NT Engineers
17614 NE 29th St; Redmond, WA 98052
Tel: 425-891-5111

DESIGN CALCULATIONS

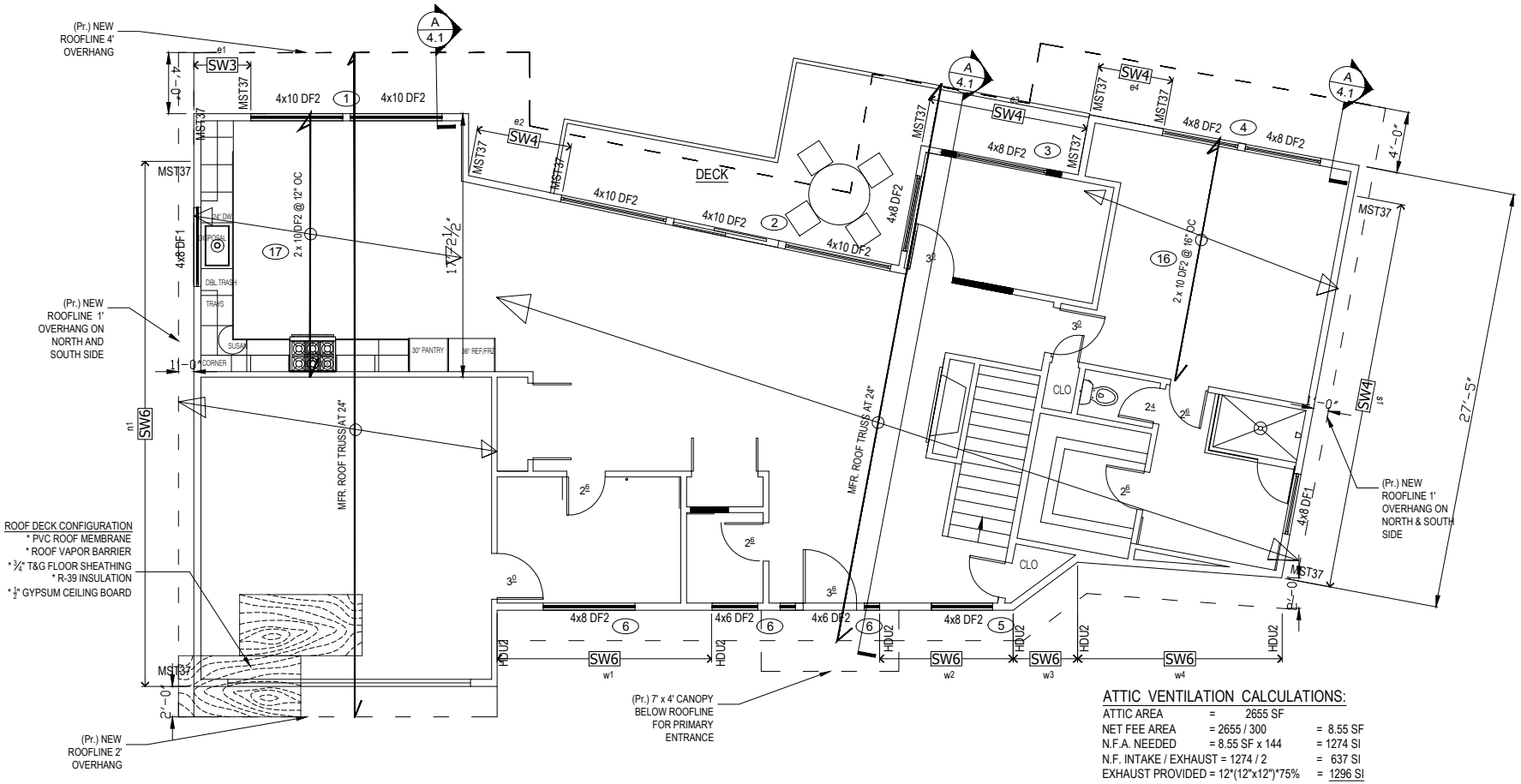
Loo & Wai's Remodel

4124 94th Pl SE

Mercer Island WA 98040

01/08/22

Gravity Analysis

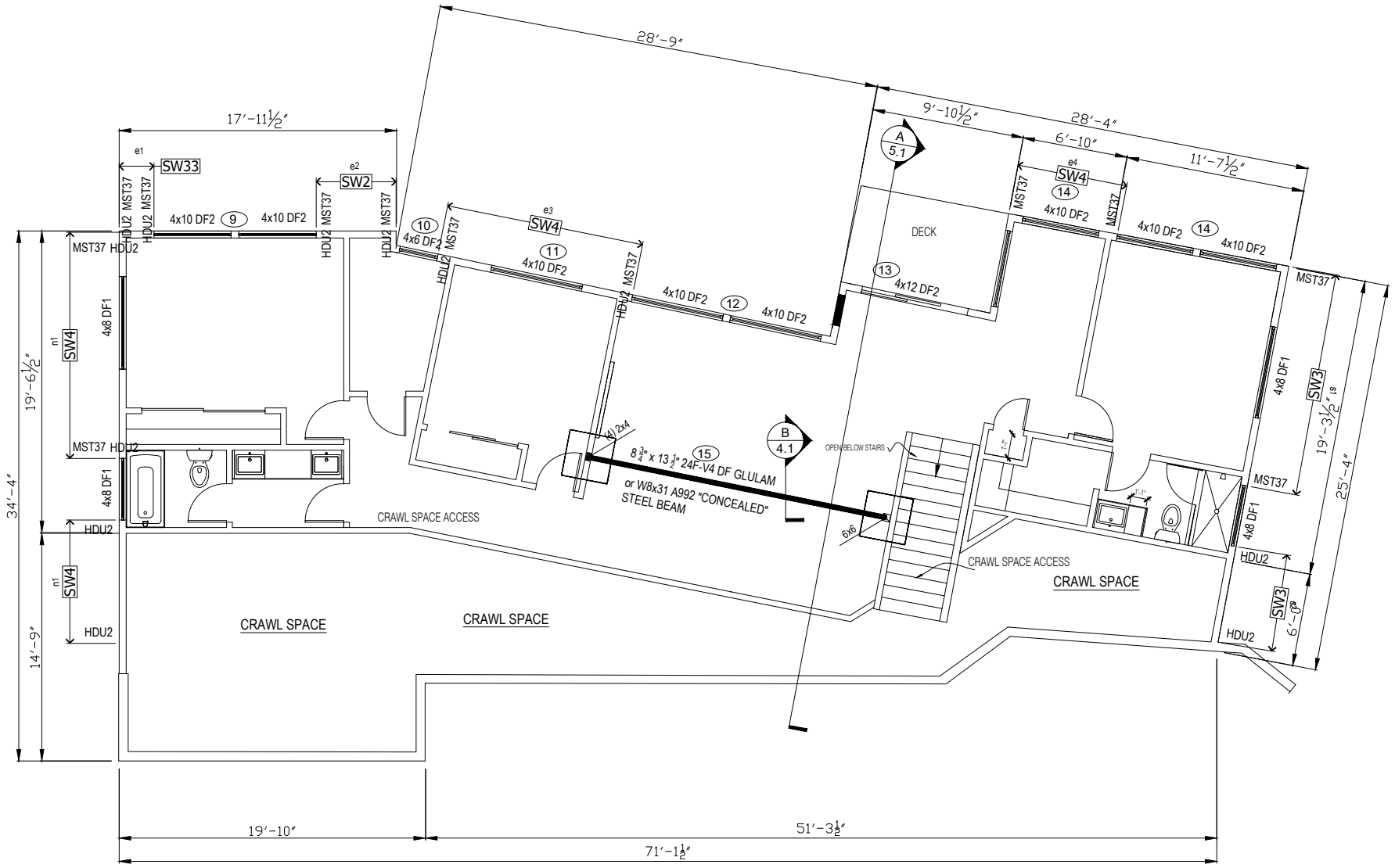


(Pr) ROOF FRAMING PLAN

SCALE ¼" = 1'-0"

ATTIC VENTILATION CALCULATIONS:

ATTIC AREA	= 2655 SF	
NET FEE AREA	= 2655 / 300	= 8.55 SF
N.F.A. NEEDED	= 8.55 SF x 144	= 1274 SI
N.F. INTAKE / EXHAUST = 1274 / 2		= 637 SI
EXHAUST PROVIDED = 12"(12"x12")*75%		= 1296 SI
USED TOTAL (12) AT ROOF RIDGE		
EACH 2½"Ø VENT HOLE AREA = 4.9 SI		
SIDE ELEV. INTAKE w/(3) HOLES @ 60 SPACES =		882 SI
BOTH ELEV. = 2 * (882)*75%		= 1323 SI



(Pr) MAIN FLOOR FRAMING

SCALE ¼" = 1'-0"

Calc #			
Member Name	Results	Current Solution	Comments
#1 Wall: Header Kitchen	Passed	1 piece(s) 4 x 10 DF No.2	
#2 Wall: Header Living Room	Passed	1 piece(s) 4 x 10 DF No.2	
#3 Wall: Header Office	Passed	1 piece(s) 4 x 8 DF No.2	
#4 Wall: Header M. Bed	Passed	1 piece(s) 4 x 8 DF No.2	
#5 Wall: Header Entry Window	Passed	1 piece(s) 4 x 8 DF No.2	
#6 Wall: Header Entry Door	Passed	1 piece(s) 4 x 6 DF No.2	
#7 Wall: Header Powder	Passed	1 piece(s) 4 x 6 DF No.2	
#8 Wall: Header Laundry	Passed	1 piece(s) 4 x 8 DF No.2	
#9 Wall: Header Bedroom 2	Passed	1 piece(s) 4 x 10 DF No.2	
#10 Wall: Header Storage	Passed	1 piece(s) 4 x 6 DF No.2	
#11 Wall: Header BR3	Passed	1 piece(s) 4 x 10 DF No.2	
#12 Wall: Header Living 2	Passed	1 piece(s) 4 x 10 DF No.2	
#13 Wall: Header Living 3	Passed	1 piece(s) 4 x 12 DF No.2	
#14 Wall: Header BR4 & Gym	Passed	1 piece(s) 4 x 10 DF No.2	
#15 Floor: Drop Beam Entertainment	Passed	1 piece(s) 8 3/4" x 13 1/2" 24F-V4 DF Glulam	
#15 Floor: Drop Beam Entertainment	Passed	1 piece(s) W8X31 (A992) ASTM Steel	
#16 Floor: Joist M. Bed	Passed	1 piece(s) 2 x 10 DF No.2 @ 16" OC	
#17 Floor: Joist Kitchen	Passed	1 piece(s) 2 x 10 DF No.2 @ 12" OC	
#18 Wall: Header Garage	Passed	1 piece(s) 6 3/4" x 13 1/2" 24F-V4 DF Glulam	

ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

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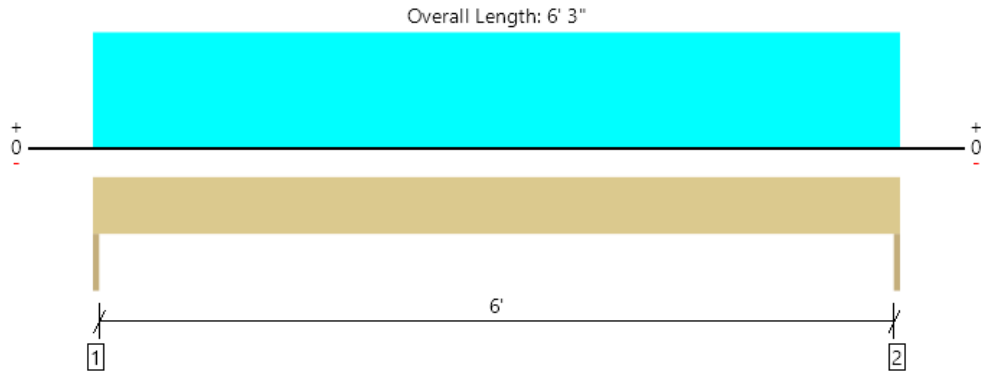
2/4/2022 3:17:47 AM UTC
ForteWEB v3.2
File Name: MI 4124 94th Pl SE 98040

