



1002 BLAINE ST. #208
CALDWELL, IDAHO 83605
(208) 484-9069

Completed by: KKJ
Review/Check: KKJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, Idaho

Tall Walls and Lateral Calculations

Project Title: Vanmanen Residence

Address: Snowberry Place

Location: McCall (120), Idaho

Job #: 2021-1085



Prepared in accordance with 2018 IBC. Calculations expire by: **3/12/2022**



SITE SPECIFIC DESIGN CRITERIA:

Snow Criteria:

Roof Load (P_f)	120 psf	
Ground Load (P_g)	120 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	C	Open Terrain
Wind Importance (I_w)	1.0	
Building Category	II	

Seismic Criteria:

Site Class	D	Stiff Soil
S_s	0.47	F_a 1.42
S_1	0.14	F_v 2.24
S_{D1}	0.45	S_{D1} 0.21
Risk Category	II	Other
Seismic Importance (I_E)	1.0	
Seismic Design Category (SDC)	D	

Seismic Criteria (continued):

Wall Material	Design Base Shear	Response Coeff., R	
<i>OSB</i>	.08Wp	6.5	Typ @ Ext
<i>GYP</i>	.27Wp	2	Typ @ Int

Soil Criteria:

Brg. Strength	1500 psf
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STRUCTURE SPECIFIC DESIGN CRITERIA:

Live Loads:

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

Floor Dead Loads:

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

Interior Wall Dead Loads:

Studs	2.0
Gyp. Board	2.5
Misc	3.0
TOTAL	8 psf

Exterior Wall Dead Loads:

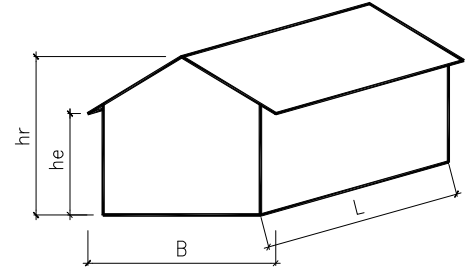
Studs	2.0
Siding	2.5
Insulation	0.5
Gyp. Board	2.5
Sheathing	1.5
Misc	3.0
TOTAL	12 psf



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

INPUT DATA

Exposure category (B, C or D, ASCE 7-16 26.7.3)		C	
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	$h_r =$	28.17 ft	ft
Building height to eave	$h_e =$	10.13 ft	ft
Building width	$B =$	60.00 ft	ft
Building length	$L =$	60	ft
Overhang sloped width	$O_h =$	3.00 ft	ft
Effective area of components (or Solar Panel area)	$A =$	33.3 ft ²	ft ² , <== Overhang? (Yes or No): Yes
Enclosed? (Y/N)		y	



ANALYSIS

Velocity pressure

$$q_h = 0.00256 K_z K_{zt} K_d K_e V^2 = 25.72 \text{ psf}$$

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 2) = **0.89**

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

h = mean roof height = **19.15 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, $\text{MAX}[\text{MIN}(0.1B, 0.1L, 0.4h), \text{MIN}(0.04B, 0.04L), 3]$ = **6.00 ft**

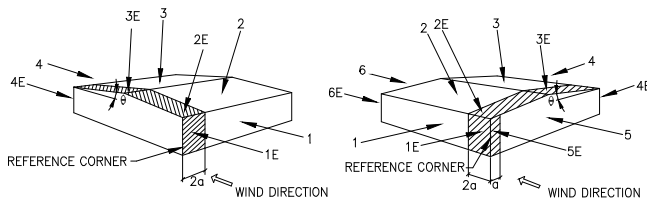
Net Pressures (psf), Basic Load Cases

Surface	Roof angle $q = 18.43$			Roof angle $q = 18.43$		
	$G C_{pf}$	Net Press. W/		$G C_{pf}$	Net Press. W/	
		(+ $G C_{pi}$)	(- $G C_{pi}$)		(+ $G C_{pi}$)	(- $G C_{pi}$)
1	0.52	8.65	17.91	-0.45	-16.20	-6.94
2	-0.69	-22.37	-13.12	-0.69	-22.37	-13.12
3	-0.47	-16.68	-7.42	-0.37	-14.14	-4.89
4	-0.42	-15.31	-6.05	-0.45	-16.20	-6.94
5				0.40	5.66	14.92
6				-0.29	-12.09	-2.83
1E	0.78	15.43	24.69	-0.48	-16.97	-7.72
2E	-1.07	-32.15	-22.89	-1.07	-32.15	-22.89
3E	-0.67	-21.94	-12.69	-0.53	-18.26	-9.00
4E	-0.62	-20.52	-11.27	-0.48	-16.97	-7.72
5E				0.61	11.06	20.32
6E				-0.43	-15.69	-6.43

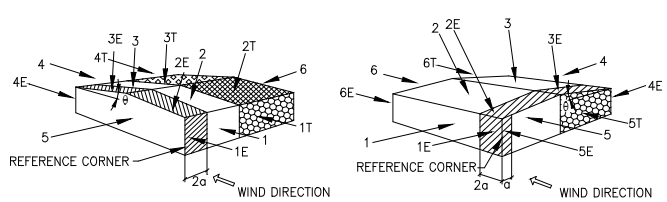
Net Pressures (psf), Torsional Load Cases

Surface	Roof angle $q = 18.43$		
	$G C_{pf}$	Net Press. W/	
		(+ $G C_{pi}$)	(- $G C_{pi}$)
1T	0.52	2.16	4.48
2T	-0.69	-5.59	-3.28
3T	-0.47	-4.17	-1.85
4T	0.00	-3.83	-1.51
Surface	Roof angle $q = 0.00$		
	$G C_{pf}$	Net Press. W/	
		(+ $G C_{pi}$)	(- $G C_{pi}$)
5T	0.40	1.41	3.73
6T	-0.29	-3.02	-0.71

+ / - Wind Pressure 64%



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)

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

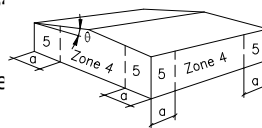
$$G C_p = 1.00 \text{ external pressure coefficient}$$

see table below. (ASCE 7-16 30.3.2)

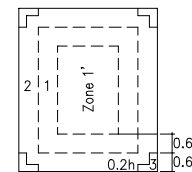
$$q = 18.43 \text{ }^\circ$$

$$p_{overhang} = -88.72 \text{ psf}$$

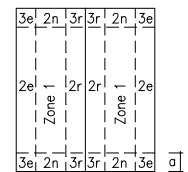
(ASCE 7-16 28.3.3)



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
	1200	0.30	-0.80	0.30	-0.80	0.30	-2.20	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			
33.33 ft ²	0.30	-2.50	0.30	-2.50	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
	3.09	-15.94	3.09	-15.94	3.09	-51.95	3.09	-15.94	3.09	-21.09	3.09	-21.09
	Zone 3		Zone 3e		Zone 3r		Zone 4		Zone 5			
Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative			
3.09	-59.66	3.09	-59.66	3.09	-41.66	20.72	-23.29	20.72	-30.64			

(Max Pressure **59.66 psf**)

LOAD CASE 'A' FACTORED LOADS	
$0.6 * W_r = (Z_2 + Z_3) * 0.6 =$	3.4 psf
$0.6 * W_{rE} = (Z_{2E} + Z_{3E}) * 0.6 =$	6.1 psf
$0.6 * W_w = (Z_1 + Z_4) * 0.6 =$	14.4 psf
$0.6 * W_{wE} = (Z_{1E} + Z_{4E}) * 0.6 =$	21.6 psf

LOAD CASE 'B' FACTORED LOADS	
$0.6 * W_r = (Z_2 + Z_3) * 0.6 =$	4.9 psf
$0.6 * W_{rE} = (Z_{2E} + Z_{3E}) * 0.6 =$	8.3 psf
$0.6 * W_w = (Z_5 + Z_6) * 0.6 =$	10.6 psf
$0.6 * W_{wE} = (Z_{5E} + Z_{6E}) * 0.6 =$	16.0 psf

ROOF COMPONENTS FACTORED LOAD	
$0.6 * Z_{r,c\&c} =$	12.7 psf

WALL COMPONENTS FACTORED LOAD	
$0.6 * Z_{w,c\&c} =$	14.0 psf



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SEISMIC LOADING ANALYSIS

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

INPUT DATA

Typical floor height: $h = 10$ ft
 Typical floor weight: $w_x = 61.20$ kips
 Number of floors: $n = 2$
 Importance factor (ASCE 11.5.1): $I_e = 1.00$
 Design spectral response: $S_{DS} = 0.45$ g
 $S_{D1} = 0.21$ g
 Mapped spectral resp.: $S_1 = 0.14$ 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 = D
 $h_n = 28.2$ ft

