



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

Completed by: KKJ
Review/Check: KKJ

Project Name: Monroe Residence
SRE Project #: 21-1068, 22-4354, 23-4698
City and State: Valley County, Idaho

Supplemental Calcs. For Plan Modifications

Project Title: Monroe Residence

Location: Valley County, Idaho

Job #: 2021-1068



Prepared in accordance with 2018 IBC. Calculations expire by: 2/14/2024



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	0.51	Fa 1.39
S1	0.15	Fv 2.19
S _{D1}	0.47	S _{D1} 0.22
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	.09Wp	6.5	Typ @ Ext
GYP	.28Wp	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
Sheating	1.5
Misc	3.0
TOTAL	12 psf



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SHEAR WALL CALCULATIONS:

	SX1-1	SX2-1	SX3-1	SX4-1		
Shear Wall Forces						
Total length of wall	90.00 ft	60.00 ft	30.00 ft	14.00 ft		
Total length of shear wall	L = 62.17 ft	20.63 ft	14.50 ft	1.88 ft		
Total length of full ht seg.	L _w = 30.25 ft	20.63 ft	11.46 ft	1.88 ft		
height of shear wall	H = 16.00 ft	16.00 ft	10.00 ft	9.00 ft		
Maximum opening height	H' = 10.00 ft	14.00 ft	8.00 ft	0.00 ft		
Total Seismic force at top of wall	V ₁ = 9243 lbs	9243 lbs	2714 lbs	509 lbs		
Self weight	W _{DL self} = 128 plf	128 plf	80 plf	72 plf		
Applied dead load	W _{DL above} = 102 plf	102 plf	68 plf	68 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:	8.00	6.75	5.04	1.88		
	22.25	6.25	6.42			
		7.63				
Shear Transfer to Concrete						
1/2 Anchor Bolts @	72" O.C.	72" O.C.	72" O.C.			
Provide:	Code Min.	Code Min.	Code Min.			
Min # of 1/2 Anchor Bolts	(9) Min	(9) Min	(3) Min			
Load From Above	0.00	0.00	0.00	0.00		
T =	Not Req'd	5750 lbs	2250 lbs	3500 lbs		
		HD4	HD2	HD3		
Shear Resisting System						
Min Shear Wall Segment:	OSB 4.57 ft	OSB 4.57 ft	OSB 2.86 ft	P.F. 1.33 ft		
Provide: Va =	SW3	SW3	SW2	1987		
Min Shear Wall Segment:						
Provide: Va =						
Blocking / Nailing Framing Attachment						
	Blocking	Nailing	Blocking	Nailing		
	NONE	T1	NONE	See SCHED		
	Nailing			Blocking		
	See SCHED			NONE		
Unit Base Shear						
% of full height segments	%fh = L _w /L = 0.487	1.000	0.790	1.000		
% of maximum opening height	%oh = H'/H = 0.625	0.875	0.800	0.000		
Shear cap adj factor	SCAF = 0.69	1.00	0.77	1.00		
Unit base shear	v _{base} = V ₁ /L _w = 306 plf	448 plf	237 plf	271 plf		
Effective unit base shear	v _{req} = v _{base} /SCAF = 443 plf	448 plf	306 plf	271 plf		
Ovrtrn. mo. Ttl. length of wall	OTM = 214.3 k-ft	148.0 k-ft	35.1 k-ft	4.6 k-ft		
Shear Wall Adjustment Factor						
Resist moment total L. of wall	RM = 444.4 k-ft	48.9 k-ft	15.6 k-ft	0.2 k-ft		
	r = 0.6026	0.9998	0.8248	1.0000		
	C _o = 0.6900	0.9996	0.7729	1.0000		
Blocking Unit Shear	103 plf	154 plf	90 plf	73 plf		
Force Calculated	442.83	448.34	306.46	271.38		



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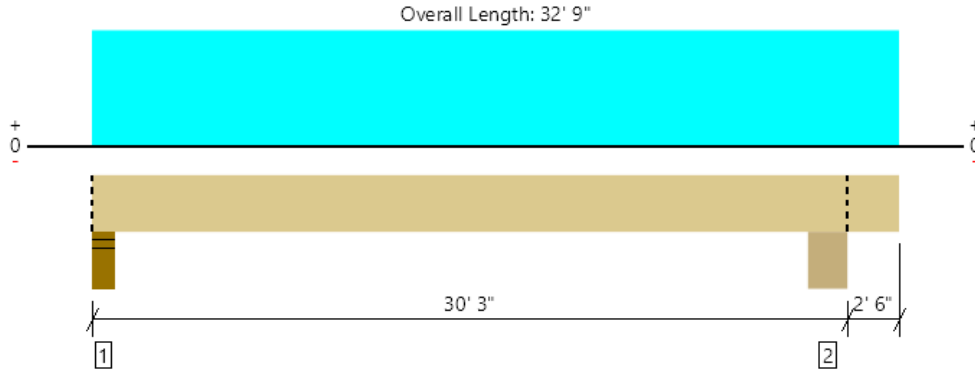
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Project Name: Monroe Residence
SRE Project #: 21-1068, 22-4354, 23-4698
City and State: Valley County, Idaho

SHEAR WALL CALCULATIONS:

	SY1-1	SY2-1	SY3-1	SY4-1		
Shear Wall Forces						
Total length of wall	80.00 ft	80.00 ft	40.00 ft	27.00 ft		
Total length of shear wall L =	80.00 ft	69.50 ft	7.88 ft	27.00 ft		
Total length of full ht seg. L _w =	24.00 ft	48.00 ft	7.88 ft	8.00 ft		
height of shear wall H =	16.00 ft	16.00 ft	16.00 ft	12.00 ft		
Maximum opening height H' =	6.00 ft	2.00 ft	5.00 ft	2.00 ft		
Total Seismic force at top of wall V ₁ =	4308 lbs	10959 lbs	2342 lbs	594 lbs		
Self weight W _{DL self} =	128 plf	128 plf	128 plf	96 plf		
Applied dead load W _{DL above} =	221 plf	116 plf	68 plf	162 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:	8.00	8.00	7.88	4.00		
		8.00		4.00		
	8.00	8.00				
	8.00	8.00				
		8.00				
		8.00				
Shear Transfer to Concrete						
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	(5) Min	(11) Min	(3) Min	(2) Min		
Load From Above	0.00	3490.00	0.00	0.00		
T =	Not Req'd	Not Req'd	4295 lbs	Not Req'd		
			HD3			
Shear Resisting System						
Min Shear Wall Segment:	OSB	OSB	OSB	OSB		
Provide: Va =	4.57 ft	4.57 ft	4.57 ft	3.43 ft		
	SW1	SW1	SW2	SW1		
Min Shear Wall Segment:						
Provide: Va =						
Blocking / Nailing Framing Attachment						
	Blocking	Blocking	Blocking	Blocking		
	NONE	NONE	NONE	NONE		
Unit Base Shear						
% of full height segments %fh = L _w /L =	0.300	0.691	1.000	0.296		
% of maximum opening height %oh = H'/H =	0.375	0.125	0.313	0.167		
Shear cap adj factor SCAF =	0.92	1.00	1.00	1.00		
Unit base shear v _{base} = V ₁ /L _w =	180 plf	228 plf	297 plf	74 plf		
Effective unit base shear v _{req} = v _{base} /SCAF =	195 plf	228 plf	297 plf	74 plf		
Ovrtrn. mo. Ttl. length of wall OTM =	75.0 k-ft	175.3 k-ft	37.5 k-ft	7.1 k-ft		
Shear Wall Adjustment Factor						
Resist moment total L. of wall RM =	1116.8 k-ft	589.3 k-ft	6.1 k-ft	93.9 k-ft		
r =	0.5333	0.9470	1.0000	0.7164		
C _o =	0.9195	1.2397	1.0000	1.5429		
Blocking Unit Shear	108 plf	137 plf	59 plf	22 plf		
Force Calculated	195.22	228.30	297.37	74.20		

SHOP ROOF, Roof: Drop Beams #B01
1 piece(s) 8 3/4" x 24" 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)	22078 @ 4"	30078 (5.50")	Passed (73%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	18463 @ 2' 5 1/2"	42665	Passed (43%)	1.15	1.0 D + 1.0 S (Alt Spans)
Pos Moment (Ft-lbs)	158452 @ 15' 3/16"	165242	Passed (96%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-6166 @ 29' 10 1/4"	148925	Passed (4%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	1.187 @ 15' 13/16"	1.476	Passed (L/298)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	1.367 @ 15' 13/16"	1.968	Passed (L/259)	--	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).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Upward deflection on right cantilever exceeds overhang deflection criteria.
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 0.86 that was calculated using length L = 29' 4 5/16".
- Critical negative moment adjusted by a volume factor of 1.00 that was calculated using length L = 3' 2 1/8".
- Upward deflection on right cantilever exceeds 0.4".
- 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	Snow	Factored	
1 - Stud wall - DF	5.50"	5.50"	4.04"	2924	19154	22078	Blocking
2 - Column - DF	9.50"	9.50"	4.60"	3480	22693	26173	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)	28' 9" o/c	
Bottom Edge (Lu)	32' 9" 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 32' 9"	N/A	51.0	--	
1 - Uniform (PSF)	0 to 32' 9" (Top)	8' 6"	17.0	150.0	Default Load

Weyerhaeuser Notes

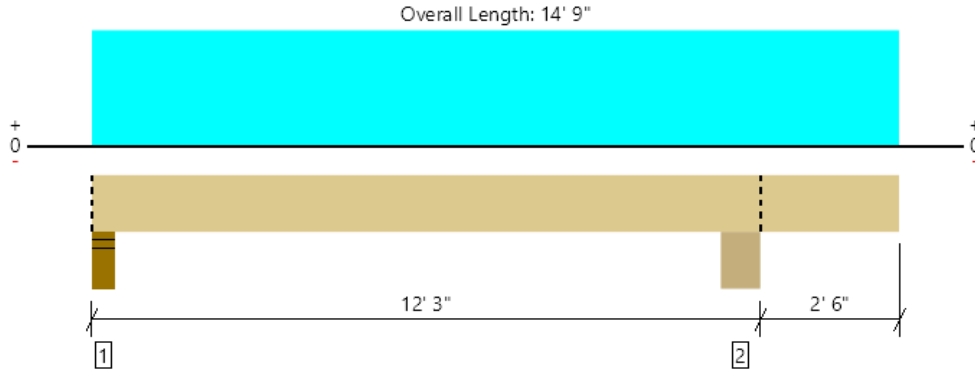
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Kaleb Jones 02/14/2023 Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	