Calc #, #1 Wall: Header Kitchen
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2051 @ 0	3281 (1.50")	Passed (63%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1463 @ 10 3/4"	4468	Passed (33%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	3205 @ 3' 1 1/2"	5166	Passed (62%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.043 @ 3' 1 1/2"	0.156	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.061 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	606	1445	2051	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	606	1445	2051	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 3" o/c	
Bottom Edge (Lu)	6' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	8.2	--	
1 - Uniform (PSF)	0 to 6' 3"	18' 6"	10.0	25.0	Default Load

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

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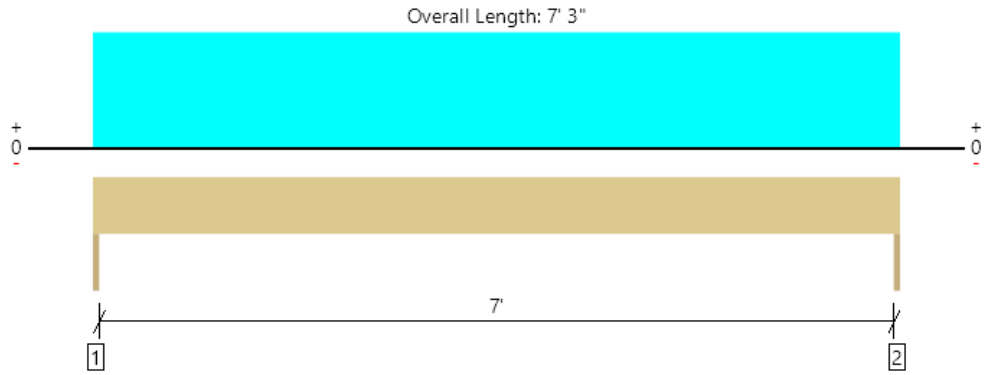
Calc #, #2 Wall: Header Living Room
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1808 @ 0	3281 (1.50")	Passed (55%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1361 @ 10 3/4"	4468	Passed (30%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	3277 @ 3' 7 1/2"	5166	Passed (63%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.059 @ 3' 7 1/2"	0.181	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.084 @ 3' 7 1/2"	0.363	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	539	1269	1808	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	539	1269	1808	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	7' 3" o/c	
Bottom Edge (Lu)	7' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 7' 3"	N/A	8.2	--	
1 - Uniform (PSF)	0 to 7' 3"	14'	10.0	25.0	Default Load

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ForteWEB Software Operator	Job Notes
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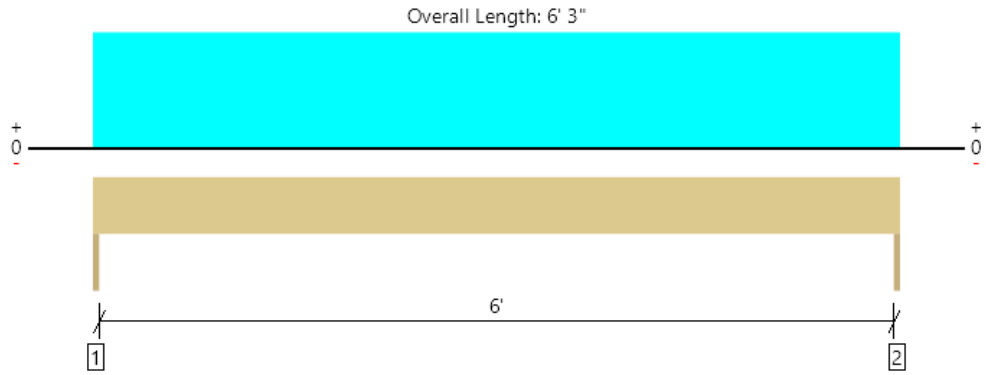
Calc #, #3 Wall: Header Office
1 piece(s) 4 x 8 DF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1662 @ 0	3281 (1.50")	Passed (51%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1274 @ 8 3/4"	3502	Passed (36%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2597 @ 3' 1 1/2"	3438	Passed (76%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.072 @ 3' 1 1/2"	0.156	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.103 @ 3' 1 1/2"	0.313	Passed (L/730)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	490	1172	1662	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	490	1172	1662	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 3" o/c	
Bottom Edge (Lu)	6' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	6.4	--	
1 - Uniform (PSF)	0 to 6' 3"	15'	10.0	25.0	Default Load

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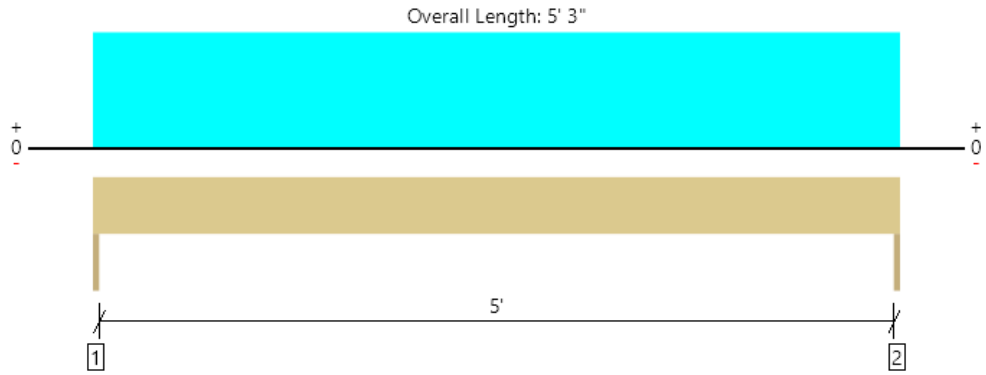
Calc #, #4 Wall: Header M. Bed
1 piece(s) 4 x 8 DF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1396 @ 0	3281 (1.50")	Passed (43%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1008 @ 8 3/4"	3502	Passed (29%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1833 @ 2' 7 1/2"	3438	Passed (53%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.036 @ 2' 7 1/2"	0.131	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.051 @ 2' 7 1/2"	0.262	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	412	984	1396	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	412	984	1396	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 3" o/c	
Bottom Edge (Lu)	5' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 5' 3"	N/A	6.4	--	
1 - Uniform (PSF)	0 to 5' 3"	15'	10.0	25.0	Default Load

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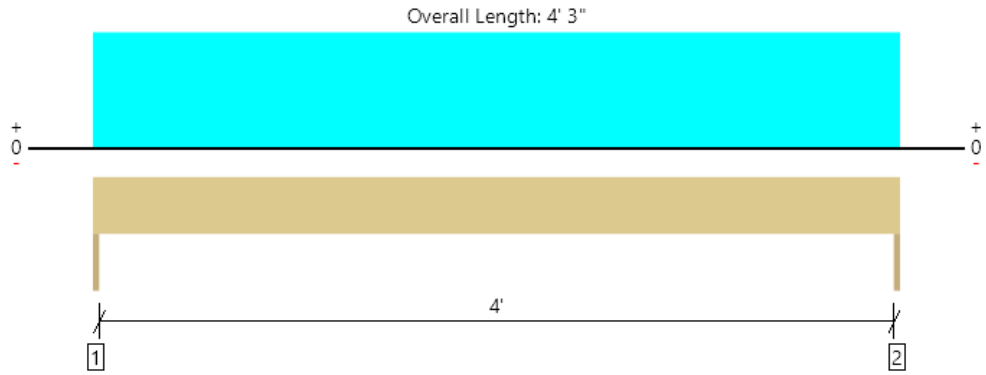
Calc #, #5 Wall: Header Entry Window
1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1130 @ 0	3281 (1.50")	Passed (34%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	743 @ 8 3/4"	3502	Passed (21%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1201 @ 2' 1 1/2"	3438	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.015 @ 2' 1 1/2"	0.106	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.022 @ 2' 1 1/2"	0.213	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	334	797	1131	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	334	797	1131	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 3" o/c	
Bottom Edge (Lu)	4' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 4' 3"	N/A	6.4	--	
1 - Uniform (PSF)	0 to 4' 3"	15'	10.0	25.0	Default Load

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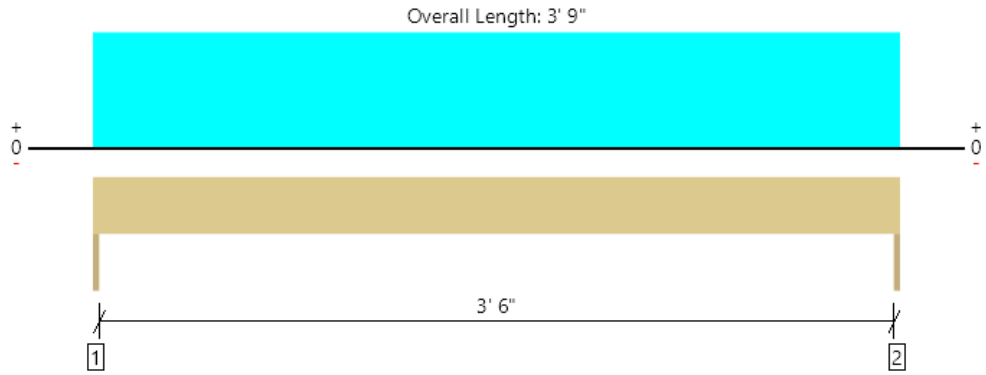
Calc #, #6 Wall: Header Entry Door
1 piece(s) 4 x 6 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	863 @ 0	3281 (1.50")	Passed (26%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	595 @ 7"	2657	Passed (22%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	809 @ 1' 10 1/2"	1979	Passed (41%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.019 @ 1' 10 1/2"	0.094	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.026 @ 1' 10 1/2"	0.188	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	254	609	863	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	254	609	863	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 9" o/c	
Bottom Edge (Lu)	3' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 9"	N/A	4.9	--	
1 - Uniform (PSF)	0 to 3' 9"	13'	10.0	25.0	Default Load

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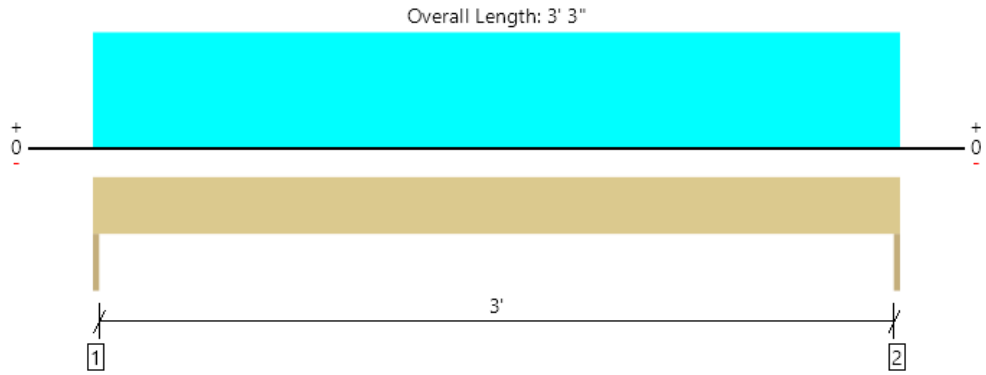
Calc #, #7 Wall: Header Powder
1 piece(s) 4 x 6 DF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	748 @ 0	3281 (1.50")	Passed (23%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	480 @ 7"	2657	Passed (18%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	608 @ 1' 7 1/2"	1979	Passed (31%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.011 @ 1' 7 1/2"	0.081	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.015 @ 1' 7 1/2"	0.162	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	220	528	748	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	220	528	748	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 3" o/c	
Bottom Edge (Lu)	3' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3' 3"	N/A	4.9	--	
1 - Uniform (PSF)	0 to 3' 3"	13'	10.0	25.0	Default Load

