Lateral Calculations

Project Title: Lot 51 River Ranch

Location: McCall (150), Idaho

Job #: 2026-12040

PROFESSIONAL ENGINEER
LICENSED
15386
4/30/2026
STATE OF IDAHO
KALEB JONES

For Lot 51 River Ranch only

Disclaimer:

1. Calculations are not to be used for determining lengths of structural members.
2. Calculations are single use and location specific to property listed above.
3. Calulations shall not to be reproduced, reused, or altered in any way.
4. Calculations based on drawings received prior to stamp date. Any changes made after stamp date must be reviewed and approved by Engineer of Record prior to construction.
5. All work to conform to all local, state, and national codes.

Prepared in accordance with 2018 IBC. Calculations expire by: 4/30/2027

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SITE SPECIFIC DESIGN CRITERIA:

Snow Criteria:

Roof Load (P_f)	150 psf	
Ground Load (P_g)	150 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		
Ss	0.47		Fa	1.42
S1	0.14		Fv	2.24
S_{DS}	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	
OSB	.08Wp	6.5	Typ @ Ext
GYP	.27Wp	2	Typ @ Int
Cant. Col.	.36Wp	1.5	

Soil Criteria:

Brg. Strength	1500 psf

STRUCTURE SPECIFIC DESIGN CRITERIA:

Live Loads:

Typ Residential	40 psf
Garage (P.V.)	50 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**

Floor joists not engineered for concrete overlay.

Roof Dead Loads:

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

Roof not engineered for Tile, Slate or Concrete.

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**

Deck Dead Load

Decking	4.4
Joist	2.0
	0.0
Misc	3.0
TOTAL	**10 psf**

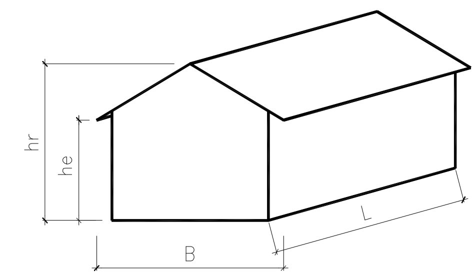
Deck not engineered for hot tub loading.

Deck not engineered for concrete overlay.

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 =	*27.53 ft*	*ft*
Building height to eave	h_e =	*20.25 ft*	*ft*
Building width	B =	*62.00 ft*	*ft*
Building length	L =	*85.00 ft*	*ft*
Overhang sloped width	O_h =	*3.00 ft*	*ft*
Effective area of components (or Solar Panel area)	A =	*33.3 ft²*	ft^2, <== Overhang? (Yes or No): Yes
Enclosed? (Y/N)		y	



ANALYSIS

Velocity pressure

$q_h = 0.00256\, K_z K_{zt} K_d K_e V^2$ = **26.94** 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 = **0.94**

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

h = mean roof height = **23.89** 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** 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, MAX[MIN(0.1B, 0.1L, 0.4h), MIN(0.04B, 0.04L), 3] = **6.20** **ft**

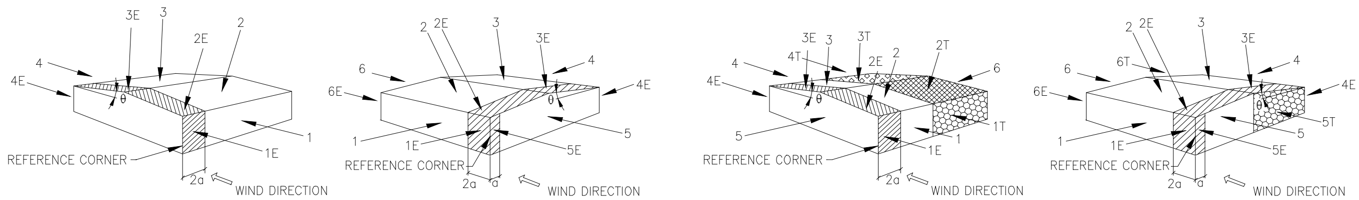
Net Pressures (psf), Basic Load Cases

Surface	Roof angle q = 26.57			Roof angle q = 26.57		
	$G C_{pf}$	Net Press. W/		$G C_{pf}$	Net Press. W/	
		$(+GC_{pi})$	$(-GC_{pi})$		$(+GC_{pi})$	$(-GC_{pi})$
1	0.55	9.96	19.66	-0.45	-16.97	-7.27
2	-0.10	-7.52	2.18	-0.69	-23.44	-13.74
3	-0.45	-16.90	-7.20	-0.37	-14.82	-5.12
4	-0.39	-15.37	-5.67	-0.45	-16.97	-7.27
5				0.40	5.93	15.63
6				-0.29	-12.66	-2.96
1E	0.73	14.76	24.46	-0.48	-17.78	-8.08
2E	-0.19	-9.98	-0.28	-1.07	-33.68	-23.98
3E	-0.58	-20.61	-10.91	-0.53	-19.13	-9.43
4E	-0.53	-19.26	-9.56	-0.48	-17.78	-8.08
5E				0.61	11.59	21.29
6E				-0.43	-16.44	-6.74

Net Pressures (psf), Torsional Load Cases

Surface	Roof angle q = 26.57		
	$G C_{pf}$	Net Press. W/	
		$(+GC_{pi})$	$(-GC_{pi})$
1T	0.55	2.49	4.92
2T	-0.10	-1.88	0.54
3T	-0.45	-4.22	-1.80
4T	0.00	-3.84	-1.42
Surface	Roof angle q = 0.00		
	$G C_{pf}$	Net Press. W/	
		$(+GC_{pi})$	$(-GC_{pi})$
5T	0.40	1.48	3.91
6T	-0.29	-3.17	-0.74

+ / - Wind Pressure	61%



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)

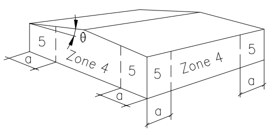
$G\ C_p$ = 1.00 external pressure coefficie

see table below. (ASCE 7-16 30.3.2)

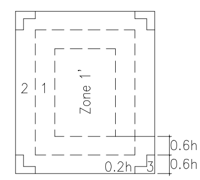
q = 26.57 °

$p_{overhang}$ = **-92.96** psf

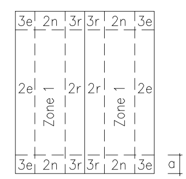
(ASCE 7-16 28.3.3)



Walls



Roof θ≤7°



Roof θ>7°

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	$-GC_p$
	1281	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	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*
	12.93	-26.40	12.93	-26.40	12.93	-64.13	12.93	-26.40	12.93	-31.79	12.93	-31.79
	Zone 3		Zone 3e		Zone 3r		Zone 4		Zone 5			
	Positive	*Negative*	*Positive*	*Negative*	*Positive*	*Negative*	*Positive*	*Negative*	*Positive*	*Negative*	*(Max Pressure*	
	12.93	-72.21	12.93	-72.21	12.93	-53.35	31.41	-34.10	31.41	-41.80	***72.21*** *psf)*	

LOAD CASE 'A' FACTORED LOADS	
$0.6*W_r = (Z_2 + Z_3) * 0.6 =$	**5.6 psf**
$0.6*W_{rE} = (Z_{2E} + Z_{3E}) * 0.6 =$	**6.4 psf**
$0.6*W_w = (Z_1 + Z_4) * 0.6 =$	**15.2 psf**
$0.6*W_{wE} = (Z_{1E} + Z4E) * 0.6 =$	**20.4 psf**

LOAD CASE 'B' FACTORED LOADS	
$0.6*W_r = (Z_2 + Z_3) * 0.6 =$	**5.2 psf**
$0.6*W_{rE} = (Z_{2E} + Z_{3E}) * 0.6 =$	**8.7 psf**
$0.6*W_w = (Z_5 + Z_6) * 0.6 =$	**11.2 psf**
$0.6*W_{wE} = (Z_{5E} + Z_{6E}) * 0.6 =$	**16.8 psf**

ROOF COMPONENTS FACTORED LOAD	
$0.6*Z_{r,c\&c} =$	**19.1 psf**

WALL COMPONENTS FACTORED LOAD	
$0.6*Z_{w,c\&c} =$	**20.5 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 =	89.6	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 =	27.5	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	
$C_s < S_{D1} / [(R / I_e) T_a]$ =	0.1345	, 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 =	1.85	, (ASCE 12.8.3, page 91)	
$V = C_s W$ =	**0.0825**	W	
0.7 * V =	**0.0577**	W	
W =	**179**	kips, total	

SEISMIC COMPONENT & ANCHORING ANALYSIS

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

$$k_a = 1.0 + \frac{L_f}{100} \quad (12.11\text{-}2)$$

Lf: 10 ft ka: 1.1

$$F_p = 0.4 S_{DS} k_a I_e W_p \quad (12.11\text{-}1)$$

= **2.4** psf **<= USE FOR O.O.P. WALL**

Where : W_p = 12.0 psf , I_e = 1.00

<u>For seismic design category C and above, flexible diaphragm (ASCE 7)</u>

$$F_{px} = 0.4 S_{DS} I_e w_{px} \quad (12.10\text{-}3)$$

= **3.04** psf **<= USE FOR ROOF FRAMING UPLIFT**

Where : W_{px} = 17.0 psf ,

WIND / SEISMIC SHEAR FORCE CALCULATIONS:

From ASCE 7-16 Wind & Seismic Loading Analysis

Wall Line	Roof / Floor: Wind Force (psf)	Roof / Floor: Diaph. Weight	Roof / Floor: Wr, We truss trib (ft)	Roof / Floor: Area W (ft)	Roof / Floor: Area L (ft)	Wall: Wind Force (psf)	Wall: Wall DL (psf)	Wall: Wall ht (ft)	Wall: wall line dist (ft)	Wall: Upr. Flr Wall ht (ft)	Load above: Wind (#)	Load above: Seismic (#)	$*C_s$ (Wp)	=	Loading: Wind Force (kips)	Loading: Seismic Force (kips)	Loading: Lateral Control
X1-2	9.6	55	7.3	35.0	39.0	17.0	12.0	9.0	35.0				0.06	=	**2.57**	**2.37**	**Wind**
X2-2	9.6	55	7.3	35.0	39.0	17.0	12.0	9.0	35.0				0.06	=	**2.57**	**2.37**	**Wind**
Y1-2	9.6	55	7.3	39.0	35.0	16.9	12.0	9.0	39.0				0.06	=	**2.84**	**2.39**	**Wind**
Y2-2	9.6	55	7.3	39.0	35.0	16.9	12.0	9.0	39.0				0.06	=	**2.84**	**2.39**	**Wind**
X1-1	9.6	55	9.1	14.0	22.0	19.8	12.0	10.0	14.0	0.0	0	0	0.06	=	**1.30**	**0.58**	**Wind**
X2-1	9.6 0.0	55 18	9.1 0.0	14.0 42.0	22.0 69.0	19.8 16.7	12.0 12.0	10.0 10.0	14.0 42.0	0.0 5.5	0 2.57	0 2.37	0.06 0.06	= =	**7.56**	**4.74**	**Wind**
X3-1	0.0	18	0.0	42.0	69.0	16.7	12.0	10.0	42.0	5.5	2.57	2.37	0.06	=	**6.26**	**4.16**	**Wind**
X4-1	9.6	55	9.7	30.0	28.0	17.4	12.0	10.0	30.0	0.0	0	0	0.06	=	**1.65**	**0.93**	**Wind**
X5-1	9.6	55	9.7	30.0	28.0	17.4	12.0	10.0	30.0	0.0	0	0	0.06	=	**1.65**	**0.93**	**Wind**
X6-1	15.0	55	10.7 7.3	1.0	28.0	20.4	12.0	10.0	1.0	0.0	0	0	0.06	=	**0.17**	**0.08**	**Wind**
X7-1	9.6	55	5.9	48.0	38.0	16.5	12.0	16.0	48.0	0.0	0	0	0.06	=	**4.54**	**3.40**	**Wind**
X8-1	9.6	55	5.9	48.0	38.0	16.5	12.0	16.0	48.0	0.0	0	0	0.06	=	**4.54**	**3.40**	**Wind**
Y1-1	9.6	55	11.0	13.5	34.0	20.0	12.0	10.0	13.5	0	0	0	0.06	=	**1.38**	**0.81**	**Wind**
Y2-1	9.6 0.0	55 18	11.0 0.0	13.5 22.0	34.0 52.0	20.0 18.1	12.0 12.0	10.0 10.0	13.5 22.0	0 5.5	0 2.84	0 2.39	0.06 0.06	= =	**6.32**	**3.95**	**Wind**
Y3-1	9.6 9.6	55 55	0.0 0.0	22.0 23.5	52.0 60.0	18.1 17.9	12.0 12.0	10.0 10.0	22.0 23.5	0 0	0 0	0 0	0.06 0.06	= =	**2.05**	**4.34**	**Seismic**
Y4-1	0.0 6.3	18 55	0.0 16.4	23.5 14.0	60.0 40.0	17.9 19.8	12.0 12.0	10.0 10.0	23.5 14.0	5.5 0	2.84 0	2.39 0	0.06 0.06	= =	**6.47**	**4.27**	**Wind**
Y5-1	6.3 6.3	55 55	16.4 9.7	14.0 14.0	40.0 30.0	19.8 19.8	12.0 12.0	10.0 10.0	14.0 14.0	0 0	0 0	0 0	0.06 0.06	= =	**2.54**	**1.74**	**Wind**
	6.3	55	9.7	14.0	30.0	19.8	12.0	10.0	14.0	0	0	0	0.06	=			