DESIGN SUMMARY

$C_s = 1.2 * S_{DS} / (R / I_e) = 0.0825$ <= Applicable
 Period Parameter, $x = 0.75$, ASCE Tab 12.8-2
 Period: $T_a = C_t (h_n)^x = 0.24$ sec, ASCE 12.8.2.1
 $C_s < S_{D1} / [(R / I_e) T_a] = 0.1322$, ASCE Tab 12.8.1.1 <= Not Applicable
 $C_s > 0.044 S_{DS} I_e = 0.0197$, ASCE Tab 12.8.1.1 <= Not Applicable
 $C_s > 0.5 S_1 / (R / I_e) = 0.0108$, ASCE Tab 12.8.1.1 <= Not Applicable
 $k = 1.60$, (ASCE 12.8.3, page 91)
 $V = C_s W = 0.0825$ W
 $0.7 * V = 0.0577$ W
 $W = 122$ kips, total

SEISMIC COMPONENT & ANCHORING ANALYSIS

$$w_{1, seismic} = MAX(0.4 I S_{DS} W_p, 0.1 W_p) = 0.2 W_p = 2.1 \text{ psf} \quad \leq \text{USE FOR DIAPHRAGMS}$$

Where: $W_p = 12.0$ 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: $F_{min} = 1.72$ plf, $1.75 W_p = 179$ 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)

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

$= 3.50 W_p = 179$ plf (Horizontal) <= Applicable

For connections (ASCE 7 Sec. 12.11.2.1)

$$F_{conn, seismic} = MAX [0.133 S_{DS} w_p, 0.5 w_p] = 0.5 W_p = 6 \text{ plf (Horizontal)}$$



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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 (Wp)	=	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, (kips)	
1-1	4.8	47	18.0	28.0	60.0	14.4	12.0	10.0	28.0	0.0			0.06	=	2.22	2.47	Seismic	
2-1	4.8	47	18.0	28.0	60.0	14.4	12.0	10.0	28.0	0.0			0.06	=	4.75	5.30	Seismic	
	4.8	47	18.0	32.0	60.0	14.4	12.0	10.0	32.0	0.0			0.06	=				
3-1	4.8	47	18.0	32.0	60.0	14.4	12.0	10.0	32.0	0.0			0.06	=	2.53	2.83	Seismic	
A-1	4.8	47	18.0	32.0	60.0	14.4	12.0	9.0	32.0	0			0.06	=	2.42	2.80	Seismic	
B-1	4.8	47	18.0	32.0	60.0	14.4	12.0	9.0	32.0	0			0.06	=	4.54	5.26	Seismic	
	4.8	47	18.0	28.0	60.0	14.4	12.0	9.0	28.0	0			0.06	=				
C-1	4.8	47	18.0	28.0	60.0	14.4	12.0	9.0	28.0	0			0.06	=	2.12	2.45	Seismic	
1-0	0.0	18	0.0	28.0	60.0	14.4	12.0	18.3	28.0	6.6	2.42	2.80	0.06	=	5.59	4.03	Wind	
2-0	0.0	18	0.0	28.0	60.0	14.4	12.0	18.3	28.0	6.6	2.27	2.63	0.06	=	9.45	7.75	Wind	
	0.0	18	0.0	32.0	60.0	14.4	12.0	12.0	32.0	1.6	2.27	2.63	0.06	=				
3-0	0.0	18	0.0	32.0	60.0	14.4	12.0	12.0	32.0	6.1	2.12	1.23	0.06	=	4.90	2.49	Wind	
A-0	0.0	18	0.0	32.0	60.0	14.4	8.0	12.0	32.0	6.1	2.22	2.47	0.06	=	5.00	3.65	Wind	
B-0	0.0	18	0.0	32.0	60.0	14.4	8.0	12.0	32.0	6.1	2.38	2.65	0.06	=	10.60	7.70	Wind	
	0.0	18	0.0	28.0	60.0	14.4	12.0	18.3	28.0	6.1	2.38	2.65	0.06	=				
C-0	0.0	18	0.0	28.0	60.0	14.4	12.0	18.3	28.0	6.1	2.53	2.83	0.06	=	5.60	4.06	Wind	



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SHEAR WALL CALCULATIONS:

		1-1	1-1	2-1	3-1		
Shear Wall Forces							
Total length of wall		14.42 ft	28.00 ft	28.00 ft	28.00 ft		
Total length of shear wall	L =	2.00 ft	19.71 ft	28.00 ft	14.00 ft		
Total length of full ht seg.	L _w =	2.00 ft	15.46 ft	24.83 ft	4.00 ft		
height of shear wall	H =	8.00 ft	10.00 ft	12.00 ft	12.00 ft		
Maximum opening height	H' =	8.00 ft	12.00 ft	12.00 ft	11.00 ft		
Total Seismic force at top of wall	V ₁ =	790 lbs	1581 lbs	5301 lbs	1414 lbs		
Self weight	W _{DL self} =	96 plf	120 plf	144 plf	144 plf		
Applied dead load	W _{DL above} =	149 plf	68 plf	68 plf	68 plf		
Preferred OSB thickness	in	7/16	7/16	7/16	7/16		
Preferred Gyp thickness	in	1/2	1/2	1/2	1/2		
Wall Connected to Concrete	y/n =	N	N	Y	Y		
Shear Wall Segments							
Notes:		2.00	4.75	11.50	2.00		
			5.71	8.67	2.00		
			5.00	4.67			
Shear Transfer to Concrete							
Provide:				60" O.C.			
Min # of 1/2 Anchor Bolts				A5			
Load From Above		0.00	0.00	0.00	0.00		
T =		3014 lbs	179 lbs	1133 lbs	3500 lbs		
Holdown		S3	Perp. Wall	HD1	HD3		
Shear Resisting System							
Min Shear Wall Segment:		OSB	OSB	OSB	B.F.		
Provide: Va =		2.29 ft	2.86 ft	3.43 ft	1.33 ft		
		SW3	SW1	SW2	4400		
Min Shear Wall Segment:							
Provide: Va =							
Blocking / Nailing Framing Attachment							
		Blocking	Blocking	Blocking	Nailing		
		NONE	NONE	B1	See SCHED		
			Nailing	Nailing			
			See SCHED	T1			
Unit Base Shear							
% of full height segments	%fh = L _w /L =	1.000	0.784	0.887	0.286		
% of maximum opening height	%oh = H'/H =	1.000	1.200	1.000	0.917		
Shear cap adj factor	SCAF =	1.00	0.64	0.82	0.44		
Unit base shear	v _{base} = V ₁ /L _w =	395 plf	102 plf	213 plf	353 plf		
Effective unit base shear	v _{req} = v _{base} /SCAF =	395 plf	160 plf	262 plf	795 plf		
Ovrtrn. mo. Ttl. length of wall	OTM =	6.3 k-ft	24.7 k-ft	78.0 k-ft	8.5 k-ft		
Shear Wall Adjustment Factor							
Resist moment total L. of wall	RM =	0.5 k-ft	36.5 k-ft	83.1 k-ft	0.4 k-ft		
	r =	1.0000	0.7519	0.8869	0.3038		
	C _o =	1.0000	0.6408	0.8156	0.4444		
Blocking Unit Shear		110 plf	56 plf	189 plf	101 plf		
Force Calculated		395.15	159.57	261.72	795.12		



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SHEAR WALL CALCULATIONS:

		A-1	B-1	C-1			
Shear Wall Forces							
Total length of wall	L =	50.00 ft	28.00 ft	52.00 ft			
Total length of shear wall	L _w =	27.25 ft	28.00 ft	52.00 ft			
Total length of full ht seg.	H =	16.00 ft	28.00 ft	20.00 ft			
height of shear wall	H' =	12.00 ft	12.00 ft	12.00 ft			
Maximum opening height	H' =	6.00 ft	0.00 ft	8.00 ft			
Total Seismic force at top of wall	V ₁ =	2805 lbs	5259 lbs	2454 lbs			
Self weight	W _{DL self} =	144 plf	144 plf	144 plf			
Applied dead load	W _{DL above} =	68 plf	68 plf	68 plf			
Preferred OSB thickness	in	7/16	7/16	7/16			
Preferred Gyp thickness	in	1/2	1/2	1/2			
Wall Connected to Concrete	y/n =	N	Y	Y			
Shear Wall Segments							
Notes:		4.00	28.00	4.00			
		4.00		4.00			
		4.00		4.00			
		4.00		4.00			
				4.00			
Shear Transfer to Concrete							
Provide:		60" O.C.	72" O.C.				
Min # of 1/2 Anchor Bolts		A5	Code Min.				
Load From Above		(6) Min	(3) Min				
T =		0.00	0.00	0.00			
		Not Req'd	473 lbs	Not Req'd			
		Perp. Wall					
Shear Resisting System							
Min Shear Wall Segment:		OSB	OSB	OSB			
Provide: Va =		3.43 ft	3.43 ft	3.43 ft			
		SW1	SW1	SW1			
Min Shear Wall Segment:							
Provide: Va =							
Blocking / Nailing Framing Attachment							
		Blocking	Blocking	Blocking			
		NONE	B1	NONE			
		Nailing	Nailing	Nailing			
		See SCHED	T1	See SCHED			
Unit Base Shear							
% of full height segments	%fh = L _w /L =	0.587	1.000	0.385			
% of maximum opening height	%oh = H'/H =	0.500	0.000	0.667			
Shear cap adj factor	SCAF =	0.83	1.00	0.62			
Unit base shear	v _{base} = V ₁ /L _w =	175 plf	188 plf	123 plf			
Effective unit base shear	v _{req} = v _{base} /SCAF =	211 plf	188 plf	198 plf			
Ovrtrn. mo. Ttl. length of wall	OTM =	40.6 k-ft	63.1 k-ft	47.6 k-ft			
Shear Wall Adjustment Factor							
Resist moment total L. of wall	RM =	78.7 k-ft	83.1 k-ft	286.6 k-ft			
	r =	0.7399	1.0000	0.4839			
	C _o =	0.8289	1.0000	0.6190			
Blocking Unit Shear		56 plf	188 plf	47 plf			
Force Calculated		211.50	187.83	198.23			



