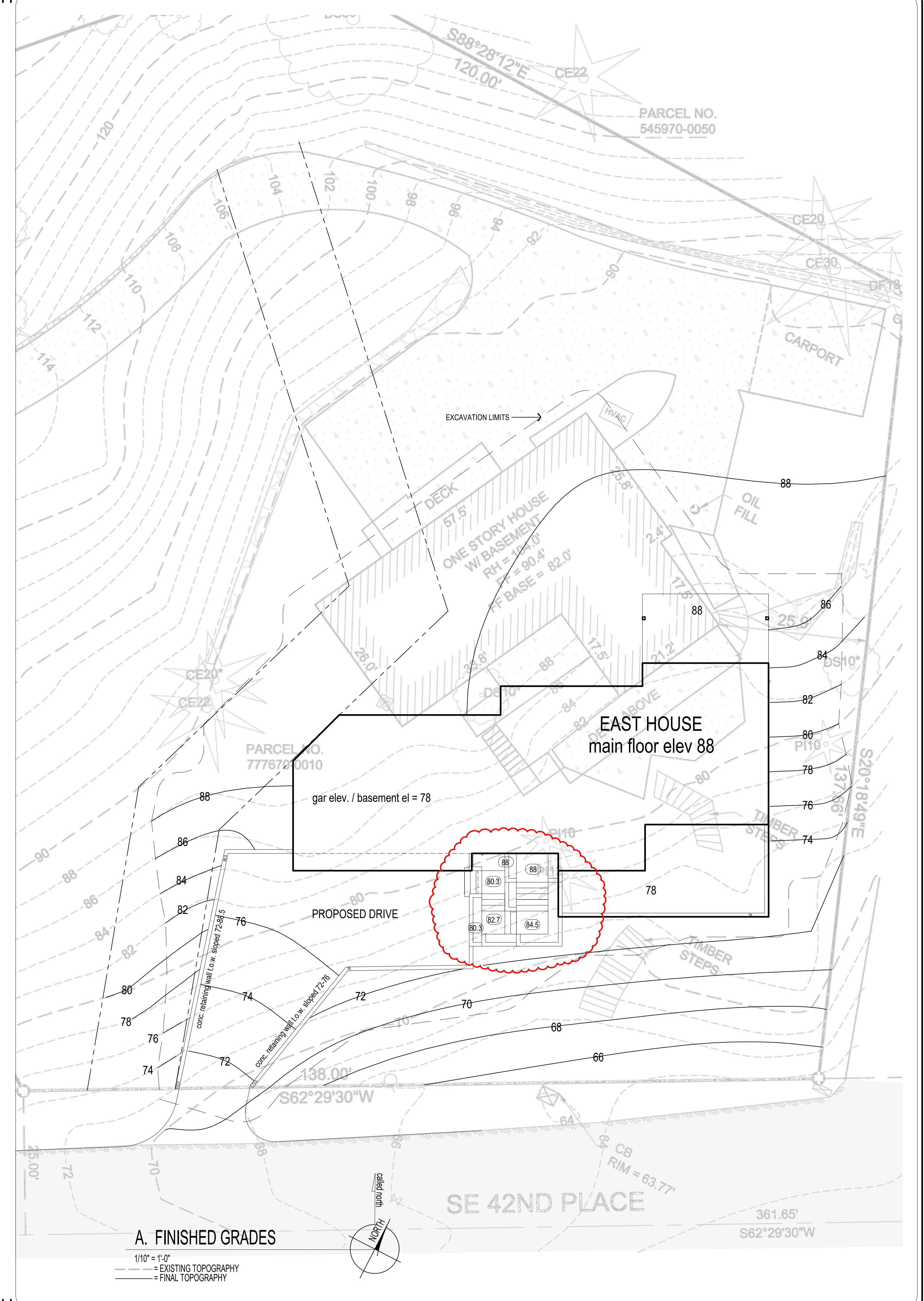
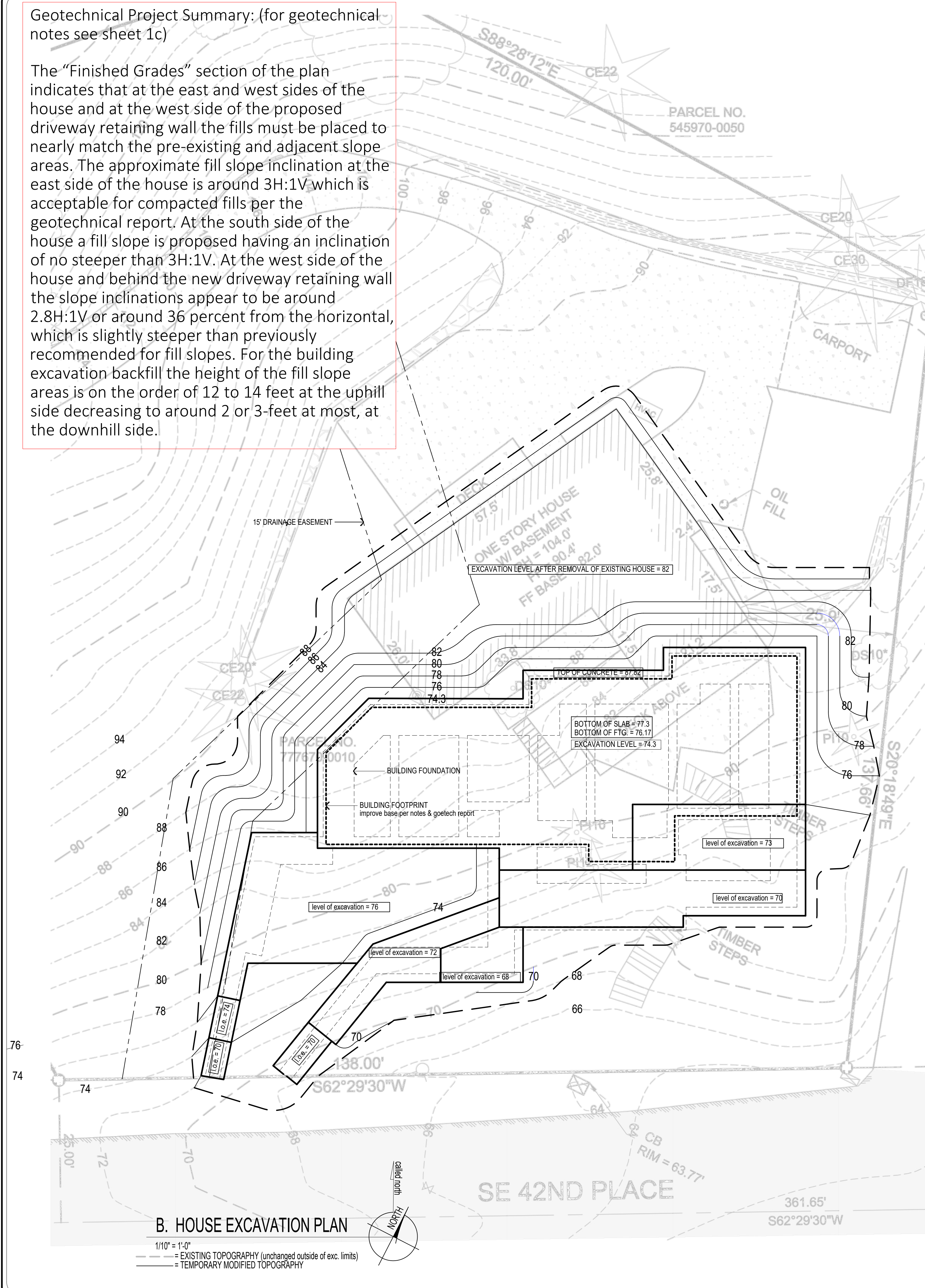






Geotechnical Project Summary: (for geotechnical notes see sheet 1c)

The "Finished Grades" section of the plan indicates that at the east and west sides of the house and at the west side of the proposed driveway retaining wall the fills must be placed to nearly match the pre-existing and adjacent slope areas. The approximate fill slope inclination at the east side of the house is around 3H:1V which is acceptable for compacted fills per the geotechnical report. At the south side of the house a fill slope is proposed having an inclination of no steeper than 3H:1V. At the west side of the house and behind the new driveway retaining wall the slope inclinations appear to be around 2.8H:1V or around 36 percent from the horizontal, which is slightly steeper than previously recommended for fill slopes. For the building excavation backfill the height of the fill slope areas is on the order of 12 to 14 feet at the uphill side decreasing to around 2 or 3-feet at most, at the downhill side.



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**EAST HOUSE**  
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CONTENTS  
Supplemental Site Plans

DRAWN BY  
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DATE  
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1.12.21  
6.7.21

1C



**NOTES**

- [SD] = SMOKE DETECTOR, HARDWIRE, INTERCONNECTED w/ BATTERY BACK-UP
- [CO] = CARBON MONOXIDE DETECTOR, HARDWIRE w/ BATTERY BACK-UP

DOORS ARE 3-0 x 6-8 (r.o. = 3'-2" x 6'-10") unless otherwise indicated  
 ☉ = FAN, 50 CFM UNLESS OTHERWISE INDICATED  
 FOR SHEAR WALL INFORMATION SEE STRUCTURAL PLANS  
 ALL INTERIOR WALLS TO BE 2x4, EXTERIOR WALLS 2x6, EXCEPT AS INDICATED, OR EXISTING

⊕ = EGRESS WINDOWS  
 Contractor shall verify to Inspector all guards and railings shall be capable of resisting 200 lb load on top rail acting in any direction as required by IRC Table R301.5.

ALL WALLS FULL HEIGHT UNLESS OTHERWISE INDICATED

- ⊖ = TEMPER/SAFETY GLAZE WINDOWS
- ⊕ = ALL GAS F.P. TO BE APPROVED DIRECT VENT

**Energy Code Info**

WA STATE PRESCRIPTIVE PATH FOR ALL CLIMATE ZONES

ENERGY CREDIT OPTIONS =  
 2a(.5),3b(1),4(1),5a(.5),5c(1.5) = 4.5 CREDITS  
 Vertical fenestration U = 0.30  
 Floor R-30

SEE SHEET 09 FOR ENERGY CREDIT DESCRIPTION

**PRIMARY RESIDENCE HVAC NOTES**

DUCTED HEAT PUMP (HSPF>9.0) INT. AIR HANDLER  
 INTEGRATED VENTILATION  
 6005 4 SF, 5 BEDROOMS = CONTINUOUS 90 CFM  
 SET TO OPERATE AT 180 CFM FOR 2 HOURS IN EA. 4 HR PERIOD (50%)  
 PROVIDED BY VARIABLE SPEED HIGH EFF. FAN (MAX. 35 WATTS/CFM)  
 CONTROLLED TO OPERATE AT LOW SPEED IN VENTILATION MODE ONLY.

design professional or builder shall complete and post an "Insulation Certificate for Residential Construction" within 3' of the electrical panel prior to final inspection.

A minimum of 75 percent of permanently installed lamps in lighting fixtures shall be high-efficacy lamps.

Maximum flow rates for shower heads and kitchen sink - 1.75 GPM or less. All other lavatory faucets - 1.0 GPM or less.

Air leakage shall not exceed 3 air changes/ hour and shall be tested as such. A written report of the test results, shall be signed by the testing party and provided to the building inspector, prior to call for final inspection.

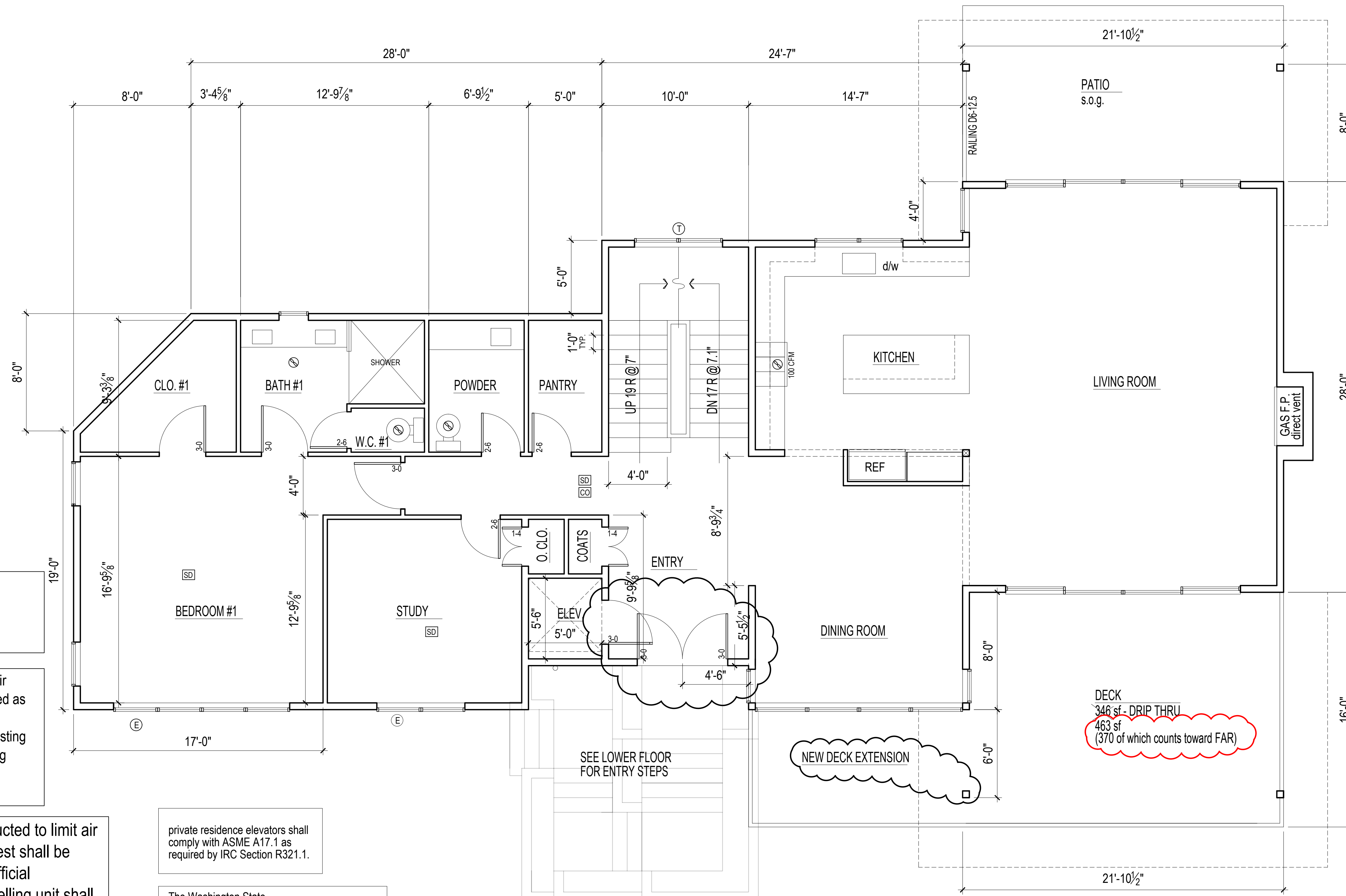
Per WSEC R402.4, The building thermal Envelope shall be constructed to limit air leakage to 3.0 air changes per hour maximum. The results of the test shall be signed by the party conducting the test and provided to the code official (R402.4.1.2). Per WSEC R403.1.1, at least one thermostat per dwelling unit shall be capable of controlling the heating and cooling system on a daily schedule. Per WSEC R403.2.2, Ducts, air handlers, and filter boxes shall be sealed. Per WSEC R404.1, A minimum of 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps.

private residence elevators shall comply with ASME A17.1 as required by IRC Section R321.1.

The Washington State Department of Labor and Industries requires the elevator be installed by a licensed elevator contractor and yearly safety inspections are required. For more information contact L&I at (360) 902-6130 or visit their web site at [www.Lni.wa.gov/tradescicensing/elevators](http://www.Lni.wa.gov/tradescicensing/elevators).

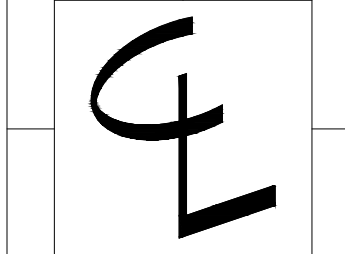
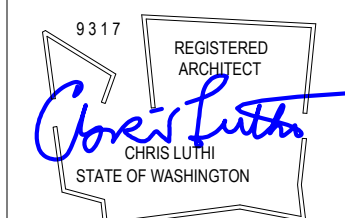
All Climate Zones		
	R-Value <sup>a</sup>	U-Factor <sup>a</sup>
Fenestration U-Factor <sup>b</sup>	n/a	0.30
Skylight U-Factor	n/a	0.50
Glazed Fenestration SHGC <sup>b,e</sup>	n/a	n/a
Ceiling <sup>k</sup>	49 <sup>l</sup>	0.026
Wood Frame Wall <sup>g,m,n</sup>	21 int	0.056
Mass Wall R-Value <sup>l</sup>	21/21 <sup>h</sup>	0.056
Floor	30 <sup>o</sup>	0.029
Below Grade Wall <sup>o,m</sup>	10/15/21 int + TB	0.042
Slab <sup>d</sup> R-Value & Depth	10, 2 ft	n/a

<sup>a</sup>Table R402.1.1 and Table R402.1.3 Footnotes included on Page 2.



**A. MAIN FLOOR PLAN**

1/4" = 1'-0"  
 LIVING = 2298 sf



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**CONTENTS**

Main Floor

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**DATE**

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 8.14.20  
 11.24.20  
 6.7.21

7.6.21



NOTES

- SD = SMOKE DETECTOR, HARDWIRE, INTERCONNECTED w/ BATTERY BACK-UP
- CO = CARBON MONOXIDE DETECTOR, HARDWIRE w/ BATTERY BACK-UP

DOORS ARE 3-0 x 6-8 (r.o. = 3'-2" x 6'-10") unless otherwise indicated  
 FAN = FAN, 50 CFM UNLESS OTHERWISE INDICATED  
 FOR SHEAR WALL INFORMATION SEE STRUCTURAL PLANS

ALL INTERIOR WALLS TO BE 2x4, EXTERIOR WALLS 2x6, EXCEPT AS INDICATED, OR EXISTING

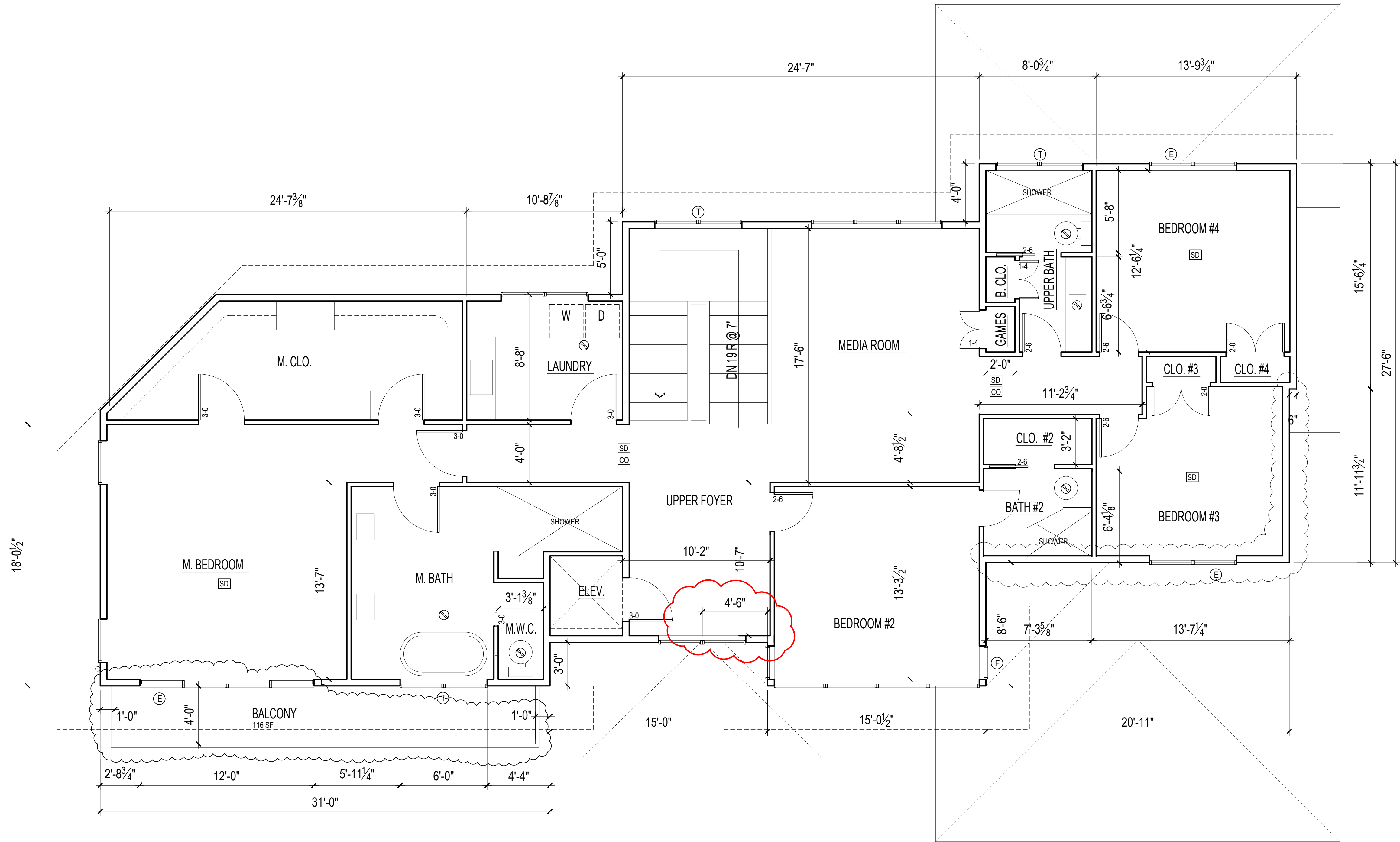
E = EGRESS WINDOWS

Contractor shall verify to Inspector all guards and railings shall be capable of resisting 200 lb load on top rail acting in any direction as required by IRC Table R301.5.

