STRUCTURAL CALCULATIONS

POST PERMIT REVISIONS

Project:
Rosenwald Residence
4836 E Mercer Way
Mercer Island, WA 98040

Architect:
JML Architects
Mercer Island, WA 98040

Structural Engineer:
Harriott Valentine Engineers, Inc.
1932 First Avenue, Suite 720
Seattle, WA 98101
tel. 206-624-4760

3/23/26

floor	dead	3/4" hardwood	3.0	live	residential	40.0 psf
		3/4" plywood	2.3			
		2x10 @ 16"oc	2.8			
		acoustic insulation	1.0			
		1/2" gyp. wallboard	2.2			
		miscellaneous	1.7 13%			
			13.0 psf			
	total					
		dead + live	53.0 psf			
garage	dead	3/4" hardwood	3.0	live	residential	40.0 psf
upper		3/4" plywood	2.3			
floor		11-7/8" TJI 110 @ 16"oc	1.9			
		acoustic insulation	1.0			
		1/2" gyp. wallboard	2.2			
		miscellaneous	1.6 13%			
			12.0 psf			
	total					
		dead + live	52.0 psf			
walls		wood siding	2.0			
		battens 2x2 @ 24"oc	0.3			
		1/2" plywood	1.5			
		2x4 @ 16"oc	1.1			
		R21 insulation	0.8			
		1/2" gyp. wallboard	2.2			
		miscellaneous	1.1 12%			
			9.0 psf			

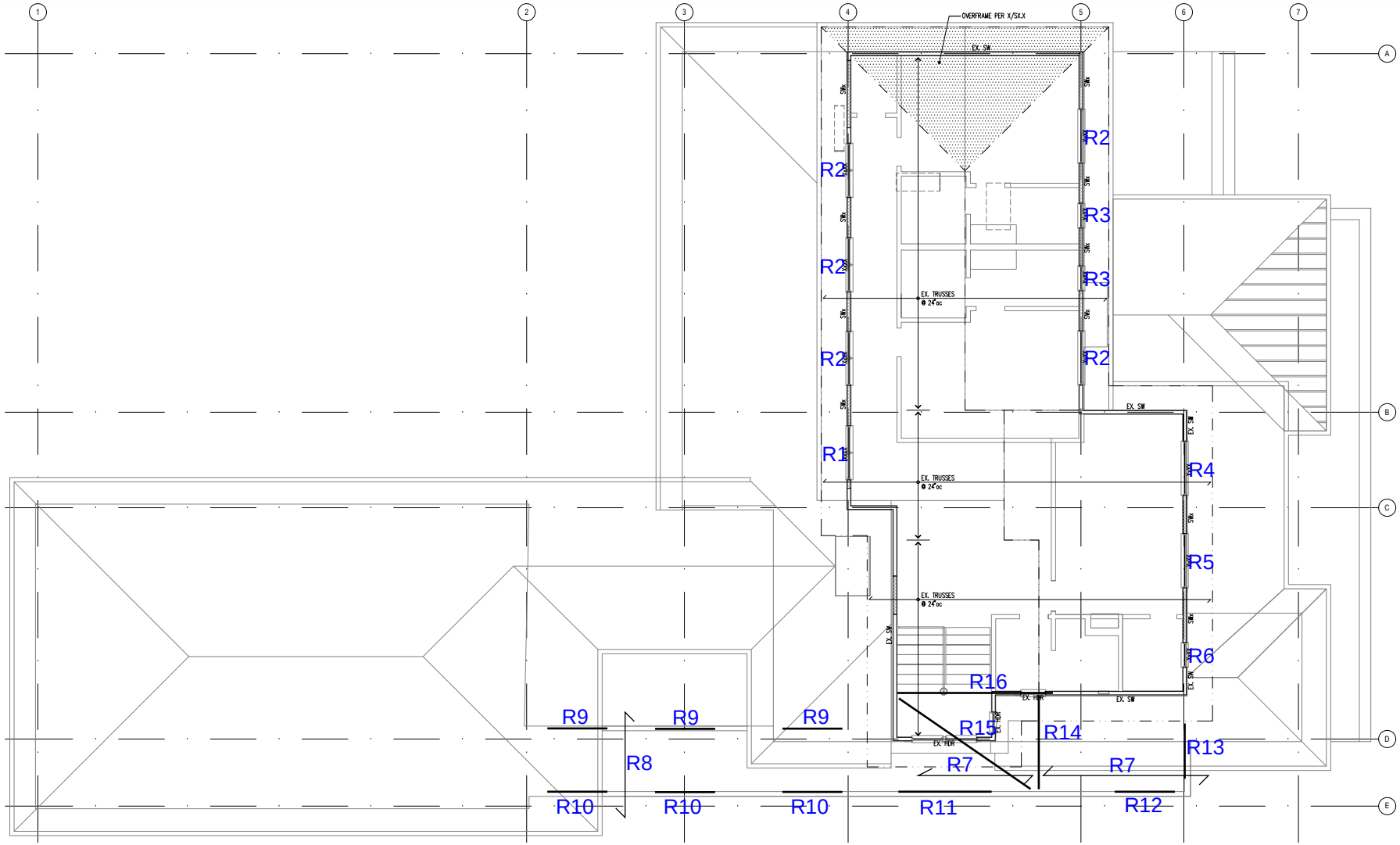
SECTION 1: GENERAL

CRITERIA

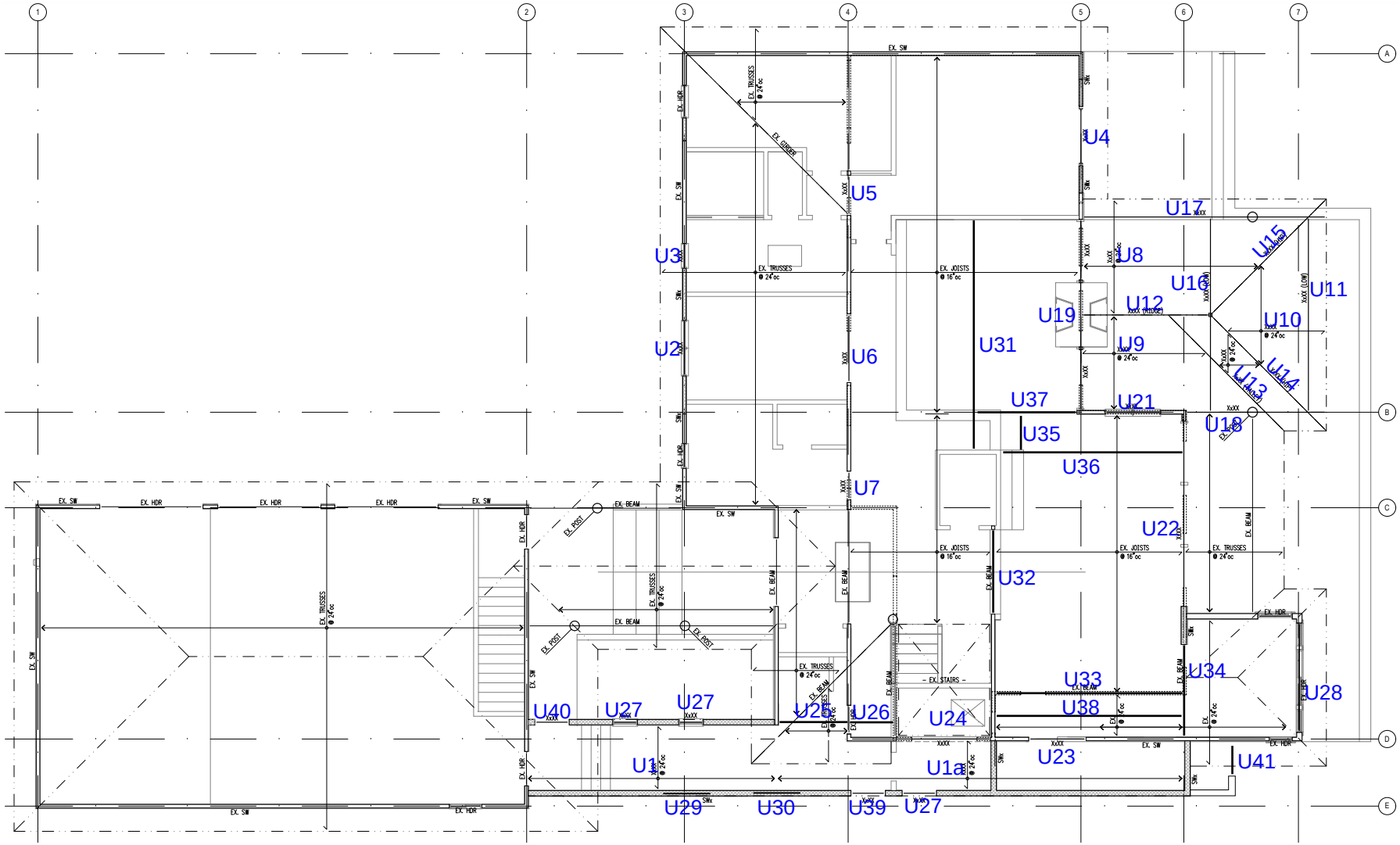
Gravity

exist. roof	dead	asphalt shingles	2.5	live	snow	25.0 psf
		1/2" plywood	1.5			
		R30 insulation	1.2			
		2x8 @ 24"oc (rafter)	1.5			
		2x4 @ 24"oc (ceiling)	0.7			
		5/8" gyp. wallboard	2.8			
		slope factor	0.7			
		miscellaneous	2.1 16%			
			13.0 psf			
	total	dead + live	38.0 psf			
new garage roof	dead	asphalt shingles	2.5	live	snow	25.0 psf
		1/2" plywood	1.5			
		R30 insulation	1.2			
		2x10 @ 24"oc	1.9			
		5/8" gyp. wallboard	2.8			
		slope factor	0.5			
		miscellaneous	1.6 13%			
			12.0 psf			
	total	dead + live	37.0 psf			
new flat roof	dead	asphalt shingles	2.5	live	snow	25.0 psf
		1/2" plywood	1.5			
		R30 insulation	1.2			
		2x8 @ 24"oc	1.5			
		5/8" gyp. wallboard	2.8			
		slope factor	0			
		miscellaneous	1.5 14%			
			11.0 psf			
	total	dead + live	36.0 psf			
new patio roof	dead	asphalt shingles	2.5	live	snow	25.0 psf
		1/2" plywood	1.5			
		2x10 @ 16"oc	2.8			
		T&G boards	2.8			
		slope factor	0.7			
		miscellaneous	1.7 14%			
			12.0 psf			
	total	dead + live	37.0 psf			
new patio roof (glazing)	dead	asphalt shingles	2.5	live	snow	25.0 psf
		1/2" plywood	1.5			
		2x10 @ 16"oc	2.8			
		skylights/glazing	5.0			
		slope factor	0.7			
		miscellaneous	1.5 11%			
			14.0 psf			
	total	dead + live	39.0 psf			

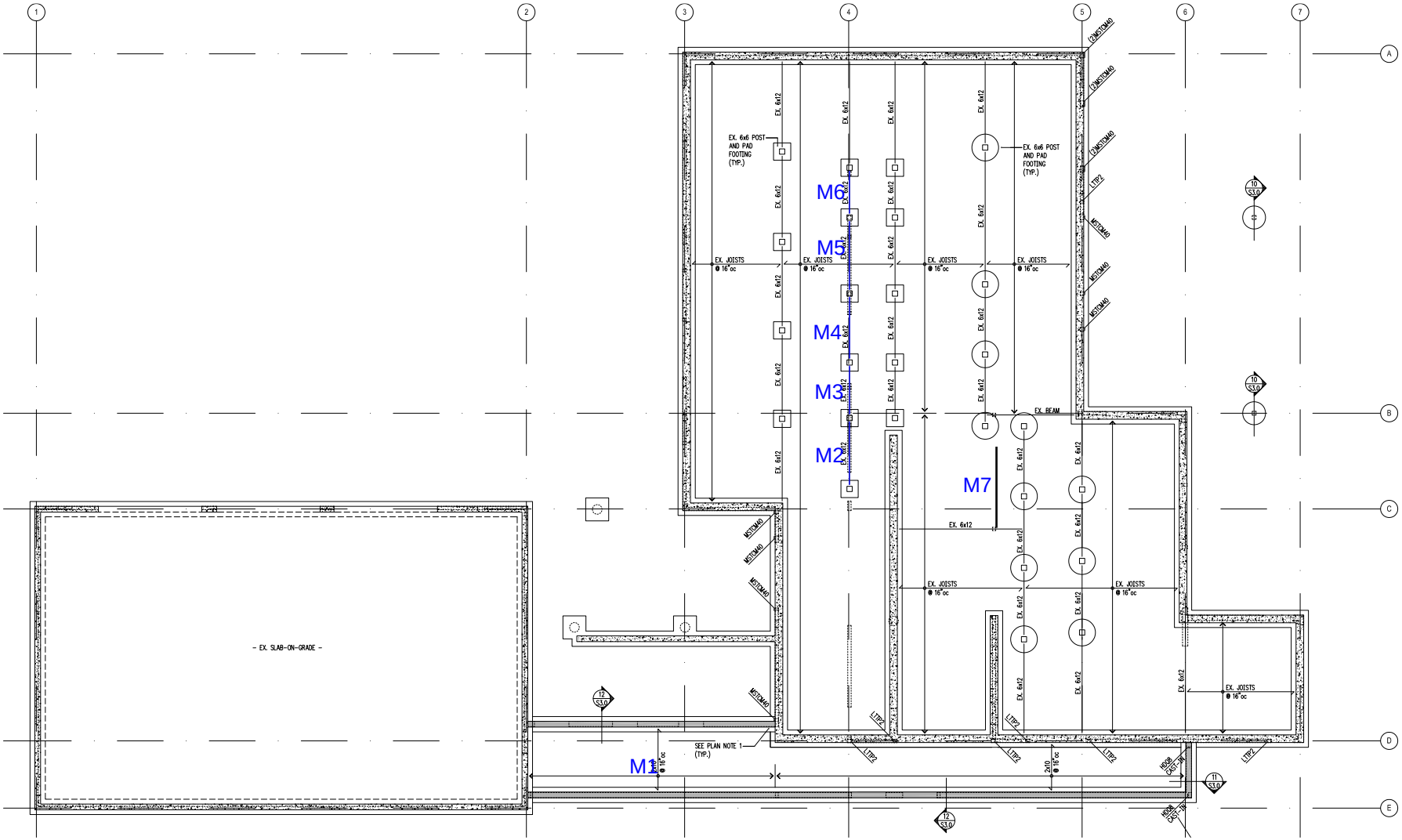
SECTION 2: FRAMING


OVERFRAME PER X/SX.X
EX. SW
EX. TRUSSES @ 24"oc
EX. HDR
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16

Roof Beams

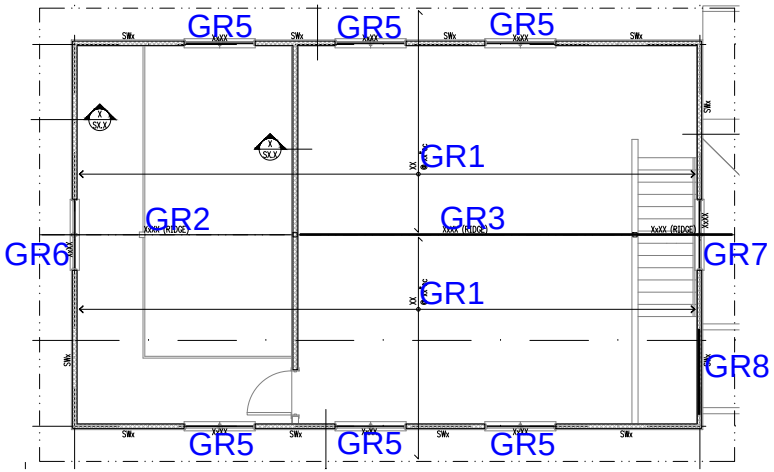


Upper Floor Beams

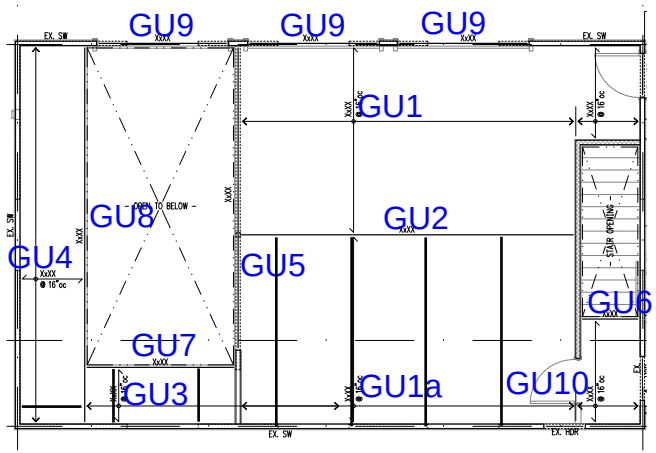


Main Floor Beams

Garage Roof Framing



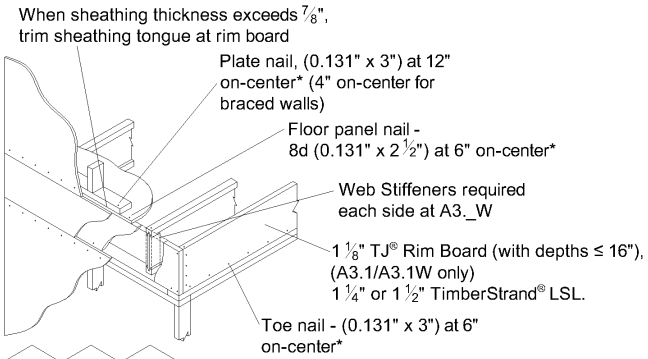
Garage Upper Floor Framing



Roof			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
R1	Passed (95% R)	2 piece(s) 2 x 8 HF No.2	
R2	Passed (70% R)	2 piece(s) 2 x 8 HF No.2	
R3	Passed (34% R)	2 piece(s) 2 x 8 HF No.2	
R4	Passed (95% R)	2 piece(s) 2 x 8 HF No.2	
R5	Passed (95% R)	2 piece(s) 2 x 8 HF No.2	
R6	Passed (69% R)	2 piece(s) 2 x 8 HF No.2	
R7	Passed (65% M)	1 piece(s) 2 x 10 HF No.2 @ 24" OC	
R8	Passed (12% R)	1 piece(s) 2 x 10 HF No.2 @ 24" OC	
R9	Passed (44% M)	2 piece(s) 2 x 6 HF No.2	
R10	Passed (40% M)	2 piece(s) 2 x 6 HF No.2	
R11	Passed (67% M)	2 piece(s) 2 x 6 HF No.2	
R12	Passed (31% M)	2 piece(s) 2 x 6 HF No.2	
R13	Passed (61% M)	2 piece(s) 2 x 6 HF No.2	
R14	Passed (49% M)	2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL	
R15	Passed (89% M)	2 piece(s) 2 x 10 HF No.2	
R16	Passed (40% ΔT)	2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL	

Upper Floor			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
U1	Passed (36% M)	1 piece(s) 2 x 8 HF No.2 @ 24" OC	
U1a	Passed (21% M)	1 piece(s) 2 x 8 HF No.2 @ 24" OC	
U2	Passed (70% M)	2 piece(s) 2 x 8 HF No.2	
U3	Passed (32% R)	2 piece(s) 2 x 8 HF No.2	
U4	Passed (98% M)	2 piece(s) 2 x 8 HF No.2	
U7	Passed (71% M)	2 piece(s) 2 x 8 HF No.2	
U8	Passed (22% R)	1 piece(s) 2 x 10 HF No.2 @ 16" OC	
U9	Passed (71% M)	1 piece(s) 2 x 10 HF No.2 @ 16" OC	
U10	Passed (24% R)	1 piece(s) 2 x 10 HF No.2 @ 16" OC	
U11	Passed (43% ΔT)	1 piece(s) 3 1/2" x 10 1/2" 24F-V4 DF Glulam	
U12	Passed (86% M)	1 piece(s) 4 x 12 DF No.1	
U13	Passed (86% M)	1 piece(s) 4 x 10 DF No.1	
U14, U15	Passed (67% M)	2 piece(s) 2 x 10 HF No.2	
U16	Passed (77% M+)	1 piece(s) 5 1/2" x 10 1/2" 24F-V4 DF Glulam	
U17	Passed (101% ΔT)	1 piece(s) 5 1/2" x 10 1/2" 24F-V4 DF Glulam	
U18	Passed (32% M+)	1 piece(s) 5 1/2" x 10 1/2" 24F-V4 DF Glulam	
U19 (EQ)	Passed (70% R)	1 piece(s) 3 1/2" x 9 1/4" 2.0E Parallam® PSL	
U19 (WIND)	Passed (69% R)	1 piece(s) 3 1/2" x 9 1/4" 2.0E Parallam® PSL	
U21	Passed (34% M)	2 piece(s) 2 x 8 HF No.2	
U22 (EQ)	Passed (54% R)	1 piece(s) 5 1/4" x 16" 2.0E Parallam® PSL	
U22 (WIND)	Passed (42% R)	1 piece(s) 5 1/4" x 9 1/4" 2.0E Parallam® PSL	
U23	Passed (38% M)	2 piece(s) 2 x 8 HF No.2	
U24	Passed (50% M)	2 piece(s) 2 x 10 HF No.2	
U25	Passed (74% R)	2 piece(s) 2 x 8 HF No.2	
U26	Passed (66% R)	2 piece(s) 2 x 8 HF No.2	
U27	Passed (35% R)	2 piece(s) 2 x 6 HF No.2	
U28	Passed (30% ΔT)	3 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL	
U29	Passed (78% M)	2 piece(s) 2 x 6 HF No.2	
U30	Passed (97% M)	2 piece(s) 2 x 6 HF No.2	
U31	Passed (55% ΔL)	1 piece(s) W10X26 (A992) ASTM Steel	
U32	Passed (45% R)	1 piece(s) 3 1/2" x 11 1/4" 2.0E Parallam® PSL	
U33	Passed (54% R)	2 piece(s) 1 3/4" x 11 1/4" 2.0E Microllam® LVL	
U34	Passed (84% R)	1 piece(s) 3 1/2" x 11 1/4" 2.0E Parallam® PSL	
Ex joist	Passed (91% M)	1 piece(s) 2 x 12 HF No.2 @ 16" OC	
U35	Passed (46% R)	2 piece(s) 2 x 12 HF No.2	
U36	Passed (66% M)	2 piece(s) 2 x 12 HF No.2	
U37	Passed (69% M)	2 piece(s) 2 x 12 HF No.2	
U38	Passed (43% ΔL)	1 piece(s) 1 3/4" x 11 1/4" 2.0E Microllam® LVL	
U39	Passed (97% M)	2 piece(s) 2 x 6 HF No.2	
U40	Passed (41% M)	2 piece(s) 2 x 6 HF No.2	
U41	Passed (5% R)	2 piece(s) 2 x 6 HF No.2	
Main Floor			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
M1	Passed (16% M)	1 piece(s) 2 x 10 HF No.2 @ 16" OC	
M7	Passed (93% M)	1 piece(s) 4 x 10 HF No.2	

Garage Roof			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
GR1	Passed (69% M)	1 piece(s) 2 x 10 HF No.2 @ 24" OC	
GR2	Passed (70% R)	3 piece(s) 1 3/4" x 16" 2.0E Microllam® LVL	
GR3	Passed (91% R)	3 piece(s) 1 3/4" x 18" 2.0E Microllam® LVL	
GR4	Passed (17% R)	3 piece(s) 1 3/4" x 16" 2.0E Microllam® LVL	
GR5	Passed (68% M)	2 piece(s) 2 x 6 HF No.2	
GR6	Passed (13% M)	2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL	
GR7	Passed (75% M)	2 piece(s) 1 3/4" x 9 1/4" 2.0E Microllam® LVL	
GR8	Passed (27% M)	2 piece(s) 2 x 8 HF No.2	
Garage Upper Floor			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
GU1	Passed (49% R)	1 piece(s) 11 7/8" TJI® 110 @ 16" OC	
GU1a	Passed (59% R)	1 piece(s) 11 7/8" TJI® 110 @ 16" OC	
GU2	Passed (83% ΔL)	1 piece(s) W10X60 (A992) ASTM Steel	
GU3	Passed (15% R)	1 piece(s) 11 7/8" TJI® 110 @ 16" OC	
GU4	Passed (18% R)	1 piece(s) 11 7/8" TJI® 110 @ 16" OC	
GU5	Passed (74% ΔT)	1 piece(s) W10X49 (A992) ASTM Steel	
GU6	Passed (27% R)	1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL	
GU7	Passed (30% R)	1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL	
GU8	Passed (79% ΔL)	1 piece(s) W10X30 (A992) ASTM Steel	
GU10	Passed (44% R)	1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL	
Entry Canopy			
Member Name	**Results (Max UTIL %)**	**Current Solution**	**Comments**
C1	Passed (83% M)	1 piece(s) 4 x 10 DF No.1	
C2	Passed (101% ΔT)	1 piece(s) 5 1/2" x 9 1/2" 24F-V4 DF Glulam	



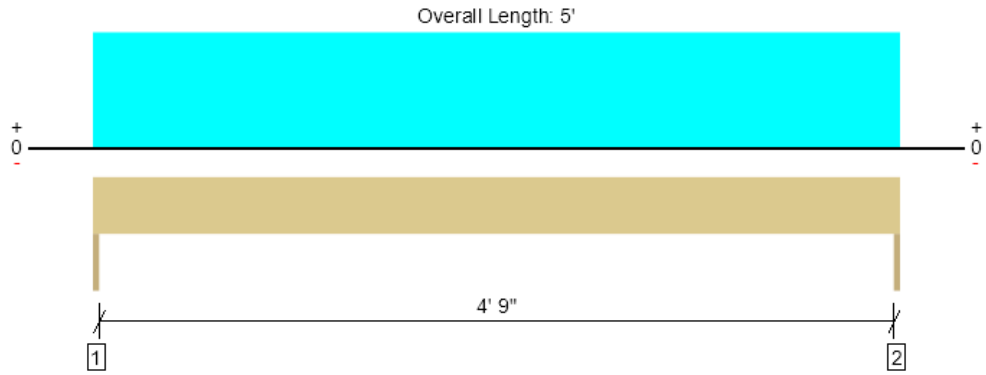
A3 A3.1 A3.2 A3.3

A3W A3.1 W A3.2 W A3.3 W

* For A3.1-A3.3 installation specifications see Rim Board Details and Installation in *Weyerhaeuser Installation Guide for Floor and Roof Framing,* TJ-9001.