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(208) 484-9069

Completed by: KKJ
Review/Check: KKJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, Idaho

SHEAR WALL CALCULATIONS:

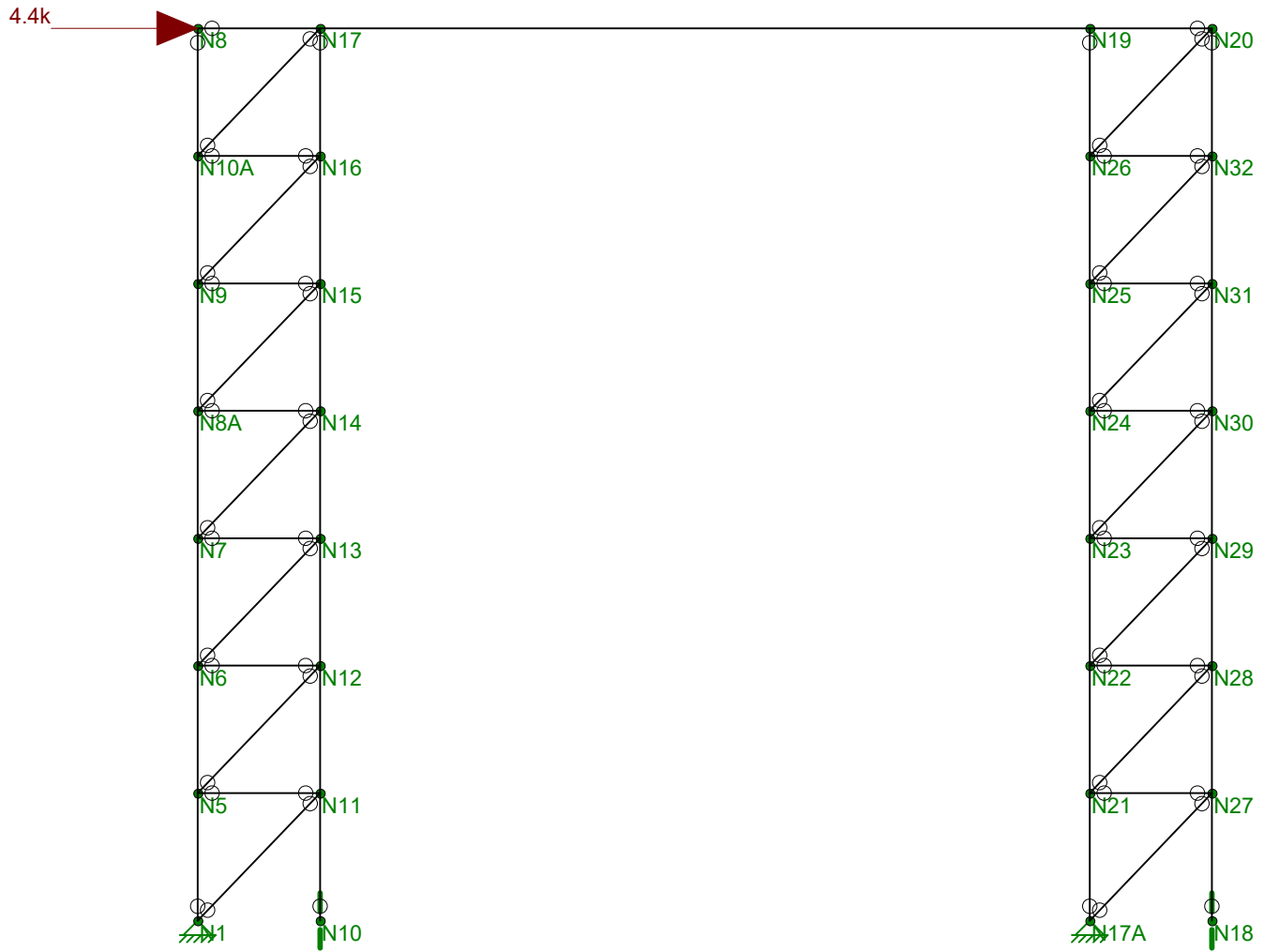
		1-0	1-0	2-0		A-0	
Shear Wall Forces							
Total length of wall		14.46 ft	28.00 ft	14.17 ft		36.50 ft	
Total length of shear wall	L =	2.00 ft	23.42 ft	14.17 ft		36.50 ft	
Total length of full ht seg.	L _w =	2.00 ft	20.21 ft	14.17 ft		32.50 ft	
height of shear wall	H =	8.00 ft	9.00 ft	9.00 ft		9.00 ft	
Maximum opening height	H' =	0.00 ft	12.00 ft	0.00 ft		4.50 ft	
Total Wind force at top of wall	V ₁ =	1786 lbs	3572 lbs	4727 lbs		3194 lbs	
Self weight	W _{DL self} =	64 plf	72 plf	108 plf		72 plf	
Applied dead load	W _{DL above} =	220 plf	236 plf	524 plf		116 plf	
Prefered OSB thickness	in	7/16	7/16	7/16		7/16	
Prefered Gyp thickness	in	1/2	1/2	1/2		1/2	
Wall Connected to Concrete	y/n =	Y	Y	Y		Y	
Shear Wall Segments							
Notes:		2.00	15.58	14.17		6.50	
			4.63			26.00	
Shear Transfer to Concrete							
Provide:			72 " O.C.	36 " O.C.		72 " O.C.	
Min # of 1/2 Anchor Bolts			Code Min.	A3		Code Min.	
Load From Above		3014.00	0.00	0.00		0.00	
T =		6514 lbs	Not Req'd	317 lbs		Not Req'd	
Holddown		HD4		Perp. Wall			
Shear Resisting System							
Min Shear Wall Segment:		P.F.	OSB	OSB		OSB	
Provide:	V _a =	1.33 ft	2.57 ft	2.57 ft		2.57 ft	
Min Shear Wall Segment:		2345	SW1	SW1		SW1	
Provide:	V _a =						
Blocking / Nailing Framing Attachment							
		Blocking	Blocking	Blocking		Blocking	
		B1	NONE	B1		NONE	
		Nailing	Nailing			Nailing	
		T1	See SCHED			See SCHED	
Unit Base Shear							
% of full height segments	%fh = L _w /L =	1.000	0.863	1.000		0.890	
% of maximum opening height	%oh = H'/H =	0.000	1.333	0.000		0.500	
Shear cap adj factor	SCAF =	1.00	0.71	1.00		0.95	
Unit base shear	v _{base} = V ₁ /L _w =	893 plf	177 plf	334 plf		98 plf	
Effective unit base shear	v _{req} = v _{base} /SCAF =	893 plf	249 plf	334 plf		104 plf	
Ovrtrn. mo. of shrt. pnl	OTM =	14.3 k-ft	45.4 k-ft	42.5 k-ft		30.3 k-ft	
Shear Wall Adjustment Factor							
Resist moment of shrt panel	RM =	0.6 k-ft	84.4 k-ft	63.4 k-ft		125.2 k-ft	
	r =	1.0000	0.8253	1.0000		0.9420	
	C _o =	1.0000	0.7087	1.0000		0.9481	
Blocking Unit Shear		247 plf	128 plf	334 plf		88 plf	
Force Calculated		893.12	249.46	333.66		103.66	



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Loads: BLC 1, Wind Load
 Envelope Only Solution

SK - 2

Mar 9, 2021 at 2:36 PM



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9bj YcdYAUIja i a 'A Ya Vyf'GYWjcb': cfWg'f' cbiYXL

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City and State: McCall, Idaho

9bj YcdYA U ja i a 'A Ya Vyf'GYWjcb': cfWg'f' c bh'bi YXL

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9bj YcdYA Ya Vyf 9bX'FYUWjcbgff cbiYXL

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TALL WALL CALCULATIONS:

This spreadsheet is used for designing a stud wall according to the NDS.