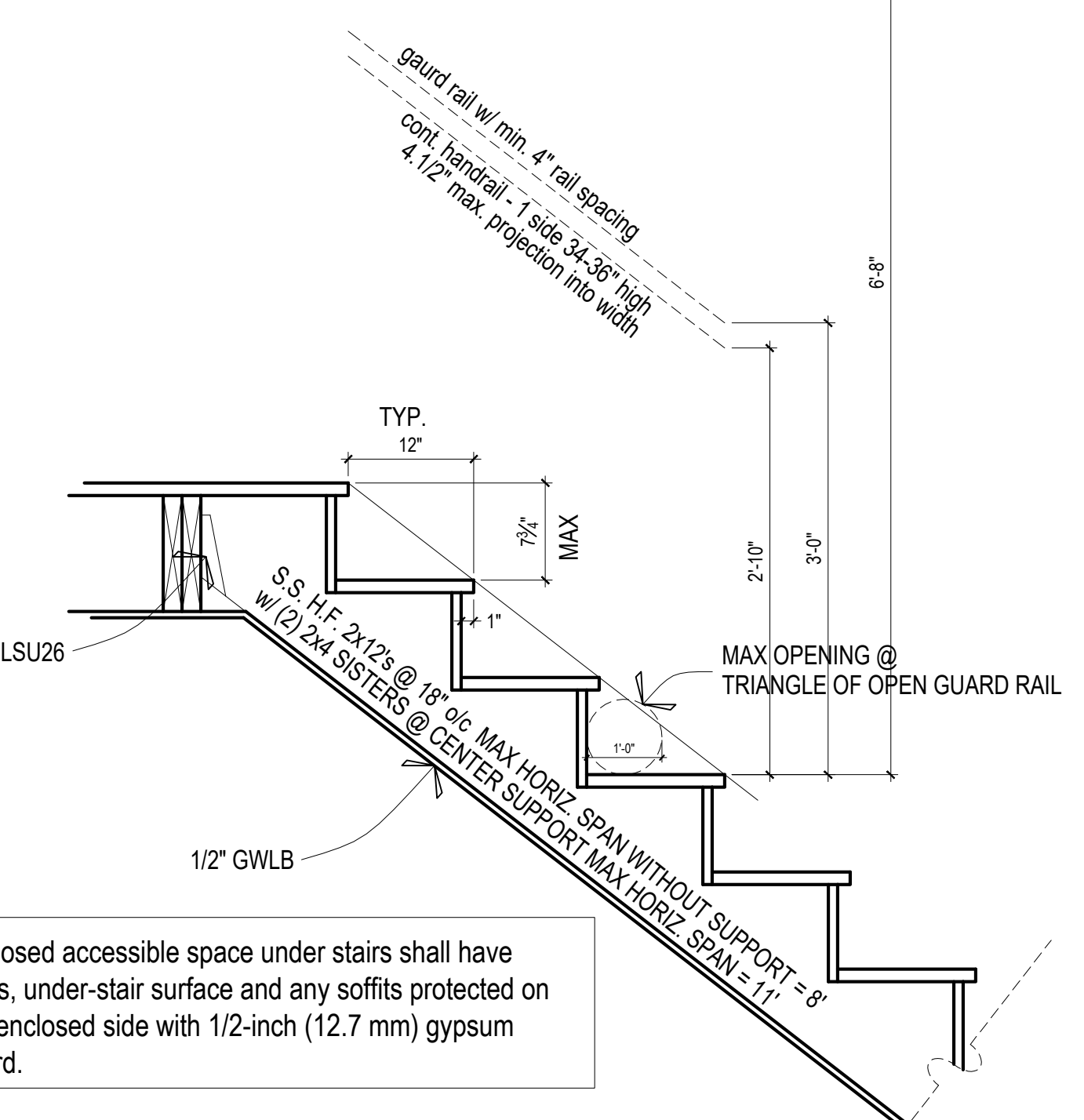
ALL WALLS FULL HEIGHT UNLESS OTHERWISE INDICATED

T = TEMPER/SAFETY GLAZE WINDOWS

ALL GAS F.P. TO BE APPROVED DIRECT VENT

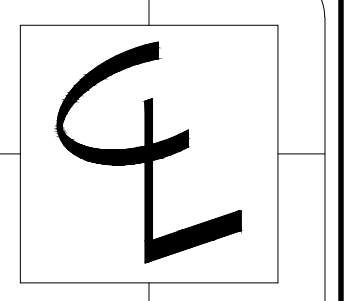
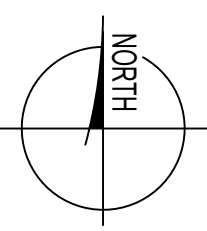


MIN. STAIRWAY WIDTH = 3'-0" CLEAR  
 STAIR RISE, RUN AND NOSING CANNOT VARY BY MORE THAN 3/8"  
 HANDRAIL TERMINATIONS MUST RETURN TO WALL



**B. STAIR SECTION**  
 1" = 1'-0"

**A. UPPER FLOOR PLAN**  
 1/4" = 1'-0"  
 LIVING = 2298 sf

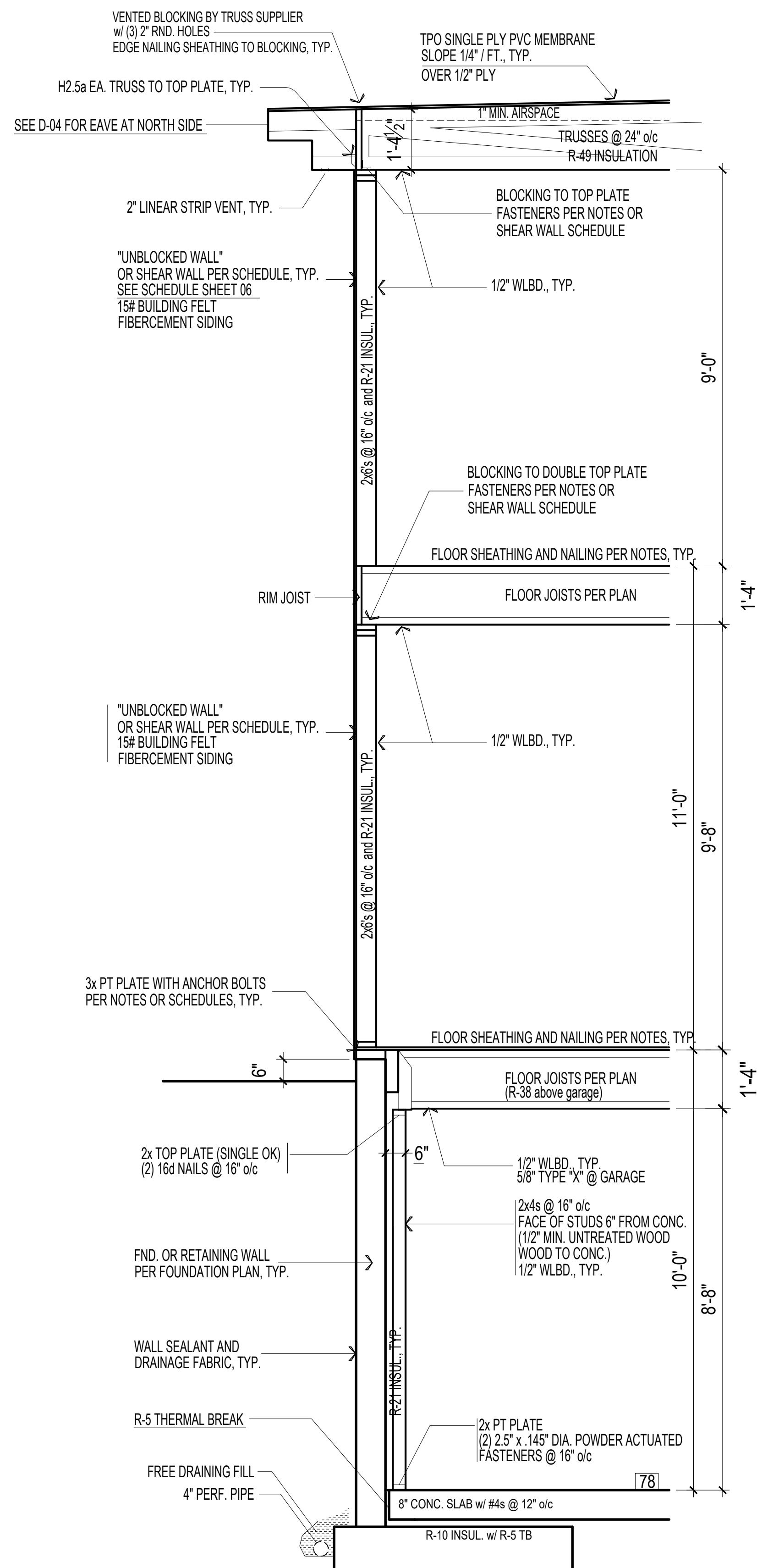


**EAST HOUSE**  
 4270 E. Mercer Way Short Plat Mercer Island WA

CONTENTS  
 Upper Floor

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 CRL  
 DATE  
 2.3.20  
 8.14.20  
 11.24.20  
 6.7.21

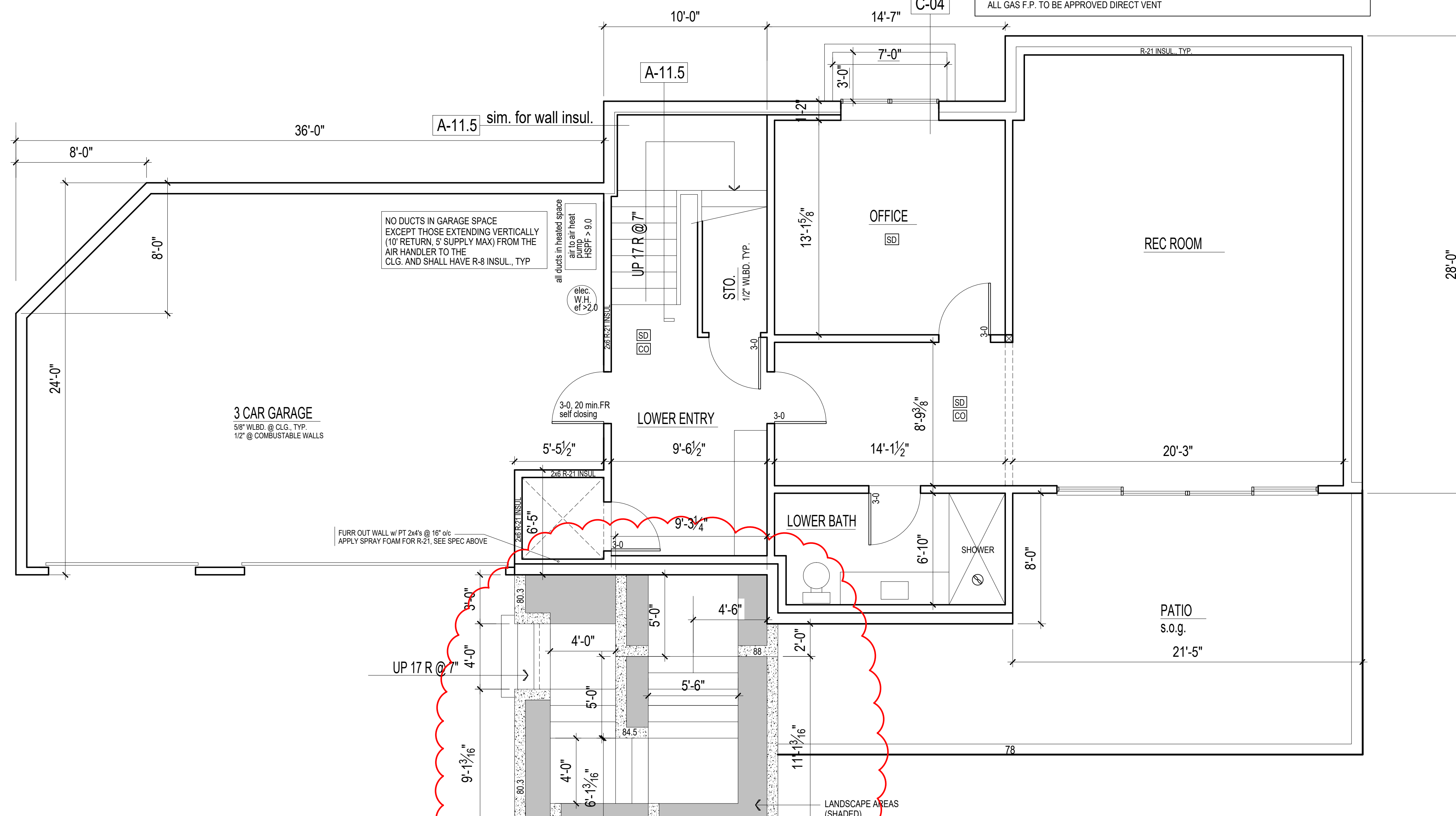




**A. TYPICAL SECTION**  
1/2" = 1'-0"

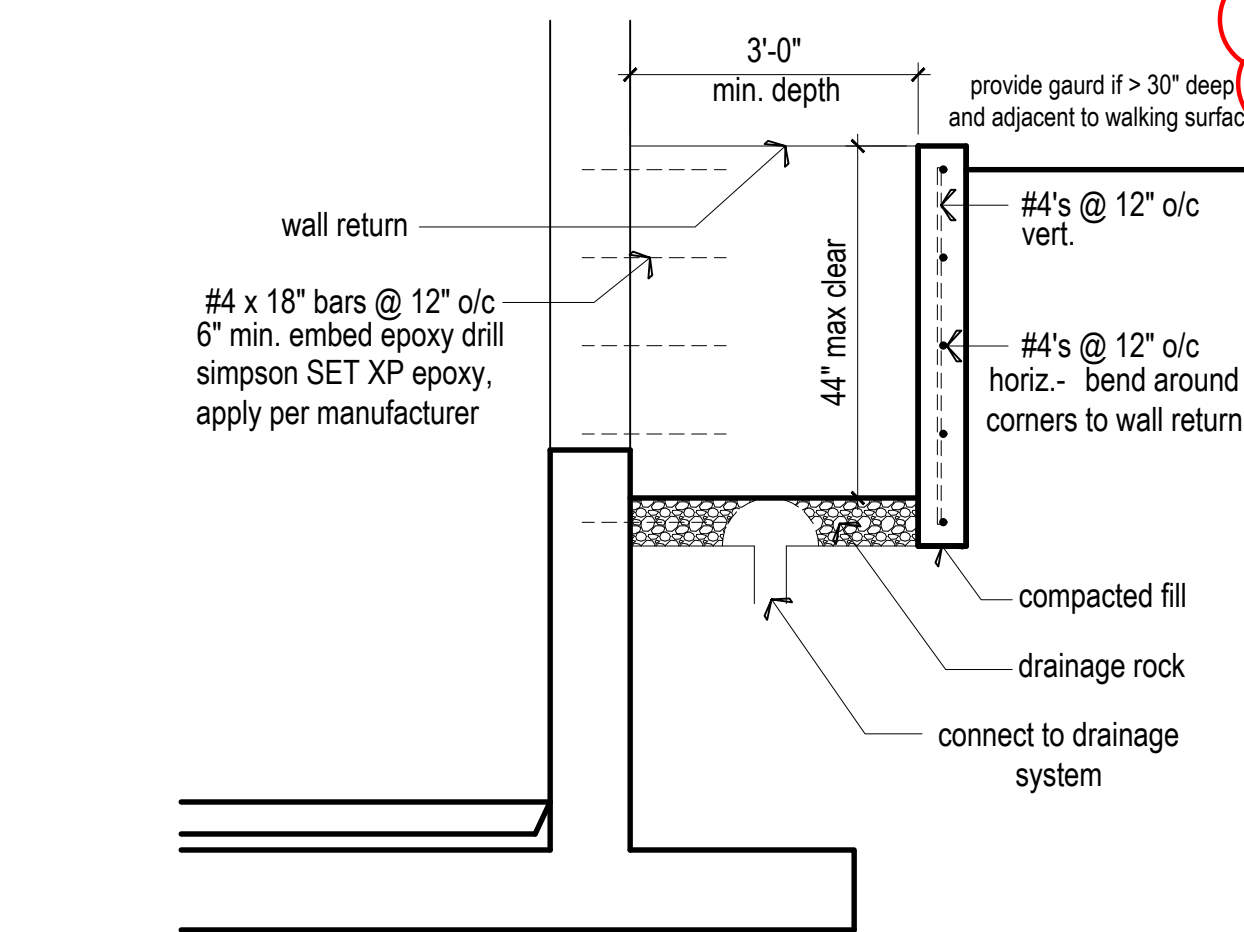
**SPRAY FOAM SPECIFICATIONS**

Spray foam product to be "Spraytite 178" as manufactured by BASF (ESR-2642), or equal.  
Spray foam insulation shall be installed per IRC 806.5.1.3. A copy of the ICC ESR report for the product used must be provided on the job site for field inspector verification. The applied spray foam must be installed by a certified installer.

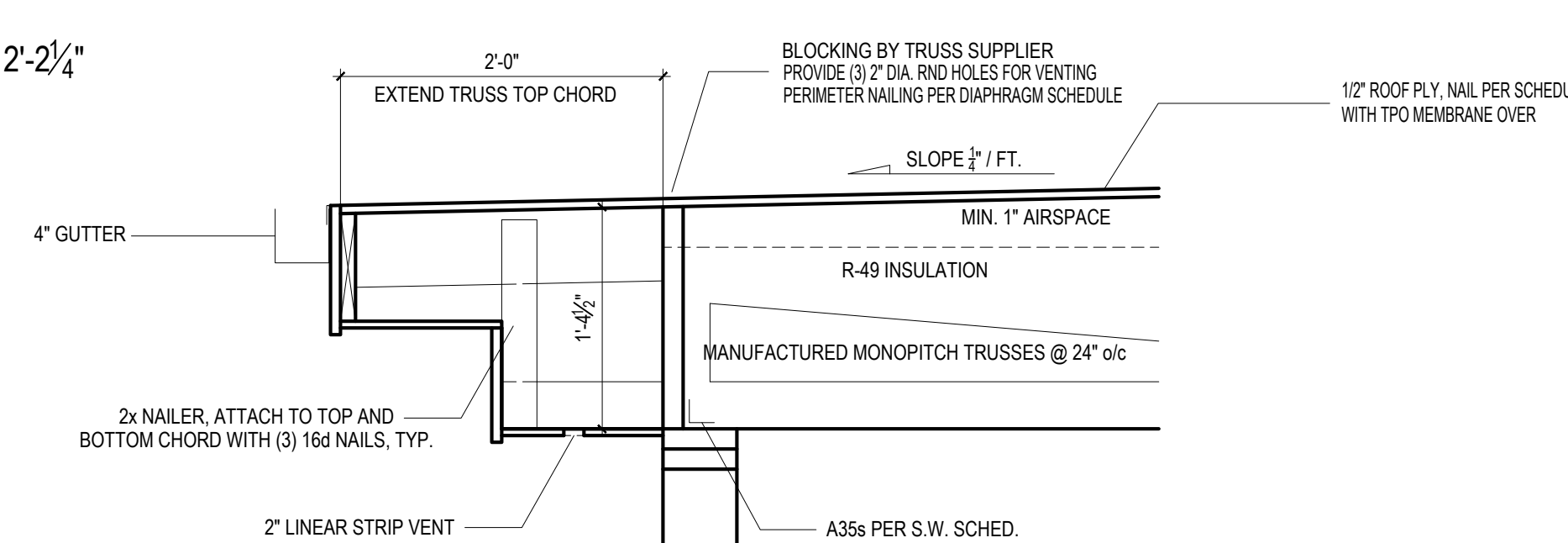


**A. LOWER FLOOR PLAN**

1/4" = 1'-0"  
GARAGE = 797 sf  
LIVING = 1409.4 sf  
TOTAL = 2206.4 sf



**C. WINDOW WELL DETAIL**  
1/2" = 1'-0"



**D. NORTH EAVE**  
1/2" = 1'-0"

**NOTES**

- SD = SMOKE DETECTOR, HARDWARE, INTERCONNECTED w/ BATTERY BACK-UP
- CD = CARBON MONOXIDE DETECTOR, HARDWARE w/ BATTERY BACK-UP
- DOORS ARE 3-0 x 6-8 (r.o. = 3'-2" x 6'-10") UNLESS OTHERWISE INDICATED
- FAN, 50 CFM UNLESS OTHERWISE INDICATED
- FOR SHEAR WALL INFORMATION SEE STRUCTURAL PLANS
- ALL INTERIOR WALLS TO BE 2x4, EXTERIOR WALLS 2x6, EXCEPT AS INDICATED, OR EXISTING
- Contractor shall verify to Inspector all guards and railings shall be capable of resisting 200 lb load on top rail acting in any direction as required by IRC Table R301.5.
- ALL WALLS FULL HEIGHT UNLESS OTHERWISE INDICATED
- T = TEMPER/SAFETY GLAZE WINDOWS
- ALL GAS F.P. TO BE APPROVED DIRECT VENT

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**CONTENTS**

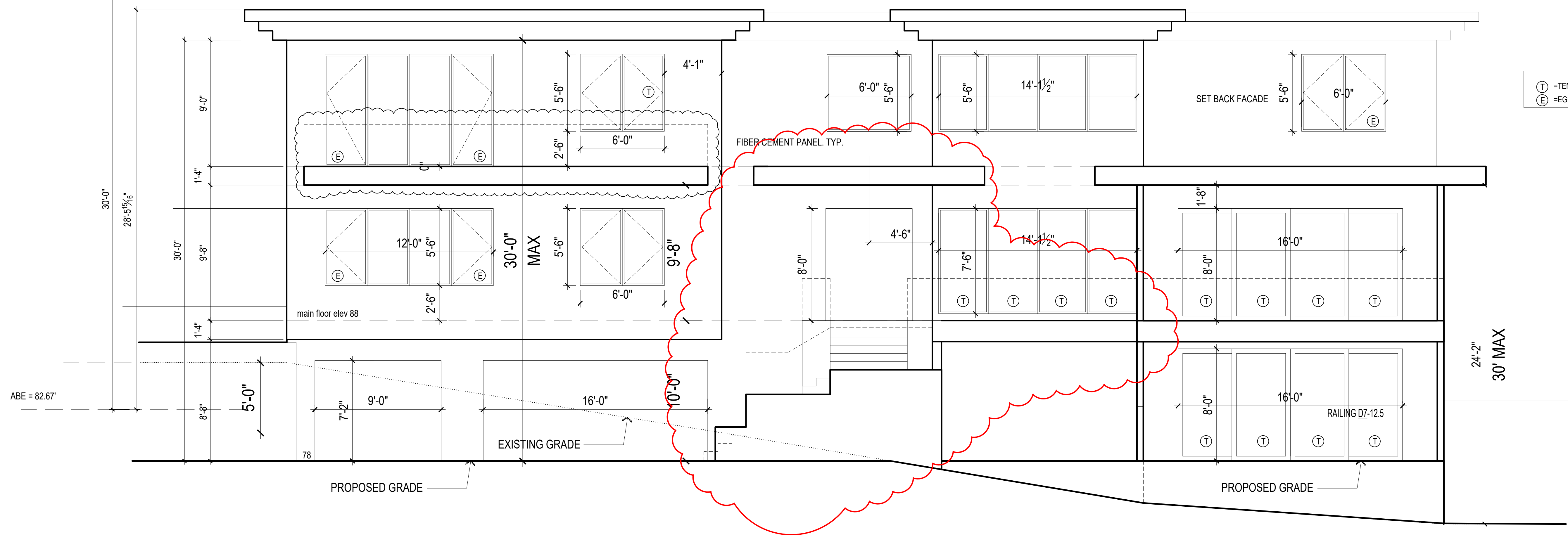
Lower Floor

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CRL

**DATE**  
2.3.20  
8.14.20  
11.24.20  
6.7.21



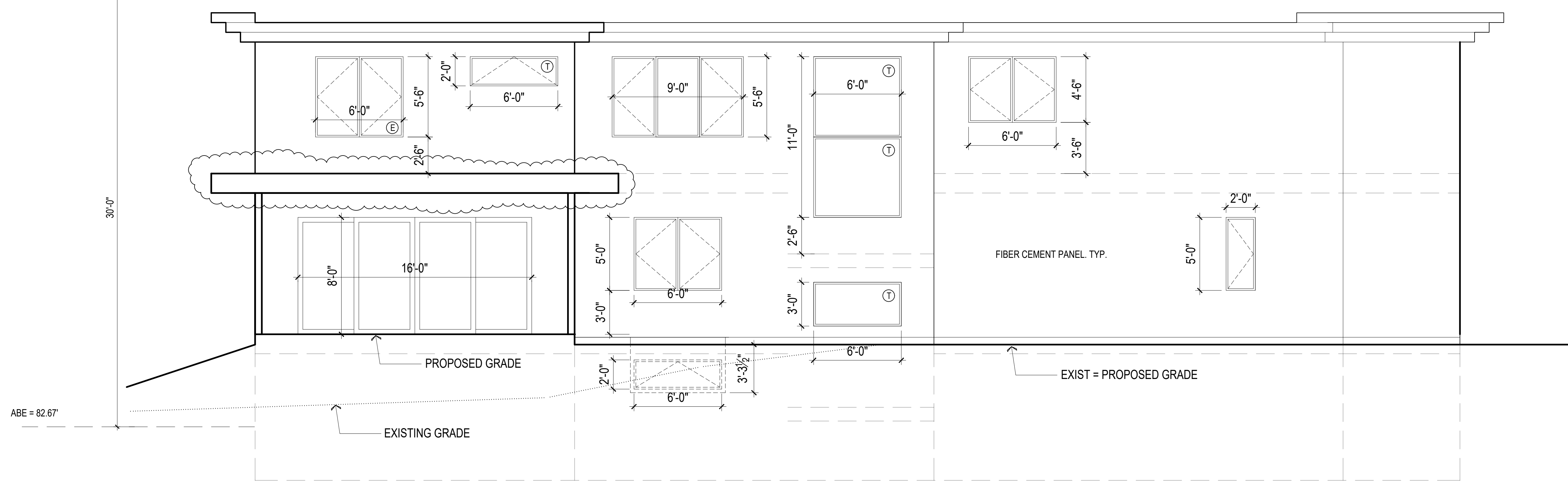
HEIGHT LIMIT = 112.67'



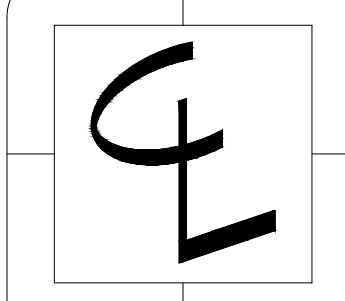
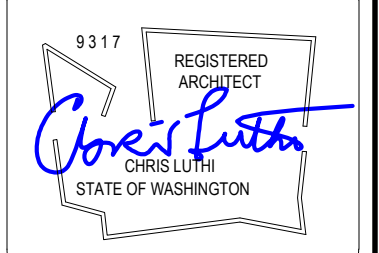
A. FRONT (SOUTH) ELEVATION  
1/4" = 1'-0"

T = TEMPER/SAFETY GLAZE WINDOWS  
 E = EGRESS WINDOWS

HEIGHT LIMIT = 112.67'



B. NORTH ELEVATION  
1/4" = 1'-0"



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CONTENTS  
 N & S Elevs

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 DATE  
 2.3.10  
 2.21.20  
 8.14.20  
 11.24.20

6.7.21

05



**SHEAR WALL SCHEDULE**

(Lumber for shear walls is HF#2 or better, unless otherwise noted.)

Type	Material	Edge Nailing	Field Nailing	A.B. Size/Spacing	Plate Nailing	Plates	A35 Spacing	Shear Capacity
Unblocked Wall	15/32" WSP one side, unblocked	8d @ 6"	8d @ 12"	1/2"Ø @ 72"	(2) 16d @ 12"	2x_	24"	100 plf
SW1	15/32" WSP one side	8d @ 6"	8d @ 12"	1/2"Ø @ 48"	(2) 16d @ 9"	2x_	24"	230 plf
SW2	15/32" WSP one side	8d @ 4"	8d @ 12"	1/2"Ø @ 32"	(2) 16d @ 6"	2x_	16"	350 plf
SW3	15/32" WSP one side	10d @ 3"	10d @ 12"	5/8"Ø @ 24"	(2) 16d @ 4"	3x_	12"	550 plf
SW3X	15/32" WSP one side	10d @ 2"	10d @ 12"	5/8"Ø @ 24"	5/8"Ø x 8" Lag @ 24"	3x_	9"	710 plf
SW5	15/32" WSP two sides	8d @ 3"	8d @ 12"	5/8"Ø @ 16"	5/8"Ø x 8" Lag @ 16"	3x_	8"	910 plf

**For shear wall callouts on the Structural Framing Plans:** SW x (y') denotes a shear wall type "x" with a minimum length of "y" feet.

