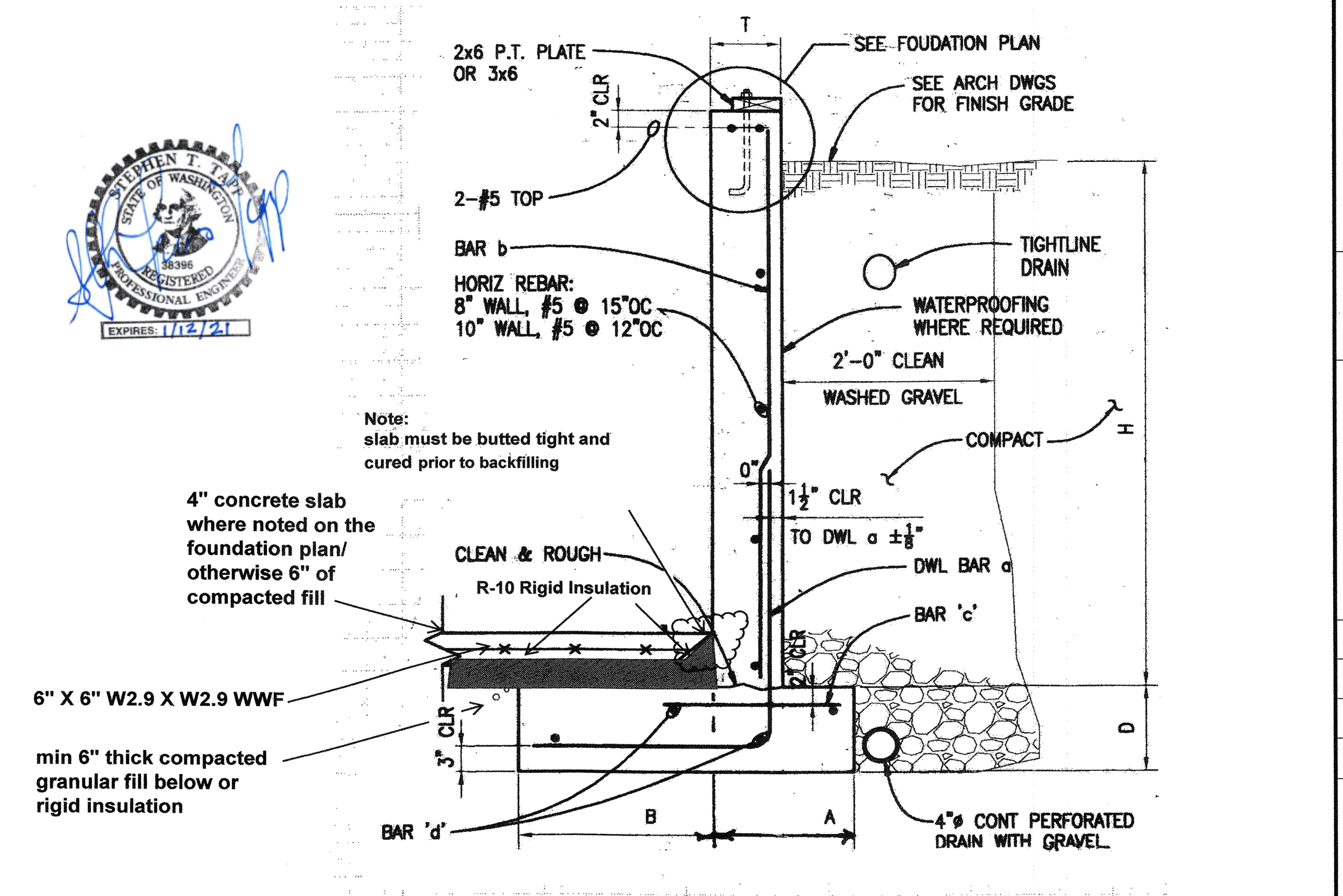
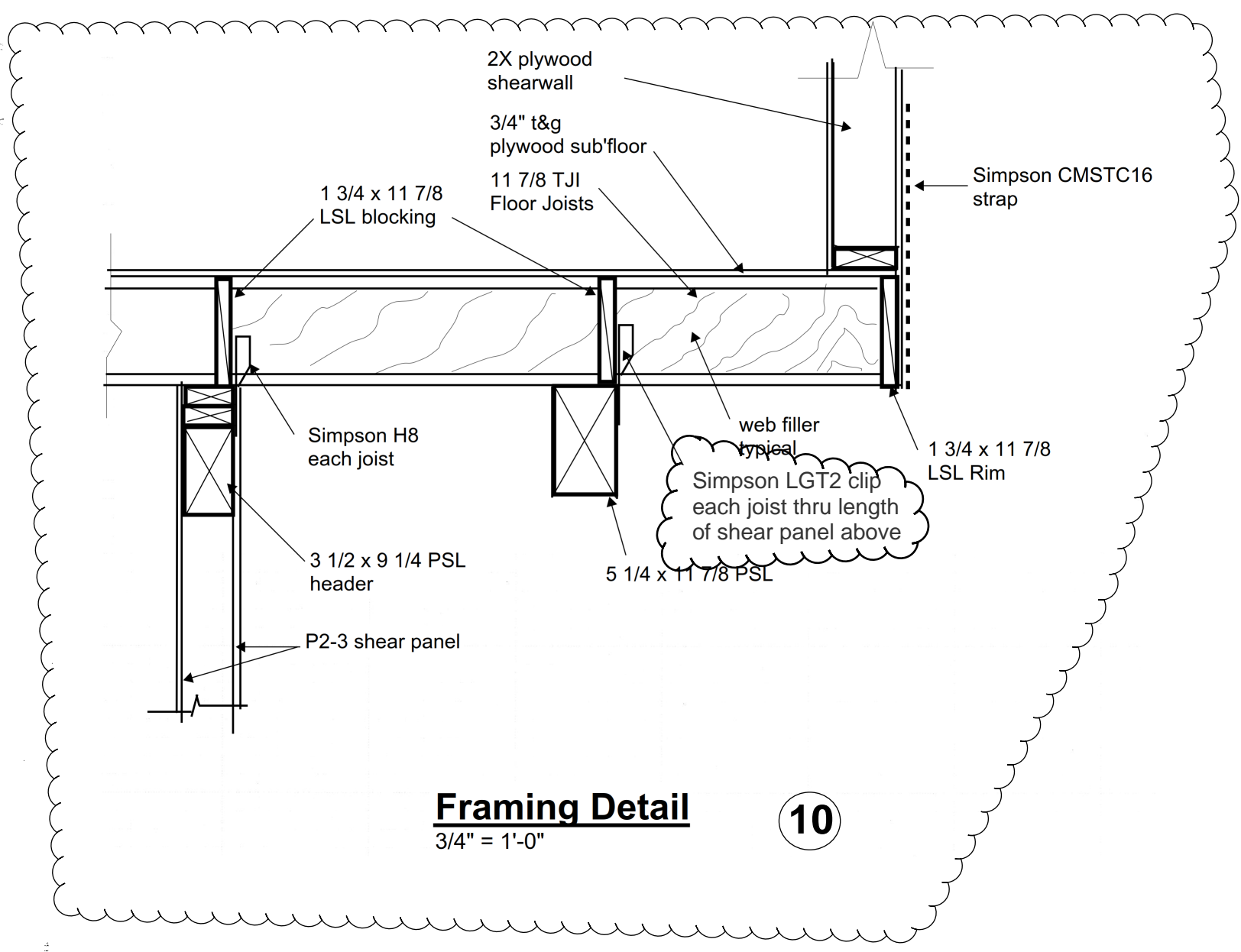
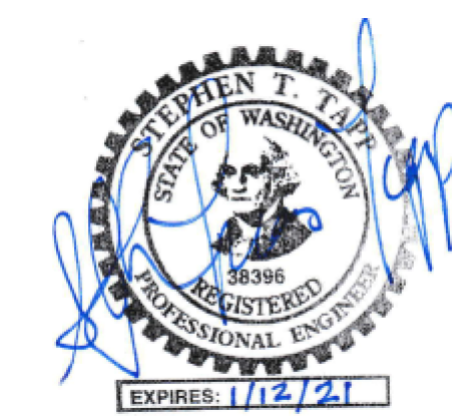
STRAP	END LENGTH	FASTENERS
CS16	11"	(22)-10d
CMST14	34"	(74)-16d
CMST12	45"	(100)-16d
CMSTC16	25"	(58)-16d

Unbraced Retaining Wall Notes

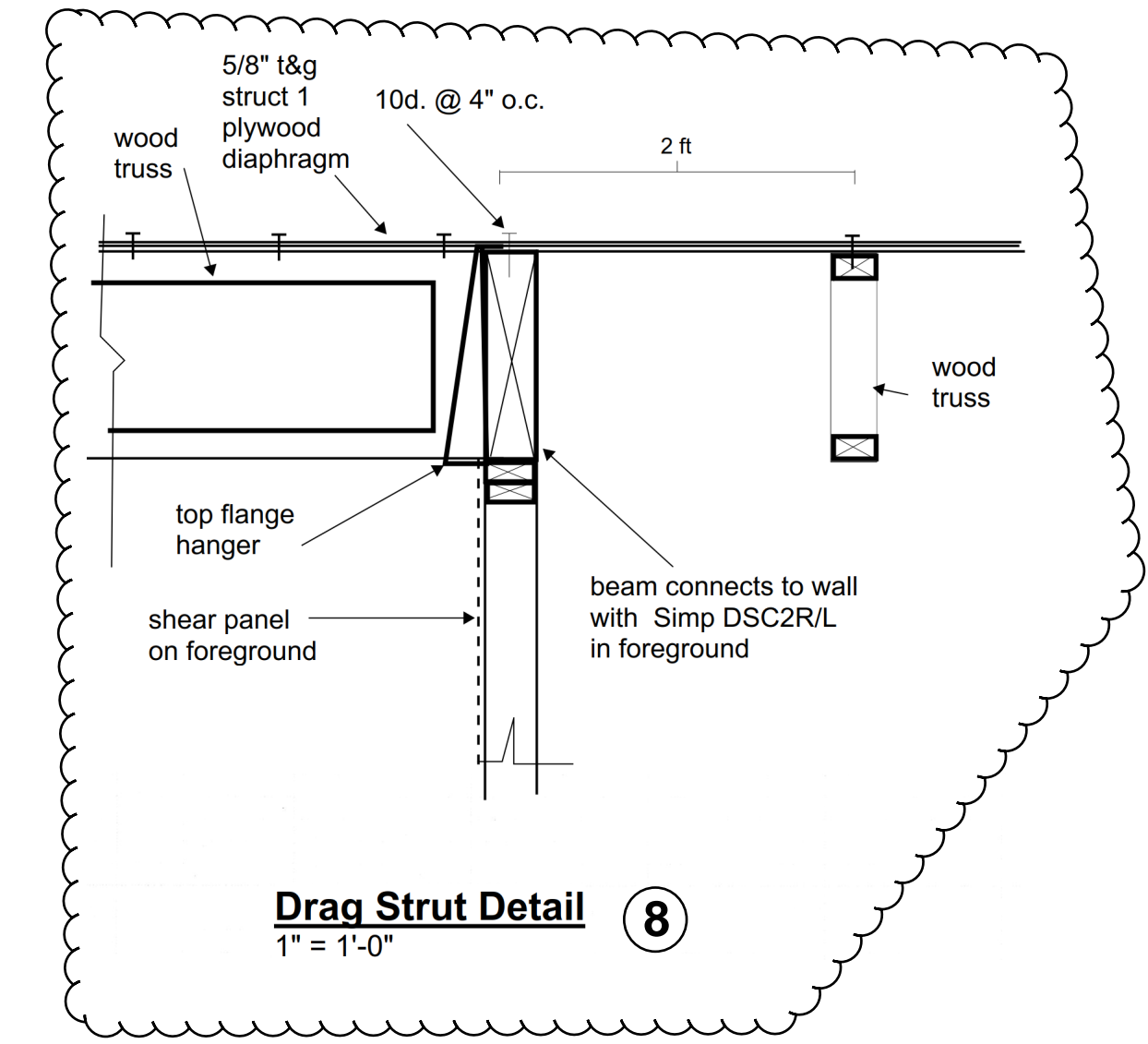