Description:	10' Tall Wall	King Stud (18' Max Opening)	10' Trimmer	12' Tall Wall	King Stud (4.25' Max Opening)	12' Trimmer
Type:	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")
Species:	DF-L	DF-L	DF-L	DF-L	DF-L	DF-L
Grade:	No. 2	No. 2	No. 2	No. 2	No. 2	No. 2
Nominal width, t =	(1) 2	(1) 2	(2) 2	(1) 2	(1) 2	(1) 2
Actual width =	1.50 in	1.50 in	3.00 in	1.50 in	1.50 in	3.00 in
Nominal depth, d =	6	6	6	6	6	6
Actual depth =	5.50 in	5.50 in	5.50 in	5.50 in	5.50 in	5.50 in
Span, L =	10.000 ft	10.000 ft	10.000 ft	12.000 ft	12.000 ft	12.000 ft
w/o Plates	9.750 ft	9.750 ft	9.750 ft	11.750 ft	11.750 ft	11.750 ft
Stud spacing, s =	16 in	16 in	16 in	16 in	16 in	16 in
Lat. Pressure, w _{wind} =	5.60 psf	5.60 psf	5.60 psf	5.00 psf	5.00 psf	5.00 psf
Axial load, P =	4416 lbs	50 lbs	9936 lbs	2923 lbs	50 lbs	4658 lbs
Eccentricity, e =	0 in	0 in	0 in	0 in	0 in	0 in
K _{CE} =	0.3	0.3	0.3	0.3	0.3	0.3
c =	0.8	0.8	0.8	0.8	0.8	0.8
w =	7.5 plf	55.2 plf	7.5 plf	6.7 plf	14.9 plf	6.7 plf
F _b	900 psi	900 psi	900 psi	900 psi	900 psi	900 psi
F _v	180 psi	180 psi	180 psi	180 psi	180 psi	180 psi
F _{c-prll}	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi
F _{c-perp}	625 psi	625 psi	625 psi	625 psi	625 psi	625 psi
C _d	1.60	1.60	1.15	1.60	1.60	1.15
C _{F,fb}	1.30	1.30	1.30	1.30	1.30	1.30
C _{F,Fcprll}	1.10	1.10	1.10	1.10	1.10	1.10
C _r	1.15	1.00	1.00	1.15	1.00	1.00
C _p	0.39	0.39	0.51	0.28	0.28	0.38
C _H	1.00	1.00	1.00	1.00	1.00	1.00
C _b	1.07	1.07	1.07	1.07	1.07	1.07
E	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi
E _{min}	580,000 psi	580,000 psi	580,000 psi	580,000 psi	580,000 psi	580,000 psi
Allowable Stress:						
F' _b = F _b C _d C _r C _F	2153 psi	1872 psi	1346 psi	2153 psi	1872 psi	1346 psi
F' _v = F _v C _d C _H	288 psi	288 psi	207 psi	288 psi	288 psi	207 psi
F' _c = F _c C _d C _F	2376 psi	2376 psi	1708 psi	2376 psi	2376 psi	1708 psi
F' _{CE} = (K _{CE} E') / (l / d) ²	1061 psi	1061 psi	1061 psi	730 psi	730 psi	730 psi
F' _c = F _c C _d C _r C _p	938 psi	938 psi	876 psi	676 psi	676 psi	650 psi
F' _{c-perp} = F _{c-perp} C _b	668 psi	668 psi	668 psi	668 psi	668 psi	668 psi
E'	1600000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi
F' _{BE}	2434 psi	2434 psi	9734 psi	2019 psi	2019 psi	8077 psi
Slenderness Ratio:	<u>< 50 OK</u>	<u>< 50 OK</u>	<u>< 50 OK</u>	<u>< 50 OK</u>	<u>< 50 OK</u>	<u>< 50 OK</u>
R _b	17	17	8	19	19	9
Bending:	<u>< F'_b OK</u>	<u>< F'_b OK</u>	<u>< F'_b OK</u>	<u>< F'_b OK</u>	<u>< F'_b OK</u>	<u>< F'_b OK</u>
M = w L ² / 8 + P e / 12 =	89 ft-lbs	656 ft-lbs	89 ft-lbs	115 ft-lbs	257 ft-lbs	115 ft-lbs
f _b = M / S =	141 psi	1041 psi	70 psi	183 psi	408 psi	91 psi
S =	8 in ³	8 in ³	15 in ³	8 in ³	8 in ³	15 in ³
Shear:	<u>< F'_v OK</u>	<u>< F'_v OK</u>	<u>< F'_v OK</u>	<u>< F'_v OK</u>	<u>< F'_v OK</u>	<u>< F'_v OK</u>
V = w L / 2 =	27 lbs	27 lbs	27 lbs	29 lbs	29 lbs	29 lbs
f _v = 1.5 V / A =	5 psi	5 psi	2 psi	5 psi	5 psi	3 psi
A =	8 in ²	8 in ²	17 in ²	8 in ²	8 in ²	17 in ²
Compression:	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>
f _c = P / A =	535 psi	6 psi	602 psi	354 psi	6 psi	282 psi
Compression (perp.):	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>	<u>< F'_c OK</u>
f _{c-perp} = P / A =	535 psi	6 psi	602 psi	354 psi	6 psi	282 psi
Combined:	<u>< 1.0 OK</u>			<u>< 1.0 OK</u>		
(f _c / F' _c) ² + (f _b / (F' _b (1 - (f _c / F' _{CE})))) =	0.46			0.44		
Deflection:	<u>> 180 OK</u>	<u>> 180 OK</u>	<u>> 180 OK</u>	<u>> 180 OK</u>	<u>> 180 OK</u>	<u>> 180 OK</u>
D = 22.5 w L ⁴ / E' I =	0.05 in	0.34 in	0.02 in	0.09 in	0.19 in	0.04 in
I =	21 in ⁴	21 in ⁴	42 in ⁴	21 in ⁴	21 in ⁴	42 in ⁴
SPAN /	2564	347	5129	1641	734	3282



1002 BLAINE ST. #208
CALDWELL, IDAHO 83605
(208) 484-9069

Completed by: KKJ
Review/Check: KKJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, Idaho

TALL WALL CALCULATIONS:

This spreadsheet is used for designing a stud wall according to the NDS.

Description:	16' Tall Wall	King Stud (13.5' Max Opening)	16' Trimmer	King Stud (3' Max Opening)	King Stud (6.5' Max Opening)	18' Trimmer
Type:	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")
Species:	DF-L	DF-L	DF-L	DF-L	DF-L	DF-L
Grade:	No. 2	No. 2	No. 2	No. 2	No. 2	No. 2
Nominal width, t =	(1) 2	(2) 2	(2) 2	(1) 2	(2) 2	(1) 2
Actual width =	1.50 in	3.00 in	3.00 in	1.50 in	3.00 in	3.00 in
Nominal depth, d =	6	6	6	6	6	6
Actual depth =	5.50 in	5.50 in	5.50 in	5.50 in	5.50 in	5.50 in
Span, L =	16.000 ft	16.000 ft	16.000 ft	18.000 ft	18.000 ft	18.000 ft
w/o Plates	15.750 ft	15.750 ft	15.750 ft	17.750 ft	17.750 ft	17.750 ft
Stud spacing, s =	16 in	16 in	16 in	16 in	16 in	16 in
Lat. Pressure, w _{wind} =	5.60 psf	5.60 psf	5.60 psf	5.60 psf	5.60 psf	5.60 psf
Axial load, P =	731 lbs	50 lbs	3699 lbs	50 lbs	50 lbs	4119 lbs
Eccentricity, e =	0 in	0 in	0 in	0 in	0 in	0 in
K _{CE} =	0.3	0.3	0.3	0.3	0.3	0.3
c =	0.8	0.8	0.8	0.8	0.8	0.8
w =	7.5 plf	42.6 plf	7.5 plf	13.2 plf	23.0 plf	7.5 plf
F _b	900 psi	900 psi	900 psi	900 psi	900 psi	900 psi
F _v	180 psi	180 psi	180 psi	180 psi	180 psi	180 psi
F _{c-prll}	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi
F _{c-perp}	625 psi	625 psi	625 psi	625 psi	625 psi	625 psi
C _d	1.60	1.60	1.15	1.60	1.60	1.15
C _{F,fb}	1.30	1.30	1.30	1.30	1.30	1.30
C _{F,Fcprll}	1.10	1.10	1.10	1.10	1.10	1.10
C _r	1.15	1.00	1.00	1.00	1.00	1.00
C _p	0.16	0.16	0.22	0.13	0.13	0.18
C _H	1.00	1.00	1.00	1.00	1.00	1.00
C _b	1.07	1.07	1.07	1.07	1.07	1.07
E	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi
E _{min}	580,000 psi	580,000 psi	580,000 psi	580,000 psi	580,000 psi	580,000 psi
Allowable Stress:						
F' _b = F _b C _d C _F C _r =	2153 psi	1872 psi	1346 psi	1872 psi	1872 psi	1346 psi
F' _v = F _v C _d C _H =	288 psi	288 psi	207 psi	288 psi	288 psi	207 psi
F' _c = F _c C _d C _F =	2376 psi	2376 psi	1708 psi	2376 psi	2376 psi	1708 psi
F' _{CE} = (K _{CE} E') / (l / d) ² =	406 psi	406 psi	406 psi	320 psi	320 psi	320 psi
F' _c = F _c C _d C _F C _p =	391 psi	391 psi	384 psi	311 psi	311 psi	307 psi
F' _{c-perp} = F _{c-perp} C _b =	668 psi	668 psi	668 psi	668 psi	668 psi	668 psi
E' =	1600000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi
F' _{BE} =	1506 psi	6026 psi	6026 psi	1307 psi	5347 psi	5347 psi
Slenderness Ratio:	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK
R _b =	21	11	11	23	11	11
Bending:	< F' _b OK	< F' _b OK	< F' _b OK	< F' _b OK	< F' _b OK	< F' _b OK
M = w L ² / 8 + P e / 12 =	232 ft-lbs	1320 ft-lbs	232 ft-lbs	519 ft-lbs	905 ft-lbs	294 ft-lbs
f _b = M / S =	367 psi	1048 psi	184 psi	824 psi	718 psi	233 psi
S =	8 in ³	15 in ³	15 in ³	8 in ³	15 in ³	15 in ³
Shear:	< F' _v OK	< F' _v OK	< F' _v OK	< F' _v OK	< F' _v OK	< F' _v OK
V = w L / 2 =	44 lbs	44 lbs	44 lbs	50 lbs	50 lbs	50 lbs
f _v = 1.5 V / A =	8 psi	4 psi	4 psi	9 psi	5 psi	5 psi
A =	8 in ²	17 in ²	17 in ²	8 in ²	17 in ²	17 in ²
Compression:	< F' _c OK	< F' _c OK	< F' _c OK	< F' _c OK	< F' _c OK	< F' _c OK
f _c = P / A =	89 psi	3 psi	224 psi	6 psi	3 psi	250 psi
Compression (perp.):	< F' _c OK	< F' _c OK	< F' _c OK	< F' _c OK	< F' _c OK	< F' _c OK
f _{c-perp} = P / A =	89 psi	3 psi	224 psi	6 psi	3 psi	250 psi
Combined:	< 1.0 OK					
(f _c /F' _c) ² + (f _b /[F' _b (1 - (f _c /F' _c)E)]) =	0.27					
Deflection:	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK
D = 22.5 w L ⁴ / E' I =	0.31 in	0.89 in	0.16 in	0.88 in	0.77 in	0.25 in
I =	21 in ⁴	42 in ⁴	42 in ⁴	21 in ⁴	42 in ⁴	42 in ⁴
SPAN /	608	213	1217	241	276	850



