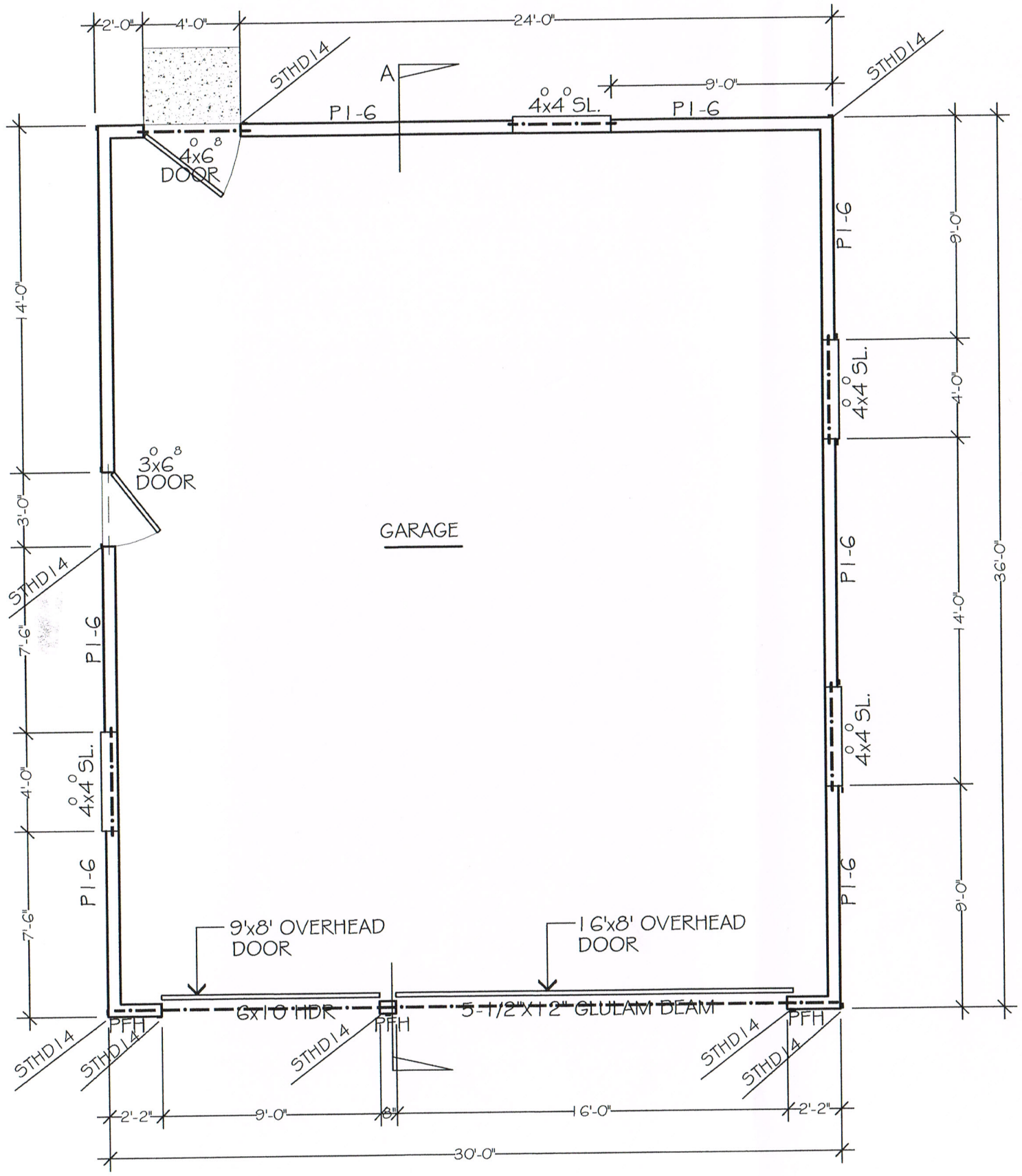

FLOOR PLAN

SCALE 3/16" = 1'-0"

NOTES

1. CODE : 2015 IBC
2. DESIGN LOADS:
   - ROOF SNOW = 25 PSF
   - WIND SPEED (EXP B) = 110 MPH
   - SOIL BEARING PRESSURE = 1500 PSF
   - SEISMIC DESIGN CATEGORY D
3. LUMBER:
   - 2x 6 STUDS :HEM-FIR # 2
   - HEADERS :DOUG-FIR # 2
4. TREATED LUMBER: ALL LUMBER WITH GROUND CONTACT SHALL BE PRESSURE TREATED SILL : .40 PCF RETENTION
5. CONCRETE : f'c = 3000 PSI @ 28 DAYS.
6. ALL FOOTINGS SHALL BEAR ON UNDISTURBED NATIVE FIRM SOIL WITH MIN. BEARING CAPACITY OF 1500 PSF AND LATERAL BEARING CAPACITY OF 150 PCF. BUILDER TO VERIFY SOIL CONDITION PRIOR TO CONSTRUCTION
7. ROOFING : NORTHERN SHAKE METAL ROOFING ON 7/16" OSB SHEATHING W/ 8d GALV NAILS @ 6" OC AT PANEL EDGES & 12" OC AT INTERMEDIATE MEMBES.
8. TRUSSES SHALL BE DESIGNED BY THE ENGINEER LICENSED IN THE STATE OF WASHINGTON.

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REGISTERED ARCHITECT
THAN SUTAN
STATE OF WASHINGTON
9/22/17
EXPIRES 4/17/18