SHOP ROOF, Roof: Drop Beams #B02
 1 piece(s) 8 3/4" x 10 1/2" 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)	14398 @ 4"	30078 (5.50")	Passed (48%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	11861 @ 10' 7"	18666	Passed (64%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	37752 @ 5' 10 11/16"	36980	Passed (102%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-10247 @ 11' 10 1/4"	28505	Passed (36%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.524 @ 6' 3/8"	0.576	Passed (L/264)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.584 @ 6' 5/16"	0.768	Passed (L/237)	--	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).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Upward deflection on right cantilever exceeds overhang deflection criteria.
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 1.00 that was calculated using length L = 11' 1 3/8".
- Critical negative moment adjusted by a volume factor of 1.00 that was calculated using length L = 3' 7 1/2".
- Upward deflection on right cantilever exceeds 0.4".
- 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	Snow	Factored	
1 - Stud wall - DF	5.50"	5.50"	2.63"	1540	12858	14398	Blocking
2 - Column - DF	9.50"	9.50"	3.88"	2425	19619	22044	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)	6" o/c	
Bottom Edge (Lu)	14' 9" 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 14' 9"	N/A	22.3	--	
1 - Uniform (PSF)	0 to 14' 9" (Top)	14' 6"	17.0	150.0	Default Load

Weyerhaeuser Notes

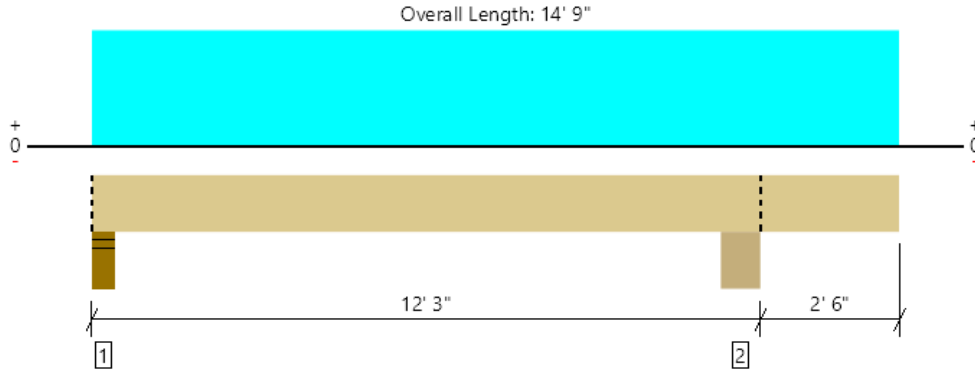
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Kaleb Jones 02/14/2023 Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	



SHOP ROOF, Roof: Drop Beams #B03
 1 piece(s) 8 3/4" x 12" 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)	17861 @ 4"	30078 (5.50")	Passed (59%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	14335 @ 10' 5 1/2"	21333	Passed (67%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	46833 @ 5' 10 11/16"	48300	Passed (97%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-12711 @ 11' 10 1/4"	37231	Passed (34%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.436 @ 6' 3/8"	0.576	Passed (L/317)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.485 @ 6' 5/16"	0.768	Passed (L/285)	--	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).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Upward deflection on right cantilever exceeds overhang deflection criteria.
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 1.00 that was calculated using length L = 11' 1 3/8".
- Critical negative moment adjusted by a volume factor of 1.00 that was calculated using length L = 3' 7 1/2".
- 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	Snow	Factored	
1 - Stud wall - DF	5.50"	5.50"	3.27"	1900	15962	17861	Blocking
2 - Column - DF	9.50"	9.50"	4.81"	2990	24355	27345	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)	14' 9" o/c	
Bottom Edge (Lu)	14' 9" 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 14' 9"	N/A	25.5	--	
1 - Uniform (PSF)	0 to 14' 9" (Top)	18'	17.0	150.0	Default Load

Weyerhaeuser Notes

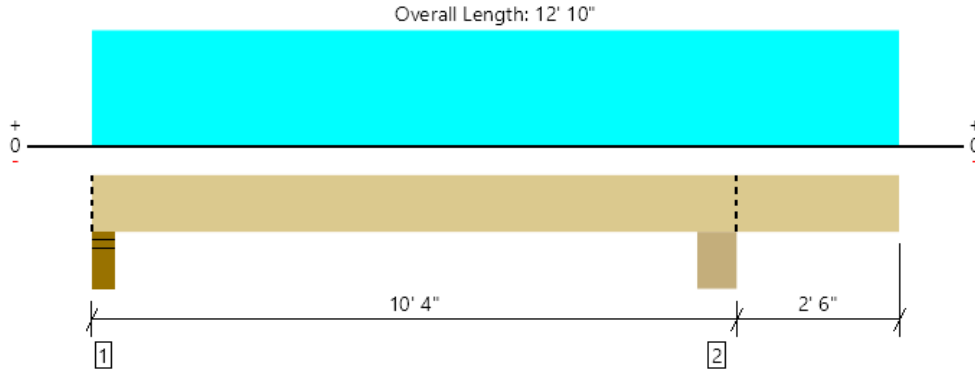
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The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Kaleb Jones 02/14/2023 Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	



SHOP ROOF, Roof: Drop Beams #B04
1 piece(s) 8 3/4" x 9" 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)	10308 @ 4"	30078 (5.50")	Passed (34%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	8622 @ 8' 9 1/2"	15999	Passed (54%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	21900 @ 4' 10 11/16"	27169	Passed (81%)	1.15	1.0 D + 1.0 S (Alt Spans)
Neg Moment (Ft-lbs)	-8833 @ 9' 11 1/4"	20943	Passed (42%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.334 @ 5' 5/8"	0.480	Passed (L/345)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.371 @ 5' 1/2"	0.640	Passed (L/311)	--	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).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 1.00 that was calculated using length L = 9' 1 7/16".
- Critical negative moment adjusted by a volume factor of 1.00 that was calculated using length L = 3' 9 1/4".
- 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	Snow	Factored	
1 - Stud wall - DF	5.50"	5.50"	1.88"	1088	9220	10308	Blocking
2 - Column - DF	9.50"	9.50"	3.01"	1884	15252	17136	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)	12' 10" o/c	
Bottom Edge (Lu)	12' 10" o/c	

- Maximum allowable bracing intervals based on applied load.