1002 BLAINE ST. #208
CALDWELL, IDAHO 83605
(208) 484-9069

Completed by: KKJ
Review/Check: KKJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, Idaho

TALL WALL CALCULATIONS:

This spreadsheet is used for designing a stud wall according to the NDS.

Description:	18' Tall Wall	King Stud (5.25' Max Opening)	18' Trimmer			
Type:	2x Lumber (2"-4")	2x Lumber (2"-4")	2x Lumber (2"-4")			
Species:	DF-L	DF-L	DF-L			
Grade:	No. 2	No. 2	No. 2			
Nominal width, t =	(2) 2	(3) 2	(1) 2			
Actual width =	3.00 in	4.50 in	1.50 in			
Nominal depth, d =	6	6	6			
Actual depth =	5.50 in	5.50 in	5.50 in			
Span, L =	18.000 ft	18.000 ft	18.000 ft			
w/o Plates	17.750 ft	17.750 ft	17.750 ft			
Stud spacing, s =	16 in	42 in	16 in			
Lat. Pressure, w _{wind} =	13.98 psf	13.98 psf	5.00 psf			
Axial load, P =	731 lbs	50 lbs	1439 lbs			
Eccentricity, e =	0 in	0 in	0 in			
K _{CE} =	0.3	0.3	0.3			
c =	0.8	0.8	0.8			
w =	18.6 plf	48.6 plf	6.7 plf			
F _b	900 psi	900 psi	900 psi			
F _v	180 psi	180 psi	180 psi			
F _{c-prll}	1,350 psi	1,350 psi	1,350 psi			
F _{c-perp}	625 psi	625 psi	625 psi			
C _d	1.60	1.60	1.15			
C _{F,Fb}	1.30	1.30	1.30			
C _{F,Fcprll}	1.10	1.10	1.10			
C _r	1.15	1.00	1.00			
C _p	0.13	0.13	0.18			
C _H	1.00	1.00	1.00			
C _b	1.07	1.07	1.07			
E	1,600,000 psi	1,600,000 psi	1,600,000 psi			
E _{min}	580,000 psi	580,000 psi	580,000 psi			
Allowable Stress:						
F' _b = F _b C _d C _F C _r =	2153 psi	1872 psi	1346 psi			
F' _v = F _v C _d C _H =	288 psi	288 psi	207 psi			
F* _c = F _c C _d C _F =	2376 psi	2376 psi	1708 psi			
F _{CE} = (K _{CE} E') / (l / d) ² =	320 psi	320 psi	320 psi			
F' _c = F _c C _d C _F C _p =	311 psi	311 psi	307 psi			
F' _{c-perp} = F _{c-perp} C _b =	668 psi	668 psi	668 psi			
E' =	1600000 psi	1600000 psi	1600000 psi			
F _{BE} =	5347 psi	12031 psi	1337 psi			
Slenderness Ratio:	< 50 OK	< 50 OK	< 50 OK			
R _B =	11	8	23			
Bending:	< F'b OK	< F'b OK	< F'b OK			
M = w L ² / 8 + P e / 12 =	734 ft-lbs	1915 ft-lbs	263 ft-lbs			
f _b = M / S =	582 psi	1013 psi	417 psi			
S =	15 in ³	23 in ³	8 in ³			
Shear:	< F'v OK	< F'v OK	< F'v OK			
V = w L / 2 =	124 lbs	124 lbs	44 lbs			
f _v = 1.5 V / A =	11 psi	8 psi	8 psi			
A =	17 in ²	25 in ²	8 in ²			
Compression:	< F'c OK	< F'c OK	< F'c OK			
f _c = P / A =	44 psi	2 psi	174 psi			
Compression (perp.):	< F'c OK	< F'c OK	< F'c OK			
f _{c-perp} = P / A =	44 psi	2 psi	174 psi			
Combined:	< 1.0 OK					
(f _c /F _c) ² + (f _b /[F _b (1 - (f _c /F _{CE})]) =	0.33					
Deflection:	> 180 OK	> 180 OK	> 180 OK			
D = 22.5 w L ⁴ / E' I =	0.63 in	1.09 in	0.45 in			
I =	42 in ⁴	62 in ⁴	21 in ⁴			
SPAN /	341	196	476			



1002 BLAINE ST. #208
CALDWELL, IDAHO 83605
(208) 484-9069

Completed by: KKJ
Review/Check: KKJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, Idaho



1002 BLAINE ST. #208
 CALDWELL, IDAHO 83605
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WOOD TALL WALL & KING STUD ALLOWABLE LOADS (plf):

Load Duration Factor: 1.6
 Max Vert. Load: 50 lbs

Max Deflection: L/180

	Height						
King Stud	12'	14'	16'	18'	20'	22'	24'
(1) 2x4 Stud	12.8	NA	NA	NA	NA	NA	NA
(2) 2x4 Stud	25.6	NA	NA	NA	NA	NA	NA
(3) 2x4 Stud	38.4	NA	NA	NA	NA	NA	NA
(1) 2x6 DF #2	57.0	35.8	24.1	16.9	NA	NA	NA
(2) 2x6 DF #2	114.0	71.6	48.2	33.8	NA	NA	NA
(3) 2x6 DF #2	171.0	107.4	72.3	50.7	NA	NA	NA
(1) 2x8 DF #2	130.0	81.7	55.0	38.7	28.2	21.2	16.3
(2) 2x8 DF #2	260.0	163.4	110.0	77.4	56.4	42.4	32.6
(3) 2x8 DF #2	390.0	245.1	165.0	116.1	84.6	63.6	48.9
(1) 2x6 LSL	67.8	42.7	28.5	20.0	14.7	NA	NA
(2) 2x6 LSL	135.6	85.4	57.0	40.0	29.4	NA	NA
(3) 2x6 LSL	203.4	128.1	85.5	60.0	44.1	NA	NA
(1) 2x8 LSL	155.0	98.3	65.5	46.0	33.5	25.2	19.5
(2) 2x8 LSL	310.0	196.6	131.0	92.0	67.0	50.4	39.0
(3) 2x8 LSL	465.0	294.9	196.5	138.0	100.5	75.6	58.5

*NOTE 1: this table combined with trimmer table to determine combined stress on each common wall stud.
 *NOTE 2: allowable loads are interpolated at heights not in 2' increments.