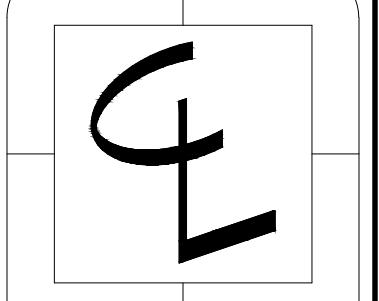
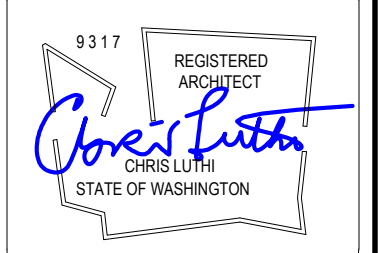
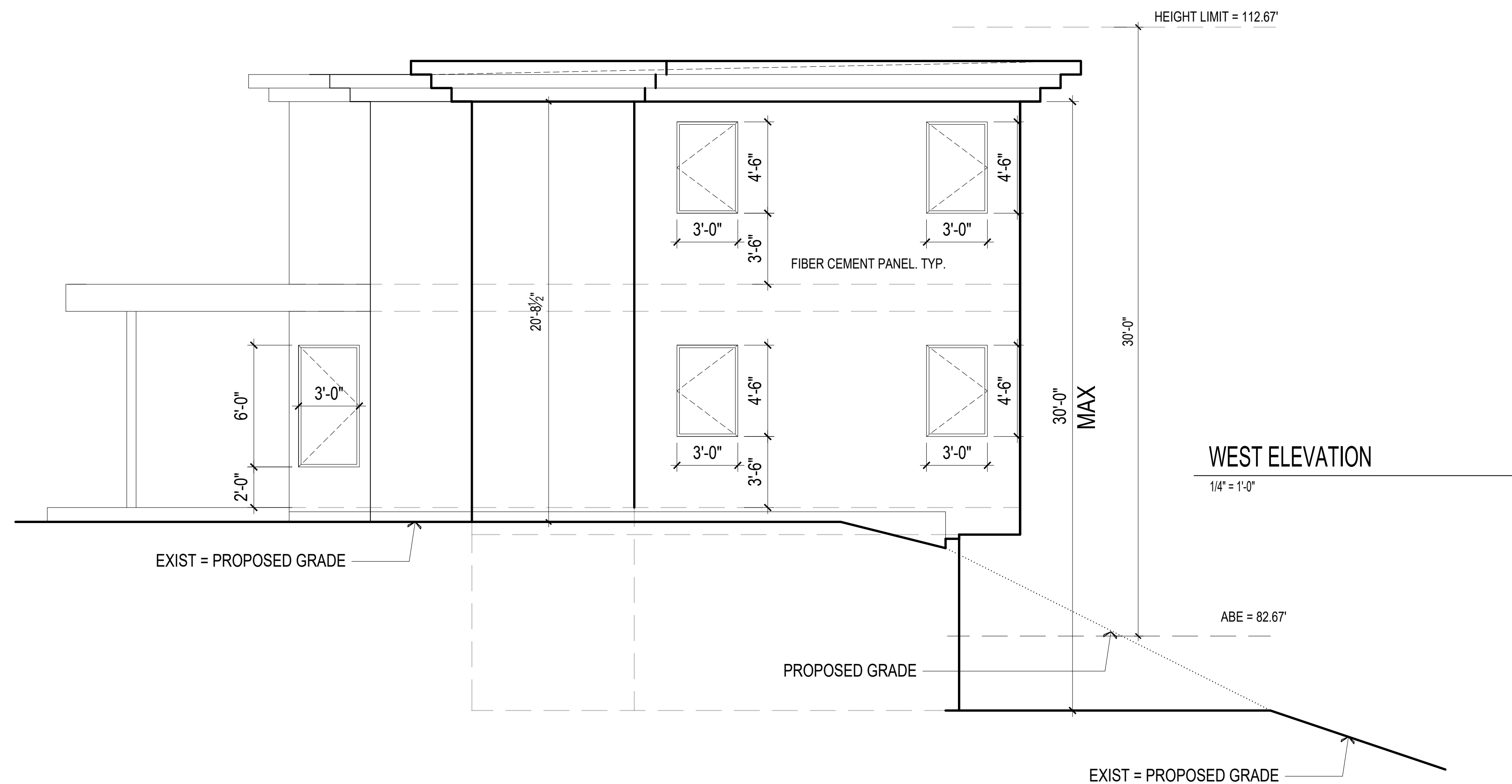
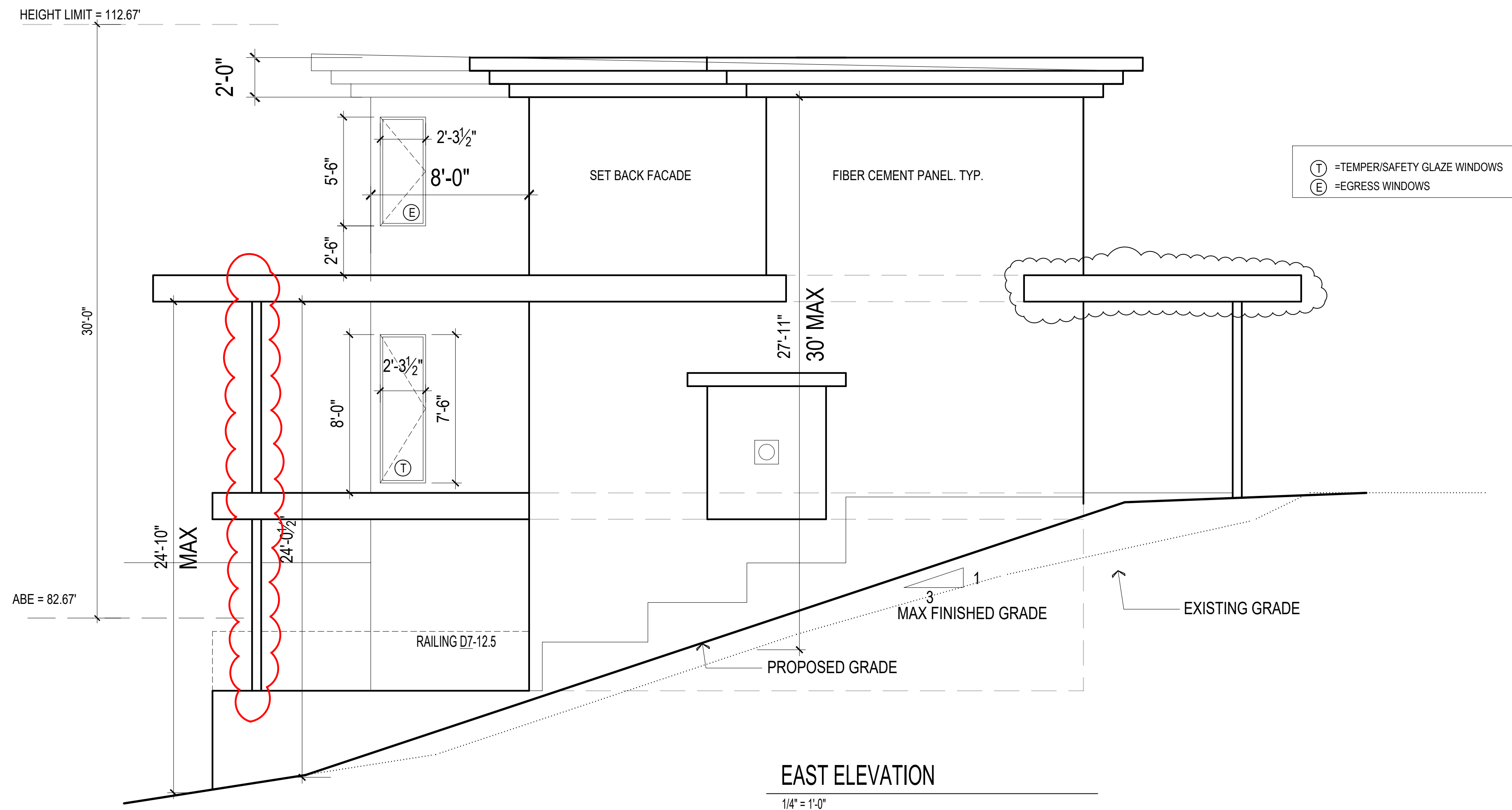
- For SW3 and greater, studs, plates, and blocking where two WSP panels abut shall have a minimum 3" nominal thickness. Double 2x\_ members may be used for studs if the members are connected by plate nailing. Note 10d nails at WSP panel edges.
- For shear walls with 2 layers of sheathing: Both layers of the sheathing may be installed on the same side of the shear wall, provided the joints between sheathing panels for the two layers are offset. End studs, studs at panel joints, and top and bottom plates must be 3x\_ or thicker lumber. Nails should be staggered evenly in rows so that no two nails are closer than 1-1/2" apart. Top and bottom plates may be 2x\_ lumber if the sheathing extends up or down past the plates to a continuous rim joist, and is nailed there.
- "WSP" refers to "Wood Structural Panel", either plywood or other wood materials.
- Provide double stud minimum at both ends of all shear walls.
- At the roof or top level of any shear wall, "A35 spacing", and all other relevant connector specifications, apply to assemblies at both the top and bottom of the shear wall. At lower levels, apply to the bottom of the wall only.
- Provide floor diaphragm edge nailing per diaphragm schedule through floor plywood into blocking, parallel joist framing, or top plates (whichever applies) of all shear walls.
- Provide 3x\_ plates, and 4x\_ rim joists, minimum, where lag screws are specified for plate nailing.
- Where shear wall edge nails are spaced closer than 3" o.c., or spaced 3" o.c. with 10d nails, foundation sill plates and all framing members receiving edge nailing from abutting panels shall not be less than a single 3x\_ member.
- Where panels are applied on the same face of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset horizontally and vertically to fall on different framing members, or all framing supporting panel edges shall consist of 3 inch nominal or thicker members and the position of nails on each side shall be staggered vertically.
- Provide 4x\_ or double 2x\_ framing where A35 angles are used on both sides of one piece of wood.
- Where a shear wall terminates above the foundation level (no shear wall below), provide minimum 4x\_ blocking or double joist framing (as applicable) below the shear wall. Plate nailing per this schedule shall be nailed into this blocking at the bottom of the shear wall.
- Shear wall nails shall be placed no closer than 3/8" from a panel edge or perpendicular face of stud.
- Maximum spacing between nails shall not exceed 12".
- Shear wall nailing shall be common or galvanized box nails, unless lag screws are noted. Galvanized nails shall be hot dipped or tumbled.
- Lag screw plate connectors shall penetrate 3.5" minimum, and plates or beams receiving lag screws shall have a minimum width of 3.5".
- Where hold downs are specified, the shear wall bolt shall be located within 6 inches of the end of the shear wall, unless otherwise approved by the engineer of record. Minimum end studs shall be as specified in the most recent Simpson catalog.
- Shear wall edge nailing through shear wall sheathing shall be provided into all studs attached to a hold down.
- Cast in place anchor bolts shall have a minimum embedment of 7" into the concrete foundation.
- Plate nails shall be nailed into a solid wood rim joist.
- 2x\_ plates may be substituted for 3x\_ plates if panels are nailed with edge nailing directly to the rim joist.
- Where 3x\_ plates are used, (2) 20d common nails must be used instead of (2) 16d common nails to connect studs to the bottom plate.
- Where Roof ventilation is required over a shear wall, see roof ventilation detail.

**Diaphragm Schedule**

(Lumber for diaphragm construction is HF#2 or better, unless otherwise noted.)

Type	Material	Edge Nailing	Field Nailing	Edge Blocking	Remarks
Roof	15/32" CDX 24/0	8d @ 6" o.c.	8d @ 12" o.c.	no	Minimum Standard
Floor	23/32" CDX 48/24	8d @ 6" o.c.	8d @ 12" o.c.	no	Minimum Standard

- "WSP" refers to "Wood Structural Panel", either plywood or other wood materials.
- Rim joists at exterior walls shall be continuous for tension. At rim joist splice locations, provide (2) CS16 horizontal straps, minimum 24" long, centered on the splice.
- Where roof or floor framing is cantilevered over an exterior wall below, provide solid blocking with Diaphragm edge nailing between joists.
- This is the minimum required diaphragm construction. Where otherwise noted on the plans, additional blocking or nailing may be required.



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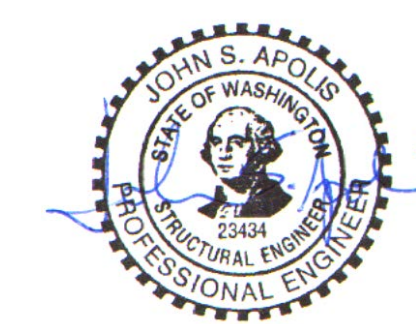
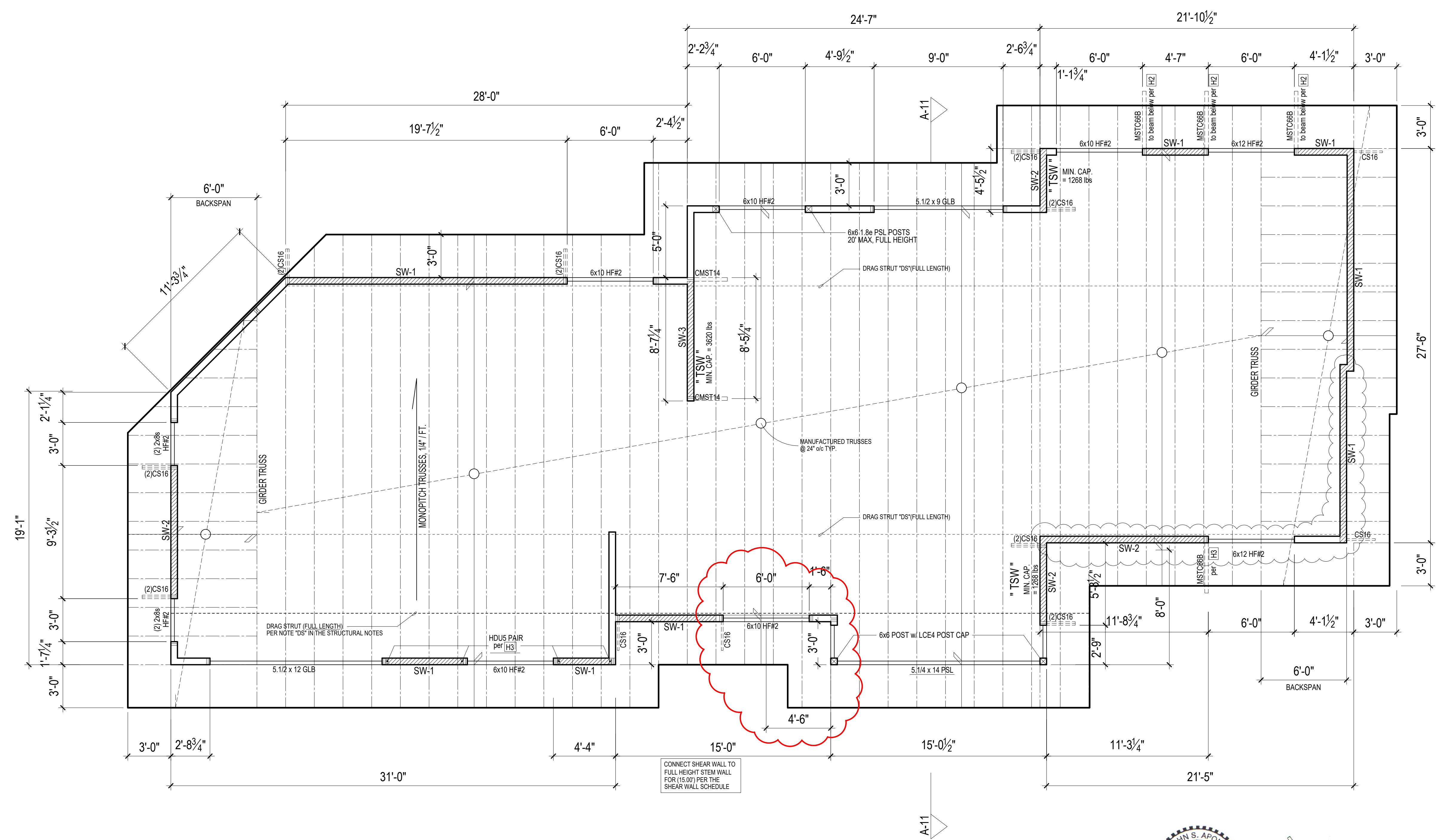
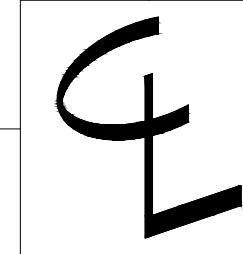
CONTENTS  
E & W Elevs  
SW Schedule

DRAWN BY  
CRL  
DATE  
2.3.20  
8.14.20  
11.24.20  
6.7.21

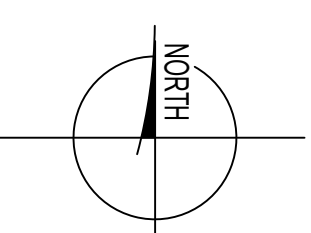
06







**ROOF FRAMING**  
 1/4" = 1'-0" AND UPPER FLOOR SHEAR WALLS



NOTE: "TSW" DENOTES:  
 ALIGN TRUSS WITH DESIGNATED SHEAR WALL, NAIL  
 AND SHEATH PER NOTE "TSW" IN THE STRUCTURAL  
 NOTES

NOTE: "DS" (X) DENOTES:  
 HORIZONTAL CMST16 DRAG STRUT (X) FT  
 LONG PER NOTE "DS" IN THE STRUCTURAL  
 NOTES

CONNECT SHEAR WALL TO  
 FULL HEIGHT STEM WALL  
 FOR (15,000) PER THE  
 SHEAR WALL SCHEDULE

DRAG STRUT (FULL LENGTH)  
 PER NOTE "DS" IN THE STRUCTURAL NOTES

MANUFACTURED TRUSSES  
 @ 24" o.c. TYP.

DRAG STRUT "DS" (FULL LENGTH)

DRAG STRUT "DS" (FULL LENGTH)

MONOPITCH TRUSSES, 1/4" PITCH

GIRDER TRUSS

GIRDER TRUSS

MIN. CAP.  
 = 1268 lbs

MIN. CAP.  
 = 3620 lbs

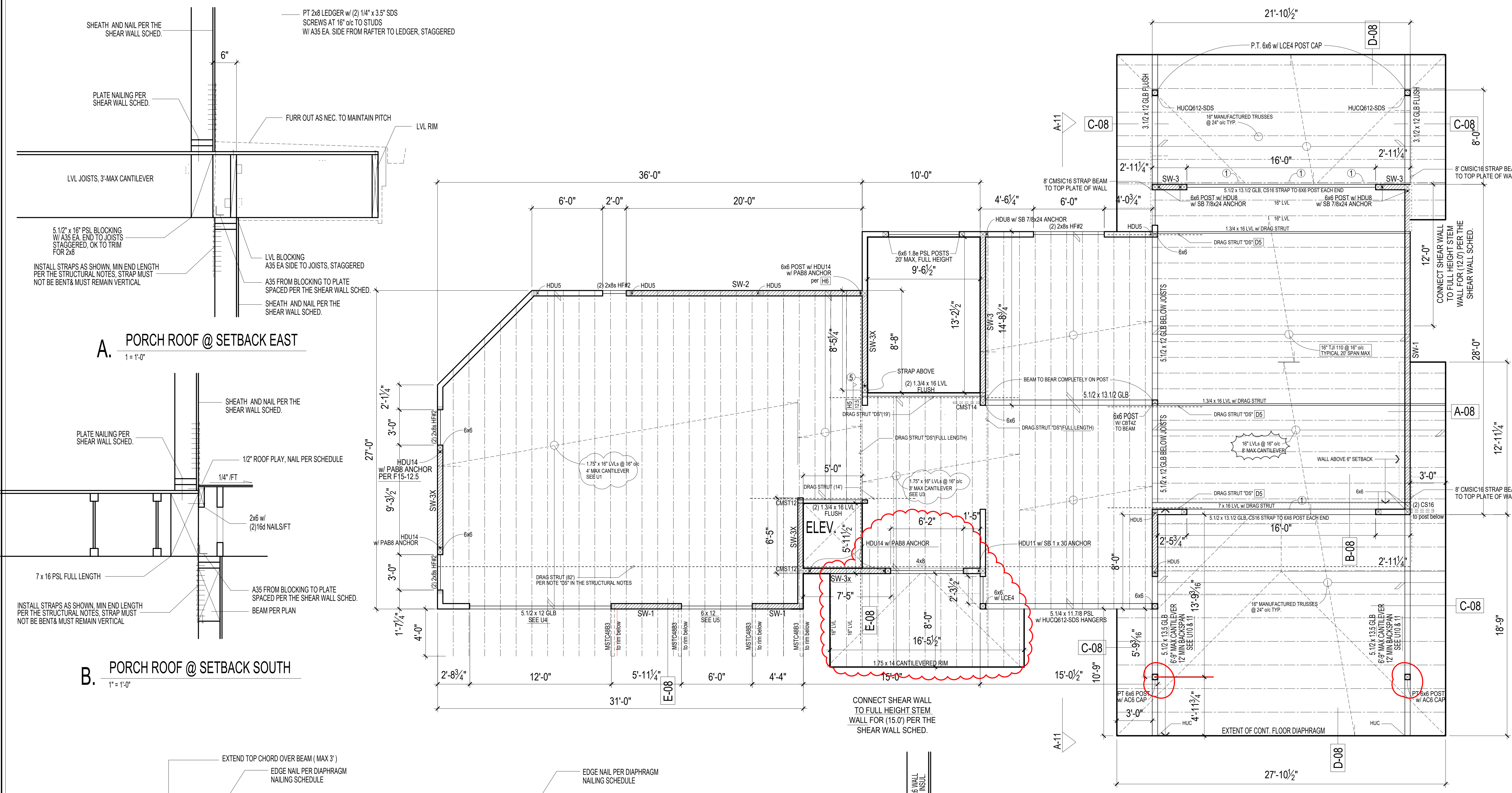
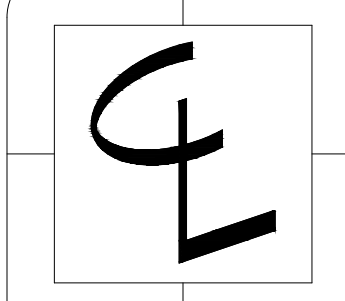
MIN. CAP.  
 = 1268 lbs

6x6 POST w/ LCE4 POST CAP

A-11

A-11





- ① DENOTES "STRAP FROM SHEAR WALL ABOVE"
- ② DENOTES "1.3/4" x 16 LVL @ 16" o/c CANTILEVER 6' MAX"
- ③ DENOTES "(2)H8 TIES FROM CANTILEVER BEAM TO HEADER"
- ④ DENOTES "DTT22 PAIR PER DECK END DETAIL"
- ⑤ DENOTES "HDU14 PAIR TO 6x6 POSTS PER DETAIL H5"
- ⑥ DENOTES "HDU14 w/PAB8 ANCHOR TO 6x6 POST"
- ⑦ DENOTES "HDU11 w/SB1x30 ANCHOR TO 6x6 POST"
- ⑧ DENOTES "HD19 w/PAB 9 ANCHOR TO 6x6 DF#2 POST"





## Energy Credit Descriptions

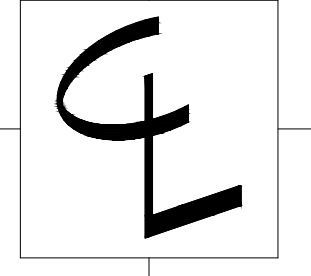
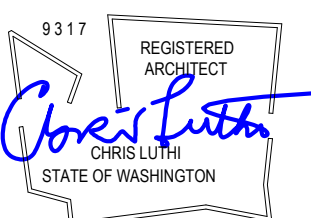
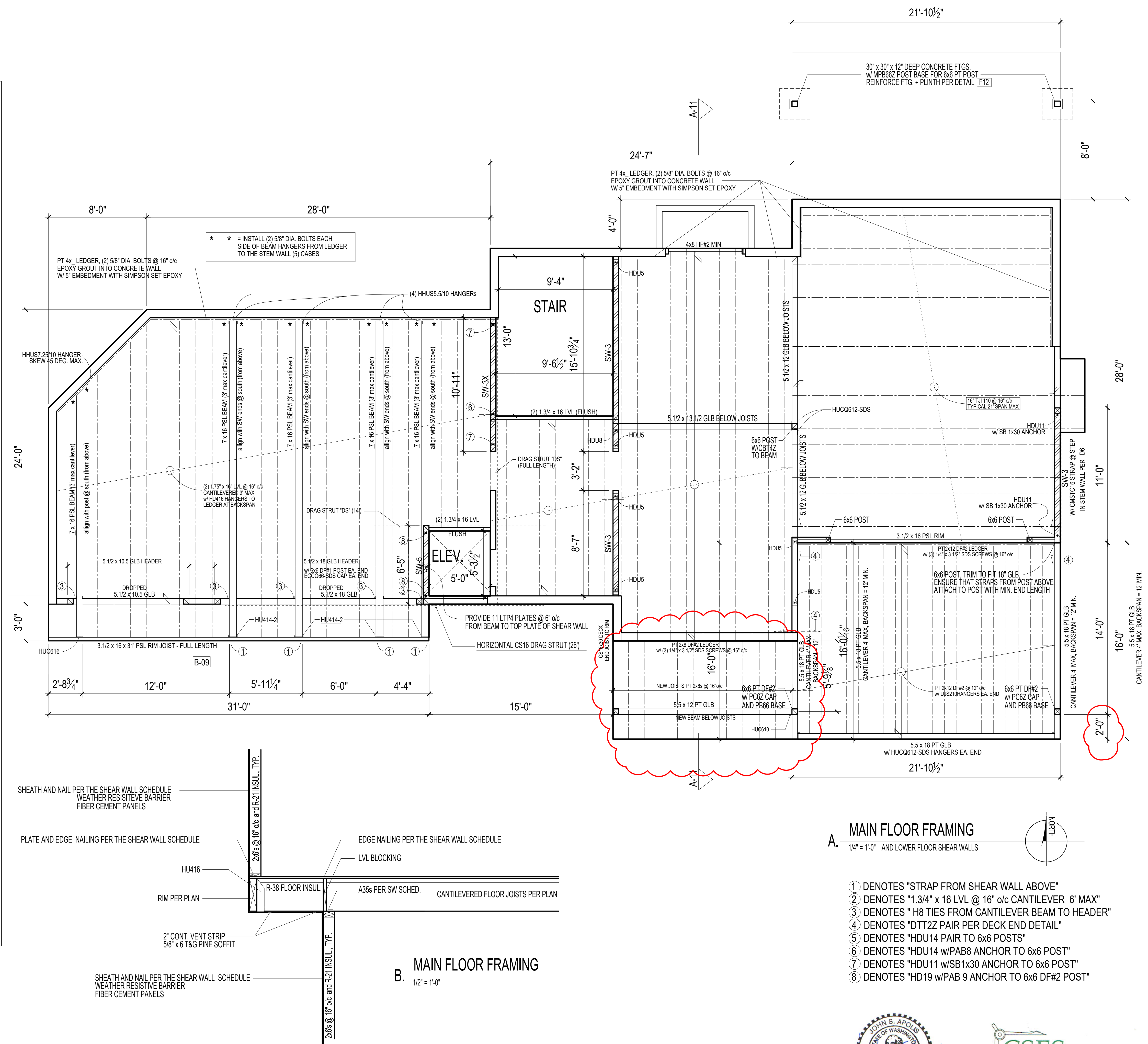
**2a - AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION**  
 Compliance based on R402.4.1.2: Reduce the tested air leakage to 3.0 air changes per hour maximum and  
 All whole house ventilation requirements as determined by Section M1507.3 of the International Residential Code shall be met with a high efficiency fan (maximum 0.35 watts/cfm), not interlocked with the furnace fan. Ventilation systems using a furnace including an ECM motor are allowed, provided that they are controlled to operate at low speed in ventilation only mode.  
 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum tested building air leakage and shall show the qualifying ventilation system.

