



524 CLEVELAND BLVD. #230
CALDWELL, IDAHO 83605
(208) 453-6512

Completed by: JDJ
Review/Check: ARA

Project Name: Ostrum Residence
SRE Project #: 2022-3885
City and State: Eagle, Idaho

Lateral and Porch Calculations

Project Title: Ostrum Residence

Location: Eagle, Idaho

Job #: 2022-3885



Prepared in accordance with 2018 IBC. Calculations expire by: 6/29/2023



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SITE SPECIFIC DESIGN CRITERIA:

Snow Criteria:

Roof Load (P_f)	25 psf	
Ground Load (P_g)	25 psf	
Exposure Factor (C_e)	1.0	Partially
Thermal Factor (C_t)	1.0	Typical
Importance (I_s)	1.0	

Wind Criteria:

Wind Speed (V_3)	115 mph	
Wind Exposure	B	Urban / wooded
Wind Importance (I_w)	1.0	
Building Category	II	

Seismic Criteria:

Site Class	D	Stiff Soil
S_s	0.29	F_a 1.57
S_1	0.10	F_v 2.39
S_{D1}	0.30	S_{D1} 0.16
Risk Category	II	Other
Seismic Importance (I_E)	1.0	
Seismic Design Category (SDC)	C	

Seismic Criteria (continued):

Wall Material	Design Base Shear	Response Coeff., R	
OSB	.06Wp	6.5	Typ @ Ext
GYP	.18Wp	2	Typ @ Int
CANT COL	.24Wp	1.5	

Soil Criteria:

Brg. Strength	1500 psf
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STRUCTURE SPECIFIC DESIGN CRITERIA:

Live Loads:

Typ Residential	40 psf
Garage (P.V.)	50 psf
Sleeping Area's	30 psf

Roof Dead Loads:

Deck	1.5
Insulation	2.0
Roofing	3.0
Joist	2.5
Ceiling	3.0
Misc	4.5
TOTAL	17 psf

Exterior Wall Dead Loads:

Studs	2.0
Siding	2.5
Insulation	0.5
Gyp. Board	2.5
Sheathing	1.5
Misc	3.0
TOTAL	12 psf

Floor Dead Loads:

Deck	2.5
Joist	2.0
Ceiling	2.0
Flooring	2.5
Misc	3.0
TOTAL	12 psf

Interior Wall Dead Loads:

Studs	2.0
Gyp. Board	2.5
Misc	3.0
TOTAL	8 psf

Deck Dead Load

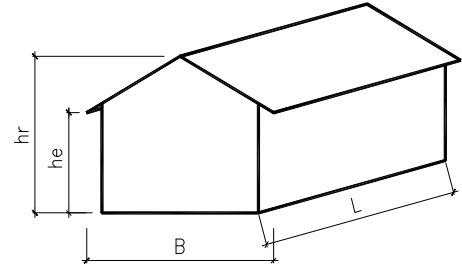
Decking	4.4
Joist	2.0
	0.0
Misc	3.0
TOTAL	10 psf



WIND ANALYSIS: Low-rise Building - Based on IBC / ASCE 7

INPUT DATA

Exposure category (B, C or D, ASCE 7-16 26.7.3)		B			
Importance factor (ASCE 7-16 Table 1.5-2)	$I_w =$	1.00	for all Category		
Basic wind speed (ASCE 7-16 26.5.1 or 2018 IBC)	$V =$	115	mph		
Topographic factor (ASCE 7-16 26.8 & Table 26.8-1)	$K_{zt} =$	1.00	Flat		
Building height to ridge	$h_r =$	33.00	ft		
Building height to eave	$h_e =$	20.75	ft		
Building width	$B =$	78.00	ft		
Building length	$L =$	89.54	ft		
Overhang sloped width	$O_h =$	3.00	ft		
Effective area of components (or Solar Panel area)	$A =$	33.3	ft ² , <== Overhang? (Yes or No):	Yes	
Enclosed? (Y/N)		y			



ANALYSIS

Velocity pressure

$$q_h = 0.00256 K_z K_{zt} K_d K_e V^2 = 20.16 \text{ psf}$$

where: q_h = velocity pressure at mean roof height, h. (Eq. 26.10-1 page 268)

K_z = velocity pressure exposure coefficient evaluated at height, h, (Tab. 26.10-1, pg. 268) = **0.70**

K_d = wind directionality factor. (Tab. 26.6-1, for building, page 266) = **0.85**

h = mean roof height = **26.88 ft**

K_e = ground elevation factor. (**1.0** per Sec. 26.9, page 268) **< 60 ft, [Satisfactory]** (ASCE 7-16 26.2.1)

< Min (L, B), [Satisfactory] (ASCE 7-16 26.2.2)

Design pressures for MWFRS

$$p = q_h [(G C_{pf}) - (G C_{pi})]$$

where: p = pressure in appropriate zone. (Eq. 28.3-1, page 311).

$p_{min} = 16 \text{ psf}$ (ASCE 7-16 28.3.4)

$G C_{pf}$ = product of gust effect factor and external pressure coefficient, see table below. (Fig. 28.3-1, page 312 & 313)

$G C_{pi}$ = product of gust effect factor and internal pressure coefficient. (Tab. 26.13-1, Enclosed Building, page 271)

= **0.18** or **-0.18**

a = width of edge strips, Fig 28.3-1, page 312, $\text{MAX}[\text{MIN}(0.1B, 0.1L, 0.4h), \text{MIN}(0.04B, 0.04L), 3] = 7.80 \text{ ft}$

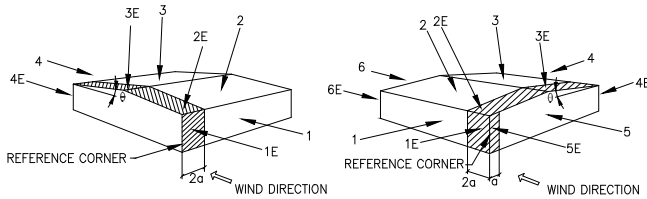
Net Pressures (psf), Basic Load Cases

Surface	Roof angle $q = 33.69$			Roof angle $q = 33.69$		
	$G C_{pf}$	Net Press. W/		$G C_{pf}$	Net Press. W/	
		(+ $G C_{pi}$)	(- $G C_{pi}$)		(+ $G C_{pi}$)	(- $G C_{pi}$)
1	0.56	7.66	14.92	-0.45	-12.70	-5.44
2	0.21	0.60	7.86	-0.69	-17.54	-10.28
3	-0.43	-12.30	-5.04	-0.37	-11.09	-3.83
4	-0.37	-11.09	-3.83	-0.45	-12.70	-5.44
5				0.40	4.44	11.69
6				-0.29	-9.48	-2.22
1E	0.69	10.28	17.54	-0.48	-13.31	-6.05
2E	0.27	1.81	9.07	-1.07	-25.20	-17.94
3E	-0.53	-14.31	-7.06	-0.53	-14.31	-7.06
4E	-0.48	-13.31	-6.05	-0.48	-13.31	-6.05
5E				0.61	8.67	15.93
6E				-0.43	-12.30	-5.04

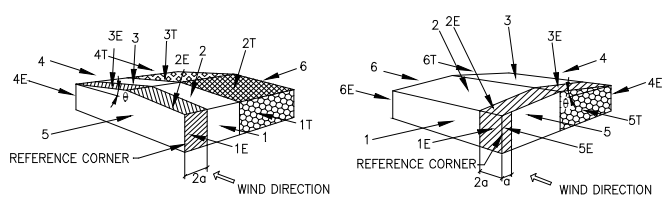
Net Pressures (psf), Torsional Load Cases

Surface	Roof angle $q = 33.69$		
	$G C_{pf}$	Net Press. W/	
		(+ $G C_{pi}$)	(- $G C_{pi}$)
1T	0.56	1.92	3.73
2T	0.21	0.15	1.97
3T	-0.43	-3.07	-1.26
4T	0.00	-2.77	-0.96
Surface	Roof angle $q = 0.00$		
	$G C_{pf}$	Net Press. W/	
		(+ $G C_{pi}$)	(- $G C_{pi}$)
5T	0.40	1.11	2.92
6T	-0.29	-2.37	-0.55

+ / - Wind Pressure 59%



Load Case A (Transverse) Load Case B (Longitudinal)
Basic Load Cases



Load Case A (Transverse) Load Case B (Longitudinal)
Torsional Load Cases

Design pressures for components and cladding

$p = q_h [(G C_p) - (G C_{pi})]$

where: p = pressure on component. (Eq. 30.3-1, pg 33)

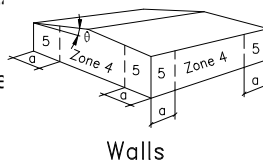
$p_{min} = 16.00$ psf (ASCE 7-16 30.2.2)

$G C_p = 1.00$ external pressure coefficient
see table below. (ASCE 7-16 30.3.2)

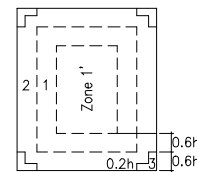
$q = 33.69$ °

$p_{overhang} = -69.56$ psf

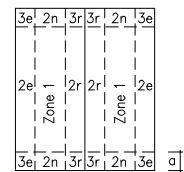
(ASCE 7-16 28.3.3)



Walls



Roof $\theta \leq 7^\circ$



Roof $\theta > 7^\circ$

Comp. & Cladding Coeffs.	Effective Area (ft ²)	Zone 1		Zone 1'		Zone 2		Zone 2e		Zone 2n		Zone 2r	
		GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p
	2028	0.30	-0.80	0.30	-0.80	0.30	-1.80	0.30	-0.80	0.30	-1.00	0.30	-1.00
Effective Area (ft ²)	Zone 3		Zone 3e		Zone 3r		Zone 4		Zone 5				
	GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p	GC _p	-GC _p			
33	0.30	-1.80	0.30	-1.80	0.30	-1.80	0.99	-1.09	0.99	-1.37			

Comp. & Cladding Pressures	Zone 1		Zone 1'		Zone 2		Zone 2e		Zone 2n		Zone 2r	
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative
	2.42	-12.50	2.42	-12.50	2.42	-32.66	2.42	-12.50	2.42	-16.53	2.42	-16.53
	Zone 3		Zone 3e		Zone 3r		Zone 4		Zone 5			
Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	(Max Pressure 32.66 psf)		
2.42	-32.66	2.42	-32.66	2.42	-32.66	16.24	-18.26	16.24	-24.02			