Roof, R1

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1726 @ 0	1823 (1.50")	Passed (95%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1223 @ 8 3/4"	2501	Passed (49%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2158 @ 2' 6"	2569	Passed (84%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.049 @ 2' 6"	0.167	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.078 @ 2' 6"	0.250	Passed (L/765)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5'
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	656	1070	1726	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	656	1070	1726	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' o/c	
Bottom Edge (Lu)	5' 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'	N/A	5.5	--	
1 - Uniform (PSF)	0 to 5'	17' 1 1/2"	15.0	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
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

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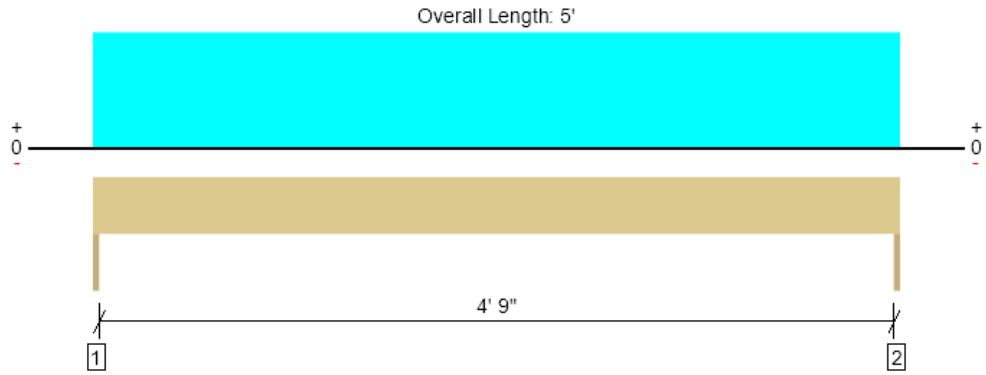
Roof, R2

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1276 @ 0	1823 (1.50")	Passed (70%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	904 @ 8 3/4"	2501	Passed (36%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1595 @ 2' 6"	2569	Passed (62%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.036 @ 2' 6"	0.167	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.058 @ 2' 6"	0.250	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5'
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	487	789	1276	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	487	789	1276	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' o/c	
Bottom Edge (Lu)	5' 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'	N/A	5.5	--	
1 - Uniform (PSF)	0 to 5'	12' 7 1/2"	15.0	25.0	Default Load

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Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

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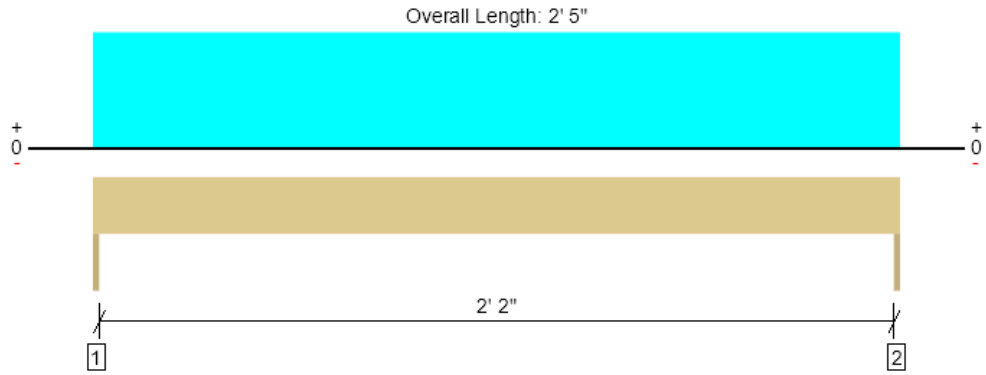
Roof, R3

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	617 @ 0	1823 (1.50")	Passed (34%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	245 @ 8 3/4"	2501	Passed (10%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	373 @ 1' 2 1/2"	2569	Passed (15%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.002 @ 1' 2 1/2"	0.081	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.003 @ 1' 2 1/2"	0.121	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 2' 5"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	235	381	617	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	235	381	617	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 5" o/c	
Bottom Edge (Lu)	2' 5" 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 2' 5"	N/A	5.5	--	
1 - Uniform (PSF)	0 to 2' 5"	12' 7 1/2"	15.0	25.0	Default Load

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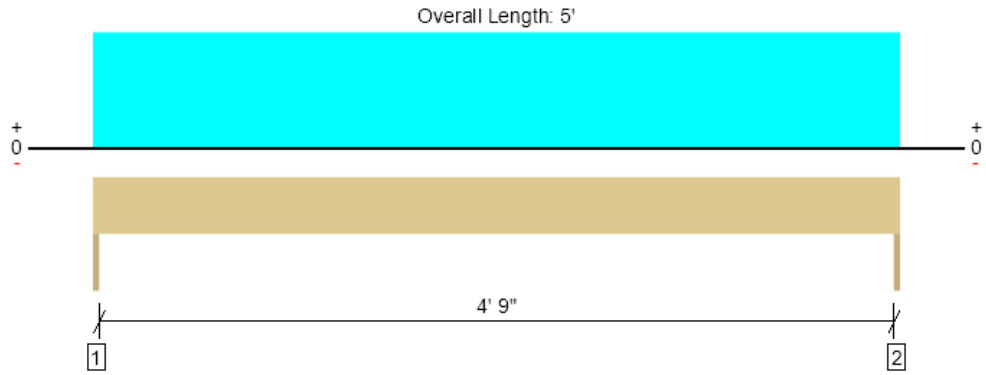
Weyerhaeuser

Roof, R4

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1726 @ 0	1823 (1.50")	Passed (95%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1223 @ 8 3/4"	2501	Passed (49%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2158 @ 2' 6"	2569	Passed (84%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.049 @ 2' 6"	0.167	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.078 @ 2' 6"	0.250	Passed (L/765)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5'
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	656	1070	1726	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	656	1070	1726	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' o/c	
Bottom Edge (Lu)	5' 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'	N/A	5.5	--	
1 - Uniform (PSF)	0 to 5'	17' 1 1/2"	15.0	25.0	Default Load

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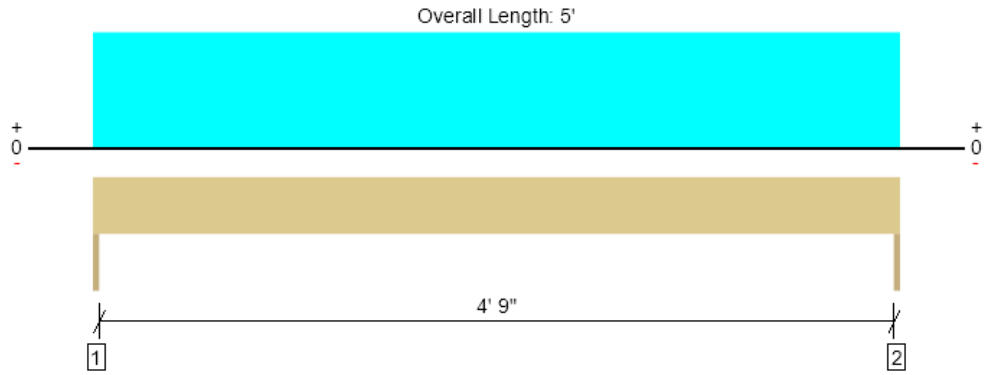
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R5

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1726 @ 0	1823 (1.50")	Passed (95%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1223 @ 8 3/4"	2501	Passed (49%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	2158 @ 2' 6"	2569	Passed (84%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.049 @ 2' 6"	0.167	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.078 @ 2' 6"	0.250	Passed (L/765)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5'
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	656	1070	1726	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	656	1070	1726	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' o/c	
Bottom Edge (Lu)	5' 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'	N/A	5.5	--	
1 - Uniform (PSF)	0 to 5'	17' 1 1/2"	15.0	25.0	Default Load

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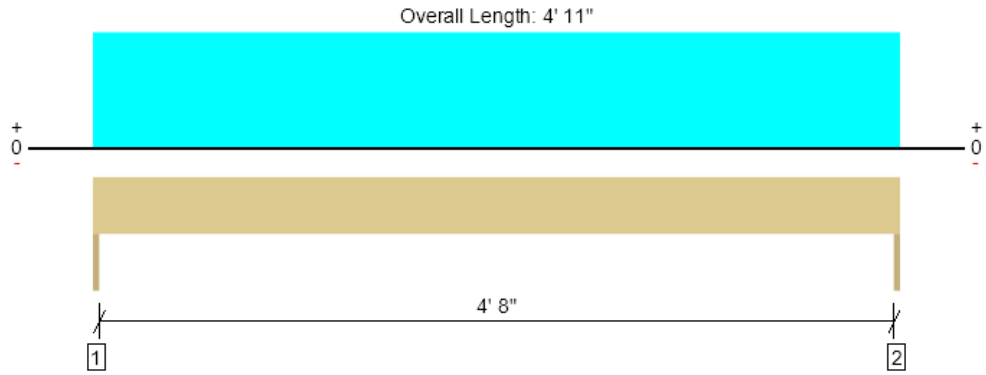
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R6

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1255 @ 0	1823 (1.50")	Passed (69%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	883 @ 8 3/4"	2501	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1543 @ 2' 5 1/2"	2569	Passed (60%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.034 @ 2' 5 1/2"	0.164	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.054 @ 2' 5 1/2"	0.246	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 4' 11"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	479	776	1255	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	479	776	1255	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 11" o/c	
Bottom Edge (Lu)	4' 11" 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' 11"	N/A	5.5	--	
1 - Uniform (PSF)	0 to 4' 11"	12' 7 1/2"	15.0	25.0	Default Load

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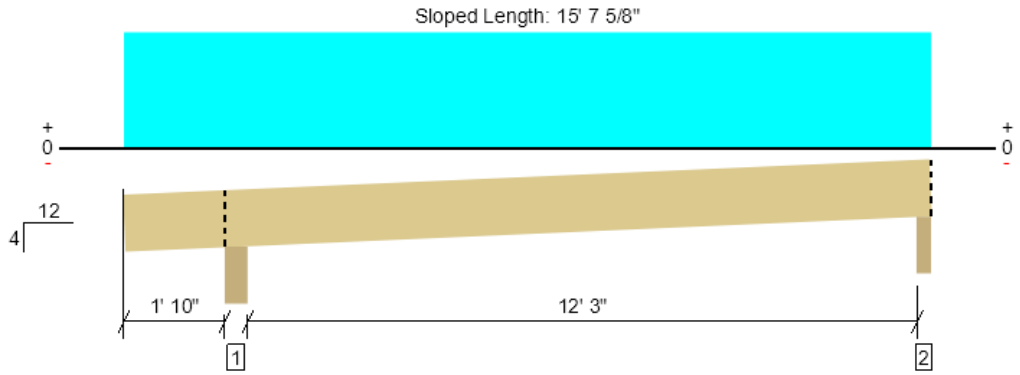
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R7

1 piece(s) 2 x 10 HF No.2 @ 24" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	480 @ 14' 7 1/2"	2126 (3.50")	Passed (23%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	413 @ 3' 1/4"	1596	Passed (26%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1432 @ 8' 5 1/2"	2204	Passed (65%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.234 @ 8' 4 1/2"	0.662	Passed (L/678)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.349 @ 8' 4 5/8"	0.883	Passed (L/456)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 15' 10 11/16"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 4/12

- 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.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Beveled Plate - SPF	5.50"	5.50"	1.50"	215	426	641	Blocking
2 - Beveled Plate - SPF	3.50"	3.50"	1.50"	160	320	480	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)	15' 8" o/c	

•Maximum allowable bracing intervals based on applied load.
•Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 14' 10"	24"	12.0	25.0	

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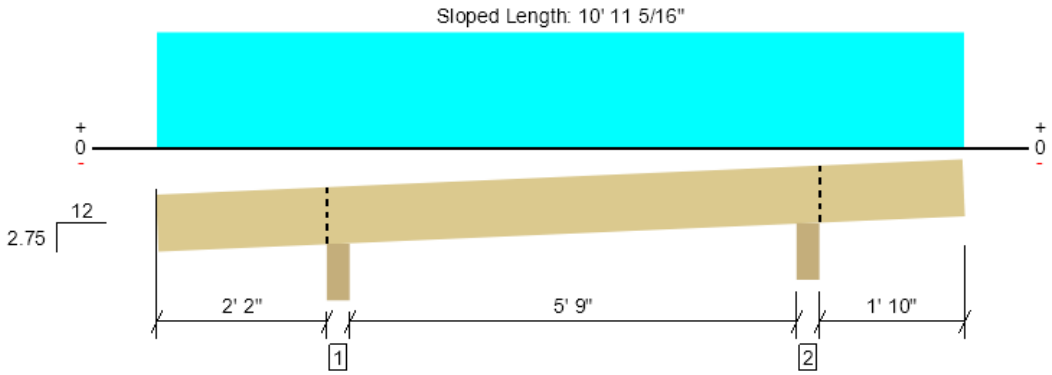
Weyerhaeuser

Roof, R8

1 piece(s) 2 x 10 HF No.2 @ 24" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	428 @ 2' 4 3/4"	3428 (5.50")	Passed (12%)	--	1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	176 @ 3' 4 1/2"	1596	Passed (11%)	1.15	1.0 D + 1.0 S (Adj Spans)
Moment (Ft-lbs)	236 @ 5' 6 15/16"	2204	Passed (11%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.008 @ 0	0.246	Passed (2L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.012 @ 5' 6 9/16"	0.425	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 11' 1 7/16"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 2.75/12

- 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.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Beveled Plate - HF	5.50"	5.50"	1.50"	138	290	428	Blocking
2 - Beveled Plate - HF	5.50"	5.50"	1.50"	124	264	388	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)	10' 11" o/c	
Bottom Edge (Lu)	10' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

•Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 10' 8"	24"	12.0	25.0	Default Load

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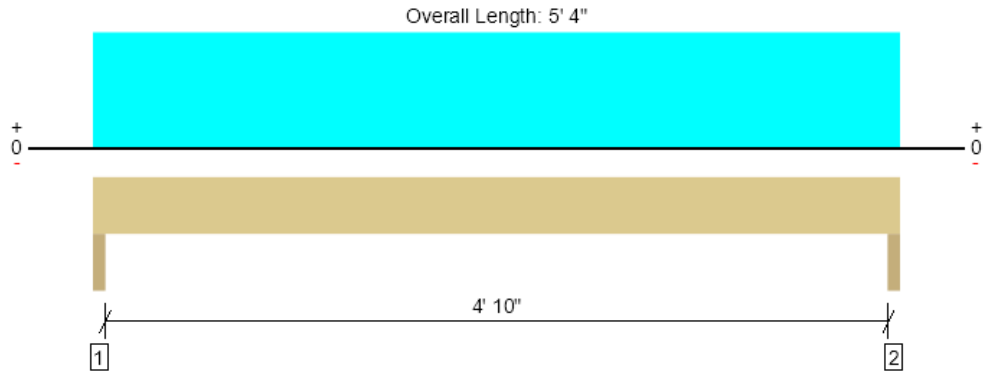
Weyerhaeuser

Roof, R9

2 piece(s) 2 x 6 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	582 @ 1 1/2"	3645 (3.00")	Passed (16%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	427 @ 8 1/2"	1898	Passed (23%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	705 @ 2' 8"	1602	Passed (44%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.040 @ 2' 8"	0.254	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.061 @ 2' 8"	0.339	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 4"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	195	387	582	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	195	387	582	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 4" o/c	
Bottom Edge (Lu)	5' 4" 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 5' 4"	N/A	4.2	--	
1 - Uniform (PLF)	0 to 5' 4" (Top)	N/A	69.0	145.0	Linked from: R8, Support 1

• Side loads are assumed to not induce cross-grain tension.

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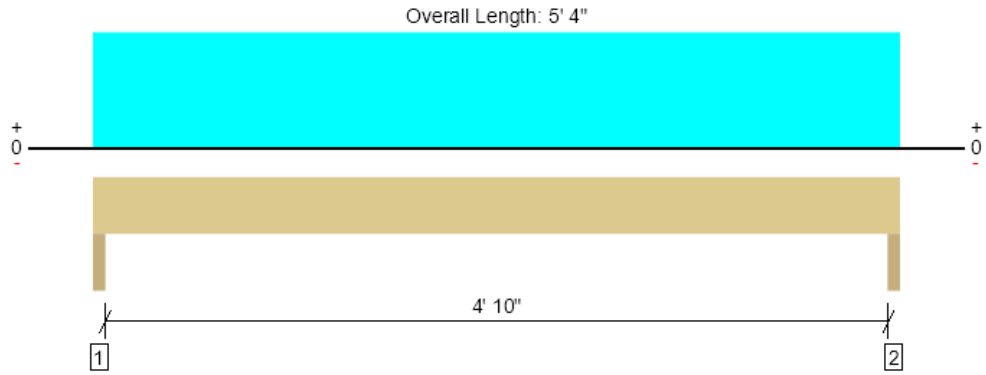
Weyerhaeuser

Roof, R10

2 piece(s) 2 x 6 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	528 @ 1 1/2"	3645 (3.00")	Passed (14%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	388 @ 8 1/2"	1898	Passed (20%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	640 @ 2' 8"	1602	Passed (40%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.037 @ 2' 8"	0.254	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.055 @ 2' 8"	0.339	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 4"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	176	352	528	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	176	352	528	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 4" o/c	
Bottom Edge (Lu)	5' 4" 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 5' 4"	N/A	4.2	--	
1 - Uniform (PLF)	0 to 5' 4" (Top)	N/A	62.0	132.0	Linked from: R8, Support 2

• Side loads are assumed to not induce cross-grain tension.

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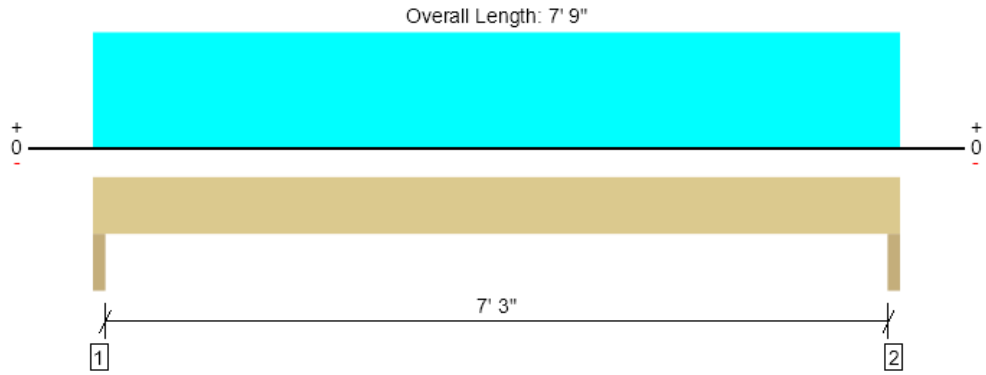
ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R11

2 piece(s) 2 x 6 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	590 @ 1 1/2"	3645 (3.00")	Passed (16%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	482 @ 8 1/2"	1898	Passed (25%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1070 @ 3' 10 1/2"	1602	Passed (67%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.132 @ 3' 10 1/2"	0.375	Passed (L/684)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.200 @ 3' 10 1/2"	0.500	Passed (L/449)	--	1.0 D + 1.0 S (All Spans)

Member Length : 7' 9"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	202	388	590	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	202	388	590	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	7' 9" o/c	
Bottom Edge (Lu)	7' 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 7' 9"	N/A	4.2	--	
1 - Uniform (PSF)	0 to 7' 9" (Top)	4'	12.0	25.0	

• Side loads are assumed to not induce cross-grain tension.

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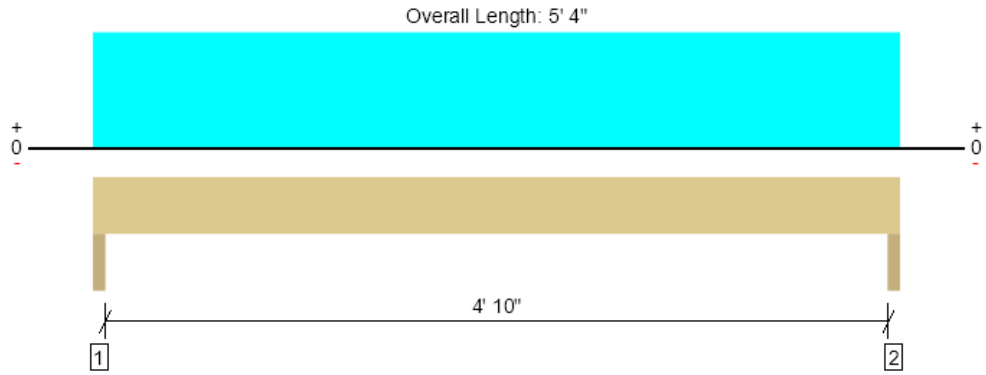
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R12

2 piece(s) 2 x 6 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	406 @ 1 1/2"	3645 (3.00")	Passed (11%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	298 @ 8 1/2"	1898	Passed (16%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	492 @ 2' 8"	1602	Passed (31%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.028 @ 2' 8"	0.254	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.042 @ 2' 8"	0.339	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 4"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	139	267	406	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	139	267	406	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 4" o/c	
Bottom Edge (Lu)	5' 4" 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 5' 4"	N/A	4.2	--	
1 - Uniform (PSF)	0 to 5' 4" (Top)	4'	12.0	25.0	

• Side loads are assumed to not induce cross-grain tension.