**3b - HIGH EFFICIENCY HVAC EQUIPMENT**  
 Air-source heat pump with minimum HSPF of 9.0  
 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and the minimum equipment efficiency.

**4 - HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM:**  
 All heating and cooling system components installed inside the conditioned space. This includes all equipment and distribution system components such as forced air ducts, hydronic piping, hydronic floor heating loop, convectors and radiators. All combustion equipment shall be direct vent or sealed combustion.  
 For forced air ducts: A maximum of 10 linear feet of return ducts and 5 linear feet of supply ducts may be located outside the conditioned space. All metallic ducts located outside the conditioned space must have both transverse and longitudinal joints sealed with mastic. If flex ducts are used, they cannot contain splices. Flex duct connections must be made with nylon straps and installed using a plastic strapping tensioning tool. Ducts located outside the conditioned space must be insulated to a minimum of R-8. Locating system components in conditioned crawl spaces is not permitted under this option.  
 Electric resistance heat and ductless heat pumps are not permitted under this option.  
 Direct combustion heating equipment with AFUE less than 80% is not permitted under this option.  
 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the heating equipment type and shall show the location of the heating and cooling equipment and all the ductwork.

**5a - EFFICIENT WATER HEATING**  
 All showerhead and kitchen sink faucets installed in the house shall be rated at 1.75 GPM or less. All other lavatory faucets shall be rated at 1.0 GPM or less.  
 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the maximum flow rates for all showerheads, kitchen sink faucets, and other lavatory faucets.

**5c - EFFICIENT WATER HEATING**  
 Electric heat pump water heater with a minimum EF of 2.0 and meeting the standards of NEEA's Northern Climate Specifications for Heat Pump Water Heaters  
 To qualify to claim this credit, the building permit drawings shall specify the option being selected and shall specify the water heater equipment type and the minimum equipment efficiency.



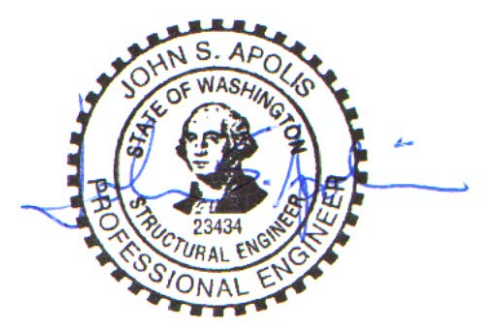
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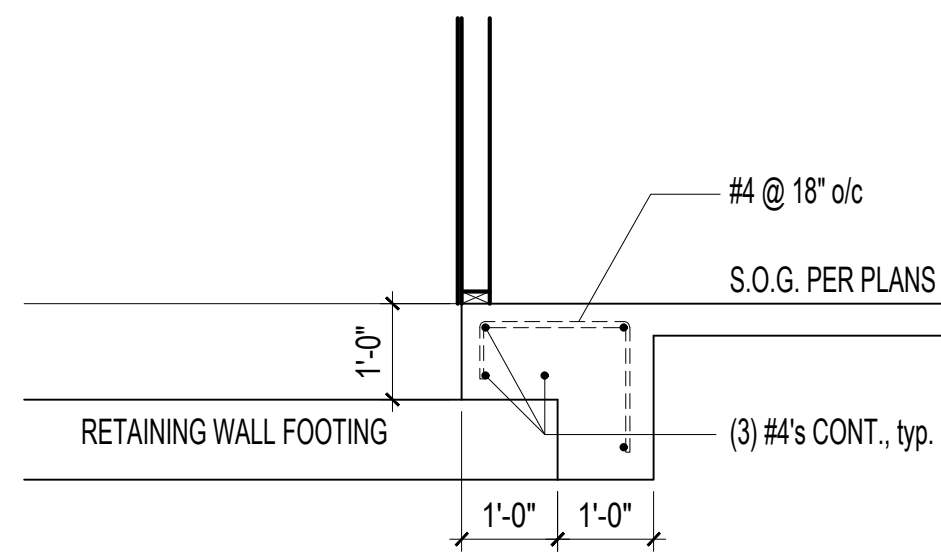
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DRAWN BY  
 CRL  
 DATE  
 2.3.20  
 8.14.20  
 11.24.20  
 6.7.21

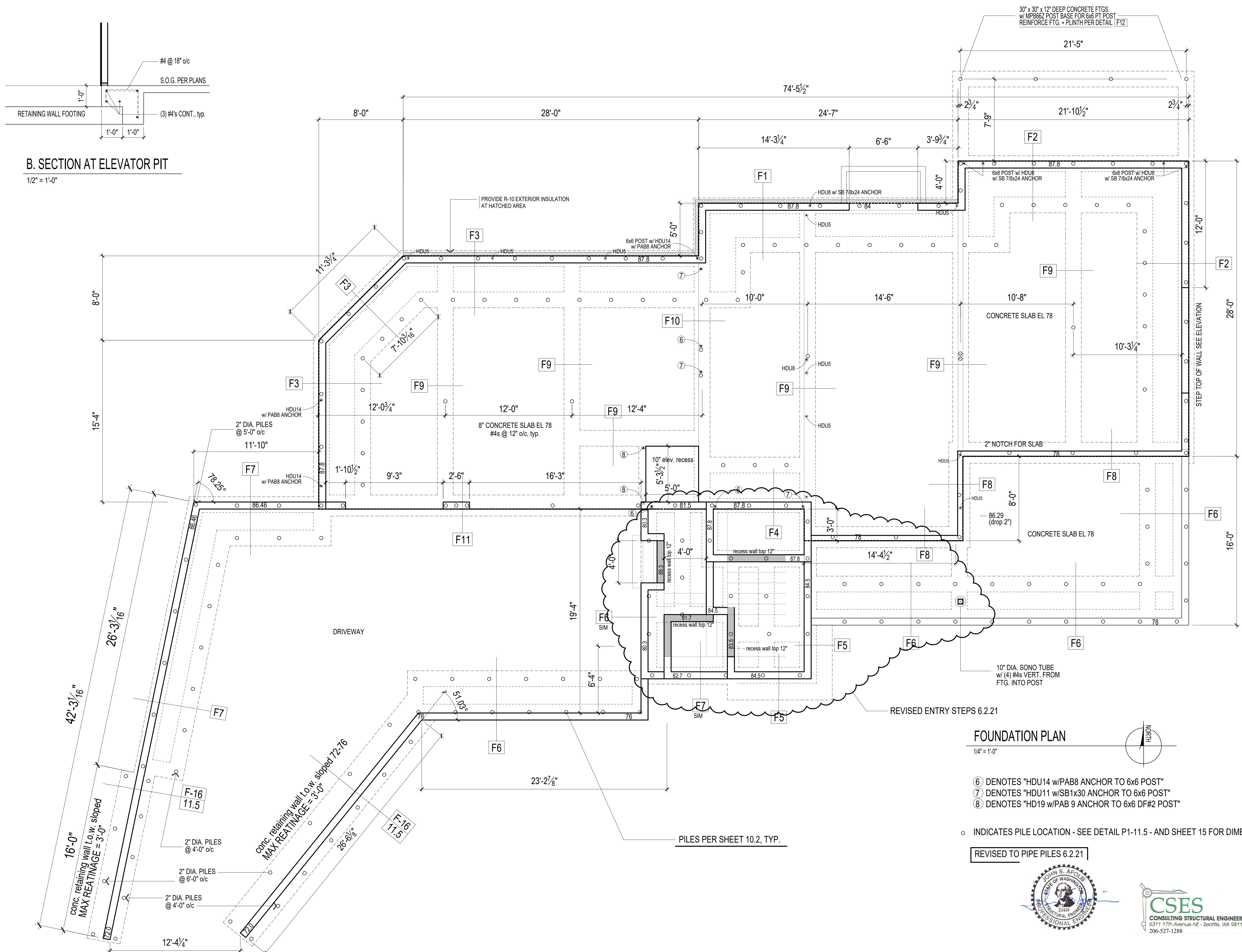
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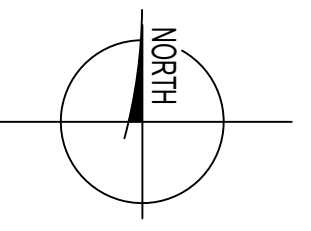


**B. SECTION AT ELEVATOR PIT**  
1/2" = 1'-0"



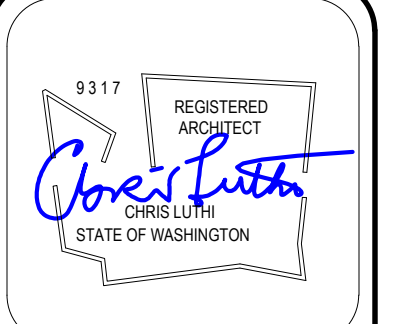
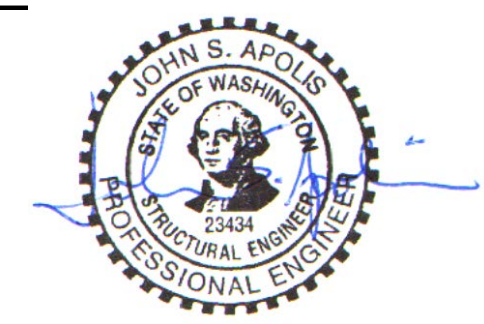
**FOUNDATION PLAN**

1/4" = 1'-0"



- ⑥ DENOTES "HDU14 w/PAB8 ANCHOR TO 6x6 POST"
- ⑦ DENOTES "HDU11 w/SB1x30 ANCHOR TO 6x6 POST"
- ⑧ DENOTES "HD19 w/PAB 9 ANCHOR TO 6x6 DF#2 POST"
- INDICATES PILE LOCATION - SEE DETAIL P1-11.5 - AND SHEET 15 FOR DIMENSIONS

REVISED TO PIPE PILES 6.2.21



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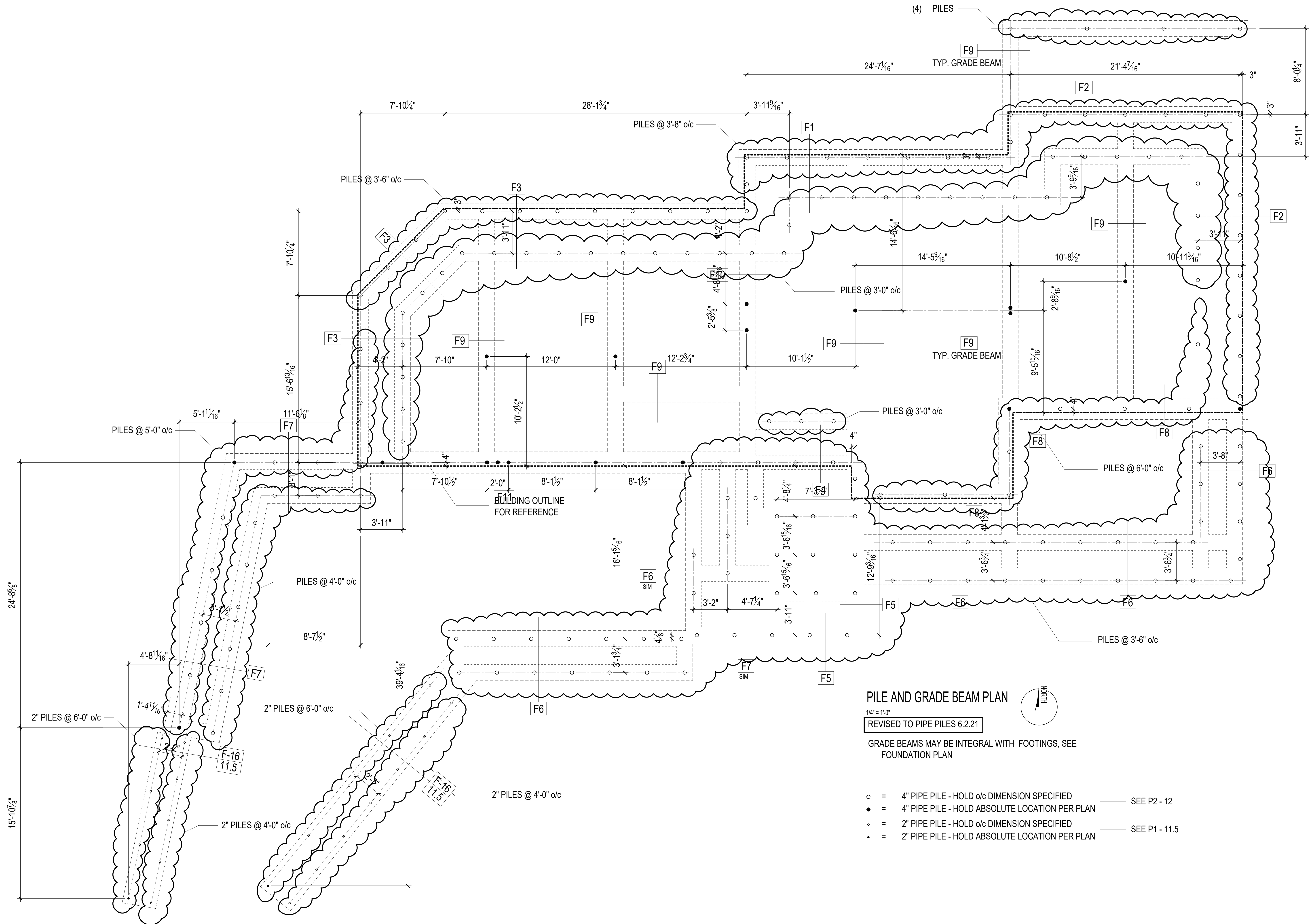
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**DRAWN BY**  
CRL  
**DATE**  
2.3.20  
8.14.20  
11.30.20  
6.7.21

7.6.21

10





**PILE AND GRADE BEAM PLAN**

1/4" = 1'-0"  
 REVISED TO PIPE PILES 6.2.21

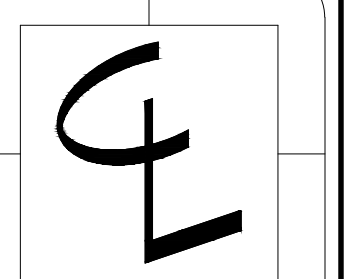
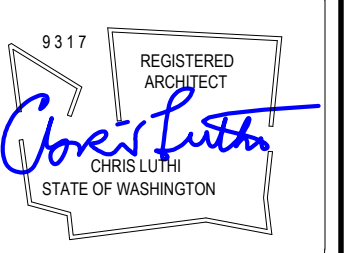
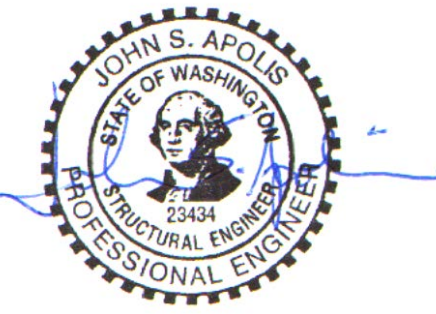
GRADE BEAMS MAY BE INTEGRAL WITH FOOTINGS, SEE FOUNDATION PLAN

- = 4" PIPE PILE - HOLD o/c DIMENSION SPECIFIED — SEE P2 - 12
- = 4" PIPE PILE - HOLD ABSOLUTE LOCATION PER PLAN
- = 2" PIPE PILE - HOLD o/c DIMENSION SPECIFIED — SEE P1 - 11.5
- = 2" PIPE PILE - HOLD ABSOLUTE LOCATION PER PLAN



**VENTING CALC.**

2" STRIP VENT = 8sq ft / FT  
 LOW VENTING = 83' x 8sqft = 664 s.i.  
 HIGH VENTING = 102' x 8sqft = 816 s.i.  
 TOTAL VENTING = 1480 s.i.  
 REQD VENTING = 2298 x 144 / 300 = 1103 s.i.  
 1480 > 1103, therefore OK

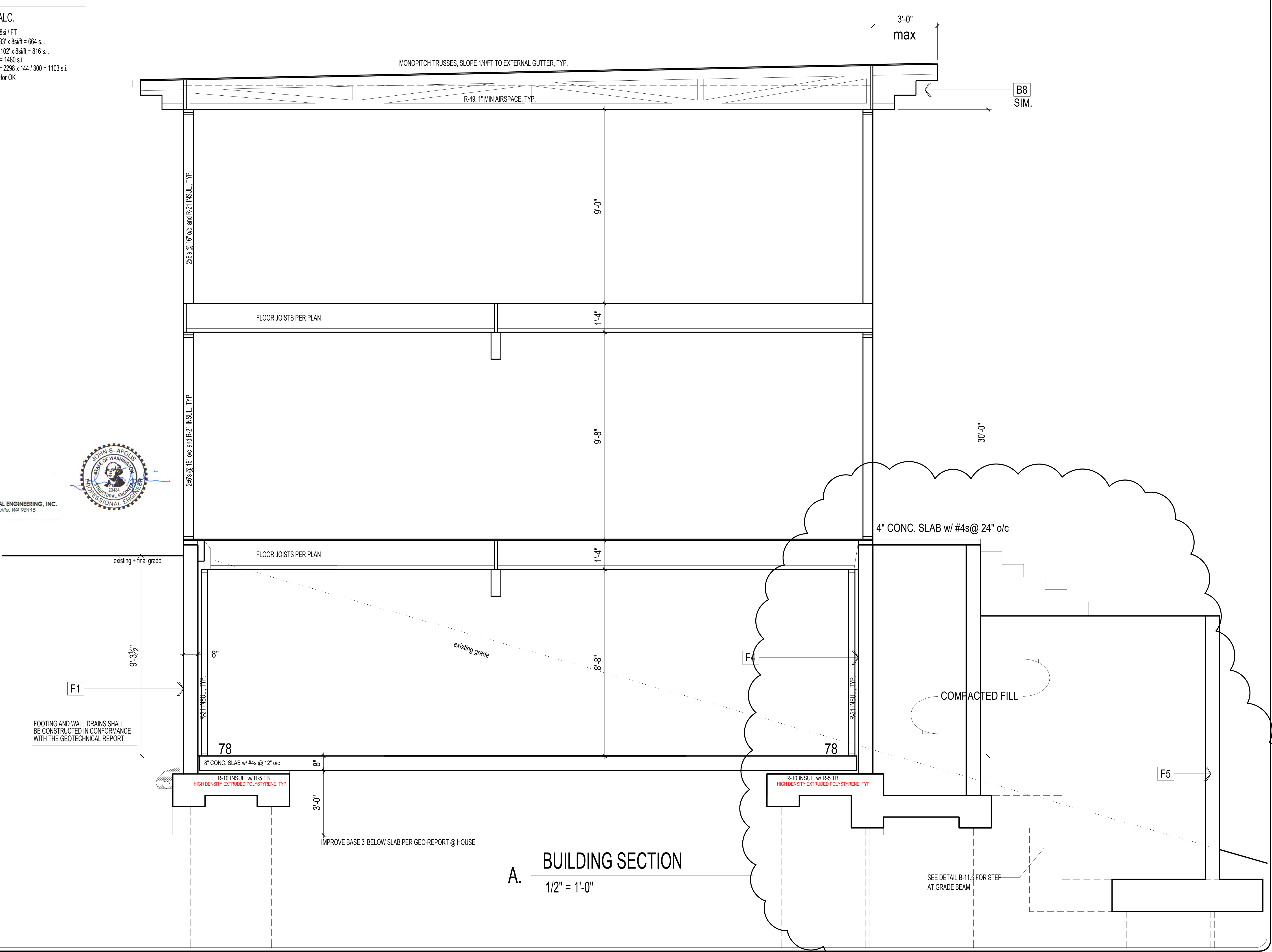


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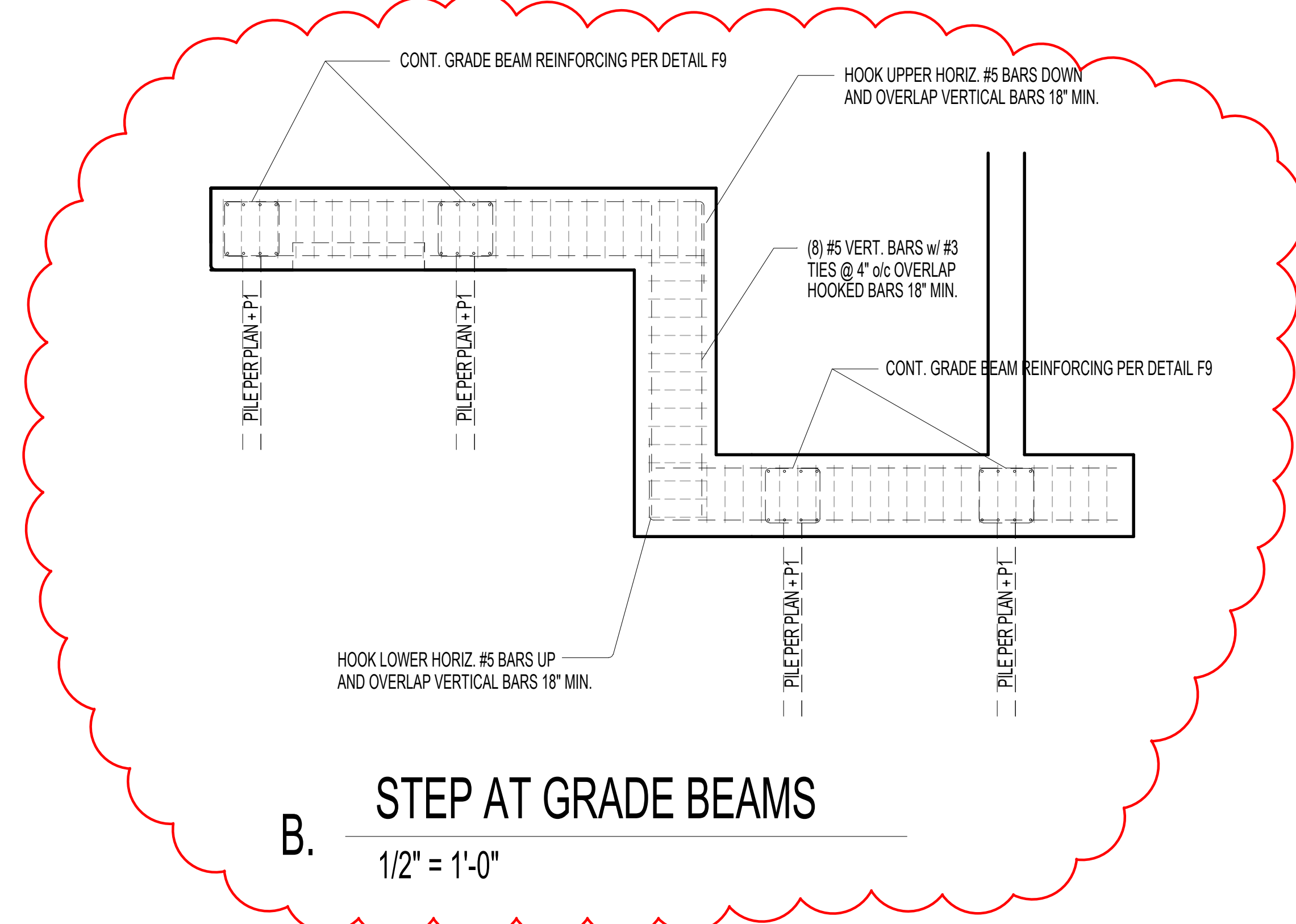
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	8.14.20
	11.24.20
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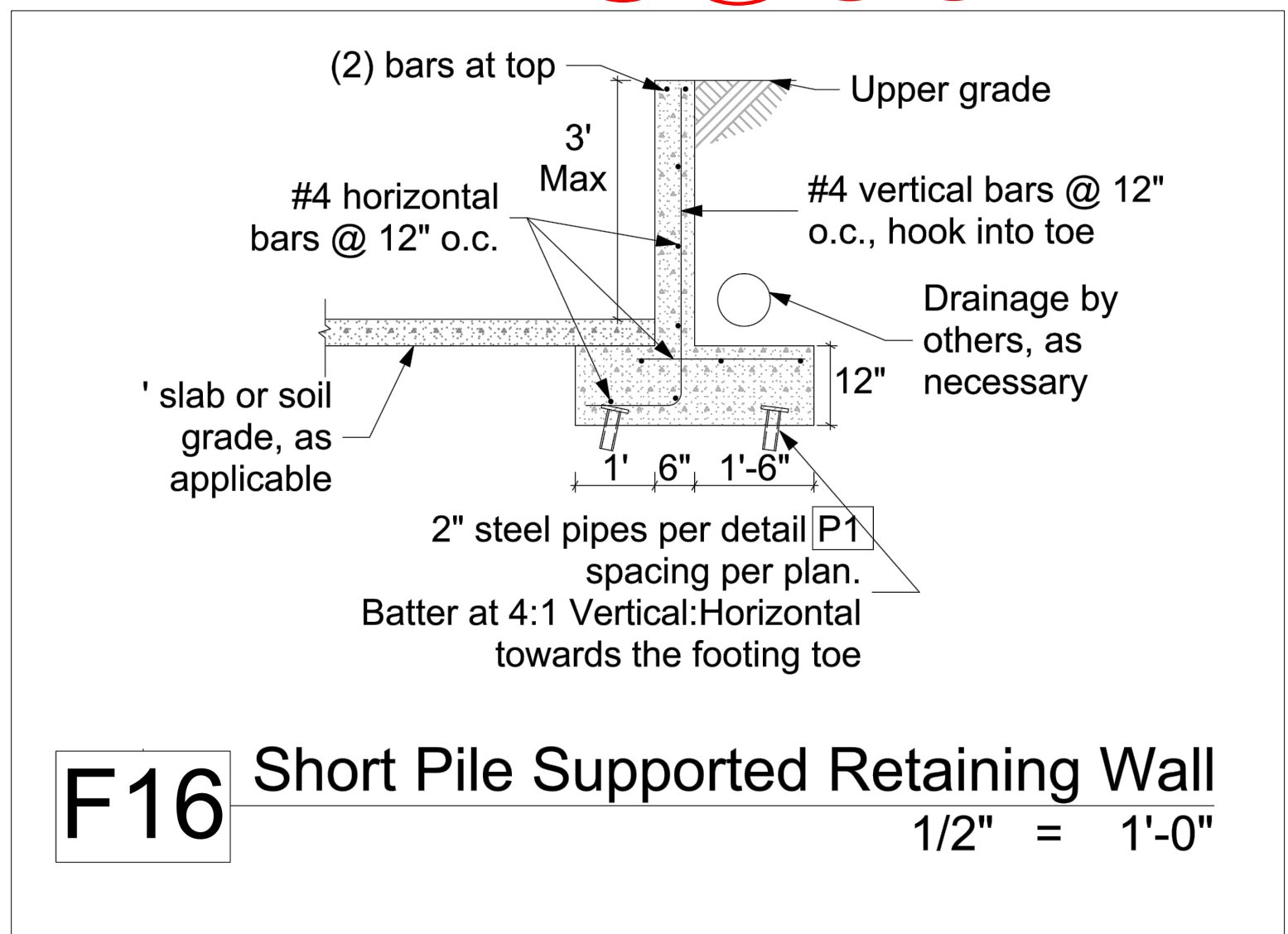