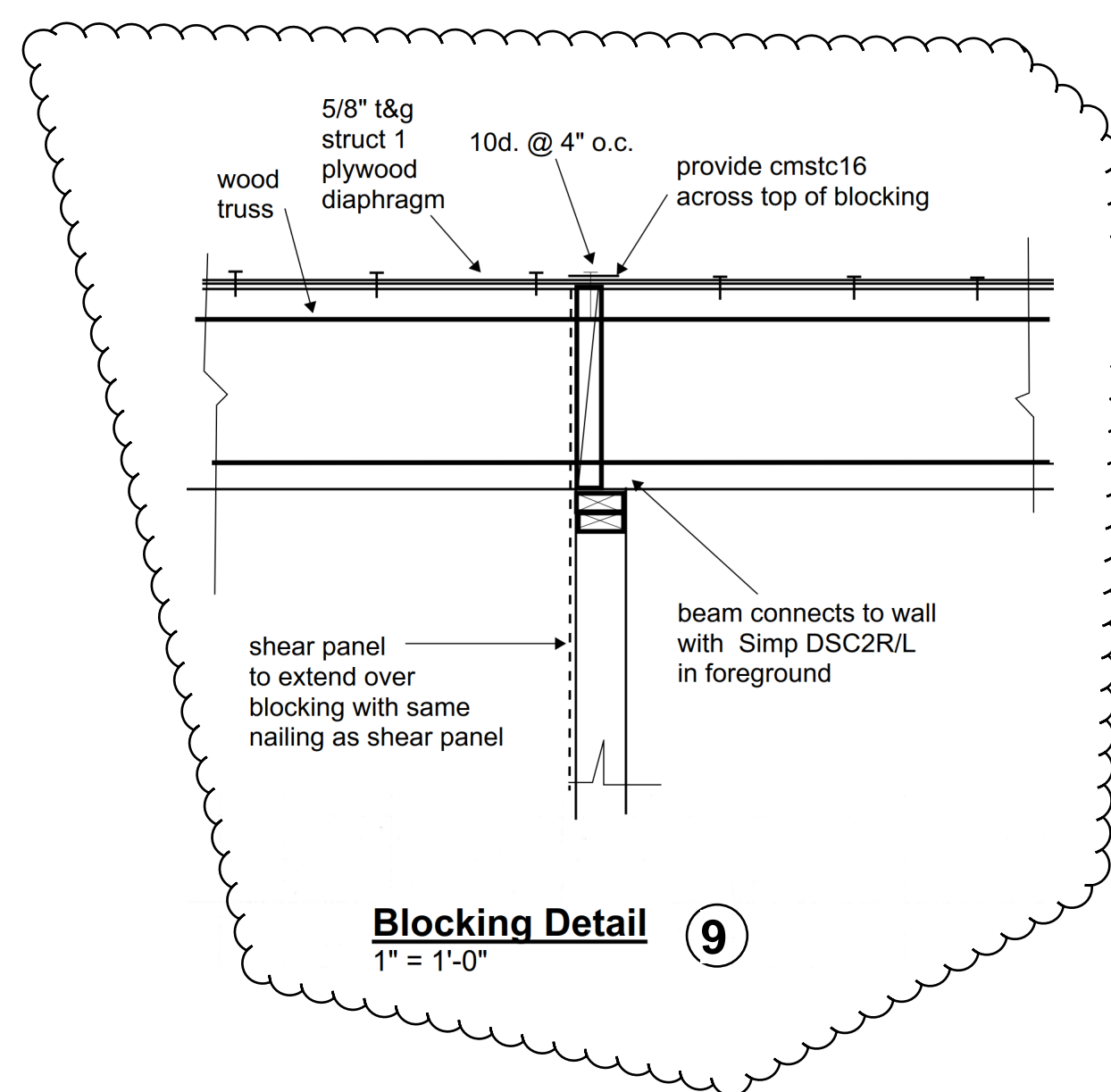
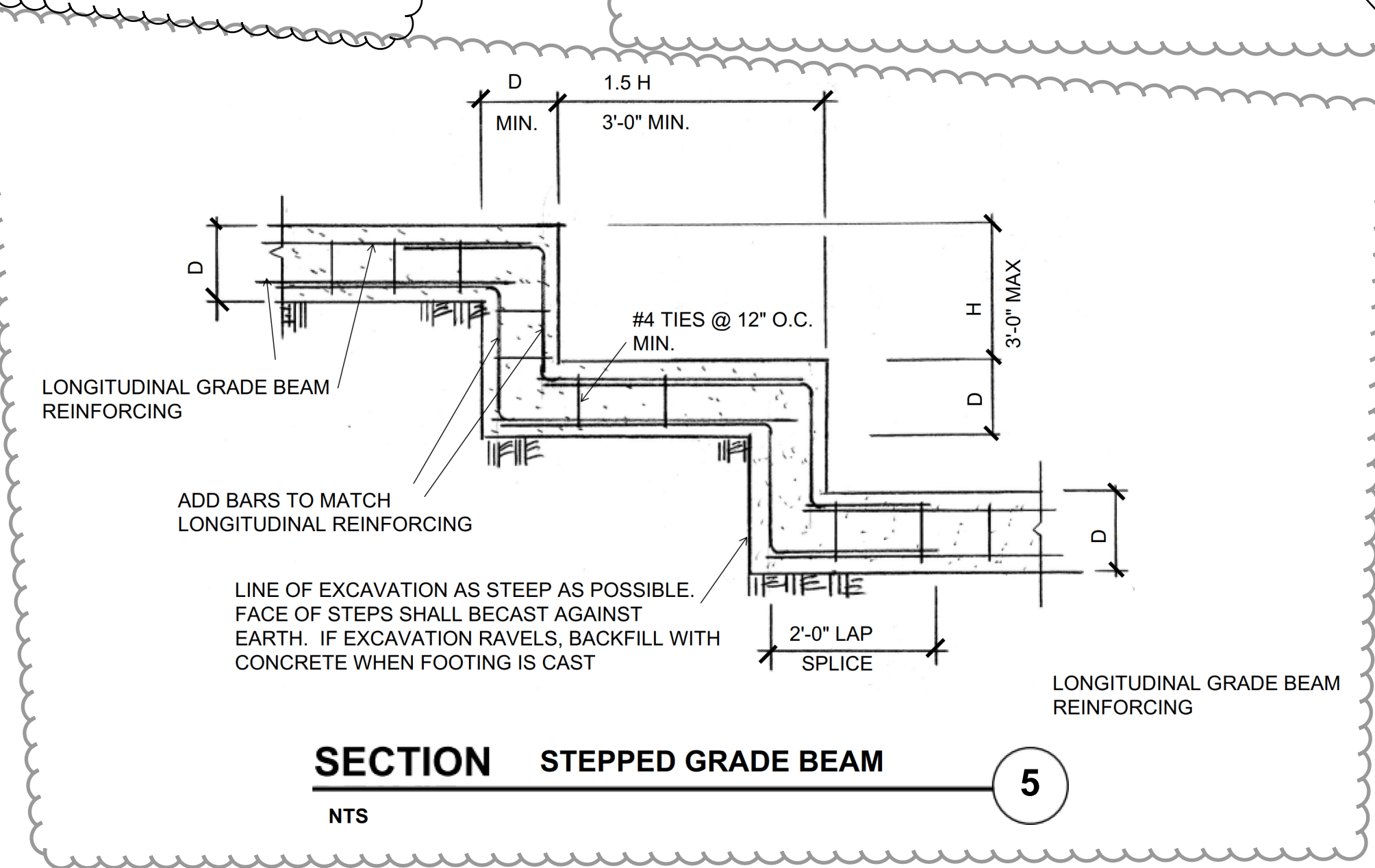
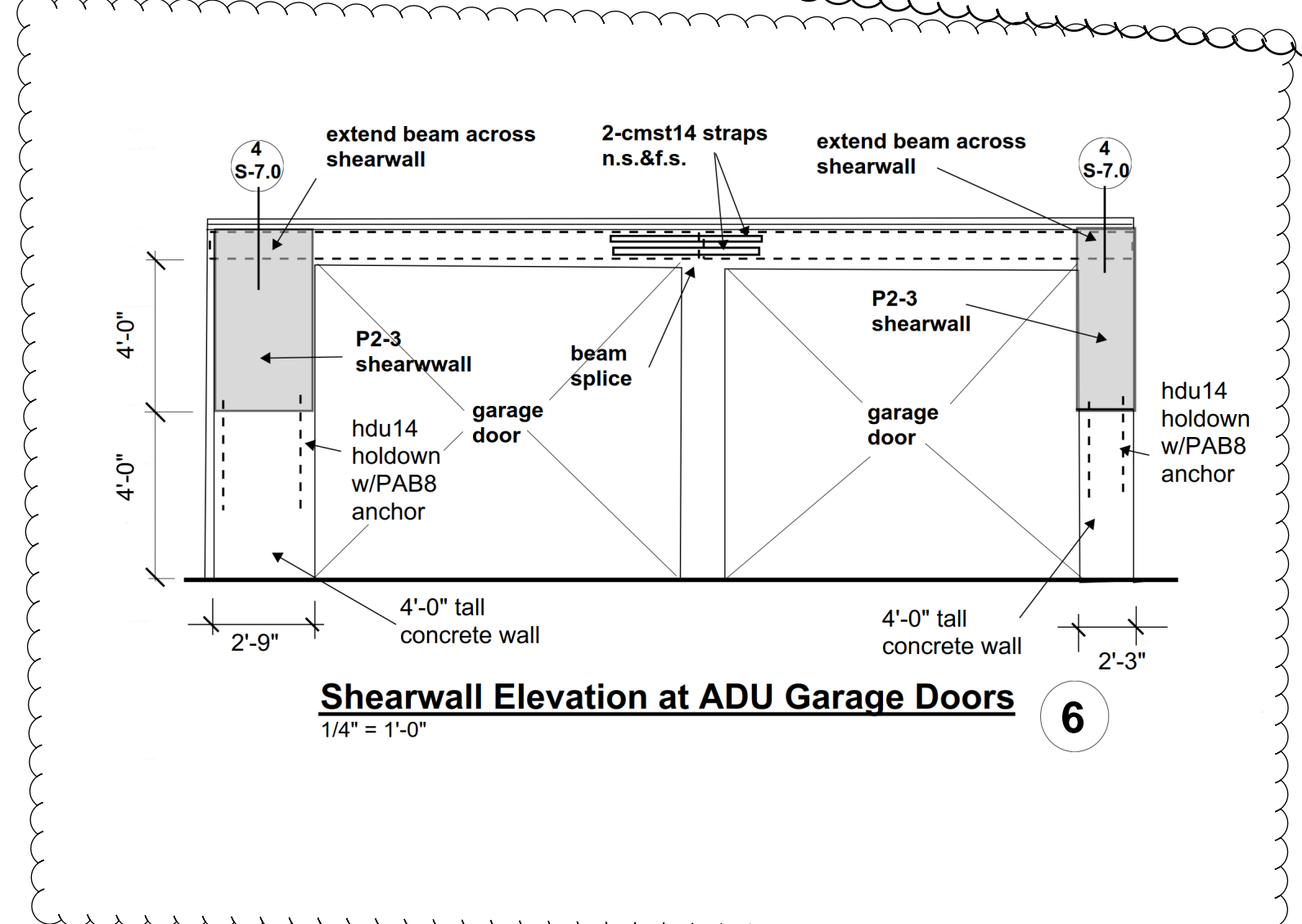
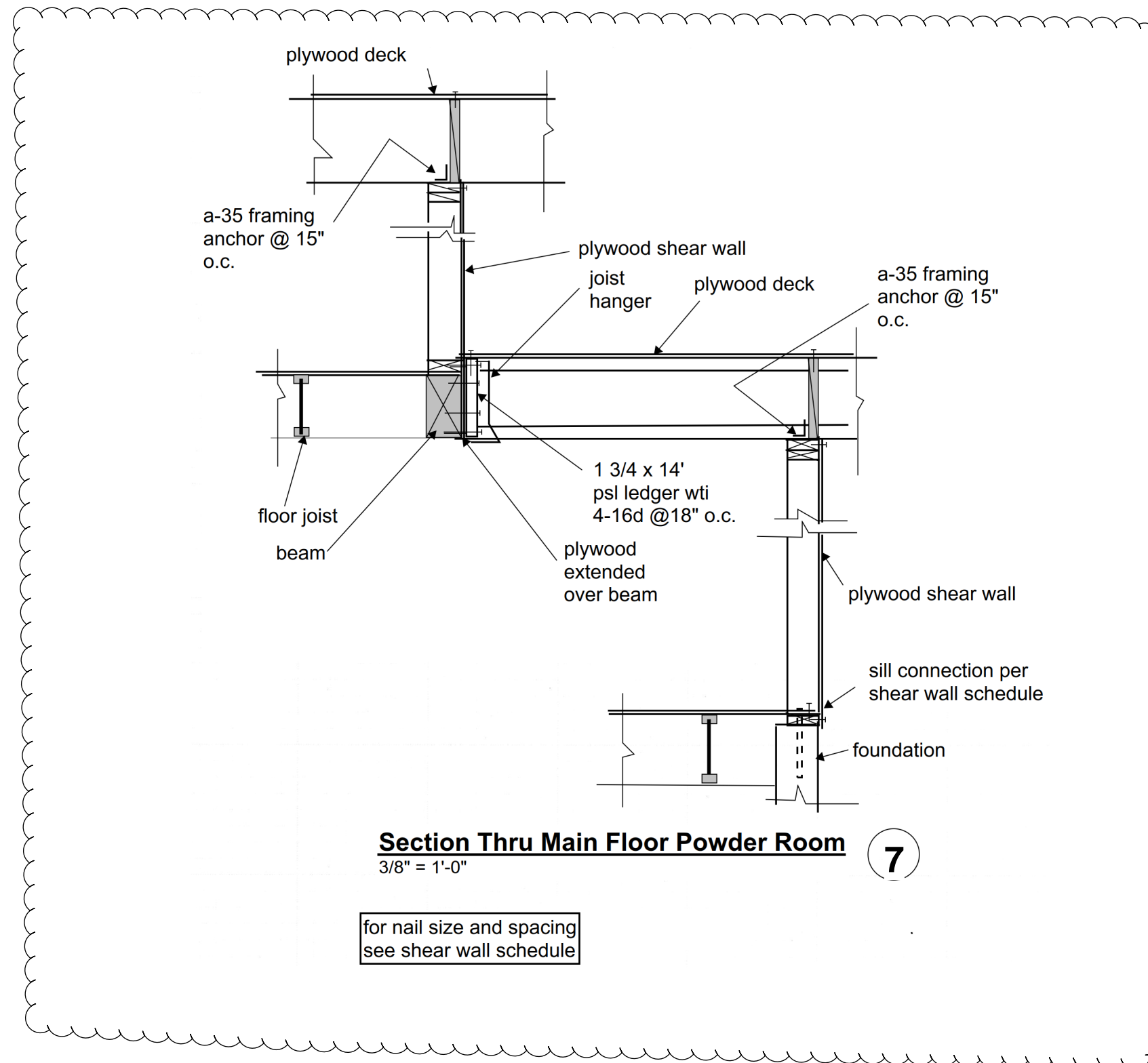
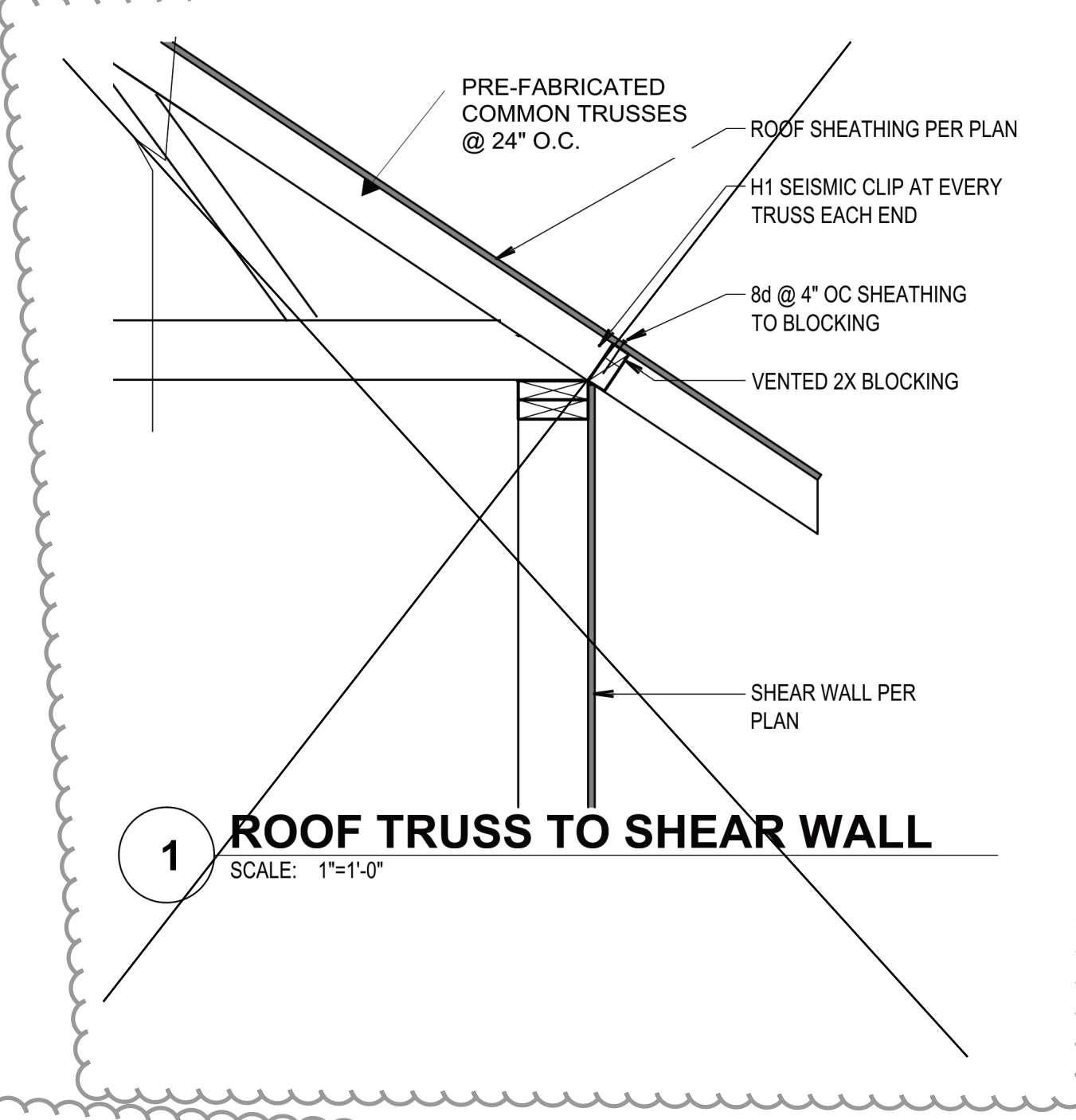
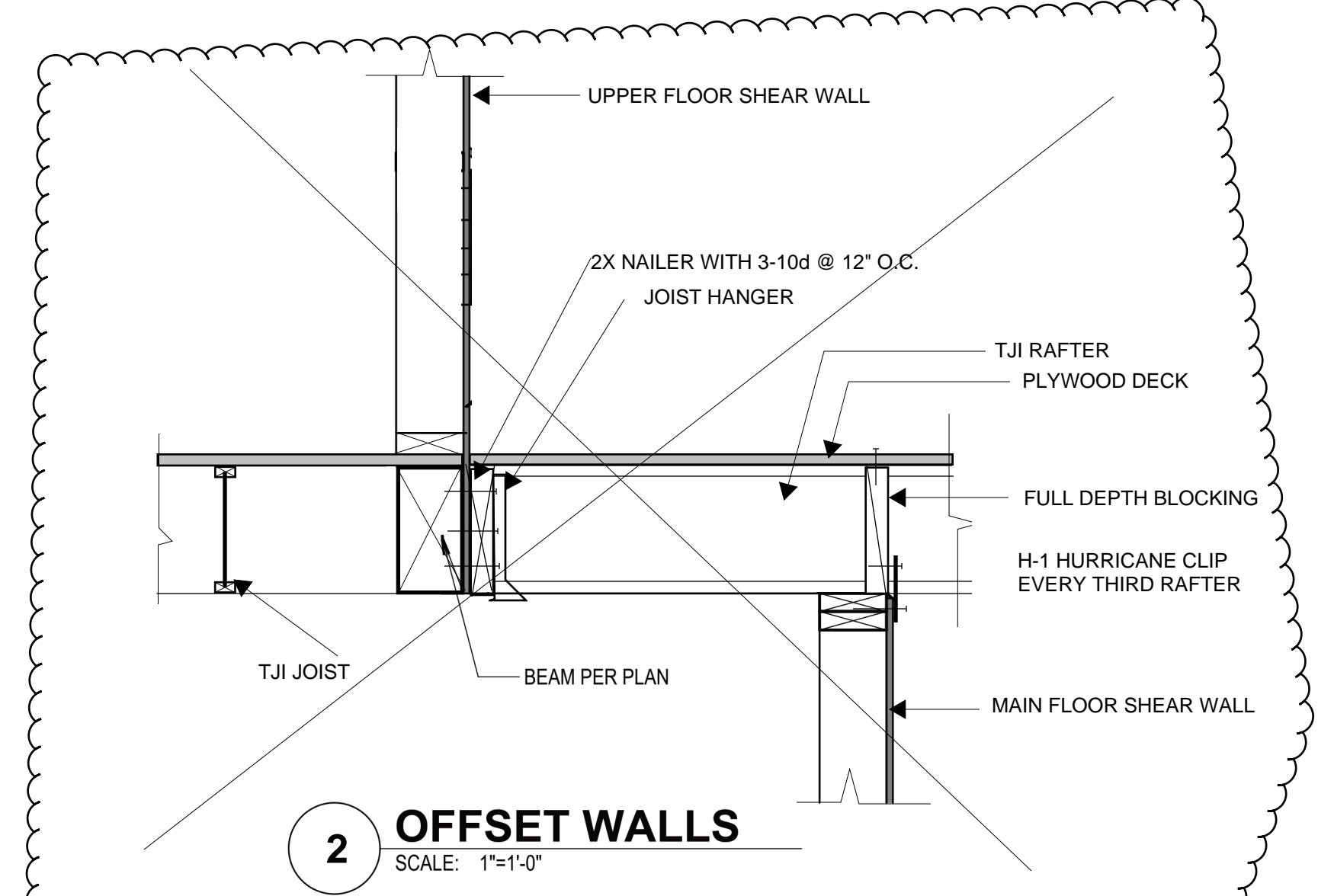
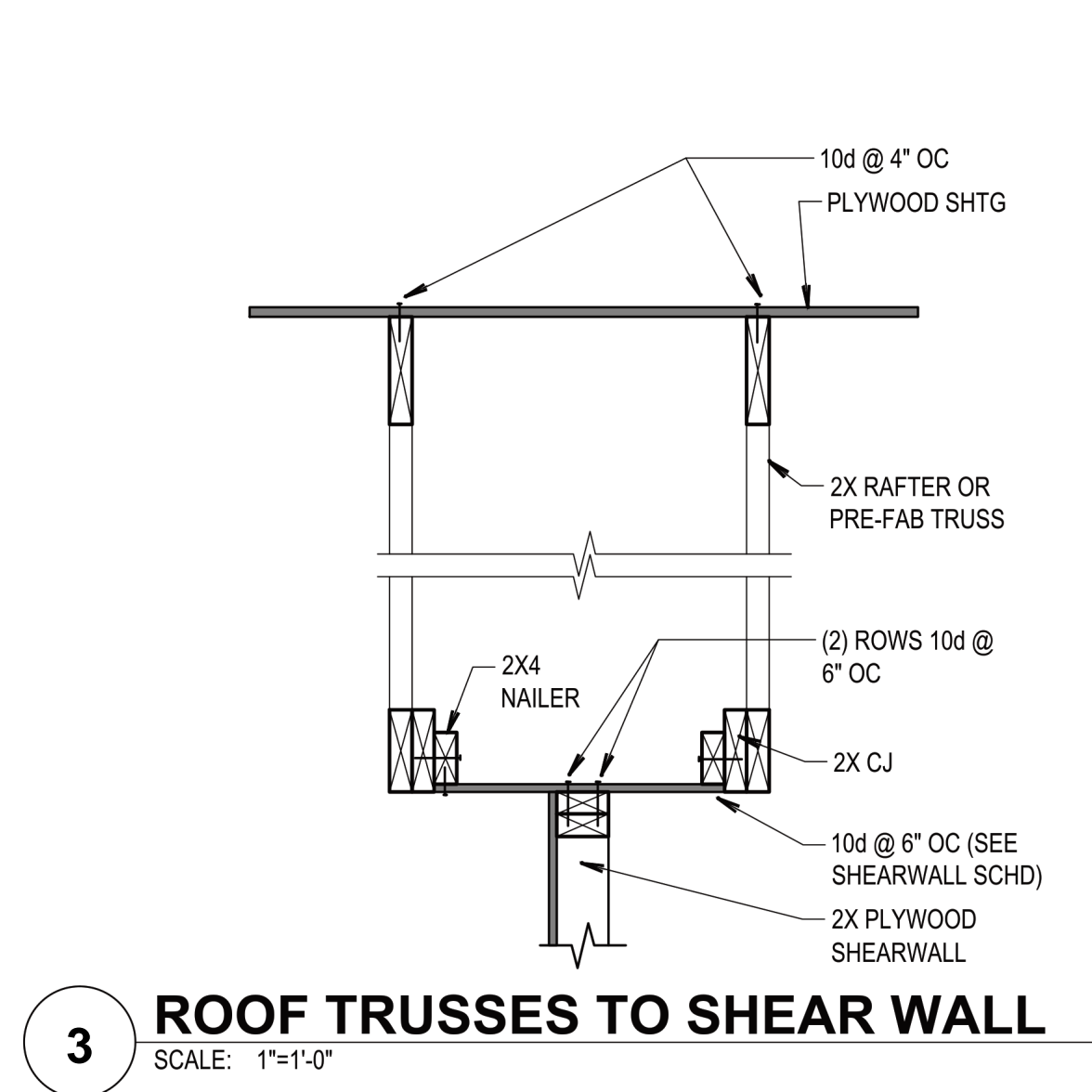