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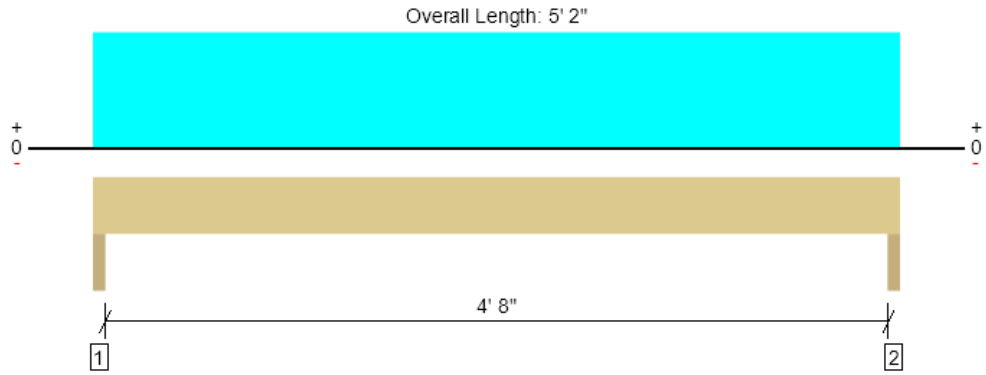
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R13

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	839 @ 1 1/2"	3645 (3.00")	Passed (23%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	609 @ 8 1/2"	1898	Passed (32%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	981 @ 2' 7"	1602	Passed (61%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.052 @ 2' 7"	0.246	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.079 @ 2' 7"	0.328	Passed (L/747)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - PSL	3.00"	3.00"	1.50"	289	550	839	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	289	550	839	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 2" o/c	
Bottom Edge (Lu)	5' 2" 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 5' 2"	N/A	4.2	--	
1 - Uniform (PLF)	0 to 5' 2" (Top)	N/A	107.5	213.0	Linked from: R7, Support 1

• Side loads are assumed to not induce cross-grain tension.

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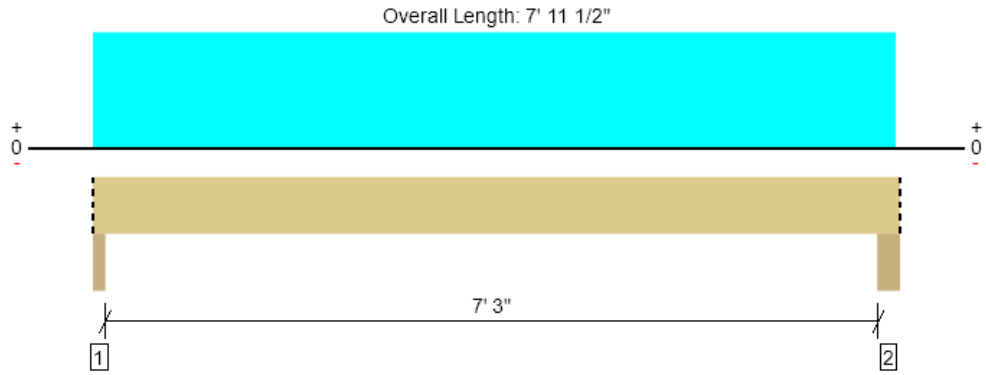
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R14

2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2201 @ 1 1/2"	7613 (3.00")	Passed (29%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1716 @ 10 1/4"	5544	Passed (31%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	3993 @ 3' 10 1/2"	8182	Passed (49%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.131 @ 3' 10 1/2"	0.375	Passed (L/685)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.200 @ 3' 10 1/2"	0.500	Passed (L/450)	--	1.0 D + 1.0 S (All Spans)

Member Length : 7' 11 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Column - HF	3.00"	3.00"	1.50"	755	1445	2201	Blocking
2 - Column - HF	5.50"	5.50"	1.50"	788	1508	2296	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)	8' o/c	
Bottom Edge (Lu)	8' 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 7' 11 1/2"	N/A	7.4	--	
1 - Uniform (PLF)	0 to 7' 11" (Front)	N/A	80.0	160.0	Linked from: R7, Support 2
2 - Uniform (PLF)	0 to 7' 11" (Back)	N/A	107.5	213.0	Linked from: R7, Support 1

• Side loads are assumed to not induce cross-grain tension.

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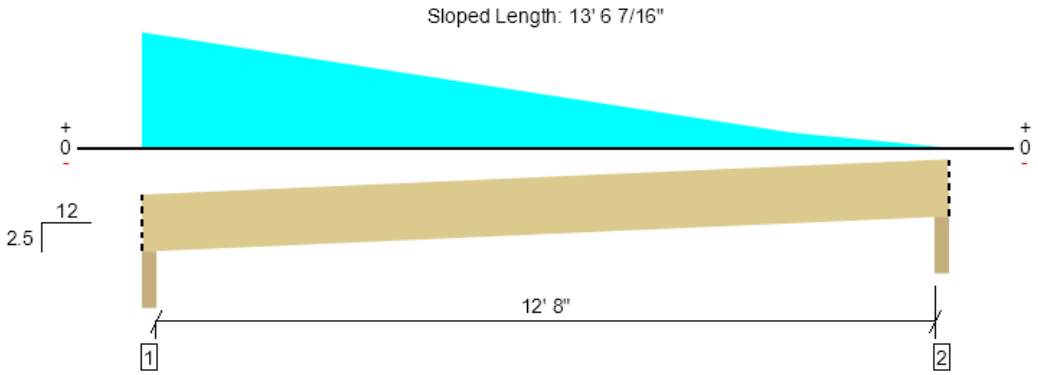
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R15

2 piece(s) 2 x 10 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1443 @ 2"	4253 (3.50")	Passed (34%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1108 @ 1' 9/16"	3191	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	3394 @ 5' 6 3/4"	3833	Passed (89%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.258 @ 6' 4 5/16"	0.660	Passed (L/614)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.402 @ 6' 4 1/2"	0.880	Passed (L/393)	--	1.0 D + 1.0 S (All Spans)

Member Length : 13' 8 5/16"
System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 2.5/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Beveled Plate - SPF	3.50"	3.50"	1.50"	507	936	1443	Blocking
2 - Beveled Plate - SPF	3.50"	3.50"	1.50"	254	422	676	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' o/c	
Bottom Edge (Lu)	13' 6" o/c	

•Maximum allowable bracing intervals based on applied load.
•Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 13' 3"	N/A	7.0	--	
1 - Tapered (PSF)	0 to 10' 8" (Front)	2' 10" to 0	12.0	25.0	Default Load
2 - Tapered (PSF)	0 to 13' 3" (Back)	5' 11" to 0	12.0	25.0	

• Side loads are assumed to not induce cross-grain tension.

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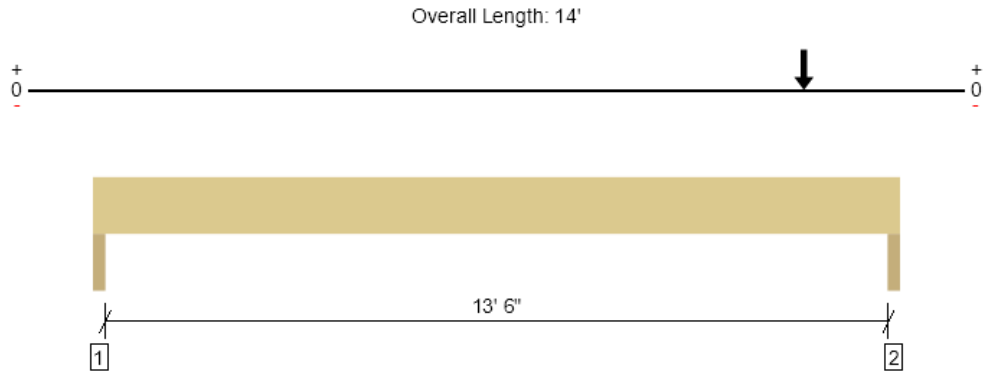
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Roof, R16

2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2090 @ 13' 10 1/2"	7613 (3.00")	Passed (27%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2084 @ 13' 1 3/4"	5544	Passed (38%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	3212 @ 12' 4"	8182	Passed (39%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.221 @ 7' 11 9/16"	0.688	Passed (L/746)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.363 @ 7' 10 11/16"	0.917	Passed (L/454)	--	1.0 D + 1.0 S (All Spans)

Member Length : 14'
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	140	169	309	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	751	1339	2090	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	14' o/c	
Bottom Edge (Lu)	14' 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'	N/A	7.4	--	
1 - Point (lb)	12' 4" (Top)	N/A	788	1508	Linked from: R14, Support 2

- Side loads are assumed to not induce cross-grain tension.

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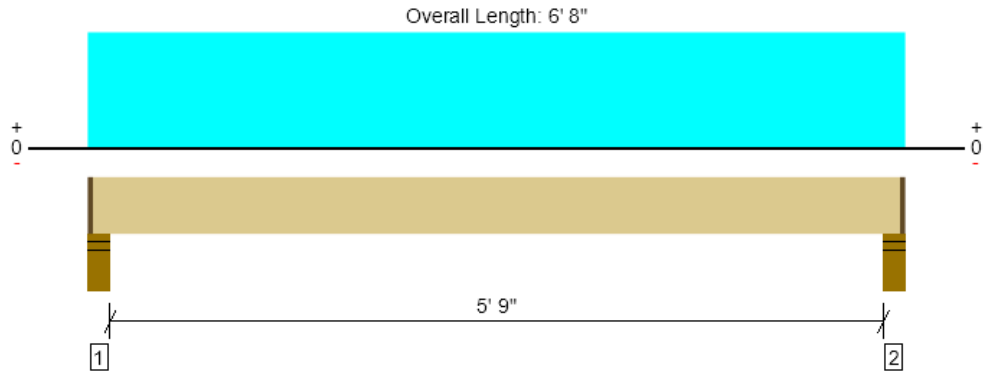
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U1

1 piece(s) 2 x 8 HF No.2 @ 24" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	342 @ 4 1/2"	2582 (4.25")	Passed (13%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	241 @ 1' 3/4"	1088	Passed (22%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	464 @ 3' 4"	1284	Passed (36%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.036 @ 3' 4"	0.197	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.047 @ 3' 4"	0.296	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 6' 5 1/2"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/360) and TL (L/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.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Stud wall - HF	5.50"	4.25"	1.50"	87	267	353	1 1/4" Rim Board
2 - Stud wall - HF	5.50"	4.25"	1.50"	87	267	353	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

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

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 6' 8"	24"	13.0	40.0	Default Load

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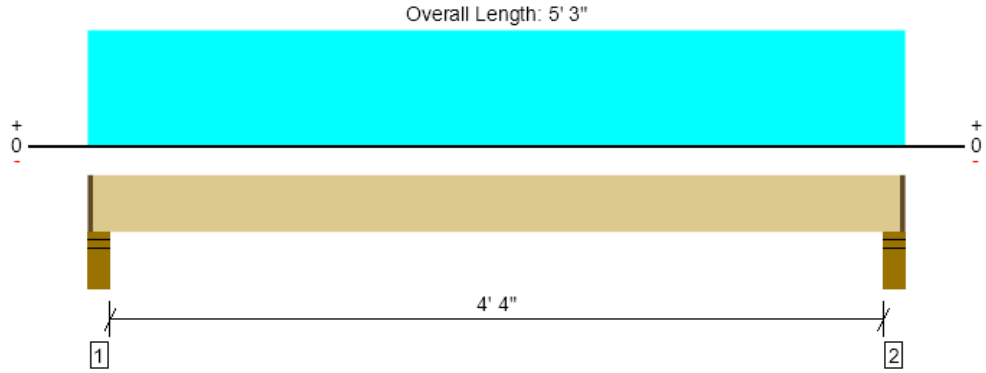
ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U1a

1 piece(s) 2 x 8 HF No.2 @ 24" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	267 @ 4 1/2"	2582 (4.25")	Passed (10%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	166 @ 1' 3/4"	1088	Passed (15%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	268 @ 2' 7 1/2"	1284	Passed (21%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.012 @ 2' 7 1/2"	0.225	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.016 @ 2' 7 1/2"	0.300	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 5' 1/2"
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.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Stud wall - HF	5.50"	4.25"	1.50"	68	210	278	1 1/4" Rim Board
2 - Stud wall - HF	5.50"	4.25"	1.50"	68	210	278	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	5' 1" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 5' 3"	24"	13.0	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
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

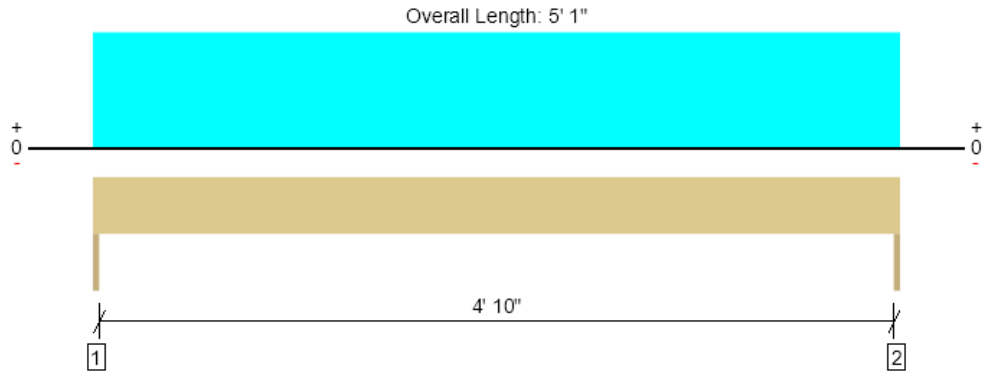
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U2

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1226 @ 0	1823 (1.50")	Passed (67%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	874 @ 8 3/4"	2175	Passed (40%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1557 @ 2' 6 1/2"	2234	Passed (70%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.044 @ 2' 6 1/2"	0.169	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.058 @ 2' 6 1/2"	0.254	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 5' 1"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	294	932	1226	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	294	932	1226	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	5' 1" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 5' 1"	N/A	5.5	--	
1 - Uniform (PSF)	0 to 5' 1"	9' 2"	12.0	40.0	Default Load

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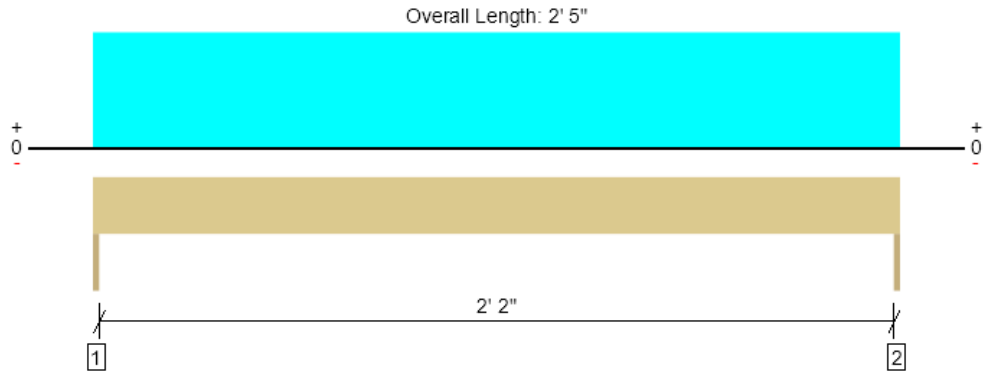
Weyerhaeuser

Upper Floor, U3

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	583 @ 0	1823 (1.50")	Passed (32%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	231 @ 8 3/4"	2175	Passed (11%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	352 @ 1' 2 1/2"	2234	Passed (16%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.002 @ 1' 2 1/2"	0.081	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.003 @ 1' 2 1/2"	0.121	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 2' 5"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	140	443	583	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	140	443	583	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 5" o/c	
Bottom Edge (Lu)	2' 5" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 2' 5"	N/A	5.5	--	
1 - Uniform (PSF)	0 to 2' 5"	9' 2"	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

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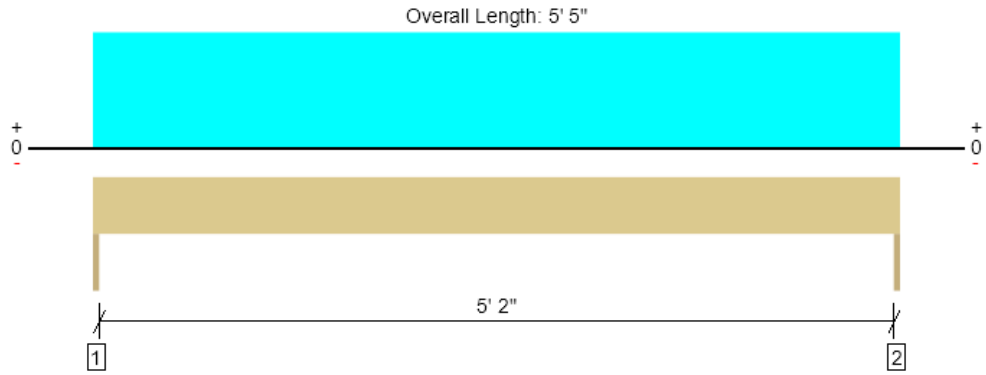
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U4

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1618 @ 0	1823 (1.50")	Passed (89%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1183 @ 8 3/4"	2175	Passed (54%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2191 @ 2' 8 1/2"	2234	Passed (98%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.063 @ 2' 8 1/2"	0.181	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.093 @ 2' 8 1/2"	0.271	Passed (L/696)	--	1.0 D + 1.0 L (All Spans)

Member Length : 5' 5"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Roof Live	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	535	1083	135	1618	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	535	1083	135	1618	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 2" o/c	
Bottom Edge (Lu)	5' 5" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (1.25)	Comments
0 - Self Weight (PLF)	0 to 5' 5"	N/A	5.5	--	--	
1 - Uniform (PSF)	0 to 5' 5"	10'	12.0	40.0	--	Default Load
2 - Uniform (PSF)	0 to 5' 5"	2'	11.0	--	25.0	
3 - Uniform (PLF)	0 to 5' 5"	N/A	50.0	--	--	

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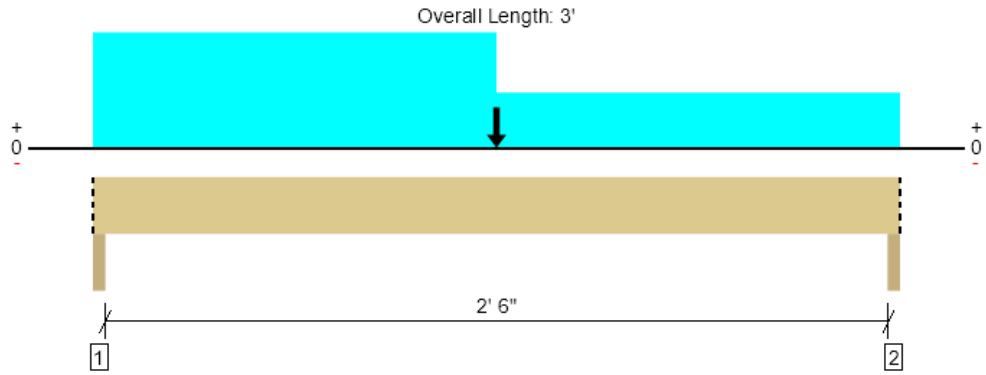
Weyerhaeuser

Upper Floor, U7

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2150 @ 1 1/2"	3645 (3.00")	Passed (59%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1316 @ 2' 1 3/4"	2501	Passed (53%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1830 @ 1' 6"	2569	Passed (71%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.011 @ 1' 5 11/16"	0.092	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.018 @ 1' 5 3/4"	0.138	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 3'
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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	Factored	
1 - Column - HF	3.00"	3.00"	1.77"	854	375	1296	2150	Blocking
2 - Column - HF	3.00"	3.00"	1.50"	672	375	946	1662	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)	3' o/c	
Bottom Edge (Lu)	3' o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 3'	N/A	5.5	--	--	
1 - Uniform (PSF)	0 to 3' (Front)	6' 3"	13.0	40.0	--	Default Load
2 - Uniform (PSF)	0 to 3' (Back)	7'	13.0	--	25.0	
3 - Uniform (PSF)	0 to 1' 6" (Top)	17' 3"	13.0	--	25.0	
4 - Point (lb)	1' 6" (Top)	N/A	656	--	1070	Linked from: R1, Support 1

• Side loads are assumed to not induce cross-grain tension.

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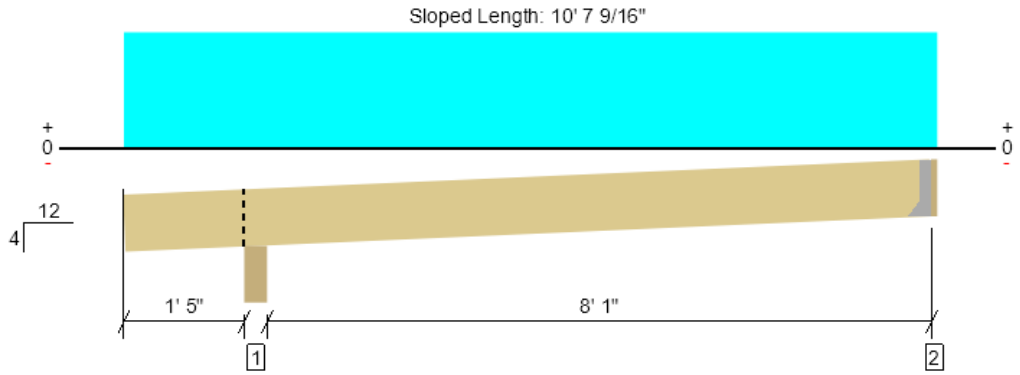
Weyerhaeuser

Upper Floor, U8

1 piece(s) 2 x 10 HF No.2 @ 16" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	203 @ 9' 11 1/2"	911 (1.50")	Passed (22%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	169 @ 2' 7 1/4"	1596	Passed (11%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	411 @ 5' 10 15/16"	2204	Passed (19%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.029 @ 5' 9 15/16"	0.438	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.044 @ 5' 10 1/16"	0.584	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 10' 9 1/16"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 4/12

- 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.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Birdsmouth cut has not been analyzed.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Birdsmouth - HF	5.50"	5.50"	1.50"	101	199	299	Blocking
2 - Hanger on 9 1/4" HF beam	1.50"	Hanger[1]	1.50"	69	140	209	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	10' 6" o/c	
Bottom Edge (Lu)	10' 6" o/c	

- Maximum allowable bracing intervals based on applied load.
- Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LRU28Z	1.94"	N/A	6-10dx1.5	5-10d	

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

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 10' 1"	16"	12.0	25.0	Default Load

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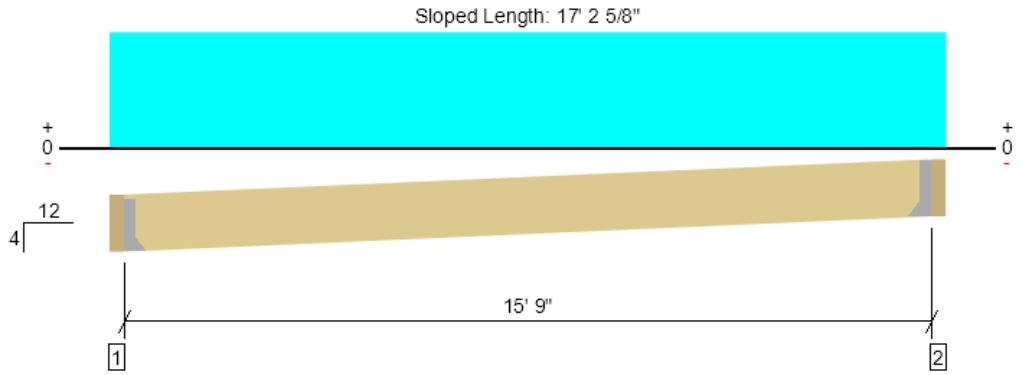
Weyerhaeuser

Upper Floor, U9

1 piece(s) 2 x 10 HF No.2 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	395 @ 3 1/2"	911 (1.50")	Passed (43%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	359 @ 1' 1/4"	1596	Passed (22%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1557 @ 8' 2"	2204	Passed (71%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.399 @ 8' 2"	0.830	Passed (L/500)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.600 @ 8' 2"	1.107	Passed (L/332)	--	1.0 D + 1.0 S (All Spans)