**A. BUILDING SECTION**  
 1/2" = 1'-0"

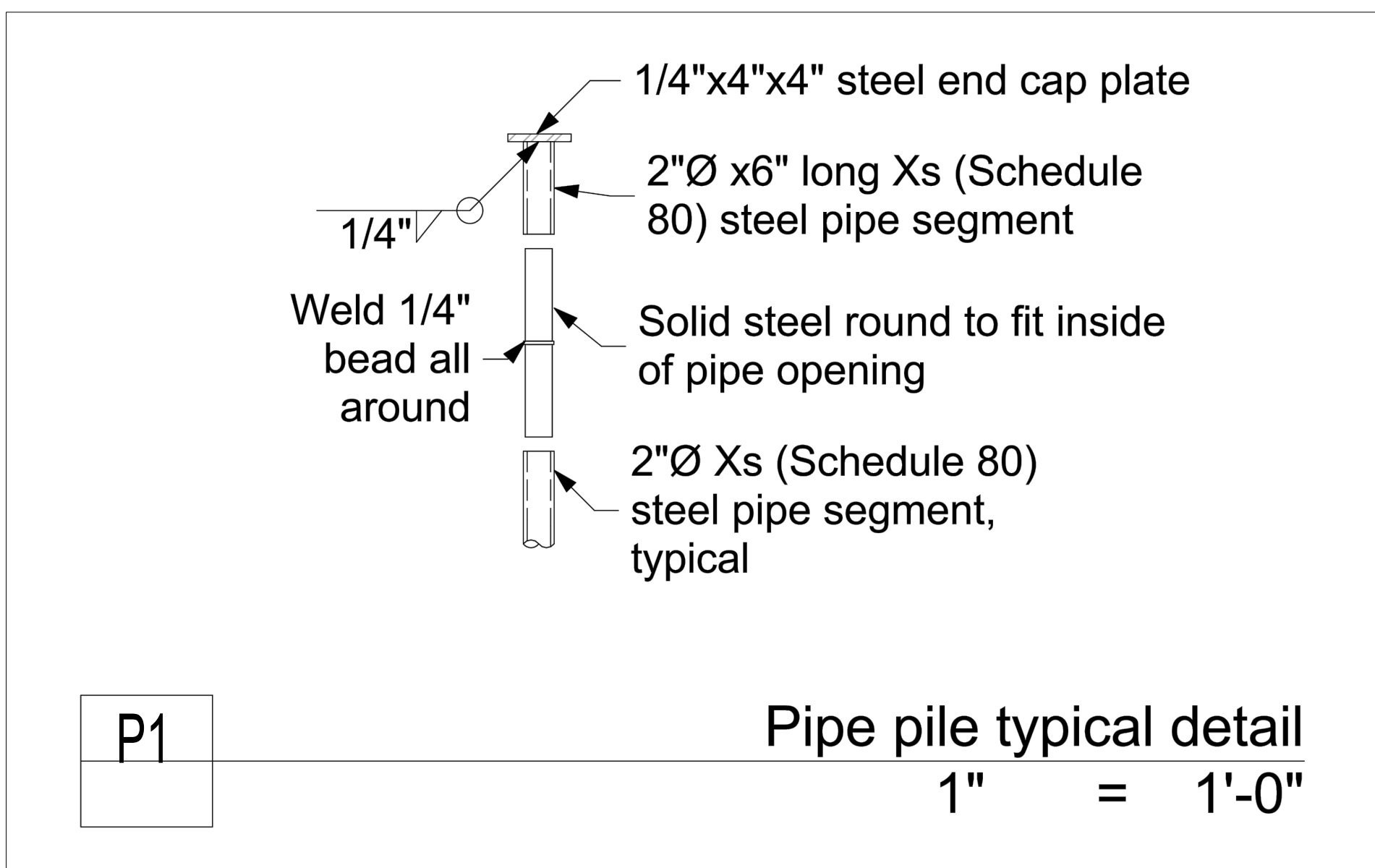




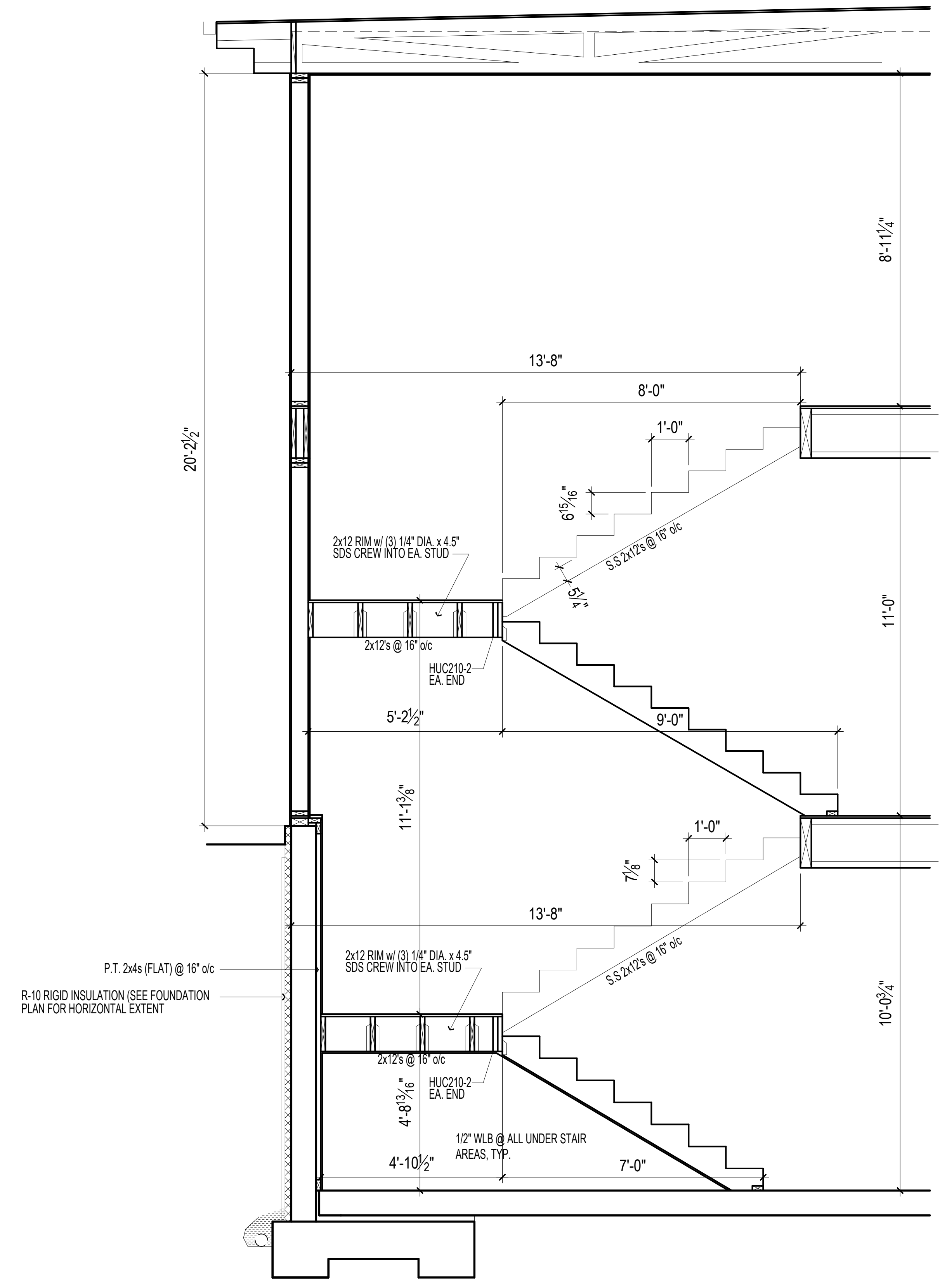
**B. STEP AT GRADE BEAMS**  
 1/2" = 1'-0"



**F16 Short Pile Supported Retaining Wall**  
 1/2" = 1'-0"



**P1 Pipe pile typical detail**  
 1" = 1'-0"



**A. STAIR SECTION**  
 1/2" = 1'-0"



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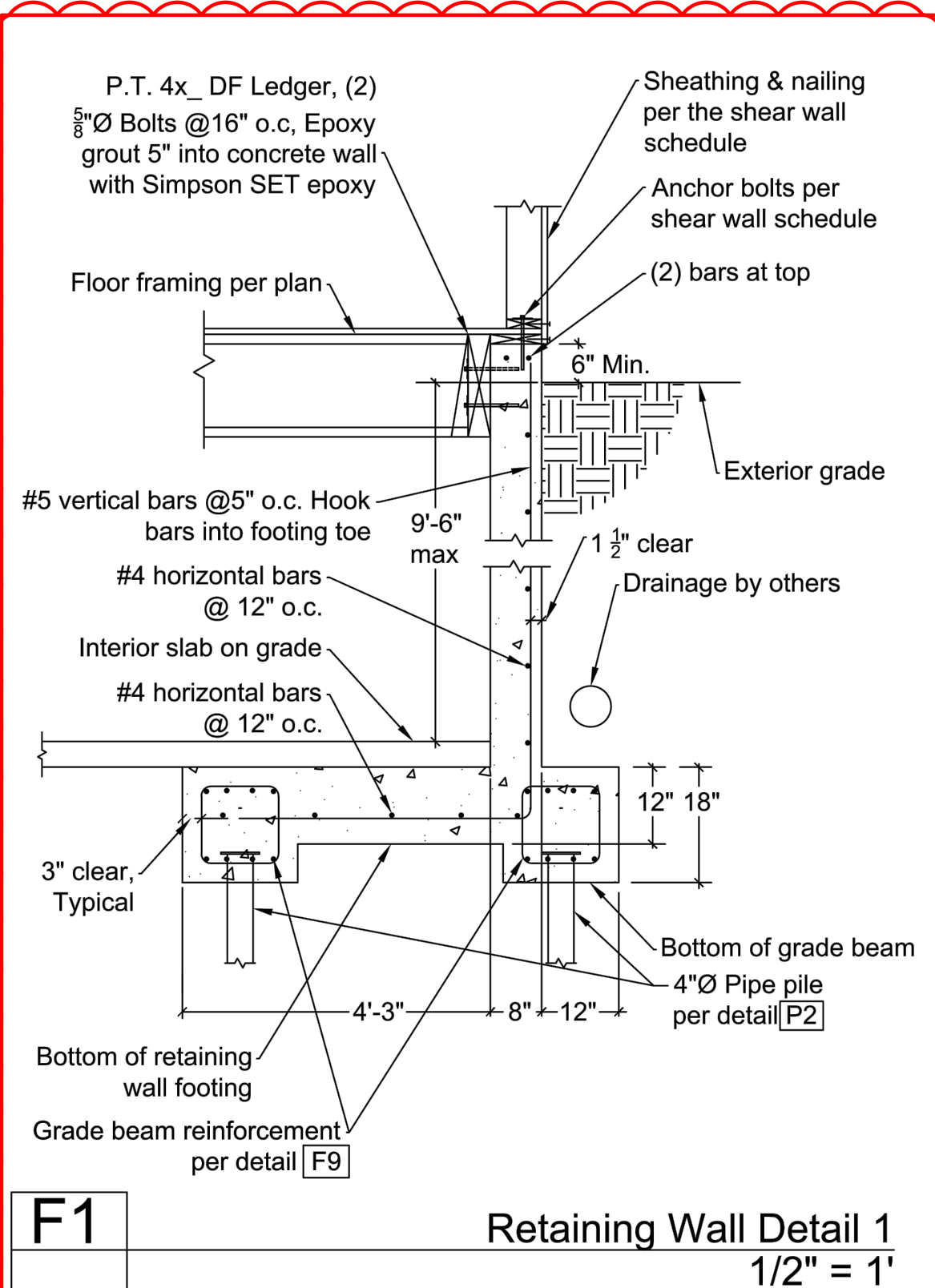
**EAST HOUSE**  
 4270 E. Mercer Way Short Plat Mercer Island WA

**CONTENTS**  
 Bldg. Section

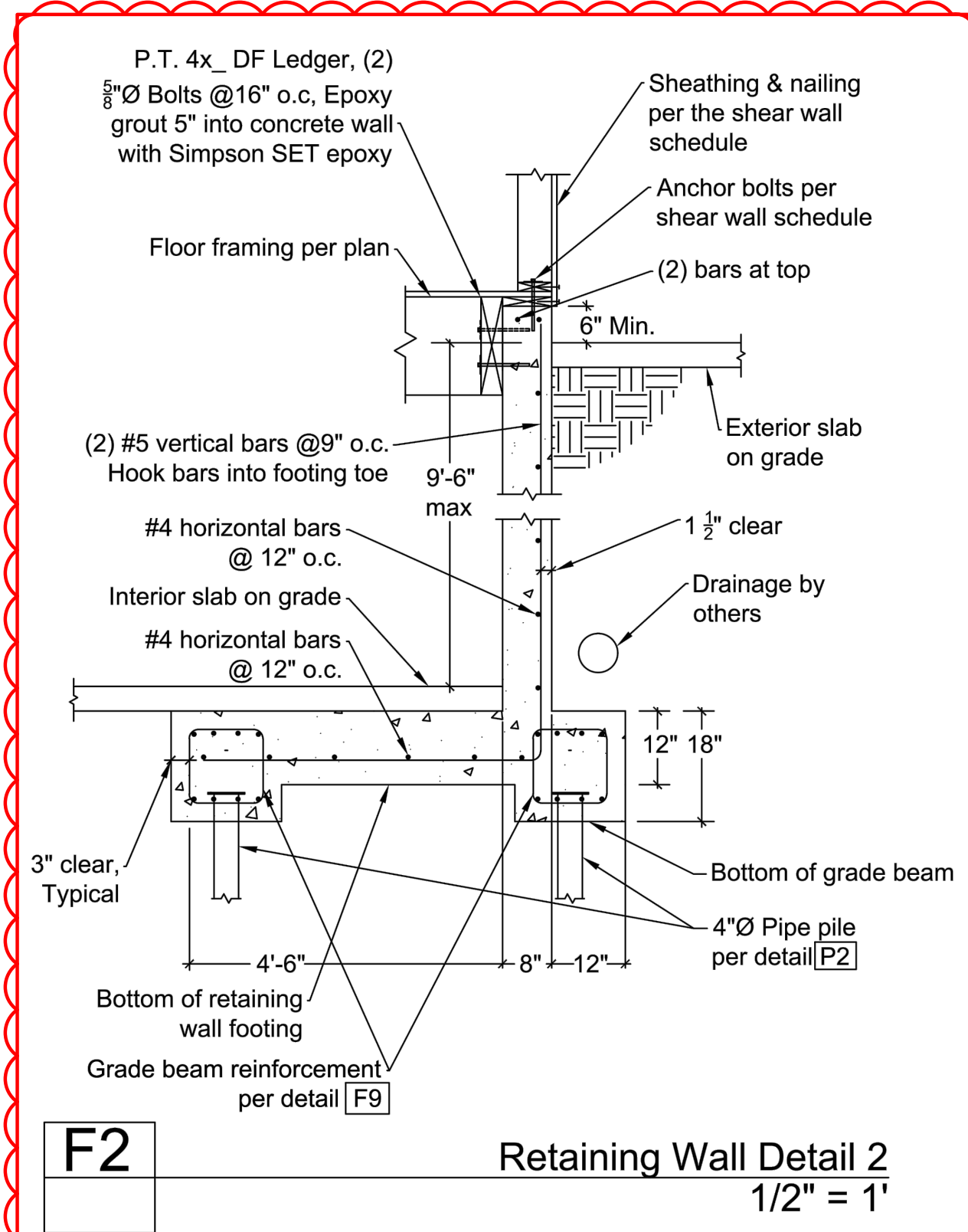
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 2.3.20  
 8.14.20  
 11.30.20  
 7.6.21

**11.5**

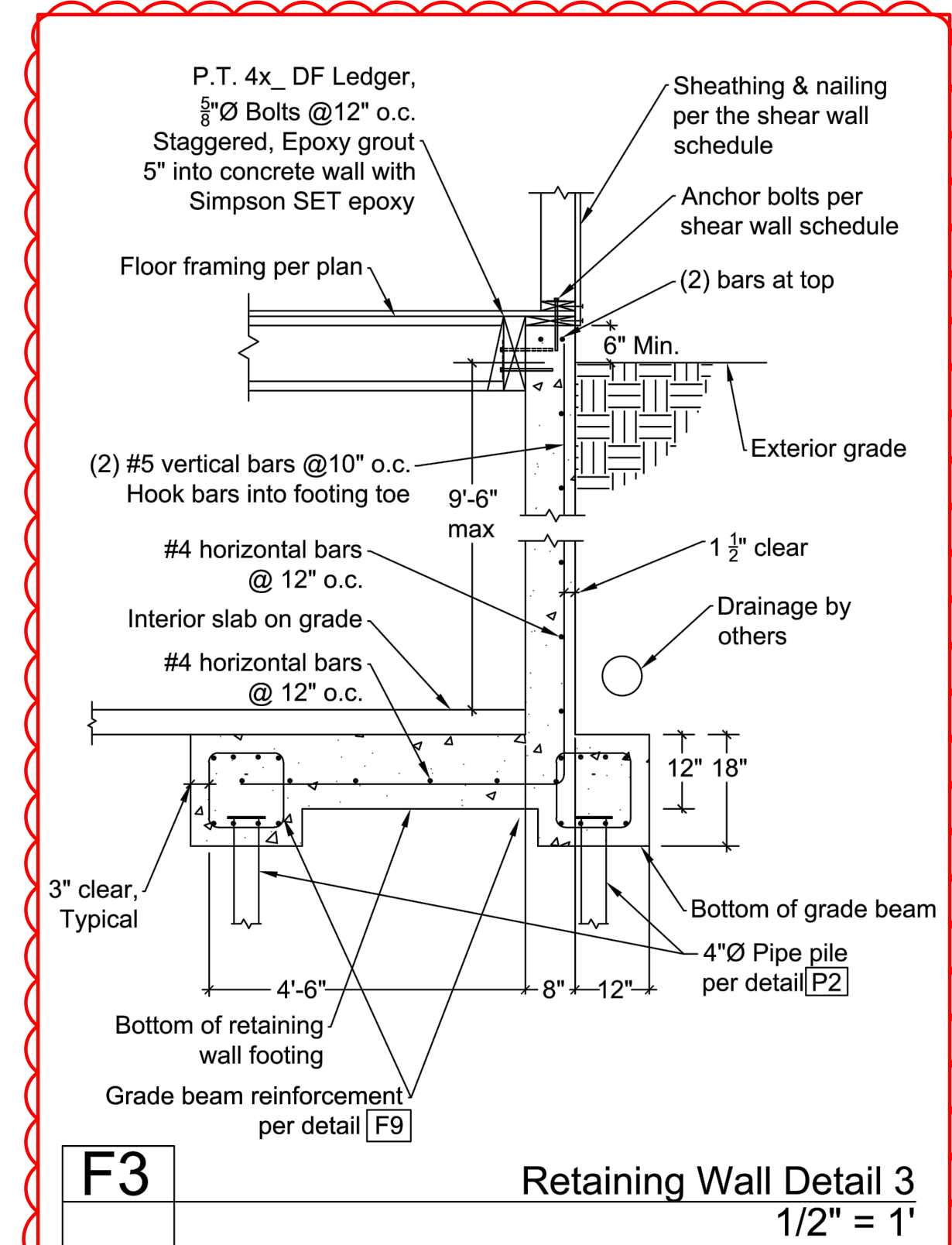




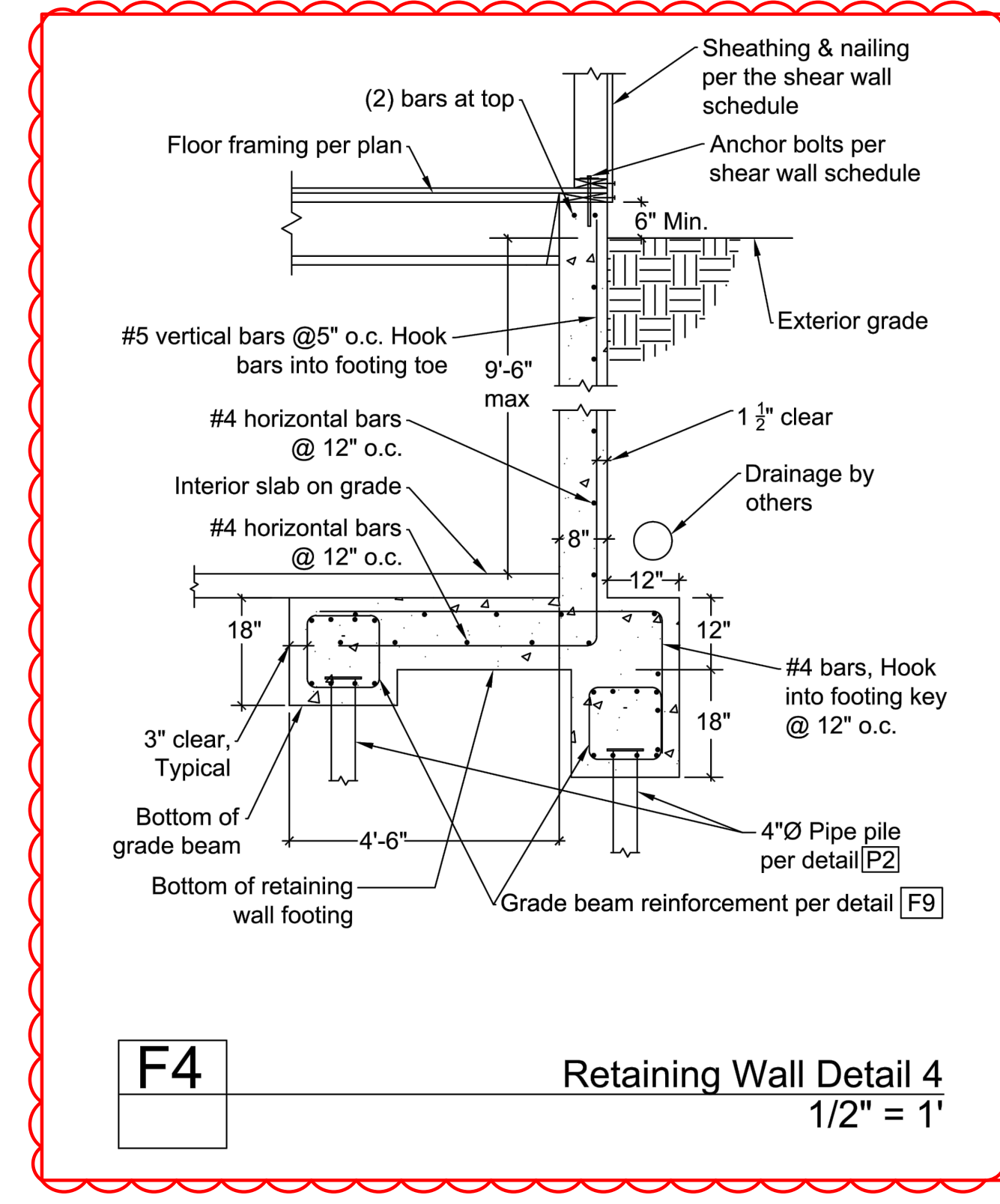
**F1** Retaining Wall Detail 1  
1/2" = 1'