LOAD CASE 'A' FACTORED LOADS	
$0.6 * W_r = (Z_2 + Z_3) * 0.6 =$	7.7 psf
$0.6 * W_{rE} = (Z_{2E} + Z_{3E}) * 0.6 =$	9.7 psf
$0.6 * W_w = (Z_1 + Z_4) * 0.6 =$	11.3 psf
$0.6 * W_{wE} = (Z_{1E} + Z_{4E}) * 0.6 =$	14.2 psf

LOAD CASE 'B' FACTORED LOADS	
$0.6 * W_r = (Z_2 + Z_3) * 0.6 =$	3.9 psf
$0.6 * W_{rE} = (Z_{2E} + Z_{3E}) * 0.6 =$	6.5 psf
$0.6 * W_w = (Z_5 + Z_6) * 0.6 =$	8.3 psf
$0.6 * W_{wE} = (Z_{5E} + Z_{6E}) * 0.6 =$	12.6 psf

ROOF COMPONENTS FACTORED LOAD	
$0.6 * Z_{r,c\&c} =$	9.9 psf

WALL COMPONENTS FACTORED LOAD	
$0.6 * Z_{w,c\&c} =$	11.0 psf



OSB SEISMIC LOADING ANALYSIS

IBC / ASCE 7: Equivalent Lateral Force (ELF) Procedure:

INPUT DATA

Typical floor height: $h = 10$ ft
 Typical floor weight: $w_x = 118.7$ kips
 Number of floors: $n = 1$
 Importance factor (ASCE 11.5.1): $I_e = 1.00$
 Design spectral response: $S_{DS} = 0.30$ g
 $S_{D1} = 0.16$ g
 Mapped spectral resp.: $S_1 = 0.10$ g
 Period Parameter, C_t :
 (ASCE Tab 12.8-2): $C_t = 0.020$
 Resp. coefficient: (ASCE
 Tab. 12.2.1): $R = 6.5$
 Seismic design category: SDC = C
 $h_n = 33.0$ ft

DESIGN SUMMARY

$C_s = 1.2 * S_{DS} / (R / I_e) = 0.0558$ <= Applicable
 Period Parameter, $x = 0.75$, ASCE Tab 12.8-2
 Period: $T_a = C_t (h_n)^x = 0.28$ sec, ASCE 12.8.2.1
 $C_s < S_{D1} / [(R / I_e) T_a] = 0.0890$, ASCE Tab 12.8.1.1 <= Not Applicable
 $C_s > 0.044 S_{DS} I_e = 0.0133$, ASCE Tab 12.8.1.1 <= Not Applicable
 $C_s > 0.5 S_1 / (R / I_e) = 0.0077$, ASCE Tab 12.8.1.1 <= Not Applicable
 $k = 1.90$, (ASCE 12.8.3, page 91)
 $V = C_s W = 0.0558$ W
 $0.7 * V = 0.0391$ W
 $W = 119$ kips, total

SEISMIC COMPONENT & ANCHORING ANALYSIS

Out-of-plane seismic force for wall design (ASCE 7, Sec.12.11.1)

$$w_{1, seismic} = MAX(0.4 I S_{DS} W_p, 0.1 W_p) = 0.1 W_p = 0.1 \text{ psf} \quad \leq \text{USE FOR DIAPHRAGMS}$$

Where: $W_p = 1.0$ psf, $I_e = 1.00$
 (CBC / IBC Tab. 1604.5 & ASCE 7 Tab. 1.5-2)

Out-of-plane seismic force for anchorage design

For seismic design category A & B, any diaphragm (ASCE 7 Sec. 12.11.2)

$$F_{anch, seismic} = MAX \left[0.4 S_{DS} I W_p \frac{(h+h_p)^2}{2h}, 0.1 W_p \frac{(h+h_p)^2}{2h}, 400 S_{DS} I, F_{min} \right] =$$

Where: $F_{min} = 0.11$ plf, $1.18 W_p = 121$ plf (Horizontal) <= Not Applicable
 (ASCE 7 Sec. 12.11.2 & 11.7.3)

For seismic design category C and above, flexible diaphragm (ASCE 7 Sec. 12.11.2.1)

$$F_{anch, seismic} = MAX \left[0.8 S_{DS} I W_p \frac{(h+h_p)^2}{2h}, 0.1 W_p \frac{(h+h_p)^2}{2h}, 400 S_{DS} I, F_{min} \right] =$$

= 2.37 $W_p = 121$ plf (Horizontal) <= Applicable

For connections (ASCE 7 Sec. 12.11.2.1)

$$F_{conn, seismic} = MAX [0.133 S_{DS} w_p, 0.5 w_p] = 0.5 W_p = 0.5 \text{ plf (Horizontal)}$$



GYP SEISMIC LOADING ANALYSIS

IBC / ASCE 7: Equivalent Lateral Force (ELF) Procedure:

INPUT DATA

Typical floor height: $h = 10$ ft
 Typical floor weight: $w_x = 118.7$ kips
 Number of floors: $n = 1$
 Importance factor (ASCE 11.5.1): $I_e = 1.00$
 Design spectral response: $S_{DS} = 0.30$ g
 $S_{D1} = 0.16$ g
 Mapped spectral resp.: $S_1 = 0.10$ g
 Period Parameter, C_t :
 (ASCE Tab 12.8-2): $C_t = 0.020$
 Resp. coefficient: (ASCE
 Tab. 12.2.1): $R = 2$
 Seismic design category: SDC = C
 $h_n = 33.0$ ft

DESIGN SUMMARY

$C_s = 1.2 * S_{DS} / (R / I_e) = 0.1814$ <= Applicable
 Period Parameter, $x = 0.75$, ASCE Tab 12.8-2
 Period: $T_a = C_t (h_n)^x = 0.28$ sec, ASCE 12.8.2.1
 $C_s < S_{D1} / [(R / I_e) T_a] = 0.2893$, ASCE Tab 12.8.1.1 <= Not Applicable
 $C_s > 0.044 S_{DS} I_e = 0.0133$, ASCE Tab 12.8.1.1 <= Not Applicable
 $C_s > 0.5 S_1 / (R / I_e) = 0.0250$, ASCE Tab 12.8.1.1 <= Not Applicable
 $k = 1.90$, (ASCE 12.8.3, page 91)
 $V = C_s W = 0.1814$ W
 $0.7 * V = 0.1270$ W
 $W = 119$ kips, total

SEISMIC COMPONENT & ANCHORING ANALYSIS

Out-of-plane seismic force for wall design (ASCE 7, Sec.12.11.1)

$$w_{1,seismic} = MAX(0.4 I S_{DS} W_p, 0.1 W_p) = 0.1 W_p = 0.1 \text{ psf} \quad \leq \text{USE FOR DIAPHRAGMS}$$

Where: $W_p = 1.0$ psf, $I_e = 1.00$
 (CBC / IBC Tab. 1604.5 & ASCE 7 Tab. 1.5-2)

Out-of-plane seismic force for anchorage design

For seismic design category A & B, any diaphragm (ASCE 7 Sec. 12.11.2)

$$F_{anch,seismic} = MAX \left[0.4 S_{DS} I W_p \frac{(h+h_p)^2}{2h}, 0.1 W_p \frac{(h+h_p)^2}{2h}, 400 S_{DS} I, F_{min} \right] =$$

Where: $F_{min} = 0.11$ plf, $1.18 W_p = 121$ plf (Horizontal) <= Not Applicable
 (ASCE 7 Sec. 12.11.2 & 11.7.3)

For seismic design category C and above, flexible diaphragm (ASCE 7 Sec. 12.11.2.1)

$$F_{anch,seismic} = MAX \left[0.8 S_{DS} I W_p \frac{(h+h_p)^2}{2h}, 0.1 W_p \frac{(h+h_p)^2}{2h}, 400 S_{DS} I, F_{min} \right] =$$

= 2.37 $W_p = 121$ plf (Horizontal) <= Applicable

For connections (ASCE 7 Sec. 12.11.2.1)

$$F_{conn,seismic} = MAX [0.133 S_{DS} w_p, 0.5 w_p] = 0.5 W_p = 0.5 \text{ plf (Horizontal)}$$



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WIND / SEISMIC SHEAR FORCE CALCULATIONS:

From ASCE 7-16 Wind & Seismic Loading Analysis

Wall Line	Roof / Floor						Wall					Load above		*C _s (W/p)	=	Loading		
	Wind Force (psf)	Diaph. Weight	Wr, We truss trib (ft)	Area W (ft)	Area L (ft)	Wind Force (psf)	Wall DL (psf)	Wall ht (ft)	wall line dist (ft)	Upr. Flr Wall ht (ft)	Wind (#)	Seismic (#)	Wind Force (kips)			Seismic Force (kips)	Lateral Control	
X1-2	9.6	17	12.3	35.0	24.5	12.5	12.0	9.0	35.0				0.04	=	1.83	0.26	Wind	
X2-2	9.6	17	12.3	35.0	24.5	12.5	12.0	9.0	35.0				0.04	=	4.13	0.92	Wind	
	9.6	17	12.3	26.0	64.0	13.0	12.0	9.0	26.0				0.04	=				
X3-2	9.6	17	12.3	26.0	64.0	13.0	12.0	9.0	26.0				0.04	=	3.38	0.79	Wind	
	9.6	17	12.3	12.0	19.6	14.2	12.0	9.0	12.0				0.04	=				
X4-2	9.6	17	12.3	12.0	19.6	14.2	12.0	9.0	12.0				0.04	=	1.09	0.13	Wind	
Y1-2	9.6	17	12.3	16.0	73.0	14.1	12.0	9.0	16.0				0.04	=	1.45	0.46	Wind	
Y2-2	9.6	17	12.3	16.0	73.0	14.1	12.0	9.0	16.0				0.04	=	3.19	1.01	Wind	
	9.6	17	12.3	19.5	73.0	13.6	12.0	9.0	19.5				0.04	=				
Y3-2	9.6	17	12.3	19.5	73.0	13.6	12.0	9.0	19.5				0.04	=	3.87	1.24	Wind	
	9.6	17	12.3	24.0	73.0	13.1	12.0	9.0	24.0				0.04	=				
Y4-2	9.6	17	12.3	24.0	73.0	13.1	12.0	9.0	24.0				0.04	=	2.12	0.68	Wind	
X1-1	0.0	18	0.0	30.0	54.0	12.8	12.0	10.0	30.0	5.5	1.83	0.26	0.04	=	3.84	0.97	Wind	
X2-1	9.6	18	0.0	30.0	54.0	12.8	12.0	10.0	30.0	0.0	0	0	0.04	=	1.31	0.98	Wind	
	9.6	18	0.0	10.0	62.0	14.2	12.0	10.0	10.0	0.0	0	0	0.04	=				
X3-1	0.0	18	0.0	10.0	62.0	14.2	12.0	10.0	10.0	5.5	2.06	0.46	0.04	=	6.17	1.68	Wind	
	0.0	18	0.0	18.0	64.0	13.8	12.0	10.0	18.0	5.5	2.06	0.46	0.04	=				
X4-1	0.0	18	0.0	18.0	64.0	13.8	12.0	10.0	18.0	5.5	1.69	0.40	0.04	=	5.86	1.49	Wind	
	0.0	18	0.0	16.0	24.0	14.1	12.0	10.0	16.0	5.5	1.69	0.40	0.04	=				
X5-1	0.0	18	0.0	16.0	24.0	14.1	12.0	10.0	16.0	5.5	1.09	0.13	0.04	=	2.27	0.34	Wind	
Y1-1	0.0	18	0.0	16.0	66.0	14.1	12.0	10.0	16.0	5.5	1.45	0.46	0.04	=	2.63	0.90	Wind	
Y2-1	0.0	18	0.0	16.0	66.0	14.1	12.0	10.0	16.0	5.5	1.60	0.51	0.04	=	5.77	2.00	Wind	
	0.0	18	0.0	19.5	66.0	13.6	12.0	10.0	19.5	5.5	1.60	0.51	0.04	=				
Y3-1	0.0	18	0.0	19.5	66.0	13.6	12.0	10.0	19.5	5.5	1.93	0.62	0.04	=	7.03	2.51	Wind	
	0.0	18	0.0	26.0	66.0	13.0	12.0	10.0	26.0	5.5	1.93	0.62	0.04	=				
Y4-1	0.0	18	0.0	26.0	66.0	13.0	8.0	10.0	26.0	5.5	2.12	0.68	0.13	=	6.95	4.98	Wind	
	9.6	17	18.2	25.5	66.0	13.0	8.0	10.0	25.5	0	0	0	0.13	=				
Y5-1	9.6	17	18.2	25.5	66.0	13.0	12.0	10.0	25.5	0	0	0	0.04	=	3.06	0.68	Wind	