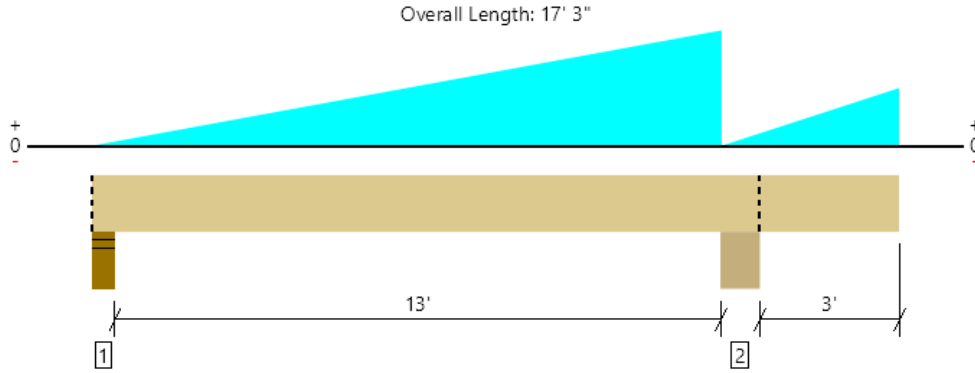
Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 12' 10"	N/A	19.1	--	
1 - Uniform (PSF)	0 to 12' 10" (Top)	12' 6"	17.0	150.0	Default Load

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 Kaleb Jones Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	Job Notes
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SHOP ROOF, Roof: Drop Beams #B11
1 piece(s) 1 3/4" x 16" 2.OE Microllam® LVL



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)	5494 @ 13' 10 1/4"	12469 (9.50")	Passed (44%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	3233 @ 12' 1 1/2"	6118	Passed (53%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	11838 @ 7' 11 3/16"	17891	Passed (66%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.328 @ 7' 3 9/16"	0.676	Passed (L/495)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.368 @ 7' 3 7/16"	0.901	Passed (L/441)	--	1.0 D + 1.0 S (All 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).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Stud wall - DF	5.50"	5.50"	2.20"	287	2119	2407	Blocking
2 - Column - DF	9.50"	9.50"	4.19"	637	4857	5494	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)	4' 4" o/c	
Bottom Edge (Lu)	17' 3" 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 17' 3"	N/A	8.2	--	
1 - Tapered (PSF)	0 to 13' 5 1/2" (Top)	0 to 6'	17.0	150.0	Default Load
2 - Tapered (PSF)	13' 5 1/2" to 17' 3" (Top)	0 to 3'	17.0	150.0	Default Load

Weyerhaeuser Notes

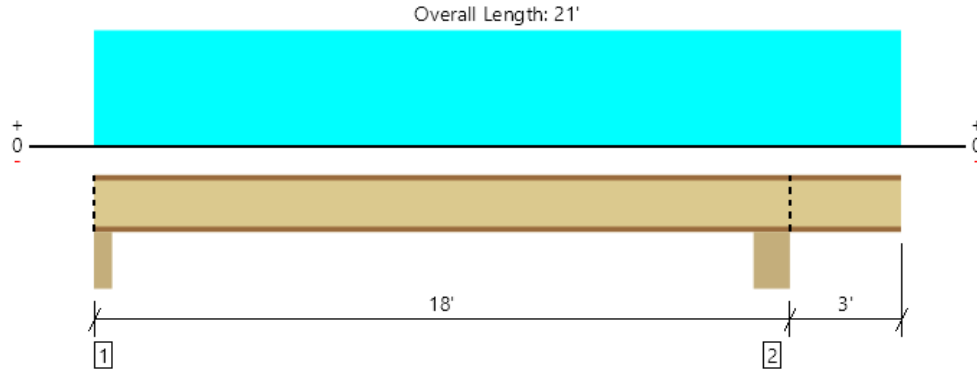
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ForteWEB Software Operator	Job Notes
02/14/2023 Kaleb Jones Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	



SHOP ROOF, Roof: Rafters/Purlins #1
 1 piece(s) 16" TJI ® 360 @ 12" OC



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)	1466 @ 3 3/8"	1731 (3.50")	Passed (85%)	1.15	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	1405 @ 4 3/8"	2519	Passed (56%)	1.15	1.0 D + 1.0 S (Alt Spans)
Moment (Ft-lbs)	6029 @ 8' 9 3/8"	9666	Passed (62%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.427 @ 8' 10 13/16"	0.868	Passed (L/487)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.474 @ 8' 10 3/4"	1.157	Passed (L/439)	--	1.0 D + 1.0 S (Alt Spans)

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

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Beam - GLB	4.38"	4.38"	2.55"	147	1319	1466	Blocking
2 - Beam - GLB	8.75"	8.75"	3.50"	210	1855	2065	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)	4' 5" o/c	
Bottom Edge (Lu)	9' 7" o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

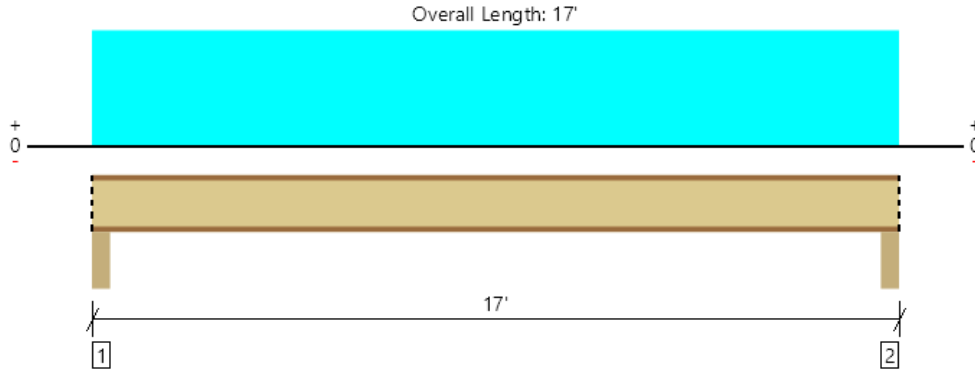
Vertical Load	Location	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 21'	12"	17.0	150.0	Default Load