JOHN DEVORE
11235 165TH CT. NE.
REDMOND, WA

LEGACY BUILDINGS LLC
23911 202ND AVE SE
MAPLE VALLEY, WA 98038
TEL.(425) 584-7154 FAX. (425) 584-7092
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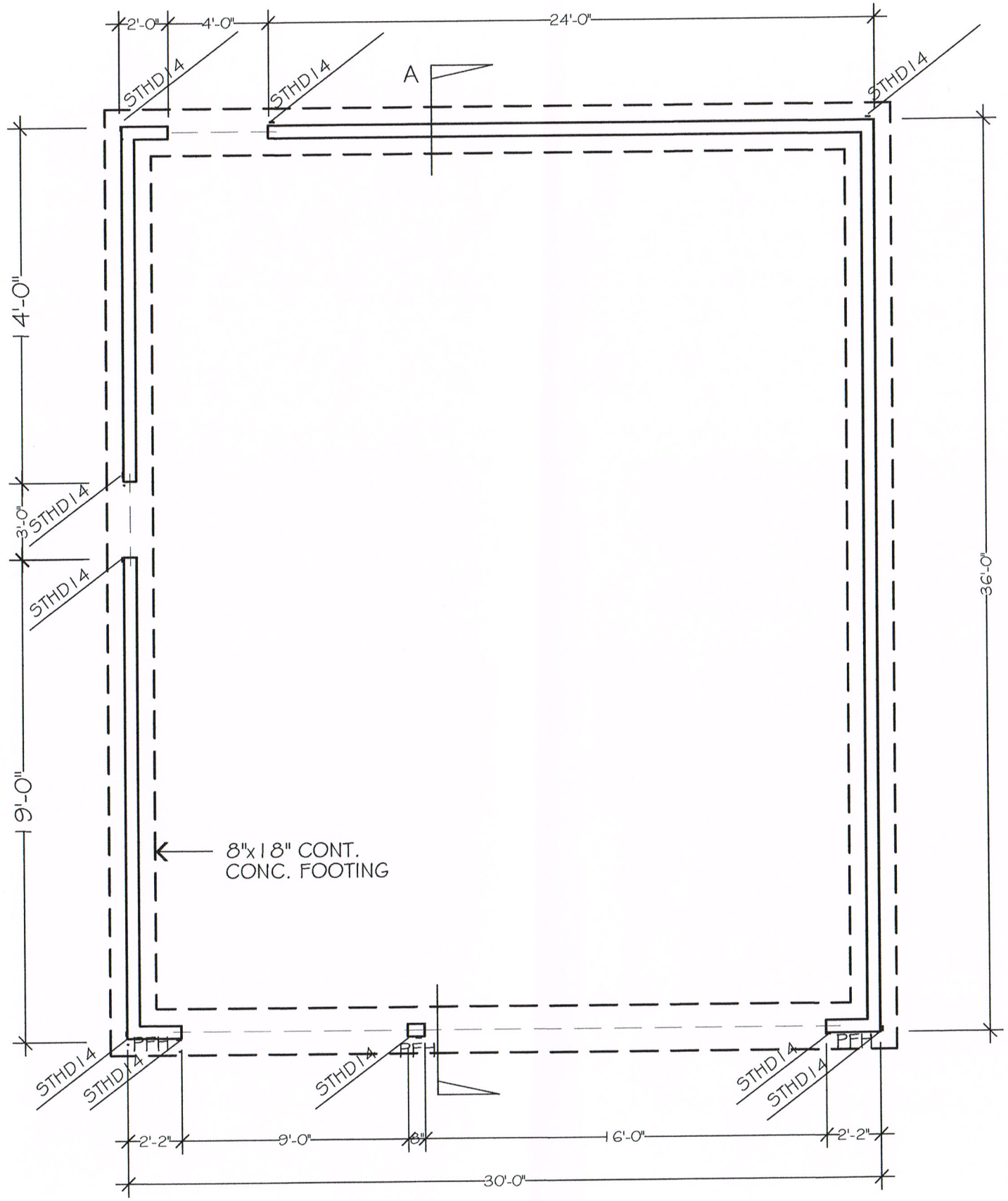
PFH = PORTAL FRAME WITH HOLD-DOWNS
SEE DETAIL SHEET 8



FOUNDATION PLAN

SCALE 3/16" = 1' - 0"

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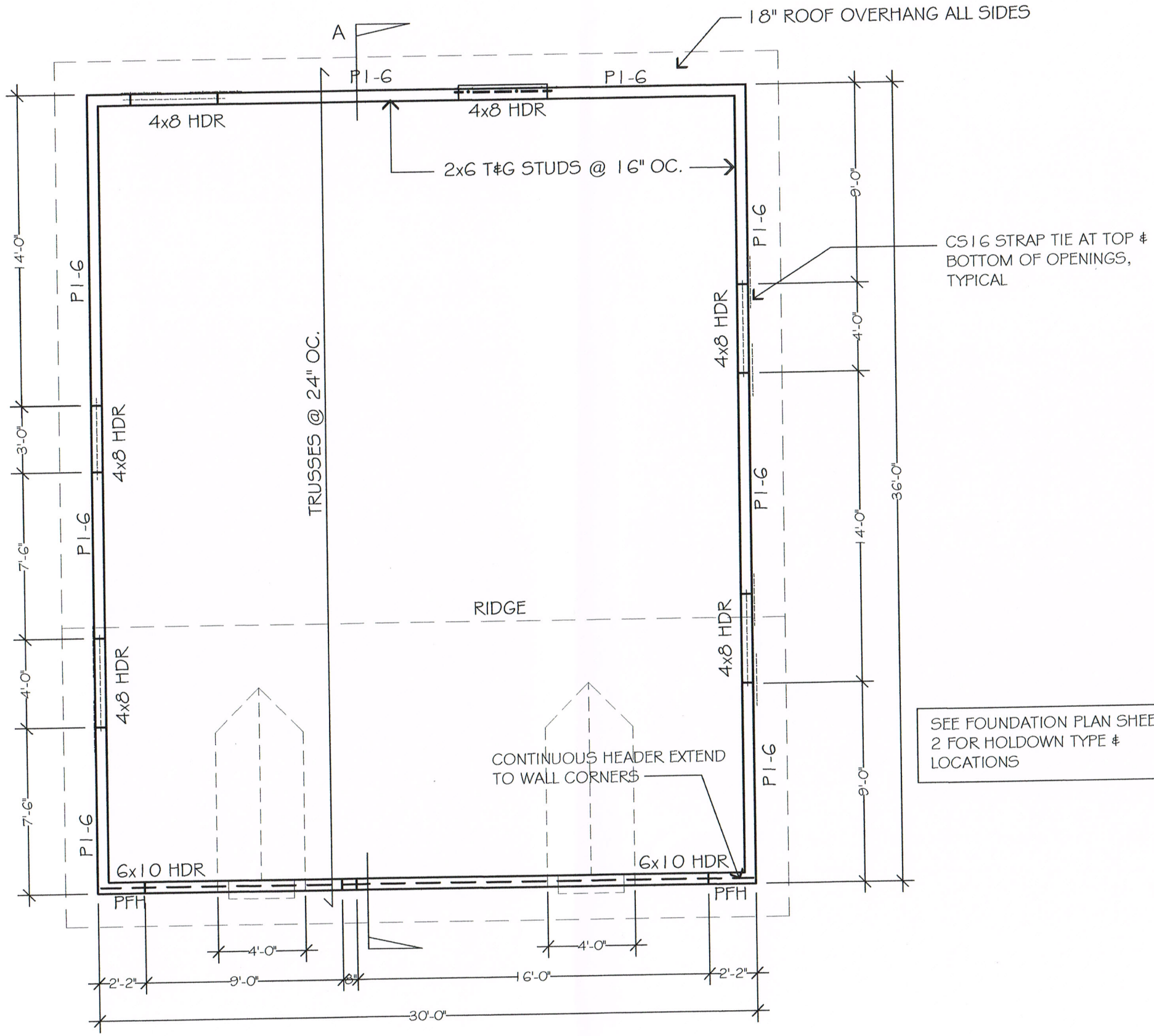