Y1-1	9.6	55	11.0	13.5	34.0	20.0	12.0	10.0	13.5	0	0	0	0.06	=	**1.38**	**0.81**	**Wind**
Y2-1	9.6	55	11.0	13.5	34.0	20.0	12.0	10.0	13.5	0	0	0	0.06	=	**6.32**	**3.95**	**Wind**
	0.0	18	0.0	22.0	52.0	18.1	12.0	10.0	22.0	5.5	2.84	2.39	0.06	=			
Y3-1	9.6	55	0.0	22.0	52.0	18.1	12.0	10.0	22.0	0	0	0	0.06	=	**2.05**	**4.34**	**Seismic**
	9.6	55	0.0	23.5	60.0	17.9	12.0	10.0	23.5	0	0	0	0.06	=			
Y4-1	0.0	18	0.0	23.5	60.0	17.9	12.0	10.0	23.5	5.5	2.84	2.39	0.06	=	**6.47**	**4.27**	**Wind**
	6.3	55	16.4	14.0	40.0	19.8	12.0	10.0	14.0	0	0	0	0.06	=			
Y5-1	6.3	55	16.4	14.0	40.0	19.8	12.0	10.0	14.0	0	0	0	0.06	=	**2.54**	**1.74**	**Wind**
	6.3	55	9.7	14.0	30.0	19.8	12.0	10.0	14.0	0	0	0	0.06	=			
Y6-1	6.3	55	9.7	14.0	30.0	19.8	12.0	10.0	14.0	0	0	0	0.06	=	**3.15**	**3.36**	**Seismic**
	9.6	55	7.3	25.7	60.0	17.7	12.0	10.0	25.7	0	0	0	0.06	=			
Y7-1	9.6	55	7.3	14.7	60.0	19.6	12.0	10.0	14.7	0	0	0	0.06	=	**4.88**	**4.66**	**Wind**
	9.6	55	5.9	38.0	46.0	16.9	12.0	16.0	38.0	0	0	0	0.06	=			
Y8-1	9.6	55	5.9	38.0	46.0	16.9	12.0	16.0	38.0	0	0	0	0.06	=	**3.65**	**3.17**	**Wind**

SHEAR WALL CALCULATIONS:

		X1-2	X2-2	Y1-2	Y1-2	Y2-2	
Shear Wall Forces							
Number of Panels		1	1	2	1	1	
Total length of wall		40.00 ft	40.00 ft	36.00 ft	36.00 ft	31.38 ft	
Total length of shear wall	L =	28.67 ft	17.71 ft	6.00 ft	4.10 ft	31.38 ft	
Total length of full ht seg.	L_w =	11.88 ft	8.17 ft	6.00 ft	4.10 ft	27.37 ft	
height of shear wall	H =	9.00 ft	9.00 ft	9.00 ft	9.00 ft	9.00 ft	
Maximum opening height	H' =	4.00 ft	3.50 ft	0.00 ft	0.00 ft	6.67 ft	
Total force at top of wall	V_1 =	2566 lbs	2566 lbs	1059 lbs	724 lbs	2842 lbs	
Self weight	$w_{DL\ self}$ =	108 plf	108 plf	108 plf	108 plf	108 plf	
Applied dead load	$w_{DL\ above}$ =	40 plf	269 plf	141 plf	141 plf	40 plf	
Prefered OSB thickness	in	7/16	7/16	7/16	7/16	7/16	
Prefered Gyp thickness	in	1/2	1/2	1/2	1/2	1/2	
Wall Connected to Concrete	y/n =	N	N	N	N	N	
Shear Wall Segments							
		4.00	4.08	6.00	4.10	9.54	
		4.00	4.08			11.00	
		3.88				6.83	
Shear Transfer to Concrete							
	T =	Not Req'd	Not Req'd	1141 lbs	1283 lbs	Not Req'd	
Provide:							
Min # of 1/2 Anchor Bolts							
Load From Above		0.00	0.00	0.00	0.00	0.00	
				S1	**S2**		
Shear Resisting System							
Force Calculated		258.23	342.30	176.53	176.53	120.02	
		OSB	**OSB**	**OSB**	**OSB**	**OSB**	
Min Shear Wall Segment:		2.57 ft	2.57 ft	2.57 ft	2.57 ft	2.57 ft	
Provide:	Va=	**SW1**	**SW1**	**SW1**	**SW1**	**SW1**	
Min Shear Wall Segment:							
Provide:	Va=						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		64 plf	64 plf	59 plf	20 plf	91 plf	
Blocking		**NONE**	**NONE**	**NONE**	**NONE**	**NONE**	
Nailing		**See SCHED**	**See SCHED**	**See SCHED**	**See SCHED**	**See SCHED**	
Unit Base Shear							
% of full height segments	%fh = L_w/L =	0.414	0.461	1.000	1.000	0.872	
% of maximum opening height	%oh = H'/H =	0.444	0.389	0.000	0.000	0.741	
Shear cap adj factor	SCAF =	0.84	0.92	1.00	1.00	0.87	
Unit base shear	vbase V_1/L_w =	216 plf	314 plf	177 plf	177 plf	104 plf	
Effective unit base shear	$v_{req}=v_{base}$/SCAF=	258 plf	342 plf	177 plf	177 plf	120 plf	
Ovrtrn. mo. Ttl. length of wall	OTM =	27.6 k-ft	25.2 k-ft	9.5 k-ft	6.5 k-ft	29.6 k-ft	
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	60.7 k-ft	59.2 k-ft	4.5 k-ft	2.1 k-ft	72.7 k-ft	
	r=	0.6140	0.6876	1.0000	1.0000	0.9023	
	C_O=	0.8366	0.9176	1.0000	1.0000	0.8651	

SHEAR WALL CALCULATIONS:

		X1-1	X2-1	X2-1	X3-1	X4-1	X5-1
Shear Wall Forces							
Number of Panels		1	2	1	1	1	1
Total length of wall		22.00 ft	69.00 ft	69.00 ft	57.00 ft	28.00 ft	29.00 ft
Total length of shear wall	L =	22.00 ft	2.42 ft	21.00 ft	57.00 ft	2.00 ft	23.38 ft
Total length of full ht seg.	L_w =	6.24 ft	2.42 ft	14.52 ft	20.92 ft	2.00 ft	12.80 ft
height of shear wall	H =	8.00 ft	9.00 ft	10.00 ft	10.00 ft	9.00 ft	10.00 ft
Maximum opening height	H' =	6.50 ft	0.00 ft	8.00 ft	10.00 ft	0.00 ft	10.00 ft
Total force at top of wall	V_1 =	1304 lbs	1711 lbs	4139 lbs	6257 lbs	1646 lbs	1646 lbs
Self weight	$w_{DL\ self}$ =	96 plf	108 plf	120 plf	120 plf	108 plf	120 plf
Applied dead load	$w_{DL\ above}$ =	40 plf	40 plf	281 plf	40 plf	40 plf	116 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							
		3.12	2.42	6.23	3.21	2.00	3.17
		3.12		3.75	3.46		3.25
				4.54	3.21		2.88
					3.29		3.50
					3.88		
					3.88		
Shear Transfer to Concrete							
	T =	233 lbs	3500 lbs	426 lbs	Not Req'd	3500 lbs	Not Req'd
1/2 Anchor Bolts @		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		(2) Min		(4) Min	(7) Min		(2) Min
Load From Above		0.00	0.00	0.00	0.00	0.00	0.00
Holdown		**Perp. Wall**	**HD3**	**Perp. Wall**		**HD3**	
Shear Resisting System							
Force Calculated		424.11	706.83	408.25	677.70	823.03	245.11
		OSB	**P.F.**	**OSB**	**OSB**	**P.F.**	**OSB**
Min Shear Wall Segment:		2.29 ft	1.33 ft	2.86 ft	2.86 ft	1.33 ft	2.86 ft
Provide:	Va=	**SW2**	**2539**	**SW2**	**SW3**	**2254**	**SW1**
Min Shear Wall Segment:							
Provide:	Va=						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		59 plf	50 plf	60 plf	110 plf	59 plf	57 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 =	0.284	1.000	0.691	0.367	1.000	0.547
% of maximum opening height	%oh = H'/H =	0.813	0.000	0.800	1.000	0.000	1.000
Shear cap adj factor	SCAF =	0.49	1.00	0.70	0.44	1.00	0.52
Unit base shear	vbase V_1/L_w =	209 plf	707 plf	285 plf	299 plf	823 plf	129 plf
Effective unit base shear	vreq=v_{base}/SCAF=	424 plf	707 plf	408 plf	678 plf	823 plf	245 plf
Ovrtrn. mo. Ttl. length of wall	OTM =	21.2 k-ft	15.4 k-ft	59.3 k-ft	141.8 k-ft	14.8 k-ft	31.4 k-ft
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	32.9 k-ft	0.4 k-ft	88.5 k-ft	259.6 k-ft	0.3 k-ft	64.6 k-ft
	r=	0.3276	1.0000	0.7369	0.3670	1.0000	0.5474
	C_O=	0.4927	1.0000	0.6983	0.4413	1.0000	0.5249

SHEAR WALL CALCULATIONS:

		Y1-1	Y2-1	Y2-1	Y3-1	Y3-1	Y4-1
Shear Wall Forces							
Number of Panels		1	1	1	1	1	1
Total length of wall		34.00 ft	52.00 ft	52.00 ft	55.83 ft	55.83 ft	40.00 ft
Total length of shear wall	L =	29.96 ft	7.00 ft	4.00 ft	8.00 ft	7.67 ft	40.00 ft
Total length of full ht seg.	L_w =	12.00 ft	7.00 ft	4.00 ft	8.00 ft	7.67 ft	28.58 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' =	10.00 ft	0.00 ft	0.00 ft	0.00 ft	0.00 ft	10.00 ft
Total force at top of wall	V_1 =	1384 lbs	4022 lbs	2299 lbs	2215 lbs	2123 lbs	6475 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	210 plf	40 plf	210 plf	108 plf	70 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							
		4.00	7.00	4.00	8.00	7.67	3.17
		4.00					4.17
		4.00					5.08
							12.17
							4.00
Shear Transfer to Concrete							
	T =	Not Req'd	5054 lbs	6696 lbs	1977 lbs	2244 lbs	371 lbs
1/2 Anchor Bolts @		72 '' O.C.	24 '' O.C.	24 '' O.C.	48 '' O.C.	36 '' O.C.	72 '' O.C.
Provide:		Code Min.	A2	A2	A4	A3	Code Min.
Min # of 1/2 Anchor Bolts		(2) Min	(4) Min	(3) Min	(3) Min	(3) Min	(7) Min
Load From Above		0.00	0.00	1141.00	0.00	0.00	0.00
			HD3	**HD4**	**HD1**	**HD2**	**Perp. Wall**
Shear Resisting System							
Force Calculated		253.57	574.64	574.64	276.84	276.84	355.82
		OSB	**OSB**	**OSB**	**OSB**	**OSB**	**OSB**
Min Shear Wall Segment:		2.86 ft	2.86 ft	2.86 ft	2.86 ft	2.86 ft	2.86 ft
Provide:	Va=	**SW1**	**SW3**	**SW3**	**SW1**	**SW1**	**SW1**
Min Shear Wall Segment:							
Provide:	Va=						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		41 plf	77 plf	44 plf	40 plf	38 plf	162 plf
Blocking		**NONE**	**NONE**	**NONE**	**NONE**	**NONE**	**NONE**
Nailing		**See SCHED**	**See SCHED**	**See SCHED**	**See SCHED**	**See SCHED**	**T1**
Unit Base Shear							
% of full height segments	%fh = L_w/L =	0.401	1.000	1.000	1.000	1.000	0.715
% of maximum opening height	%oh = H'/H =	1.000	0.000	0.000	0.000	0.000	1.000
Shear cap adj factor	SCAF =	0.45	1.00	1.00	1.00	1.00	0.64
Unit base shear	vbase V_1/L_w =	115 plf	575 plf	575 plf	277 plf	277 plf	227 plf
Effective unit base shear	$v_{req}=v_{base}$/SCAF=	254 plf	575 plf	575 plf	277 plf	277 plf	356 plf
Ovrtrn. mo. Ttl. length of wall	OTM =	30.4 k-ft	40.2 k-ft	23.0 k-ft	22.1 k-ft	21.2 k-ft	101.7 k-ft
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	71.7 k-ft	8.1 k-ft	1.3 k-ft	10.6 k-ft	6.7 k-ft	151.8 k-ft
	r=	0.4005	1.0000	1.0000	1.0000	1.0000	0.7146
	C_O=	0.4548	1.0000	1.0000	1.0000	1.0000	0.6366