Weyerhaeuser Notes
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ForteWEB Software Operator 02/14/2023 Kaleb Jones Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	Job Notes
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SHOP ROOF, Roof: Rafters/Purlins #2
 1 piece(s) 16" TJI ® 360 @ 12" OC



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)	1420 @ 3 3/8"	1731 (3.50")	Passed (82%)	1.15	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1359 @ 4 3/8"	2519	Passed (54%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	5640 @ 8' 6"	9666	Passed (58%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.364 @ 8' 6"	0.822	Passed (L/541)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.406 @ 8' 6"	1.096	Passed (L/486)	--	1.0 D + 1.0 S (All Spans)

System : Roof
 Member Type : Joist
 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.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Beam - GLB	4.38"	4.38"	2.38"	145	1275	1420	Blocking
2 - Beam - GLB	4.38"	4.38"	2.38"	145	1275	1420	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)	4' 7" o/c	
Bottom Edge (Lu)	17' o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Vertical Load	Location	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 17'	12"	17.0	150.0	Default Load

Weyerhaeuser Notes

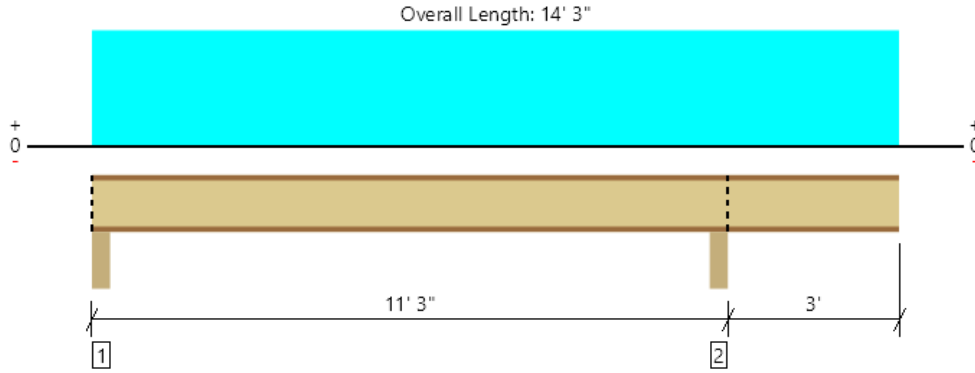
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ForteWEB Software Operator	Job Notes
02/14/2023 Kaleb Jones Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	



SHOP ROOF, Roof: Rafters/Purlins #3
 1 piece(s) 16" TJI ® 360 @ 16" OC



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)	1206 @ 3 3/8"	1731 (3.50")	Passed (70%)	1.15	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	1125 @ 4 3/8"	2519	Passed (45%)	1.15	1.0 D + 1.0 S (Alt Spans)
Moment (Ft-lbs)	2935 @ 5' 5"	9666	Passed (30%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.105 @ 5' 7 1/16"	0.539	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.115 @ 5' 6 15/16"	0.719	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

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

- Deflection criteria: LL (L/240) and TL (L/180).
- Overhang deflection criteria: LL (2L/240) and TL (2L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Beam - GLB	4.38"	4.38"	1.75"	118	1088	1206	Blocking
2 - Beam - GLB	4.38"	4.38"	3.50"	205	1809	2014	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)	6' 7" o/c	
Bottom Edge (Lu)	9' 7" o/c	

- TJI joists are only analyzed using Maximum Allowable bracing solutions.
- Maximum allowable bracing intervals based on applied load.

Vertical Load	Location	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 14' 3"	16"	17.0	150.0	Default Load

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ForteWEB Software Operator 02/14/2023 Kaleb Jones Snake River Engineering (208) 484-9069 kaleb@snakeriverengineering.com	Job Notes
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524 CLEVELAND BLVD. #230
 CALDWELL, IDAHO 83605
 (208) 453-6512

Completed by: KKJ
 Review/Check: KKJ

Project Name: Monroe Residence
 SRE Project #: 21-1068, 22-4354, 23-4698
 City and State: Valley County, Idaho

WOOD HEADER ALLOWABLE LOADS (kips/ft)

Load Duration Factor: 1.15
 LVL Grade: 2.0E

Top Chord Bracing: 2'-0" O.C.
 Max TL Deflection: L/240, 0.75in
 Repetitive Stress Increase: No