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SHEAR WALL CALCULATIONS:

		X1-2	X2-2	X3-2	X4-2	Y1-2	Y2-2
Shear Wall Forces							
Total length of wall		24.00 ft	35.54 ft	64.00 ft	24.00 ft	24.00 ft	30.00 ft
Total length of shear wall	L =	24.00 ft	29.25 ft	31.20 ft	18.38 ft	12.58 ft	30.00 ft
Total length of full ht seg.	L _w =	10.75 ft	16.25 ft	17.67 ft	8.00 ft	12.58 ft	13.00 ft
height of shear wall	H =	9.00 ft	9.00 ft	9.00 ft	9.00 ft	9.00 ft	9.00 ft
Maximum opening height	H' =	6.00 ft	9.00 ft	9.00 ft	7.00 ft	9.00 ft	9.00 ft
Total force at top of wall	V ₁ =	1833 lbs	4128 lbs	3377 lbs	1088 lbs	1448 lbs	3193 lbs
Self weight	W _{DL self} =	108 plf	108 plf	108 plf	108 plf	108 plf	108 plf
Applied dead load	W _{DL above} =	40 plf	40 plf	174 plf	40 plf	40 plf	40 plf
Prefered OSB thickness	in	7/16	7/16	7/16	7/16	7/16	7/16
Prefered Gyp thickness	in	1/2	1/2	1/2	1/2	1/2	1/2
Wall Connected to Concrete	y/n =	N	N	N	N	N	N
Shear Wall Segments							
		4.00	3.88	3.00	4.00	7.00	7.00
		6.75	3.88	3.00	4.00	5.58	6.00
			4.25	11.67			
			4.25				
Shear Transfer to Concrete							
	T =	6 lbs	1984 lbs	Not Req'd	274 lbs	478 lbs	1647 lbs
Provide:							
Min # of 1/2 Anchor Bolts							
Load From Above		0.00	0.00	0.00	0.00	0.00	0.00
Holddown		Perp. Wall	S2		Perp. Wall	Perp. Wall	S2
Shear Resisting System							
Force Calculated		264.58	479.79	356.82	238.33	115.08	524.01
		OSB	OSB	OSB	OSB	OSB	OSB
Min Shear Wall Segment:		2.57 ft	2.57 ft	2.57 ft	2.57 ft	2.57 ft	2.57 ft
Provide:	V _a =	SW1	SW2	SW1	SW1	SW1	SW2
Min Shear Wall Segment:							
Provide:	V _a =						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		76 plf	116 plf	53 plf	45 plf	60 plf	106 plf
Blocking		NONE	NONE	NONE	NONE	NONE	NONE
Nailing		See SCHED	See SCHED	See SCHED	See SCHED	See SCHED	See SCHED
Unit Base Shear							
% of full height segments	%fh = L _w /L =	0.448	0.556	0.566	0.435	1.000	0.433
% of maximum opening height	%oh = H'/H =	0.667	1.000	1.000	0.778	1.000	1.000
Shear cap adj factor	SCAF =	0.64	0.53	0.54	0.57	1.00	0.47
Unit base shear	v _{base} V ₁ /L _w =	170 plf	254 plf	191 plf	136 plf	115 plf	246 plf
Effective unit base shear	v _{req} = v _{base} /SCAF =	265 plf	480 plf	357 plf	238 plf	115 plf	524 plf
Ovrtrn. mo. Ttl. length of wall	OTM =	25.6 k-ft	70.2 k-ft	56.7 k-ft	17.2 k-ft	13.0 k-ft	61.3 k-ft
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	42.6 k-ft	63.2 k-ft	137.4 k-ft	24.9 k-ft	11.7 k-ft	66.5 k-ft
	r =	0.5489	0.5556	0.5663	0.4978	1.0000	0.4333
	C _o =	0.6443	0.5294	0.5355	0.5705	1.0000	0.4688



524 CLEVELAND BLVD. #230
CALDWELL, IDAHO 83605
(208) 453-6512

Completed by: JDJ
Review/Check: ARA

Project Name: Ostrum Residence
SRE Project #: 2022-3885
City and State: Eagle, Idaho

SHEAR WALL CALCULATIONS:

		Y3-2	Y4-2	X1-1	X2-1	X3-1	X4-1
Shear Wall Forces							
Total length of wall		72.00 ft	72.00 ft	54.00 ft	54.00 ft	62.00 ft	38.00 ft
Total length of shear wall	L =	67.20 ft	39.50 ft	54.00 ft	27.54 ft	33.54 ft	15.50 ft
Total length of full ht seg.	L _w =	20.78 ft	16.12 ft	24.00 ft	12.00 ft	24.70 ft	6.00 ft
height of shear wall	H =	9.00 ft	9.00 ft	10.00 ft	10.00 ft	10.00 ft	10.00 ft
Maximum opening height	H' =	9.00 ft	9.00 ft	10.00 ft	6.00 ft	10.00 ft	7.00 ft
Total force at top of wall	V ₁ =	3866 lbs	2121 lbs	3842 lbs	1311 lbs	6172 lbs	2930 lbs
Self weight	W _{DL self} =	108 plf	108 plf	120 plf	120 plf	120 plf	120 plf
Applied dead load	W _{DL above} =	40 plf	40 plf	40 plf	40 plf	79 plf	40 plf
Prefered OSB thickness	in	7/16	7/16	7/16	7/16	7/16	7/16
Prefered Gyp thickness	in	1/2	1/2	1/2	1/2	1/2	1/2
Wall Connected to Concrete	y/n =	N	N	Y	Y	Y	Y
Shear Wall Segments							
		3.75	3.00	4.00	4.00	3.88	3.00
		7.08	7.17	4.00	4.00	3.88	3.00
		4.75	3.20	4.00	4.00	4.20	
		5.20	2.75	4.00		12.75	
				4.00			
				4.00			
Shear Transfer to Concrete							
	T =	Not Req'd	Not Req'd	Not Req'd	Not Req'd	3084 lbs	4740 lbs
				72" O.C.	72" O.C.	72" O.C.	72" O.C.
Provide:				Code Min.	Code Min.	Code Min.	Code Min.
Min # of 1/2 Anchor Bolts				(4) Min	(2) Min	(6) Min	(3) Min
Load From Above		0.00	0.00	0.00	0.00	1984.00	0.00
						HD3	HD3
Shear Resisting System							
Force Calculated		443.08	287.35	337.97	158.54	381.57	817.60
		OSB	OSB	OSB	OSB	OSB	OSB
Min Shear Wall Segment:		2.57 ft	2.57 ft	2.86 ft	2.86 ft	2.86 ft	2.86 ft
Provide:	V _a =	SW2	SW1	SW1	SW1	SW2	SW4
Min Shear Wall Segment:							
Provide:	V _a =						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		54 plf	29 plf	71 plf	24 plf	100 plf	77 plf
Blocking		NONE	NONE	NONE	NONE	NONE	NONE
Nailing		See SCHED	See SCHED	See SCHED	See SCHED	See SCHED	See SCHED
Unit Base Shear							
% of full height segments	%fh = L _w /L =	0.309	0.408	0.444	0.436	0.736	0.387
% of maximum opening height	%oh = H'/H =	1.000	1.000	1.000	0.600	1.000	0.700
Shear cap adj factor	SCAF =	0.42	0.46	0.47	0.69	0.65	0.60
Unit base shear	v _{base} V ₁ /L _w =	186 plf	132 plf	160 plf	109 plf	250 plf	488 plf
Effective unit base shear	v _{req} = v _{base} /SCAF =	443 plf	287 plf	338 plf	159 plf	382 plf	818 plf
Ovrtrn. mo. Ttl. length of wall	OTM =	82.9 k-ft	41.7 k-ft	81.1 k-ft	19.0 k-ft	94.2 k-ft	14.7 k-ft
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	333.7 k-ft	115.3 k-ft	233.0 k-ft	60.6 k-ft	111.8 k-ft	0.7 k-ft
	r =	0.3092	0.4080	0.4444	0.5627	0.7364	0.4743
	C ₀ =	0.4199	0.4579	0.4737	0.6890	0.6548	0.5973



524 CLEVELAND BLVD. #230
CALDWELL, IDAHO 83605
(208) 453-6512

Completed by: JDJ
Review/Check: ARA

Project Name: Ostrum Residence
SRE Project #: 2022-3885
City and State: Eagle, Idaho

SHEAR WALL CALCULATIONS:

		X5-1	Y1-1	Y2-1	Y3-1	Y4-1	Y4-1
Shear Wall Forces							
Total length of wall		24.00 ft	24.00 ft	30.00 ft	72.00 ft	78.00 ft	78.00 ft
Total length of shear wall	L =	5.60 ft	24.00 ft	6.00 ft	65.00 ft	6.00 ft	2.38 ft
Total length of full ht seg.	L _w =	5.60 ft	19.25 ft	6.00 ft	31.53 ft	6.00 ft	2.38 ft
height of shear wall	H =	10.00 ft	10.00 ft	10.00 ft	10.00 ft	10.00 ft	10.00 ft
Maximum opening height	H' =	0.00 ft	10.00 ft	0.00 ft	10.00 ft	0.00 ft	0.00 ft
Total force at top of wall	V ₁ =	2271 lbs	2630 lbs	2884 lbs	7031 lbs	1201 lbs	861 lbs
Self weight	W _{DL self} =	120 plf	120 plf	120 plf	120 plf	120 plf	120 plf
Applied dead load	W _{DL above} =	40 plf	40 plf	40 plf	40 plf	52 plf	40 plf
Prefered OSB thickness	in	7/16	7/16	7/16	7/16	7/16	7/16
Prefered Gyp thickness	in	1/2	1/2	1/2	1/2	1/2	1/2
Wall Connected to Concrete	y/n =	Y	Y	Y	Y	Y	Y
Shear Wall Segments							
		5.60	8.00	6.00	3.20	6.00	2.38
			11.25		5.79		
					5.54		
					4.00		
					4.00		
					9.00		
Shear Transfer to Concrete							
	T =	3786 lbs	473 lbs	4519 lbs	Not Req'd	1692 lbs	3500 lbs
1/2 Anchor Bolts @		24 " O.C.	72 " O.C.	36 " O.C.	72 " O.C.	72 " O.C.	
Provide:		A2	Code Min.	A3	Code Min.	Code Min.	
Min # of 1/2 Anchor Bolts		(3) Min	(3) Min	(3) Min	(7) Min	(2) Min	
Load From Above		0.00	0.00	0.00	0.00	0.00	0.00
Holddown		HD3	Perp. Wall	HD3		HD1	HD3
Shear Resisting System							
Force Calculated		405.45	190.74	480.65	452.66	200.10	362.61
		OSB	OSB	OSB	OSB	OSB	P.F.
Min Shear Wall Segment:		2.86 ft	2.86 ft	2.86 ft	2.86 ft	2.86 ft	1.33 ft
Provide:	V _a =	SW2	SW1	SW2	SW2	SW1	1925
Min Shear Wall Segment:							
Provide:	V _a =						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		95 plf	110 plf	192 plf	98 plf	15 plf	33 plf
Blocking		NONE	NONE	B1	NONE	NONE	NONE
Nailing		See SCHED	See SCHED	T1	See SCHED	See SCHED	See SCHED
Unit Base Shear							
% of full height segments	%fh = L _w /L =	1.000	0.802	1.000	0.485	1.000	1.000
% of maximum opening height	%oh = H'/H =	0.000	1.000	0.000	1.000	0.000	0.000
Shear cap adj factor	SCAF =	1.00	0.72	1.00	0.49	1.00	1.00
Unit base shear	v _{base} V ₁ /L _w =	405 plf	137 plf	481 plf	223 plf	200 plf	363 plf
Effective unit base shear	v _{req} = v _{base} /SCAF =	405 plf	191 plf	481 plf	453 plf	200 plf	363 plf
Ovrtrn. mo. Ttl. length of wall	OTM =	22.7 k-ft	36.7 k-ft	28.8 k-ft	142.7 k-ft	12.0 k-ft	8.6 k-ft
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	2.5 k-ft	46.0 k-ft	2.9 k-ft	337.5 k-ft	3.1 k-ft	0.5 k-ft
	r =	1.0000	0.8021	1.0000	0.4851	1.0000	1.0000
	C _o =	1.0000	0.7164	1.0000	0.4926	1.0000	1.0000



524 CLEVELAND BLVD. #230
CALDWELL, IDAHO 83605
(208) 453-6512

Completed by: JDJ
Review/Check: ARA

Project Name: Ostrum Residence
SRE Project #: 2022-3885
City and State: Eagle, Idaho

SHEAR WALL CALCULATIONS:

		Y4-1	Y5-1	X4-1			
Shear Wall Forces							
Total length of wall		78.00 ft	30.00 ft	38.00 ft			
Total length of shear wall	L =	16.75 ft	30.00 ft	1.50 ft			
Total length of full ht seg.	L _w =	16.75 ft	10.00 ft	1.50 ft			
height of shear wall	H =	10.00 ft	10.00 ft	8.00 ft			
Maximum opening height	H' =	0.00 ft	9.00 ft	0.00 ft			
Total force at top of wall	V ₁ =	3169 lbs	3059 lbs	1465 lbs			
Self weight	W _{DL self} =	120 plf	120 plf	96 plf			
Applied dead load	W _{DL above} =	307 plf	52 plf	40 plf			
Prefered OSB thickness	in	7/16	7/16	7/16			
Prefered Gyp thickness	in	1/2	1/2	1/2			
Wall Connected to Concrete	y/n =	Y	Y	Y			
Shear Wall Segments							
		16.75	3.50	1.50			
			3.00				
			3.50				
Shear Transfer to Concrete							
	T =	Not Req'd	1889 lbs	3500 lbs			
1/2 Anchor Bolts @		60 " O.C.	72 " O.C.				
Provide:		A5	Code Min.				
Min # of 1/2 Anchor Bolts		(4) Min	(3) Min				
Load From Above		0.00	0.00	0.00			
			HD1	HD3			
Shear Resisting System							
Force Calculated		189.21	652.68	976.71			
		Gyp.	OSB	P.F.			
Min Shear Wall Segment:		5.00 ft	2.86 ft	1.33 ft			
Provide:	V _a =	SWD	SW3	1478			
Min Shear Wall Segment:							
Provide:	V _a =						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		41 plf	102 plf	77 plf			
Blocking		NONE	NONE	NONE			
Nailing		See SCHED	See SCHED	See SCHED			
Unit Base Shear							
% of full height segments	%fh = L _w /L =	1.000	0.333	1.000			
% of maximum opening height	%oh = H'/H =	0.000	0.900	0.000			
Shear cap adj factor	SCAF =	1.00	0.47	1.00			
Unit base shear	v _{base} V ₁ /L _w =	189 plf	306 plf	977 plf			
Effective unit base shear	v _{req} = v _{base} /SCAF =	189 plf	653 plf	977 plf			
Ovrtrn. mo. Ttl. length of wall	OTM =	31.7 k-ft	65.3 k-ft	11.7 k-ft			
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	59.9 k-ft	77.3 k-ft	0.2 k-ft			
	r =	1.0000	0.3571	1.0000			
	C _o =	1.0000	0.4688	1.0000			



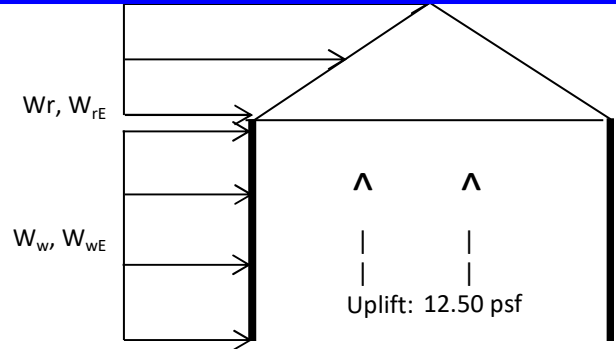
524 CLEVELAND BLVD. #230
 CALDWELL, IDAHO 83605
 (208) 453-6512

Completed by: JDJ
 Review/Check: ARA

Project Name: Ostrum Residence
 SRE Project #: 2022-3885
 City and State: Eagle, Idaho

Post Frame Wind Shear Force Calculations

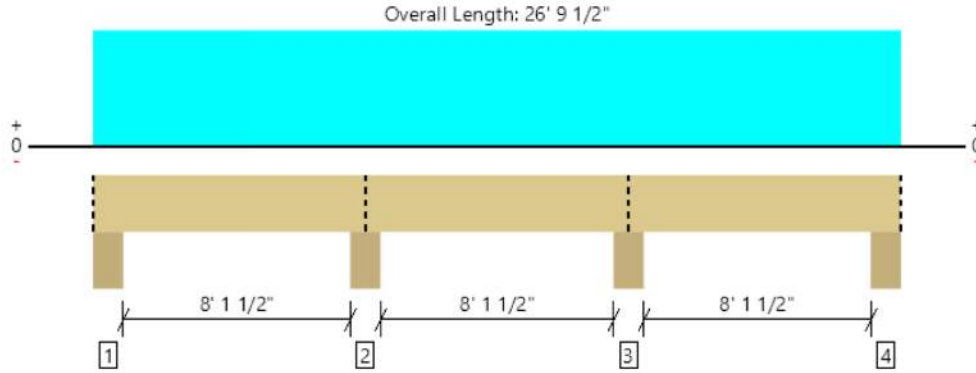
Wall Line	# of Columns
X-Wall Line =	2
Y-Wall Line =	2



Wall Line	Max Uplift DL (lbs)	Wind Force (psf)	Column line dist. (ft)	Total Wall Wind Force (plf)	Roof Wind Force (psf)	W_r, W_e truss trib (ft)	Column line dist. (ft)	Total Roof Wind Load (lbs)
X-End Line	232.88	11.25	x 18.00	= 101.25	9.60	x 12.25	x 18.00	= 1058.40
X-End Line	232.88	11.25	x 18.00	= 101.25	9.60	x 12.25	x 18.00	= 1058.40
Y-End Line	232.88	11.25	x 22.50	= 126.56	9.60	x 12.25	x 22.50	= 1323.00
Y-End Line	232.88	11.25	x 22.50	= 126.56	9.60	x 12.25	x 22.50	= 1323.00

Wall Line	*C _s	Wall Weight (psf)	Column line dist. (ft)	Total Wall Seismic Force (plf)	*C _s	Roof Area L (ft)	Roof Load (psf)	Total Roof Seismic Load (lbs)
X-End Line	0.039	x 12.00	x 18.00	= 8.44	0.039	x 101.25	x 5.00	= 19.78
X-End Line	0.039	x 12.00	x 18.00	= 8.44	0.039	x 101.25	x 5.00	= 19.78
Y-End Line	0.039	x 12.00	x 22.50	= 10.55	0.039	x 101.25	x 5.00	= 19.78
Y-End Line	0.039	x 12.00	x 22.50	= 10.55	0.039	x 101.25	x 5.00	= 19.78