Member Length : 16' 10 5/16"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 4/12

- Deflection criteria: LL (L/240) and TL (L/180).
- 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.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Hanger on 9 1/4" HF beam	3.50"	Hanger[1]	1.50"	137	272	410	See note [1]
2 - Hanger on 9 1/4" HF beam	3.50"	Hanger[1]	1.50"	137	272	410	See note [1]

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

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 9" o/c	
Bottom Edge (Lu)	16' 7" o/c	

- Maximum allowable bracing intervals based on applied load.
- Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LRU28Z	1.94"	N/A	6-10dx1.5	5-10d	
2 - Face Mount Hanger	LRU28Z	1.94"	N/A	6-10dx1.5	5-10d	

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

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 16' 4"	16"	12.0	25.0	Default Load

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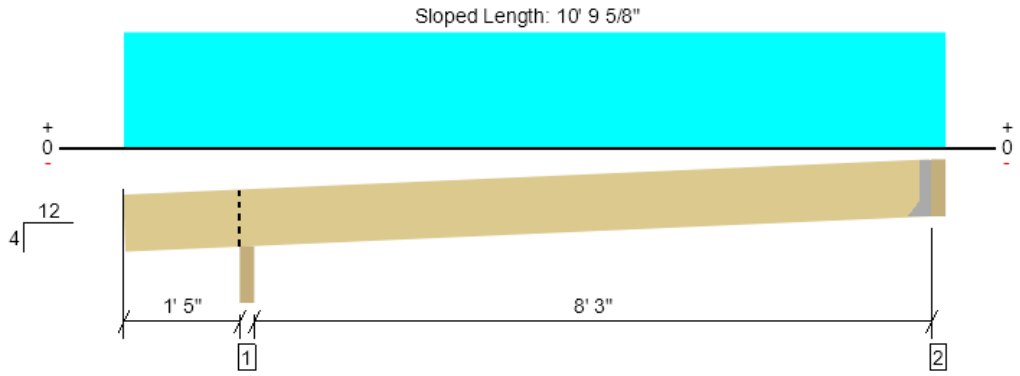
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U10

1 piece(s) 2 x 10 HF No.2 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	217 @ 9' 11 1/2"	911 (1.50")	Passed (24%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	184 @ 2' 5 1/4"	1596	Passed (12%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	445 @ 5' 10 5/16"	2204	Passed (20%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.031 @ 5' 9 3/8"	0.442	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.048 @ 5' 9 1/2"	0.590	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 10' 9 1/16"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 4/12

- 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.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Birdsmouth cut has not been analyzed.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Birdsmouth - DF	3.50"	3.50"	1.50"	116	197	313	Blocking
2 - Hanger on 9 1/4" HF beam	3.50"	Hanger[1]	1.50"	85	147	232	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	10' 6" o/c	
Bottom Edge (Lu)	10' 6" o/c	

- Maximum allowable bracing intervals based on applied load.
- Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LRU28Z	1.94"	N/A	6-10dx1.5	5-10d	

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

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 10' 3"	16"	14.0	25.0	Default Load

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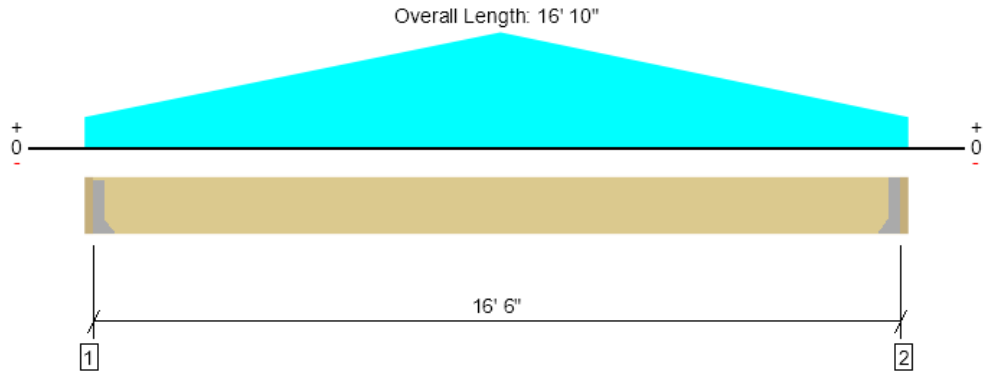
ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U11

1 piece(s) 3 1/2" x 10 1/2" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1242 @ 16' 8"	3413 (1.50")	Passed (36%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1173 @ 15' 9 1/2"	7466	Passed (16%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	6017 @ 8' 5 1/4"	14792	Passed (41%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.288 @ 8' 5"	0.825	Passed (L/688)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.474 @ 8' 5"	1.100	Passed (L/418)	--	1.0 D + 1.0 S (All Spans)

Member Length : 16' 6"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 1.00 was calculated for positive bending using length L = 16' 6".
- 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Hanger on 10 1/2" DF beam	2.00"	Hanger[1]	1.50"	495	752	1247	See note [1]
2 - Hanger on 10 1/2" DF beam	2.00"	Hanger[1]	1.50"	497	756	1253	See note [1]

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

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	16' 6" o/c	
Bottom Edge (Lu)	16' 6" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LUS410	2.00"	N/A	8-10dx1.5	6-10d	
2 - Face Mount Hanger	LUS410	2.00"	N/A	8-10dx1.5	6-10d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	2" to 16' 8"	N/A	8.9	--	
1 - Tapered (PSF)	0 to 8' 6" (Top)	1' 6" to 5' 8"	14.0	25.0	
2 - Tapered (PSF)	8' 6" to 16' 10" (Top)	5' 8" to 1' 6"	14.0	25.0	

- Side loads are assumed to not induce cross-grain tension.

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

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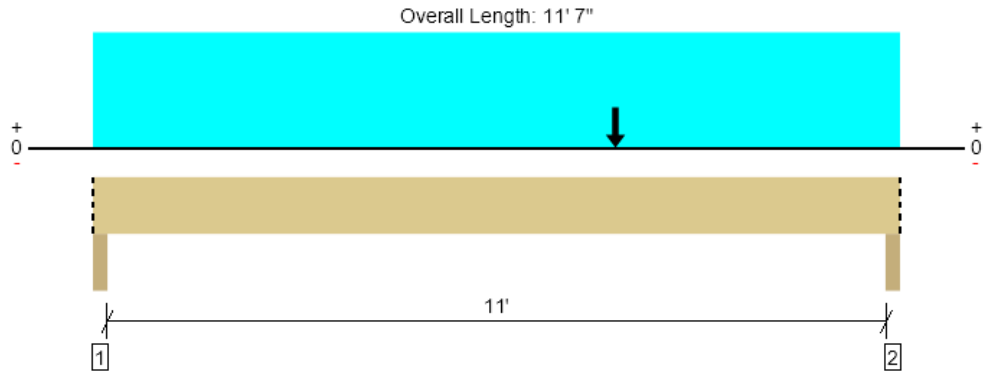
MEMBER REPORT

PASSED

Upper Floor, U12

1 piece(s) 4 x 12 DF No.1



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2111 @ 11' 5"	7656 (3.50")	Passed (28%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1876 @ 10' 4 1/4"	5434	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	6675 @ 7' 6"	7783	Passed (86%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.127 @ 6' 3/8"	0.563	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.196 @ 6' 3/8"	0.750	Passed (L/689)	--	1.0 D + 1.0 S (All Spans)

Member Length : 11' 7"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column - HF	3.50"	3.50"	1.50"	588	1056	1644	Blocking
2 - Column - HF	3.50"	3.50"	1.50"	748	1363	2111	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)	11' 7" o/c	
Bottom Edge (Lu)	11' 7" 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 11' 7"	N/A	10.0	--	
1 - Uniform (PSF)	0 to 11' 7" (Back)	8"	12.0	25.0	
2 - Uniform (PLF)	0 to 11' 7" (Front)	N/A	51.8	105.0	Linked from: U8, Support 2
3 - Point (lb)	7' 6" (Back)	N/A	528	1010	Linked from: U13, Support 2

• Side loads are assumed to not induce cross-grain tension.

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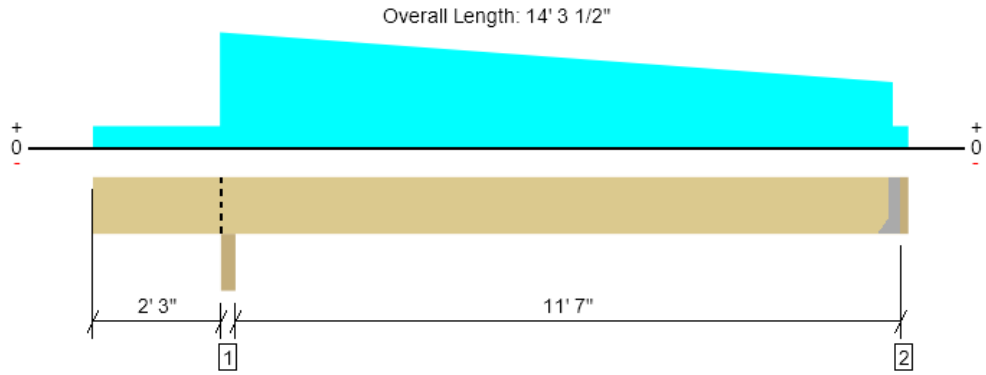
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U13

1 piece(s) 4 x 10 DF No.1



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1527 @ 14' 1 1/2"	3281 (1.50")	Passed (47%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	1549 @ 3' 3 3/4"	4468	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	4945 @ 8' 1/2"	5740	Passed (86%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.205 @ 8' 2 1/2"	0.586	Passed (L/686)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.311 @ 8' 2 5/8"	0.782	Passed (L/453)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 14' 1 1/2"
System : Roof
Member Type : Flush 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.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Beam - GLB	3.50"	3.50"	1.50"	731	1377	2108	Blocking
2 - Hanger on 9 1/4" HF beam	2.00"	Hanger[1]	1.50"	528	1010	1538	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	14' 2" o/c	
Bottom Edge (Lu)	14' 2" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LUS410	2.00"	N/A	8-16d	6-16d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 14' 1 1/2"	N/A	8.2	--	
1 - Uniform (PSF)	0 to 14' 3 1/2" (Front)	1' 10"	12.0	25.0	Default Load
2 - Tapered (PSF)	2' 3" to 14' (Back)	8' to 3' 9"	12.0	25.0	

- Side loads are assumed to not induce cross-grain tension.

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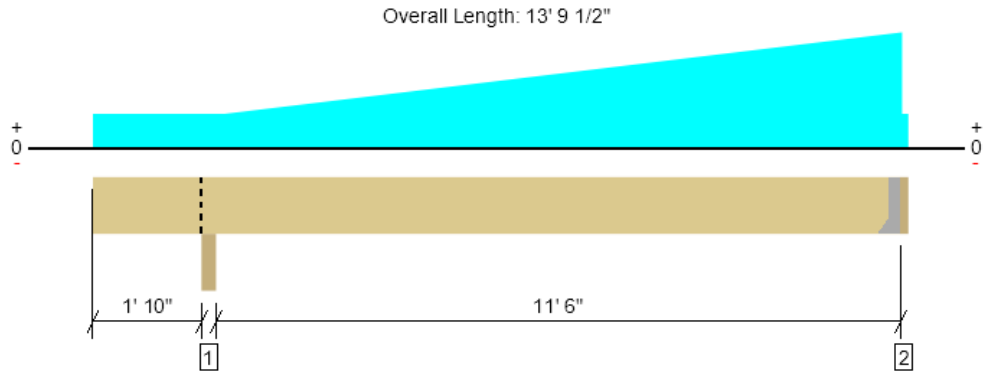
Weyerhaeuser

Upper Floor, U14, U15

2 piece(s) 2 x 10 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1048 @ 13' 7 1/2"	1823 (1.50")	Passed (58%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	870 @ 12' 10 1/4"	3191	Passed (27%)	1.15	1.0 D + 1.0 S (Alt Spans)
Moment (Ft-lbs)	2584 @ 8' 4 3/8"	3833	Passed (67%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.153 @ 7' 11 3/16"	0.582	Passed (L/914)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.242 @ 7' 11 1/4"	0.776	Passed (L/577)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 13' 7 1/2"
System : Roof
Member Type : Flush 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.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Beam - GLB	3.50"	3.50"	1.50"	339	558	897	Blocking
2 - Hanger on 9 1/4" HF beam	2.00"	Hanger[1]	1.50"	393	673	1066	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	12' 4" o/c	
Bottom Edge (Lu)	13' 8" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LUS28-2	2.00"	N/A	6-10d	4-10d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 13' 7 1/2"	N/A	7.0	--	
1 - Uniform (PSF)	0 to 13' 9 1/2" (Front)	1' 10"	12.0	25.0	Default Load
2 - Tapered (PSF)	2' 3" to 13' 8" (Back)	0 to 4' 2"	14.0	25.0	

- Side loads are assumed to not induce cross-grain tension.

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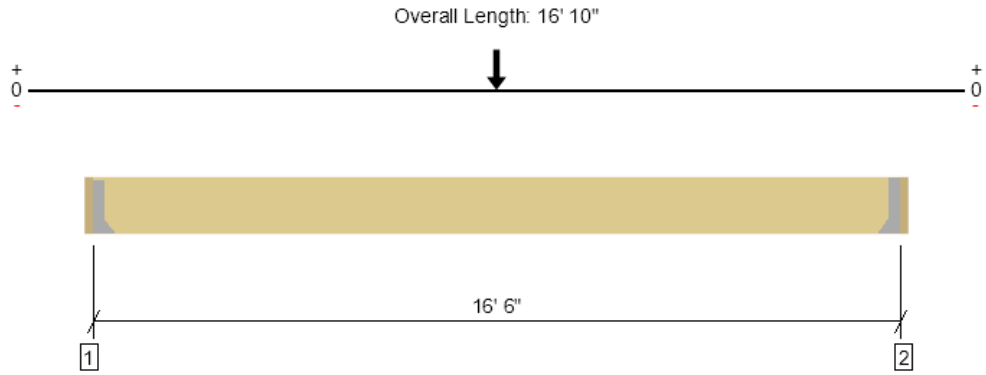
Weyerhaeuser

Upper Floor, U16

1 piece(s) 5 1/2" x 10 1/2" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2237 @ 2"	5363 (1.50")	Passed (42%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2225 @ 1' 1/2"	11733	Passed (19%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	17980 @ 8' 5"	23244	Passed (77%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.459 @ 8' 5"	0.825	Passed (L/432)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.743 @ 8' 5"	1.100	Passed (L/266)	--	1.0 D + 1.0 S (All Spans)

Member Length : 16' 6"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 1.00 was calculated for positive bending using length L = 16' 6".
- 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Hanger on 10 1/2" DF beam	2.00"	Hanger[1]	1.50"	883	1355	2237	See note [1]
2 - Hanger on 10 1/2" DF beam	2.00"	Hanger[1]	1.50"	883	1355	2237	See note [1]

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

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	16' 6" o/c	
Bottom Edge (Lu)	16' 6" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	U610	2.00"	N/A	14-16d	6-10d	
2 - Face Mount Hanger	U610	2.00"	N/A	14-16d	6-10d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Snow (1.15)	Comments
0 - Self Weight (PLF)	2" to 16' 8"	N/A	14.0	--	
1 - Point (lb)	8' 5" (Top)	N/A	748	1363	Linked from: U12, Support 2
2 - Point (lb)	8' 5" (Top)	N/A	393	673	Linked from: U14, U15, Support 2
3 - Point (lb)	8' 5" (Top)	N/A	393	673	Linked from: U14, U15, Support 2

- Side loads are assumed to not induce cross-grain tension.

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

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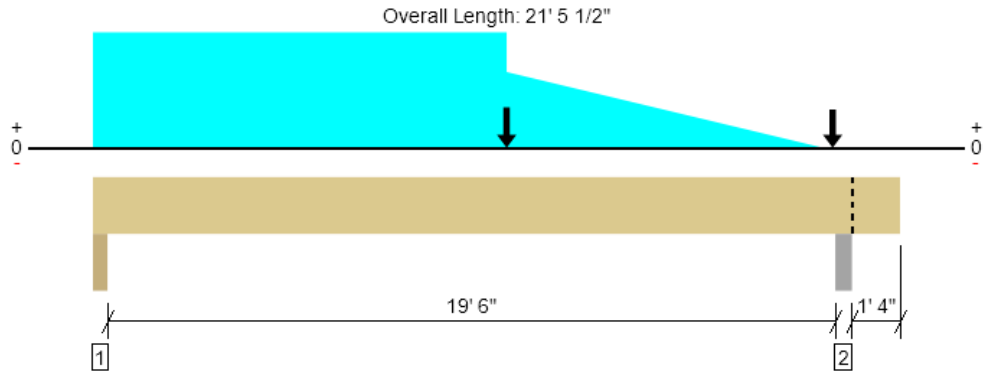
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Upper Floor, U17

1 piece(s) 5 1/2" x 10 1/2" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	4600 @ 19' 11 1/2"	14300 (4.00")	Passed (32%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2908 @ 1' 2"	11733	Passed (25%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	20064 @ 11'	23244	Passed (86%)	1.15	1.0 D + 1.0 S (All Spans)
Neg Moment (Ft-lbs)	-16 @ 19' 11 1/2"	14022	Passed (0%)	0.90	1.0 D (All Spans)
Live Load Defl. (in)	0.814 @ 10' 13/16"	0.990	Passed (L/292)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	1.333 @ 10' 1"	1.319	Passed (L/178)	--	1.0 D + 1.0 S (All Spans)

Member Length : 21' 5 1/2"
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.
- Volume factor of 1.00 was calculated for positive bending using length L = 19' 9 7/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 1' 6 1/8".
- 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.50"	1224	1963	3187	None
2 - Column - steel	4.00"	4.00"	1.50"	1832	2769	4600	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)	21' 6" o/c	
Bottom Edge (Lu)	21' 6" 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 21' 5 1/2"	N/A	14.0	--	
1 - Tapered (PSF)	11' to 19' 5" (Top)	4' to 0	12.0	25.0	
2 - Uniform (PLF)	0 to 11' (Top)	N/A	75.8	149.3	Linked from: U8, Support 1
3 - Point (lb)	19' 8" (Top)	N/A	339	558	Linked from: U14, U15, Support 1
4 - Point (lb)	11' (Front)	N/A	883	1355	Linked from: U16, Support 2
5 - Point (lb)	19' 8" (Front)	N/A	497	756	Linked from: U11, Support 2

• Side loads are assumed to not induce cross-grain tension.

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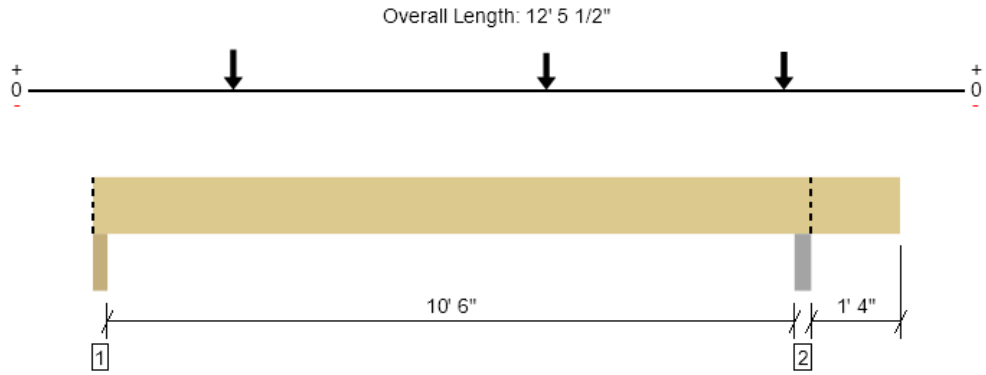
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Upper Floor, U18

1 piece(s) 5 1/2" x 10 1/2" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3934 @ 10' 11 1/2"	14300 (4.00")	Passed (28%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2715 @ 1' 2"	11733	Passed (23%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	7501 @ 7'	23244	Passed (32%)	1.15	1.0 D + 1.0 S (All Spans)
Neg Moment (Ft-lbs)	-16 @ 10' 11 1/2"	14022	Passed (0%)	0.90	1.0 D (All Spans)
Live Load Defl. (in)	0.098 @ 5' 7 5/16"	0.540	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.159 @ 5' 7 1/8"	0.719	Passed (L/815)	--	1.0 D + 1.0 S (All Spans)

Member Length : 12' 5 1/2"
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.
- Volume factor of 1.00 was calculated for positive bending using length L = 10' 9 7/16".
- Volume factor of 1.00 was calculated for negative bending using length L = 1' 6 1/8".
- 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 - Column - HF	3.50"	3.50"	1.50"	1087	1644	2731	Blocking
2 - Column - steel	4.00"	4.00"	1.50"	1536	2398	3934	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' 6" o/c	
Bottom Edge (Lu)	12' 6" 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' 5 1/2"	N/A	14.0	--	
1 - Point (lb)	7' (Top)	N/A	731	1377	Linked from: U13, Support 1
2 - Point (lb)	10' 8" (Top)	N/A	339	558	Linked from: U14, U15, Support 1
3 - Point (lb)	2' 2" (Front)	N/A	883	1355	Linked from: U16, Support 1
4 - Point (lb)	10' 8" (Front)	N/A	495	752	Linked from: U11, Support 1

• Side loads are assumed to not induce cross-grain tension.

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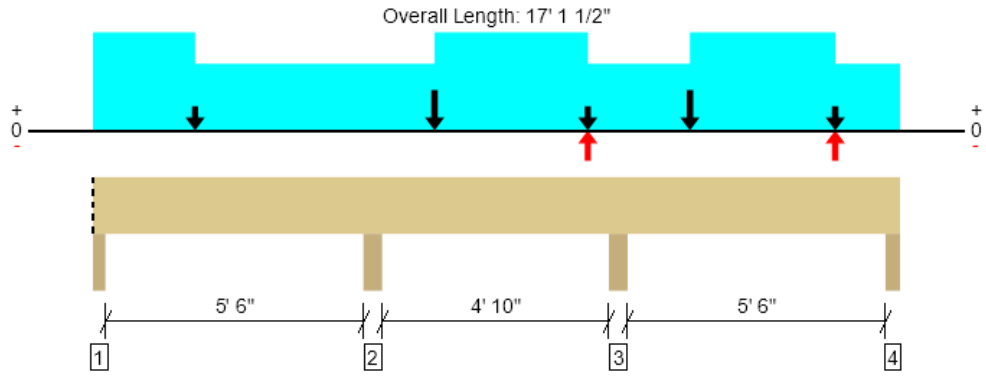
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Upper Floor, U19 (EQ)

1 piece(s) 3 1/2" x 9 1/4" 2.0E Parallam® PSL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	6851 @ 11' 1 3/4"	9844 (4.50")	Passed (70%)	--	1.0 D + 0.75 L + 0.75 S (Adj Spans)
Shear (lbs)	3002 @ 12' 1 1/4"	7198	Passed (42%)	1.15	1.0 D + 0.75 L + 0.75 S (Adj Spans)
Moment (Ft-lbs)	-3701 @ 11' 1 3/4"	14278	Passed (26%)	1.15	1.0 D + 0.75 L + 0.75 S (Adj Spans)
Live Load Defl. (in)	0.032 @ 14' 2 11/16"	0.145	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (Alt Spans)
Total Load Defl. (in)	0.053 @ 14' 3 3/16"	0.291	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (Alt Spans)

Member Length : 17' 1 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- An excessive uplift of -1708 lbs detected at support located at 5' 11 1/4".
- An excessive uplift of -1225 lbs detected at support located at 11' 1 3/4".
- An excessive uplift of -1588 lbs detected at support located at 16' 11 1/2".
- An allowable stress increase factor of 1.2 is used for seismic overstrength load combinations.