SEE FOUNDATION PLAN SHEET 2 FOR HOLDOWN TYPE & LOCATIONS

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ROOF FRAMING PLAN

SCALE 3/16" = 1'-0"

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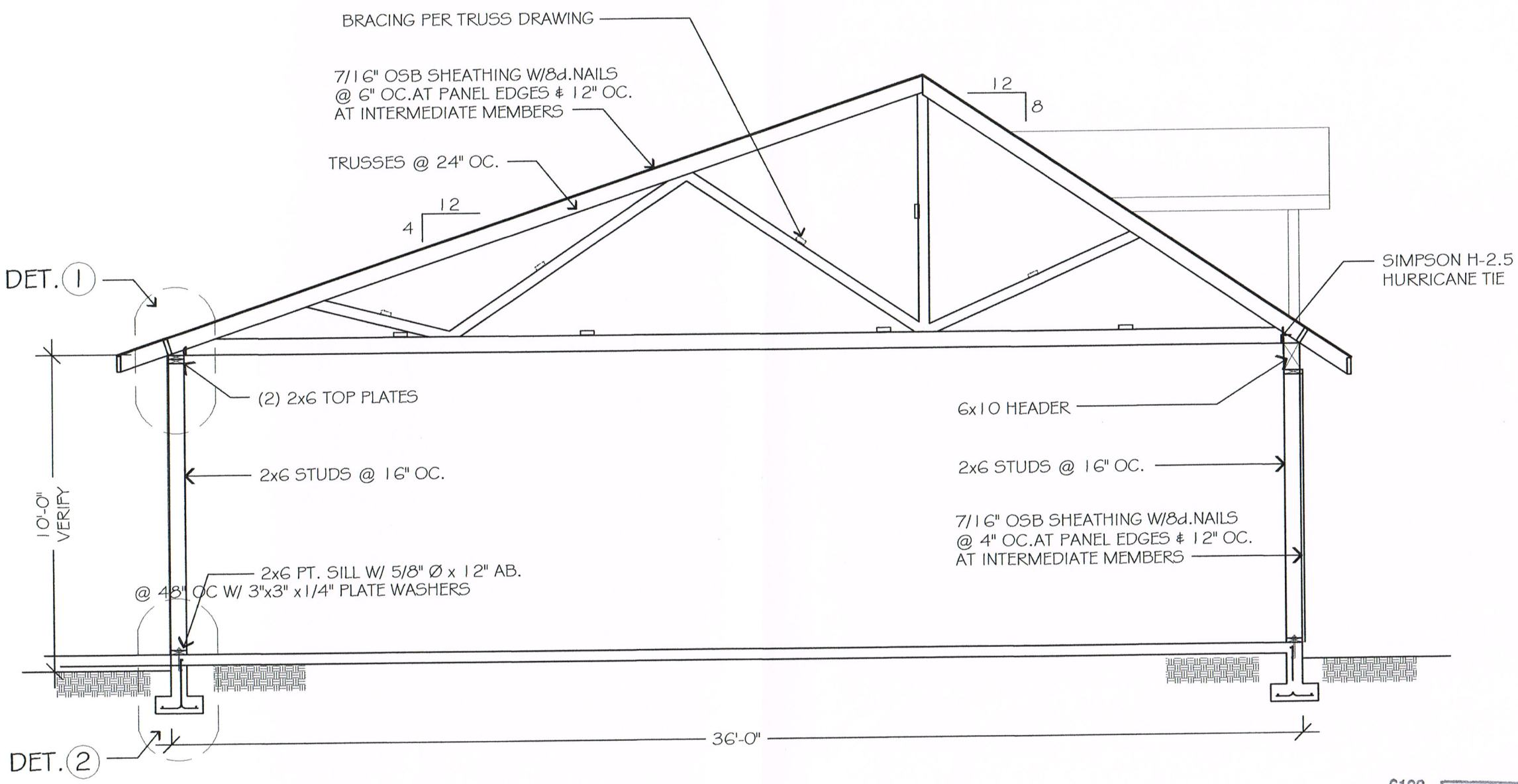

SECTION A

SCALE 1/4" = 1'-0"