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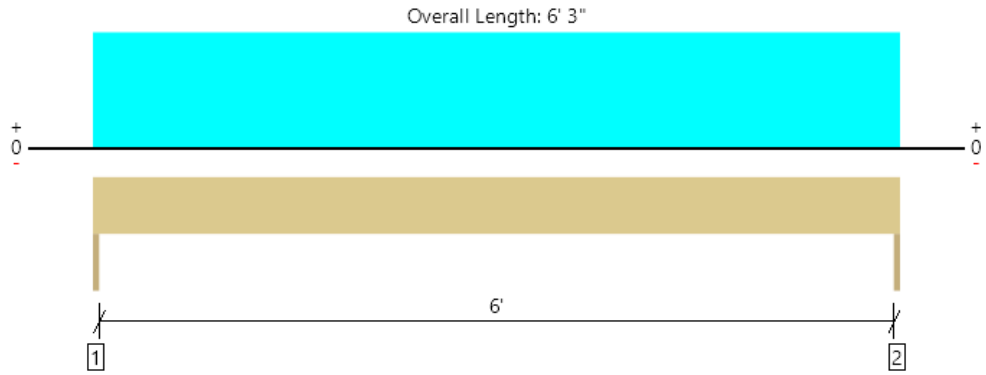
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

Weyerhaeuser

Calc #, #8 Wall: Header Laundry
1 piece(s) 4 x 8 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1553 @ 0	3281 (1.50")	Passed (47%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1191 @ 8 3/4"	3502	Passed (34%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2426 @ 3' 1 1/2"	3438	Passed (71%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.068 @ 3' 1 1/2"	0.156	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.096 @ 3' 1 1/2"	0.313	Passed (L/782)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	459	1094	1553	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	459	1094	1553	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 3" o/c	
Bottom Edge (Lu)	6' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	6.4	--	
1 - Uniform (PSF)	0 to 6' 3"	14'	10.0	25.0	Default Load

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

ForteWEB Software Operator	Job Notes
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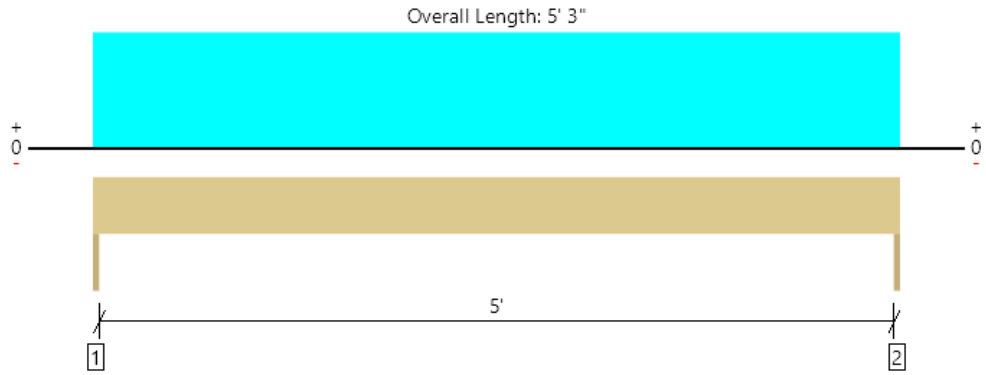
Weyerhaeuser

Calc #, #9 Wall: Header Bedroom 2
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2484 @ 0	3281 (1.50")	Passed (76%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1636 @ 10 3/4"	4468	Passed (37%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	3260 @ 2' 7 1/2"	5166	Passed (63%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.030 @ 2' 7 1/2"	0.131	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.044 @ 2' 7 1/2"	0.262	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	811	1050	1181	3042	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	811	1050	1181	3042	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 3" o/c	
Bottom Edge (Lu)	5' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 5' 3"	N/A	8.2	--	--	
1 - Uniform (PSF)	0 to 5' 3"	18'	10.0	-	25.0	Roof
2 - Uniform (PSF)	0 to 5' 3"	10'	12.0	40.0	-	Main Floor

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

ForteWEB Software Operator	Job Notes
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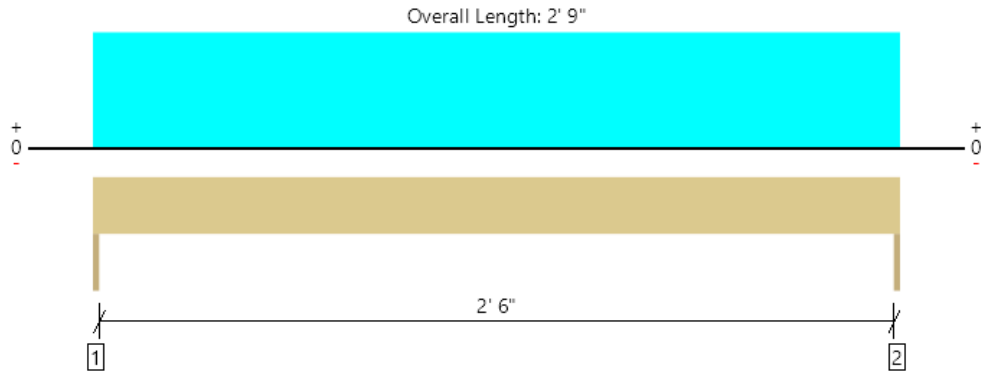
Weyerhaeuser

Calc #, #10 Wall: Header Storage
1 piece(s) 4 x 6 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	901 @ 0	3281 (1.50")	Passed (27%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	479 @ 7"	2310	Passed (21%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	572 @ 1' 4 1/2"	1720	Passed (33%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.007 @ 1' 4 1/2"	0.069	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.011 @ 1' 4 1/2"	0.138	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	282	550	275	1107	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	282	550	275	1107	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 9" o/c	
Bottom Edge (Lu)	2' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 2' 9"	N/A	4.9	--	--	
1 - Uniform (PSF)	0 to 2' 9"	8'	10.0	-	25.0	Roof
2 - Uniform (PSF)	0 to 2' 9"	10'	12.0	40.0	-	Main Floor

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

ForteWEB Software Operator	Job Notes
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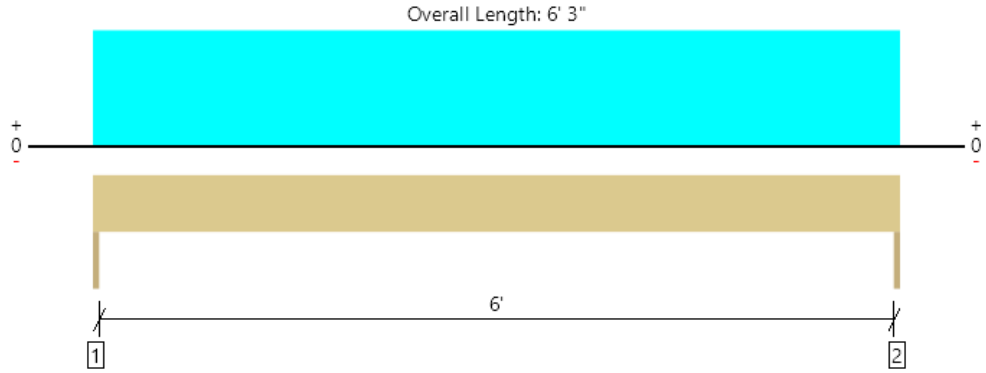
Weyerhaeuser

Calc #, #11 Wall: Header BR3
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2466 @ 0	3281 (1.50")	Passed (75%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1759 @ 10 3/4"	4468	Passed (39%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	3853 @ 3' 1 1/2"	5166	Passed (75%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.049 @ 3' 1 1/2"	0.156	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.073 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	802	1125	1094	3021	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	802	1125	1094	3021	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 3" o/c	
Bottom Edge (Lu)	6' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	8.2	--	--	
1 - Uniform (PSF)	0 to 6' 3"	14'	10.0	-	25.0	Roof
2 - Uniform (PSF)	0 to 6' 3"	9'	12.0	40.0	-	Main Floor

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

ForteWEB Software Operator	Job Notes
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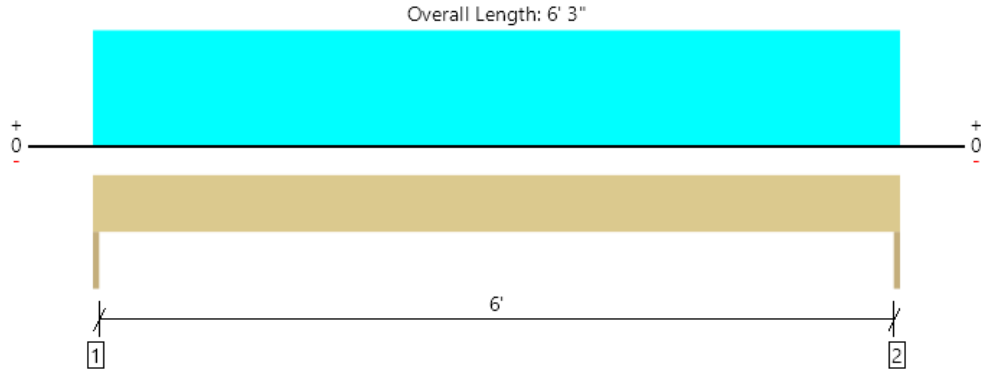
Weyerhaeuser

Calc #, #12 Wall: Header Living 2
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2466 @ 0	3281 (1.50")	Passed (75%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1759 @ 10 3/4"	4468	Passed (39%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	3853 @ 3' 1 1/2"	5166	Passed (75%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.049 @ 3' 1 1/2"	0.156	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.073 @ 3' 1 1/2"	0.313	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	802	1125	1094	3021	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	802	1125	1094	3021	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	6' 3" o/c	
Bottom Edge (Lu)	6' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 6' 3"	N/A	8.2	--	--	
1 - Uniform (PSF)	0 to 6' 3"	14'	10.0	-	25.0	Roof
2 - Uniform (PSF)	0 to 6' 3"	9'	12.0	40.0	-	Main Floor

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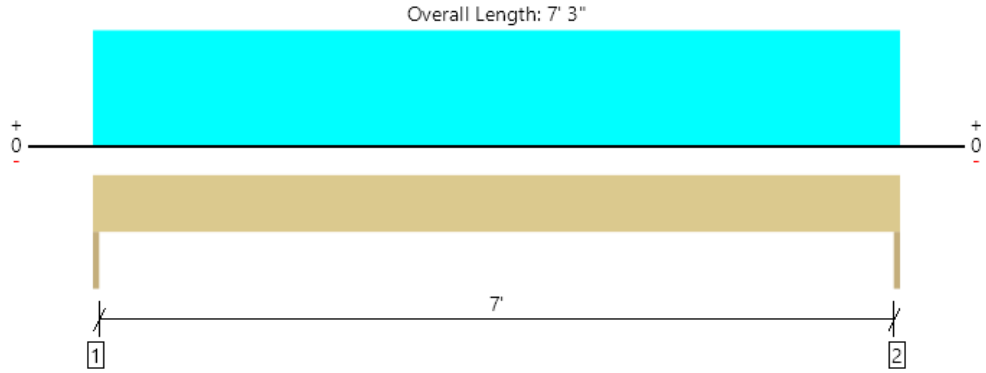
ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