Supports	Bearing Length			Loads to Supports (lbs)					
	Total	Available	Required	Dead	Floor Live	Snow	Seismic	Factored	Accessories
1 - Column - HF	3.00"	3.00"	1.50"	940	1089/-89	759	93/-93	2464	Blocking
2 - Column - HF	4.50"	4.50"	2.81"	2064	2680	1455	1494/-1494	7375/-1708	None
3 - Column - HF	4.50"	4.50"	3.13"	2825	2680	2688	1410/-1410	7354/-1225	None
4 - Column - HF	3.50"	3.50"	1.63"	1067	1105/-89	937	1176/-1176	4270/-1588	None

• 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)	17' 2" o/c	
Bottom Edge (Lu)	17' 2" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Seismic (QE) (1.60)	Comments
0 - Self Weight (PLF)	0 to 17' 1 1/2"	N/A	10.1	--	--	--	
1 - Uniform (PSF)	0 to 17' 1 1/2" (Front)	10'	13.0	40.0	--	--	Default Load
2 - Uniform (PSF)	0 to 2' 2" (Top)	7' 6"	13.0	--	25.0	--	
3 - Point (lb)	2' 2" (Top)	N/A	487	--	789	--	
4 - Point (lb)	7' 3" (Top)	N/A	487	--	789	2067	
5 - Point (lb)	10' 6" (Top)	N/A	487	--	789	-2067	
6 - Point (lb)	12' 8" (Top)	N/A	487	--	789	2067	
7 - Point (lb)	15' 9" (Top)	N/A	487	--	789	-2067	
8 - Uniform (PSF)	7' 3" to 10' 6" (Top)	7' 6"	13.0	--	25.0	--	
9 - Uniform (PSF)	12' 8" to 15' 9" (Top)	7' 6"	13.0	--	25.0	--	
10 - Uniform (PLF)	0 to 17' 1 1/2" (Top)	N/A	72.0	--	--		

• ASCE/SEI 7 Sec. 12.4.3: Overstrength Factor (2.5), Design Parameter at Short Periods (1.145), Seismic Design Category (D) are u

ForteWEB Software Operator	Job Notes
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- Axial load affects on the member from Q_E loads are not considered.
- Side loads are assumed to not induce cross-grain tension.

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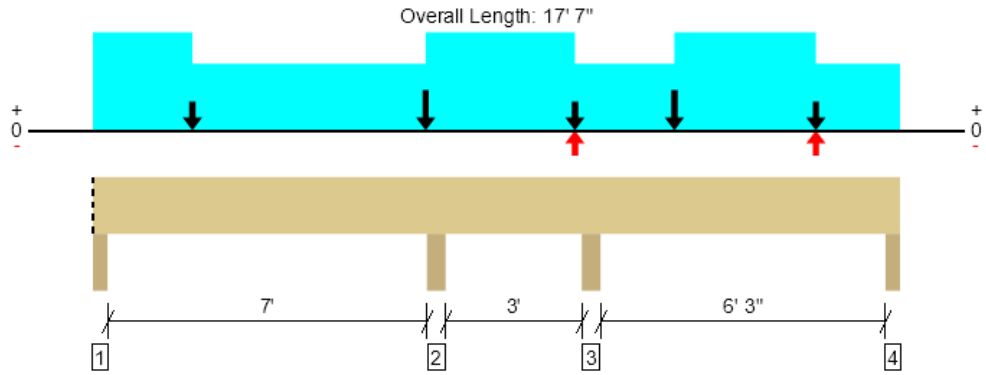
Upper Floor, U19 (WIND)

1 piece(s) 3 1/2" x 9 1/4" 2.0E Parallam® PSL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	6758 @ 10' 10 1/4"	9844 (4.50")	Passed (69%)	--	1.0 D - 0.525 E + 0.75 L + 0.75 S (Adj Spans)
Shear (lbs)	3205 @ 11' 9 3/4"	7198	Passed (45%)	1.15	1.0 D + 0.75 L + 0.75 S (Adj Spans)
Moment (Ft-lbs)	3490 @ 2' 11 1/16"	12416	Passed (28%)	1.00	1.0 D + 1.0 L (Alt Spans)
Live Load Defl. (in)	0.047 @ 14' 4 1/4"	0.164	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (Alt Spans)
Total Load Defl. (in)	0.080 @ 14' 4 7/16"	0.328	Passed (L/982)	--	1.0 D + 0.75 L + 0.75 S (Alt Spans)

Member Length : 17' 7"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

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

Supports	Bearing Length			Loads to Supports (lbs)					
	Total	Available	Required	Dead	Floor Live	Snow	Seismic	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.50"	1182	1304/-21	874	21/-21	2823	Blocking
2 - Column - HF	4.50"	4.50"	2.78"	2116	3063	1571	944/-944	6083	None
3 - Column - HF	4.50"	4.50"	3.09"	2551	2741	2635	970/-970	6758	None
4 - Column - HF	3.50"	3.50"	1.50"	1144	1205/-26	887	496/-496	2974	None

• 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)	17' 7" o/c	
Bottom Edge (Lu)	17' 7" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	0 to 17' 7"	N/A	10.1	--	--	--	
1 - Uniform (PSF)	0 to 17' 7" (Front)	10'	13.0	40.0	--	--	Default Load
2 - Uniform (PSF)	0 to 2' 2" (Top)	7' 6"	13.0	--	25.0	--	
3 - Point (lb)	2' 2" (Top)	N/A	487	--	789	--	
4 - Point (lb)	7' 3" (Top)	N/A	487	--	789	987	
5 - Point (lb)	10' 6" (Top)	N/A	487	--	789	-987	
6 - Point (lb)	12' 8" (Top)	N/A	487	--	789	987	
7 - Point (lb)	15' 9" (Top)	N/A	487	--	789	-987	
8 - Uniform (PSF)	7' 3" to 10' 6" (Top)	7' 6"	13.0	--	25.0	--	
9 - Uniform (PSF)	12' 8" to 15' 9" (Top)	7' 6"	13.0	--	25.0	--	
10 - Uniform (PLF)	0 to 17' 7" (Top)	N/A	72.0	--	--	--	

• Side loads are assumed to not induce cross-grain tension.

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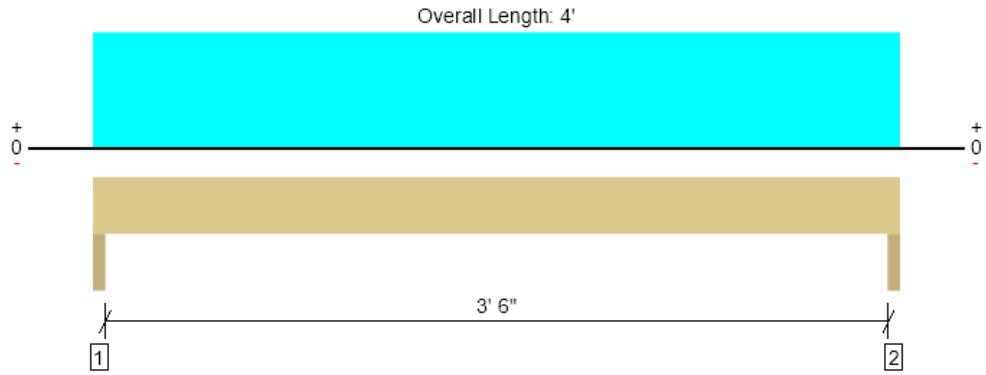
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

MEMBER REPORT

PASSED

Upper Floor, U21

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1002 @ 1 1/2"	3645 (3.00")	Passed (27%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	574 @ 10 1/4"	2501	Passed (23%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	880 @ 2'	2569	Passed (34%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.010 @ 2'	0.125	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.018 @ 2'	0.188	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 4'
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	469	53	533	1002	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	469	53	533	1002	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 4'	N/A	5.5	--	--	
1 - Uniform (PSF)	0 to 4' (Top)	8"	12.0	40.0	--	Default Load
2 - Uniform (PSF)	0 to 4' (Top)	2' 6"	12.0	--	25.0	
3 - Uniform (PLF)	0 to 4' (Top)	N/A	88.0	--	--	
4 - Uniform (PLF)	0 to 4' (Front)	N/A	102.8	--	204.0	Linked from: U9, Support 1

• Side loads are assumed to not induce cross-grain tension.

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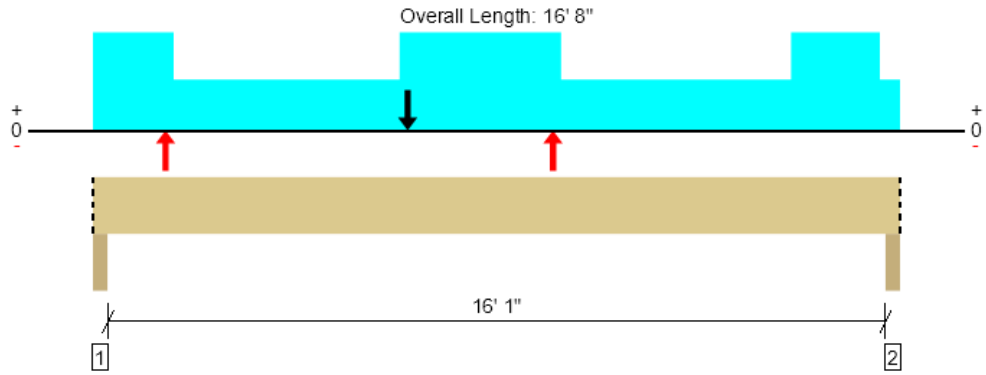
Upper Floor, U22 (EQ)

1 piece(s) 5 1/4" x 16" 2.0E Parallam® PSL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	6246 @ 2"	11484 (3.50")	Passed (54%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	4283 @ 15' 1/2"	16240	Passed (26%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	21895 @ 8' 3 3/8"	52432	Passed (42%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.203 @ 8' 3 15/16"	0.544	Passed (L/964)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.361 @ 8' 3 15/16"	0.817	Passed (L/543)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 16' 8"
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- An allowable stress increase factor of 1.2 is used for seismic overstrength load combinations.

Supports	Bearing Length			Loads to Supports (lbs)					
	Total	Available	Required	Dead	Floor Live	Snow	Seismic	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.90"	2724	2750	1945	217/-217	6859	Blocking
2 - Column - HF	3.50"	3.50"	1.89"	2706	2750	1910	79/-79	6629	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)	16' 8" o/c	
Bottom Edge (Lu)	16' 8" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Seismic (QE) (1.60)	Comments
0 - Self Weight (PLF)	0 to 16' 8"	N/A	26.3	--	--	--	
1 - Uniform (PSF)	0 to 16' 8" (Front)	8' 3"	13.0	40.0	--	--	Default Load
2 - Uniform (PSF)	0 to 16' 8" (Back)	3'	13.0	--	25.0	--	
3 - Uniform (PSF)	0 to 1' 8" (Top)	15' 3"	13.0	--	25.0	--	
4 - Uniform (PSF)	6' 4" to 9' 8" (Top)	15' 3"	13.0	--	25.0	--	
5 - Uniform (PSF)	14' 5" to 16' 3" (Top)	15' 3"	13.0	--	25.0	--	
6 - Uniform (PLF)	0 to 16' 8" (Top)	N/A	72.0	--	--	--	
7 - Point (lb)	1' 6" (Top)	N/A	--	--	--	-296	
8 - Point (lb)	6' 6" (Top)	N/A	--	--	--	296	
9 - Point (lb)	9' 6" (Top)	N/A	--	--	--	-296	

- ASCE/SEI 7 Sec. 12.4.3: Overstrength Factor (2.5), Design Parameter at Short Periods (1.145), Seismic Design Category (D) are used to determine Ev and Emh.
- Axial load affects on the member from QE loads are not considered.
- Side loads are assumed to not induce cross-grain tension.

ForteWEB Software Operator	Job Notes
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Weyerhaeuser

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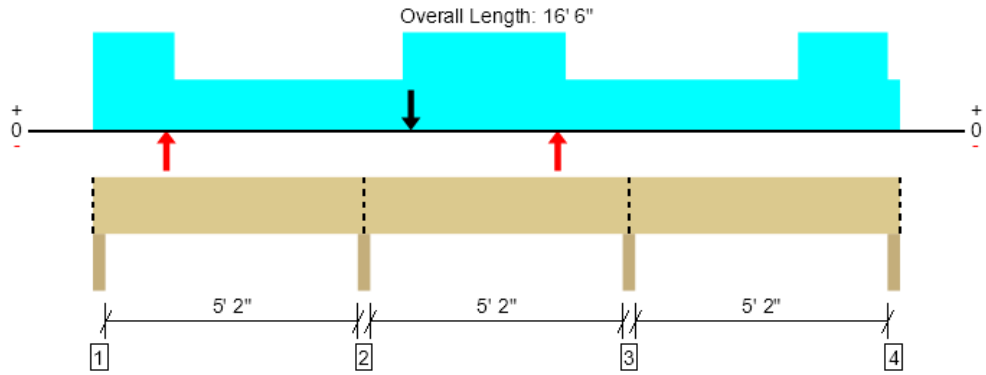
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Upper Floor, U22 (WIND)

1 piece(s) 5 1/4" x 9 1/4" 2.0E Parallam® PSL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	4120 @ 5' 6 1/2"	9844 (3.00")	Passed (42%)	--	1.0 D + 0.75 L + 0.75 Lr (Adj Spans)
Shear (lbs)	1506 @ 6' 5 1/4"	9389	Passed (16%)	1.00	1.0 D + 1.0 L (Adj Spans)
Moment (Ft-lbs)	-2118 @ 10' 11 1/2"	18623	Passed (11%)	1.00	1.0 D + 1.0 L (Adj Spans)
Live Load Defl. (in)	0.011 @ 8' 3 1/16"	0.181	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 Lr (Alt Spans)
Total Load Defl. (in)	0.017 @ 8' 3"	0.271	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 Lr (Alt Spans)

Member Length : 16' 6"
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)						
	Total	Available	Required	Dead	Floor Live	Roof Live	Snow	Seismic	Factored	Accessories
1 - Column - HF	3.00"	3.00"	1.50"	771	846/-89	496	182	207/-207	1777	Blocking
2 - Column - HF	3.00"	3.00"	1.50"	1842	2145	892	467	187/-187	4120	Blocking
3 - Column - HF	3.00"	3.00"	1.50"	1821	2145	844	467	196/-196	4063	Blocking
4 - Column - HF	3.00"	3.00"	1.50"	773	846/-89	497	182	14/-14	1779	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)	16' 6" o/c	
Bottom Edge (Lu)	16' 6" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Roof Live (1.25)	Snow (1.15)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	0 to 16' 6"	N/A	15.2	--	--	--	--	
1 - Uniform (PSF)	0 to 16' 6" (Front)	8' 3"	13.0	40.0	--	--	--	Default Load
2 - Uniform (PSF)	0 to 16' 6" (Back)	3'	13.0	--	--	25.0	--	
3 - Uniform (PSF)	0 to 1' 8" (Top)	15' 3"	13.0	--	25.0	--	--	
4 - Uniform (PSF)	6' 4" to 9' 8" (Top)	15' 3"	13.0	--	25.0	--	--	
5 - Uniform (PSF)	14' 5" to 16' 3" (Top)	15' 3"	13.0	--	25.0	--	--	
6 - Uniform (PLF)	0 to 16' 6" (Top)	N/A	72.0	--	--	--	--	
7 - Point (lb)	1' 6" (Top)	N/A	--	--	--	--	-296	
8 - Point (lb)	6' 6" (Top)	N/A	--	--	--	--	296	
9 - Point (lb)	9' 6" (Top)	N/A	--	--	--	--	-296	

- Side loads are assumed to not induce cross-grain tension.

ForteWEB Software Operator	Job Notes
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Weyerhaeuser

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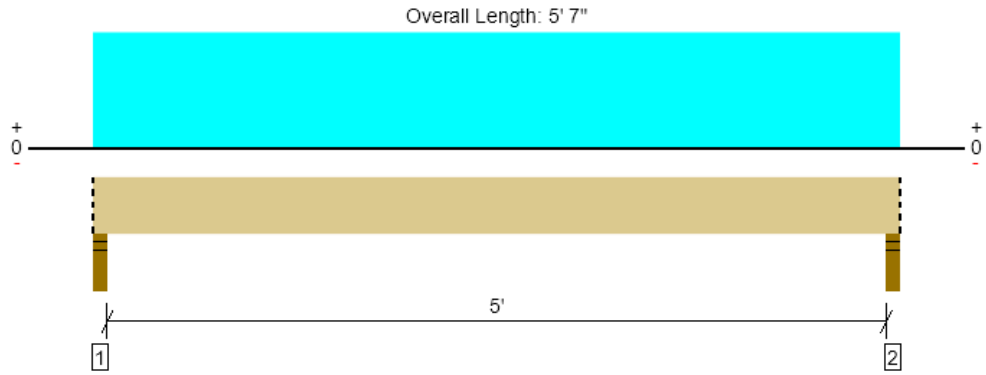
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Upper Floor, U23

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	688 @ 2"	4253 (3.50")	Passed (16%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	467 @ 10 3/4"	2175	Passed (21%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	848 @ 2' 9 1/2"	2234	Passed (38%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.025 @ 2' 9 1/2"	0.262	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.034 @ 2' 9 1/2"	0.350	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 5' 7"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Stud wall - HF	3.50"	3.50"	1.50"	180	508	688	Blocking
2 - Stud wall - HF	3.50"	3.50"	1.50"	180	508	688	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)	5' 7" o/c	
Bottom Edge (Lu)	5' 7" 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 5' 7"	N/A	5.5	--	
1 - Uniform (PSF)	0 to 5' 7" (Back)	1' 11 1/16"	13.0	40.0	
2 - Uniform (PLF)	0 to 5' 7" (Front)	N/A	34.0	105.0	Linked from: U1a, Support 2

• Side loads are assumed to not induce cross-grain tension.

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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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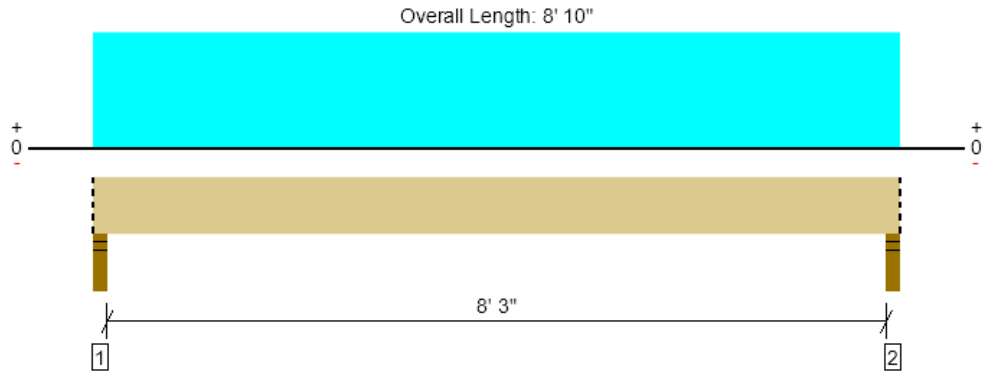
Weyerhaeuser

Upper Floor, U24

2 piece(s) 2 x 10 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	813 @ 2"	4253 (3.50")	Passed (19%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	617 @ 1' 3/4"	2775	Passed (22%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1662 @ 4' 5"	3333	Passed (50%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.061 @ 4' 5"	0.425	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.084 @ 4' 5"	0.567	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 8' 10"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Stud wall - HF	3.50"	3.50"	1.50"	223	590	813	Blocking
2 - Stud wall - HF	3.50"	3.50"	1.50"	223	590	813	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)	8' 10" o/c	
Bottom Edge (Lu)	8' 10" 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 8' 10"	N/A	7.0	--	
1 - Uniform (PLF)	0 to 8' 10" (Front)	N/A	43.5	133.5	Linked from: U1, Support 1

- Side loads are assumed to not induce cross-grain tension.

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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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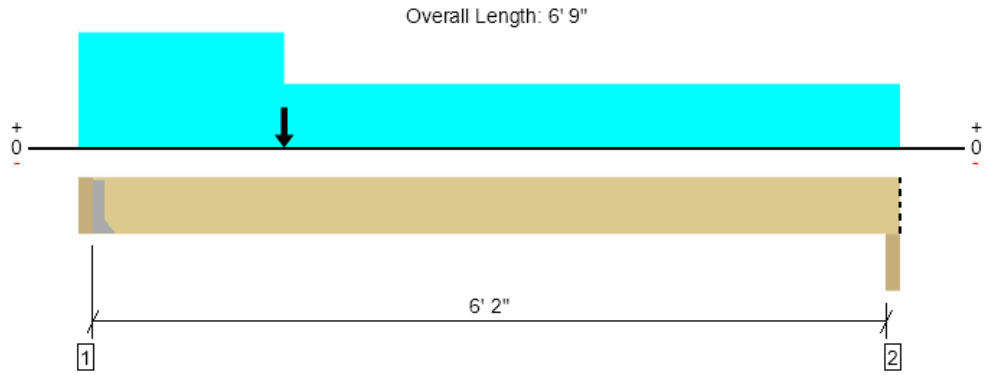
Weyerhaeuser

Upper Floor, U25

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1348 @ 3 1/2"	1823 (1.50")	Passed (74%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1097 @ 10 3/4"	2501	Passed (44%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1523 @ 3' 2 3/4"	2234	Passed (68%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.046 @ 3' 3 1/2"	0.315	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.097 @ 3' 3 7/8"	0.419	Passed (L/781)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 6' 5 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Hanger on 7 1/4" HF beam	3.50"	Hanger[1]	1.50"	728	459	527	1467	See note [1]
2 - Column - HF	3.50"	3.50"	1.50"	511	442	114	953	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

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

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	HUS28-2	2.00"	N/A	6-16d	6-16d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	3 1/2" to 6' 9"	N/A	5.5	--	--	
1 - Uniform (PLF)	0 to 6' 9" (Front)	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 1' 9" (Top)	N/A	69.0	--	145.0	Linked from: R8, Support 1
3 - Point (lb)	1' 9" (Top)	N/A	195	--	387	Linked from: R9, Support 1
4 - Uniform (PLF)	0 to 6' 9" (Top)	N/A	88.0	--	--	

- Side loads are assumed to not induce cross-grain tension.

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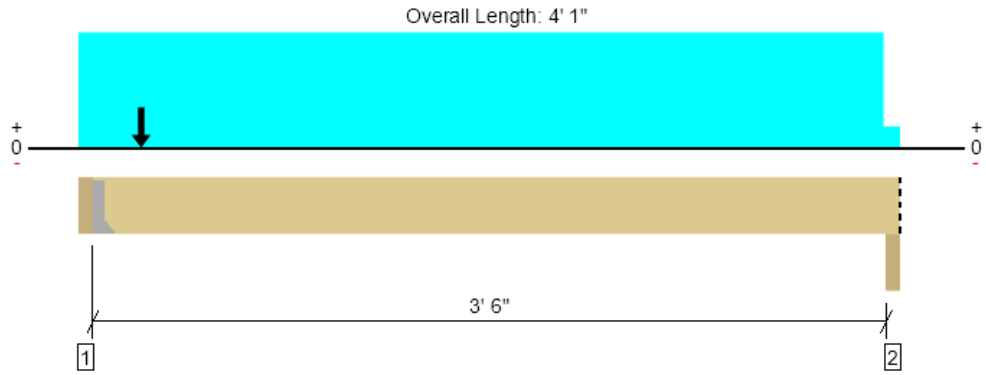
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Upper Floor, U26

2 piece(s) 2 x 8 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1209 @ 3 1/2"	1823 (1.50")	Passed (66%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	659 @ 10 3/4"	2501	Passed (26%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	733 @ 2' 7/16"	2569	Passed (29%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.007 @ 2' 1 1/8"	0.181	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.014 @ 2' 1 1/8"	0.242	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 3' 9 1/2"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Hanger on 7 1/4" HF beam	3.50"	Hanger[1]	1.50"	616	281	670	1329	See note [1]
2 - Column - HF	3.50"	3.50"	1.50"	410	253	297	822	Blocking

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 10" o/c	
Bottom Edge (Lu)	3' 10" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LUS28-2	2.00"	N/A	6-16d	4-16d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	3 1/2" to 4' 1"	N/A	5.5	--	--	
1 - Uniform (PLF)	0 to 4' (Front)	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 4' (Top)	N/A	69.0	--	145.0	Linked from: R8, Support 1
3 - Point (lb)	6" (Top)	N/A	195	--	387	Linked from: R9, Support 1
4 - Uniform (PLF)	0 to 4' 1" (Top)	N/A	88.0	--	--	

- Side loads are assumed to not induce cross-grain tension.