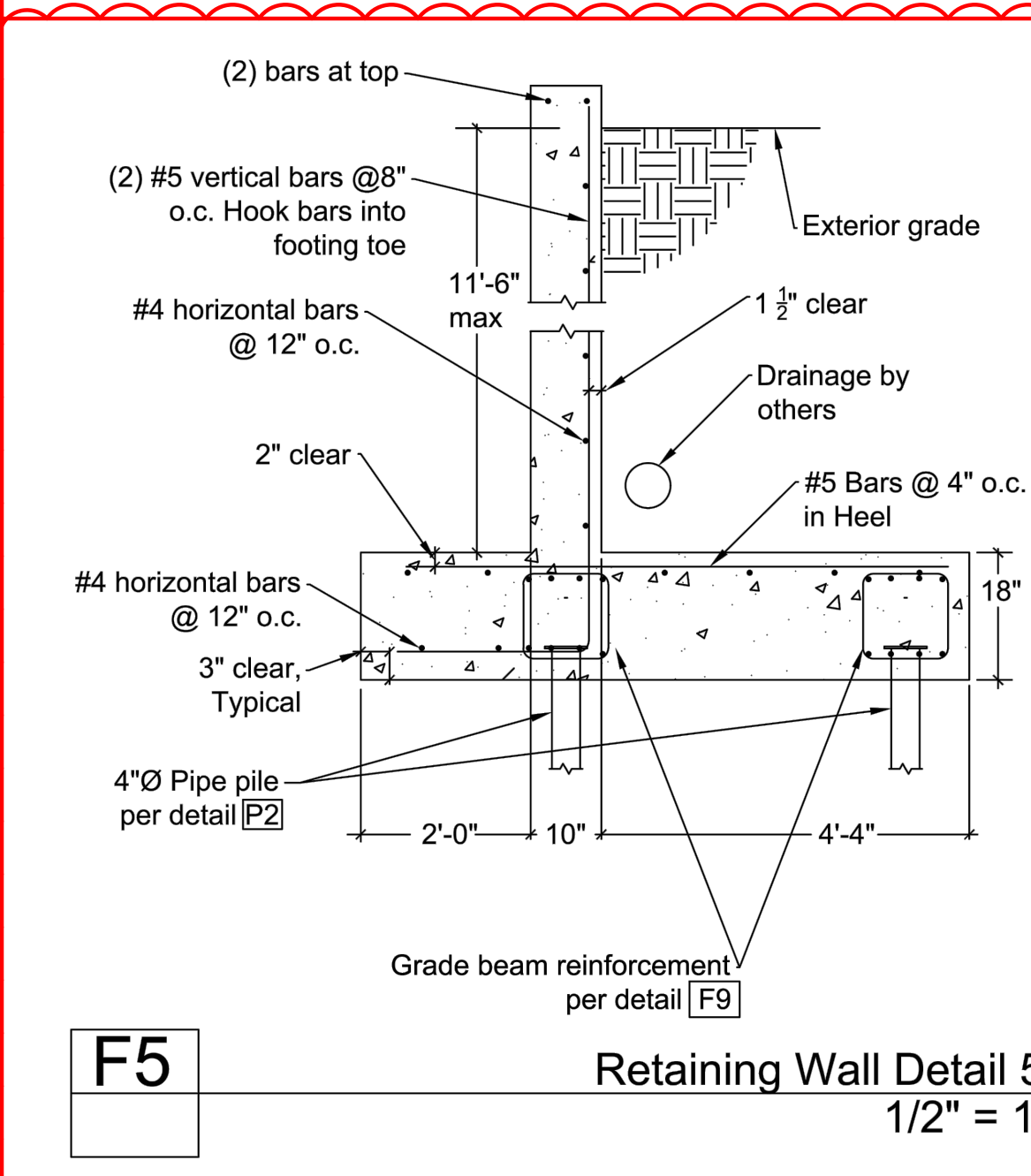
**F2** Retaining Wall Detail 2  
1/2" = 1'



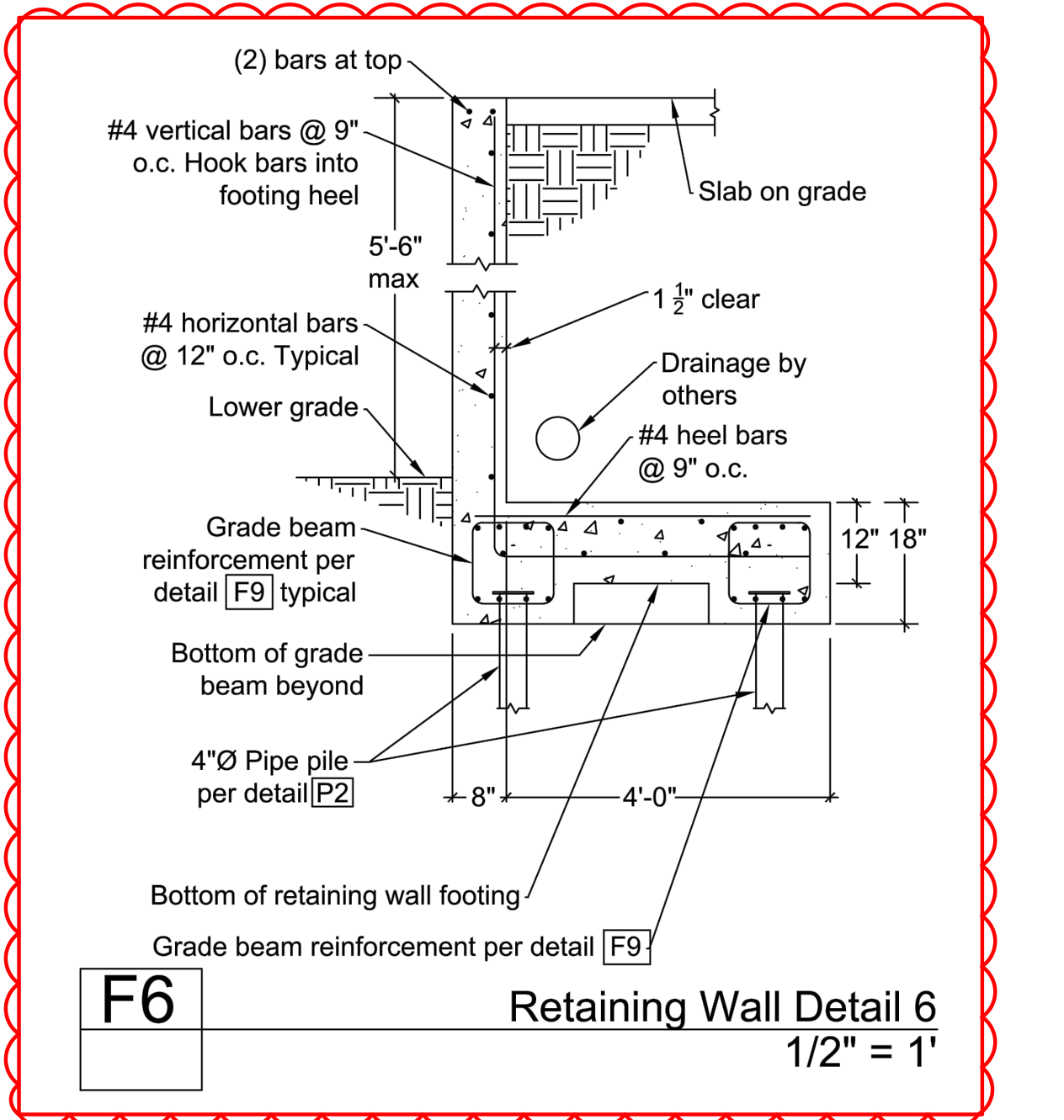
**F3** Retaining Wall Detail 3  
1/2" = 1'



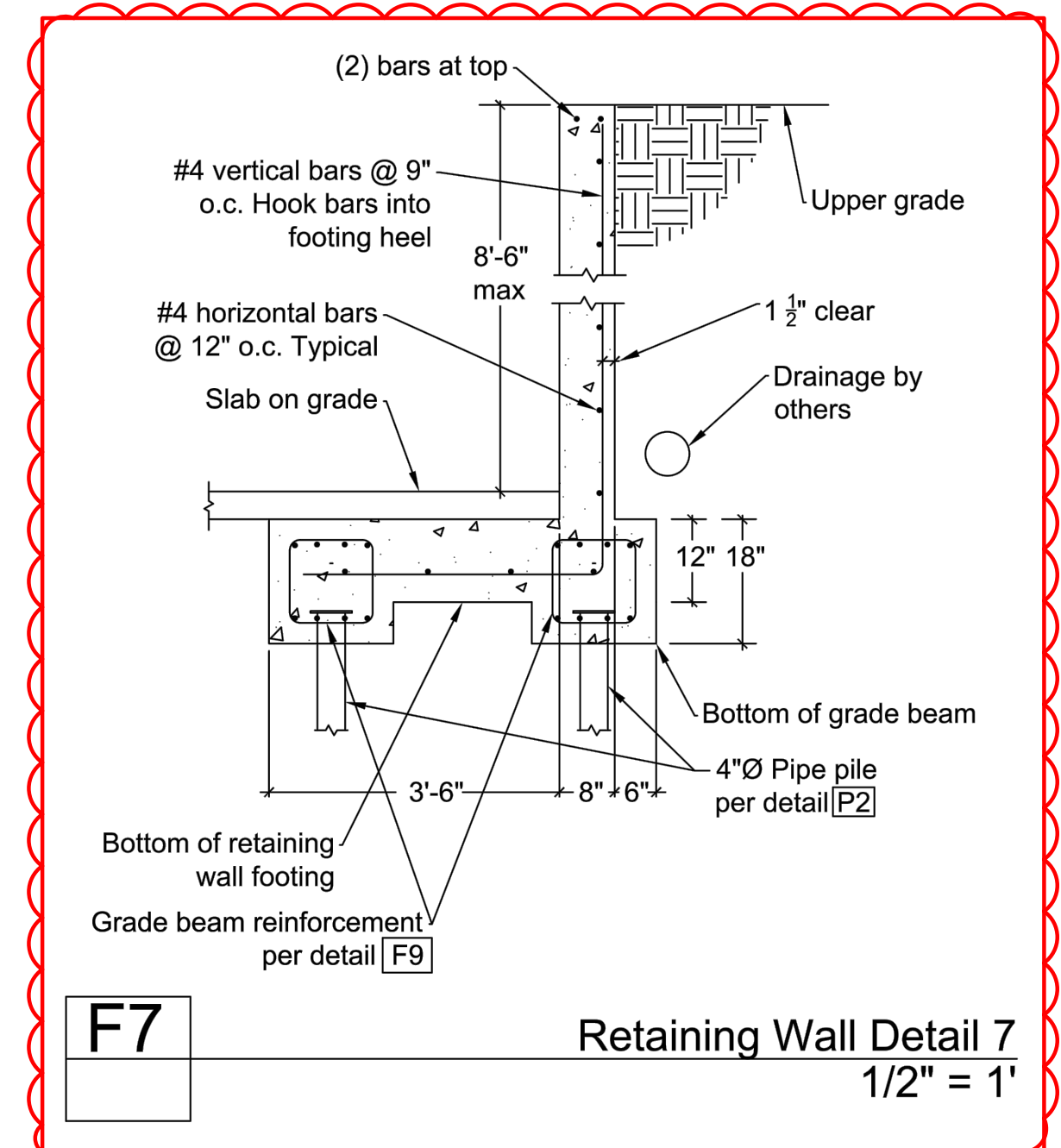
**F4** Retaining Wall Detail 4  
1/2" = 1'



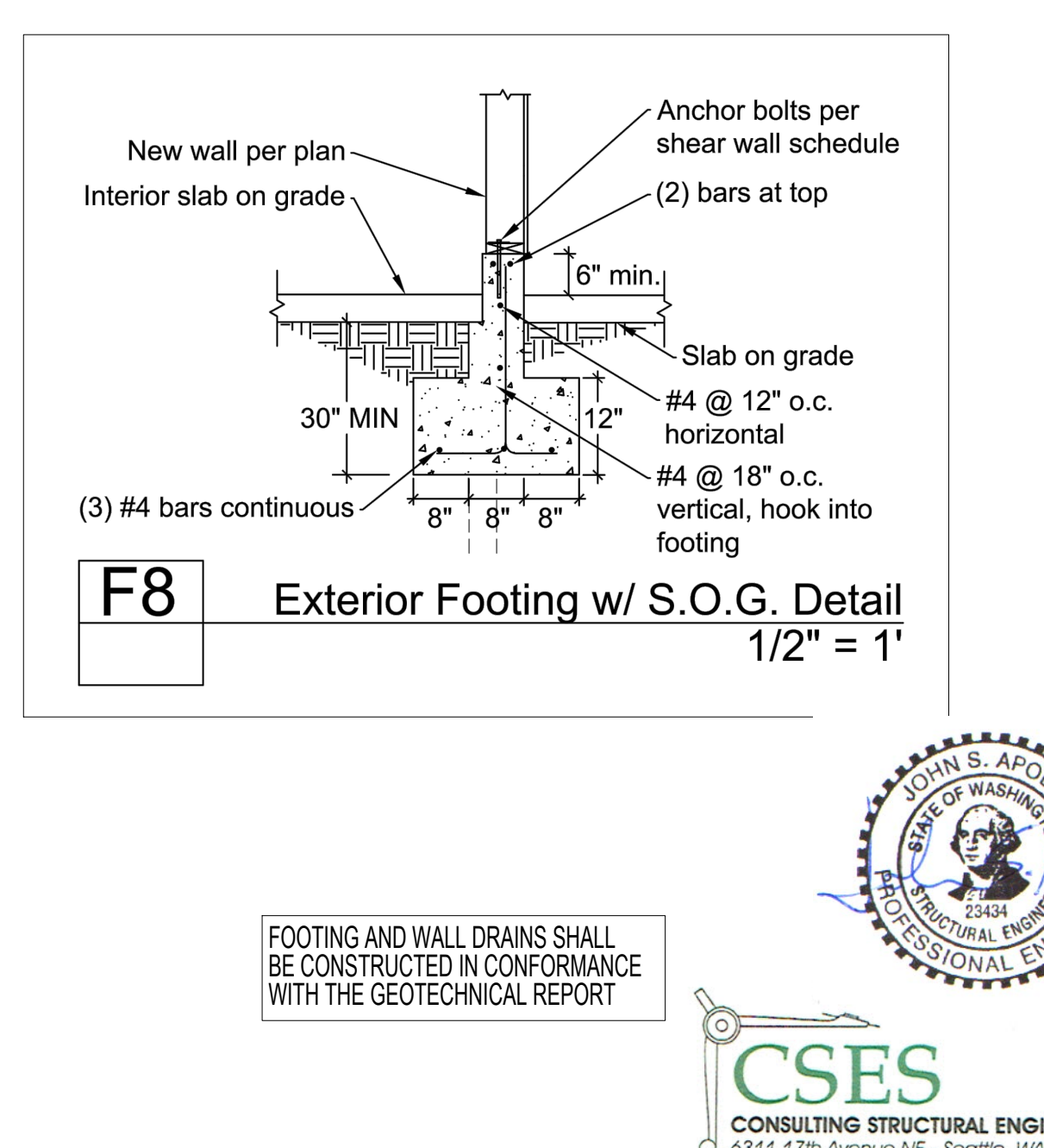
**F5** Retaining Wall Detail 5  
1/2" = 1'



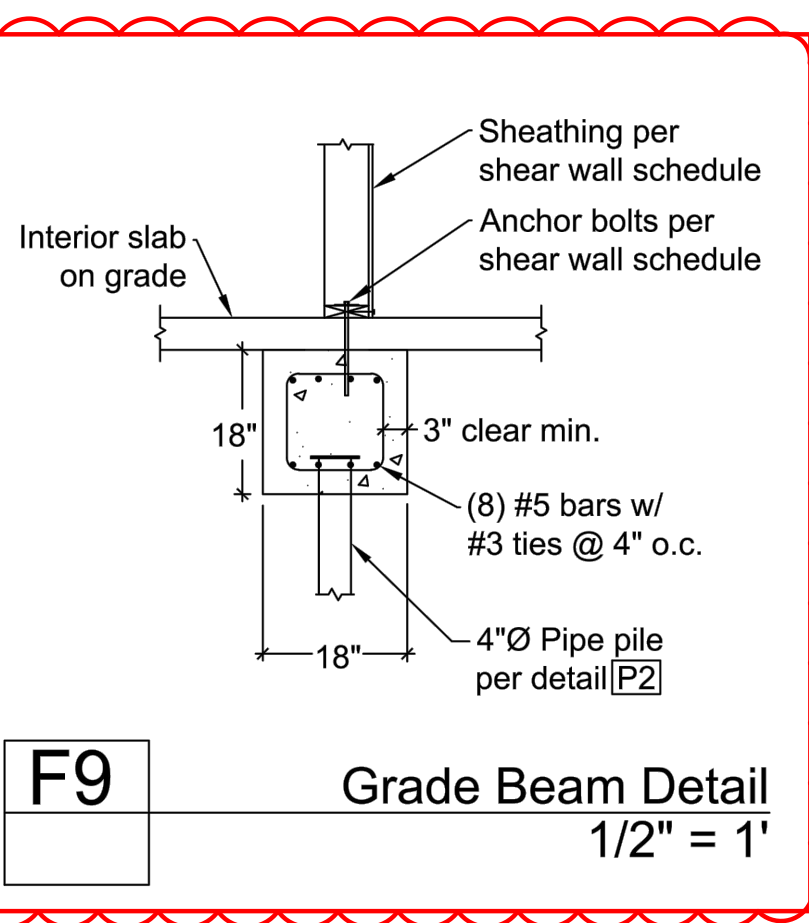
**F6** Retaining Wall Detail 6  
1/2" = 1'



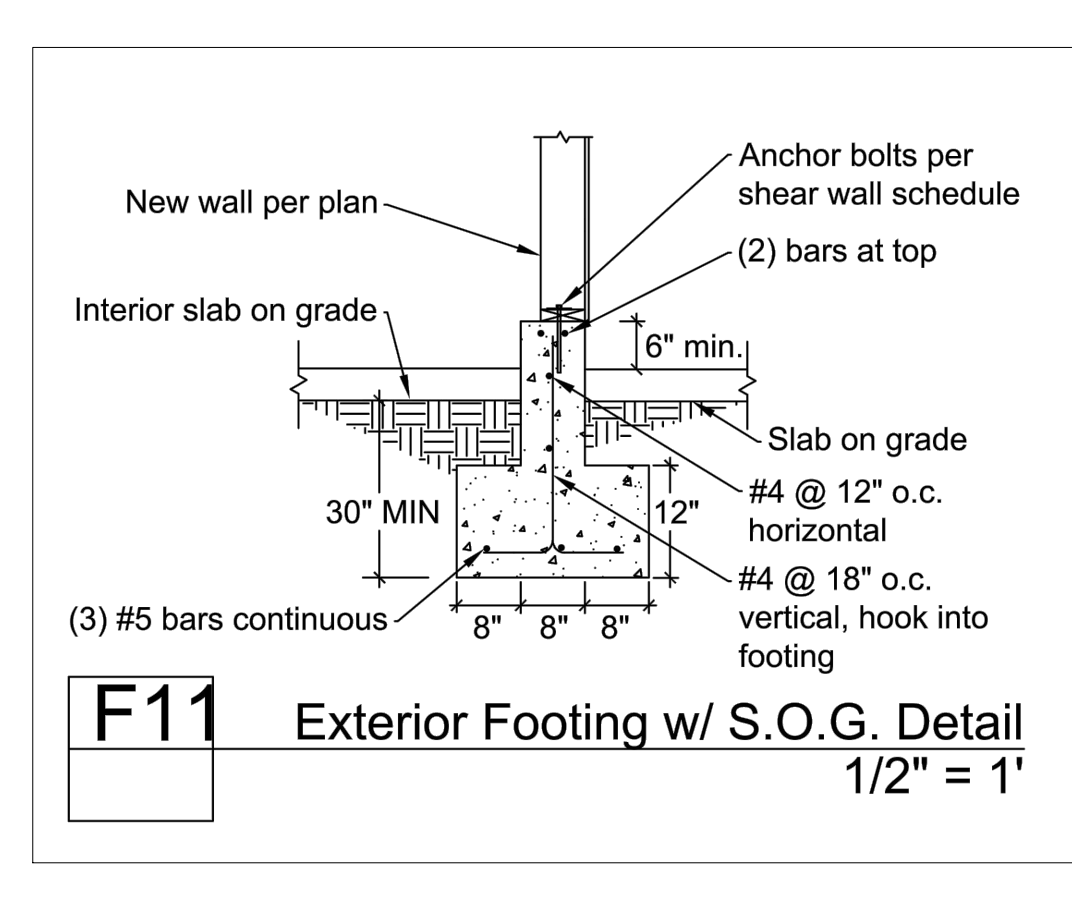
**F7** Retaining Wall Detail 7  
1/2" = 1'



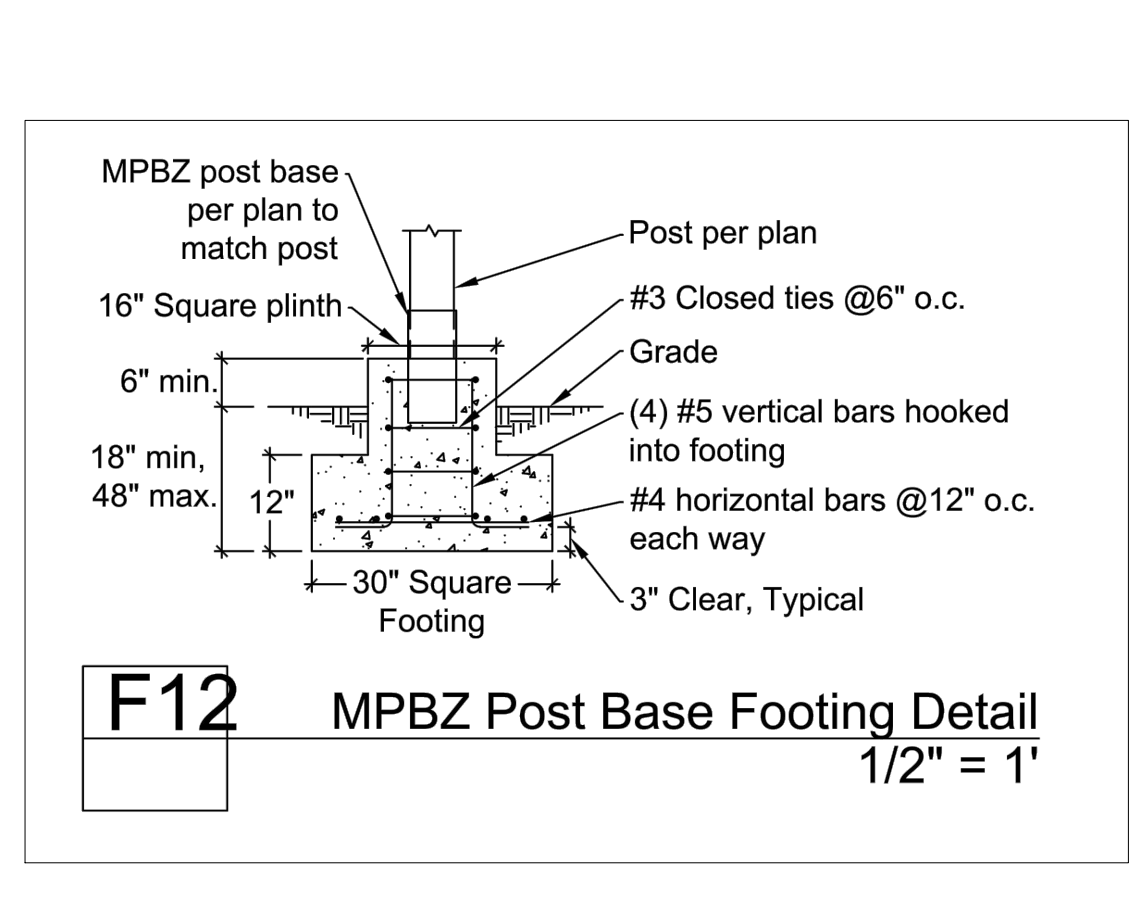
**F8** Exterior Footing w/ S.O.G. Detail  
1/2" = 1'