Header Type	Header Span										
	2'	3'	4'	5'	6'	8'	10'	12'	14'	16'	18'
(2) 2x4 DF Stud	1.15	0.69	0.29	0.22	0.12	NA	NA	NA	NA	NA	NA
(3) 2x4 DF Stud	1.84	1.04	0.46	0.35	0.18	NA	NA	NA	NA	NA	NA
(2) 2x6 DF #2	3.34	1.44	0.83	0.48	0.36	0.20	0.12	NA	NA	NA	NA
(3) 2x6 DF #2	5.06	2.19	1.27	0.72	0.55	0.30	0.18	0.13	NA	NA	NA
(2) 2x8 DF #2	5.41	2.30	1.27	0.80	0.59	0.32	0.20	0.14	0.09	NA	NA
(3) 2x8 DF #2	8.74	3.39	2.19	1.18	0.97	0.53	0.33	0.23	0.16	0.12	NA
(2) 2x10 DF #2	8.05	3.39	1.96	1.18	0.89	0.48	0.31	0.21	0.15	0.10	NA
(3) 2x10 DF #2	13.23	5.18	3.22	1.80	1.38	0.82	0.52	0.36	0.25	0.20	0.15
(2) 2x12 DF #2	10.81	4.83	2.65	1.60	1.15	0.67	0.41	0.29	0.21	0.15	0.12
(3) 2x12 DF #2	17.94	7.02	4.49	2.40	1.96	1.10	0.70	0.48	0.35	0.26	0.21
(2) 1-3/4x7-1/4 LVL	13.80	6.79	3.80	2.40	1.61	0.94	0.52	0.30	0.18	0.12	NA
(3) 1-3/4x7-1/4 LVL	20.70	10.47	5.64	3.50	2.53	1.38	0.79	0.45	0.28	0.17	NA
(2) 1-3/4x9-1/2 LVL	24.73	10.47	5.64	3.75	2.65	1.50	0.92	0.63	0.39	0.24	0.15
(3) 1-3/4x9-1/2 LVL	37.15	17.25	8.51	6.00	4.03	2.30	1.38	0.95	0.60	0.37	0.22
(2) 1-3/4x11-7/8 LVL	40.71	17.25	8.86	6.00	4.49	2.53	1.61	1.12	0.82	0.53	0.32
(3) 1-3/4x11-7/8 LVL	61.30	24.15	13.23	8.75	6.67	3.80	2.42	1.61	1.15	0.79	0.48
(2) 1-3/4x14 LVL	56.47	24.15	12.54	8.00	5.75	3.45	2.19	1.50	1.13	0.86	0.54
(3) 1-3/4x14 LVL	85.10	28.75	18.86	12.00	8.63	5.29	3.34	2.30	1.61	1.27	0.81



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

Completed by: KJ
Review/Check: KJ

Project Name: Monroe Residence
SRE Project #: 21-1068, 22-4354, 23-4698
City and State: Valley County, Idaho

WALL STUD CALCULATIONS:

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

Description:	16' Tall Wall	King Stud (13.5' Max Opening)	King Stud (5' Max Opening)	12' Tall Wall	King Stud (5' Max Opening)	14' 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	(5) 2	(3) 2	(1) 2	(1) 2	(2) 2
Actual width =	1.50 in	7.50 in	4.50 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 =	16.000 ft	16.000 ft	16.000 ft	12.000 ft	12.000 ft	14.000 ft
w/o Plates	15.750 ft	15.750 ft	15.750 ft	11.750 ft	11.750 ft	13.750 ft
Stud spacing, s =	16 in	91 in	40 in	16 in	40 in	16 in
Lat. Pressure, w _{wind} =	14.88 psf	14.88 psf	14.88 psf	14.88 psf	14.88 psf	5.00 psf
Axial load, P =	1336 lbs	50 lbs	50 lbs	2449 lbs	50 lbs	6137 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 =	19.8 plf	113.1 plf	49.9 plf	19.8 plf	49.9 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 <td 625 psi	
C _d	1.60	1.60	1.60	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	0.16	0.16	0.16	0.28	0.28	0.29
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	1872 psi	2153 psi	1872 psi	1346 psi
F' _v = F _v C _d C _H	288 psi	288 psi	288 psi	288 psi	288 psi	207 psi
F' _c = F _c C _d C _F	2376 psi	2376 psi	2376 psi	2376 psi	2376 psi	1708 psi
F' _{CE} = (K _{CE} E') / (l _e / d) ²	406 psi	406 psi	406 psi	730 psi	730 psi	533 psi
F' _c = F _c C _d C _F C _p	391 psi	391 psi	391 psi	676 psi	676 psi	493 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	37662 psi	13558 psi	2019 psi	2019 psi	6902 psi
Slenderness Ratio:	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK
R _B	21	4	7	19	19	10
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 =	615 ft-lbs	3508 ft-lbs	1547 ft-lbs	342 ft-lbs	861 ft-lbs	158 ft-lbs
f _b = M / S =	976 psi	1113 psi	818 psi	543 psi	1366 psi	125 psi
S =	8 in ³	38 in ³	23 in ³	8 in ³	8 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 =	117 lbs	117 lbs	117 lbs	87 lbs	87 lbs	46 lbs
f _v = 1.5 V / A =	21 psi	4 psi	7 psi	16 psi	16 psi	4 psi
A =	8 in ²	41 in ²	25 in ²	8 in ²	8 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 =	162 psi	1 psi	2 psi	297 psi	6 psi	372 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 =	162 psi	1 psi	2 psi	297 psi	6 psi	372 psi
Combined:	< 1.0 OK			< 1.0 OK		
(f _c / F _c) ² + (f _b / [F _b (1 - (f _c / F _{CE})]) =	0.93			0.62		
Deflection:	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK
D = 22.5 w L ⁴ / E' I =	0.83 in	0.94 in	0.69 in	0.26 in	0.64 in	0.08 in
I =	21 in ⁴	104 in ⁴	62 in ⁴	21 in ⁴	21 in ⁴	42 in ⁴
SPAN /	229	201	273	552	219	2048



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

Completed by: KKJ
Review/Check: KKJ

Project Name: Monroe Residence
SRE Project #: 21-1068, 22-4354, 23-4698
City and State: Valley County, Idaho

WALL STUD CALCULATIONS:

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

Description:	16' Tall Wall	16' Trimmer	King Stud (3.5' Max Opening)	King Stud (4' Max Opening)	King Stud (5' Max Opening)	King Stud (6' Max Opening)
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. 1	No. 2	No. 2	No. 2	No. 2	No. 2
Nominal width, t =	(2) 2	(3) 2	(2) 2	(2) 2	(2) 2	(3) 2
Actual width =	3.00 in	4.50 in	3.00 in	3.00 in	3.00 in	4.50 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 =	16.000 ft	16.000 ft	16.000 ft	16.000 ft	16.000 ft	16.000 ft
w/o Plates	15.750 ft	15.750 ft	15.750 ft	15.750 ft	15.750 ft	15.750 ft
Stud spacing, s =	16 in	16 in	31 in	32 in	38 in	44 in
Lat. Pressure, w _{wind} =	14.88 psf	5.00 psf	14.88 psf	14.88 psf	14.88 psf	14.88 psf
Axial load, P =	4119 lbs	9269 lbs	50 lbs	50 lbs	50 lbs	50 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 =	19.8 plf	6.7 plf	38.7 plf	40.0 plf	47.4 plf	54.9 plf
F _b	1,000 psi	1,000 psi	1,000 psi	1,000 psi	1,000 psi	1,000 psi
F _v	180 psi	180 psi	180 psi	180 psi	180 psi	180 psi
F _{c-prll}	1,500 psi	1,500 psi	1,500 psi	1,500 psi	1,500 psi	1,500 psi
F _{c-perp}	625 psi	625 psi	625 psi	625 psi	625 psi	625 psi
C _d	1.60	1.15	1.60	1.60	1.60	1.60
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	0.20	0.15	0.15	0.15	0.15
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	1,700,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi
E _{min}	620,000 psi	620,000 psi	620,000 psi	620,000 psi	620,000 psi	620,000 psi
Allowable Stress:						
F' _b = F _b C _d C _F C _r	2392 psi	1495 psi	2080 psi	2080 psi	2080 psi	2080 psi
F' _v = F _v C _d C _H	288 psi	207 psi	288 psi	288 psi	288 psi	288 psi
F' _c = F _c C _d C _F	2640 psi	1898 psi	2640 psi	2640 psi	2640 psi	2640 psi
F' _{CE} = (K _{CE} E') / (l _e / d) ²	432 psi	406 psi	406 psi	406 psi	406 psi	406 psi
F' _c = F _c C _d C _F C _p	416 psi	387 psi	393 psi	393 psi	393 psi	393 psi
F' _{c-perp} = F _{c-perp} C _b	668 psi	668 psi	668 psi	668 psi	668 psi	668 psi
E'	1700000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi
F _{bE}	6442 psi	14494 psi	6442 psi	6442 psi	6442 psi	14494 psi
Slenderness Ratio:	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK
R _B	11	7	11	11	11	7
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 =	615 ft-lbs	207 ft-lbs	1201 ft-lbs	1240 ft-lbs	1470 ft-lbs	1701 ft-lbs
f _b = M / S =	488 psi	109 psi	953 psi	984 psi	1167 psi	900 psi
S =	15 in ³	23 in ³	15 in ³	15 in ³	15 in ³	23 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 =	117 lbs	39 lbs	117 lbs	117 lbs	117 lbs	432 lbs
f _v = 1.5 V / A =	11 psi	2 psi	11 psi	11 psi	11 psi	26 psi
A =	17 in ²	25 in ²	17 in ²	17 in ²	17 in ²	25 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 =	250 psi	374 psi	3 psi	3 psi	3 psi	2 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 =	250 psi	374 psi	3 psi	3 psi	3 psi	2 psi
Combined:	< 1.0 OK					
(f _c / F _c) ² + (f _b / [F _b (1 - (f _c / F _{CE})]) =	0.84					
Deflection:	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK
D = 22.5 w L ⁴ / E' I =	0.39 in	0.09 in	0.81 in	0.83 in	0.99 in	0.76 in
I =	42 in ⁴	62 in ⁴	42 in ⁴	42 in ⁴	42 in ⁴	62 in ⁴
SPAN /	487	2044	234	227	192	248



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

Completed by: KKJ
 Review/Check: KKJ

Project Name: Monroe Residence
 SRE Project #: 21-1068, 22-4354, 23-4698
 City and State: Valley County, Idaho

WALL STUD CALCULATIONS:

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

Description:	14' Tall Wall	14' Trimmer	King Stud (5' Max Opening)	King Stud (8' Max Opening)	King Stud (3' 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. 1	No. 2	No. 2	No. 2	No. 2	No. 2
Nominal width, w_n	(1) 2	(1) 2	(1) 2	(3) 2	(2) 2	(2) 2
Actual width, w_a	1.50 in	1.50 in	1.50 in	4.50 in	3.00 in	3.00 in
Nominal depth, d_n	6	6	6	6	6	6
Actual depth, d_a	5.50 in	5.50 in	5.50 in	5.50 in	5.50 in	5.50 in
Span, L_s	14.000 ft	14.000 ft	12.500 ft	16.000 ft	16.000 ft	16.000 ft
w/o Plates	13.750 ft	13.750 ft	12.250 ft	15.750 ft	15.750 ft	15.750 ft
Stud spacing, s	16 in	16 in	40 in	56 in	26 in	12 in
Lat. Pressure, w_{wind}	14.88 psf	5.00 psf	14.88 psf	14.88 psf	14.88 psf	5.00 psf
Axial load, P_a	2115 lbs	3966 lbs	50 lbs	50 lbs	50 lbs	4008 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_e	0.8	0.8	0.8	0.8	0.8	0.8
w	19.8 plf	6.7 plf	49.9 plf	69.7 plf	32.5 plf	5.0 plf
F_b	1,000 psi	1,000 psi	1,000 psi	1,000 psi	1,000 psi	1,000 psi
F_v	180 psi	180 psi	180 psi	180 psi	180 psi	180 psi
F_c	1,500 psi	1,500 psi	1,500 psi	1,500 psi	1,500 psi	1,500 psi
F_c (perp)	625 psi	625 psi	625 psi	625 psi	625 psi	625 psi
C_d	1.60	1.15	1.60	1.60	1.60	1.15
C_F	1.30	1.30	1.30	1.30	1.30	1.30
C_F (perp)	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	0.20	0.26	0.24	0.15	0.15	0.20
C_t	1.00	1.00	1.00	1.00	1.00	1.00
F_b	1.07	1.07	1.07	1.07	1.07	1.07
E	1,700,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi	1,600,000 psi
E_{min}	620,000 psi	620,000 psi	620,000 psi	620,000 psi	620,000 psi	620,000 psi
Allowable Stress:						
$F'_b = F_b C_d C_r C_e$	2392 psi	1495 psi	2080 psi	2080 psi	2080 psi	1495 psi
$F'_v = F_v C_d C_e$	288 psi	207 psi	288 psi	288 psi	288 psi	207 psi
$F'_c = F_c C_d C_e$	2640 psi	1898 psi	2640 psi	2640 psi	2640 psi	1898 psi
$F'_{cE} = (K_{ce} E') / (l_e / d)^2$	567 psi	533 psi	672 psi	406 psi	406 psi	406 psi
$F'_c = F_c C_d C_r C_e$	539 psi	498 psi	632 psi	393 psi	393 psi	387 psi
$F'_{c,perp} = F_c C_p C_D$	668 psi	668 psi	668 psi	668 psi	668 psi	668 psi
E'	1700000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi	1600000 psi
$F'_E =$	1845 psi	1845 psi	2071 psi	14494 psi	6442 psi	6442 psi
Slenderness Ratio:	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK	< 50 OK
$R_b =$	20	20	19	7	11	11
Bending:	< F'b OK	< F'b OK	< F'b OK	< F'b OK	< F'b OK	< F'b OK
$M = w L^2 / 8 + P e / 12$	469 ft-lbs	158 ft-lbs	936 ft-lbs	2162 ft-lbs	1009 ft-lbs	155 ft-lbs
$f_b = M / S$	744 psi	250 psi	1485 psi	1144 psi	801 psi	123 psi
$S =$	8 in ³	8 in ³	8 in ³	23 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
$V = w L / 2$	102 lbs	34 lbs	91 lbs	117 lbs	117 lbs	39 lbs
$f_v = 1.5 V / A$	19 psi	6 psi	17 psi	7 psi	11 psi	4 psi
$A =$	8 in ²	8 in ²	8 in ²	25 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
$f_c = P / A$	256 psi	481 psi	6 psi	2 psi	3 psi	243 psi
Compression (perp):	< F'c OK	< F'c OK	< F'c OK	< F'c OK	< F'c OK	< F'c OK
$f_{c,perp} = P / A$	256 psi	481 psi	6 psi	2 psi	3 psi	243 psi
Combined:	< 1.0 OK					
$(f_c / F_c) 2 + (f_b / F_b) (1 - (f_c / F_c E))$	0.79					
Deflection:	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK	> 180 OK
$D = 22.5 w L^4 / E' I$	0.45 in	0.16 in	0.76 in	0.97 in	0.68 in	0.10 in
$I =$	21 in ⁴	21 in ⁴	21 in ⁴	62 in ⁴	42 in ⁴	42 in ⁴
SPAN	366	1024	193	195	279	1817



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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.



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UNBRACED WOOD COLUMN ALLOWABLE LOADS (kips)

Column Type	Unbraced Height							Compression Perp. To Grain
	8'	10'	12'	14'	16'	18'	20'	
(2) 2x4 DF #2	4.50	3.00	2.10	SR	SR	SR	SR	6.50
(3) 2x4 DF #2	8.80	5.90	4.20	3.20	SR	SR	SR	9.80
4x4 DF #2	7.00	4.60	3.30	2.40	SR	SR	SR	7.60
(2) 2x6 DF #2	7.20	4.70	3.30	SR	SR	SR	SR	10.30
(3) 2x6 DF #2	20.40	14.70	10.70	8.00	6.20	4.90	SR	15.40
6x6 DF #2	18.00	15.70	13.00	10.50	8.50	6.90	5.70	18.90
6x8 DF #2	24.50	21.40	17.80	14.30	11.60	9.40	7.80	25.70
6x10 DF #2	31.40	27.10	22.50	18.20	14.70	12.00	9.90	32.60
8x8 DF #2	36.60	34.60	31.90	28.50	24.90	21.30	18.20	35.20
8x10 DF #2	46.30	43.90	40.40	36.20	31.50	27.00	23.10	44.50
8x12 DF #2	56.20	53.10	49.00	43.80	38.10	32.70	28.00	53.40
10x10 DF #2	60.50	58.80	56.50	53.40	49.60	45.20	40.50	56.40



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PAD FOOTING DESIGN CAPACITIES:

Soil Bearing (1500 psf)						
Dimensions (Inches)			Capacity	# of Bars	Min. Col. Size	
72	x	72 x 12	47,500 lbs	10	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.

CONT. FOOTING DESIGN CAPACITIES:

Soil Bearing (1500 psf)				
Dimensions (Inches)			Capacity	# of Bars
60	x	10	6,850 plf	6
54	x	10	6,200 plf	5
48	x	10	5,500 plf	4
42	x	10	4,750 plf	4
36	x	10	4,000 plf	3
30	x	10	3,400 plf	3
24	x	8	2,800 plf	2
18	x	8	2,100 plf	2
16	x	8	1,850 plf	2
12	x	8	1,350 plf	2

Bars to be 3 1/2" from bottom of footing.