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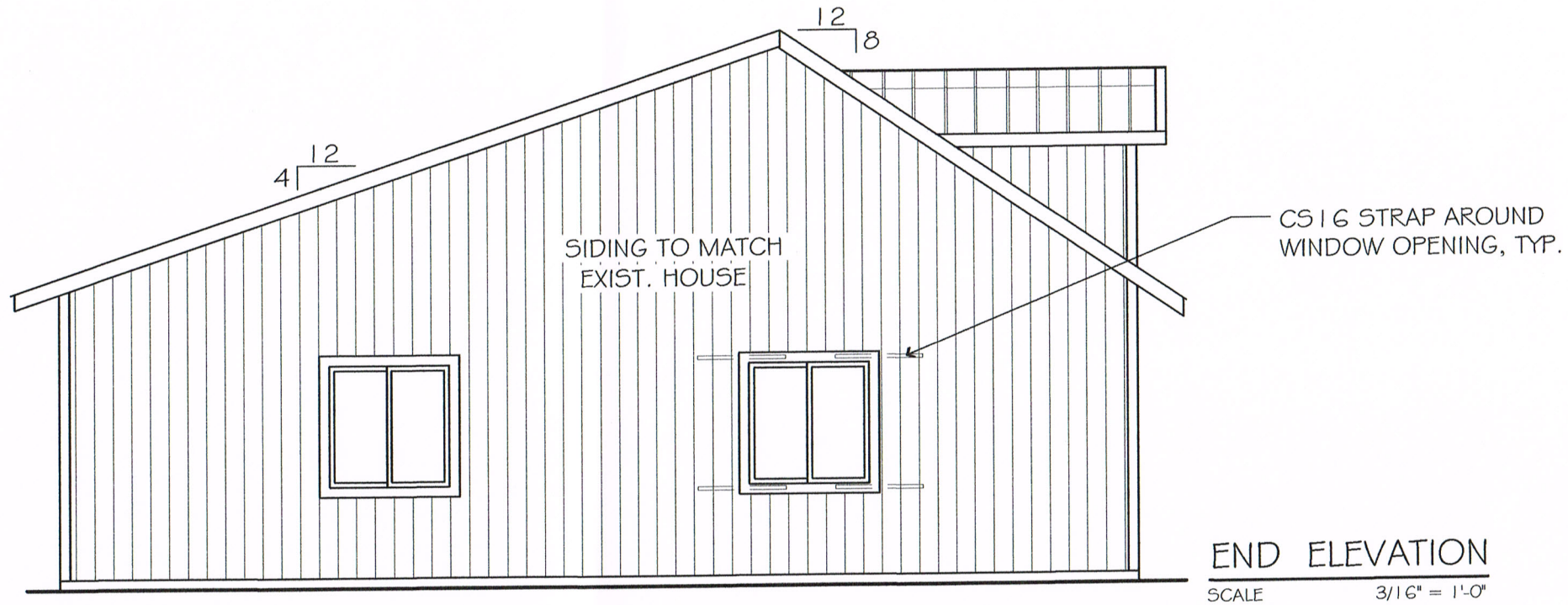
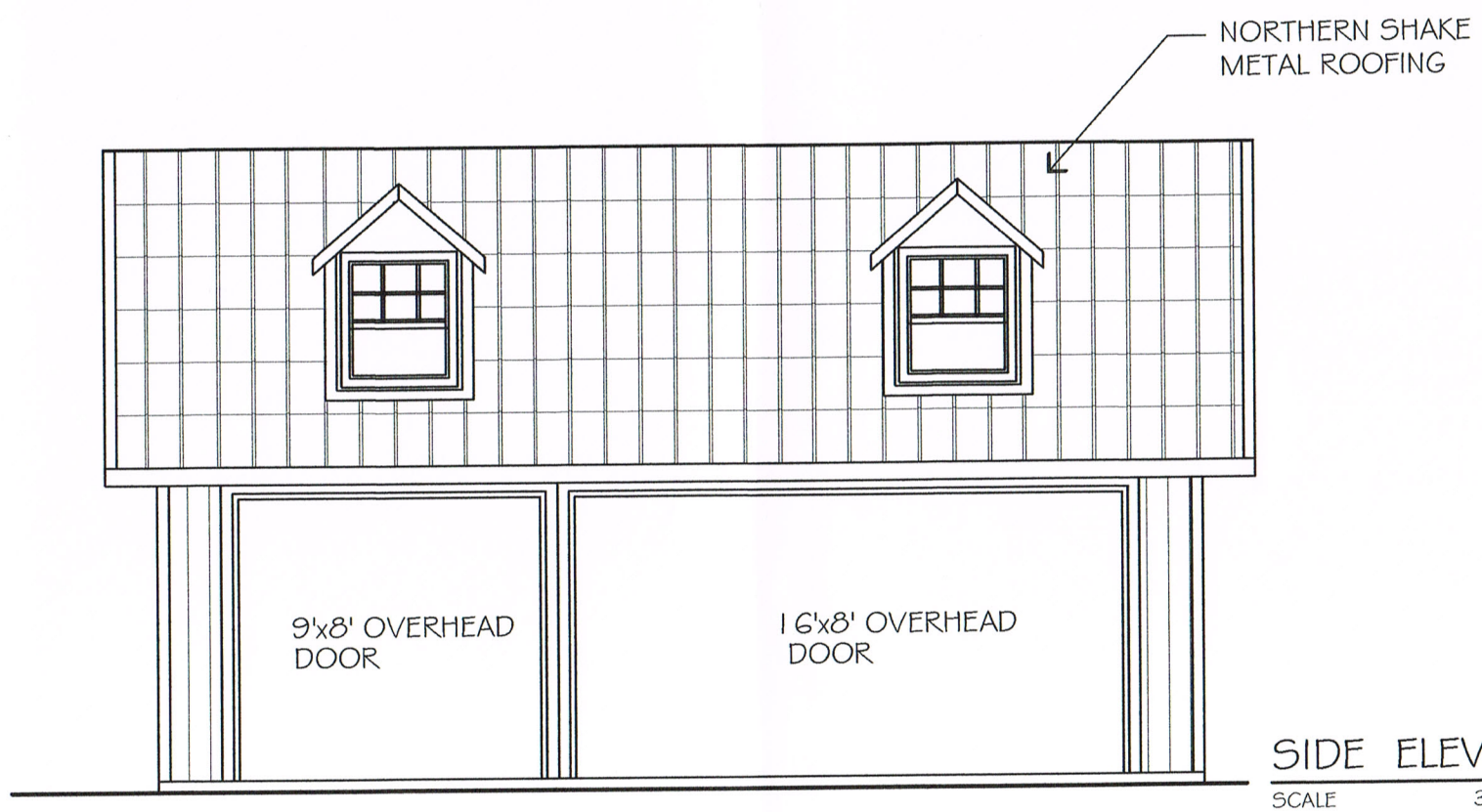


END ELEVATION

SCALE 3/16" = 1'-0"



SIDE ELEVATION

SCALE 3/16" = 1'-0"