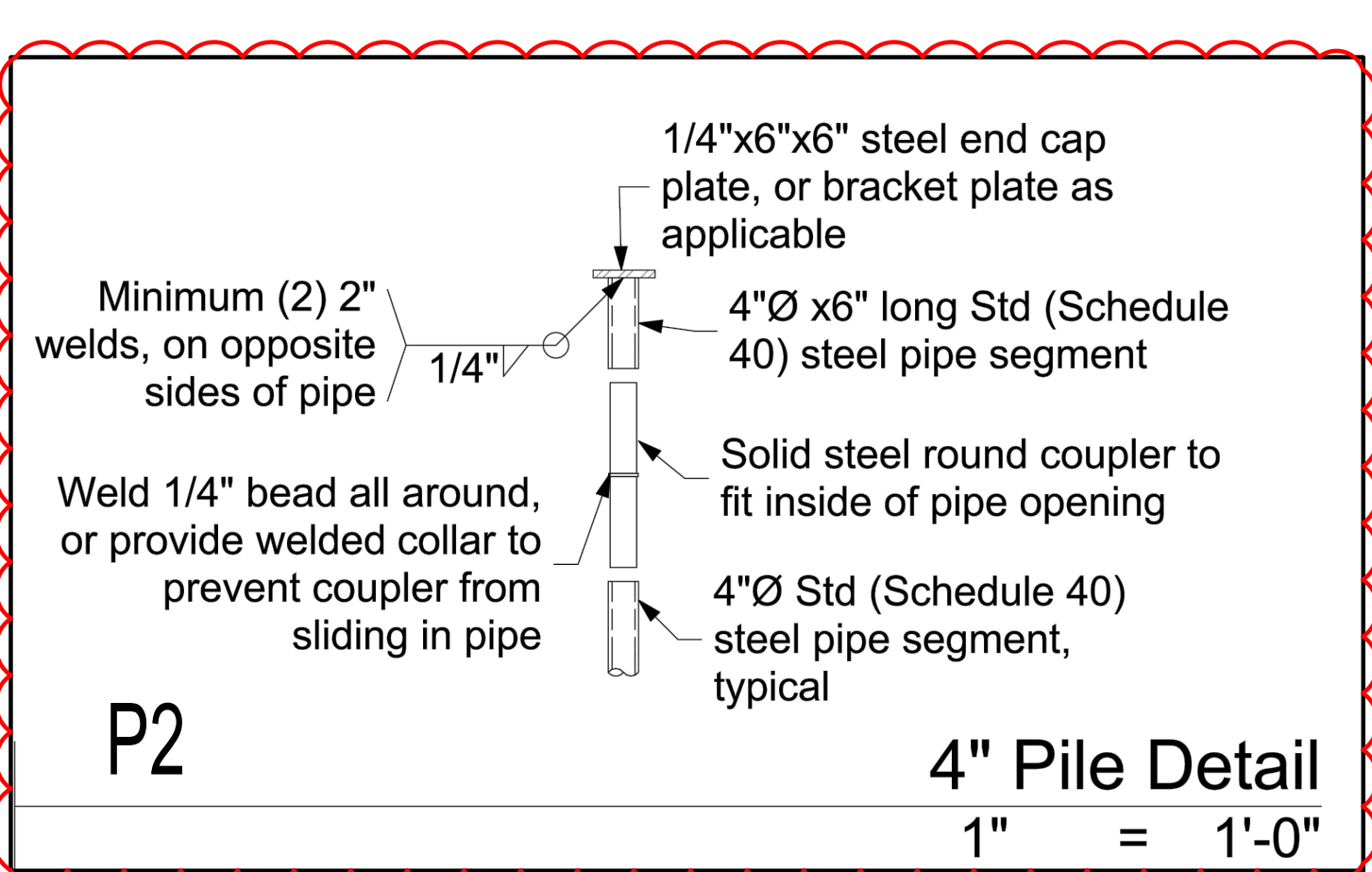
**F9** Grade Beam Detail  
1/2" = 1'



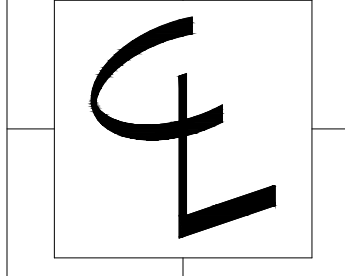
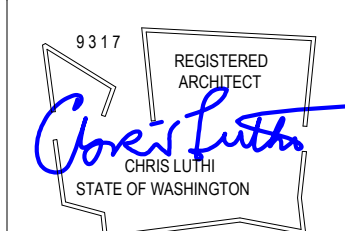
**F11** Exterior Footing w/ S.O.G. Detail  
1/2" = 1'



**F12** MPBZ Post Base Footing Detail  
1/2" = 1'



**P2** 4" Pile Detail  
1" = 1'-0"



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CONTENTS

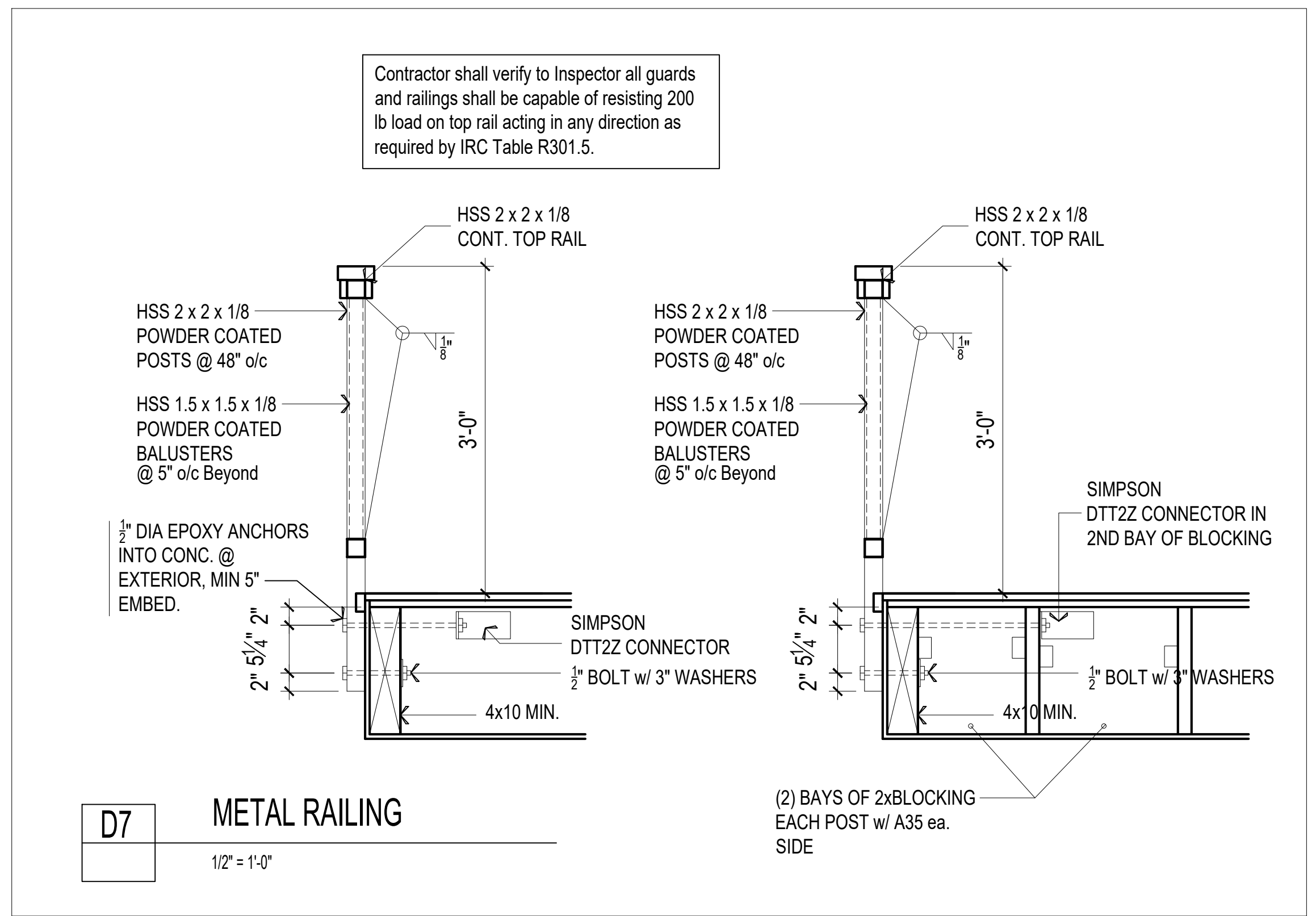
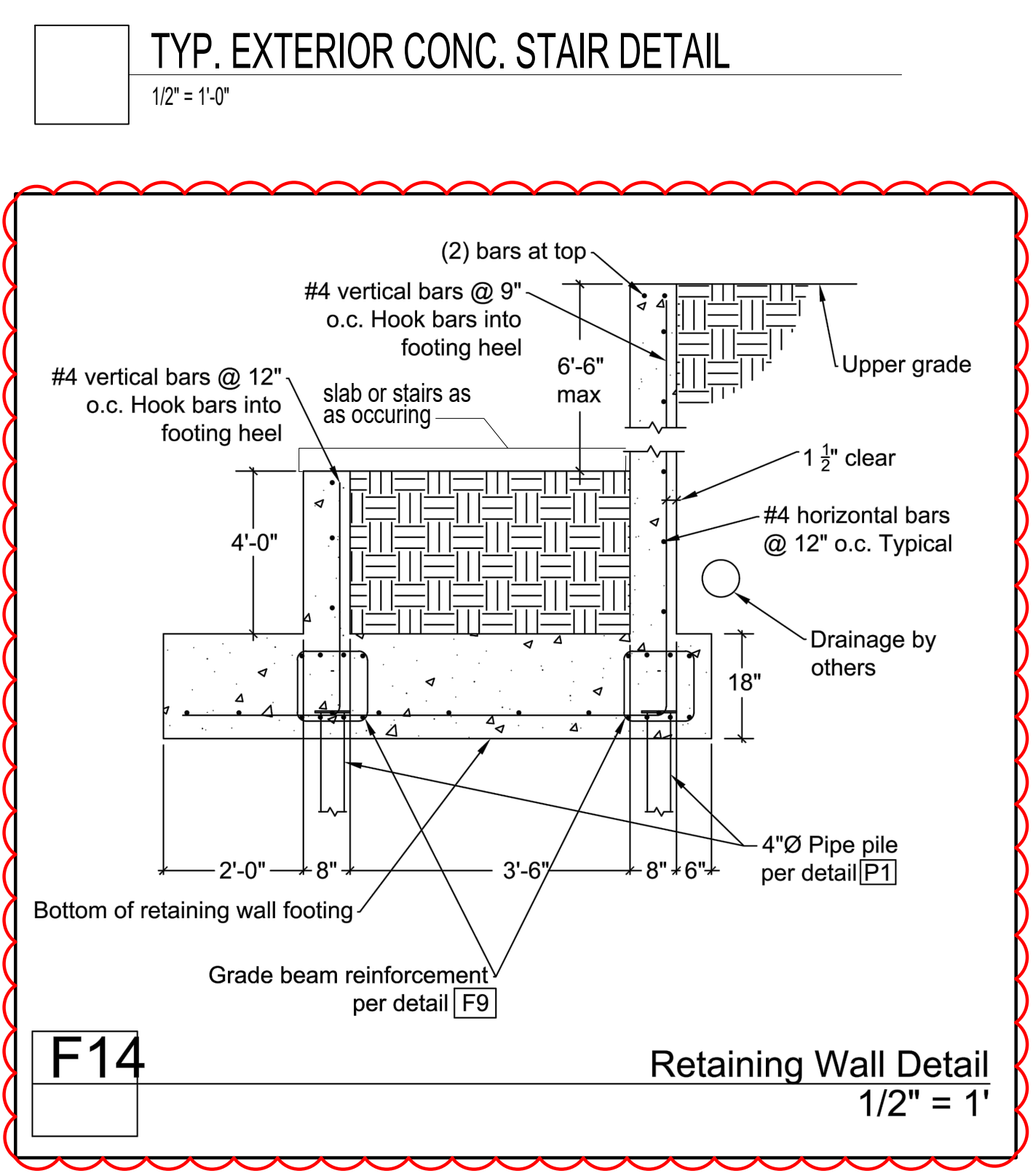
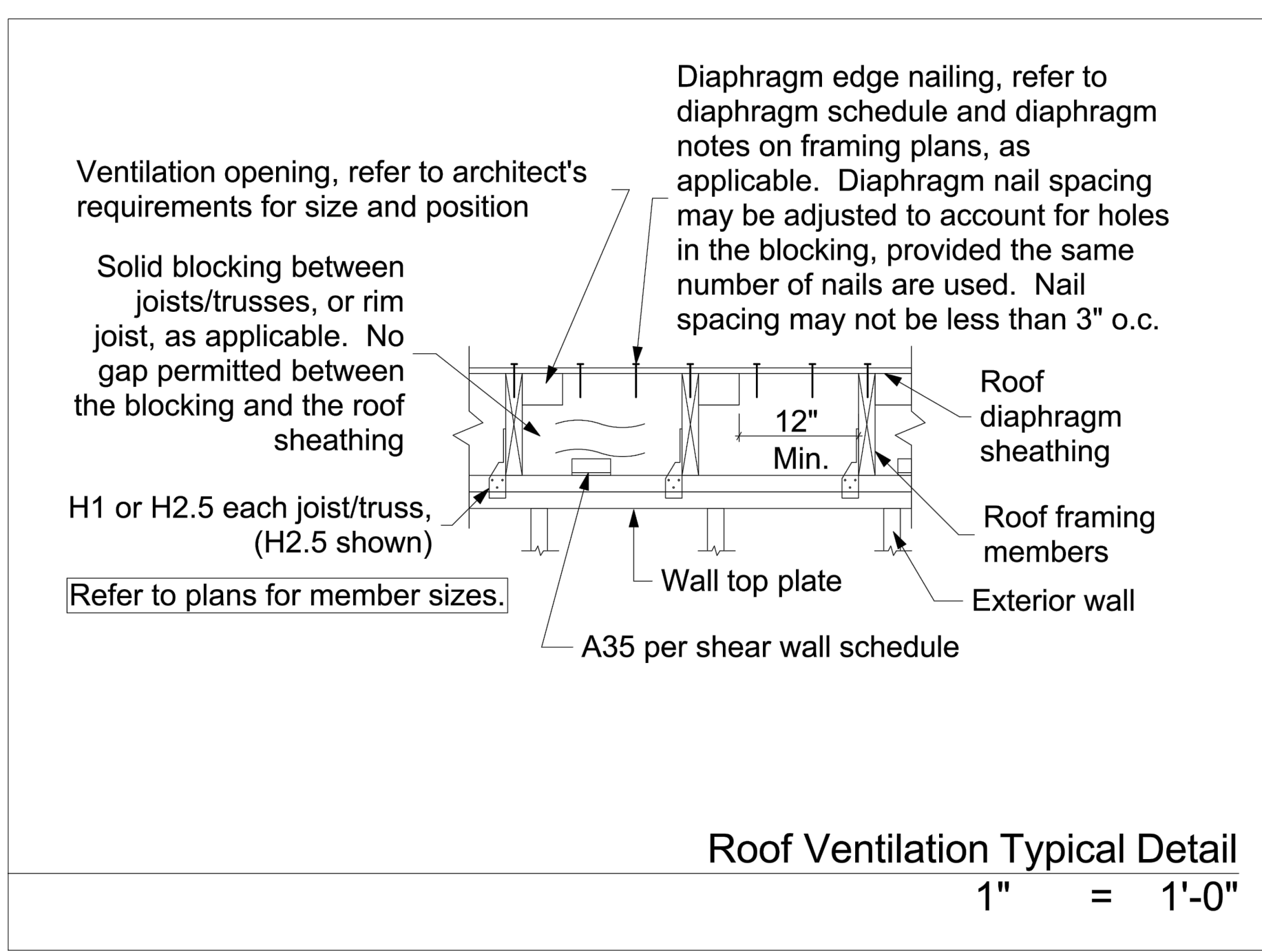
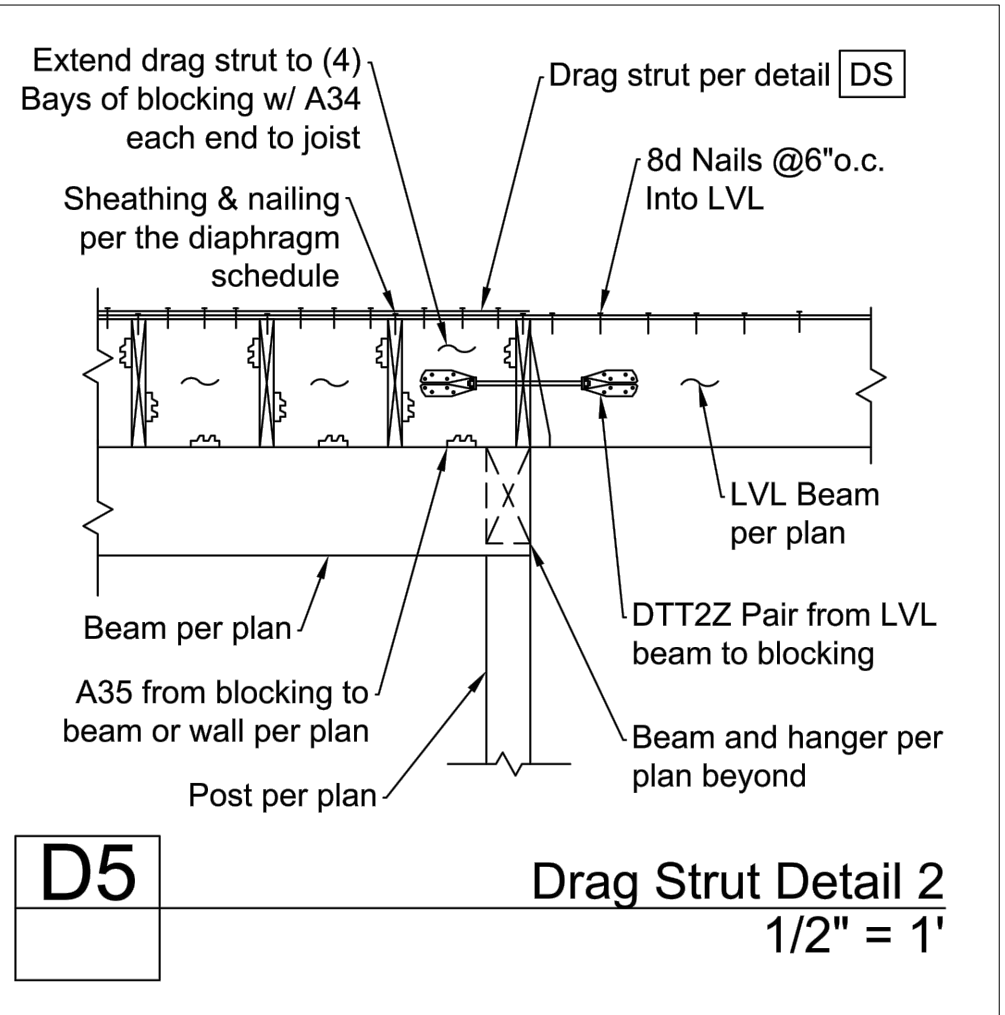
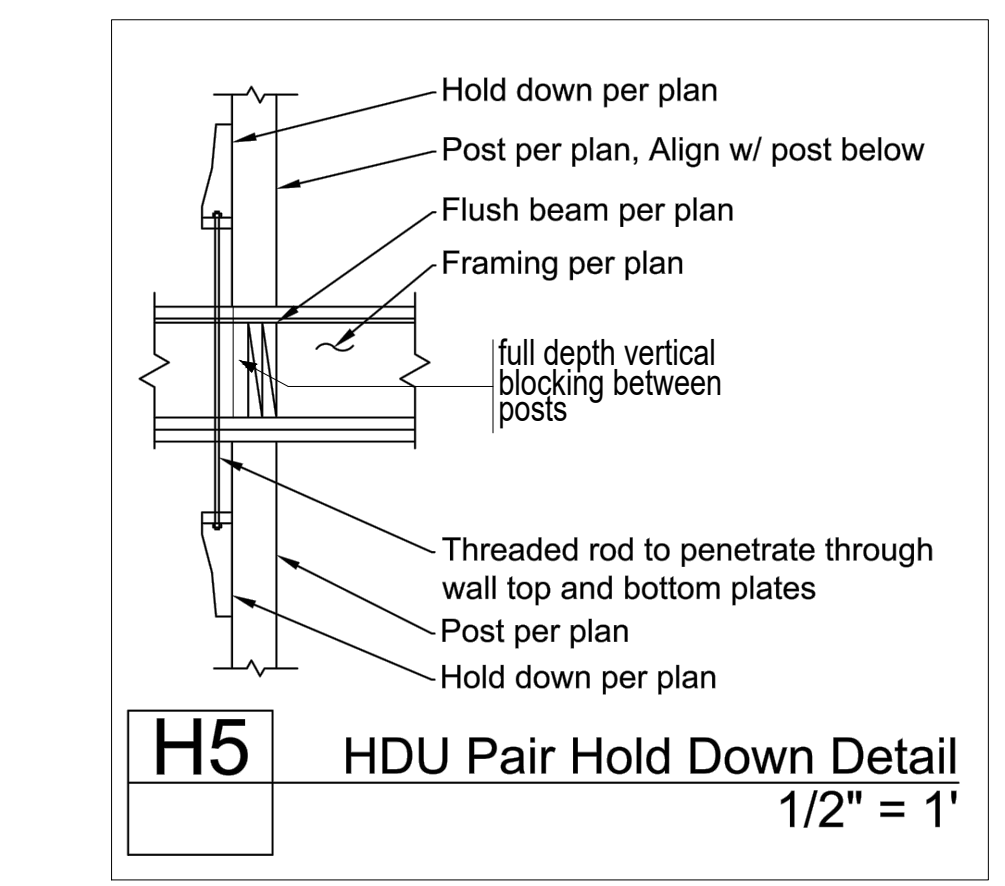
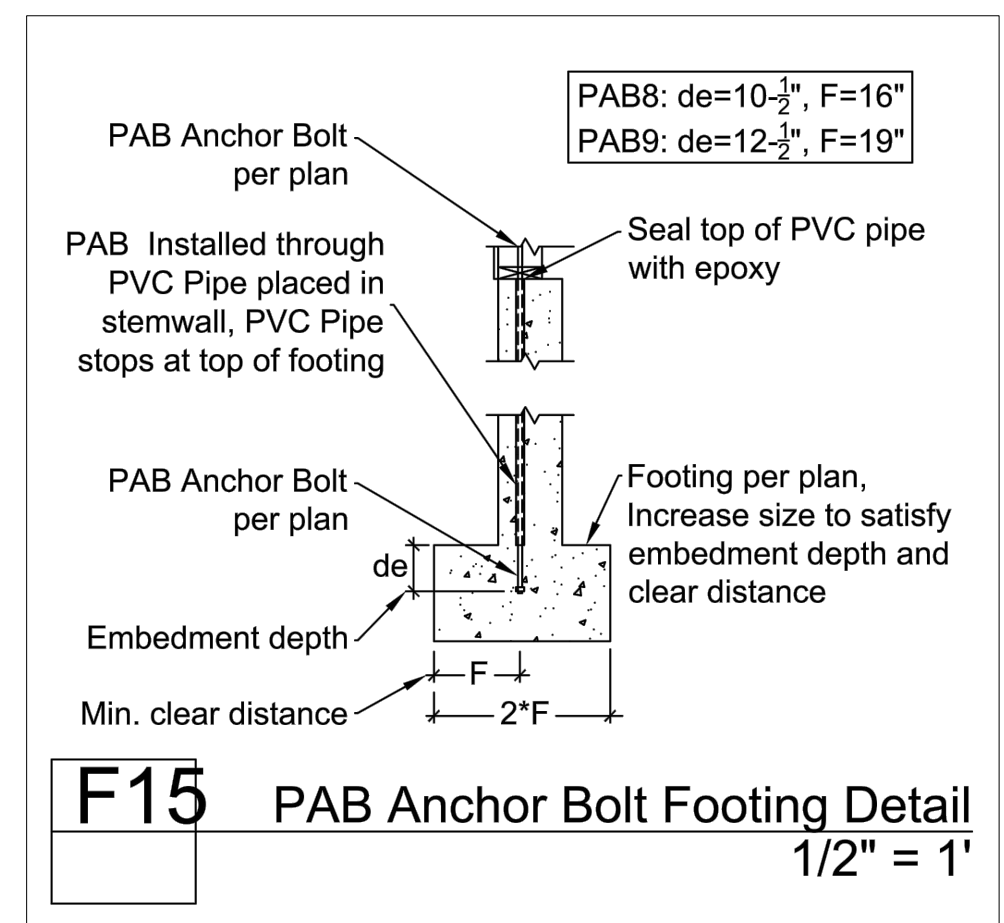
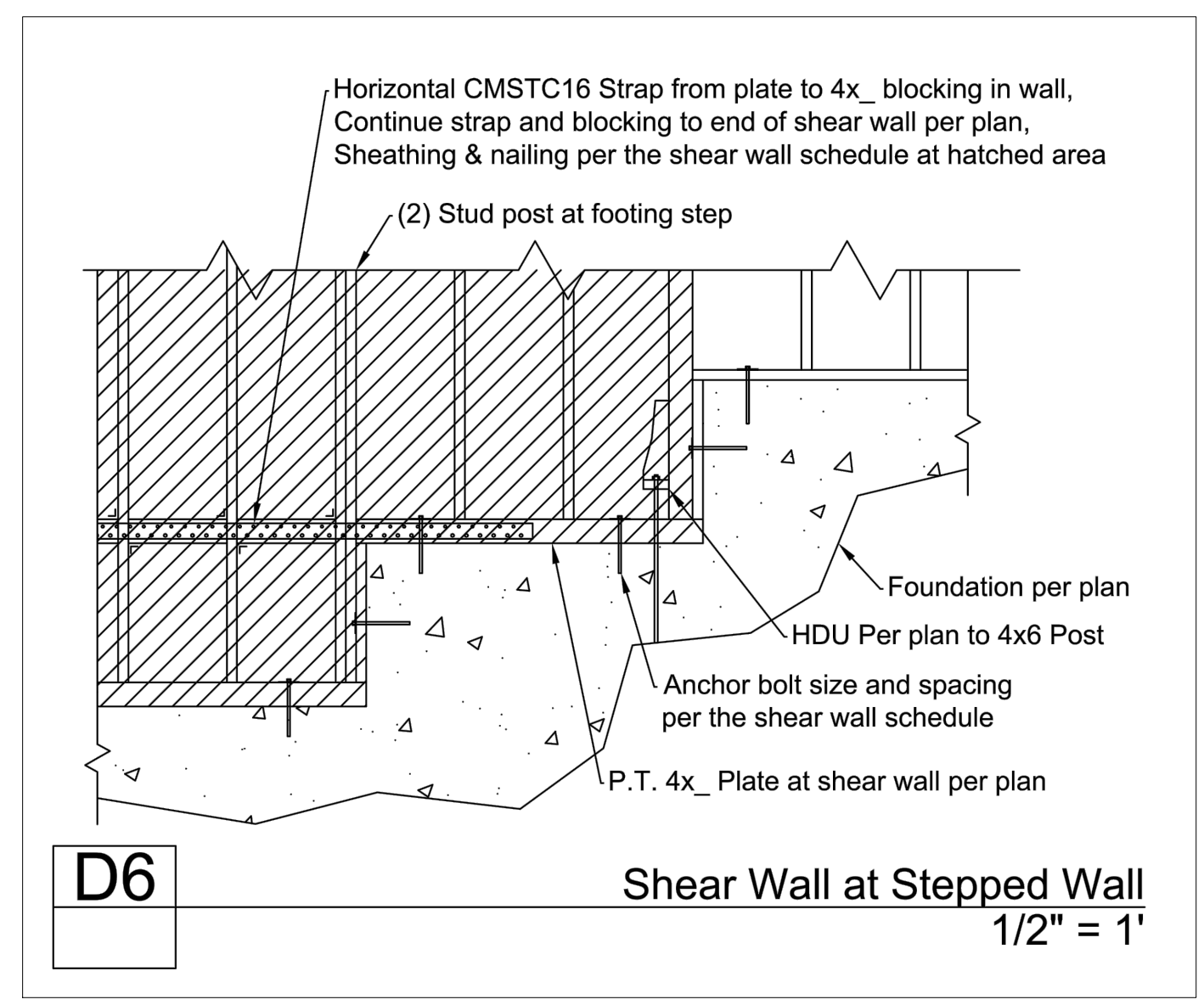
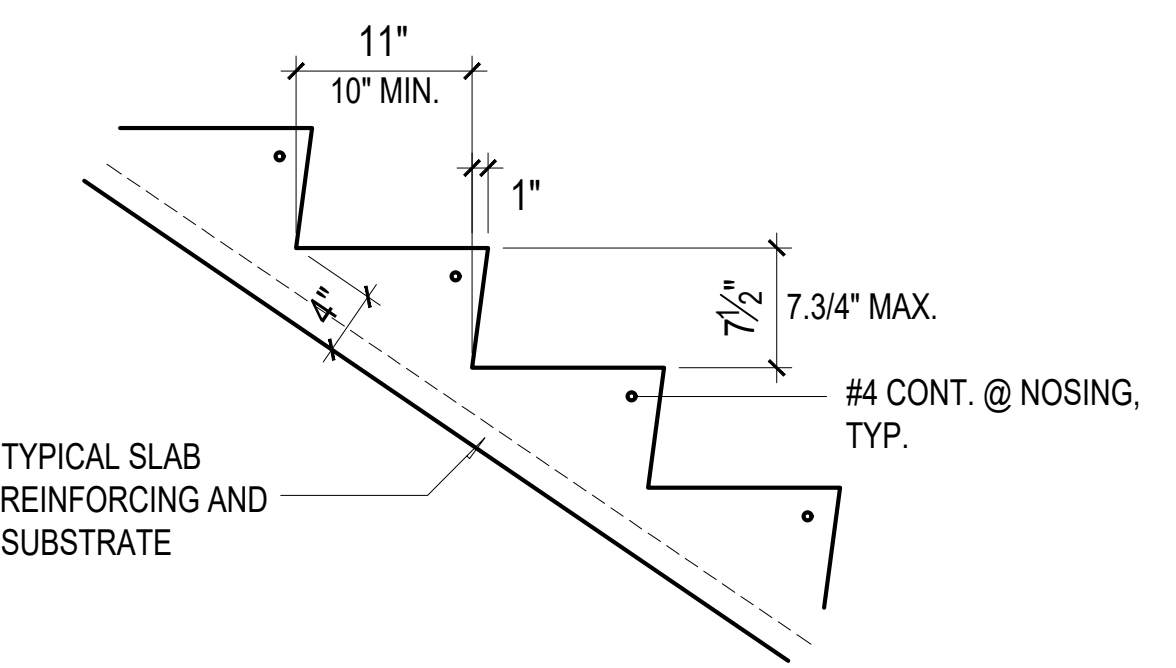
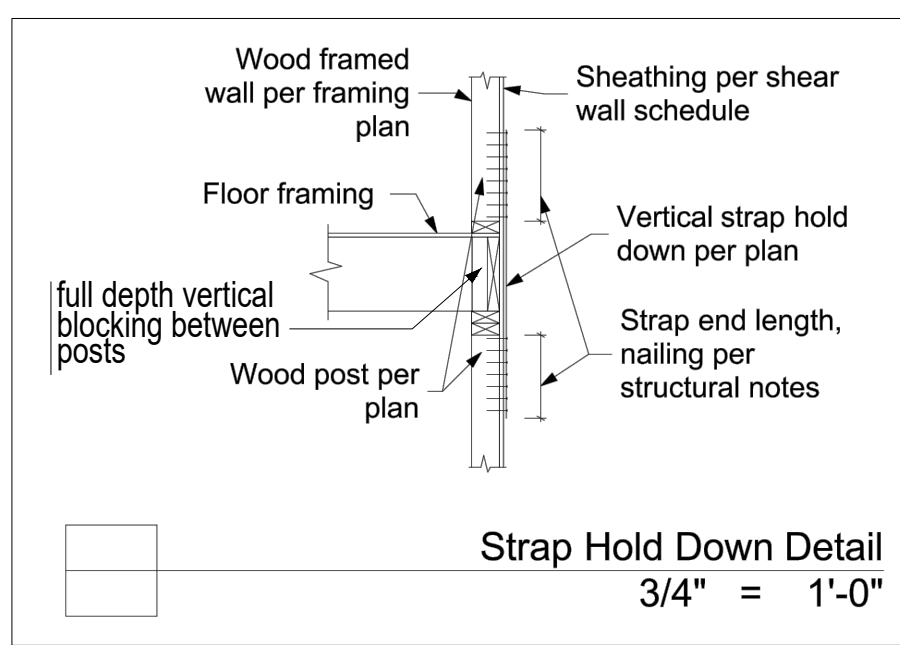
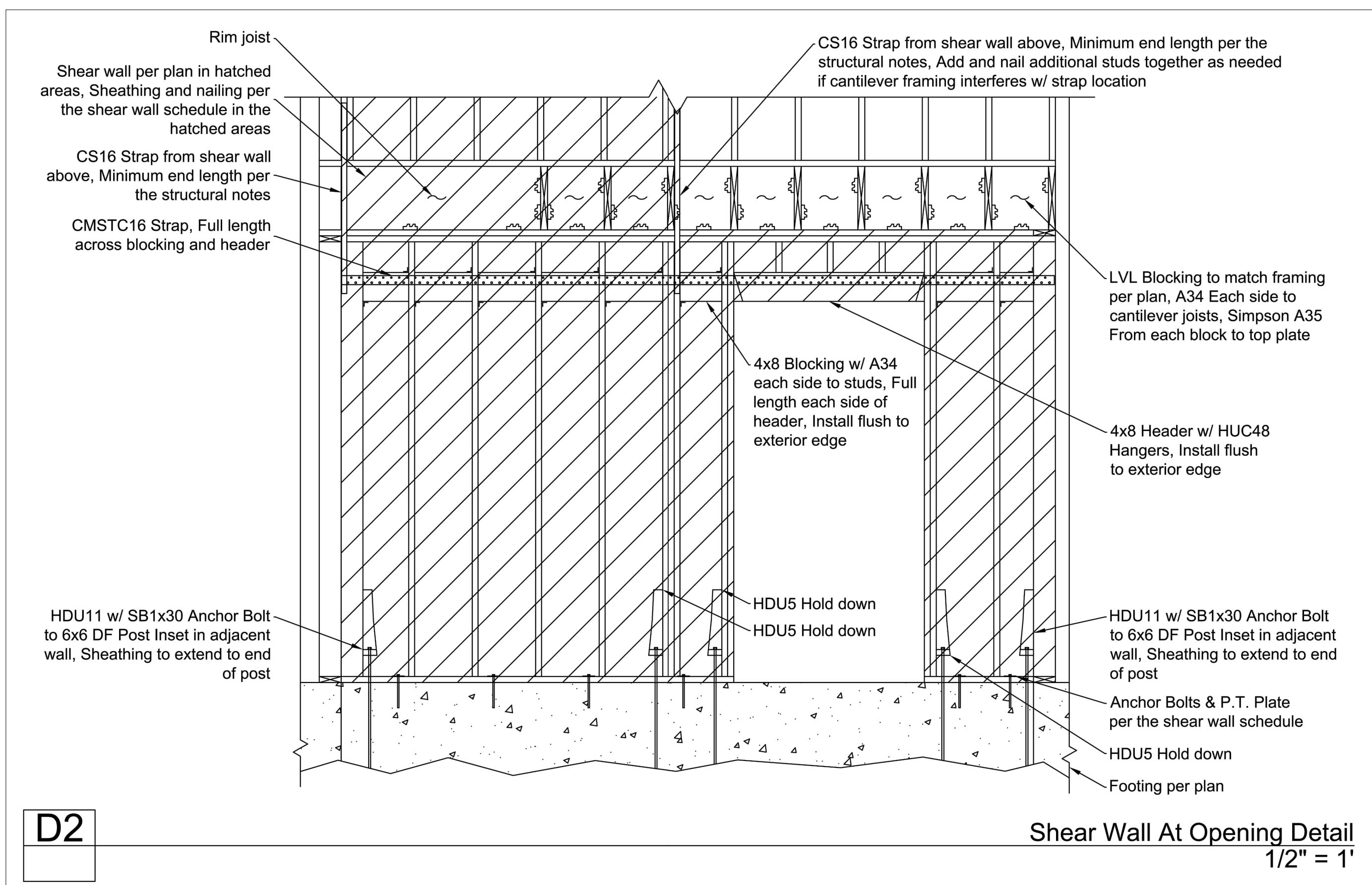
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2.21.20
8.14.20
11.24.20