SHEAR WALL CALCULATIONS:

		Y5-1	Y5-1	Y6-1	X6-1	X7-1	X8-1
Shear Wall Forces							
Number of Panels		1	1	1	1	1	1
Total length of wall		44.00 ft	44.00 ft	30.00 ft	11.92 ft	38.00 ft	32.00 ft
Total length of shear wall	L =	7.46 ft	4.00 ft	30.00 ft	11.92 ft	33.71 ft	3.17 ft
Total length of full ht seg.	L_w =	7.46 ft	4.00 ft	12.00 ft	8.75 ft	21.27 ft	3.17 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	0.00 ft	2.50 ft	4.00 ft	10.00 ft	0.00 ft
Total force at top of wall	V_1 =	1651 lbs	885 lbs	3359 lbs	170 lbs	4537 lbs	1091 lbs
Self weight	$w_{DL\ self}$ =	120 plf	120 plf	120 plf	120 plf	120 plf	120 plf
Applied dead load	$w_{DL\ above}$ =	52 plf	40 plf	40 plf	116 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 =	Y	Y	Y	Y	Y	Y
Shear Wall Segments							
		7.46	4.00	4.00	4.42	4.54	3.17
				4.00	4.33	4.73	
				4.00		3.00	
						3.00	
						6.00	
Shear Transfer to Concrete							
	T =	1828 lbs	2021 lbs	Not Req'd	Not Req'd	1146 lbs	3294 lbs
1/2 Anchor Bolts @		72 '' O.C.	48 '' O.C.	72 '' O.C.	72 '' O.C.	72 '' O.C.	36 '' O.C.
Provide:		Code Min.	A4	Code Min.	Code Min.	Code Min.	A3
Min # of 1/2 Anchor Bolts		(2) Min	(2) Min	(4) Min	(2) Min	(5) Min	(2) Min
Load From Above		0.00	0.00	0.00	0.00	0.00	0.00
Holdown		**HD1**	**HD1**			**HD1**	**HD3**
Shear Resisting System							
Force Calculated		221.28	221.28	279.91	20.45	370.70	344.54
		OSB	**OSB**	**OSB**	**OSB**	**OSB**	**OSB**
Min Shear Wall Segment:		2.86 ft	2.86 ft	2.86 ft	2.86 ft	2.86 ft	2.86 ft
Provide:	Va=	**SW1**	**SW1**	**SW1**	**SW1**	**SW2**	**SW1**
Min Shear Wall Segment:							
Provide:	Va=						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		38 plf	20 plf	112 plf	14 plf	119 plf	34 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 =	1.000	1.000	0.400	0.734	0.631	1.000
% of maximum opening height	%oh = H'/H =	0.000	0.000	0.250	0.400	1.000	0.000
Shear cap adj factor	SCAF =	1.00	1.00	1.00	0.95	0.58	1.00
Unit base shear	vbase V_1/L_w =	221 plf	221 plf	280 plf	19 plf	213 plf	345 plf
Effective unit base shear	vreq=v_{base}/SCAF=	221 plf	221 plf	280 plf	20 plf	371 plf	345 plf
Ovrtrn. mo. Ttl. length of wall	OTM =	16.5 k-ft	8.9 k-ft	33.6 k-ft	1.8 k-ft	78.8 k-ft	10.9 k-ft
Shear wall adjustment factor							
Resist moment total L. of wall	RM =	4.8 k-ft	1.3 k-ft	71.9 k-ft	16.8 k-ft	90.8 k-ft	0.8 k-ft
	r=	1.0000	1.0000	0.7273	0.8736	0.6310	1.0000
	C_O=	1.0000	1.0000	1.1765	0.9495	0.5754	1.0000

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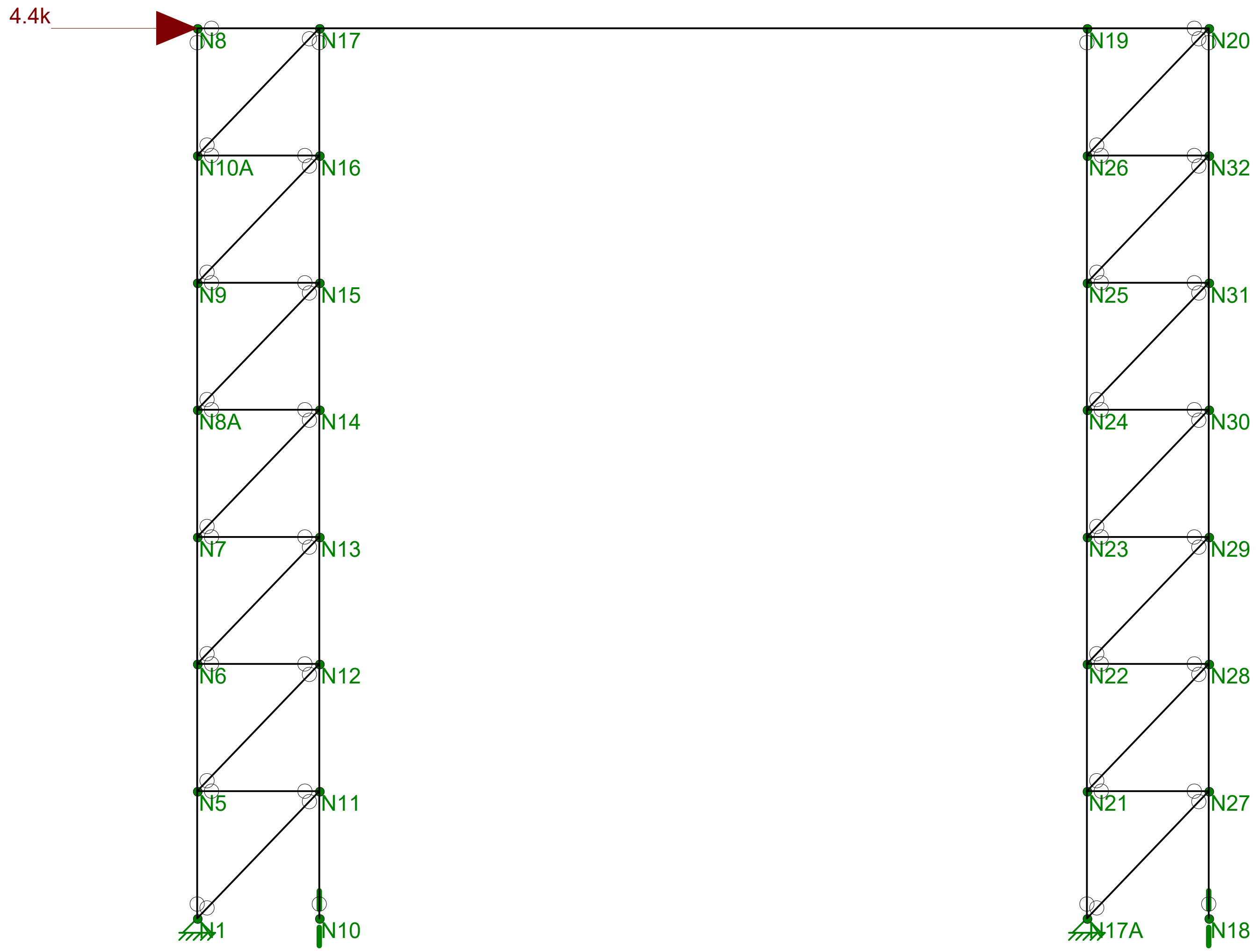
SHEAR WALL CALCULATIONS:

		X8-1	Y7-1	Y8-1	Y8-1		
Shear Wall Forces							
Number of Panels		1	1	1	1		
Total length of wall		32.00 ft	43.00 ft	48.00 ft	48.00 ft		
Total length of shear wall	L =	16.00 ft	43.00 ft	6.00 ft	26.00 ft		
Total length of full ht seg.	L_w =	4.00 ft	21.71 ft	6.00 ft	18.33 ft		
height of shear wall	H =	16.00 ft	10.00 ft	16.00 ft	10.00 ft		
Maximum opening height	H' =	14.00 ft	8.00 ft	0.00 ft	4.00 ft		
Total force at top of wall	V_1 =	3445 lbs	4877 lbs	899 lbs	2746 lbs		
Self weight	$w_{DL\ self}$ =	192 plf	120 plf	192 plf	120 plf		
Applied dead load	$w_{DL\ above}$ =	40 plf	40 plf	159 plf	40 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							
		2.00	5.54	6.00	5.17		
		2.00	8.17		4.00		
			4.17		4.00		
			3.83		5.17		
Shear Transfer to Concrete							
	T =	3500 lbs	Not Req'd	1765 lbs	Not Req'd		
			72 '' O.C.	72 '' O.C.	72 '' O.C.		
Provide:			Code Min.	Code Min.	Code Min.		
Min # of 1/2 Anchor Bolts			(5) Min	(2) Min	(3) Min		
Load From Above		0.00	0.00	0.00	0.00		
Holdown		**HD3**		**HD1**			
Shear Resisting System							
Force Calculated		861.34	380.41	149.80	158.64		
		B.F.	**OSB**	**OSB**	**OSB**		
Min Shear Wall Segment:		1.33 ft	2.86 ft	4.57 ft	2.86 ft		
Provide:	Va=	**4400**	**SW2**	**SW1**	**SW1**		
Min Shear Wall Segment:							
Provide:	Va=						
Blocking / Nailing Framing Attachment							
Blocking Unit Shear		108 plf	113 plf	19 plf	57 plf		
Blocking		**NONE**	**NONE**	**NONE**	**NONE**		
Nailing		**See SCHED**	**See SCHED**	**See SCHED**	**See SCHED**		
Unit Base Shear							
% of full height segments	%fh = L_w/L =	0.250	0.505	1.000	0.705		
% of maximum opening height	%oh = H'/H =	0.875	0.800	0.000	0.400		
Shear cap adj factor	SCAF =	0.45	0.59	1.00	0.94		
Unit base shear	vbase V_1/L_w =	861 plf	225 plf	150 plf	150 plf		
Effective unit base shear	vreq=v_{base}/SCAF=	1911 plf	380 plf	150 plf	159 plf		
Ovrtrn. mo. of shrt. pnl	OTM =	27.6 k-ft	82.6 k-ft	14.4 k-ft	29.1 k-ft		
Shear wall adjustment factor							
Resist moment of shrt panel	RM =	0.5 k-ft	147.7 k-ft	6.3 k-ft	54.0 k-ft		
	r=	0.2759	0.5603	1.0000	0.8567		
	C_O=	0.4507	0.5906	1.0000	0.9443		



Loads: BLC 1, Wind Load
Envelope Only Solution

Wood Section Sets

	Label	Shape	Type	Design List	Material	Design Rules	A [in2]	I (90,270) ...	I (0,180) [i...
1	Chord	4.5X5.5FS	Column	Rectangular	DF/L #2	Typical	24.75	41.766	62.391
2	Web	2X6	Beam	None	DF/L #2	Typical	8.25	1.547	20.797
3	Beam	4X12	Beam	None	24F-1.8E DF Balanced	Typical	39.375	40.195	415.283

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Temp [F]
1	N1	0	0	0
2	N8	0	14	0
3	N10	1.92	0	0
4	N17	1.92	14	0
5	N5	0	2	0
6	N6	0	4	0
7	N7	0	6	0
8	N8A	0	8	0
9	N9	0	10	0
10	N10A	0	12	0
11	N11	1.92	2	0
12	N12	1.92	4	0
13	N13	1.92	6	0
14	N14	1.92	8	0
15	N15	1.92	10	0
16	N16	1.92	12	0
17	N17A	14	0	0
18	N18	15.92	0	0
19	N19	14	14	0
20	N20	15.92	14	0
21	N21	14	2	0
22	N22	14	4	0
23	N23	14	6	0
24	N24	14	8	0
25	N25	14	10	0
26	N26	14	12	0
27	N27	15.92	2	0
28	N28	15.92	4	0
29	N29	15.92	6	0
30	N30	15.92	8	0
31	N31	15.92	10	0
32	N32	15.92	12	0

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Rotation[k-ft/rad]
1	N1	Reaction	Reaction	
2	N18		Reaction	
3	N10		Reaction	
4	N17A	Reaction	Reaction	