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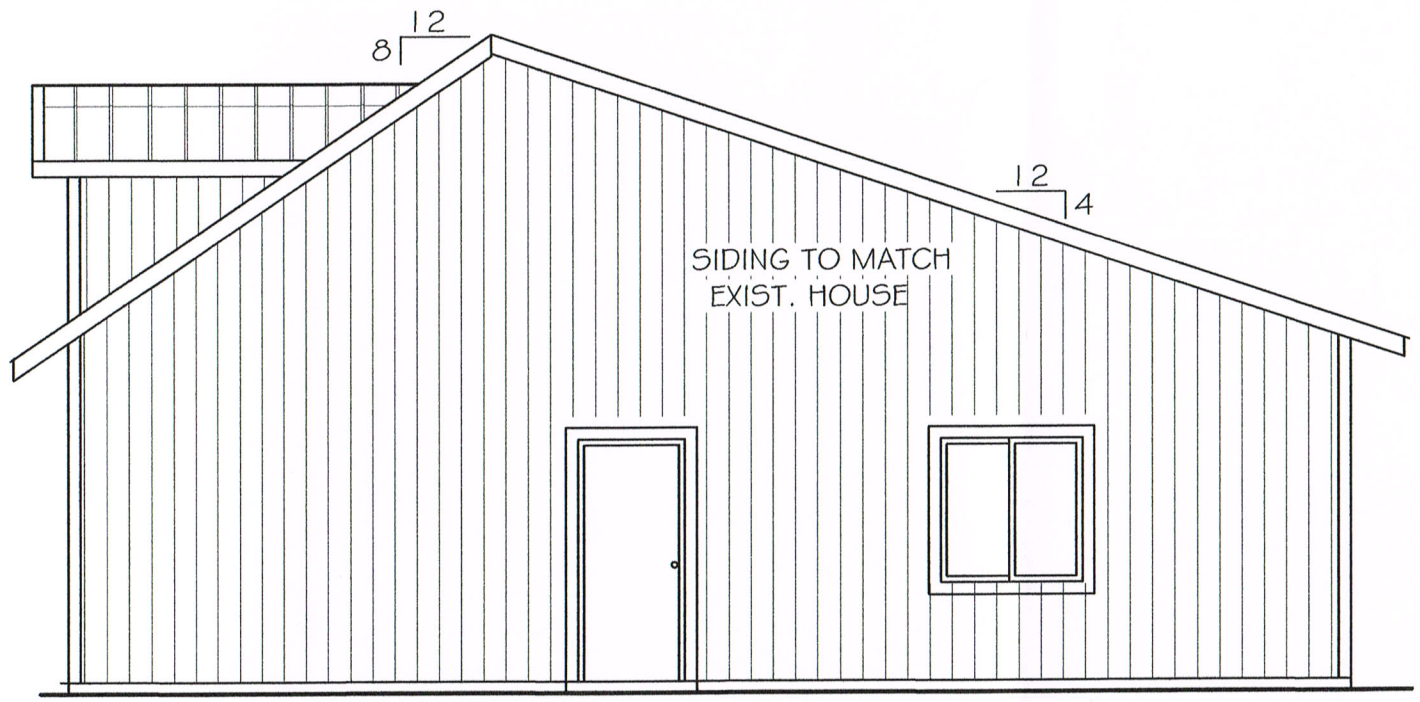
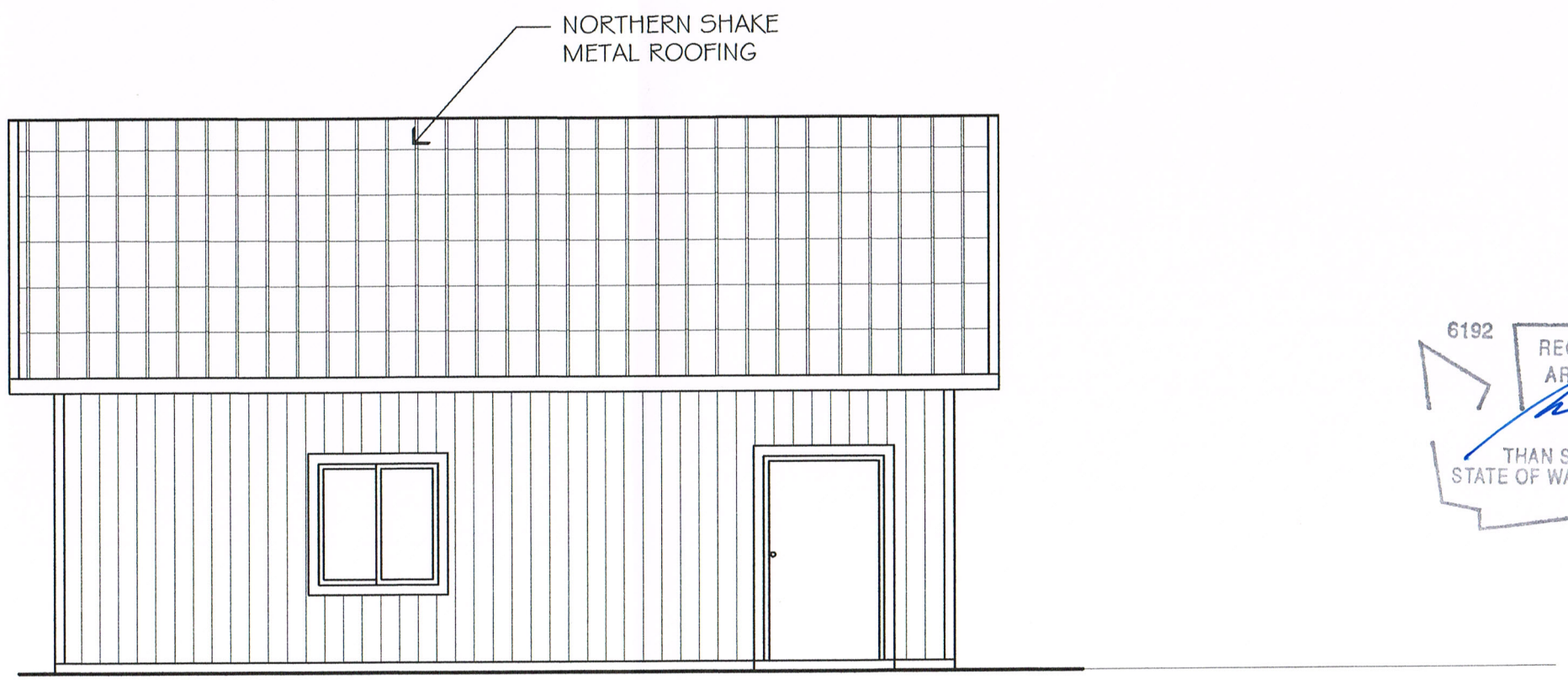


END ELEVATION

SCALE 3/16" = 1'-0"



SIDE ELEVATION

SCALE 3/16" = 1'-0"