Weyerhaeuser

Calc #, #13 Wall: Header Living 3
1 piece(s) 4 x 12 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2867 @ 0	3281 (1.50")	Passed (87%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	2027 @ 1' 3/4"	5434	Passed (37%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	5197 @ 3' 7 1/2"	7004	Passed (74%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.050 @ 3' 7 1/2"	0.181	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.074 @ 3' 7 1/2"	0.363	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	937	1305	1269	3511	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	937	1305	1269	3511	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	7' 3" o/c	
Bottom Edge (Lu)	7' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 7' 3"	N/A	10.0	--	--	
1 - Uniform (PSF)	0 to 7' 3"	14'	10.0	-	25.0	Roof
2 - Uniform (PSF)	0 to 7' 3"	9'	12.0	40.0	-	Main Floor

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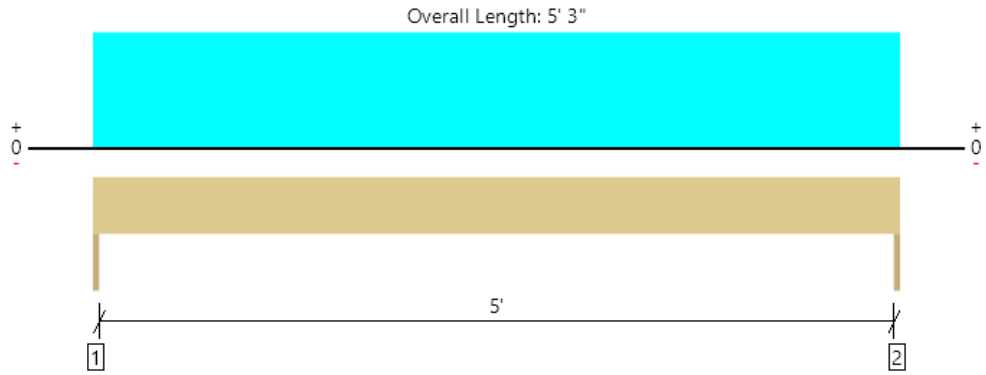
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

Weyerhaeuser

Calc #, #14 Wall: Header BR4 & Gym
1 piece(s) 4 x 10 DF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2257 @ 0	3281 (1.50")	Passed (69%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1487 @ 10 3/4"	4468	Passed (33%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	2963 @ 2' 7 1/2"	5166	Passed (57%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.027 @ 2' 7 1/2"	0.131	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.040 @ 2' 7 1/2"	0.262	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	732	1050	984	2766	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	732	1050	984	2766	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 3" o/c	
Bottom Edge (Lu)	5' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 5' 3"	N/A	8.2	--	--	
1 - Uniform (PSF)	0 to 5' 3"	15'	10.0	-	25.0	Roof
2 - Uniform (PSF)	0 to 5' 3"	10'	12.0	40.0	-	Main Floor

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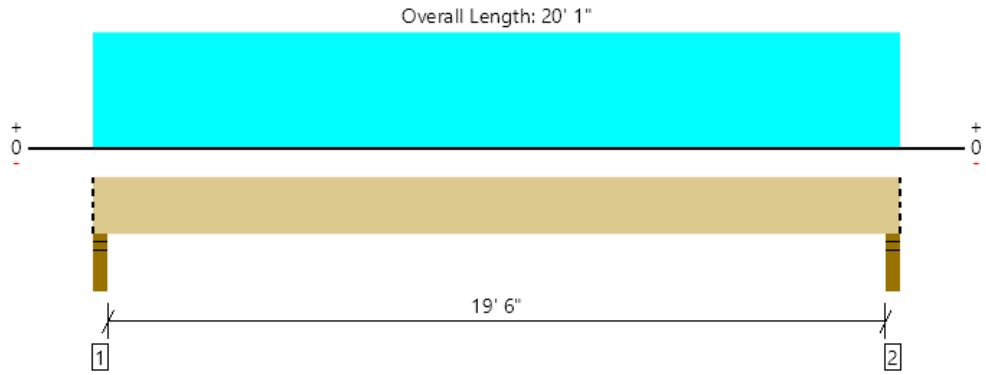
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

Weyerhaeuser

Calc #, #15 Floor: Drop Beam Entertainment
1 piece(s) 8 3/4" x 13 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)	4988 @ 2"	13016 (3.50")	Passed (38%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	4284 @ 1' 5"	20869	Passed (21%)	1.00	1.0 D + 1.0 L (All Spans)
Pos Moment (Ft-lbs)	24219 @ 10' 1/2"	50104	Passed (48%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.382 @ 10' 1/2"	0.494	Passed (L/621)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.527 @ 10' 1/2"	0.988	Passed (L/450)	--	1.0 D + 1.0 L (All Spans)

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

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 0.94 that was calculated using length L = 19' 9".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Stud wall - SPF	3.50"	3.50"	1.50"	1373	3615	4988	Blocking
2 - Stud wall - SPF	3.50"	3.50"	1.50"	1373	3615	4988	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)	20' 1" o/c	
Bottom Edge (Lu)	20' 1" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 20' 1"	N/A	28.7	--	
1 - Uniform (PSF)	0 to 20' 1" (Front)	9'	12.0	40.0	Default Load

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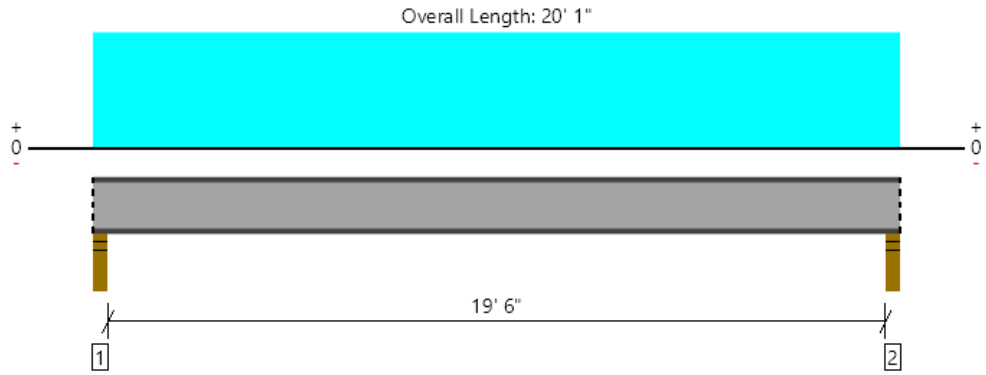
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

Weyerhaeuser

Calc #, #15 Floor: Drop Beam Entertainment
1 piece(s) W8X31 (A992) ASTM Steel



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)	5011 @ 2"	11900 (3.50")	Passed (42%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	4865 @ 3 1/2"	45600	Passed (11%)	--	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	24330 @ 10' 1/2"	55964	Passed (43%)	--	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.386 @ 10' 1/2"	0.494	Passed (L/613)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.536 @ 10' 1/2"	0.988	Passed (L/443)	--	1.0 D + 1.0 L (All Spans)

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

- Deflection criteria: LL (L/480) and TL (L/240).
- Applicable calculations are based on ANSI/AISC 360-16.
- A lateral-torsional buckling factor (Cb) of 1.0 has been assumed.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Stud wall - SPF	3.50"	3.50"	3.50"	1396	3615	5011	Blocking
2 - Stud wall - SPF	3.50"	3.50"	3.50"	1396	3615	5011	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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 20' 1"	N/A	31.0	--	
1 - Uniform (PSF)	0 to 20' 1"	9'	12.0	40.0	Default Load

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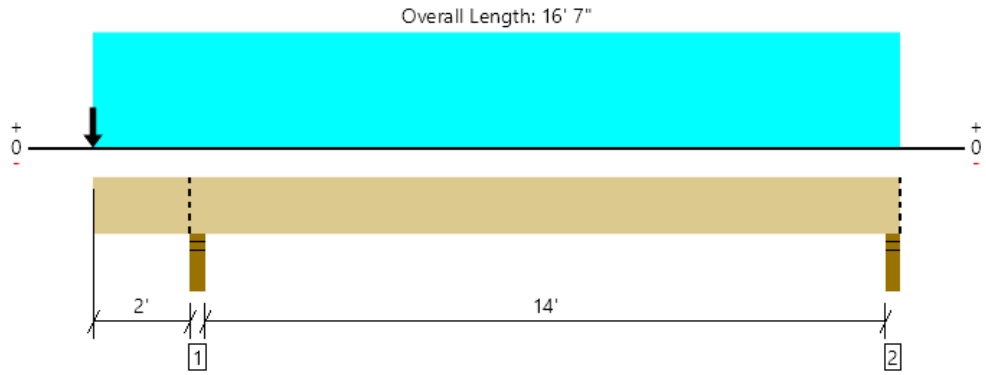
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Ken Nguyen NT Engineers (425) 891-5111 housedesign4u@outlook.com	

Weyerhaeuser

Calc #, #16 Floor: Joist M. Bed
1 piece(s) 2 x 10 DF No.2 @ 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)	1189 @ 2' 1 3/4"	2231 (3.50")	Passed (53%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	720 @ 1' 2 3/4"	1915	Passed (38%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1529 @ 9' 8 13/16"	2029	Passed (75%)	1.00	1.0 D + 1.0 L (Alt Spans)
Live Load Defl. (in)	0.311 @ 9' 3 1/8"	0.356	Passed (L/549)	--	1.0 D + 1.0 L (Alt Spans)
Total Load Defl. (in)	0.152 @ 0	0.215	Passed (2L/340)	--	1.0 D + 1.0 S (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

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

- Deflection criteria: LL (L/480) and TL (L/240).
- Overhang deflection criteria: LL (2L/480) and TL (2L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Stud wall - SPF	3.50"	3.50"	1.87"	381	503	575	1459	Blocking
2 - Stud wall - SPF	3.50"	3.50"	1.50"	84	391/-9	-75	475/-84	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)	7' 4" o/c	
Bottom Edge (Lu)	7' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 16' 7"	16"	12.0	40.0	-	Default Load
2 - Point (lb)	0	N/A	200	-	500	

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ForteWEB Software Operator	Job Notes
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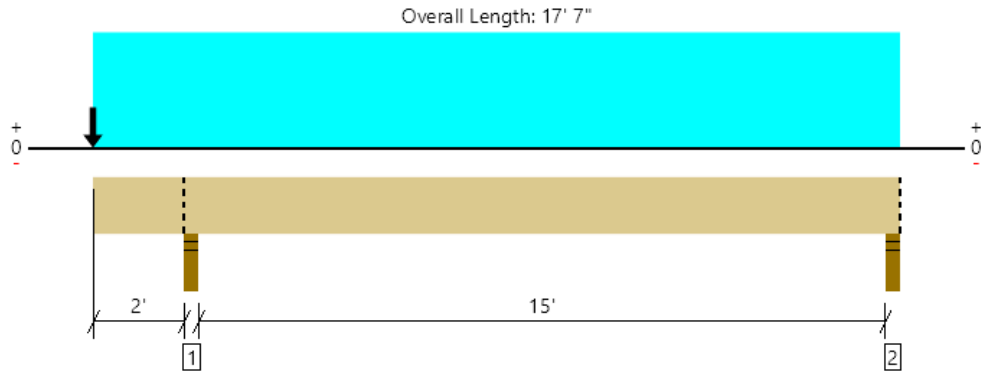
Weyerhaeuser