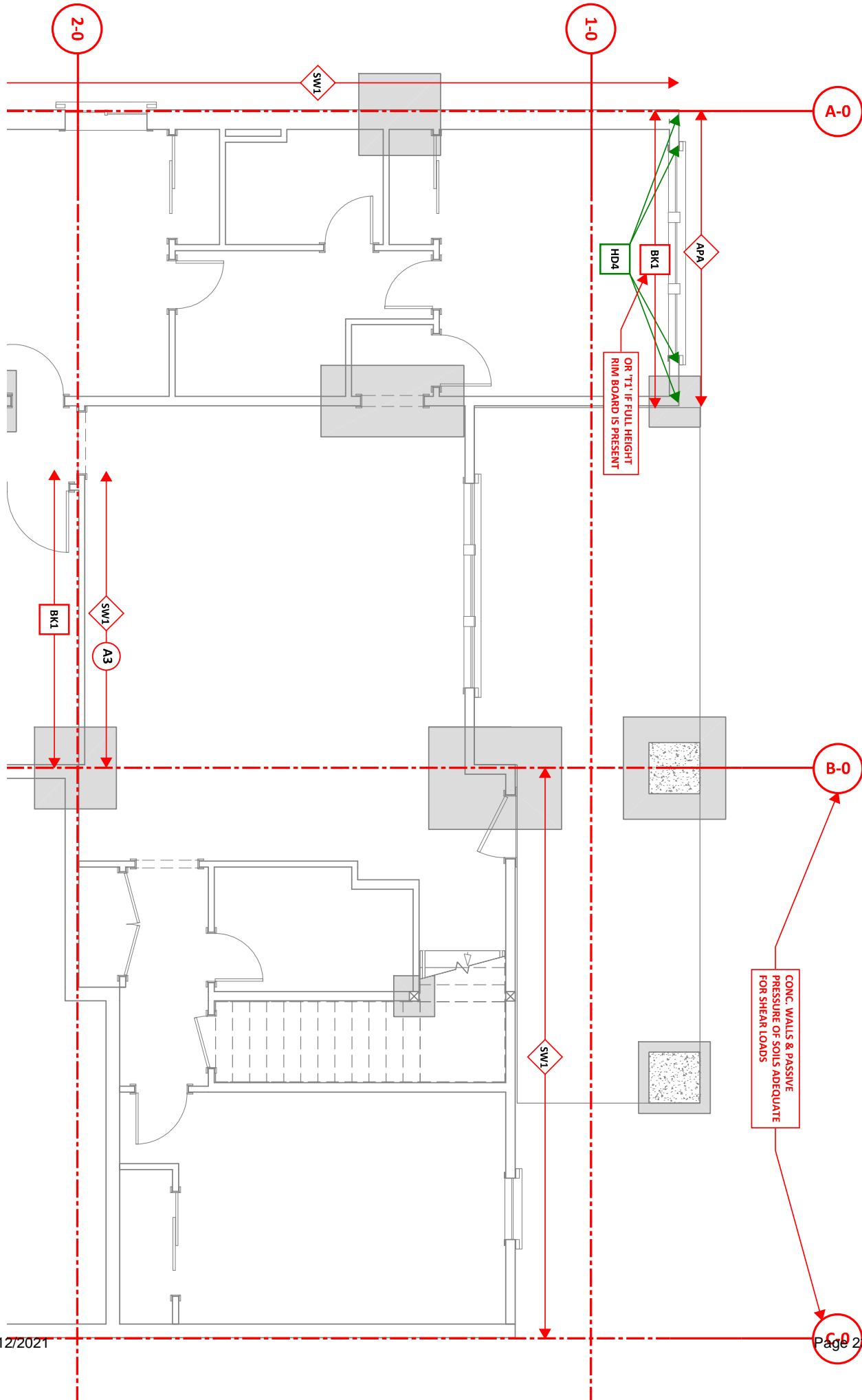
WOOD TRIMMER ALLOWABLE LOADS (kips):

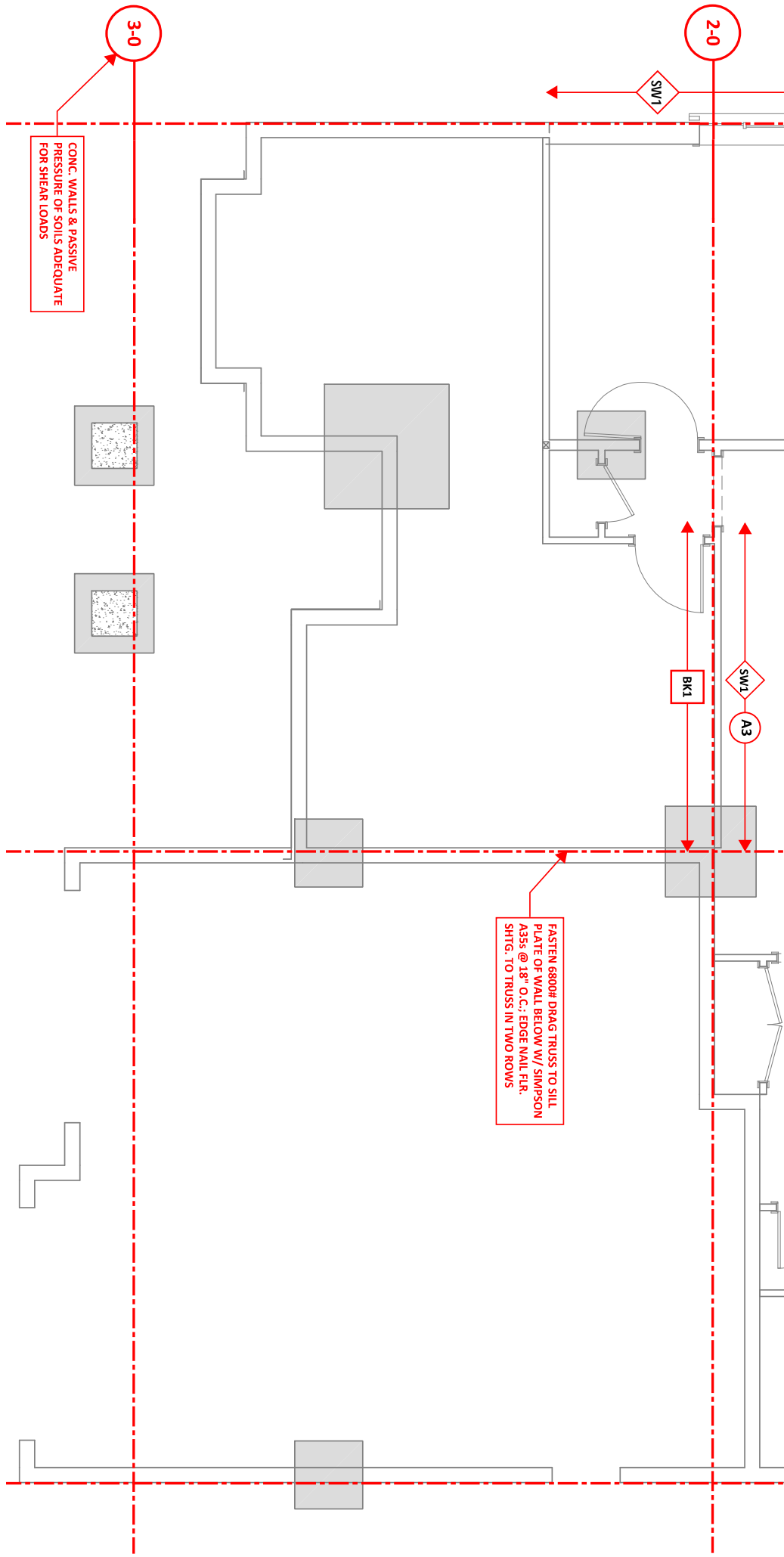
Load Duration Factor: 1.0
 Eccentricity: 0"