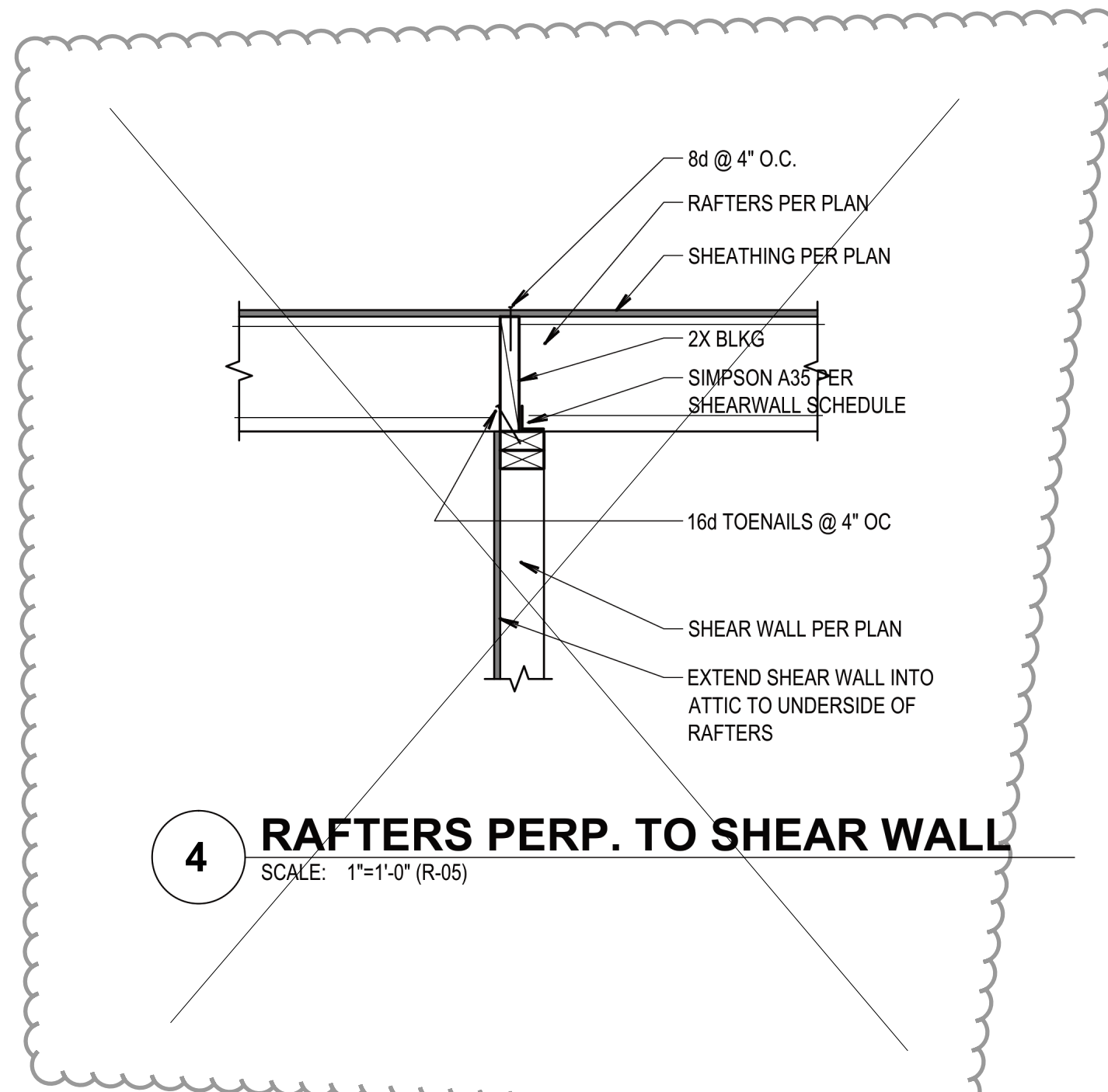
1. CONCRETE STRENGTH $f_c = 2500$ psi (if not exposed to weather) 3000 psi (if exposed to weather/no special inspection)
2. REINFORCING TO BE GRADE 60.
3. ALL FOOTINGS TO BEAR ON FIRM UNDISTURBED SOIL.