Calc #, #17 Floor: Joist Kitchen
1 piece(s) 2 x 10 DF No.2 @ 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)	1072 @ 2' 1 3/4"	2231 (3.50")	Passed (48%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	715 @ 1' 2 3/4"	1915	Passed (37%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	-1530 @ 2' 1 3/4"	2334	Passed (66%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.306 @ 9' 9 1/8"	0.381	Passed (L/598)	--	1.0 D + 1.0 L (Alt Spans)
Total Load Defl. (in)	0.166 @ 0	0.215	Passed (2L/310)	--	1.0 D + 1.0 S (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

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

- Deflection criteria: LL (L/480) and TL (L/240).
- Overhang deflection criteria: LL (2L/480) and TL (2L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)				Accessories
	Total	Available	Required	Dead	Floor Live	Snow	Total	
1 - Stud wall - SPF	3.50"	3.50"	1.68"	347	396	570	1313	Blocking
2 - Stud wall - SPF	3.50"	3.50"	1.50"	64	313/-6	-70	377/-76	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)	9' 7" o/c	
Bottom Edge (Lu)	7' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 17' 7"	12"	12.0	40.0	-	Default Load
2 - Point (lb)	0	N/A	200	-	500	

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ForteWEB Software Operator	Job Notes
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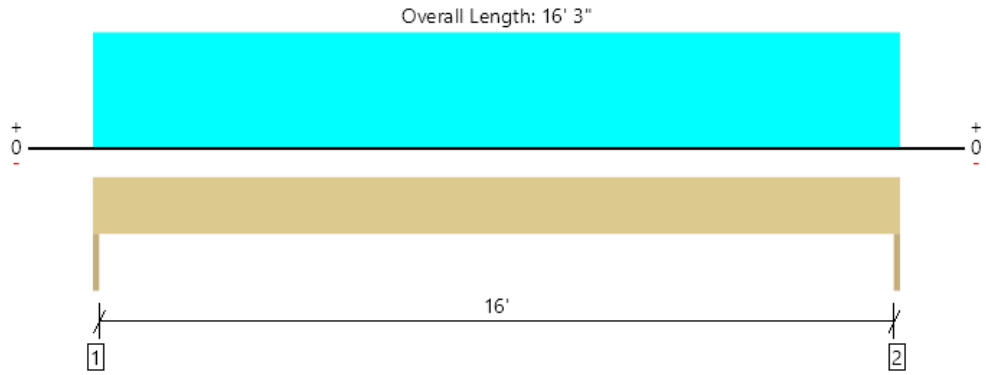
Weyerhaeuser

Calc #, #18 Wall: Header Garage
1 piece(s) 6 3/4" x 13 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)	5494 @ 0	6581 (1.50")	Passed (83%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	4648 @ 1' 3"	18514	Passed (25%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	22318 @ 8' 1 1/2"	46517	Passed (48%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.294 @ 8' 1 1/2"	0.406	Passed (L/663)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.426 @ 8' 1 1/2"	0.813	Passed (L/458)	--	1.0 D + 1.0 S (All Spans)

System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Critical positive moment adjusted by a volume factor of 0.99 that was calculated using length L = 16' 3".
- The effects of positive or negative camber have not been accounted for when calculating deflection.
- The specified glulam is assumed to have its strong laminations at the bottom of the beam. Install with proper side up as indicated by the manufacturer.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Total	
1 - Trimmer - SPF	1.50"	1.50"	1.50"	1702	3792	5494	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	1702	3792	5494	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	16' 3" o/c	
Bottom Edge (Lu)	16' 3" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 16' 3"	N/A	22.1	--	
1 - Uniform (PSF)	0 to 16' 3"	18' 8"	10.0	25.0	Default Load

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Weyerhaeuser

Floor Joist Sistering Connection

ROOF WIDTH = 30'

ROOF OVERHANG = 2'

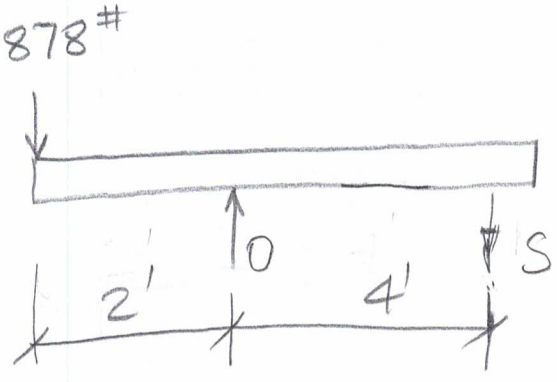
ROOF = 30'/2 + 2' = 17'

ROOF $_{DL}$ = 10 PSF (17') 16"/12 = 227#

ROOF $_{LL}$ = 25 PSF = 567#

WALL $_{DL}$ = 7 PSF (9') 16/12 = 84#

878#



$M_O = 0 = (-878^{\#} \times 2') + (S \times 4')$

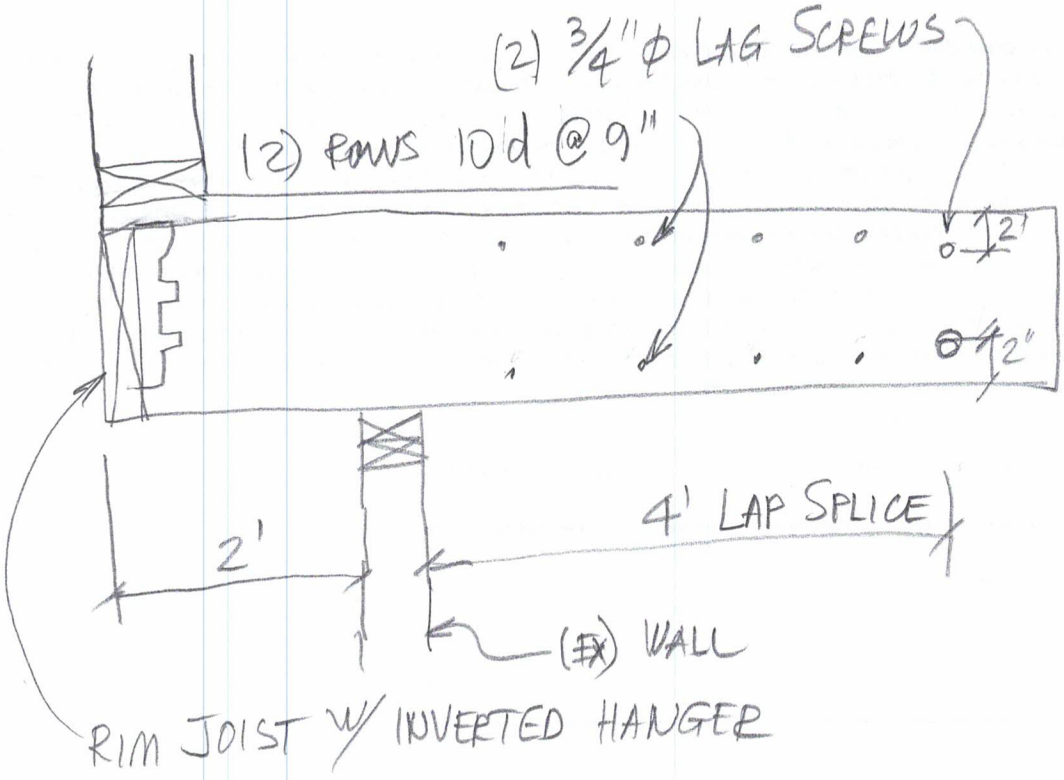
$S = \frac{878^{\#} \times 2'}{4'} = 439^{\#}$

TABLE 11J FOR 3/4"ϕ LAG SCREW PROVIDE 330# SHEAR CAPACITY

TRY (2) 3/4"ϕ LAG SCREWS

$$Z' = Z \times C_D \times C_M \times C_t$$

$$= (330 \times 2)\ 0.9\ (1.0)\quad 1.0 \quad = \quad 594^{\#} > 439^{\#}\ \text{OK}.$$