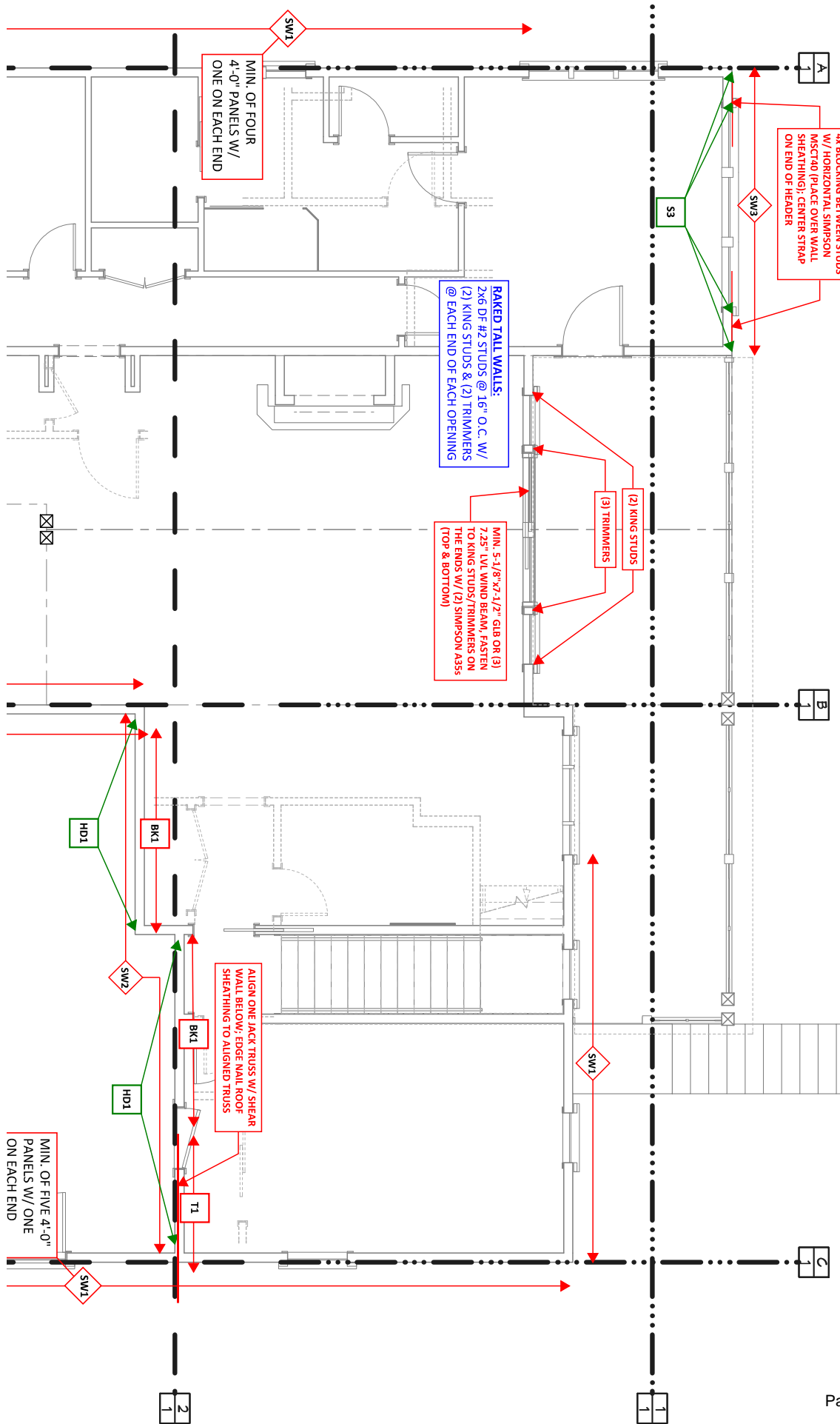
Weak Axis Braced: Y

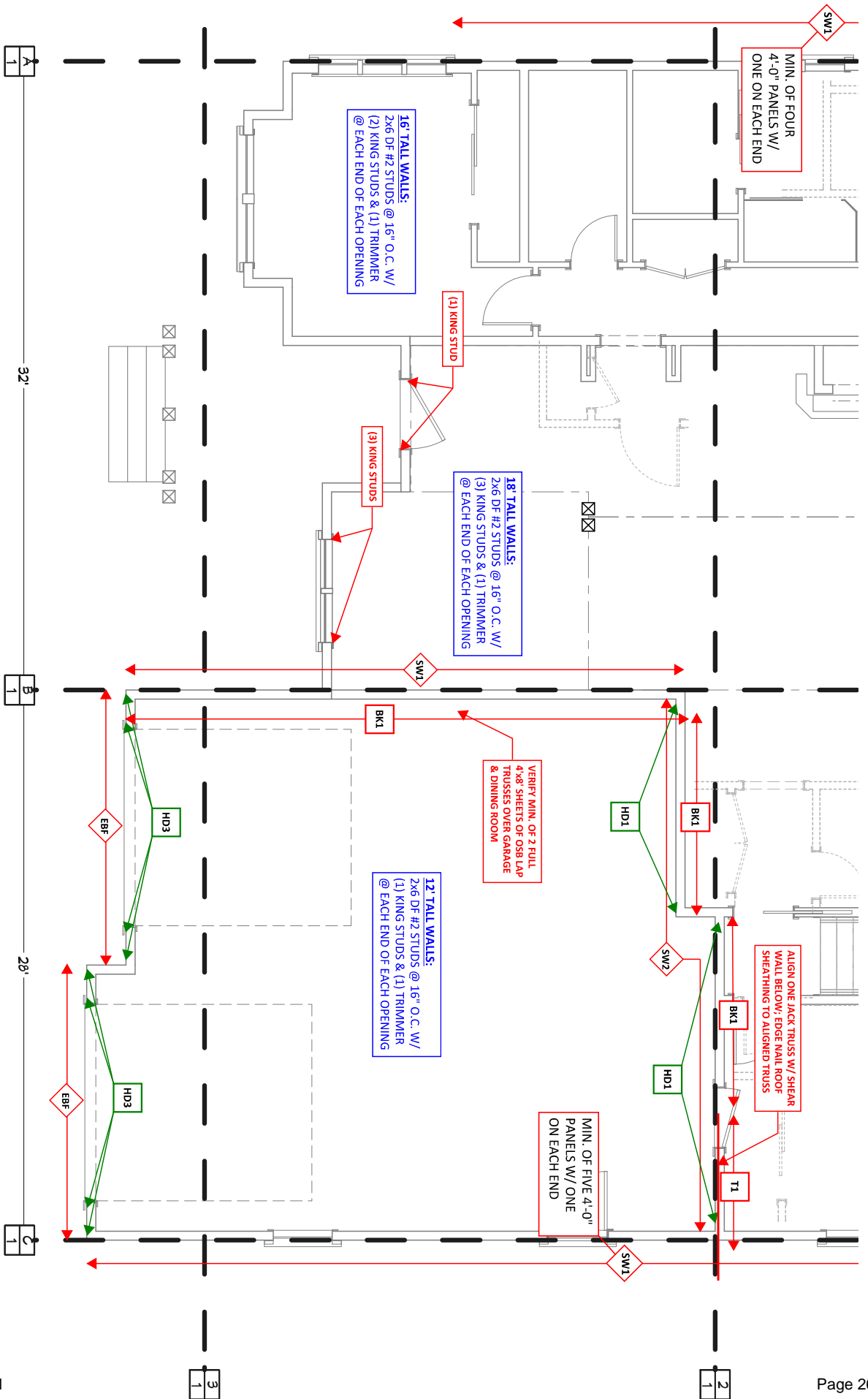
	Height						
Trimmer Type	8'	10'	12'	14'	16'	18'	20'
(1) 2x4 Stud	2.4	1.7	1.2	NA	NA	NA	NA
(2) 2x4 Stud	4.9	3.4	2.4	NA	NA	NA	NA
(3) 2x4 Stud	7.1	5.0	3.6	NA	NA	NA	NA
(1) 2x6 DF #2	5.1	5.1	5.0	3.8	3.0	NA	NA
(2) 2x6 DF #2	10.3	10.3	10.1	7.7	6.0	NA	NA
(3) 2x6 DF #2	15.4	15.4	15.1	11.6	9.1	NA	NA
(1) 2x8 DF #2	6.7	6.7	6.7	6.7	6.4	5.3	4.4
(2) 2x8 DF #2	13.5	13.5	13.5	13.5	12.9	10.6	8.8
(3) 2x8 DF #2	20.3	20.3	20.3	20.3	19.4	15.9	13.2

*NOTE 1: this table combined with king stud table to determine combined stress on each common wall stud.
 *NOTE 2: allowable loads are interpolated at heights not in 2' increments.











1002 BLAINE ST. #208
CALDWELL, IDAHO 83605
(208) 484-9069

Completed by: KKJ
Review/Check: KKJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, 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
APA	7/16" APA RATED	1	8d @ 3 / 12	(APA TESTED PORTAL FRAME ASSEMBLY, SEE ATTACHED DETAIL)		YES	(SEE ATTACHED DETAIL)
EBF	7/16" APA RATED	2	8d @ 3 / 12	(3-2x6 STUDS @ SHEATHING PERIMETER, MIN.)		YES	(SEE ATTACHED DETAIL)

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

HOLDOWN SCHEDULE:

MARK	STRAP TYPE	STRAP FASTENERS	# OF STUDS		ANCHOR BOLT	# OF STUDS	FASTENERS
HD1	LSTHD8 OR LSTHD8RJ 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
HD4	-	-	-	-	HDU8-SDS2.5 W/ SB7/8x24 OR PAB7 @ INT. PONY WALLS	3	(20) 1/4"x2-1/2" SDS



1002 BLAINE ST. #208
CALDWELL, IDAHO 83605
(208) 484-9069

Completed by: KJ
Review/Check: KJ

Project Name: Vanmanen Residence
SRE Project #: 2021-1085
City and State: McCall, Idaho

STRAP SCHEDULE:

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

S3	MSTC52	(48) 16d SINKERS	2	OR	HDU5-SDS2.5 W/ 5/8"Ø ALL THREAD	2	(14) 1/4"x2-1/2" SDS
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BLOCKING KEY NOTES:

MARK	DESCRIPTION
B1	- BLOCKING BETWEEN EVERY OTHER TRUSS BAYS W/ (6)10d TOENAILS FROM BLOCKING TO TOP PLATE, NAIL ROOF SHEATHING TO BLOCKING 3" O.C.