Wood Design Parameters

	Label	Shape	Length[...	Le-out[ft]	Le-in[ft]	le-bend to...	le-bend bo...	K-out	K-in	CV	Cr	Out sw...	In sway
1	M1	Chord	14	2	2	Lb out							
2	M2	Chord	14	2	2								
3	M4	Web	2.772			Lb out							
4	M5	Web	1.92			Lb out							
5	M6	Web	2.772			Lb out							
6	M7	Web	1.92			Lb out							
7	M8	Web	2.772			Lb out							
8	M9	Web	1.92			Lb out							
9	M10	Web	2.772			Lb out							
10	M11	Web	1.92			Lb out							
11	M12	Web	2.772			Lb out							
12	M13	Web	1.92			Lb out							
13	M14	Web	2.772			Lb out							
14	M15	Web	1.92			Lb out							
15	M16	Web	2.772			Lb out							
16	M17	Chord	14	2	2								
17	M18	Chord	14	2	2								
18	M19	Web	2.772			Lb out							
19	M20	Web	1.92			Lb out							
20	M21	Web	2.772			Lb out							
21	M22	Web	1.92			Lb out							
22	M23	Web	2.772			Lb out							
23	M24	Web	1.92			Lb out							
24	M25	Web	2.772			Lb out							
25	M26	Web	1.92			Lb out							
26	M27	Web	2.772			Lb out							
27	M28	Web	1.92			Lb out							
28	M29	Web	2.772			Lb out							
29	M30	Web	1.92			Lb out							
30	M31	Web	2.772			Lb out							
31	M31A	Beam	15.92	0	0	Lb out							

Joint Loads and Enforced Displacements (BLC 1 : Wind Load)

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N8	L	X	4.4

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Joint	Point	Distributed
1	Wind Load	WL			1		
2	Dead Load	DL					1

Envelope Maximum Member Section Forces

	Member		Axial[k]	Loc[ft]	LC	Shear[k]	Loc[ft]	LC	Moment[k-ft]	Loc[ft]	LC
1	M1	max	1.391	12.104	17	.031	2.042	17	.143	2.042	17
2		min	-6.633	0	17	-.072	0	17	-.026	11.958	17

Envelope Maximum Member Section Forces (Continued)

	Member		Axial[k]	Loc[ft]	LC	Shear[k]	Loc[ft]	LC	Moment[k-ft]	Loc[ft]	LC
4		min	-.265	12.104	17	-.065	2.042	9	-.016	1.896	9
5	M4	max	.107	0	16	0	0	1	0	0	1
6		min	-1.891	0	17	0	0	1	0	0	1
7	M5	max	1.27	0	17	0	0	1	0	0	1
8		min	-.068	0	1	0	0	1	0	0	1
9	M6	max	.091	0	16	0	0	1	0	0	1
10		min	-1.815	0	17	0	0	1	0	0	1
11	M7	max	1.273	0	17	0	0	1	0	0	1
12		min	-.065	0	1	0	0	1	0	0	1
13	M8	max	.094	0	16	0	0	1	0	0	1
14		min	-1.837	0	17	0	0	1	0	0	1
15	M9	max	1.268	0	17	0	0	1	0	0	1
16		min	-.065	0	1	0	0	1	0	0	1
17	M10	max	.094	0	16	0	0	1	0	0	1
18		min	-1.835	0	17	0	0	1	0	0	1
19	M11	max	1.28	0	17	0	0	1	0	0	1
20		min	-.065	0	1	0	0	1	0	0	1
21	M12	max	.094	0	16	0	0	1	0	0	1
22		min	-1.829	0	17	0	0	1	0	0	1
23	M13	max	1.242	0	17	0	0	1	0	0	1
24		min	-.065	0	1	0	0	1	0	0	1
25	M14	max	.094	0	16	0	0	1	0	0	1
26		min	-1.918	0	17	0	0	1	0	0	1
27	M15	max	1.434	0	17	0	0	1	0	0	1
28		min	-.066	0	1	0	0	1	0	0	1
29	M16	max	.096	0	16	0	0	1	0	0	1
30		min	-1.967	0	17	0	0	1	0	0	1
31	M17	max	2.598	12.104	9	.033	10.063	9	.14	2.042	9
32		min	-5.997	0	17	-.071	0	9	-.046	11.958	9
33	M18	max	8.303	0	9	.024	4.083	9	.107	4.083	17
34		min	-.251	12.104	9	-.063	2.042	9	-.017	1.896	9
35	M19	max	-.058	0	18	0	0	1	0	0	1
36		min	-2.076	0	9	0	0	1	0	0	1
37	M20	max	1.509	0	9	0	0	1	0	0	1
38		min	.04	0	18	0	0	1	0	0	1
39	M21	max	-.056	0	18	0	0	1	0	0	1
40		min	-2.029	0	9	0	0	1	0	0	1
41	M22	max	1.319	0	9	0	0	1	0	0	1
42		min	.039	0	18	0	0	1	0	0	1
43	M23	max	-.056	0	18	0	0	1	0	0	1
44		min	-1.94	0	9	0	0	1	0	0	1
45	M24	max	1.357	0	9	0	0	1	0	0	1
46		min	.039	0	18	0	0	1	0	0	1
47	M25	max	-.056	0	18	0	0	1	0	0	1
48		min	-1.946	0	9	0	0	1	0	0	1
49	M26	max	1.345	0	9	0	0	1	0	0	1
50		min	.039	0	18	0	0	1	0	0	1
51	M27	max	-.057	0	18	0	0	1	0	0	1
52		min	-1.95	0	9	0	0	1	0	0	1
53	M28	max	1.352	0	9	0	0	1	0	0	1
54		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Envelope Maximum Member Section Forces (Continued)

	Member		Axial[k]	Loc[ft]	LC	Shear[k]	Loc[ft]	LC	Moment[k-ft]	Loc[ft]	LC
56		min	-1.918	0	9	0	0	1	0	0	1
57	M30	max	1.348	0	9	0	0	1	0	0	1
58		min	.041	0	18	0	0	1	0	0	1
59	M31	max	-.064	0	18	0	0	1	0	0	1
60		min	-2.027	0	9	0	0	1	0	0	1
61	M31A	max	2.656	0	17	1.807	14.096	9	3.329	13.93	9
62		min	-.004	0	1	-.785	13.93	9	-2.6	1.99	17

Envelope Member End Reactions

	Member	Membe...		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
1	M1	I	max	.204	16	0	1	0	1
2			min	-6.633	17	-.072	17	0	1
3		J	max	1.391	17	.004	1	0	1
4			min	-.211	1	-.013	17	0	1
5	M2	I	max	7.869	9	.008	9	0	1
6			min	.08	18	0	1	0	1
7		J	max	.54	16	.003	1	0	1
8			min	-.265	17	-.002	17	0	1
9	M4	I	max	.107	16	0	1	0	1
10			min	-1.891	17	0	1	0	1
11		J	max	.107	16	0	1	0	1
12			min	-1.891	17	0	1	0	1
13	M5	I	max	1.27	17	0	1	0	1
14			min	-.068	1	0	1	0	1
15		J	max	1.27	17	0	1	0	1
16			min	-.068	1	0	1	0	1
17	M6	I	max	.091	16	0	1	0	1
18			min	-1.815	17	0	1	0	1
19		J	max	.091	16	0	1	0	1
20			min	-1.815	17	0	1	0	1
21	M7	I	max	1.273	17	0	1	0	1
22			min	-.065	1	0	1	0	1
23		J	max	1.273	17	0	1	0	1
24			min	-.065	1	0	1	0	1
25	M8	I	max	.094	16	0	1	0	1
26			min	-1.837	17	0	1	0	1
27		J	max	.094	16	0	1	0	1
28			min	-1.837	17	0	1	0	1
29	M9	I	max	1.268	17	0	1	0	1
30			min	-.065	1	0	1	0	1
31		J	max	1.268	17	0	1	0	1
32			min	-.065	1	0	1	0	1
33	M10	I	max	.094	16	0	1	0	1
34			min	-1.835	17	0	1	0	1
35		J	max	.094	16	0	1	0	1
36			min	-1.835	17	0	1	0	1
37	M11	I	max	1.28	17	0	1	0	1
38			min	-.065	1	0	1	0	1
39		J	max	1.28	17	0	1	0	1

Envelope Member End Reactions (Continued)

	Member	Membe...		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
41	M12	I	max	.094	16	0	1	0	1
42			min	-1.829	17	0	1	0	1
43		J	max	.094	16	0	1	0	1
44			min	-1.829	17	0	1	0	1
45	M13	I	max	1.242	17	0	1	0	1
46			min	-.065	1	0	1	0	1
47		J	max	1.242	17	0	1	0	1
48			min	-.065	1	0	1	0	1
49	M14	I	max	.094	16	0	1	0	1
50			min	-1.918	17	0	1	0	1
51		J	max	.094	16	0	1	0	1
52			min	-1.918	17	0	1	0	1
53	M15	I	max	1.434	17	0	1	0	1
54			min	-.066	1	0	1	0	1
55		J	max	1.434	17	0	1	0	1
56			min	-.066	1	0	1	0	1
57	M16	I	max	.096	16	0	1	0	1
58			min	-1.967	17	0	1	0	1
59		J	max	.096	16	0	1	0	1
60			min	-1.967	17	0	1	0	1
61	M17	I	max	.198	16	0	18	0	1
62			min	-5.997	17	-.071	9	0	1
63		J	max	2.598	9	-.003	18	0	1
64			min	.368	18	-.024	9	0	1
65	M18	I	max	8.303	9	.009	9	0	1
66			min	.166	18	0	18	0	1
67		J	max	-.078	18	-.002	18	0	1
68			min	-.251	9	-.007	9	0	1
69	M19	I	max	-.058	18	0	1	0	1
70			min	-2.076	9	0	1	0	1
71		J	max	-.058	18	0	1	0	1
72			min	-2.076	9	0	1	0	1
73	M20	I	max	1.509	9	0	1	0	1
74			min	.04	18	0	1	0	1
75		J	max	1.509	9	0	1	0	1
76			min	.04	18	0	1	0	1
77	M21	I	max	-.056	18	0	1	0	1
78			min	-2.029	9	0	1	0	1
79		J	max	-.056	18	0	1	0	1
80			min	-2.029	9	0	1	0	1
81	M22	I	max	1.319	9	0	1	0	1
82			min	.039	18	0	1	0	1
83		J	max	1.319	9	0	1	0	1
84			min	.039	18	0	1	0	1
85	M23	I	max	-.056	18	0	1	0	1
86			min	-1.94	9	0	1	0	1
87		J	max	-.056	18	0	1	0	1
88			min	-1.94	9	0	1	0	1
89	M24	I	max	1.357	9	0	1	0	1
90			min	.039	18	0	1	0	1

Envelope Member End Reactions (Continued)

	Member	Membe...		Axial[k]	LC	Shear[k]	LC	Moment[k-ft]	LC
93	M25	I	max	-.056	18	0	1	0	1
94			min	-1.946	9	0	1	0	1
95		J	max	-.056	18	0	1	0	1
96			min	-1.946	9	0	1	0	1
97	M26	I	max	1.345	9	0	1	0	1
98			min	.039	18	0	1	0	1
99		J	max	1.345	9	0	1	0	1
100			min	.039	18	0	1	0	1
101	M27	I	max	-.057	18	0	1	0	1
102			min	-1.95	9	0	1	0	1
103		J	max	-.057	18	0	1	0	1
104			min	-1.95	9	0	1	0	1
105	M28	I	max	1.352	9	0	1	0	1
106			min	.039	18	0	1	0	1
107		J	max	1.352	9	0	1	0	1
108			min	.039	18	0	1	0	1
109	M29	I	max	-.055	18	0	1	0	1
110			min	-1.918	9	0	1	0	1
111		J	max	-.055	18	0	1	0	1
112			min	-1.918	9	0	1	0	1
113	M30	I	max	1.348	9	0	1	0	1
114			min	.041	18	0	1	0	1
115		J	max	1.348	9	0	1	0	1
116			min	.041	18	0	1	0	1
117	M31	I	max	-.064	18	0	1	0	1
118			min	-2.027	9	0	1	0	1
119		J	max	-.064	18	0	1	0	1
120			min	-2.027	9	0	1	0	1
121	M31A	I	max	2.656	17	1.395	17	0	1
122			min	-.004	1	-.211	1	0	1
123		J	max	1.4	9	1.714	9	0	1
124			min	.042	18	.125	18	0	1

Envelope Wood Code Checks

	Member	Shape	Code Check	Loc[...	LC	Shear...	Loc[...	LC	Fc' [k...	Ft' [ksi]	Fb' [k...	Fv' [k...	RB	CL	CP	Eqn
1	M1	4.5X5....	.415	1.896	17	.016	0	17	1.101	.756	1.194	.272	6.755	.995	.983	3.9-1
2	M2	4.5X5....	.289	0	9	.014	2.042	9	1.101	.756	1.194	.272	6.755	.995	.983	3.6.3
3	M4	2X6	.194	0	17	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
4	M5	2X6	.102	0	17	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
5	M6	2X6	.186	0	17	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
6	M7	2X6	.102	0	17	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
7	M8	2X6	.189	0	17	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
8	M9	2X6	.102	0	17	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
9	M10	2X6	.188	0	17	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
10	M11	2X6	.103	0	17	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
11	M12	2X6	.188	0	17	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
12	M13	2X6	.100	0	17	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
13	M14	2X6	.197	0	17	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
14	M15	2X6	.115	0	17	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3

Envelope Wood Code Checks (Continued)