4124 94TH PL SE
MERCER ISLAND 98040

FOOTING AT N-E SIDE

$ROOF_{DL}$ = 10.0 PSF

SPAN = $34.5'/2 + 2' = 19.25'$

W_{DL} = 10.0 PSF (19.25') = $192.5\#/1$

$ROOF_{LL}$ = 25 PSF

W_{LL} = $25\ PSF/2\ (19.25') = 240\#/1$

$433\#/1$

$FLOOR_{DL}$ = 10.0 PSF

SPAN = $14.25'/2 = 7.2'$

W_{F-DL} = 10 PSF (7.2') = $72.5\#/1$

W_{F-LL} = 40PSF = $288\#/1$

$360\#/1$

TOTAL = $433\#/1 + 360\#/1 = 793\#/1$

ALLOWABL SOIL PRESSUR = 1500 PSF

F_{WIDTH} = $16''/12 = 1.33'$

F_A = 1500PSF (1.33') = $2000\#/1 > 793\#/1$

OK

EXISTING FOOTING AT N-E SIDE IS ADEQUATE

FOOTING AT S-E SIDE

SPAN = $27.5'/2 + 2' = 15.75'$

W_{DL} = 10 PSF (15.75') = 157.5 #/1

W_{LL} = 25 PSF = 437.5

595 #/1

$FLOOR_{DL}$ = 10 PSF (15.73') = 157.5 #/1

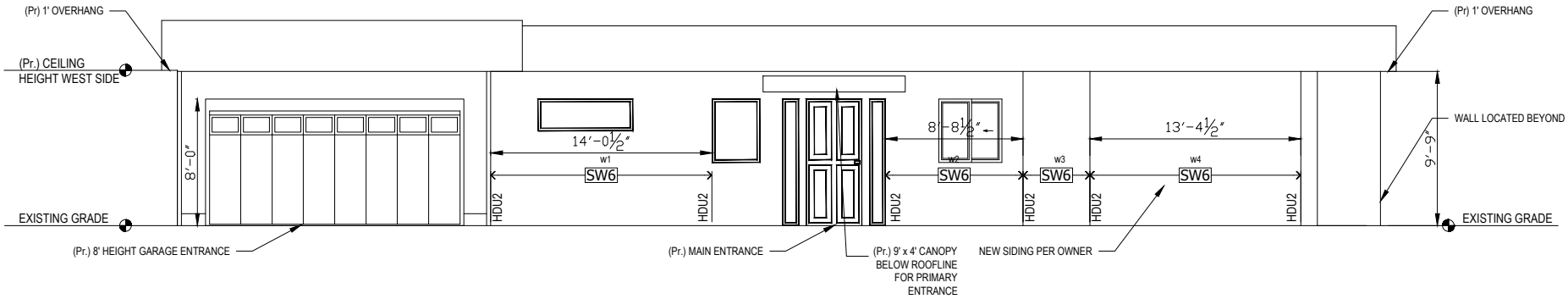
$FLOOR_{LL}$ = 40 PSF = 630

788 #/1

TOTAL = 595 #/1 + 788 = 1383 #/1 < 2000 #/1 ok

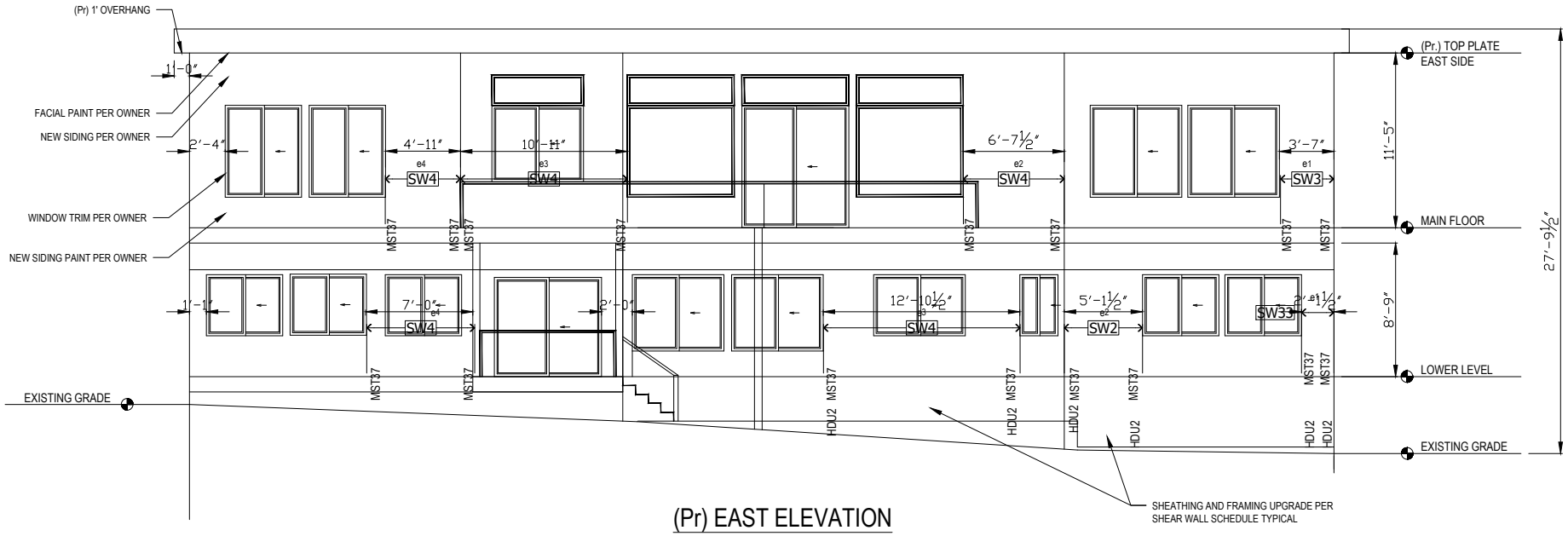
EXSTING FOOTING AT S-E SIDE IS ADEQUATE FOR THE PROPOSED REMODEL.

Lateral Analysis



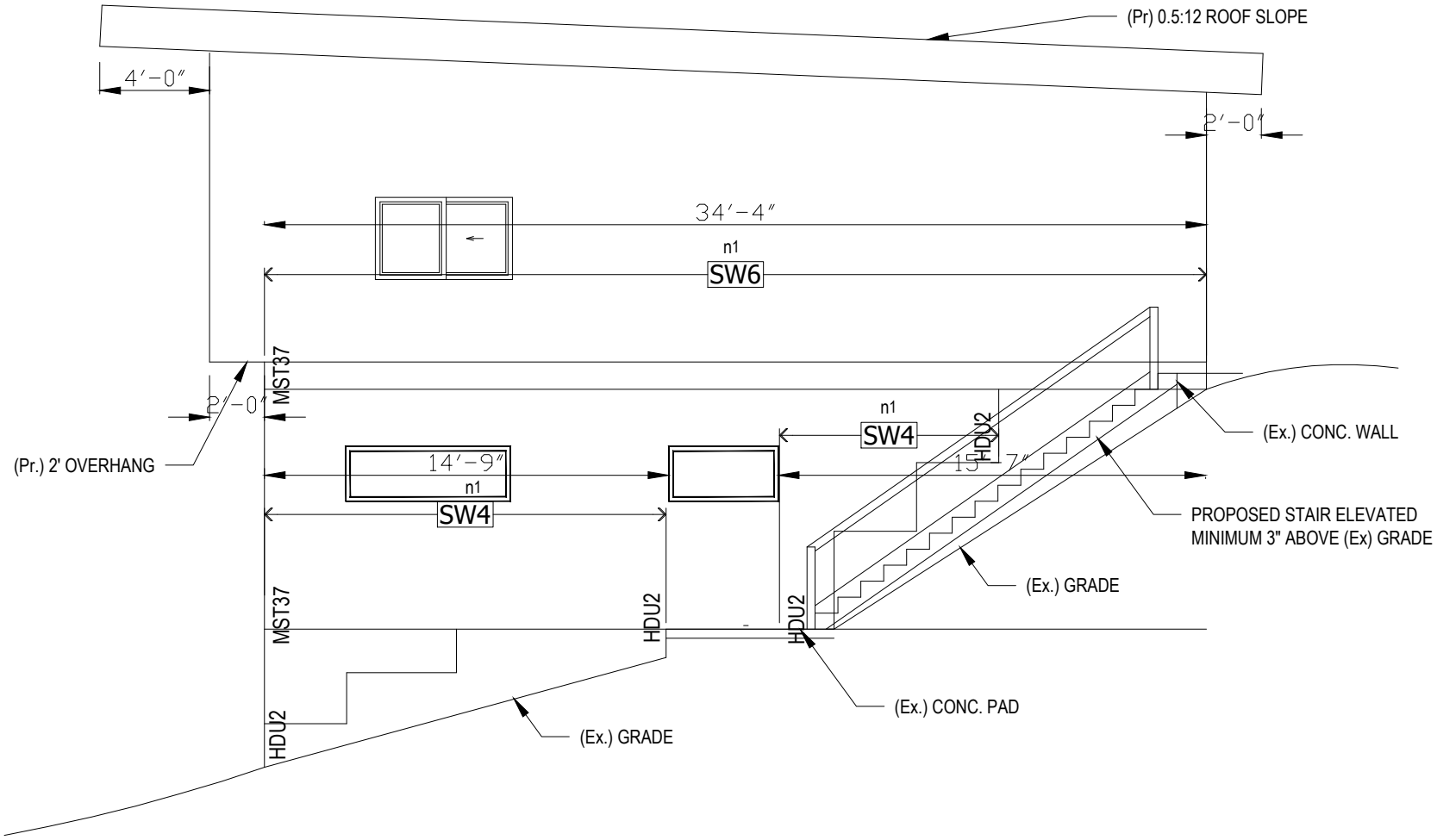
(Pr) WEST ELEVATION

SCALE $\frac{1}{4}$" = 1'-0"



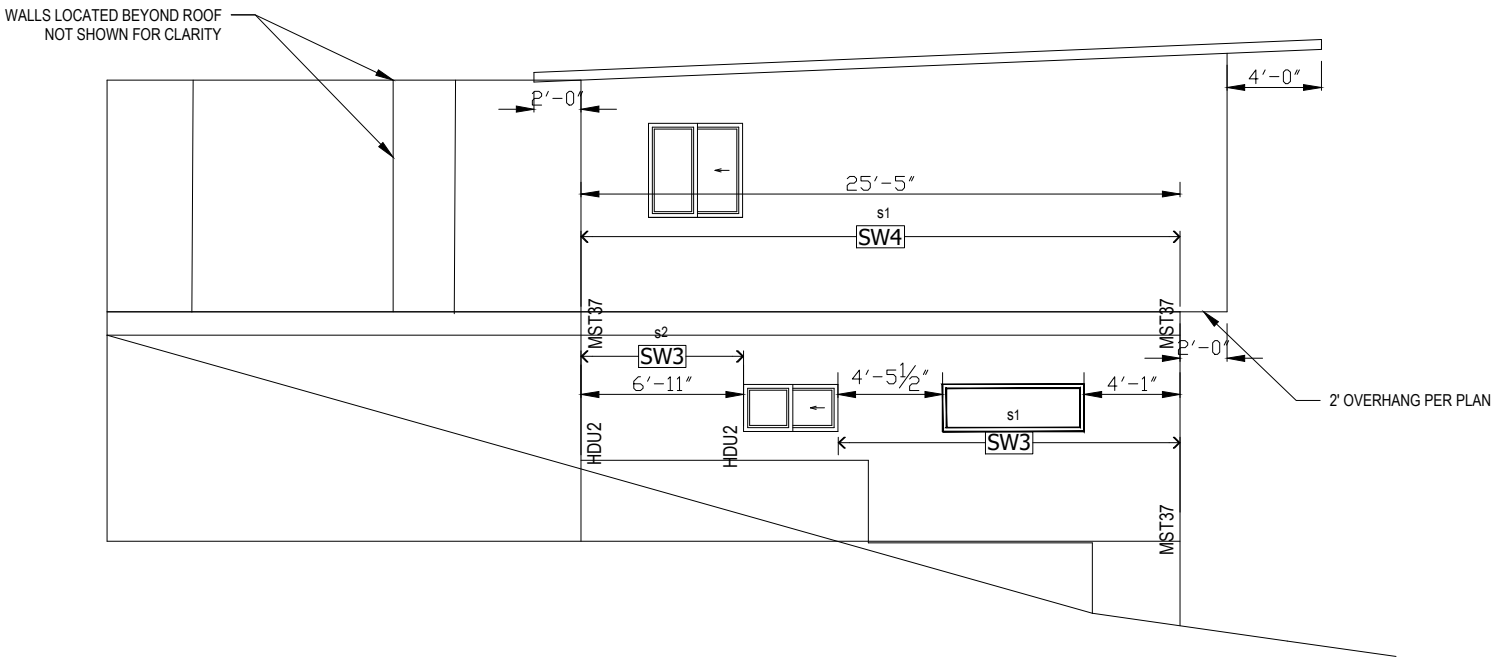
(Pr) EAST ELEVATION

SCALE $\frac{1}{4}$" = 1'-0"



(Pr) NORTH ELEVATION

SCALE $\frac{1}{4}$" = 1'-0"



(Pr) SOUTH ELEVATION

SCALE $\frac{1}{4}$" = 1'-0"

Hazards by Location

Search Information

Address: 4124 94th Pl SE, Mercer Island, WA 98040, USA

Coordinates: 47.5723124, -122.213217

Elevation: 299 ft

Timestamp: 2022-01-09T15:56:22.457Z

Hazard Type: Seismic

Reference Document: ASCE7-16

Risk Category: II

Site Class: D

Basic Parameters

Name	Value	Description
S_S	1.409	MCE_R ground motion (period=0.2s)
S_1	0.49	MCE_R ground motion (period=1.0s)
S_{MS}	1.409	Site-modified spectral acceleration value
S_{M1}	* null	Site-modified spectral acceleration value
S_{DS}	0.939	Numeric seismic design value at 0.2s SA
S_{D1}	* null	Numeric seismic design value at 1.0s SA

* See Section 11.4.8

Additional Information

Name	Value	Description
SDC	* null	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	* null	Site amplification factor at 1.0s
CR_S	0.903	Coefficient of risk (0.2s)
CR_1	0.898	Coefficient of risk (1.0s)
PGA	0.603	MCE_G peak ground acceleration
F_{PGA}	1.1	Site amplification factor at PGA
PGA_M	0.663	Site modified peak ground acceleration