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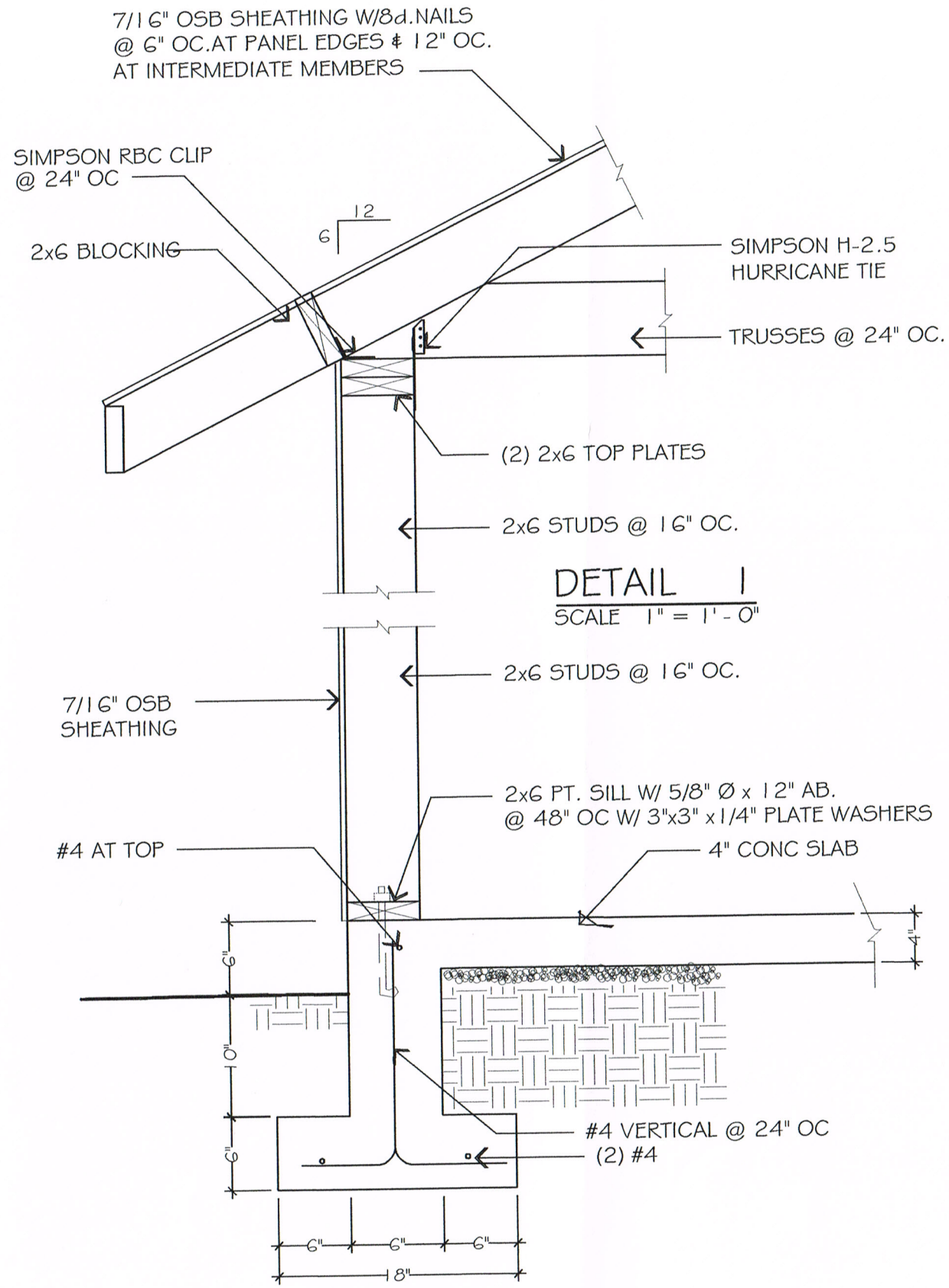

DETAIL 1
SCALE 1" = 1'-0"

DETAIL 2
SCALE 1" = 1'-0"

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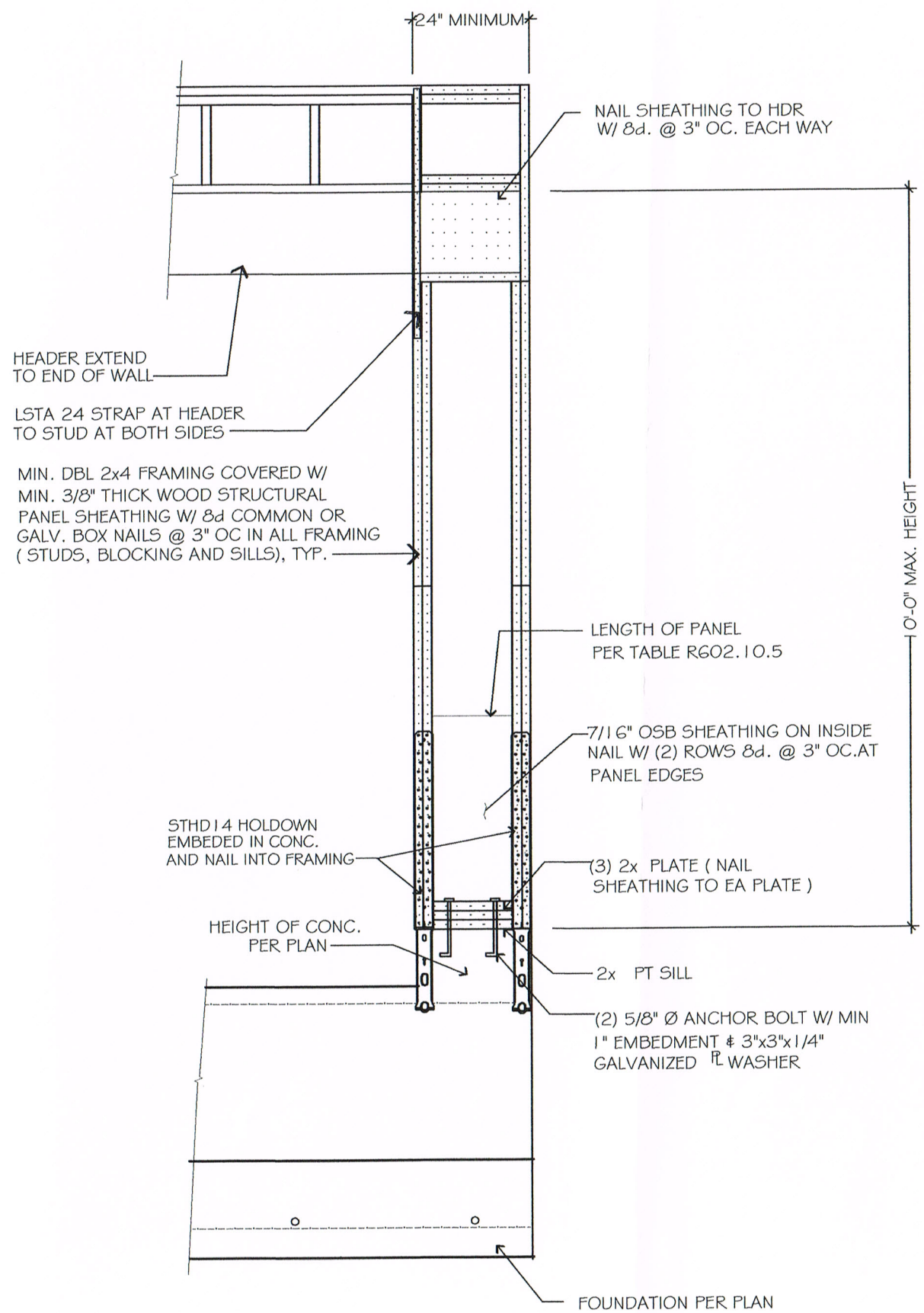

PORTAL FRAME WITH HOLD-DOWNS

SCALE 1" = 1'-0"

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JOHN DRVORE
11234 165TH CT. NE, REDMOND, WA.