	Member	Shape	Code Check	Loc[...	LC	Shear...	Loc[...	LC	Fc' [k...	Ft' [ksi]	Fb' [k...	Fv' [k...	RB	CL	CP	Eqn
16	M17	4.5X5....	.380	1.896	17	.016	0	9	1.101	.756	1.194	.272	6.755	.995	.983	3.9-1
17	M18	4.5X5....	.305	0	9	.014	2.042	9	1.101	.756	1.194	.272	6.755	.995	.983	3.6.3
18	M19	2X6	.213	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
19	M20	2X6	.121	0	9	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
20	M21	2X6	.208	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
21	M22	2X6	.106	0	9	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
22	M23	2X6	.199	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
23	M24	2X6	.109	0	9	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
24	M25	2X6	.200	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
25	M26	2X6	.108	0	9	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
26	M27	2X6	.200	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
27	M28	2X6	.109	0	9	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
28	M29	2X6	.197	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
29	M30	2X6	.108	0	9	.000	0	18	1.51	1.186	1.856	.288	7.505	.991	.635	3.6.3
30	M31	2X6	.208	0	9	.000	0	18	.875	1.18	1.847	.288	9.018	.987	.368	3.9-1
31	M31A	4X12	.149	13.93	9	.162	14.0...	9	2.56	1.76	3.646	.424	11.97	.95	1	3.9-3

TALL WALL CALCULATIONS:

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

Description:		11.75' Tall Wall	King Stud (10.5' Max Opening)	11.75' Trimmer	11.25' Tall Wall	King Stud (5' Max Opening)	11.25' 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	(1) 2	(1) 2	(1) 2	(1) 2
	Actual width =	1.50 in	3.00 in	1.50 in	1.50 in	1.50 in	1.50 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 =	11.750 ft	11.750 ft	11.750 ft	11.250 ft	11.250 ft	11.250 ft
	w/o Plates	11.500 ft	11.500 ft	11.500 ft	11.000 ft	11.000 ft	11.000 ft
	Stud spacing, s =	16 in	73 in	16 in	16 in	40 in	16 in
	Lat. Pressure, w_{wind} =	16.10 psf	16.10 psf	5.00 psf	16.10 psf	16.10 psf	5.00 psf
	Axial load, P =	521 lbs	50 lbs	2052 lbs	1843 lbs	50 lbs	977 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 =	21.5 plf	98.3 plf	6.7 plf	21.5 plf	54.0 plf	6.7 plf
	Fb	900 psi	900 psi	900 psi	900 psi	900 psi	900 psi
	Fv	180 psi	180 psi	180 psi	180 psi	180 psi	180 psi
	Fc-prll	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi
	Fc-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	0.30	0.30	0.39	0.32	0.32	0.43
	C_H	1.00	1.00	1.00	1.00	1.00	6.00
	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
	Emin	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**	**2153 psi**	**1872 psi**	**1346 psi**
F'_v =	$F'_v C_d C_H$ =	**288 psi**	**288 psi**	**207 psi**	**288 psi**	**288 psi**	**1242 psi**
F^*_c =	$F_c C_d C_F$ =	2376 psi	2376 psi	1708 psi	2376 psi	2376 psi	1708 psi
F_{cE} =	$(K_{cE} E')/(l_e/d)2$ =	762 psi	762 psi	762 psi	833 psi	833 psi	833 psi
F'_c =	$F_c C_d C_F C_p$ =	**703 psi**	**703 psi**	**674 psi**	**761 psi**	**761 psi**	**726 psi**
$F'_{c\,perp}$ =	$F_{c\,perp}$ Cb =	**668 psi**	**668 psi**	**668 psi**	**668 psi**	**668 psi**	**668 psi**
E' =	E =	**1600000 psi**	**1600000 psi**	**1600000 psi**	**1600000 psi**	**1600000 psi**	**1600000 psi**
	F_{bE} =	**2063 psi**	**8253 psi**	**2063 psi**	**2157 psi**	**2157 psi**	**2157 psi**
Slenderness Ratio:		**< 50 OK**	**< 50 OK**	**< 50 OK**	**< 50 OK**	**< 50 OK**	**< 50 OK**
	R_B =	**18**	**9**	**18**	**18**	**18**	**18**
Bending:		**< F'b OK**	**< F'b OK**	**< F'b OK**	**< F'b OK**	**< F'b OK**	**< F'b OK**
M =	$w L^2/8 + P e/12$ =	355 ft-lbs	1624 ft-lbs	110 ft-lbs	325 ft-lbs	817 ft-lbs	101 ft-lbs
f_b =	M/S =	**563 psi**	**1289 psi**	**175 psi**	**515 psi**	**1296 psi**	**160 psi**
	S =	8 in³	15 in³	8 in³	8 in³	8 in³	8 in³
Shear:		**< F'v OK**	**< F'v OK**	**< F'v OK**	**< F'v OK**	**< F'v OK**	**< F'v OK**
V =	w L/2 =	123 lbs	565 lbs	38 lbs	118 lbs	297 lbs	28 lbs
f_v =	1.5 V/A =	**22 psi**	**51 psi**	**7 psi**	**21 psi**	**54 psi**	**5 psi**
	A =	8 in²	17 in²	8 in²	8 in²	8 in²	8 in²
Compression:		**< F'c OK**	**< F'c OK**	**< F'c OK**	**< F'c OK**	**< F'c OK**	**< F'c OK**
f_c =	P/A =	**63 psi**	**3 psi**	**249 psi**	**223 psi**	**6 psi**	**118 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 =	**63 psi**	**3 psi**	**249 psi**	**223 psi**	**6 psi**	**118 psi**
Combined:		**< 1.0 OK**			**< 1.0 OK**		
	(fc/Fc)2 + {fb/[Fb(1-(fc/FcE)]} =	0.29			0.41		
Deflection:		**> 180 OK**	**> 180 OK**	**> 180 OK**	**> 180 OK**	**> 180 OK**	**> 180 OK**
$D = 22.5\ w\ L^4/E'\ I$ =		**0.25 in**	**0.58 in**	**0.08 in**	**0.21 in**	**0.53 in**	**0.07 in**
	I =	21 in^4	42 in^4	21 in^4	21 in^4	21 in^4	21 in^4
	SPAN /	**544**	**238**	**1750**	**621**	**247**	**2000**

TALL WALL CALCULATIONS:

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

Description:	12.5' Tall Wall	King Stud (15.75' Max Opening)	12.5' Trimmer	16' Tall Wall	King Stud (4' Max Opening)	16' 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	(3) 2	(1) 2	(1) 2	(2) 2	(1) 2
Actual width =	1.50 in	4.50 in	1.50 in	1.50 in	3.00 in	1.50 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 =	12.500 ft	12.500 ft	12.500 ft	16.000 ft	16.000 ft	16.000 ft
w/o Plates	12.250 ft	12.250 ft	12.250 ft	15.750 ft	15.750 ft	15.750 ft
Stud spacing, s =	16 in	105 in	16 in	12 in	32 in	12 in
Lat. Pressure, w_{wind} =	16.10 psf	16.10 psf	5.00 psf	16.10 psf	16.10 psf	5.00 psf
Axial load, P =	521 lbs	50 lbs	3077 lbs	1560 lbs	50 lbs	3120 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 =	21.5 plf	140.5 plf	6.7 plf	16.1 plf	43.3 plf	5.0 plf
Fb	900 psi	900 psi	900 psi	900 psi	900 psi	900 psi
Fv	180 psi	180 psi	180 psi	180 psi	180 psi	180 psi
Fc-prll	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi	1,350 psi
Fc-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	0.26	0.26	0.35	0.16	0.16	0.22
C_H	1.00	1.00	1.00	1.00	1.00	6.00
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
Emin	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**	**2153 psi**	**1872 psi**	**1346 psi**
F'_v = $F'_v C_d C_H$ =	**288 psi**	**288 psi**	**207 psi**	**288 psi**	**288 psi**	**1242 psi**
F^*_c = $F_c C_d C_F$ =	2376 psi	2376 psi	1708 psi	2376 psi	2376 psi	1708 psi
F_{cE} = $(K_{cE} E')/(l_e/d)2$ =	672 psi	672 psi	672 psi	406 psi	406 psi	406 psi
F'_c = $F_c C_d C_F C_p$ =	**627 psi**	**627 psi**	**605 psi**	**391 psi**	**391 psi**	**384 psi**
$F'_{c\,perp}$ = $F_{c\,perp}$ Cb =	**668 psi**	**668 psi**	**668 psi**	**668 psi**	**668 psi**	**668 psi**
E' = E =	**1600000 psi**	**1600000 psi**	**1600000 psi**	**1600000 psi**	**1600000 psi**	**1600000 psi**
F_{bE} =	**1937 psi**	**17432 psi**	**1937 psi**	**1506 psi**	**6026 psi**	**1506 psi**
Slenderness Ratio:	**≤ 50 OK**	**≤ 50 OK**	**≤ 50 OK**	**≤ 50 OK**	**≤ 50 OK**	**≤ 50 OK**
R_B =	**19**	**6**	**19**	**21**	**11**	**21**
Bending:	**≤ F'b OK**	**≤ F'b OK**	**≤ F'b OK**	**≤ F'b OK**	**≤ F'b OK**	**≤ F'b OK**
M = $w L^2/8 + P e/12$ =	403 ft-lbs	2636 ft-lbs	125 ft-lbs	499 ft-lbs	1341 ft-lbs	155 ft-lbs
f_b = M/S =	**639 psi**	**1394 psi**	**198 psi**	**792 psi**	**1064 psi**	**246 psi**
S =	8 in³	23 in³	8 in³	8 in³	15 in³	8 in³
Shear:	**≤ F'v OK**	**≤ F'v OK**	**≤ F'v OK**	**≤ F'v OK**	**≤ F'v OK**	**≤ F'v OK**
V = w L/2 =	131 lbs	861 lbs	41 lbs	127 lbs	341 lbs	39 lbs
f_v = 1.5 V/A =	**24 psi**	**52 psi**	**7 psi**	**23 psi**	**31 psi**	**7 psi**
A =	8 in²	25 in²	8 in²	8 in²	17 in²	8 in²
Compression:	**≤ F'c OK**	**≤ F'c OK**	**≤ F'c OK**	**≤ F'c OK**	**≤ F'c OK**	**≤ F'c OK**
f_c = P/A =	**63 psi**	**2 psi**	**373 psi**	**189 psi**	**3 psi**	**378 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 =	**63 psi**	**2 psi**	**373 psi**	**189 psi**	**3 psi**	**378 psi**
Combined:	**≤ 1.0 OK**			**≤ 1.0 OK**		
(fc/Fc)2 + {fb/[Fb(1-(fc/FcE)]} =	0.34			0.92		
Deflection:	**≥ 180 OK**	**≥ 180 OK**	**≥ 180 OK**	**≥ 180 OK**	**≥ 180 OK**	**≥ 180 OK**
D = $22.5\, w L^4/E' I$ =	**0.33 in**	**0.71 in**	**0.10 in**	**0.67 in**	**0.90 in**	**0.21 in**
I =	21 in^4	62 in^4	21 in^4	21 in^4	42 in^4	21 in^4
SPAN /	**450**	**206**	**1448**	**282**	**210**	**908**