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Weyerhaeuser Notes

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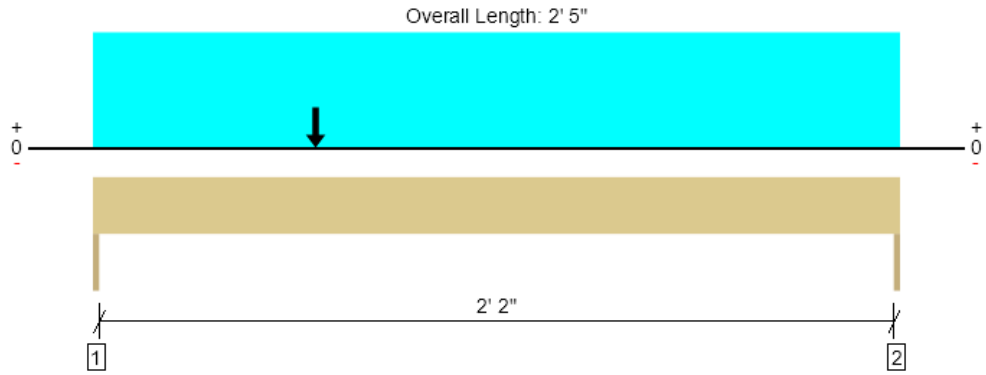
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

MEMBER REPORT

PASSED

Upper Floor, U27

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	636 @ 0	1823 (1.50")	Passed (35%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	506 @ 7"	1898	Passed (27%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	372 @ 8"	1602	Passed (23%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.003 @ 1' 2"	0.081	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.007 @ 1' 2 1/16"	0.121	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 2' 5"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	305	161	280	636	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	218	161	107	419	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 5" o/c	
Bottom Edge (Lu)	2' 5" 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' 5"	N/A	4.2	--	--	
1 - Uniform (PLF)	0 to 2' 5"	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 2' 5"	N/A	88.0	--	--	
3 - Point (lb)	8"	N/A	195	--	387	Linked from: R9, Support 1

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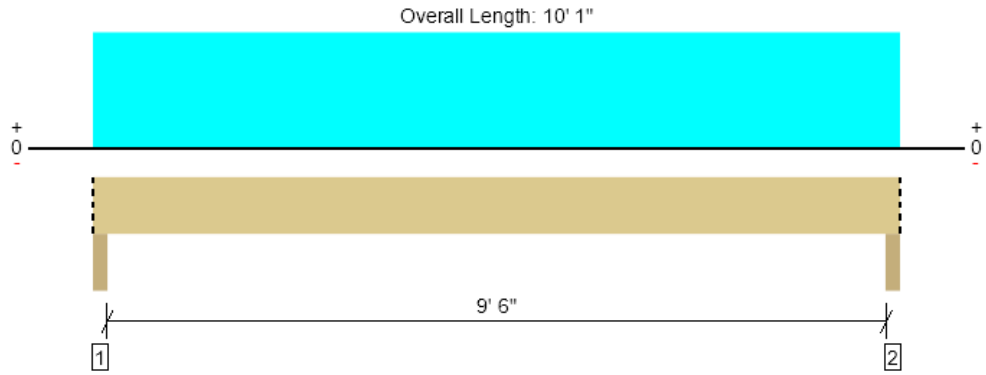
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U28

3 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1541 @ 2"	13322 (3.50")	Passed (12%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1267 @ 10 3/4"	8317	Passed (15%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	3631 @ 5' 1/2"	12273	Passed (30%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.125 @ 5' 1/2"	0.488	Passed (L/935)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.197 @ 5' 1/2"	0.650	Passed (L/593)	--	1.0 D + 1.0 S (All Spans)

Member Length : 10' 1"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.50"	564	977	1541	Blocking
2 - Column - HF	3.50"	3.50"	1.50"	564	977	1541	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)	10' 1" o/c	
Bottom Edge (Lu)	10' 1" 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 10' 1"	N/A	11.1	--	
1 - Uniform (PSF)	0 to 10' 1" (Front)	7' 9"	13.0	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

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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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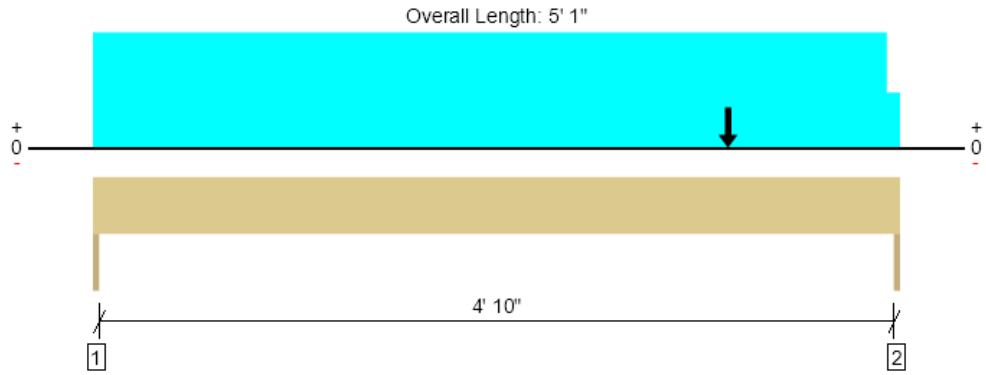
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U29

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1118 @ 5' 1"	1823 (1.50")	Passed (61%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	951 @ 4' 6"	1898	Passed (50%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1250 @ 2' 10 1/8"	1602	Passed (78%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.069 @ 2' 7 3/16"	0.169	Passed (L/881)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.109 @ 2' 7 1/4"	0.254	Passed (L/560)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 5' 1"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	316	339	410	879	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	412	339	602	1118	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	5' 1" 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' 1"	N/A	4.2	--	--	
1 - Uniform (PLF)	0 to 5' 1"	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 5'	N/A	62.0	--	132.0	Linked from: R8, Support 2
3 - Point (lb)	4'	N/A	176	--	352	Linked from: R10, Support 1

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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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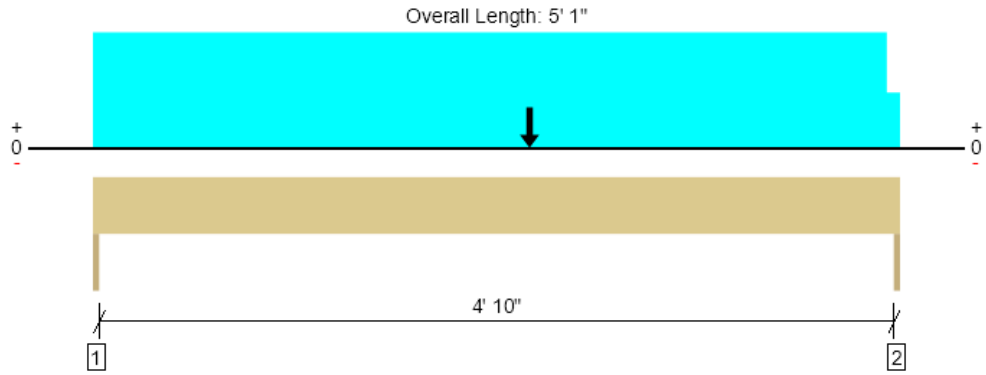
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U30

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1010 @ 5' 1"	1823 (1.50")	Passed (55%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	843 @ 4' 6"	1898	Passed (44%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1546 @ 2' 9"	1602	Passed (97%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.078 @ 2' 6 1/2"	0.169	Passed (L/780)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.124 @ 2' 6 1/2"	0.254	Passed (L/492)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 5' 1"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	360	339	497	987	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	369	339	515	1010	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	5' 1" 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' 1"	N/A	4.2	--	--	
1 - Uniform (PLF)	0 to 5' 1"	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 5'	N/A	62.0	--	132.0	Linked from: R8, Support 2
3 - Point (lb)	2' 9"	N/A	176	--	352	Linked from: R10, Support 1

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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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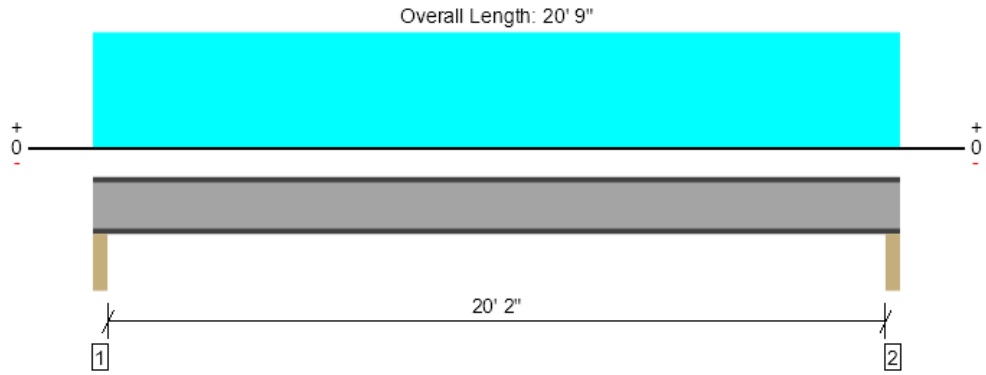
Weyerhaeuser

Upper Floor, U31

1 piece(s) W10X26 (A992) ASTM Steel



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5769 @ 2"	14641 (3.50")	Passed (39%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	5606 @ 3 1/2"	53560	Passed (10%)	--	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	28970 @ 10' 4 1/2"	78094	Passed (37%)	--	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.374 @ 10' 4 1/2"	0.681	Passed (L/654)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.521 @ 10' 4 1/2"	1.021	Passed (L/471)	--	1.0 D + 1.0 L (All Spans)

Member Length : 20' 9"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Column - HF	3.50"	3.50"	3.50"	1618	4150	5769	None
2 - Column - HF	3.50"	3.50"	3.50"	1618	4150	5769	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	1' 4" o/c	
Bottom Edge (Lu)	1' 4" o/c	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 20' 9"	N/A	26.0	--	
1 - Uniform (PSF)	0 to 20' 9" (Top)	10'	13.0	40.0	Default Load

- Side loads are assumed to not induce cross-grain tension.

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ForteWEB Software Operator	Job Notes
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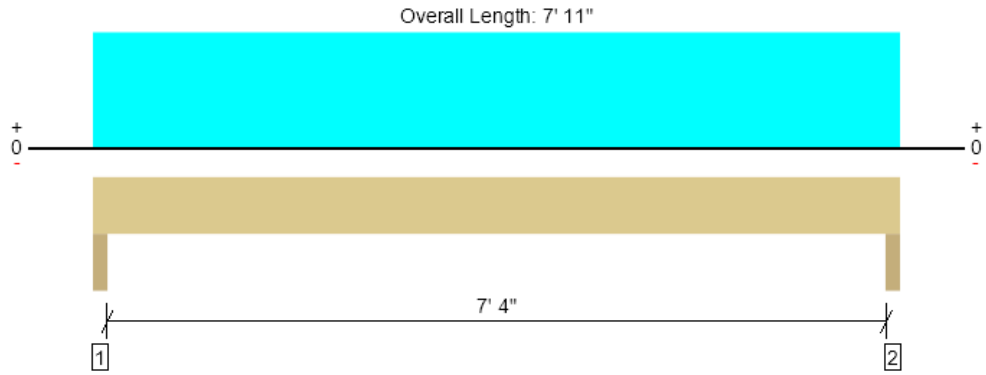
Weyerhaeuser

Upper Floor, U32

1 piece(s) 3 1/2" x 11 1/4" 2.0E Parallam® PSL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3421 @ 2"	7656 (3.50")	Passed (45%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	2359 @ 1' 2 3/4"	7613	Passed (31%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	6213 @ 3' 11 1/2"	17900	Passed (35%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.064 @ 3' 11 1/2"	0.253	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.096 @ 3' 11 1/2"	0.379	Passed (L/952)	--	1.0 D + 1.0 L (All Spans)

Member Length : 7' 11"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment has been multiplied by 1.00 for the beam stability factor and 1.01 for the volume/size factor.

Supports	Bearing Length			Loads to Supports (lbs)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.56"	1141	2280	407	3421	None
2 - Column - HF	3.50"	3.50"	1.56"	1141	2280	407	3421	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	1' 4" o/c	
Bottom Edge (Lu)	1' 4" o/c	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	0 to 7' 11"	N/A	12.3	--	--	
1 - Uniform (PSF)	0 to 7' 11" (Back)	8' 3"	13.0	40.0	--	Default Load
2 - Uniform (PLF)	0 to 7' 11" (Front)	N/A	168.8	246.0	102.8	Linked from: Ex joist, Support 2

- Side loads are assumed to not induce cross-grain tension.

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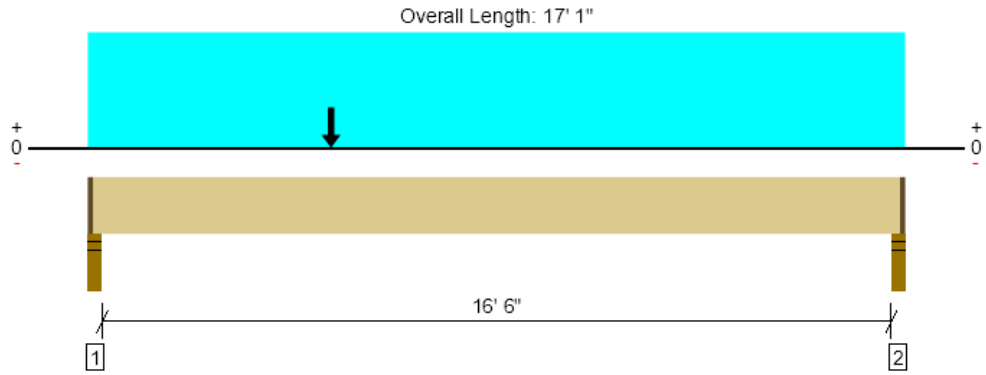
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U33

2 piece(s) 1 3/4" x 11 1/4" 2.0E Microllam® LVL



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1821 @ 2"	3347 (2.25")	Passed (54%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	1743 @ 1' 2 3/4"	8603	Passed (20%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	8099 @ 5' 1"	18558	Passed (44%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.258 @ 7' 11 7/8"	0.558	Passed (L/779)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.448 @ 7' 11 13/16"	0.837	Passed (L/448)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 16' 10 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Stud wall - SPF	3.50"	2.25"	1.50"	776	456	946	1827	1 1/4" Rim Board
2 - Stud wall - SPF	3.50"	2.25"	1.50"	465	456	393	1102	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	16' 11" o/c	
Bottom Edge (Lu)	16' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	1 1/4" to 16' 11 3/4"	N/A	11.5	--	--	
1 - Uniform (PSF)	0 to 17' 1" (Top)	1' 4"	13.0	40.0	--	Default Load
2 - Point (lb)	5' 1" (Top)	N/A	751	--	1339	Linked from: Roof: Drop Beam, Support 2

- Side loads are assumed to not induce cross-grain tension.

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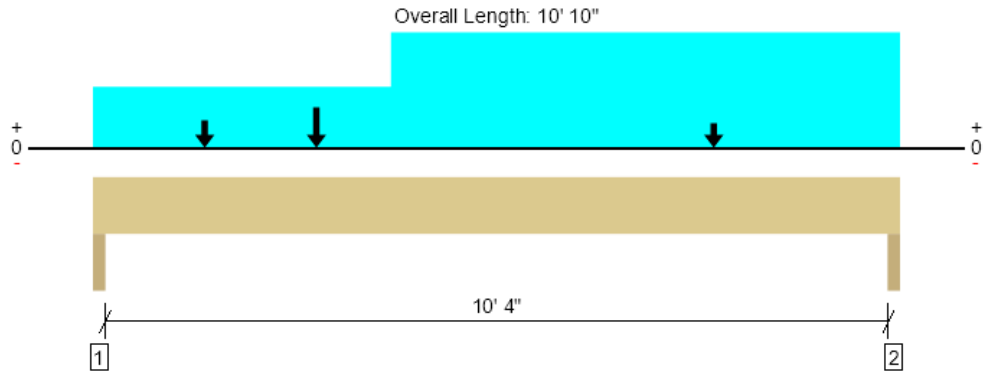
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U34

1 piece(s) 3 1/2" x 11 1/4" 2.0E Parallam® PSL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5482 @ 10' 8 1/2"	6563 (3.00")	Passed (84%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	4455 @ 1' 2 1/4"	8754	Passed (51%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	13973 @ 5' 4 1/2"	20666	Passed (68%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.243 @ 5' 5"	0.353	Passed (L/522)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.384 @ 5' 4 15/16"	0.529	Passed (L/330)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)

Member Length : 10' 10"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)						
	Total	Available	Required	Dead	Floor Live	Snow	Wind	Seismic	Factored	Accessories
1 - Column - HF	3.00"	3.00"	2.34"	1865	2516	1761	48	66/-66	5108	None
2 - Column - HF	3.00"	3.00"	2.51"	1972	1971	2549	165	230/-230	5482	None

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

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	0 to 10' 10"	N/A	12.3	--	--	--	--	
1 - Uniform (PSF)	0 to 10' 10" (Front)	8' 3"	13.0	40.0	--	--	--	Default Load
2 - Uniform (PSF)	4' to 10' 10" (Top)	15'	12.0	--	25.0	--	--	
3 - Uniform (PSF)	0 to 10' 10" (Back)	5'	12.0	--	25.0	--	--	
4 - Point (lb)	8' 4" (Top)	N/A	--	--	--	213	296	
5 - Point (lb)	3' (Front)	N/A	465	456	393	--	--	Linked from: U33, Support 2
6 - Point (lb)	1' 6" (Front)	N/A	197	456	--	--	--	Linked from: U38, Support 2

• Side loads are assumed to not induce cross-grain tension.

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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
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

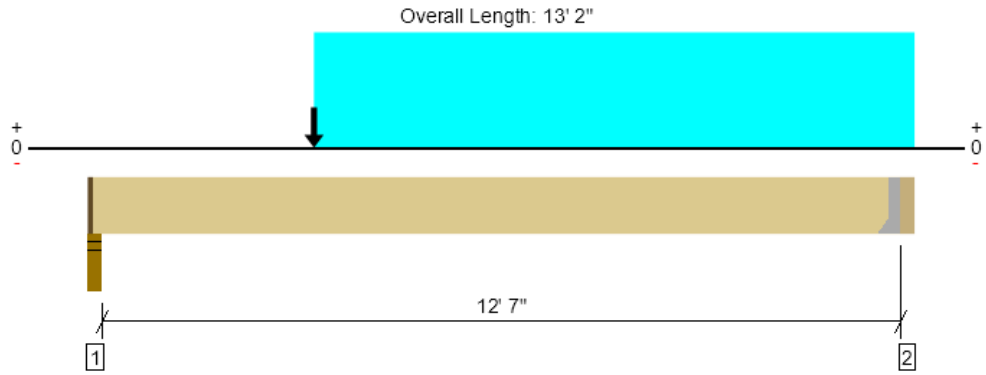
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, Ex joist

1 piece(s) 2 x 12 HF No.2 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	557 @ 12' 10 1/2"	911 (1.50")	Passed (61%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	780 @ 1' 2 3/4"	1941	Passed (40%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	2696 @ 3' 8"	2964	Passed (91%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.171 @ 6' 3 5/16"	0.422	Passed (L/889)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.309 @ 6' 2 5/16"	0.633	Passed (L/492)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 12' 9 1/4"
System : Floor
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/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	Factored	
1 - Stud wall - HF	3.50"	2.25"	1.50"	373	179	363	780	1 1/4" Rim Board
2 - Hanger on 11 1/4" HF beam	3.50"	Hanger[1]	1.50"	225	328	137	573	See note [1]

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' o/c	
Bottom Edge (Lu)	12' 9" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LUS28	1.75"	N/A	6-10dx1.5	3-10d	

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

Vertical Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	3' 8" to 13' 2"	16"	13.0	40.0	--	Default Load
2 - Point (PLF)	3' 8"	16"	325.0	--	375.0	

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

ForteWEB Software Operator	Job Notes
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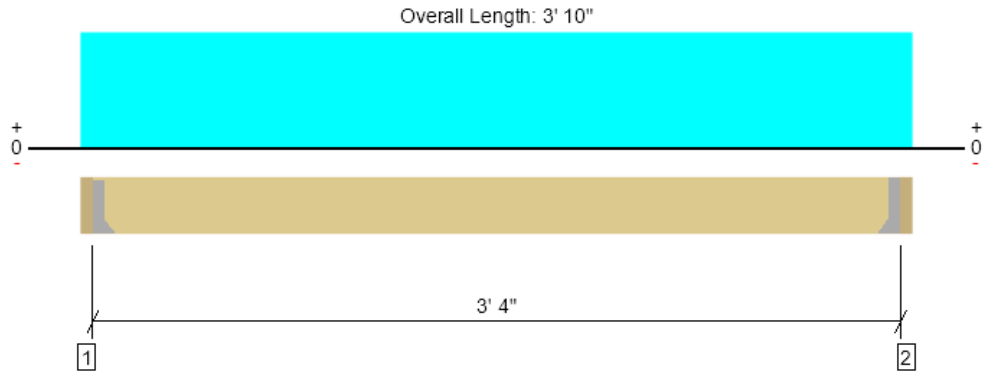
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U35

2 piece(s) 2 x 12 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	842 @ 3"	1823 (1.50")	Passed (46%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	369 @ 1' 2 1/4"	3375	Passed (11%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	702 @ 1' 11"	4482	Passed (16%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.002 @ 1' 11"	0.111	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.003 @ 1' 11"	0.167	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 3' 4"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Hanger on 11 1/4" HF beam	3.00"	Hanger[1]	1.50"	248	719	967	See note [1]
2 - Hanger on 11 1/4" HF beam	3.00"	Hanger[1]	1.50"	248	719	967	See note [1]

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

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

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LUS28-2	2.00"	N/A	6-10d	3-10d	
2 - Face Mount Hanger	LUS28-2	2.00"	N/A	6-10d	3-10d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3" to 3' 7"	N/A	8.6	--	
1 - Uniform (PSF)	0 to 3' 10" (Front)	9' 4 1/2"	13.0	40.0	Default Load

- Side loads are assumed to not induce cross-grain tension.

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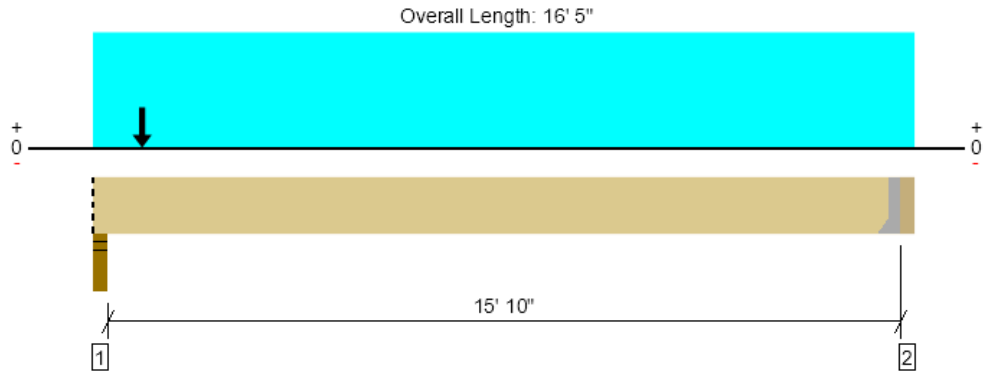
ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Upper Floor, U36

2 piece(s) 2 x 12 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	683 @ 16' 1 1/2"	1823 (1.50")	Passed (37%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1240 @ 1' 2 3/4"	3375	Passed (37%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2941 @ 7' 6 1/8"	4482	Passed (66%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.204 @ 7' 11 7/16"	0.532	Passed (L/940)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.298 @ 7' 11 5/8"	0.798	Passed (L/643)	--	1.0 D + 1.0 L (All Spans)

Member Length : 16' 1 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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	Factored	
1 - Stud wall - HF	3.50"	3.50"	1.50"	446	1116	1562	Blocking
2 - Hanger on 11 1/4" HF beam	3.50"	Hanger[1]	1.50"	225	479	703	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	13' 3" o/c	
Bottom Edge (Lu)	16' 2" o/c	

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LUS28-2	2.00"	N/A	6-10dx1.5	3-10d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 to 16' 1 1/2"	N/A	8.6	--	
1 - Uniform (PSF)	0 to 16' 5" (Top)	1' 4"	13.0	40.0	Default Load
2 - Point (lb)	1' (Front)	N/A	248	719	Linked from: U35, Support 1

- Side loads are assumed to not induce cross-grain tension.