2015 IBC & ASCE 7-10
ROOF SNOW = 25 PSF
WIND SPEED = 110 MPH
EXPOSURE B

SEISMIC DESIGN CATEGORY D
ALLOWABLE SOIL BEARING
PRESSURE = 1500 PSF

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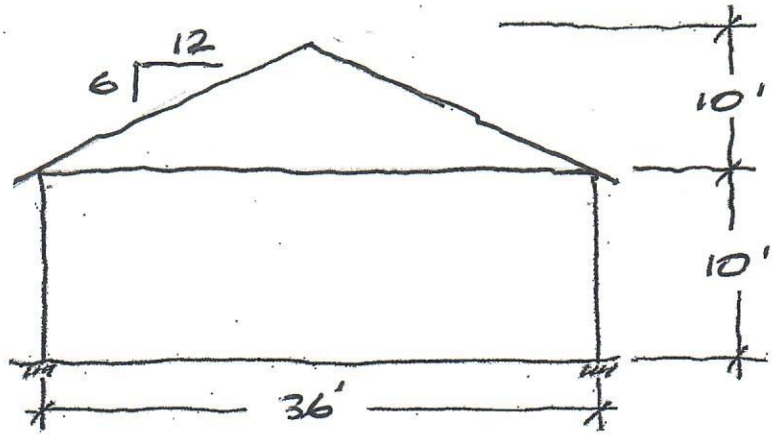
THAN SUTAN
STATE OF WASHINGTON
9/22/17
EXPIRES 4/17/18



GARAGE & STORAGE BUILDING
RISK CATEGORY II
$L/B = 36/30 = 1.2$
$0.2 < L/B \leq 5.0$

$K_{zt} = 1.0$
$V_{ULT} = 110$ MPH
EXPOSURE B

ROOF PRESSURE : 4 : 12 ROOF SLOPE

ZONE	1	2	3	4	5
LC 1	-13.1	-16.4	-25.2	-22.4	-18.4
LC 2	10.3	-7.8	0.0	0.0	0.0

USE 8.0 PSF MINIMUM FOR ROOF

WALL PRESSURE : $h = 20'$

L/B	0.5	1	2
Ph	17.5	17.5	15.1
P_o	17.2	17.2	14.8

$P = 17.5$ PSF

WIND ⊥ TO RIDGE:

$V_\perp = (17.5 \times 5.0 \times 30) + (8.0 \times 10.0 \times 33)$
$= 5270\#$

ROOF $v = 5270 / 2 \times 36$
$= 75\#/ft$

ROOF DIAPHRAGM :
7/16" OSB SHEATHING W/ 8d. NAILS @ 6" OC. AT PANEL EDGES & 12" OC. AT INTERMEDIATE MEMBERS

LEFT WALL $v = 5270 / 2 \times 29$
$= 90\#/ft$
$v_{ASD} = 55\#/ft$

RIGHT WALL $v = 5270 / 2 \times 30$
$= 90\#/ft$
$v_{ASD} = 55\#/ft$

TYPICAL SHEAR WALL P1-6:
7/16" OSB SHEATHING W/ 8d. NAILS
@ 6" OC. AT PANEL EDGES & 12" OC.
AT INTERMEDIATE MEMBERS (BLOCKED)

SILL PLATE:
2 x 6 PT. SILL W/ 5/8" Φ x 4'-0" ANCHOR
BOLTS @ 4'-0" OC. W/ 3" x 3" x 1/4" PLATE
WASHERS

WIND // TO RIDGE:
$P = 17.5 \times 380$
$= 6650\#$

FRONT WALL $v = 6650 / 2 \times 5$
$= 665\#/ft$
$v_{ASD} = 400\#/ft$

PFH = PORTAL FRAME WITH HOLD DOWNS
PER DETAILS

REAR WALL $v = 6650 / 2 \times 22$
$= 150\#/ft$
$v_{ASD} = 90\#/ft$

TYPICAL SHEAR WALL P1-6
W/ 2 x 6 PT. SILL (SEE ABOVE)

LOCATION : REDMOND, WA
ZIP CODE :

SEISMIC DESIGN CATEGORY D

$$V = \frac{F S_{DS}}{R} W$$

$$S_{DS} = \tfrac{2}{3} \times F_a \times S_s$$
$$= 83.6\ \%\ g$$

$$V = \frac{1.0 \times 0.836}{6.5} W$$
$$= 0.129\ W$$

ROOF DL = 10 × 39 × 33 = 12870#
WALL DL = 7 × 5.0 × 60 = 2100#

W = 14970#

$$V = 0.129 \times 14970\#$$
$$= 1930\# < 5270\# < 6650\#$$

WIND CONTROLS
IN BOTH DIRECTIONS

USGS Design Maps Summary Report

5

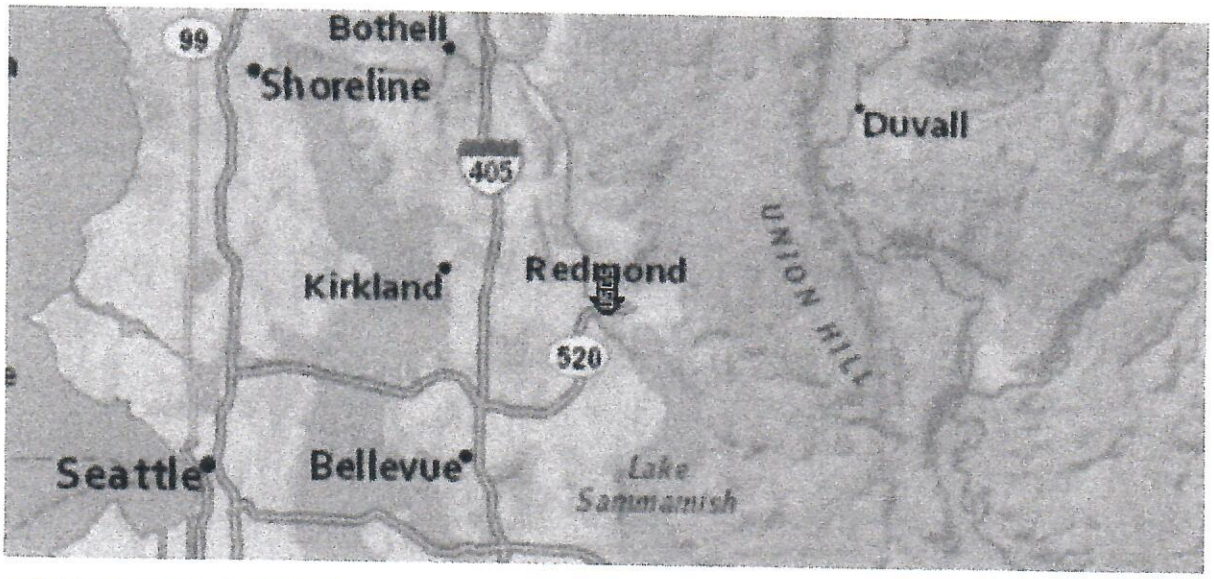
User-Specified Input

Building Code Reference Document 2012/2015 International Building Code
(which utilizes USGS hazard data available in 2008)

Site Coordinates 47.67395°N, 122.12177°W

Site Soil Classification Site Class D – "Stiff Soil"