T_L	6	Long-period transition period (s)
SsRT	1.409	Probabilistic risk-targeted ground motion (0.2s)
SsUH	1.561	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	3.674	Factored deterministic acceleration value (0.2s)
S1RT	0.49	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.546	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.463	Factored deterministic acceleration value (1.0s)
PGAd	1.25	Factored deterministic acceleration value (PGA)

* See Section 11.4.8

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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NT Engineers		Date:	1/8/22	
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com		
Project Name: Loo & Wai's Remodel	Description: Design Criteria			

Design Criteria:

Code:

International Building Code, 2018 edition	*IBC 2018*
National Design Specification for Wood Construction 2010 edition	*NDS, 2010*
American Concrete Institute, 318-14 edition	*ACI-318, 2014*
American Society of Civil Engineers, 7-16 edition	*ASCE 7-16*

Project Site:

4124 94th Pl SE
Mercer Island WA 98040

Latitude = 47.7754952
Longitude = -122.221938

Seismic:

R = 6.5 Bearing wall system, Wood structural panel walls

Mapped Spectral Acceleration, Ss =	1.409	(See attached print out)
Mapped Spectral Acceleration, S1 =	0.49	
Soil Site Class =	D	

Wind:

Exposure : B
Basic Wind Speed = 115 mph
Speed Up Factor Kzt = 1

Live Loads:

Roof = 25 psf (Snow)
Floor
Residiential = 40 psf
Stair = 100 psf
Deck /Balcony = 60 psf

Soils:

Values Assumed by Owner:
Soil Bearing = 1,500 psf (Assumed)
Active Soil Pressure = 35 pcf
Passive Soil Pressure = 250 pcf
IBC Soil Profile Type = S d
Frost Depth = 12 inches

NT Engineers		Date:	1/8/22		
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com			
Project Name: Loo & Wai's Remodel	Description: Design Criteria - Dead Loads				

Roof Assembly

Dead Load:

Roof Material	1.5 psf		
3/4" Plywood Sheathing.....	2.5 psf		
Wood Trusses at 24" o.c.....	3.0 psf		
Insulation	0.1 psf		
(1) Layers of 1/2" GWB.....	2.0 psf		
Miscellaneous	0.5 psf		
Total	9.6 psf	Use DL =	10.0 psf

Floor Assembly

Dead Load:

Flooring	1.0 psf		
3/4" T & G Plywood	2.5 psf		
Floor Joist at 16" o.c.....	3.0 psf		
1/2" Gypsum Ceiling Board	2.5 psf		
Miscellaneous	1.0 psf		
Total	10.0 psf	Use DL =	10.0 psf

Deck Dead Load:

Decking……	4.0 psf		
Miscellaneous	2.0 psf		
Total……	6.0 psf	Use DL =	6.0 psf

Exterior Wall Assembly

Siding	1.0 psf		
2x6 at 16" o.c.....	1.7 psf		
Insulation	0.5 psf		
7/16" Plywood Sheathing.....	1.5 psf		
(1) Layers of 1/2" GWB	2.3 psf		
Miscellaneous	0.5 psf		
Total	7.5 psf	Use DL =	8.0 psf

Interior Wall Assembly

(2) Layers of 1/2" GWB	4.4 psf		
2x4 at 16" o.c…….....	1.6 psf		
Miscellaneous	0.5 psf		
Total	6.5 psf	Use DL =	7.0 psf

NT Engineers
17614 NE 29th St - Redmond, WA 98052
Tel: 425-891-5111
Email: housedesign4u@outlook.com

Date: 1/8/22

Project Name: Loo & Wai's Remodel

Description: Wind Base Shear

IBC 2018

Basic Wind Speed, V3s =	115	mph		(ASCE 7-16 Fig. 26.5-1A)
Exposure =	B			
Risk Category =	II			
Roof Slope =	0.5	:12	=	2.39 degrees
Loads Front/Back - Width (ft)=	76.0	ft		Roof Profile = Gable
Loads Side - Width (ft) =	37.0	ft		Roof Profile = Gable
Eave Height =	19.0			
Mean Roof Ht. =	17.0	ft		
Edge Strip Width, a =	3.7	ft		(Figure 1609.6.2.1 note 10)
End Zone Widths =	7.40	ft		(2*a)
Wind Speed Up Kzt =	1.00			

NT Engineers		Date: 1/8/22	
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com	
Project Name: Loo & Wai's Remodel	Description:	Seismic Weights	

DEAD LOAD WEIGHTS FOR SEISMIC CALCULATIONS:

Unit Roof Weight:	10.0	psf
Unit Floor Weight:	10.0	psf
Unit Exterior Wall Wt:	8.0	psf
Unit Interior Wall Wt:	7.0	psf

LOCATION	LENGTH	HEIGHT	UNIT WT.		Total Wt.	Sub-Total	
ROOF LEVEL					(lbs)	(kips)	
Roof Area =	2812	1.000	10.0	=	28,120		
Ext. Wall Above	226	2.0	8.0	=	3,616		
Ext. Wall Below	226	5.0	8.0	=	9,040		
Int. Wall Below	187	5.0	7.0	=	6,545		
						47.3	Kips
4th							
Floor Area =	2812	1	10.0	=	28,120		
Low Roof Area =	0	1	10.0		0		
Ext. Wall Above	226	4.0	8.0	=	7,232		
Int. Wall Above	187	4.0	7.0	=	5,236		
Ext. Wall Below	226	0	8.0	=	0		
Int. Wall Below	60	0	7.0	=	0		
						40.6	Kips
3rd							
Floor Area =	2812	0	10.0	=	0		
Low Roof Area =	0	0	10.0	=	0		
Ext. Wall Above	226	0	8.0	=	0		
Int. Wall Above	60	0	7.0	=	0		
Ext. Wall Below	226	0	8.0	=	0		
Int. Wall Below	10	0	7.0	=	0		
						0.0	Kips
2nd							
Floor Area =	2812	0	10.0	=	0		
Low Roof Area =	0	0	10.0	=	0		
Ext. Wall Above	226	0	8.0	=	0		
Int. Wall Above	10	0	7.0	=	0		
Ext. Wall Below	90	0.0	8.0	=	0		
Int. Wall Below	25	0.0	7.0	=	0		
						0.0	Kips
1st							
Ext. Wall Above	90	0.0	8.0	=	0		
Int. Wall Above	25	0.0	7.0	=	0		
						0.0	Kips

STRUCTURE WEIGHT FOR SEISMIC BASE SHEAR: 87.9 Kips

TOTAL WEIGHT OF STRUCTURE: 87.9 Kips

NT Engineers		Date: 1/8/22	
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com	
Project Name: Loo & Wai's Remodel	Description:	Seismic Story Shear	

Equivelant Lateral Force Analysis ASCE7 12.8

Risk Category = II

Site Classification = D

Refer to attached sheet for Map specified variables

Ss = 1.4090 Fa = 1.000 *From attached sheet*

S1 = 0.4900 Fv = 1.505 *From attached sheet*

SDS =	0.939	= *0.67*Fa*Ss*	ASCE 7 Eq 11.4-3
SD1 =	0.492	= *0.67*Fv*S1*	ASCE 7 Eq 11.4-4
Building Height, hn =	21.0	ft	
Building Period Coefficient, CT =	0.020		ASCE 7-16, Table 12.8-2
Approx. Fundamental Period =	0.196	(CT*(hn)0.75)	ASCE 7-16, EQ 12.8-7
Response Modification Factor, R =	6.5		ASCE7-16 Table 12.2-1
Occupancy Importance Factor, IE =	1.0		ASCE 7-16 Table 1.5-2
Seismic Design Catergory =	D		ASCE 7-16 Table 11.6-1

	(front/back)	(side/side)	
Rho Factor (ρ) =	1.30	1.30	ASCE 7-16 12.3.4.2

Seismic Response Coefficient

Cs = SDS/R/I	Cs =	0.145	ASCE 7-16, EQ 12.8-2
Cs, MAX = SD1/T(R/I)	Cs, MAX =	0.386	ASCE 7-16, EQ 12.8-3
Cs, MIN = 0.044SDS*I	Cs, MIN =	0.041	ASCE 7-16, EQ 12.8-5
	Cs =	0.145	

Seismic Base Shear , V =	0.145	W	ASCE 7-16, EQ 12.8-1
Dead Load W =	87.9	kips	
V =	12.7	kips	

	(front/back)	(side/side)		19%
E= rV =	16.5	16.5	kips	ASCE 7-16, EQ 12.4-3

Vertical Distribution per ASCE7 – 12.8.3

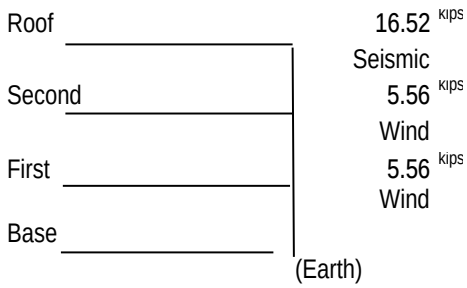
Floor	Story Height H (ft)	Total Height hx (ft)	Story Weight wx (kips)	wxhxk (k-ft)	Front/Back Story Force Fi (kips)	Side/Side Story Force Fi (kips)	Front/Back Story Shear E (kips)	Side/Side Story Shear E (kips)
Roof	8.00	8.00	47.3	379	16.52	16.52	16.52	16.52
4th	0.00	0.00	40.6	0	0.00	0.00	16.52	16.52
3rd	0.00	0.00	0.0	0	0.00	0.00	16.52	16.52
2nd	0.00	0.00	0.0	0	0.00	0.00	16.52	16.52
1st	0.00	0.00	0.0	0	0.00	0.00	16.5	16.5
sum			87.9	379	16.5	16.5		

k = 1.0

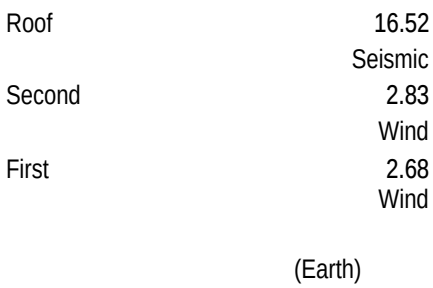
NT Engineers		Date: 01/08/22
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com
Project Name: Loo & Wai's Remodel	Description:	Lateral Design Loads

IBC 2018

	Front/Back Forces				Side Forces			
Level	Wind WF/B(kips)	Seismic E(kips)	Governing Force	Story Force	Wind WS(kips)	Seismic E(kips)	Governing Force	Story Force
Roof	8.34	16.52	Seismic	16.52	5.23	16.52	Seismic	16.52
Second	5.56	0.00	Wind	5.56	2.83	0.00	Wind	2.83
First	5.56	0.0	Wind	5.56	2.68	0.0	Wind	2.68
Base Shear	19.46	16.52		27.64	10.74	16.52		22.03



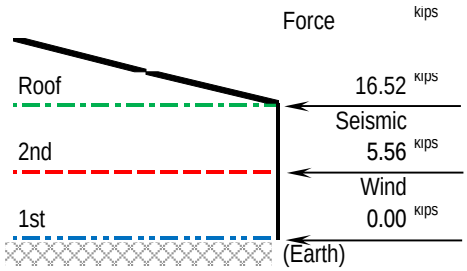
Front/Back Direction



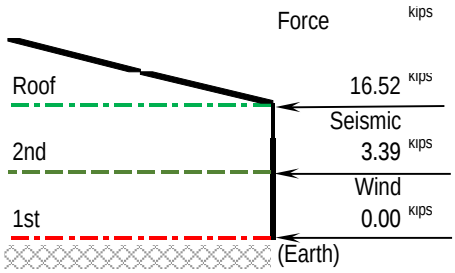
Side Direction

NT Engineers		Date: 01/08/22	
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com	
Project Name: Loo & Wai's Remodel	Description:	Lateral Design Loads	