Level, B01
1 piece(s) 6 x 8 DF No.2



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3379 @ 9' 3/8"	24922 (7.25")	Passed (14%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	1476 @ 18' 8 1/4"	5376	Passed (27%)	1.15	1.0 D + 1.0 S (Adj Spans)
Moment (Ft-lbs)	-2704 @ 17' 9 1/8"	3706	Passed (73%)	1.15	1.0 D + 1.0 S (Adj Spans)
Live Load Defl. (in)	0.061 @ 4' 5 3/4"	0.428	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.098 @ 4' 5"	0.570	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

System : Roof
 Member Type : Drop Beam
 Building Use : Residential
 Building Code : IBC 2018
 Design Methodology : ASD
 Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Column - DF	7.25"	7.25"	1.50"	569	822	1391	Blocking
2 - Column - DF	7.25"	7.25"	1.50"	1393	1986	3379	Blocking
3 - Column - DF	7.25"	7.25"	1.50"	1393	1986	3379	Blocking
4 - Column - DF	7.25"	7.25"	1.50"	569	822	1391	Blocking

• Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	26' 10" o/c	
Bottom Edge (Lu)	26' 10" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 26' 9 1/2"	N/A	10.4	--	
1 - Uniform (PSF)	0 to 26' 9 1/2" (Top)	8'	17.0	25.0	Default Load

Weyerhaeuser Notes

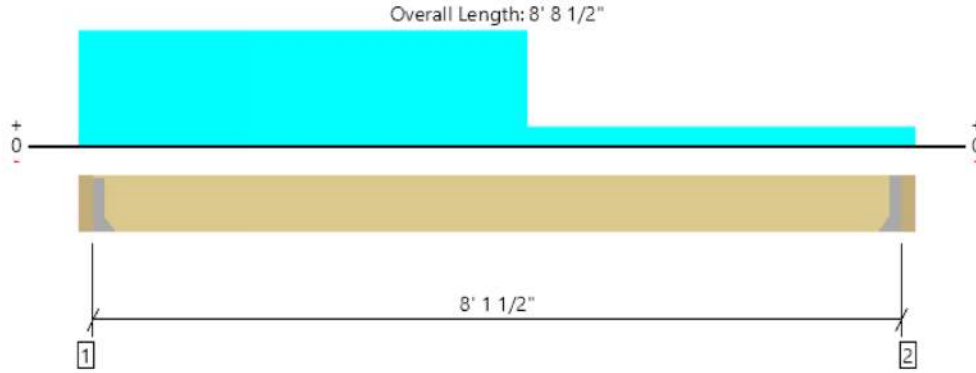
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jed Jones 09/01/22 Snake River Engineering (208) 453-6512 jed@snakeriverengineering.com	



Level, B04
1 piece(s) 6 x 10 DF No.2



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2159 @ 3 1/2"	5156 (1.50")	Passed (42%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1650 @ 1' 1"	5922	Passed (28%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3623 @ 3' 7 3/4"	6032	Passed (60%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.029 @ 4' 1 15/16"	0.203	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.080 @ 4' 2"	0.406	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2018
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Lumber grading provisions must be extended over the length of the member per NDS 4.2.5.5.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 9 1/2" DF beam	3.50"	Hanger ¹	1.50"	1471	872	2343	See note ¹
2 - Hanger on 9 1/2" DF beam	3.50"	Hanger ¹	1.50"	720	410	1130	See note ¹

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- ¹ See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	8' 2" o/c	
Bottom Edge (Lu)	8' 2" o/c	

- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie							
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories	
1 - Face Mount Hanger	HUC610	2.50"	N/A	18-10d	8-10d		
2 - Face Mount Hanger	HUC68	2.50"	N/A	14-10dx1.5	6-10d		

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

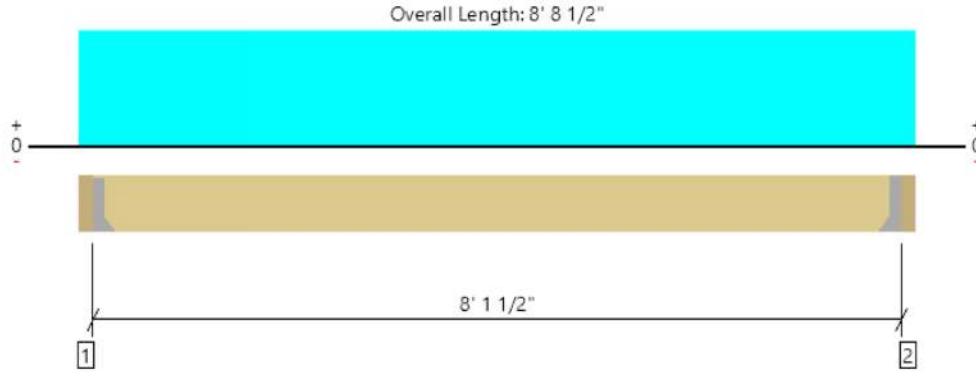
Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 8' 5"	N/A	13.2	--	
1 - Uniform (PSF)	0 to 4' 8" (Front)	6'	65.0	40.0	Default Load
2 - Uniform (PSF)	4' 8" to 8' 8 1/2" (Front)	1'	65.0	40.0	Default Load

Weyerhaeuser Notes
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 The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Jed Jones 09/01/22 Snake River Engineering (208) 453-6512 jed@snakeriverengineering.com	



Level, B10
1 piece(s) 6 x 10 DF No.2



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2613 @ 3 1/2"	5156 (1.50")	Passed (51%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	2104 @ 1' 1"	5922	Passed (36%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	5308 @ 4' 4 1/4"	6032	Passed (88%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.046 @ 4' 4 1/4"	0.203	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.123 @ 4' 4 1/4"	0.406	Passed (L/790)	--	1.0 D + 1.0 L (All Spans)

System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2018
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Lumber grading provisions must be extended over the length of the member per NDS 4.2.5.5.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 9 1/2" DF beam	3.50"	Hanger ¹	1.50"	1752	1045	2797	See note ¹
2 - Hanger on 9 1/2" DF beam	3.50"	Hanger ¹	1.50"	1752	1045	2797	See note ¹

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- ¹ See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	8' 2" o/c	
Bottom Edge (Lu)	8' 2" o/c	

- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie							
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories	
1 - Face Mount Hanger	HUC610	2.50"	N/A	18-16d	8-16d		
2 - Face Mount Hanger	HUC610	2.50"	N/A	18-16d	8-16d		

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 8' 5"	N/A	13.2	--	
1 - Uniform (PSF)	0 to 8' 8 1/2" (Front)	6'	65.0	40.0	Default Load

Weyerhaeuser Notes

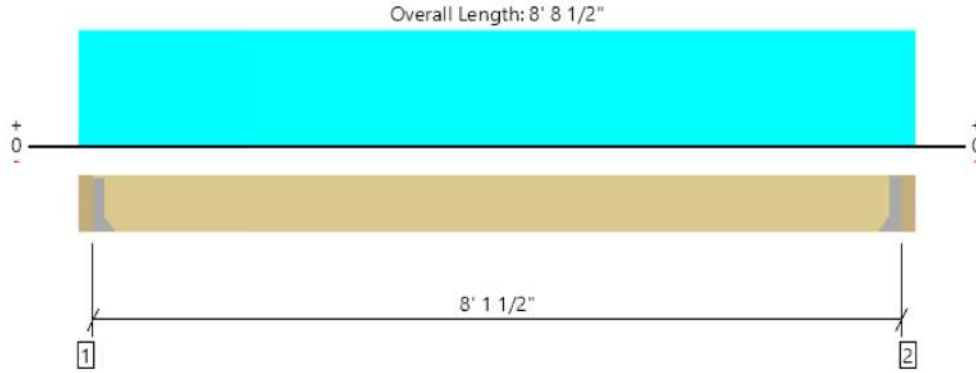
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ForteWEB Software Operator	Job Notes
Jed Jones 09/01/22 Snake River Engineering (208) 453-6512 jed@snakeriverengineering.com	



Level, B11
1 piece(s) 6 x 10 DF No.2



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2613 @ 3 1/2"	5156 (1.50")	Passed (51%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	2104 @ 1' 1"	5922	Passed (36%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	5308 @ 4' 4 1/4"	6032	Passed (88%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.046 @ 4' 4 1/4"	0.203	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.123 @ 4' 4 1/4"	0.406	Passed (L/790)	--	1.0 D + 1.0 L (All Spans)

System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2018
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Lumber grading provisions must be extended over the length of the member per NDS 4.2.5.5.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 9 1/2" DF beam	3.50"	Hanger ¹	1.50"	1752	1045	2797	See note ¹
2 - Hanger on 9 1/2" DF beam	3.50"	Hanger ¹	1.50"	1752	1045	2797	See note ¹

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- ¹ See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	8' 2" o/c	
Bottom Edge (Lu)	8' 2" o/c	

- Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie							
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories	
1 - Face Mount Hanger	HUC610	2.50"	N/A	18-16d	8-16d		
2 - Face Mount Hanger	HUC610	2.50"	N/A	18-16d	8-16d		

- Refer to manufacturer notes and instructions for proper installation and use of all connectors.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 8' 5"	N/A	13.2	--	
1 - Uniform (PSF)	0 to 8' 8 1/2" (Front)	6'	65.0	40.0	Default Load

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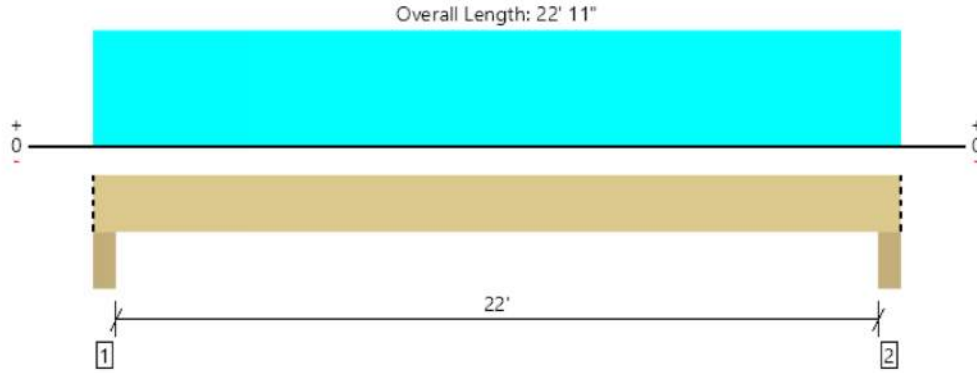
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
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Level, B05