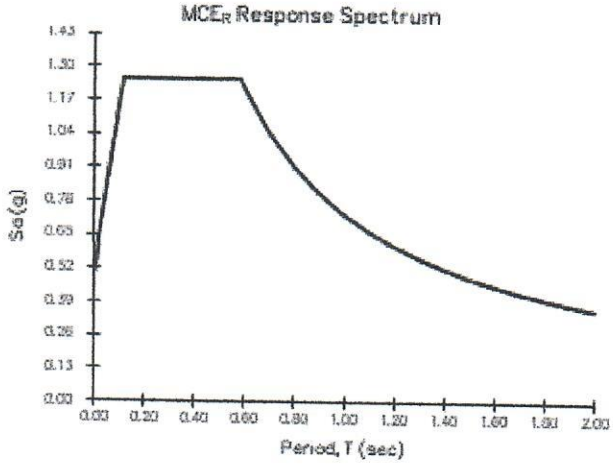
Risk Category I/II/III

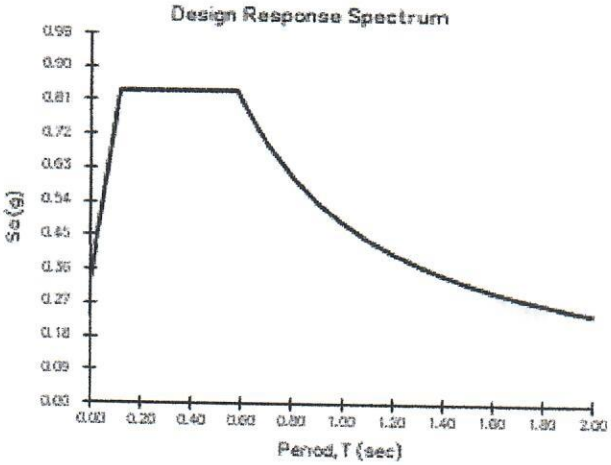


USGS-Provided Output

S_s =	1.254 g	S_{MS} =	1.254 g	S_{DS} =	0.836 g
S_1 =	0.481 g	S_{M1} =	0.730 g	S_{D1} =	0.487 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





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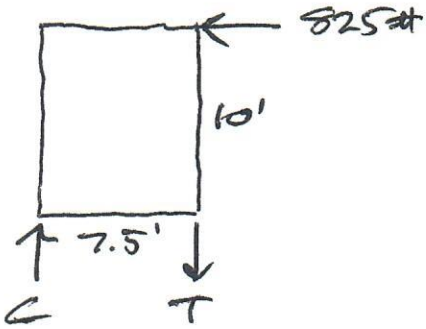
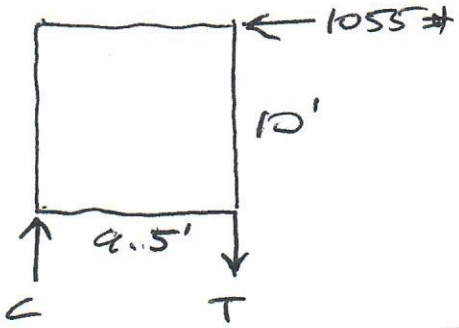
WALL OVERTURNING:

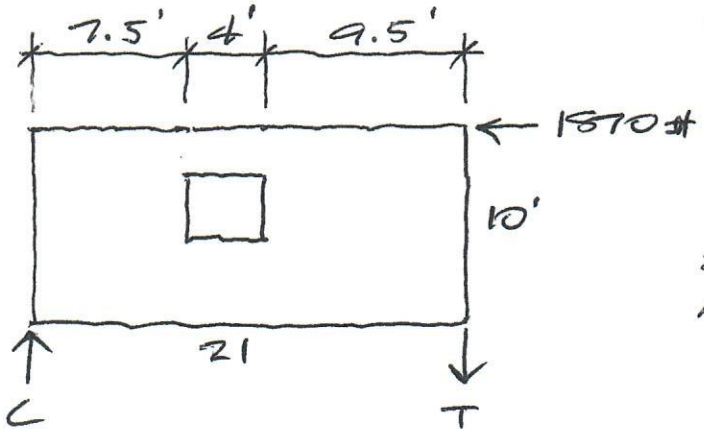


$P = 110 \times 7.5$
$= 825\#$
$7.5\,T = 825 \times 10$
$T = 1100\#$
SIMPSON STHD 14 HOLD DOWN



$P = 110 \times 9.6$
$= 1055\#$
$T = 1055 \times 10$
$T = 1110\#$
SIMPSON STHD 14 HOLDOWN

SHEAR TRANSFER AROUND OPENING:
USE SIMPSON CS16 STRAP TIE AT TOP & BOTTOM OF OPENING



$P = 110 \times 17$
$= 1870\#$
$21\,T = 1870 \times 10$
$T = 890\#$

SIMPSON STHD 14 HOLD DOWN AT EACH END

HEADER AT OVERHEAD DOOR : 16'x 10' DOOR :

$$w = 35 \times 43/2$$
$$= 753\ \#/ft$$
$$M = 753 \times 16.5^2/8$$
$$= 25630\ \#'$$

5½"x 12" GLULAM 24F-V4

$$M_A = 132 \times 2400/12$$
$$= 26400\ \#' > 25630\ \#'$$

OK!

$$\Delta = \frac{5 \times 753 \times 16.5^4 \times 1728}{384 \times 1.8 \times 10^6 \times 792}$$

$$= 0.88'' \approx L/225$$

NO GOOD!

USE 5½"x 15" GLULAM HEADER

$$\Delta = \frac{5 \times 753 \times 16.5^4 \times 1728}{384 \times 1.8 \times 10^6 \times 1546.88}$$

$$= 0.45'' \approx L/440$$

OK!

$$\text{REACTION} = 753 \times 16.5/2$$
$$= 6210\ \#$$

(2) 2x6 CRIPPLE STUD UNDER EACH END

HEADER AT 8'x8' OVERHEAD DOOR:

$w = 35 \times 43/2$

$= 753\ \#/ft$

$M = 753 \times 8.5^2/8$

$= 6800\ \#'$

$5\frac{1}{2}" \times 9"$ GLULAM HEADER

$M_A = 74.25 \times 2400/12$

$= 14850\ \#' > 6800\ \#'$

OK!

OR 6x10 HEADER HF #1

$M_A = 82.73 \times 1050 \times 1.15/12$

$= 8330\ \#' > 6800\ \#'$

OK!

HEADERS AT 4'0" OPENINGS:

$w = 35 \times 43/2$

$= 753\ \#/ft$

$M = 753 \times 4.5^2/8$

$= 1910\ \#'$

4x8 HEADER HF #2

$M_A = 30.66 \times 850 \times 1.15/12$

$= 2500\ \#' > 1910\ \#'$

OK!