4. PROVIDE CORNER BARS TO MATCH HORIZONTAL REINFORCING BARS AT ALL INSIDE AND OUTSIDE CORNERS.
5. BACKFILL WALL TO ALLOW FOR DEFLECTION BEFORE ATTACHING HORIZONTAL FLOOR DIAPHRAGM.
6. ALLOW SOIL BEAING PRESSURE TO BE 2000 PSF.
7. EQUIVALENT FLUID PRESSURE BEHIND WALL TO BE 40 PCF FOR UNBRACED RETAINING WALLS.
8. ALLOW 28 DAYS MINIMUM FOR CONCRETE TO CURE BEFORE APPLYING LOADS.
9. FRICTION COEFFICIENT TO BE .35.
10. SOIL DENSITY TO BE 120 PCF.
11. CONTACT ENGINEER OF RECORD FOR ANY MODIFICATIONS OR REVISIONS TO THE ORIGINAL DESIGN.

Retaining Wall Schedule

T	H	DOWEL 'a'	BAR 'b'	BAR 'c'	BAR 'd'	L	D	A	B
8"	4'-0"	#5 L _{FULL HT.} @ 16" o.c.	-----	#5 @ 16" o.c.	#5(T/B) @ 18" o.c.	3'-3"	12"	1'-3"	2'-0"
8"	6'-0"	#5 L _{FULL HT.} @ 12" o.c.	-----	#5 @ 16" o.c.	#5(T/B) @ 18" o.c.	3'-0"	14"	2'-0"	1'-0"
8"	8'-0"	#5 L _{2-10"} @ 6" o.c.	#5 @ 12" o.c.	#5 @ 16" o.c.	#5(T/B) @ 18" o.c.	4'-0"	14"	2'-6"	1'-6"
8"	10'-0"	#5L _{4-3"} @ 6" o.c.	#5 @ 12" o.c.	#5 @ 16" o.c.	#5(T/B) @ 18" o.c.	4'-3"	14"	2'-0"	2'-3"



9 Concrete Retaining Wall Section
 NTS



revisions
4/6/21
6.16.21

A Custom Residence for
Gregg Petrie
 2431 60th Avenue SE, Mercer Island WA

Stephen Tapp
 Architect / P.E.
 Ph: 206-320-0534
 2339 East Jackson Street
 Seattle, Washington

This work was prepared by me or under my supervision.

Sheet Contents:

Scale: as noted
 Date: 5/13/20
 Job no.: T20D3
 Drawn by: STT
 Sheet no.:

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