	Front/Back Forces				Side Forces			
Level	Wind WF/B(kips)	Seismic E(kips)	Governing Force	Story Force	Wind WS(kips)	Seismic E(kips)	Governing Force	Story Force
Roof	8.34	16.52	Seismic	16.52	5.23	16.52	Seismic	16.52
4	5.56	0.00	Wind	5.56	3.39	0.00	Wind	3.39
3	0.00	0.00	Wind	0.00	0.00	0.00	Wind	0.00
2	5.56	0.00	Wind	5.56	2.83	0.00	Wind	2.83
Base Shear	19.46	16.52		27.64	11.45	16.52		22.73



Front/Back Direction



Side Direction

NT Engineers		Date: 01/08/22	
17614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com	
Project Name: Loo & Wai's Remodel	Description: Side Directic Shear Wall Design		

Roof - 2nd Floor Shearwalls (Force Travels side / side)

Front/Back Walls

Story shear(kips) = 16.52
Story height (ft) = 9.00 Lateral Controlling F/B : Wind 0.67
Total Width(ft) = 37.00

co Height/Width

Story	Wall	Wall D(ft)	Opening Width (ft)	rmax IBC 1617.2.2	Opening Height (ft)	co to Edge (ft)	Plate to Opening (ft)	Trib.Width (ft)	%Sharing	Story V(kips)	Sum V(kips)	Story DL(klf)	Sum DL(klf)	Panel Shear (plf)	Reduction (#) R = 2*w/H	Design Panel Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	Strap Type	Force at Window (k)	Wall Type
2	w1	14.00	0.00	0.13	0.00	0.00	0.00	18.50	0.3589	2.96	2.96	0.19	0.19	212	1.00	212	26.67	12.48	1.06	MST37	N/A	SW-6
2	w2	8.75	0.00	0.10	0.00	0.00	0.00	18.50	0.1731	1.43	1.43	0.19	0.19	163	1.00	163	12.86	4.87	0.98	MST37	N/A	SW-6
2	w3	5.00	0.00	0.13	0.00	0.00	0.00	18.50	0.1280	1.06	1.06	0.19	0.19	211	1.00	211	9.51	1.59	1.80	MST37	N/A	SW-6
2	w4	13.25	0.00	0.13	0.00	0.00	0.00	18.50	0.3399	2.81	2.81	0.19	0.19	212	1.00	212	25.26	11.17	1.11	MST37	N/A	SW-6
2	e1	3.50	0.00	0.19	0.00	0.00	0.00	18.50	0.1359	1.12	1.12	0.19	0.19	321	0.78	412	10.10	0.78	3.21	MST48	N/A	SW-3
2	e2	6.50	0.00	0.19	0.00	0.00	0.00	18.50	0.2524	2.08	2.08	0.19	0.19	321	1.00	321	18.76	2.69	2.72	MST48	N/A	SW-4
2	e3	10.75	0.00	0.19	0.00	0.00	0.00	18.50	0.4175	3.45	3.45	0.19	0.19	321	1.00	321	31.03	7.36	2.33	MST48	N/A	SW-4
2	e4	5.00	0.00	0.19	0.00	0.00	0.00	18.50	0.1942	1.60	1.60	0.19	0.19	321	1.00	321	14.43	1.59	2.92	MST48	N/A	SW-4
2	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.19	0.19	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
	S	66.75	rmax =	0.19				37.00	1.0000	16.51	16.51											

m

2nd - 1st Floor Shearwalls (Force T

Front/Back Walls

Story shear(kips) = 3.39 Accumulated shear(kips)= 19.91
Story height (ft) = 8.00 Lateral Controlling F/B : Wind 0.67
Total Width(Ft) = 37.00

Height/Width From end

Story	Wall	Wall D(ft)	Opening Width (ft)	rmax IBC 1617.2.2	Opening Height (ft)	pening (max to Edge (ft)	Plate to Opening (ft)	Trib.Width (ft)	%Sharing	Story V(kips)	Sum V(kips)	Story DL(klf)	Sum DL(klf)	Panel Shear (plf)	Reduction (#) R = 2*w/H	Design Panel Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	Allow. Type	HD Type	of wall (inches)	Force at Window (k)	Wall Type	Anchor Bolts
1	w1	14.00	0.00	0.15	0.00	0.00	0.00	18.50	0.3589	0.61	3.57	0.24	0.43	255	1.00	255	55.25	84.67	-2.18	Both	N/A	N/A	N/A	SW-4	32-OC, 2x
1	w2	8.75	0.00	0.12	0.00	0.00	0.00	18.50	0.1731	0.29	1.72	0.24	0.43	197	1.00	197	26.65	33.08	-0.78	Both	N/A	N/A	N/A	SW-6	48-OC, 2x
1	w3	5.00	0.00	0.15	0.00	0.00	0.00	18.50	0.1280	0.22	1.27	0.24	0.43	255	1.00	255	19.70	10.80	1.98	Both	STHD8	N/A	N/A	SW-4	32-OC, 2x
1	w4	13.25	0.00	0.15	0.00	0.00	0.00	18.50	0.3399	0.58	3.38	0.24	0.43	255	1.00	255	52.33	75.84	-1.84	Both	N/A	N/A	N/A	SW-4	32-OC, 2x
1	e1	4.00	0.00	0.20	0.00	0.00	0.00	18.50	0.1359	0.23	1.35	0.24	0.43	338	0.89	380	20.92	6.91	4.00	Both	STHD10	4.50	N/A	SW-3	16-OC, 2x
1	e2	5.00	0.00	0.30	0.00	0.00	0.00	18.50	0.2524	0.43	2.51	0.24	0.43	502	1.00	502	38.86	10.80	6.23	Both	HDQ8	4.50	N/A	SW-2	12-OC, 2x
1	e3	12.75	0.00	0.20	0.00	0.00	0.00	18.50	0.4175	0.71	4.16	0.24	0.43	326	1.00	326	64.27	70.23	-0.49	Both	N/A	3.00	N/A	SW-4	32-OC, 2x
1	e4	7.00	0.00	0.17	0.00	0.00	0.00	18.50	0.1942	0.33	1.93	0.24	0.43	276	1.00	276	29.90	21.17	1.34	Both	STHD8	N/A	N/A	SW-4	32-OC, 2x
1	0.0	0.00	0.00	0.10	0.00	0.00	0.00	18.50	0.0000	0.00	0.00	0.24	0.43	170	N/A	N/A	0.00	0.00	0.00	Both	N/A	N/A	N/A	REVISE	REVISE
	S	69.75	rmax =	0.30				37.00		3.39	19.91														

NT Engineers		Date: 01/08/22
7614 NE 29th St - Redmond, WA 98052	Tel: 425-891-5111	Email: housedesign4u@outlook.com
Project Name: Loo & Wai's Remodel	Description: Side Directio	Shear Wall Design

Roof - 2nd Floor Shearwalls (Force Travels Front/Back)

Side Walls

Story shear(kips) = 16.52
Story height (ft) = 9.00
Total Width(ft) = 76.00

Lateral Controlling F/B : Wind 0.67

Story	Wall	Wall D(ft)	Opening Width (ft)	rmax IBC 1617.2.2	Opening Height (ft)	co to Edge (ft)	Plate to Opening (ft)	Trib.Width (ft)	%Sharing	Story V(kips)	Sum V(kips)	Story DL(klf)	Sum DL(klf)	Height/Width Panel Shear (plf)	Reduction (#) R = 2*w/H	Design Panel Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	Strap Type	Force at Window (k)	Wall Type
2	n1	34.00	0.00	0.06	0.00	0.00	0.00	38.00	0.4356	3.60	3.60	0.25	0.25	106	1.00	106	32.37	96.82	-1.93	N/A	N/A	SW-6
2	o	0.00	0.00	1.00	0.00	0.00	0.00	38.00	0.5644	4.66	4.66	0.25	0.25	46605812	N/A	N/A	41.95	0.00	-69.92	N/A	N/A	REVISE
2	o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.25	0.25	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
2	o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.25	0.25	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
2	s1	25.00	0.00	0.20	0.00	0.00	0.00	38.00	1.0000	8.26	8.26	0.25	0.25	330	1.00	330	74.32	52.34	0.90	MST37	N/A	SW-4
2	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.25	0.25	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
2	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.25	0.25	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
2	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.25	0.25	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
2	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.25	0.25	0	N/A	N/A	0.00	0.00	0.00	N/A	N/A	REVISE
	S	59.00	rmax =	1.00				76.00	1.00	16.52	16.52											

di

2nd - 1st Floor Shearwalls (Force Travels Front/Back)

Side Walls

Story shear(kips) = 5.56
Story height (ft) = 8.00
Total Width(Ft) = 76.00

Accumulated shear(kips)= 22.08
Lateral Controlling F/B : Wind 0.67

Story	Wall	Wall D(ft)	Opening Width (ft)	rmax IBC 1617.2.2	Opening Height (ft)	Opening (max) to Edge (ft)	Plate to Opening (ft)	Trib.Width (ft)	%Sharing	Story V(kips)	Sum V(kips)	Story DL(klf)	Sum DL(klf)	Height/Width Panel Shear (plf)	Reduction (#) R = 2*w/H	Design Panel Shear (plf)	Sum OTM(k-ft)	RM (k-ft)	Resultant HD(kips)	Allow. Type	HD Type	From end of wall (inches)	Force at Window (k)	Wall Type	Anchor Bolts
1	n1	15.00	0.00	0.20	0.00	0.00	0.00	38.00	0.5000	1.39	4.99	0.24	0.49	332	1.00	332	72.27	110.70	-2.65	Both	N/A	N/A	N/A	SW-4	32-OC, 2x
1	n2	15.00	0.00	0.24	0.00	0.00	0.00	38.00	0.5000	1.39	6.05	0.24	0.49	403	1.00	403	90.35	110.70	-1.40	Both	N/A	N/A	N/A	SW-3	16-OC, 2x
1	o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.24	0.49	0	N/A	N/A	0.00	0.00	0.00	Both	N/A	N/A	N/A	REVISE	REVISE
1	o	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.24	0.49	0	N/A	N/A	0.00	0.00	0.00	Both	N/A	N/A	N/A	REVISE	REVISE
1	s1	14.00	0.00	0.44	0.00	0.00	0.00	38.00	0.6667	1.85	10.11	0.24	0.49	722	1.00	722	155.21	96.43	4.35	Both	STHD10	4.50	N/A	SW-33	16-OC, 3x
1	s2	7.00	0.00	0.08	0.00	0.00	0.00	38.00	0.3333	0.93	0.93	0.24	0.49	132	1.00	132	7.41	24.11	-2.57	Both	N/A	4.50	N/A	SW-6	48-OC, 2x
1	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.24	0.49	0	N/A	N/A	0.00	0.00	0.00	Both	N/A	3.00	N/A	REVISE	REVISE
1	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.24	0.49	0	N/A	N/A	0.00	0.00	0.00	Both	N/A	N/A	N/A	REVISE	REVISE
1	z	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.00	0.00	0.24	0.49	0	N/A	N/A	0.00	0.00	0.00	Both	N/A	N/A	N/A	REVISE	REVISE
	S	51.00	rmax =	0.44				76.00		5.56	22.08														