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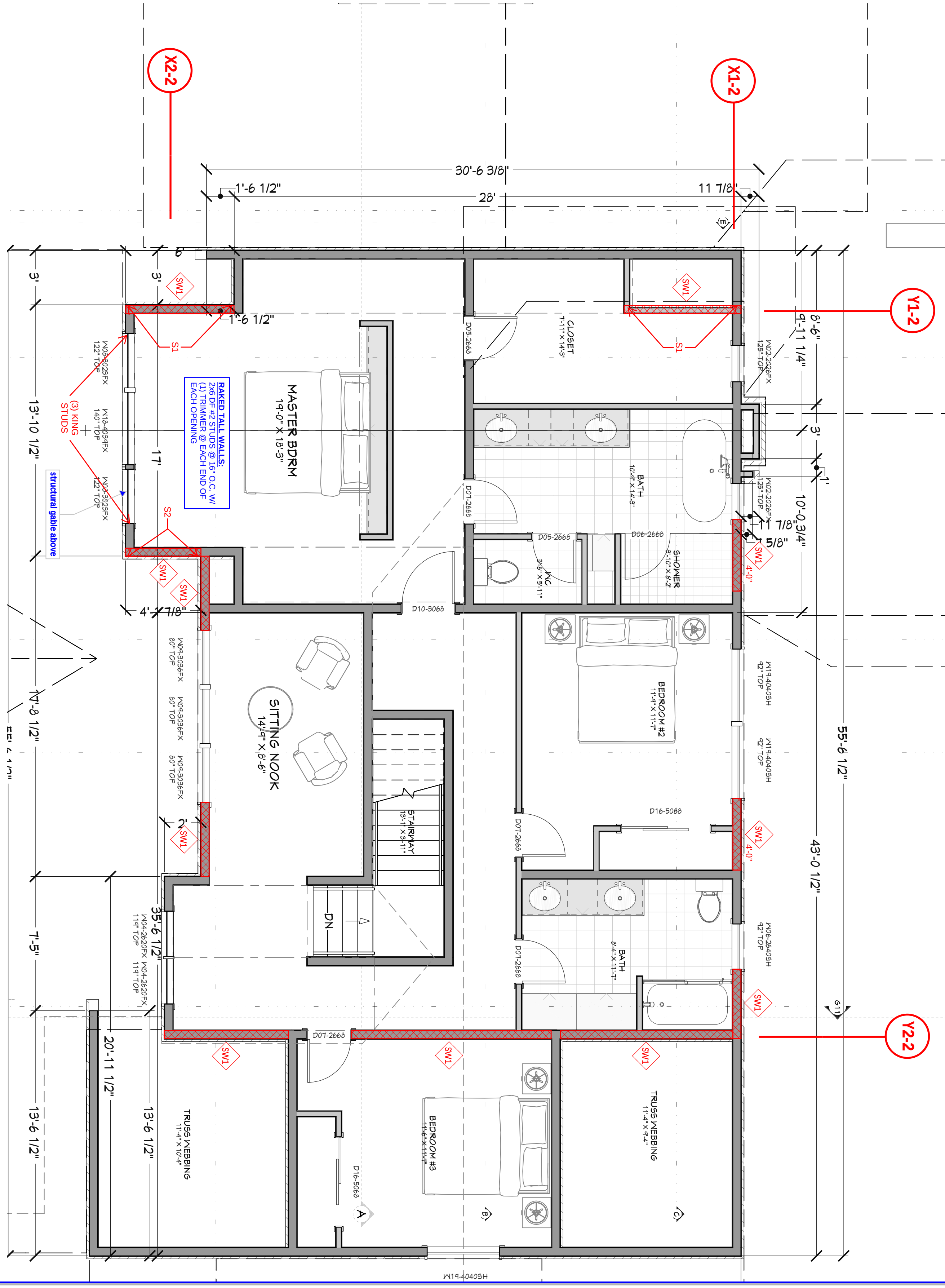
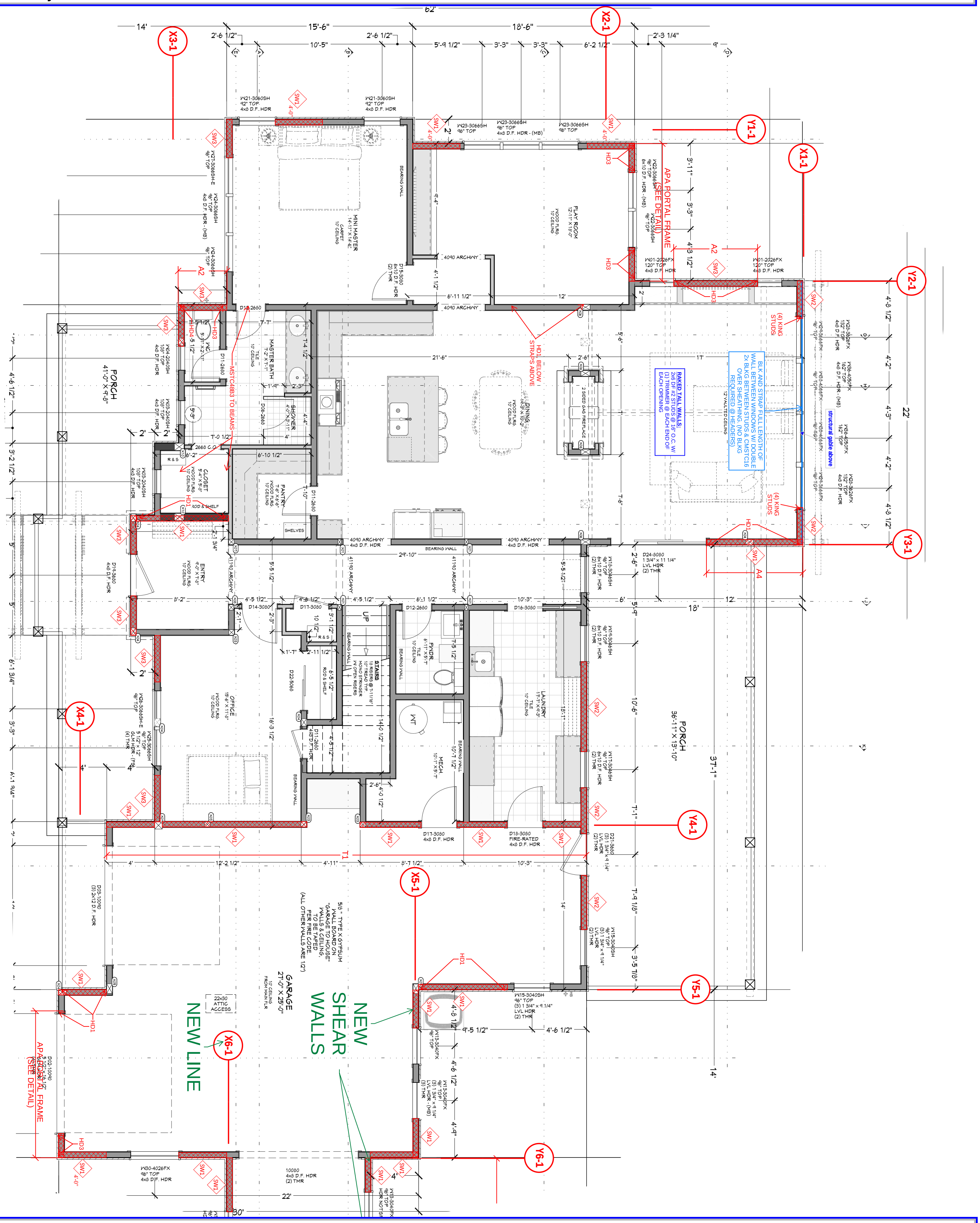
TALL WALL CALCULATIONS:

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

Description:	King Stud (10' Max Opening)	16' Trimmer				
Type:	*2x Lumber (2"-4")*	*2x Lumber (2"-4")*				
Species:	*DF-L*	*DF-L*				
Grade:	*No. 2*	*No. 2*				
Nominal width, t =	*(4) 2*	*(1) 2*				
Actual width =	6.00 in	1.50 in				
Nominal depth, d =	*6*	*6*				
Actual depth =	5.50 in	5.50 in				
Span, L =	*16.000 ft*	*16.000 ft*				
w/o Plates	15.750 ft	15.750 ft				
Stud spacing, s =	*70 in*	*16 in*				
Lat. Pressure, w_{wind} =	16.10 psf	5.00 psf				
Axial load, P =	*50 lbs*	*1954 lbs*				
Eccentricity, e =	*0 in*	*0 in*				
K_{cE} =	*0.3*	*0.3*				
c =	*0.8*	*0.8*				
w =	94.2 plf	6.7 plf				
Fb	900 psi	900 psi				
Fv	180 psi	180 psi				
Fc-prll	1,350 psi	1,350 psi				
Fc-perp	625 psi	625 psi				
C_d	*1.60*	*1.15*				
$C_{F,Fb}$	*1.30*	*1.30*				
$C_{F,Fcprll}$	*1.10*	*1.10*				
C_r	*1.00*	*1.00*				
C_p	0.16	0.22				
C_H	*1.00*	*1.00*				
C_b	*1.07*	*1.07*				
E	1,600,000 psi	1,600,000 psi				
Emin	580,000 psi	580,000 psi				
Allowable Stress:						
F'_b = $F_b C_d C_F C_r$ =	**1872 psi**	**1346 psi**				
F'_v = $F'_v C_d C_H$ =	**288 psi**	**207 psi**				
F^*_c = $F_c C_d C_F$ =	2376 psi	1708 psi				
F_{cE} = $(K_{cE} E')/(l_e/d)2$ =	406 psi	406 psi				
F'_c = $F_c C_d C_F C_p$ =	**391 psi**	**384 psi**				
$F'_{c\,perp}$ = $F_{c\,perp}$ Cb =	**668 psi**	**668 psi**				
E' = E =	**1600000 psi**	**1600000 psi**				
F_{bE} =	**24104 psi**	**1506 psi**				
Slenderness Ratio:	**< 50 OK**	**< 50 OK**				
R_B =	**5**	**21**				
Bending:	**< F'b OK**	**< F'b OK**				
M = $w L^2/8 + P e/12$ =	2922 ft-lbs	207 ft-lbs				
f_b = M/S =	**1159 psi**	**328 psi**				
S =	30 in³	8 in³				
Shear:	**< F'v OK**	**< F'v OK**				
V = w L/2 =	742 lbs	53 lbs				
f_v = 1.5 V/A =	**34 psi**	**10 psi**				
A =	33 in²	8 in²				
Compression:	**< F'c OK**	**< F'c OK**				
f_c = P/A =	**2 psi**	**237 psi**				
Compression (perp.):	**< F'c OK**	**< F'c OK**				
$f_{c\,perp}$ = P/A =	**2 psi**	**237 psi**				
Combined:						
(fc/Fc)2 + {fb/[Fb(1-(fc/FcE)]} =						
Deflection:	**> 180 OK**	**> 180 OK**				
D = $22.5 w L^4/E' I$ =	**0.98 in**	**0.28 in**				
I =	83 in^4	21 in^4				
SPAN /	**193**	**681**				


X2-2
X1-2
Y1-2
Y2-2
30'-6 3/8"
28'
1'-6 1/2"
11 7/8"
MASTER BDRM
19'-0" X 18'-3"
RAKED TALL WALLS:
2x6 DF #2 STUDS @ 16" O.C. W/
(1) TRIMMER @ EACH END OF
EACH OPENING
(3) KING STUDS
structural gable above
CLOSET
BATH
SHOWER
WC
SITTING NOOK
14'-9" X 8'-6"
STAIRWAY
DN
BEDROOM #2
BATH
BEDROOM #3
TRUSS WEBBING
SW1
S1
S2
55'-6 1/2"
43'-0 1/2"
13'-10 1/2"
17'-8 1/2"
7'-5"
13'-6 1/2"
20'-11 1/2"
35'-6 1/2"
10'-0 3/4"
9'-11 1/4"
8'-6"