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

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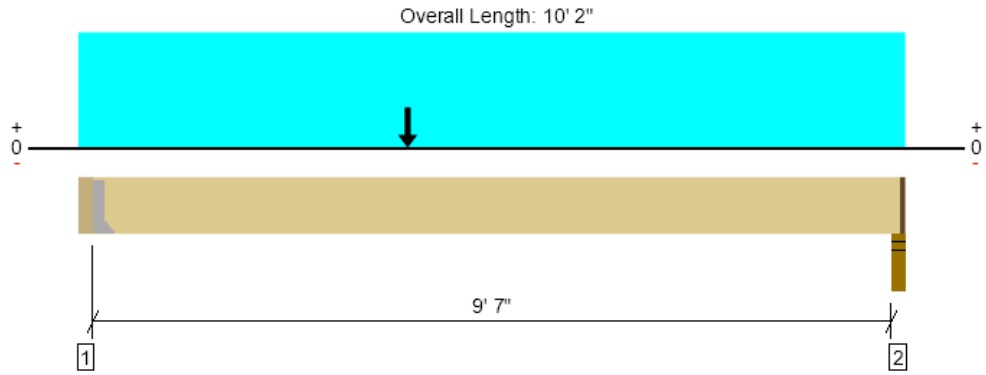
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U37

2 piece(s) 2 x 12 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	982 @ 3 1/2"	1823 (1.50")	Passed (54%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	908 @ 1' 2 3/4"	3375	Passed (27%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3098 @ 4'	4482	Passed (69%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.070 @ 4' 11 7/16"	0.324	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.098 @ 4' 11 1/2"	0.485	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 9' 9 1/4"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Hanger on 11 1/4" HF beam	3.50"	Hanger[1]	1.50"	284	719	1003	See note [1]
2 - Stud wall - HF	3.50"	2.25"	1.50"	224	542	766	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

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

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	LUS28-2	2.00"	N/A	6-16d	3-16d	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	3 1/2" to 10' 3/4"	N/A	8.6	--	
1 - Uniform (PSF)	0 to 10' 2" (Top)	1' 4"	13.0	40.0	Default Load
2 - Point (lb)	4' (Front)	N/A	248	719	Linked from: U35, Support 1

- Side loads are assumed to not induce cross-grain tension.

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ForteWEB Software Operator	Job Notes
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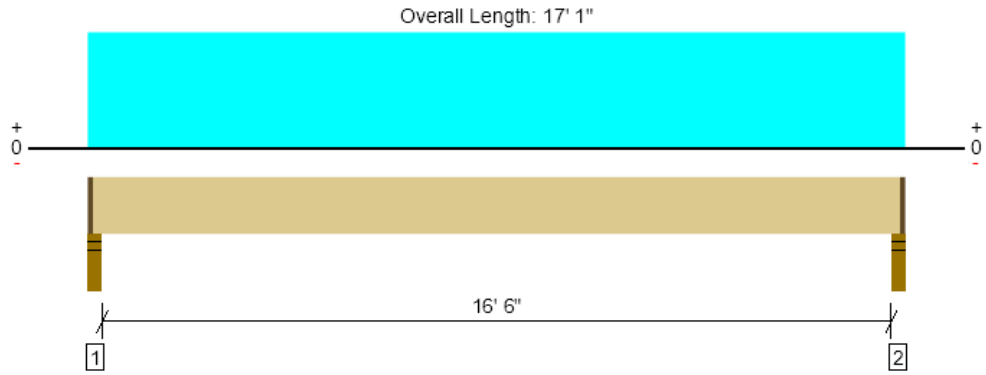
Weyerhaeuser

Upper Floor, U38

1 piece(s) 1 3/4" x 11 1/4" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	645 @ 2"	1673 (2.25")	Passed (39%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	559 @ 1' 2 3/4"	3741	Passed (15%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2680 @ 8' 6 1/2"	8069	Passed (33%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.238 @ 8' 6 1/2"	0.558	Passed (L/843)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.342 @ 8' 6 1/2"	0.837	Passed (L/588)	--	1.0 D + 1.0 L (All Spans)

Member Length : 16' 10 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Stud wall - SPF	3.50"	2.25"	1.50"	197	456	652	1 1/4" Rim Board
2 - Stud wall - SPF	3.50"	2.25"	1.50"	197	456	652	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	16' 10" o/c	
Bottom Edge (Lu)	16' 11" o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	1 1/4" to 16' 11 3/4"	N/A	5.7	--	
1 - Uniform (PSF)	0 to 17' 1" (Top)	1' 4"	13.0	40.0	Default Load

- Side loads are assumed to not induce cross-grain tension.

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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
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

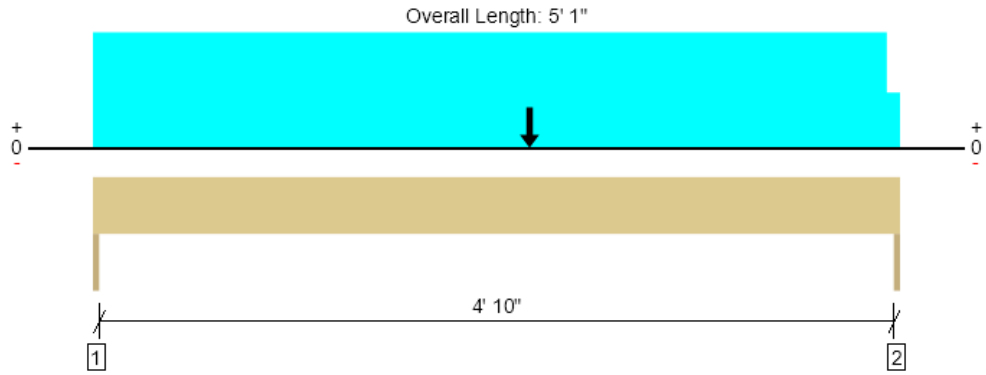
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U39

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1010 @ 5' 1"	1823 (1.50")	Passed (55%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	843 @ 4' 6"	1898	Passed (44%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1546 @ 2' 9"	1602	Passed (97%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.078 @ 2' 6 1/2"	0.169	Passed (L/780)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.124 @ 2' 6 1/2"	0.254	Passed (L/492)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 5' 1"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	360	339	497	987	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	369	339	515	1010	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 1" o/c	
Bottom Edge (Lu)	5' 1" 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' 1"	N/A	4.2	--	--	
1 - Uniform (PLF)	0 to 5' 1"	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 5'	N/A	62.0	--	132.0	Linked from: R8, Support 2
3 - Point (lb)	2' 9"	N/A	176	--	352	Linked from: R10, Support 1

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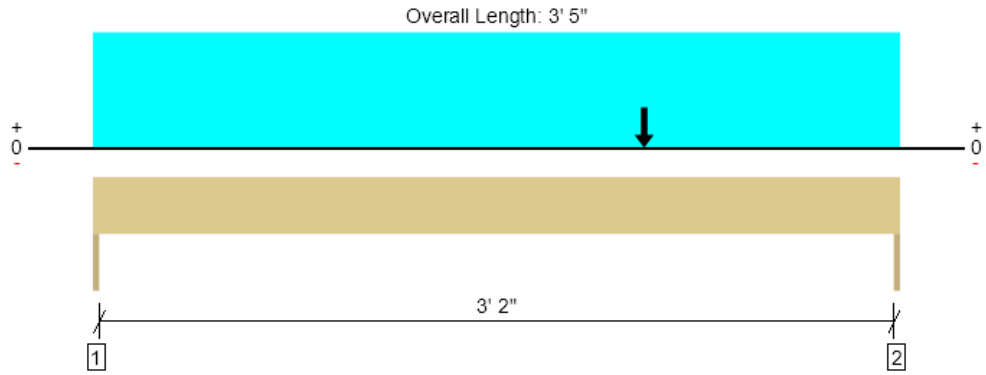
Weyerhaeuser

MEMBER REPORT

PASSED

Upper Floor, U40

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	734 @ 3' 5"	1823 (1.50")	Passed (40%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	597 @ 2' 10"	1898	Passed (31%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	657 @ 2' 4"	1602	Passed (41%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.012 @ 1' 8 15/16"	0.114	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.024 @ 1' 8 7/8"	0.171	Passed (L/999+)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 3' 5"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	294	228	123	557	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	365	228	264	734	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	3' 5" o/c	
Bottom Edge (Lu)	3' 5" 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 3' 5"	N/A	4.2	--	--	
1 - Uniform (PLF)	0 to 3' 5"	N/A	43.5	133.5	--	Linked from: U1, Support 1
2 - Uniform (PLF)	0 to 3' 5"	N/A	88.0	--	--	
3 - Point (lb)	2' 4"	N/A	195	--	387	Linked from: R9, Support 1

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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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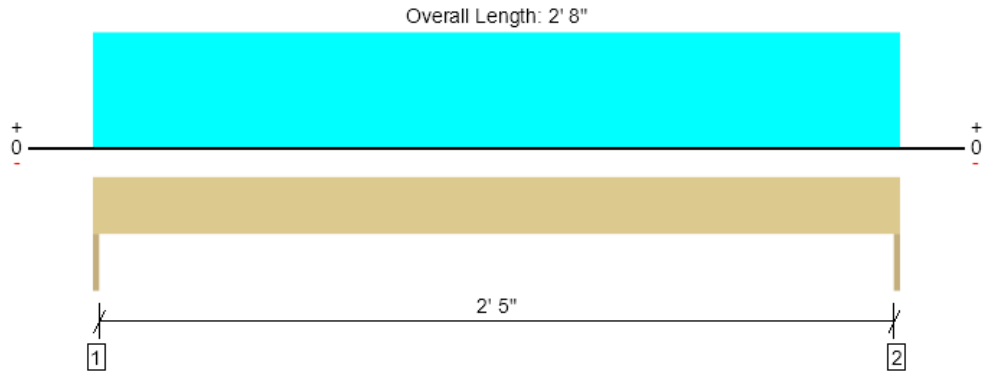
Weyerhaeuser

Upper Floor, U41

2 piece(s) 2 x 6 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	98 @ 0	1823 (1.50")	Passed (5%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	55 @ 7"	1650	Passed (3%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	65 @ 1' 4"	1393	Passed (5%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.001 @ 1' 4"	0.089	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.002 @ 1' 4"	0.133	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 2' 8"
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Trimmer - HF	1.50"	1.50"	1.50"	27	71	98	None
2 - Trimmer - HF	1.50"	1.50"	1.50"	27	71	98	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	2' 8" o/c	
Bottom Edge (Lu)	2' 8" 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 2' 8"	N/A	4.2	--	
1 - Uniform (PSF)	0 to 2' 8" (Top)	1' 4"	12.0	40.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

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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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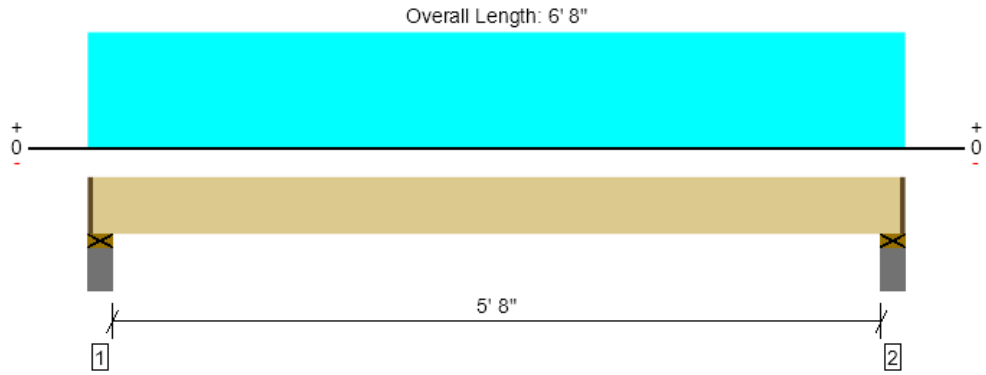
Weyerhaeuser

MEMBER REPORT

PASSED

Main Floor, M1

1 piece(s) 2 x 10 HF No.2 @ 16" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	228 @ 5"	2886 (4.75")	Passed (8%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	146 @ 1' 3 1/4"	1388	Passed (11%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	301 @ 3' 4"	1917	Passed (16%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.011 @ 3' 4"	0.146	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.014 @ 3' 4"	0.292	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	N/A	--	N/A

Member Length : 6' 5 1/2"
System : Floor
Member Type : Joist
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.
- 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Plate on concrete - HF	6.00"	4.75"	1.50"	58	178	236	1 1/4" Rim Board
2 - Plate on concrete - HF	6.00"	4.75"	1.50"	58	178	236	1 1/4" Rim Board

• Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

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

•Maximum allowable bracing intervals based on applied load.

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 6' 8"	16"	13.0	40.0	Default Load

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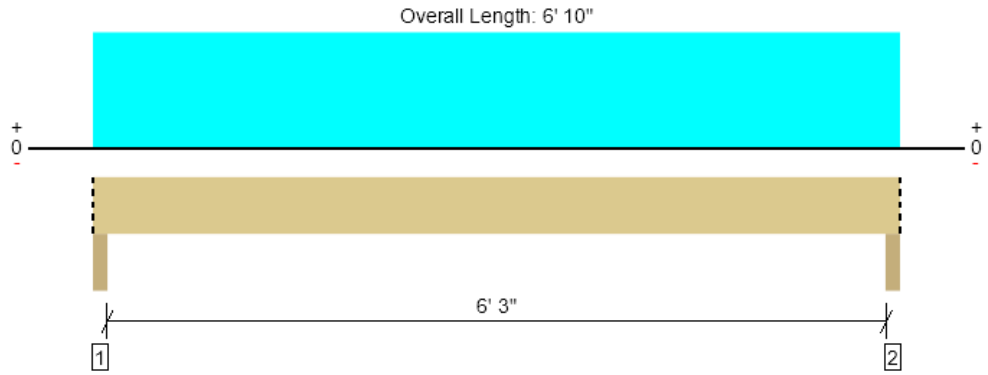
Weyerhaeuser

Main Floor, M7

1 piece(s) 4 x 10 HF No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2563 @ 2"	4961 (3.50")	Passed (52%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1766 @ 1' 3/4"	3238	Passed (55%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	3962 @ 3' 5"	4242	Passed (93%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.075 @ 3' 5"	0.217	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.100 @ 3' 5"	0.325	Passed (L/777)	--	1.0 D + 1.0 L (All Spans)

Member Length : 6' 10"
System : Floor
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.81"	650	1913	2563	Blocking
2 - Column - HF	3.50"	3.50"	1.81"	650	1913	2563	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' 10" o/c	
Bottom Edge (Lu)	6' 10" 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 6' 10"	N/A	8.2	--	
1 - Uniform (PSF)	0 to 6' 10" (Top)	14'	13.0	40.0	Default Load

- Side loads are assumed to not induce cross-grain tension.

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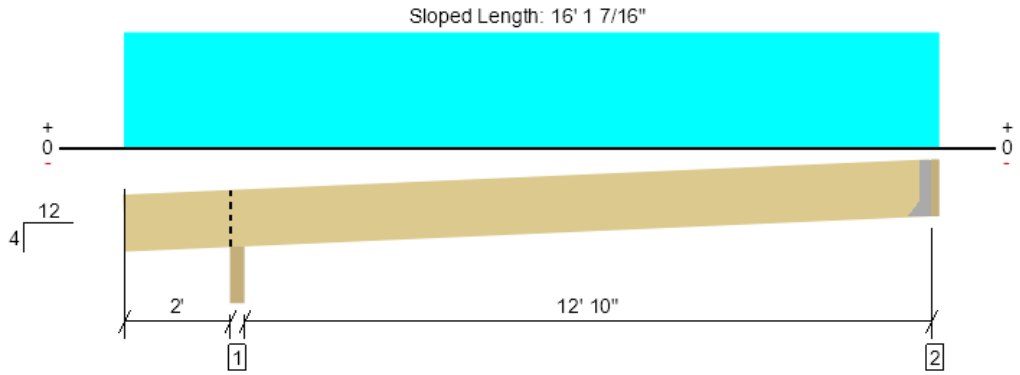
Weyerhaeuser

Garage Roof, GR1

1 piece(s) 2 x 10 HF No.2 @ 24" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	480 @ 15' 1 1/2"	911 (1.50")	Passed (53%)	--	1.0 D + 1.0 S (Alt Spans)
Shear (lbs)	436 @ 3' 1/4"	1596	Passed (27%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1528 @ 8' 9 1/16"	2204	Passed (69%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.267 @ 8' 8"	0.684	Passed (L/615)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.397 @ 8' 8 1/8"	0.912	Passed (L/413)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 16' 2 3/8"
System : Roof
Member Type : Joist
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 4/12

- 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.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Birdsmouth cut has not been analyzed.
- Applicable calculations are based on NDS.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Birdsmouth - HF	3.50"	3.50"	1.50"	223	441	664	Blocking
2 - Hanger on 9 1/4" LVL beam	2.00"	Hanger[1]	1.50"	164	328	492	See note [1]

- Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 11" o/c	
Bottom Edge (Lu)	15' 11" o/c	

- Maximum allowable bracing intervals based on applied load.
- Dimensions for lateral bracing intervals are measured along the length of the member for sloped conditions.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	LRU28Z	1.94"	N/A	6-10dx1.5	5-10d	

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

Vertical Load	Location (Side)	Spacing	Dead (0.90)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 15' 3 1/2"	24"	12.0	25.0	Default Load

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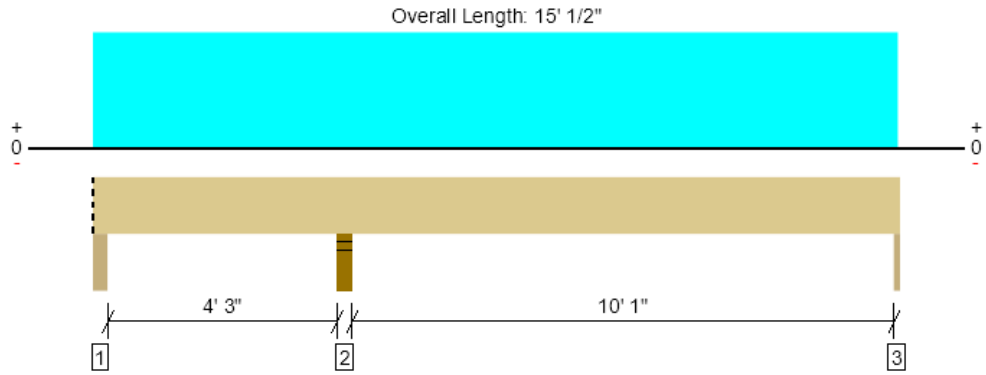
Weyerhaeuser

Garage Roof, GR2

3 piece(s) 1 3/4" x 16" 2.0E Microllam® LVL



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5500 @ 4' 8 1/4"	7809 (3.50")	Passed (70%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2414 @ 6' 2"	18354	Passed (13%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	-5219 @ 4' 8 1/4"	53672	Passed (10%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.020 @ 10' 4 1/16"	0.518	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.030 @ 10' 4 3/16"	0.690	Passed (L/999+)	--	1.0 D + 1.0 S (Alt Spans)

Member Length : 15' 1/2"
System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- -271 lbs uplift at support located at 2". Strapping or other restraint may be required.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Snow	Factored	
1 - Column - HF	3.50"	3.50"	1.50"	36	401/-307	438/-271	Blocking
2 - Stud wall - SPF	3.50"	3.50"	2.46"	2007	3493	5500	None
3 - Column - HF	1.50"	1.50"	1.50"	792	1390	2182	None

• 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)	15' 1" o/c	
Bottom Edge (Lu)	15' 1" 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 15' 1/2"	N/A	24.5	--	
1 - Uniform (PLF)	0 to 15' (Front)	N/A	82.0	164.0	Linked from: GR1, Support 2
2 - Uniform (PLF)	0 to 15' (Back)	N/A	82.0	164.0	Linked from: GR1, Support 2

• Side loads are assumed to not induce cross-grain tension.

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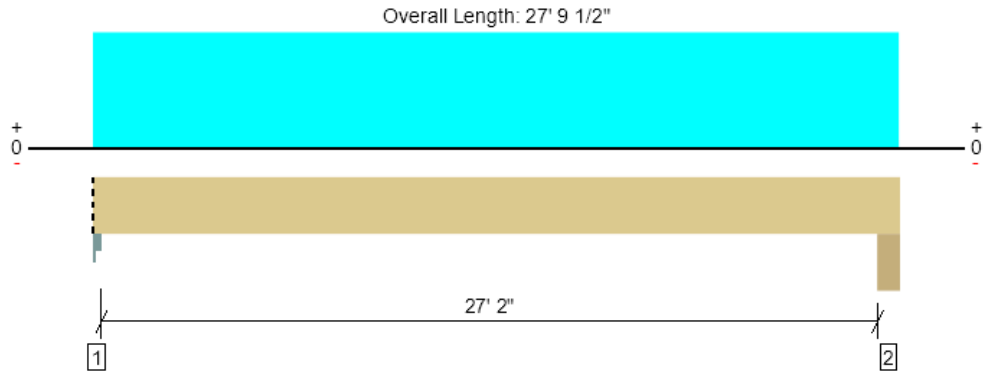
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Garage Roof, GR3

3 piece(s) 1 3/4" x 18" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	7144 @ 1/2"	7875 (2.00")	Passed (91%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	6278 @ 1' 8"	20648	Passed (30%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	48818 @ 13' 9"	66849	Passed (73%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.855 @ 13' 9"	1.371	Passed (L/385)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	1.354 @ 13' 9"	1.828	Passed (L/243)	--	1.0 D + 1.0 S (All Spans)

Member Length : 27' 9 1/2"
System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Column Cap - steel	2.00"	2.00"	1.81"	2634	4510	7144	Blocking
2 - Column - HF	5.50"	5.50"	1.91"	2683	4592	7275	None

- 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' 1" o/c	
Bottom Edge (Lu)	27' 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 27' 9 1/2"	N/A	27.6	--	
1 - Uniform (PLF)	0 to 27' 9" (Front)	N/A	82.0	164.0	Linked from: GR1, Support 2
2 - Uniform (PLF)	0 to 27' 9" (Back)	N/A	82.0	164.0	Linked from: GR1, Support 2

- Side loads are assumed to not induce cross-grain tension.