6.7.21  
7.6.21

FOOTING AND WALL DRAINS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE GEOTECHNICAL REPORT







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**CONTENTS**

Details  
DRAWN BY  
CRL  
DATE  
8.14.20  
11.30.20  
6.7.21  
7.6.21

**12.5**



## Structural Notes:

### Applicable Codes and Standards:

2015 International Building Code (IBC) and other applicable local building codes.  
ASCE/SEI 7-10 - "Minimum Design Loads for Buildings and Other Structures"  
2015 NDS for wood structures.  
American Wood Preservers Bureau - AWPB Standards for Pressure Treated Material.  
American Concrete Institute - ACI 315, ACI 318, ACI 301, ACI 307.

Structural design shall be in accordance with the latest edition of above codes and standards. Contractor shall comply with the latest edition of all applicable codes and standards.

### Special Inspections:

Steel pipe pile refusal per the Geotech report by Geo Group Northwest dated May 21, 2021.

### Design Loads:

Live load:	roof	25 psf (snow)
	solar panels	4 psf dead load
	floors	40 psf floor live load
	decks	60 psf floor live load
Wind load:	Basic wind speed	110 mph, exposure C, KzT=1.0
	Building Category:	Enclosed, Wind Important Factor Iw = 1.0
	Refer to calculation page L1 for design wind forces.	
	Internal pressure	5 psf, Components and cladding design per 1609.6.4.4.1

Seismic loading per IBC Sections 1603 and 1613, Site Class D.

The basic structural type is a bearing wall system with light framed walls with shear panels. Rw = 6.5 (wood structural panels), soil type D.  
Seismic importance factor 1.0, Seismic Use Group I  
Design and Analysis by Simplified Design Procedure  
Peak Ground Accelerations (PGA) based on USGS Hazards Program, by lat/long.  
PGA 1 sec = .538 PGA 2 sec = 1.401  
Seismic base shear = 0.144 \* Dead Load

### Foundations:

Soil parameters per Geotech reports provided by GEO Group Northwest, Inc. dated July 13<sup>th</sup>, 2018, Dec. 27<sup>th</sup>, 2018, August 16<sup>th</sup>, 2019, Oct. 18<sup>th</sup>, 2019, Nov. 4<sup>th</sup> 2019, June 9<sup>th</sup> 2020, and May 21, 2021.  
Updated Pile calculations were provided on September 24, 2020. Steel pin pile specifications were provided on Nov. 13<sup>th</sup>, 2020 and May 21, 2021.

All soil conditions are to be field verified during construction. Structural fill shall be placed in 10-inch maximum horizontal lifts (loose thickness) and compacted to 95 percent of maximum dry density in accordance with ASTM D-1557. Imported structural fill shall be granular material containing no more than 5 percent fines, passing no. 200 sieve. Structural fill in place shall be tested by a licensed soil engineer or approved by the building inspector.

Drainage behind the concrete walls shall be provided conforming to the construction details.

### Steel Pipe Piles:

Steel pipe piles shall be installed per the geotechnical report, by GEO Group Northwest.

The design strength for 2" piles is 6,000 lbs.

The design strength for 4" piles is 20,000 lbs.

The Structural Steel pipe shall conform to ASTM A53, Fy = 35 ksi. Galvanized 2" diameter schedule 80 pipe may be used for 2" piles, and Galvanized 4" diameter schedule 40 pipe may be used for 4" piles.

The 2" piles shall be driven to refusal, defined as less than 1" of movement in 60 seconds of driving with a 90 lbs jackhammer plus operator weight.

The 4" piles shall be driven to refusal, defined as less than 1" of movement in 16 seconds of driving with a 850 lbs hammer.

The steel pipe pile refusal shall be witnessed by the geotechnical engineer of record or the structural engineer of record.

### Cast in Place Concrete:

Concrete shall attain a minimum compressive strength of 3,000 psi at 28 days (5-1/2" sack mix). An alternate mix provided by the concrete supplier and pre-approved by the building department is acceptable. Reinforcing steel shall conform to ASTM A-615, Grade 60 (Fy=60,000 psi) for all bars. Provide all wall and footing horizontal bars with 2'-0" x 2'-0" corner bars of the same size at all corners and wall intersections. Minimum lap splice 48 bar diameters.

Concrete protection for reinforcement shall be:

Concrete exposed to earth or weather	1.5" (#5 & smaller) 2" (#6 & larger)
Concrete cast against earth	3"
Slabs	0.75"

### Bolts:

Anchor bolts shall conform to F1554. All other bolts shall conform to ASTM A307.

Minimum anchor bolt size and spacing shall be 1/2" diameter bolts @ 6' o.c. Shear wall anchor bolts per the shear wall schedule.

For cast-in-place anchors, provide 7" minimum embedment into the new concrete foundation.

Provide 3"x3" square x 0.229" thick bolt washers where anchor bolts connect the sill plate to the concrete foundation.

### Wood Framing Specifications:

All sill plates and other wood framing which is in contact with concrete or masonry must be preservative-treated in accordance with AWPA U1 and M4 standards. For anchor bolts connecting wood sill plates to concrete or masonry, provide galvanized steel washers and nuts on top of the sill, minimum washer size 3" x 3" x 1/4" thick.

Where toenails are used for stud wall construction, a minimum of (2) toenails at top and bottom of each stud shall be provided. Toenails shall be 16d nails driven at approximately a 45 degree angle, with a minimum of 1-1/2" of the nail shank shall be embedded in both the stud and the plate. End nails driven through the plate and into the stud end grain are not permitted. Simpson A34 clips at top and bottom of each stud are permitted where correct toenailing is not provided.

Wherever joists bear on a wall or beam, either a continuous rim joist or solid wood blocking must be provided. Blocking shall be connected to the joists with A35 angles at each end. Individual blocks may be omitted to allow for ducting or other openings. Consult with the engineer of record if more than 25% of the blocking is omitted.

Where LVLs are specified with a thickness greater than 1-3/4", the beam may be built up out of multiple 1-3/4" LVL beams connected per truss-joist TJ-9000 specifier's guide.

Unless noted otherwise, the following grades and species shall be used for structural lumber:

2x joists	Hem-Fir #2
2x, 3x, and 4x studs	DF/L standard for plywood or WSP shear walls
	Hem-Fir standard for other walls
4x and 6x beams	DF-L #2
Microllam LVL lumber	LVL 1.9E, Fb = 2600 psi, Fv = 285 psi (minimums)
Parallam lumber	2.0 WS, Fb = 2900 psi, Fv = 290 psi (minimums)
Glu-lam lumber	24F-V4 for simple span beams, 24F-V8 for cantilever beams

All framing connections shall be per Table 2304.9.1 of the IBC, unless otherwise noted.

### Preservative-Treated Wood and Fasteners:

All wood in contact with concrete or masonry shall be preservative-treated, in accordance with AWPA U1 and M4 standards.

All fasteners installed in preservative-treated wood shall be hotdipped zinc-coated galvanized with a minimum coating weight complying with ASTM A 153.

Fasteners other than nails and timber rivets are permitted to be mechanically deposited zinc-coated with coating weights complying with ASTM B 695, Class 55 minimum. Plain carbon steel fasteners in wood preservative-treated with SBX/DOT or zinc borate are not required to be galvanized.

### Plywood Thickness, Grade, and Nailing:

Install plywood sheets with face grain perpendicular to framing, Stagger joints in adjacent sheets. If not otherwise noted, use nailing schedule, Table 2304.6.1 of the IBC.

### Manufactured Trusses:

Manufactured trusses specified on the plans are prefabricated products manufactured by a truss manufacturer. The contractor shall submit shop drawings and stamped structural design calculations for review. The manufacturer's installation instructions shall be available on the job site at the time of inspection. Truss design and shop drawings shall include location and weight of all equipment being supported by these trusses.

The truss live loading shall be per IRC Section 301.5 and Table 301.5, especially noting footnotes b and g.

The truss design shall be per IRC Sections 502.11.1 and 802.10.2, especially indicating the truss design and manufacturing shall be per ANSI/TPI 1.

The truss temporary and permanent bracing shall be per IRC Sections 502.11.2 and 802.10.3 as well as the Truss Plate Institute's Building Component Safety Information.

Truss alterations shall not occur unless the approval of a design professional as indicated in IRC Sections 502.11.3 and 802.10.4.

### Manufactured Joists:

"TJI" Joists specified on the plans are prefabricated products manufactured by the Weyerhaeuser Corporation. The contractor shall submit shop drawings and stamped structural design calculations for review. Joist design and shop drawings shall include location and weight of all equipment being supported by these joists. The manufacturer's installation instructions shall be available on the job site at the time of inspection. Other suppliers may be used, upon approval by the engineer of record.

### Wall Stud Schedule:

(For double or triple studs, spike studs together with 16d nails at 18" o.c.)

Studs up to 9' tall	(1) 2x4 @ 16" o.c.
Studs up to 11' tall	(2) 2x4 @ 16" o.c.
Studs up to 14' tall	(1) 2x6 @ 16" o.c.
Studs up to 17' tall	(2) 2x6 @ 16" o.c.
Studs up to 20' tall	(3) 2x6 @ 16" o.c.

### Metal Framing Connectors:

Unless otherwise noted: Metal framing connectors shall be manufactured by the Simpson company, or approved equal. Unless noted otherwise, use L-series joist hangers to match joist size (e.g., U210 for 2x10 joist). Provide H1 or H2.5 hurricane ties, or other connectors with similar capacity, at every roof joist or truss, and H6 or H7 at ends of roof beams and girder trusses. Where supported by wood posts, wood beams shall be connected to the tops of the posts using Simpson AC, PCZ or EPCZ post caps, and to the bottoms of the posts bearing on wood framing using Simpson AC connectors. Where supported by perpendicular beams, wood beams shall be connected by HU-series face mount beam hangers. Provide Simpson AB or PB post bases to connect posts to concrete foundations. Unless otherwise specified, the maximum number of nails or screws should always be installed on any connector.

### Bearing Walls:

All walls supported by continuous concrete footings shall be connected to the foundation per 2015 SRC section 403.1.6. 1/2" diameter anchor bolts shall be provided at 4' o.c., or two per wall segment, minimum. Anchor bolts shall penetrate 7" into the concrete foundation.

### Note "TSW" (Truss Connection to Shear Wall)

One typical roof truss shall be located directly over the indicated shear wall, and that the bottom chord of that roof truss shall be connected to the top plate of the shear wall below with Simpson A35 connectors per the shear wall schedule.

Additionally, the truss top chord shall receive roof diaphragm edge nailing from the roof sheathing. Both ends of the indicated trusses shall be connected to a double stud in the shear wall below, using a Simpson H6 or H7 connector. Provide two rows of shear wall edge nailing through the shear wall plywood sheathing into the double studs.

Truss spacing may need to be adjusted, or additional trusses provided, to assure that a truss is located over each indicated shear wall.

### Drag Strut Note "DS"

Provide a continuous horizontal connection between the indicated beams, walls, and blocking, using the following method.

A horizontal Simpson CMSTC16 strap shall be provided to create this connection. The strap shall extend minimum 3' onto any beam or wall being connected, and shall be continuous over any blocking between joists for the extent of the drag strut. The strap must be nailed using 16d sinkers, with a nailing pattern per Simpson specifications.

The strap may be installed either on top of the plywood floor diaphragm, or connecting a beam or joist, as applicable and feasible.

Beams or joists may be connected to a wall top plate by (8) A35s.

Where no joists occur below the strap, provide 3-1/2" wide by 3-1/2" deep (minimum) solid wood blocking in the floor or roof framing, below the strap, for nailing. The blocking should be attached to the perpendicular joists with Simpson A34 framing anchors at both ends of each block.

Refer to the latest edition of the Simpson Catalog for required nailing and other requirements.

Refer to the Drag Strut Typical Detail provided with these plans.

### Hold Down Notes

**Convention for showing shear walls and hold downs:** Shear walls are shown on the framing plan for the floor above. (For example, first floor shear walls will be shown on the second floor framing plan, and the shear walls for the topmost floor will be shown on the roof framing plan.) Hold downs are located at the **bottom** of that shear wall, and connect the end of the shear wall to wall framing or a structural beam located in the floor below the shear wall. Contact the engineer of record for clarification if needed.

Hold downs for each floor must be continuously connected to hold downs on the floor below (or to other intermediate wood framing where so indicated), until they are finally connected to the concrete foundation.

Hold downs shall be installed so as to be as far apart as is reasonable. Hold downs may be located on either the near side or the far side of the post or double stud to which they are attached. In no case shall a hold down bolt be located farther than 6" from the end of the shear wall, except with prior written approval of the engineer. Refer to the latest edition of the Simpson Catalog for details.

Where multiple studs are called out at a hold down, nail studs together with (2) 16d nails at 8" o.c. or 1/4" x 3" Simpson SDS Screws at 12" o.c.

### Strap Hold Downs:

Provide a vertically oriented strap hold down consisting of one or two of the Simpson vertical strap ties listed below, connecting the end stud or post of the shear wall indicated to new or existing studs in the wall framing below, or to a wood beam supporting the shear wall, where applicable. Straps shall be installed so that the minimum end length is provided to both connected posts or studs.

Where a strap is connected to a below below, the strap shall be wrapped around the beam until the minimum end length is reached.

CS16 denotes a Simpson CS16 strap, with a minim end length of 14", and (13) 8d nails each end.

CMSTC16 denotes a Simpson CMSTC16 strap, with a minim end length of 25", and (29) 16d sinker nails each end.

CMST14 denotes a Simpson CMST12 strap, with a minim end length of 44", and (38) 10d nails each end.

CMST12 denotes a Simpson CMST12 strap, with a minim end length of 44", and (49) 10d nails each end.

### Rod Hold Downs:

HDUx denotes a Simpson HDU(2,4,5,8,or 11)-SDS2.5 hold down.

For hold downs at new concrete foundations, provide the following bolts.

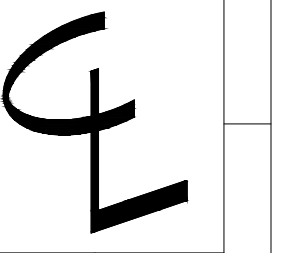
**For HDU2.4.5:** Simpson SB5/8x24 may be used, installed per the most recent edition of the Simpson Strong-Tie Literature. Where the hold down is too high off of the concrete foundation to adequately connect to the specified anchor, A 5/8" diameter threaded rod and ASTM A194-2H coupler connecting to the specified anchor may be used.

**For HDU8:** Simpson SB7/8x24 may be used, installed per the most recent edition of the Simpson Strong-Tie Literature. Where the hold down is too high off of the concrete foundation to adequately connect to the specified anchor, A 7/8" diameter threaded rod and ASTM A194-2H coupler connecting to the specified anchor may be used.

**For HDU11:** Simpson SB1x30 may be used, installed per the most recent edition of the Simpson Strong-Tie Literature. Where the hold down is too high off of the concrete foundation to adequately connect to the specified anchor, A 1" diameter threaded rod and ASTM A194-2H coupler connecting to the specified anchor may be used.

**For HDU14:** Simpson PAB8 may be used, installed per the most recent edition of the Simpson Strong-Tie Literature. The PAB threaded rod may be extended using an ASTM A194-2H coupler connecting to a 1" diameter ASTM A449 threaded rod.

The PAB anchor shall be continuous through the foundation stem wall, into the footing. Footings containing an anchor bolt shall be a minimum of 16" wide by 12" deep. The embedment depth shall be as shown in the Hold Down Bolt Embedment Table.



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### CONTENTS

Structural Notes

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### DATE

2.3.20  
8.14.20  
11.24.20  
6.7.21

7.6.21

14