Completed by: JDJ
Review/Check: KKJ
05/21/26

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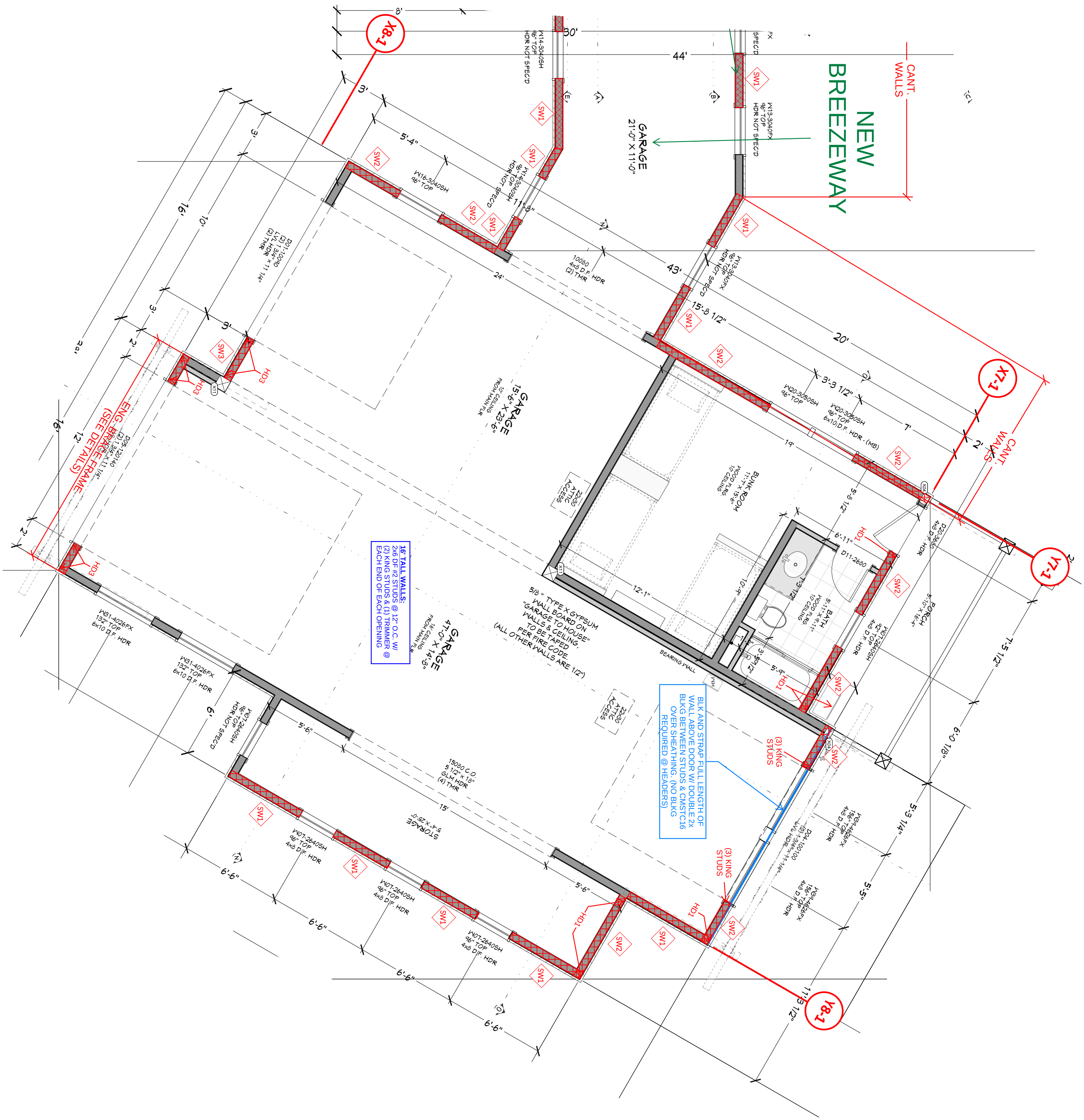
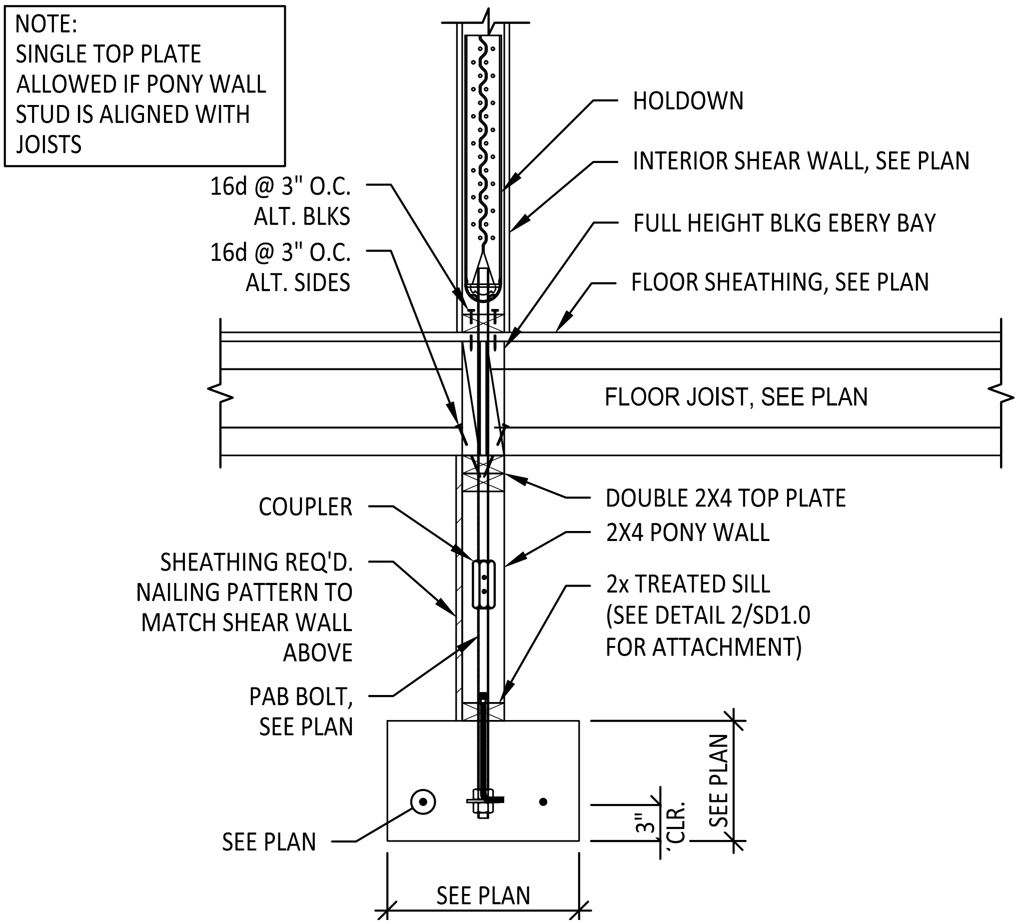
Project City/County: McCall
Project State: Idaho

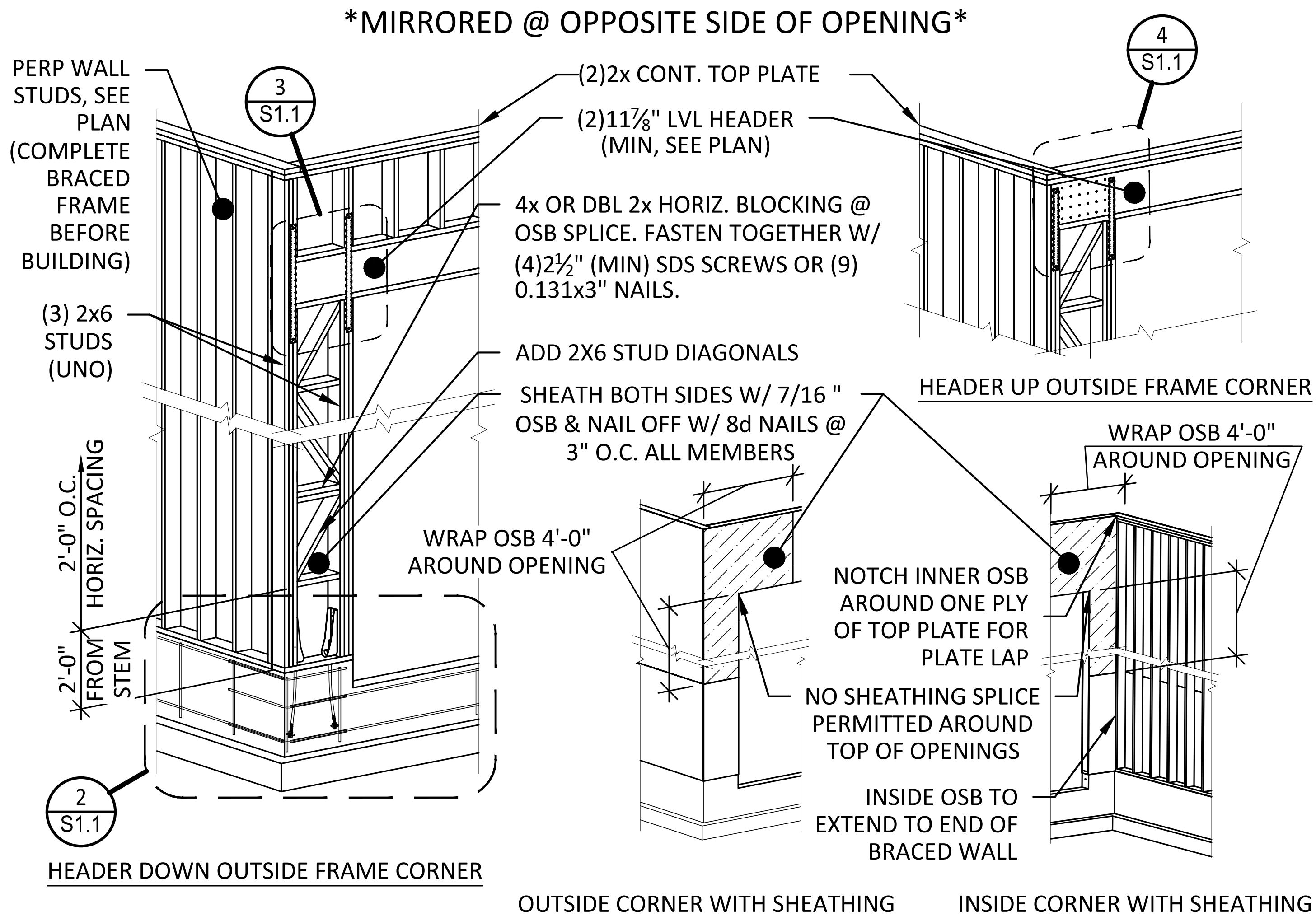

NEW BREEZEWAY
CANT. WALLS
GARAGE 21'-0" X 11'-0"
GARAGE 15'-6" X 23'-6"
GARAGE 47'-0" X 14'-6"
BUNK ROOM
BATH
PORCH
STORAGE
ENG. BRACE FRAME (SEE DETAILS)
16' TALL WALLS: 2x6 DF #2 STUDS @ 12" O.C. W/ (2) KING STUDS & (1) TRIMMER @ EACH END OF EACH OPENING
5/8" TYPE X GYPSUM WALL BOARD ON "GARAGE TO HOUSE" WALLS & CEILING, TO BE TAPED PER FIRE CODE (ALL OTHER WALLS ARE 1/2")
BLK AND STRAP FULL LENGTH OF WALL ABOVE DOOR W/ DOUBLE 2x BLKG BETWEEN STUDS & CMSTC16 OVER SHEATHING. (NO BLKG REQUIRED @ HEADERS)
(3) KING STUDS
BEARING WALL
X8-1
X7-1
Y7-1
Y8-1



4
SD1.0

TYPICAL HOLD-DOWN DETAIL

SCALE: 3/4" = 1'-0"



1 / S1.1

ENG. BRACE FRAME

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

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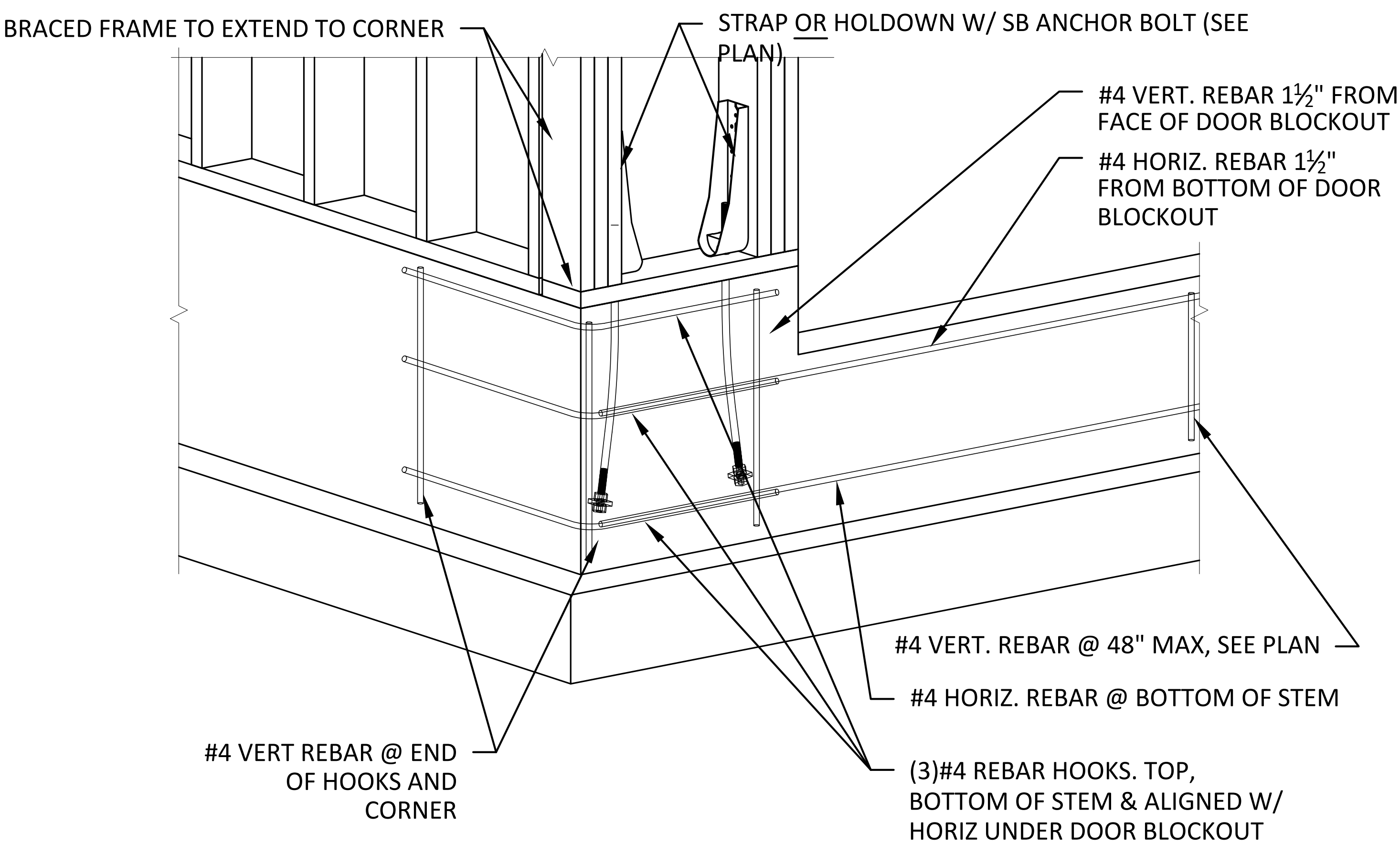
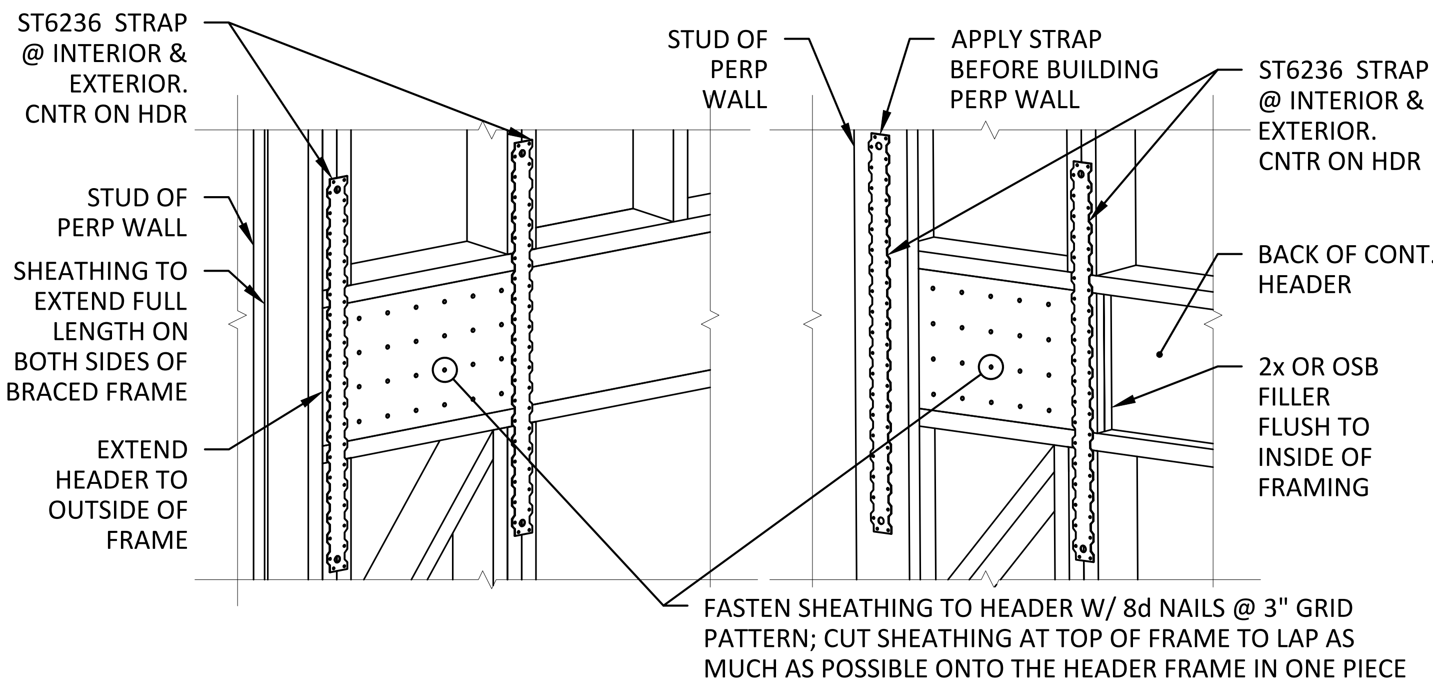