TYP. NOTES:

- 1 FASTEN GABLE/RIM TO SHEAR WALLS BELOW W/ 10d TOENAILS @ 12" O.C. UNO
- 2 FASTEN TRUSS HEELS TO SHEAR WALLS W/ H2.5A AND (2) 10d TOENAILS @ EACH

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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ANCHOR BOLT KEY NOTES:

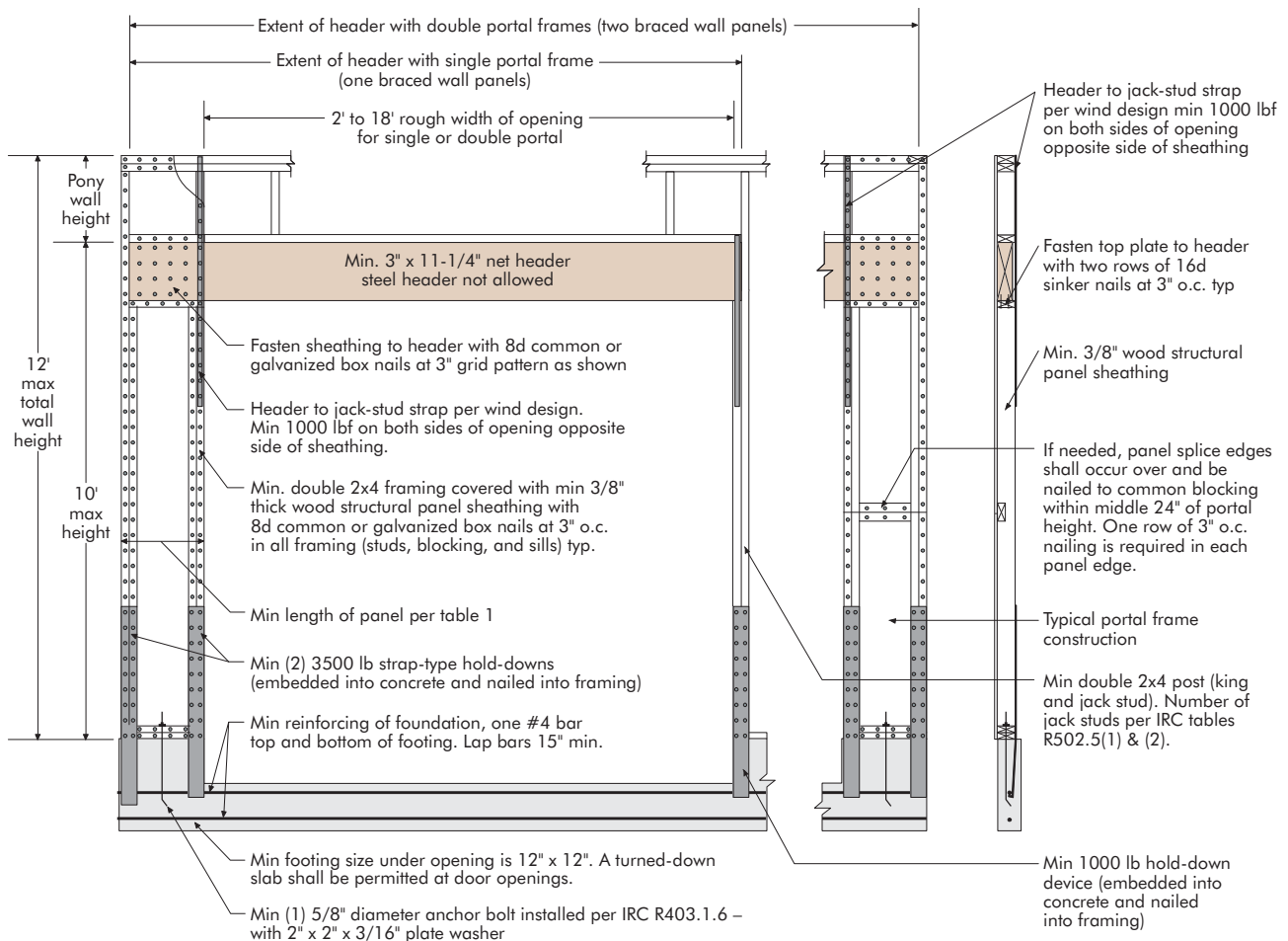
A3	-	1/2"Ø ANCHOR BOLTS @ 36" O.C.
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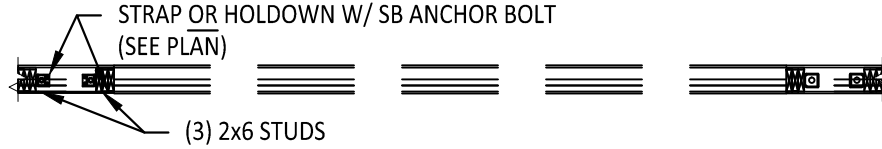
Minimum Width (in.)	Maximum Height (ft)	Allowable Design (ASD) Values per Frame Segment		
		Shear ^(e,f) (lbf)	Deflection (in.)	Load Factor
16	8	850	0.33	3.09
	10	625	0.44	2.97
24	8	1,675	0.38	2.8
	10	1,125	0.51	3.42

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

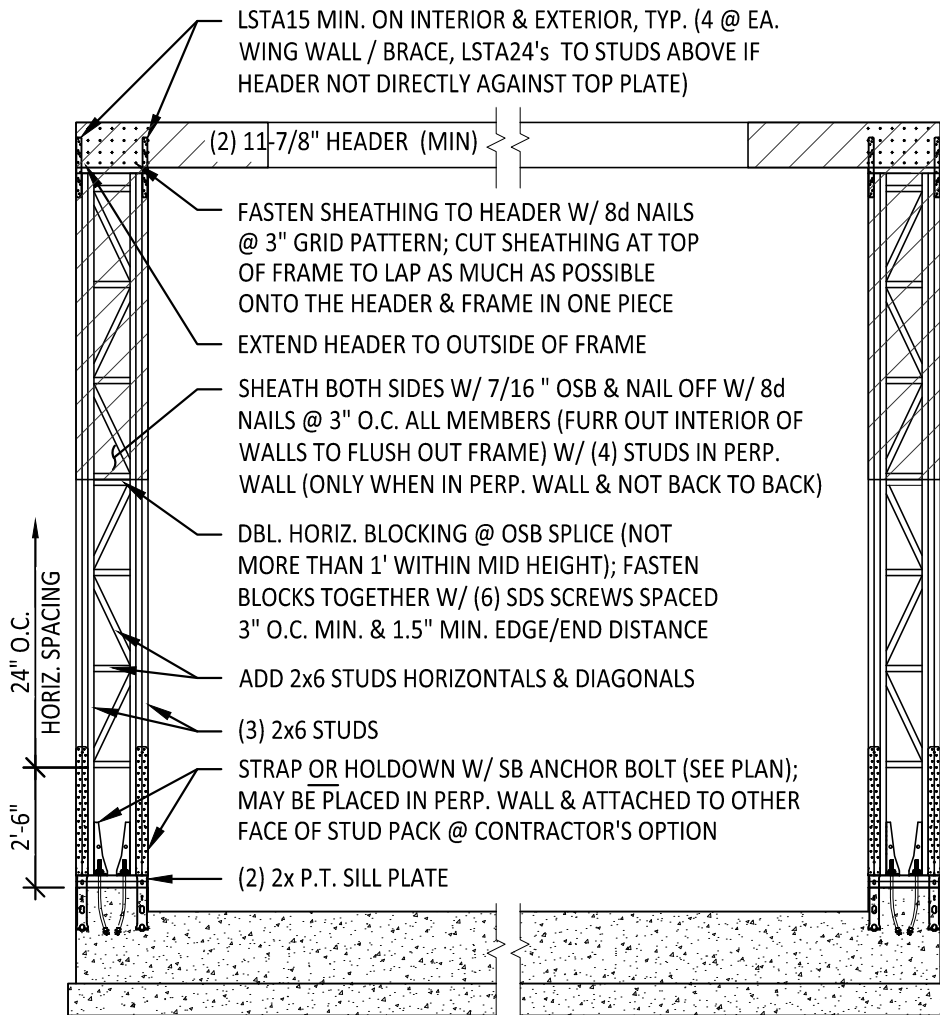
- (a) Design values are based on the use of Douglas-fir or Southern pine framing. For other species of framing, multiply the above shear design value by the specific gravity adjustment factor = $(1 - (0.5 - SG))$, where SG = specific gravity of the actual framing. This adjustment shall not be greater 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





PLAN VIEW



ENGINEERED BRACE FRAME
OUTSIDE ELEVATION