1 piece(s) 6 3/4" x 18" 24F-V4 DF Glulam



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	11167 @ 4"	23203 (5.50")	Passed (48%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	9258 @ 1' 11 1/2"	21465	Passed (43%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	60307 @ 11' 5 1/2"	67709	Passed (89%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.336 @ 11' 5 1/2"	0.556	Passed (L/794)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.910 @ 11' 5 1/2"	1.112	Passed (L/293)	--	1.0 D + 1.0 L (All Spans)

System : Floor
 Member Type : Flush Beam
 Building Use : Residential
 Building Code : IBC 2018
 Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 0.93 that was calculated using length L = 22' 3".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Beam - DF	5.50"	5.50"	2.65"	7042	4125	11167	Blocking
2 - Beam - DF	5.50"	5.50"	2.65"	7042	4125	11167	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	22' 11" o/c	
Bottom Edge (Lu)	22' 11" o/c	

- Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 22' 11"	N/A	29.5	--	
1 - Uniform (PSF)	0 to 22' 11" (Back)	6'	65.0	40.0	Default Load
2 - Uniform (PSF)	0 to 22' 11" (Front)	3'	65.0	40.0	Default Load

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ForteWEB Software Operator	Job Notes
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524 CLEVELAND BLVD. #230
 CALDWELL, IDAHO 83605
 (208) 453-6512

Completed by: JDJ
 Review/Check: ARA

Project Name: Ostrum Residence
 SRE Project #: 2022-3885
 City and State: Eagle, Idaho

Pad Footing Design Capacities

Soil Bearing (1500 psf)					Min. Column Size		
Dimensions (Inches)			Capacity	# of Bars			
84	x	84	x	12	64,300 lbs	10	8. sq.
72	x	72	x	12	47,500 lbs	8	3.5 sq.
66	x	66	x	12	39,750 lbs	8	3.5 sq.
60	x	60	x	10	33,450 lbs	6	3.5 sq.
54	x	54	x	10	27,000 lbs	5	3.5 sq.
48	x	48	x	8	21,500 lbs	4	3.5 sq.
42	x	42	x	8	16,500 lbs	4	3.5 sq.
36	x	36	x	8	12,000 lbs	4	3.5 sq.
30	x	30	x	8	8,350 lbs	3	3.5 sq.
24	x	24	x	8	5,300 lbs	2	3.5 sq.
18	x	18	x	8	2,900 lbs	2	3.5 sq.

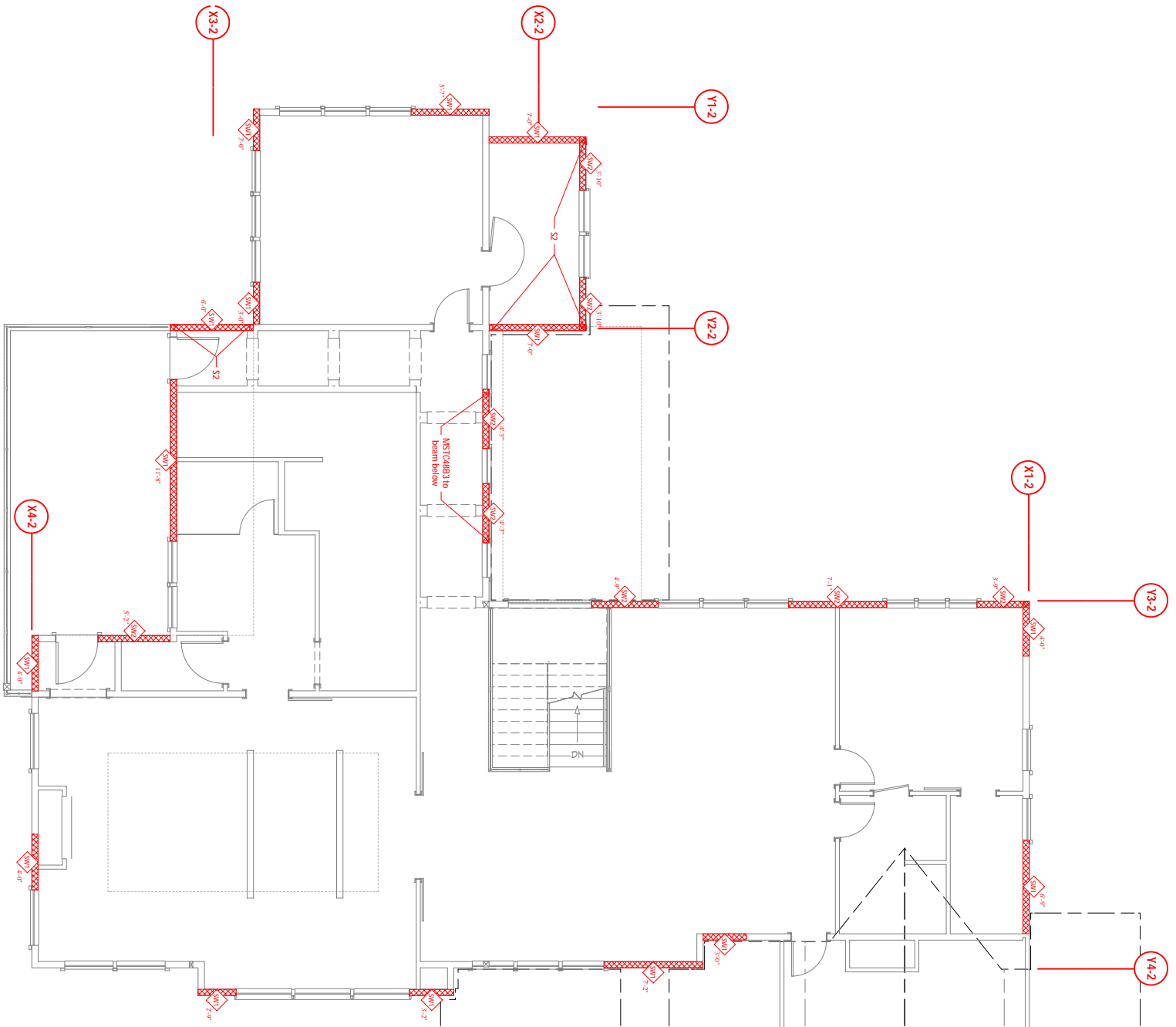
Bars to be 3 1/2" from bottom of pad. Evenly space in both directions.



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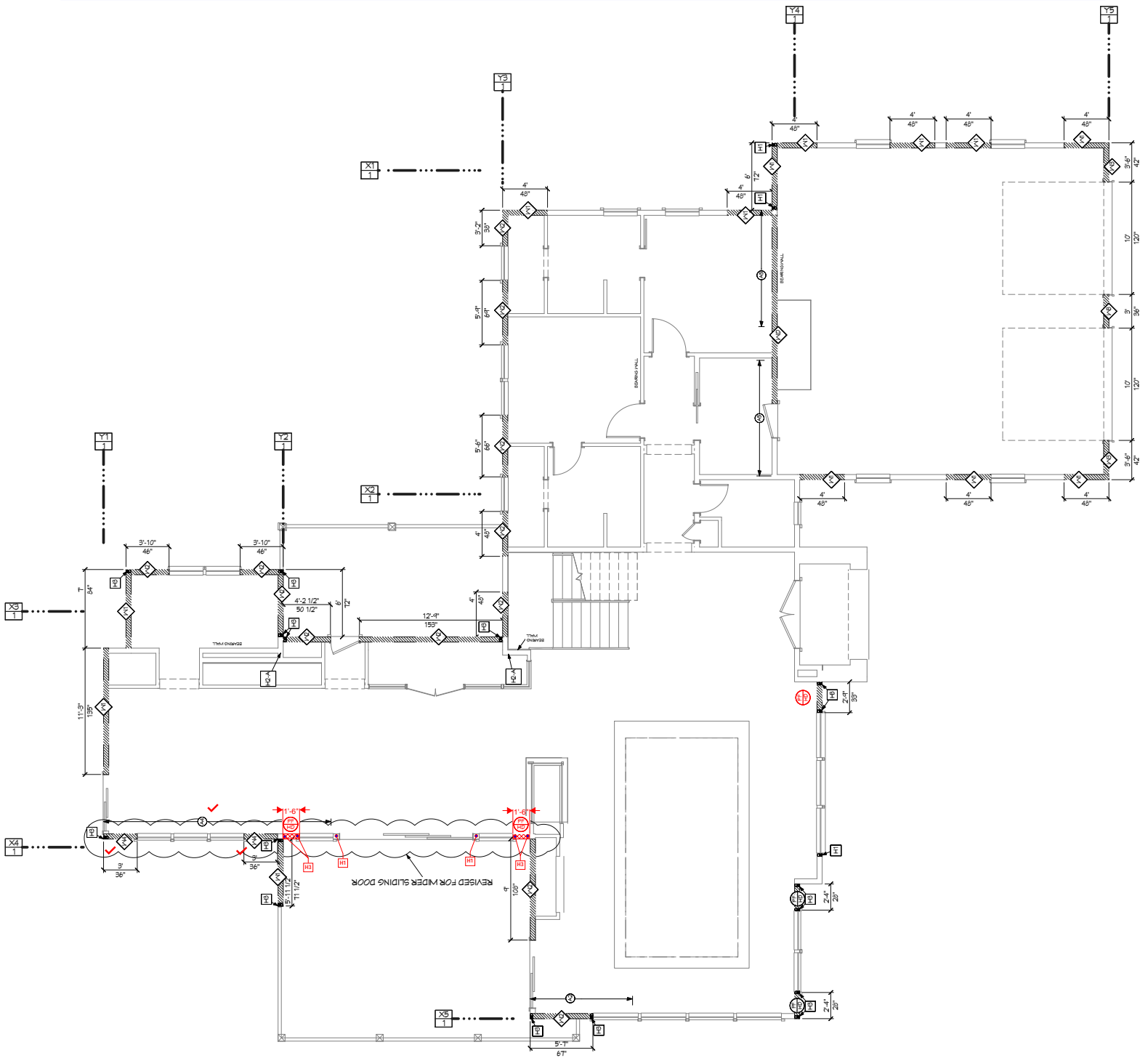




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● SHEAR WALLS - 1ST LEVEL
 1/4 IN = 1 FT