2
S1.1
ENG. BRACE FRAME
SCALE: 3/4" = 1'-0"



OUTSIDE SIDE OF FRAME

INSIDE SIDE OF FRAME

3
S1.1

ENG. BRACE FRAME

SCALE: 3/4" = 1'-0"

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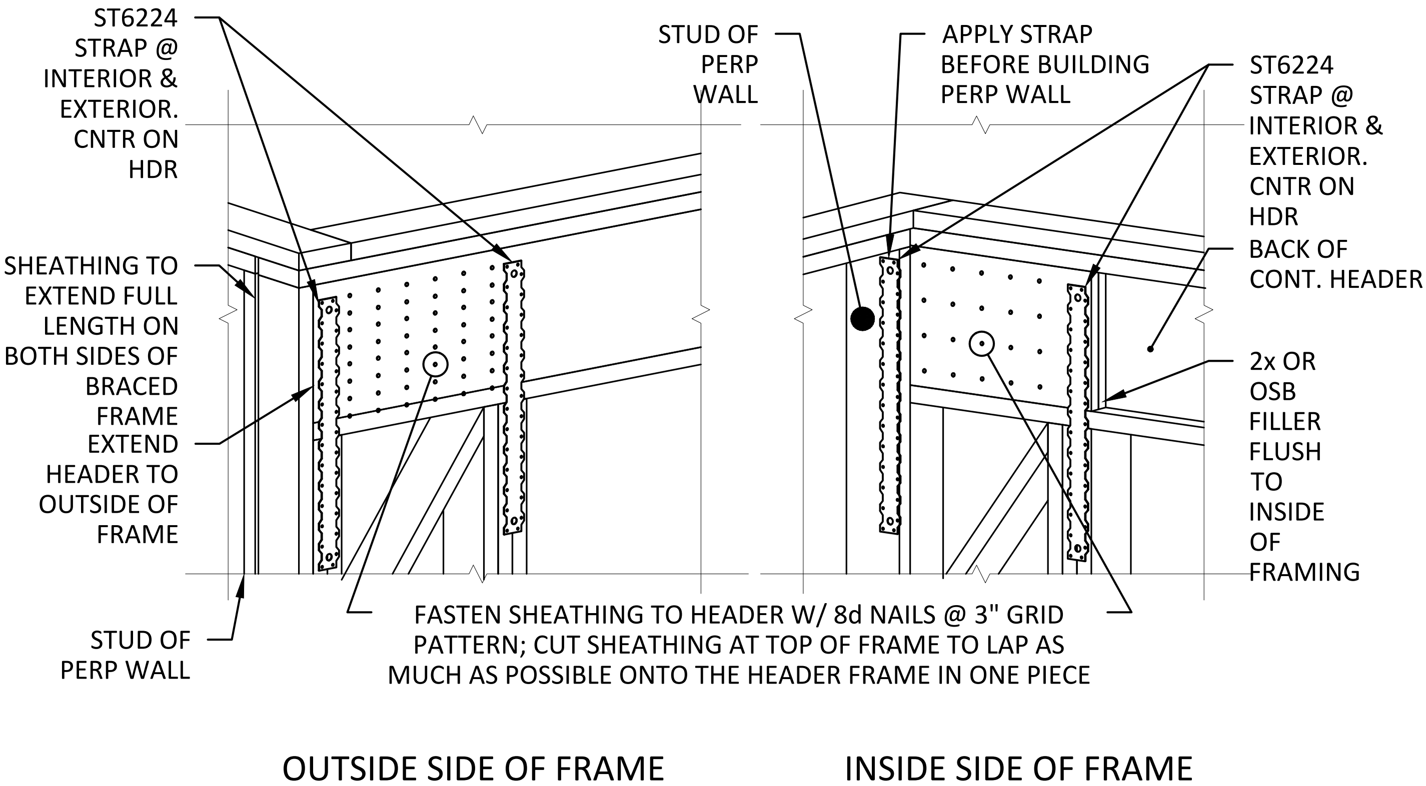


4 / S1.1 **ENG. BRACE FRAME**

SCALE: 3/4" = 1'-0"

Minimum Width (in.)	Maximum Height (ft)	Allowable Design (ASD) Values per Frame Segment		Load Factor
		Shear[e,f] (lbf)	Deflection (in.)	
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.

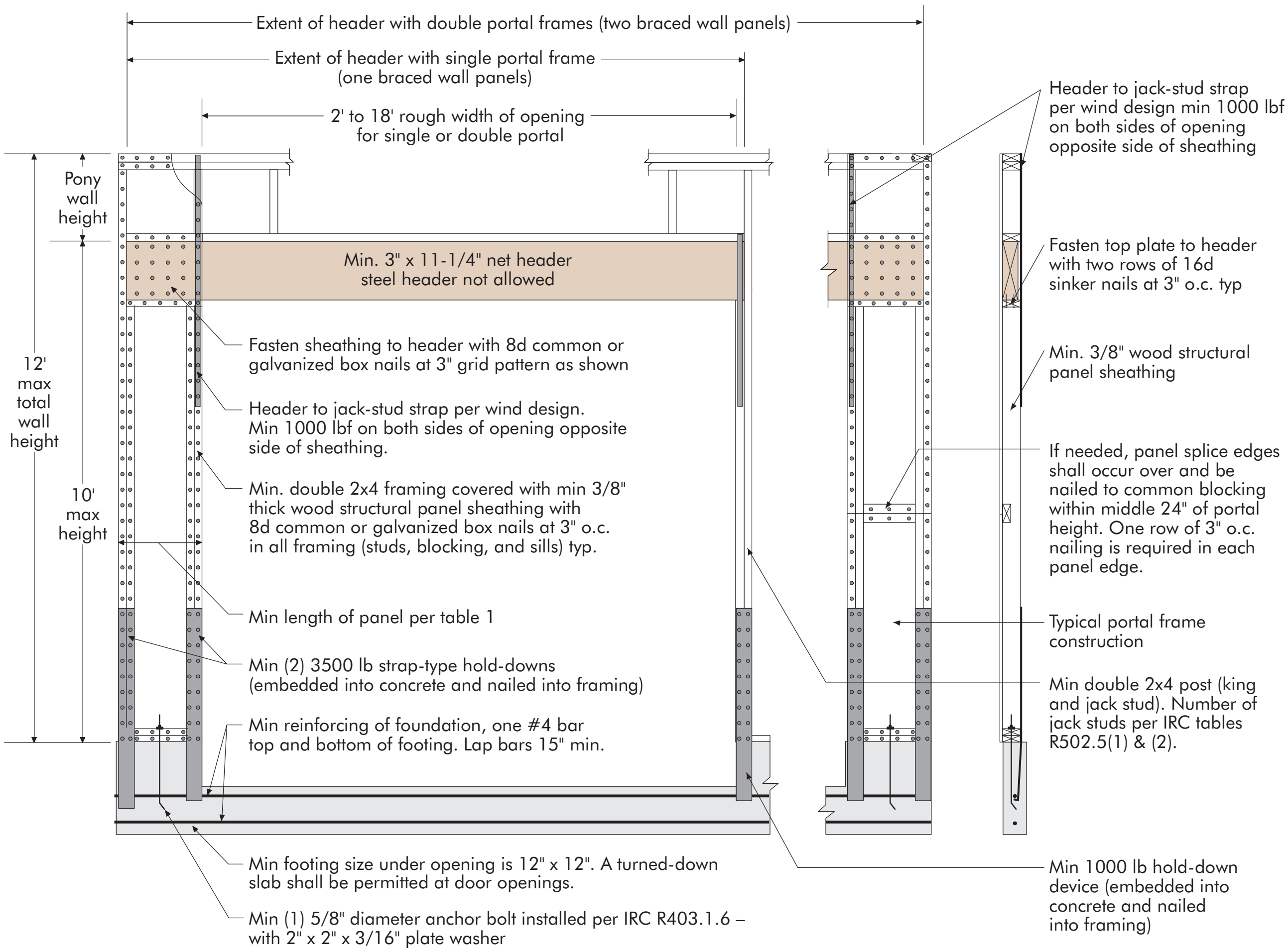
(c) Values are for a single portal-frame segment (one vertical leg and a portion of the header). For multiple portal-frame segments, the allowable shear design values are permitted to be multiplied by the number of frame segments (e.g., two = 2x, three = 3x, etc.).

(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



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 (NOT FOR WALLS >10')	YES	(2) 16d NAILS PER 16" BAY
SW2	7/16" APA RATED	1	8d @ 4 / 12	OR	16ga x 1-1/2" @ 2 / 12 (NOT FOR WALLS >10')	YES	(3) 16d NAILS PER 16" BAY
SW3	7/16" APA RATED	1	8d @ 3 / 12			YES	(4) 16d NAILS PER 16" BAY

TYP. NOTES:

1 WALL SHEATHING CAN BE APPLIED TO EITHER SIDE OF THE WALL. (UNLESS NOTED OTHERWISE)
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

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

STRAP SCHEDULE:

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

MARK	STRAP TYPE	STRAP FASTENERS	# OF STUDS		BOLT TYPE	# OF STUDS	BOLT FASTENERS
S1	MSTC28	(16) 16d SINKERS	2	OR	DTT2Z W/ 1/2"Ø ALL THREAD	2	(8) 1/4"x1-1/2" SDS
S2	MSTC40	(32) 16d SINKERS	2	OR	HDU2-SDS2.5 W/ 5/8"Ø ALL THREAD	2	(6) 1/4"x2-1/2" SDS

HOLDOWN SCHEDULE:

MARK	STRAP TYPE	STRAP FASTENERS	# OF STUDS		ANCHOR BOLT TYPE	# OF STUDS	ANCHOR BOLT FASTENERS
HD1	LSTHD8 OR LSTHD8RJ W/ RIM	(20) 16d SINKERS	2	OR	DTT2Z W/1/2Øx10"	2	(8) 1/4"x1-1/2" 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

Note:

ALL HDU HOLDOWNS CAN BE SUBSTITUTED FOR THEIR HDUE COUNTERPART AT THE CONTRACTORS OPTION .

ANCHOR BOLT KEY NOTES:

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