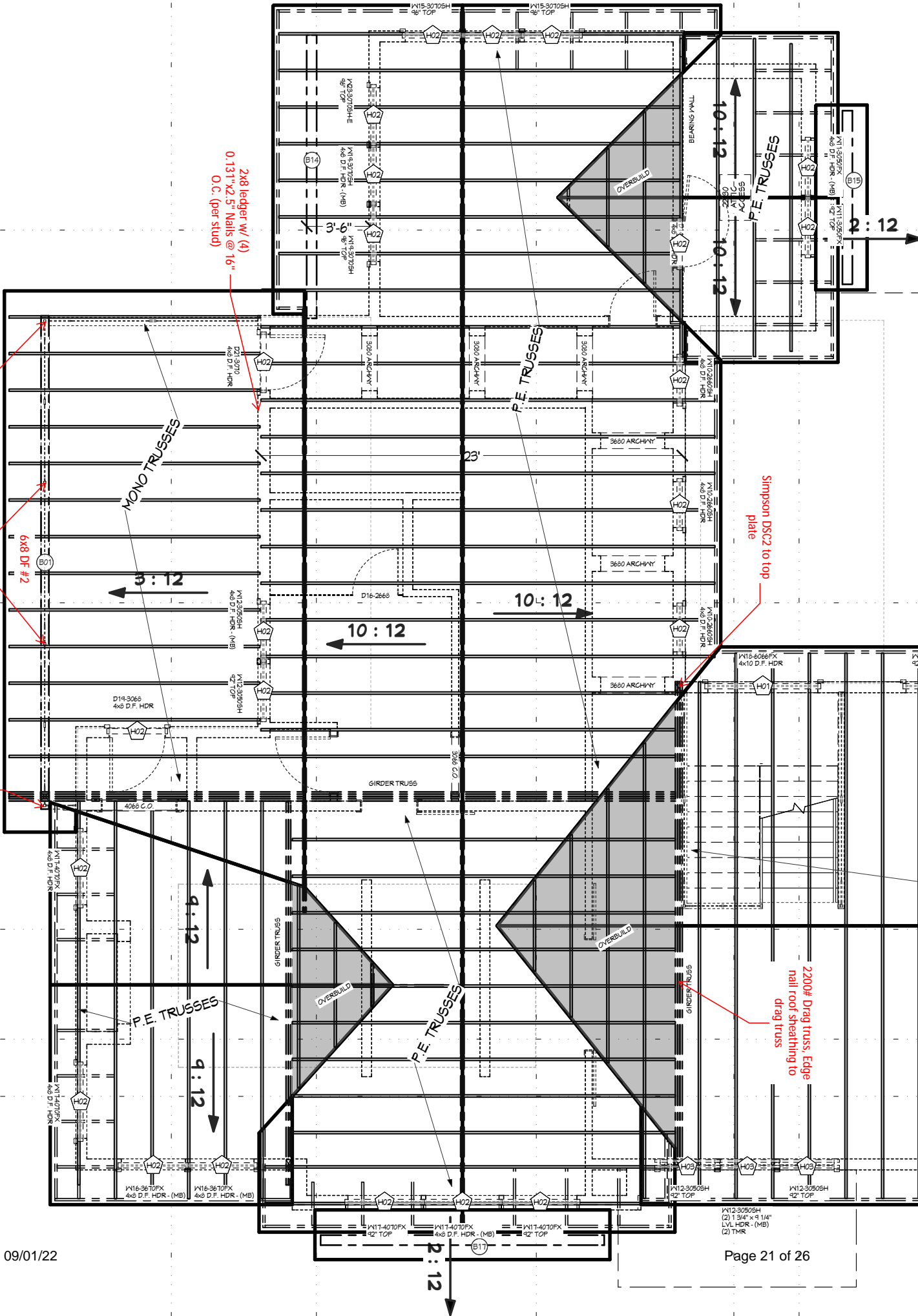
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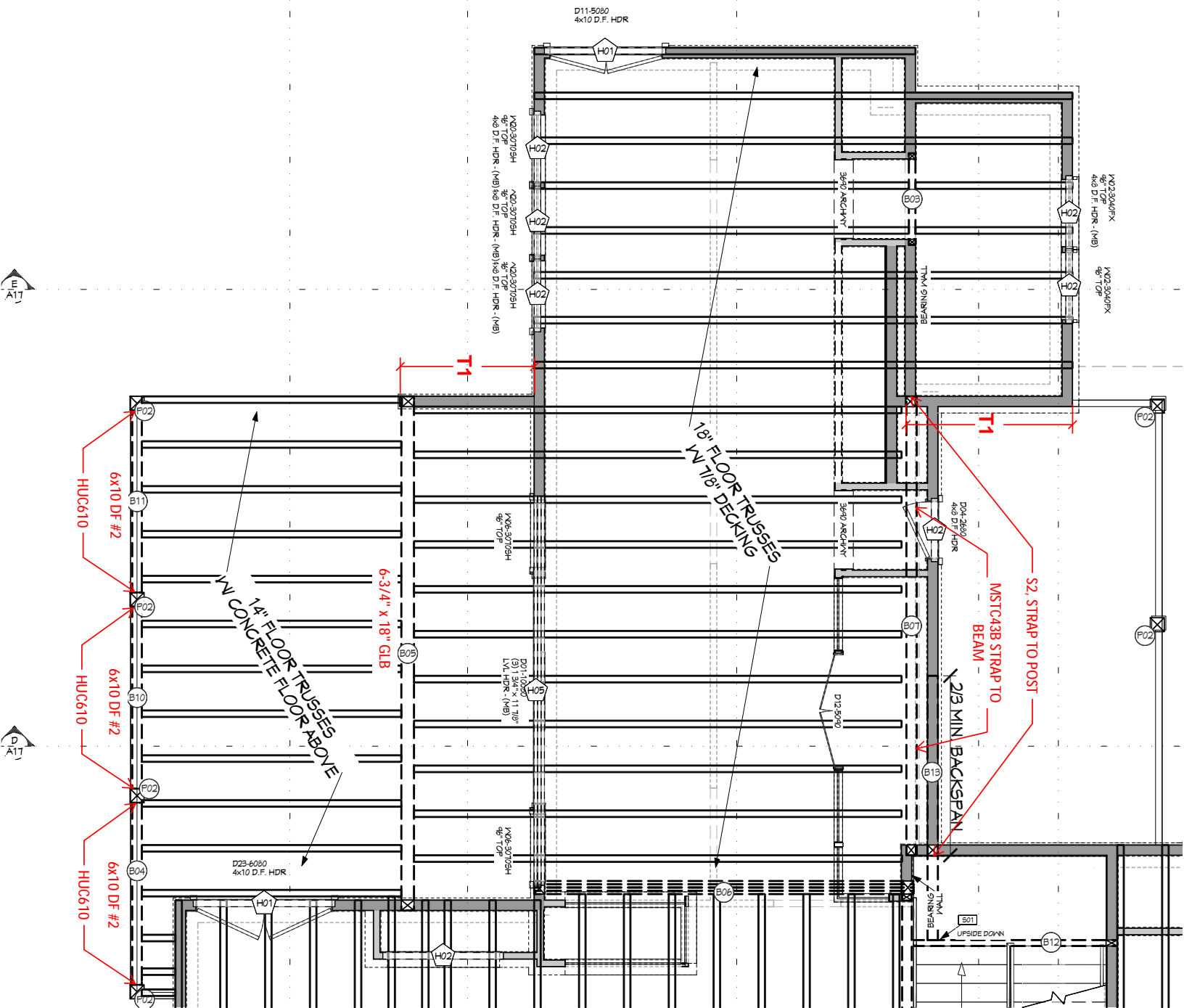


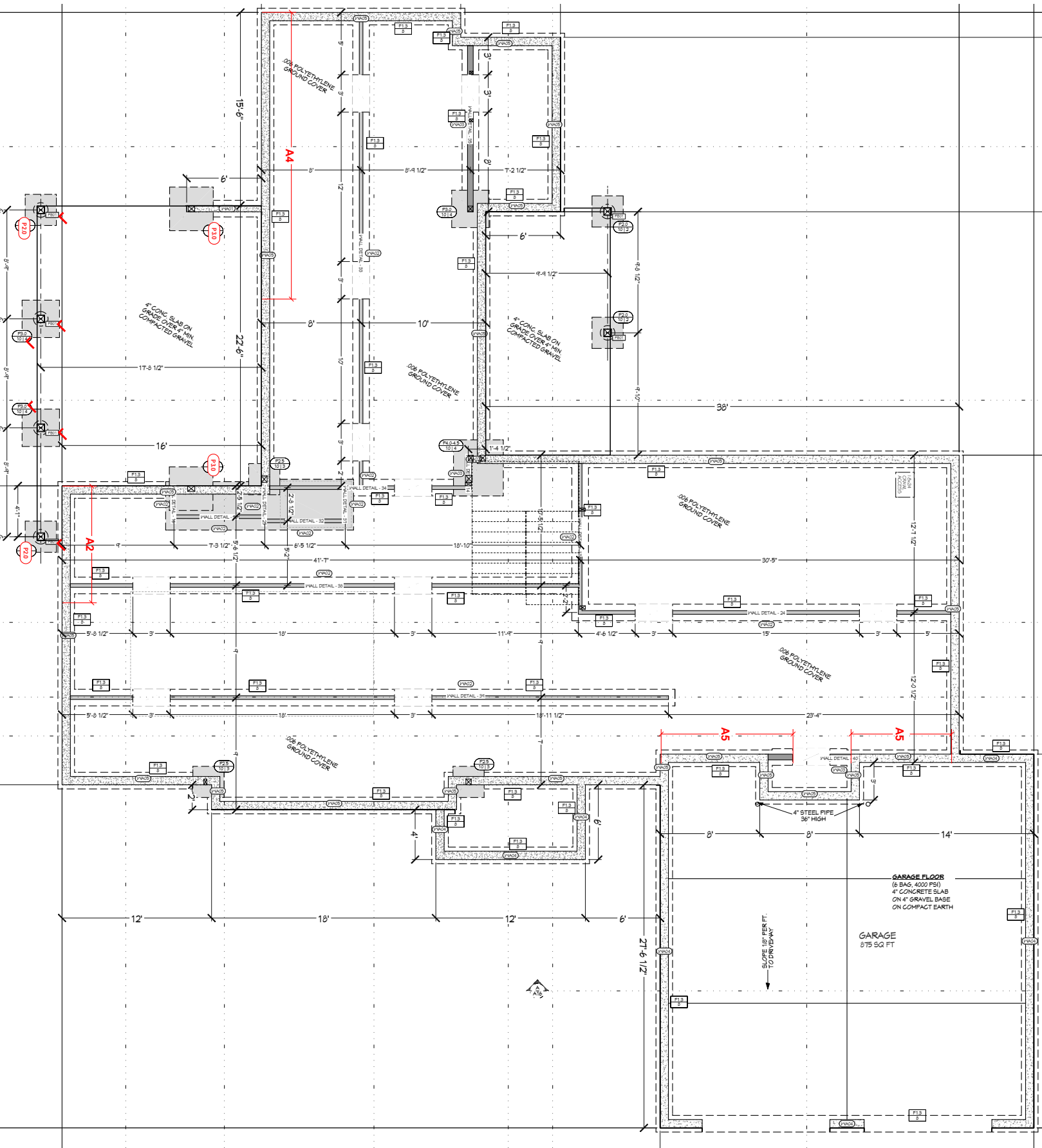


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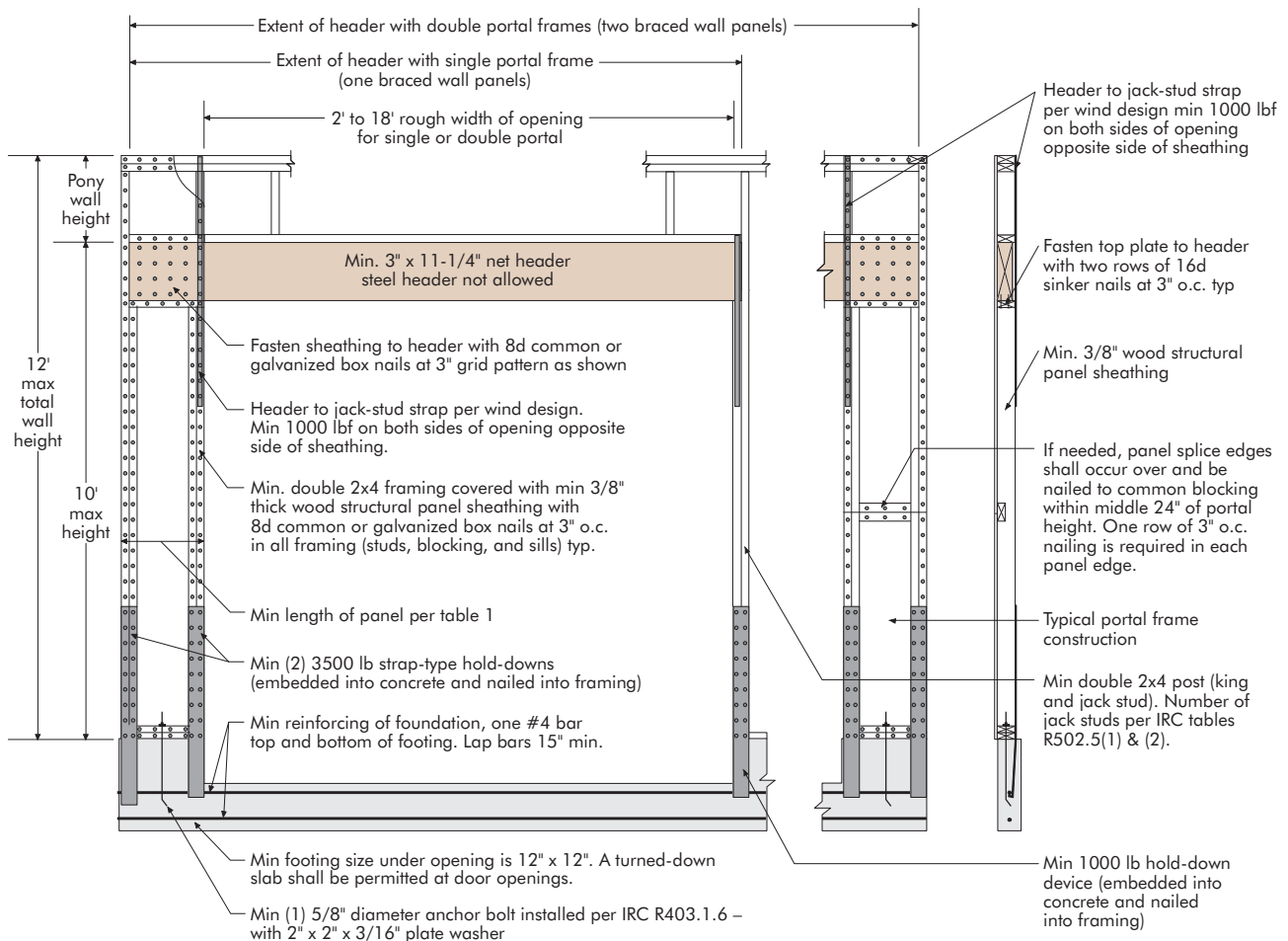


Minimum Width (in.)	Maximum Height (ft)	Allowable Design (ASD) Values per Frame Segment		
		Shear ^(e,f) (lbf)	Deflection (in.)	Load Factor
16	8	850	0.33	3.09
	10	625	0.44	2.97
24	8	1,675	0.38	2.88
	10	1,125	0.51	3.42

Foundation for Wind or Seismic Loading^(a,b,c,d)

- (a) Design values are based on the use of Douglas-fir or Southern pine framing. For other species of framing, multiply the above shear design value by the specific gravity adjustment factor = $(1 - (0.5 - SG))$, where SG = specific gravity of the actual framing. This adjustment shall not be greater than 1.0.
- (b) For construction as shown in Figure 1.
- (c) Values are for a single portal-frame segment (one vertical leg and a portion of the header). For multiple portal-frame segments, the allowable shear design values are permitted to be multiplied by the number of frame segments (e.g., two = 2x, three = 3x, etc.).
- (d) Interpolation of design values for heights between 8 and 10 feet, and for portal widths between 16 and 24 inches, is permitted.
- (e) The allowable shear design value is permitted to be multiplied by a factor of 1.4 for wind design.
- (f) If story drift is not a design consideration, the tabulated design shear values are permitted to be multiplied by a factor of 1.15. This factor is permitted to be used cumulatively with the wind-design adjustment factor in Footnote (e) above.

Figure 1. Construction Details for APA Portal-Frame Design with Hold Downs





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City and State: Eagle, Idaho

OSB SHEAR WALL SCHEDULE:

MARK	SHEATHING	SIDES OF WALL	SHEET NAILING PERIMETER / FIELD		SHEET STAPLING PERIMETER / FIELD	BLKG	NAILING (UNO) BOTTOM PLATE INTO RIM
SW1	7/16" APA RATED	1	8d @ 6 / 12	OR	16ga x 1-1/2" @ 3 / 12	YES	(2) 16d NAILS PER 16" BAY
SW2	7/16" APA RATED	1	8d @ 4 / 12	OR	16ga x 1-1/2" @ 2 / 12	YES	(3) 16d NAILS PER 16" BAY
SW3	7/16" APA RATED	1	8d @ 3 / 12			YES	(4) 16d NAILS PER 16" BAY
SW4	7/16" APA RATED	1	8d @ 2 / 12	(4x STUDS @ SHEATHING PERIMETER)		YES	(4) SDS SCREWS PER 16" BAY
APA	7/16" APA RATED	1	8d @ 3 / 12	APA TESTED PORTAL FRAME ASSEMBLY		YES	(SEE ATTACHED DETAIL)

GYP. SHEAR WALL SCHEDULE:

SWD	1/2" GYP. BOARD	2	5d COOLER @ 6 / 6			NO	(2) 16d NAILS PER 16" BAY
-----	-----------------	---	-------------------	--	--	----	---------------------------

TYP. NOTES:

- 1 ALL SHEATHING PANEL EDGES SHALL BE BLOCKED UNO
- 2 PROVIDE SAME NAILING PATTERN ABOVE AND BELOW OPENINGS AS ADJACENT SHEAR PANEL.
- 3 ALL EXTERIOR WALLS SHALL BE SHEARWALL "SW1" WITHOUT BLKG UNO
- 4 FASTEN GABLE/RIM TO SHEAR WALLS BELOW W/ 10d TOENAILS @ 12" O.C. UNO
- 5 FASTEN TRUSS HEELS TO SHEAR WALLS W/ H2.5A AND (2) 10d TOENAILS @ EACH
- 6 GYP BOARD SHEAR WALLS MAY BE SUBSTITUTED WITH AN SW1 SHEAR WALL @ CONTRACTOR'S OPTION
- 7 WALL SHEATHING CAN BE APPLIED TO EITHER SIDE OF THE WALL. (UNLESS NOTED OTHERWISE)

GABLE / DRAG TRUSS OR RIM KEY NOTES:

T1	-	ATTACH GABLE / DRAG TRUSS OR RIM TO TOP PLATE W/ 10d TOENAILS @ 6" O.C., EDGE NAIL SHEATHING ABOVE TO TRUSS OR RIM
----	---	--



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 City and State: Eagle, Idaho

HOLDOWN SCHEDULE:

MARK	STRAP TYPE	STRAP FASTENERS	# OF STUDS		ANCHOR BOLT	# OF STUDS	FASTENERS
HD1	LSTD8 OR LSTD8RJ W/ RIM	(20) 16d SINKERS	2	OR	DTT2Z W/1/2"Øx10"	2	(8) 1/4"x1-1/2" SDS
HD2	STHD10 OR STHD10RJ W/ RIM	(24) 16d SINKERS	2	OR	HDU2- SDS2.5 W/ SB5/8x24 OR PAB5 @ INT. PONY WALLS	2	(6) 1/4"x2-1/2" SDS
HD3	STHD14 OR STHD14RJ W/ RIM	(30) 16d SINKERS	2	OR	HDU5-SDS2.5 W/ SB5/8x24 OR PAB5 @ INT. PONY WALLS	2	(14) 1/4"x2-1/2" SDS

STRAP SCHEDULE:

(STRAP / ALL THREAD TO CLEAR SPAN ACROSS RIM TO WALL BELOW)

MARK	STRAP TYPE	STRAP FASTENERS	# OF STUDS		ANCHOR BOLT	# OF STUDS	FASTENERS
S2	MSTC40	(32) 16d SINKERS	2	OR	HDU2-SDS2.5 W/ 5/8"Ø ALL THREAD	2	(6) 1/4"x2-1/2" SDS

ANCHOR BOLT KEY NOTES:

A2	-	1/2"Ø ANCHOR BOLTS @ 24" O.C.
A3	-	1/2"Ø ANCHOR BOLTS @ 36" O.C.
A4	-	1/2"Ø ANCHOR BOLTS @ 48" O.C.
A5	-	1/2"Ø ANCHOR BOLTS @ 60" O.C.