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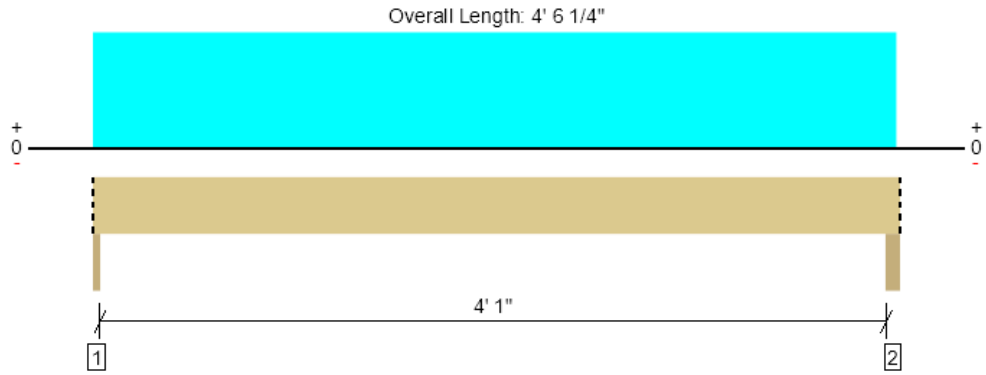
ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Garage Roof, GR4

3 piece(s) 1 3/4" x 16" 2.0E Microllam® LVL



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1130 @ 1/4"	6661 (1.75")	Passed (17%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	366 @ 1' 5 3/4"	18354	Passed (2%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1212 @ 2' 2 1/4"	53672	Passed (2%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.002 @ 2' 2 1/4"	0.217	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.003 @ 2' 2 1/4"	0.289	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 4' 6 1/4"
System : Roof
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Column - HF	1.75"	1.75"	1.50"	412	718	1130	Blocking
2 - Column - HF	3.50"	3.50"	1.50"	436	759	1195	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' 6" o/c	
Bottom Edge (Lu)	4' 6" 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 4' 6 1/4"	N/A	24.5	--	
1 - Uniform (PLF)	0 to 4' 6" (Front)	N/A	82.0	164.0	Linked from: GR1, Support 2
2 - Uniform (PLF)	0 to 4' 6" (Back)	N/A	82.0	164.0	Linked from: GR1, Support 2

• Side loads are assumed to not induce cross-grain tension.

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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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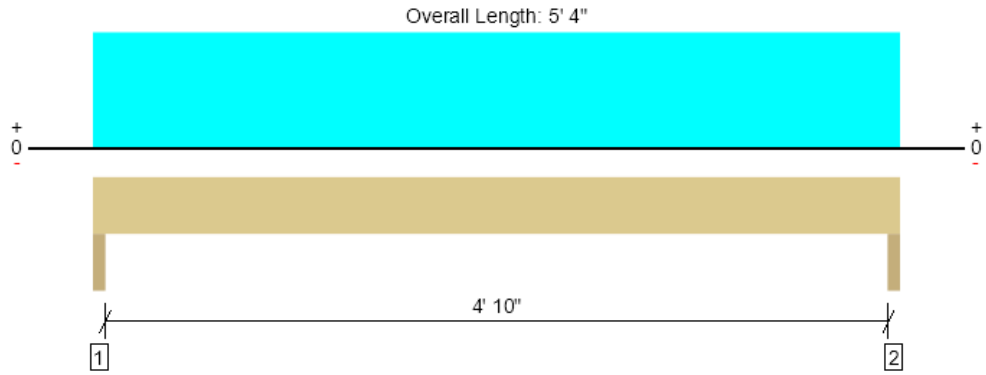
Weyerhaeuser

MEMBER REPORT

PASSED

Garage Roof, GR5

2 piece(s) 2 x 6 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	896 @ 1 1/2"	3645 (3.00")	Passed (25%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	658 @ 8 1/2"	1898	Passed (35%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	1086 @ 2' 8"	1602	Passed (68%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.061 @ 2' 8"	0.169	Passed (L/996)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.093 @ 2' 8"	0.254	Passed (L/653)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 4"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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	Factored	
1 - Trimmer - HF	3.00"	3.00"	1.50"	308	588	896	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	308	588	896	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 4" o/c	
Bottom Edge (Lu)	5' 4" 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' 4"	N/A	4.2	--	
1 - Uniform (PLF)	0 to 5' 4"	N/A	111.5	220.5	Linked from: GR1, Support 1

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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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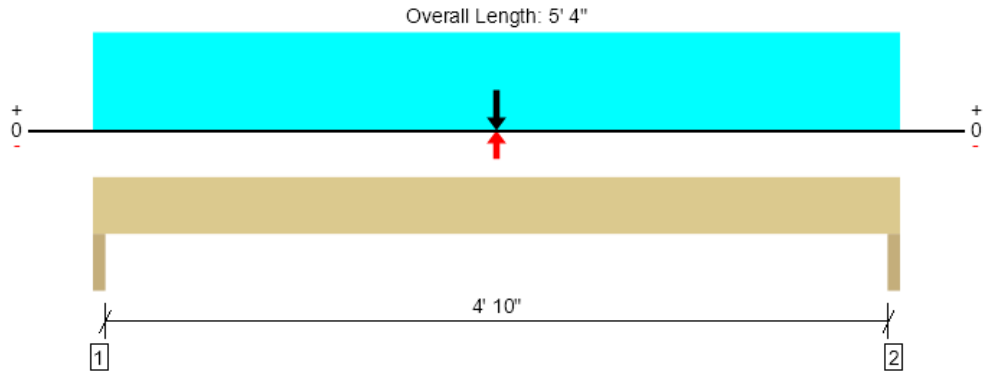
Weyerhaeuser

Garage Roof, GR6

2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern) [Group]
Member Reaction (lbs)	633 @ 1 1/2"	7613 (3.00")	Passed (8%)	--	1.0 D + 1.0 S (All Spans) [1]
Shear (lbs)	500 @ 10 1/4"	5544	Passed (9%)	1.15	1.0 D + 1.0 S (All Spans) [1]
Moment (Ft-lbs)	1057 @ 2' 8"	8182	Passed (13%)	1.15	1.0 D + 1.0 S (All Spans) [1]
Live Load Defl. (in)	0.019 @ 2' 8"	0.169	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans) [1]
Total Load Defl. (in)	0.025 @ 2' 8"	0.254	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans) [1]

Member Length : 5' 4"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	166	467	633	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	166	467	633	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 4" o/c	
Bottom Edge (Lu)	5' 4" 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' 4"	N/A	7.4	--	
1 - Uniform (PSF)	0 to 5' 4"	4'	12.0	25.0	Default Load
2 - Point (lb)	2' 8"	N/A	36	401/-307	Linked from: GR2, Support 1

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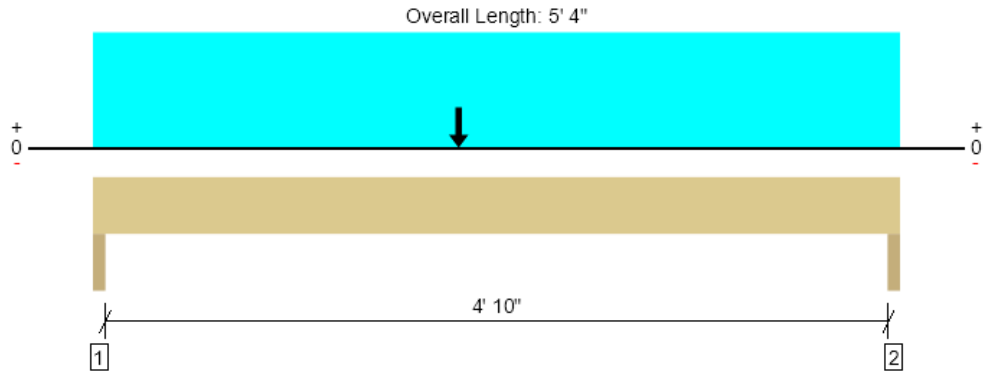
ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Garage Roof, GR7

2 piece(s) 1 3/4" x 9 1/4" 2.0E Microllam® LVL



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	4415 @ 1 1/2"	7613 (3.00")	Passed (58%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	4254 @ 1' 1/4"	7074	Passed (60%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	9659 @ 2' 5"	12884	Passed (75%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.071 @ 2' 5"	0.169	Passed (L/859)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.113 @ 2' 5"	0.254	Passed (L/542)	--	1.0 D + 1.0 S (All Spans)

Member Length : 5' 4"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.74"	1627	2789	4415	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	1363	2337	3700	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	5' 4" o/c	
Bottom Edge (Lu)	5' 4" 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' 4"	N/A	9.4	--	
1 - Uniform (PSF)	0 to 5' 4"	4'	12.0	25.0	Default Load
2 - Point (lb)	2' 5"	N/A	2683	4592	Linked from: GR3, Support 2

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ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

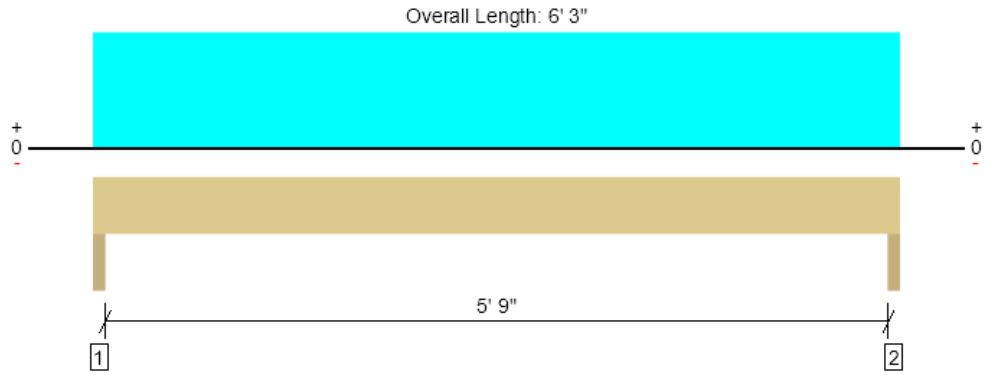
Weyerhaeuser

MEMBER REPORT

PASSED

Garage Roof, GR8

2 piece(s) 2 x 8 HF No.2



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	480 @ 1 1/2"	3645 (3.00")	Passed (13%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	349 @ 10 1/4"	2501	Passed (14%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	691 @ 3' 1 1/2"	2569	Passed (27%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.024 @ 3' 1 1/2"	0.200	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.036 @ 3' 1 1/2"	0.300	Passed (L/999+)	--	1.0 D + 1.0 S (All Spans)

Member Length : 6' 3"
System : Wall
Member Type : Header
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) 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)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Trimmer - HF	3.00"	3.00"	1.50"	167	313	480	None
2 - Trimmer - HF	3.00"	3.00"	1.50"	167	313	480	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	5.5	--	
1 - Uniform (PSF)	0 to 6' 3"	4'	12.0	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
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

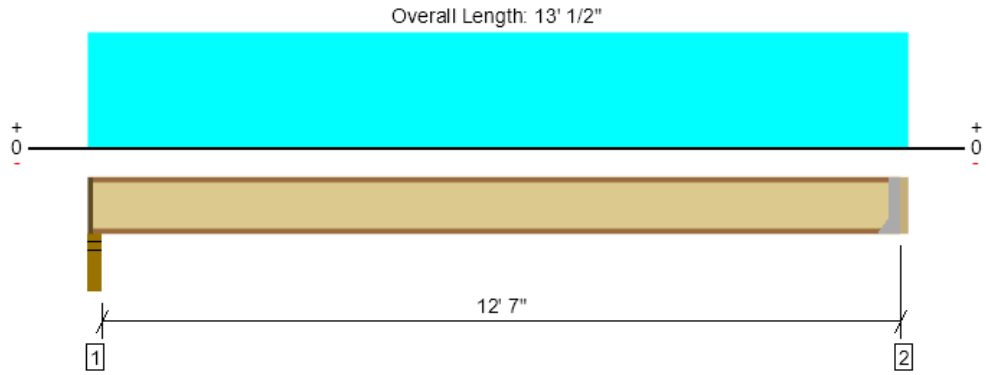
Weyerhaeuser

MEMBER REPORT

PASSED

Garage Upper Floor, GU1

1 piece(s) 11 7/8" TJI® 110 @ 16" OC



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	448 @ 12' 10 1/2"	910 (1.75")	Passed (49%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	448 @ 12' 10 1/2"	1560	Passed (29%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1417 @ 6' 6 1/2"	3160	Passed (45%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.111 @ 6' 6 1/2"	0.317	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.147 @ 6' 6 1/2"	0.633	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	51	40	Passed	--	--

Member Length : 12' 9 1/4"
System : Floor
Member Type : Joist
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.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories	Details
	Total	Available	Required	Dead	Floor Live	Factored		
1 - Stud wall - HF	3.50"	2.25"	1.75"	113	349	462	1 1/4" Rim Board	A3
2 - Hanger on 11 7/8" HF beam	2.00"	Hanger[1]	1.75" / - [2]	113	347	459	See note [1]	--

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 9" o/c	
Bottom Edge (Lu)	12' 9" o/c	

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

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	IUS1.81/11.88	2.00"	N/A	10-10dx1.5	2-Strong-Grip	

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

Vertical Load	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 13' 1/2"	16"	13.0	40.0	Default Load

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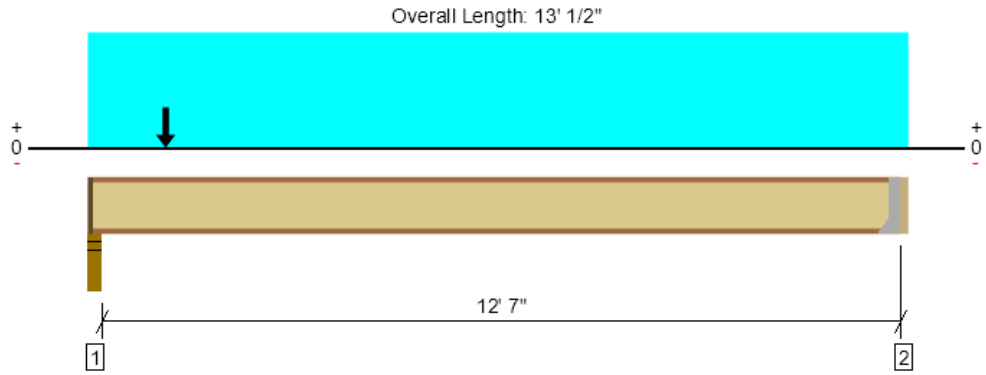
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operat

ForteWEB Software Operator	Job Notes
Henry Nuckles Harriott Valentine Engineers (715) 571-0533 HNuckles@harriottvalentine.com	

Weyerhaeuser

Garage Upper Floor, GU1a

1 piece(s) 11 7/8" TJI® 110 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	708 @ 2 1/2"	1198 (2.25")	Passed (59%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	697 @ 3 1/2"	1794	Passed (39%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1496 @ 6' 4 7/16"	3160	Passed (47%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.111 @ 6' 6 9/16"	0.317	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.157 @ 6' 5 15/16"	0.633	Passed (L/970)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	51	40	Passed	--	--

Member Length : 12' 9 1/4"
System : Floor
Member Type : Joist
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.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)					
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories	Details
1 - Stud wall - HF	3.50"	2.25"	1.75"	250	349	270	714	1 1/4" Rim Board	A3
2 - Hanger on 11 7/8" HF beam	2.00"	Hanger[1]	1.75" / - [2]	125	347	24	472	See note [1]	--

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 8" o/c	
Bottom Edge (Lu)	12' 9" o/c	

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

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	IUS1.81/11.88	2.00"	N/A	10-10dx1.5	2-Strong-Grip	

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

Vertical Loads	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
1 - Uniform (PSF)	0 to 13' 1/2"	16"	13.0	40.0	--	Default Load
2 - Point (PLF)	1' 3"	16"	111.5	--	220.5	Linked from: GR1, Support 1

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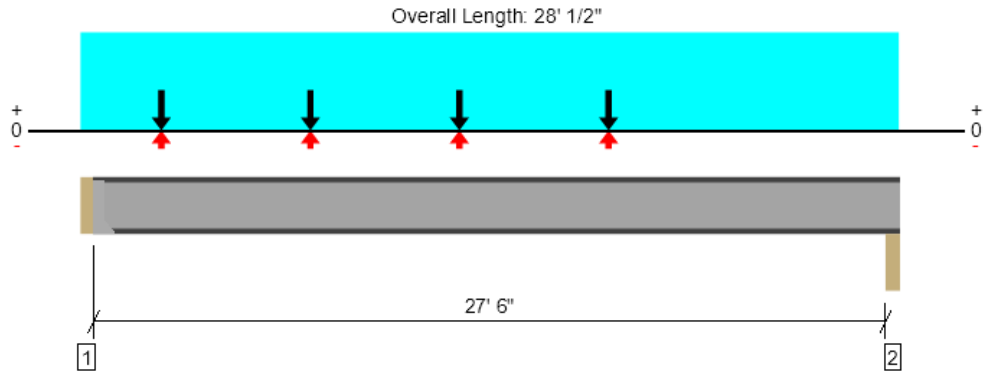
Garage Upper Floor, GU2

1 piece(s) W10X60 (A992) ASTM Steel



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern) [Group]
Member Reaction (lbs)	11335 @ 27' 10 1/2"	25629 (3.50")	Passed (44%)	--	1.0 D + 1.0 L (All Spans) [1]
Shear (lbs)	11817 @ 3"	85680	Passed (14%)	--	1.0 D + 1.0 L (All Spans) [1]
Moment (Ft-lbs)	80845 @ 13' 9 1/16"	186128	Passed (43%)	--	1.0 D + 1.0 L (All Spans) [1]
Live Load Defl. (in)	0.767 @ 14' 5/16"	0.921	Passed (L/432)	--	1.0 D + 1.0 L (All Spans) [1]
Total Load Defl. (in)	1.120 @ 14' 5/16"	1.381	Passed (L/296)	--	1.0 D + 1.0 L (All Spans) [1]

Member Length : 27' 9 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Bearing reinforcement may be required for support located at 0".
- Applicable calculations are based on ANSI/AISC 360-16.
- A lateral-torsional buckling factor (C_b) of 1.0 has been assumed.

Supports	Bearing Length			Loads to Supports (lbs)						
	Total	Available	Required	Dead	Floor Live	Snow	Wind	Seismic	Factored	Accessories
1 - Hanger on 10 3/16" HF beam	3.00"	Hanger[1]	1.50" / - [2]	3776	8216	381	69	72/-72	11992	See note [1]
2 - Column - HF	3.50"	3.50"	3.50"	3574	7762	323	39	40/-40	11335	None

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	Continuous	
Bottom Edge (Lu)	Continuous	

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	Connector not found	N/A	N/A	N/A	N/A	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	3" to 28' 1/2"	N/A	60.0	--	--	--	--	
1 - Uniform (PLF)	0 to 28' (Front)	N/A	84.8	260.3	--	--	--	Linked from: GU1, Support 2
2 - Uniform (PLF)	0 to 28' (Back)	N/A	93.8	260.3	18.0	--	--	Linked from: GU1 (south), Support 2
3 - Point (lb)	2' 7" (Back)	N/A	171	351	50	27	28/-28	Linked from: GU10, Support 2
4 - Point (lb)	7' 8" (Back)	N/A	171	351	50	27	28/-28	Linked from: GU10, Support 2
5 - Point (lb)	12' 9" (Back)	N/A	171	351	50	27	28/-28	Linked from: GU10, Support 2
6 - Point (lb)	17' 11" (Back)	N/A	171	351	50	27	28/-28	Linked from:

- Side loads are assumed to not induce cross-grain tension.

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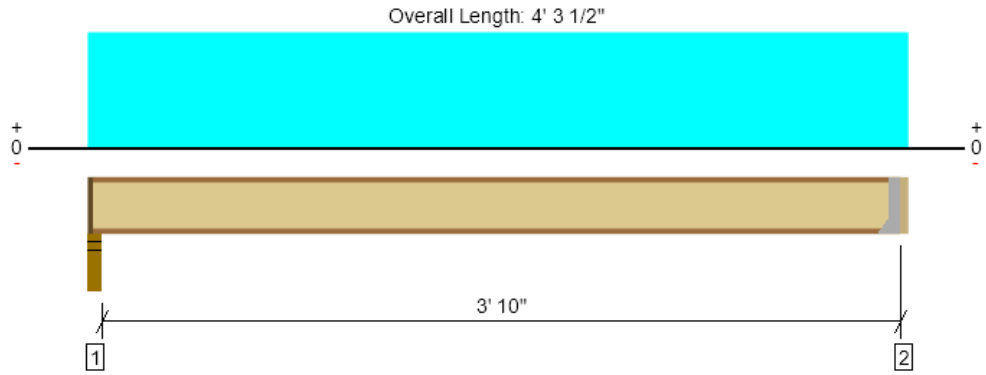
The product application, input design loads, dimensions and support information have been provided by ForteWEB Software Operator

Garage Upper Floor, GU3

1 piece(s) 11 7/8" TJI® 110 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	138 @ 4' 1 1/2"	910 (1.75")	Passed (15%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	138 @ 4' 1 1/2"	1560	Passed (9%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	136 @ 2' 2"	3160	Passed (4%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.003 @ 2' 2"	0.098	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.004 @ 2' 2"	0.196	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	72	40	Passed	--	--

Member Length : 4' 1/4"
System : Floor
Member Type : Joist
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.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories	Details
	Total	Available	Required	Dead	Floor Live	Factored		
1 - Stud wall - HF	3.50"	2.25"	1.75"	38	116	153	1 1/4" Rim Board	A3
2 - Hanger on 11 7/8" HF beam	2.00"	Hanger[1]	1.75" / - [2]	37	113	150	See note [1]	--

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

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

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

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	IUS1.81/11.88	2.00"	N/A	10-10dx1.5	2-Strong-Grip	

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

Vertical Load	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 4' 3 1/2"	16"	13.0	40.0	Default Load

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

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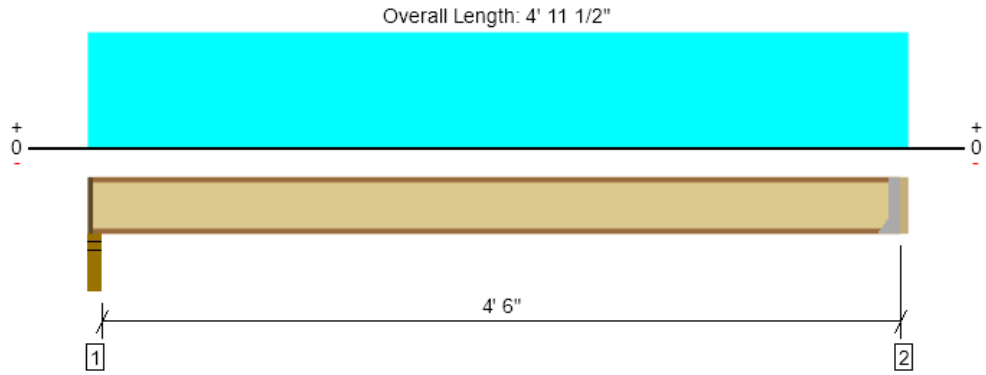
Weyerhaeuser

Garage Upper Floor, GU4

1 piece(s) 11 7/8" TJI® 110 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	162 @ 4' 9 1/2"	910 (1.75")	Passed (18%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	162 @ 4' 9 1/2"	1560	Passed (10%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	186 @ 2' 6"	3160	Passed (6%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.004 @ 2' 6"	0.115	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.005 @ 2' 6"	0.229	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	71	40	Passed	--	--

Member Length : 4' 8 1/4"
System : Floor
Member Type : Joist
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.
- A structural analysis of the deck has not been performed.
- Deflection analysis is based on composite action with a single layer of 23/32" Weyerhaeuser Edge™ Panel (24" Span Rating) that is glued and nailed down.
- Additional considerations for the TJ-Pro™ Rating include: None.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories	Details
	Total	Available	Required	Dead	Floor Live	Factored		
1 - Stud wall - HF	3.50"	2.25"	1.75"	43	133	177	1 1/4" Rim Board	A3
2 - Hanger on 11 7/8" HF beam	2.00"	Hanger[1]	1.75" / - [2]	43	131	174	See note [1]	--

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- [1] See Connector grid below for additional information and/or requirements.
- [2] Required Bearing Length / Required Bearing Length with Web Stiffeners

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	4' 8" o/c	
Bottom Edge (Lu)	4' 8" o/c	

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

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
2 - Face Mount Hanger	IUS1.81/11.88	2.00"	N/A	10-10dx1.5	2-Strong-Grip	

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

Vertical Load	Location	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 to 4' 11 1/2"	16"	13.0	40.0	Default Load

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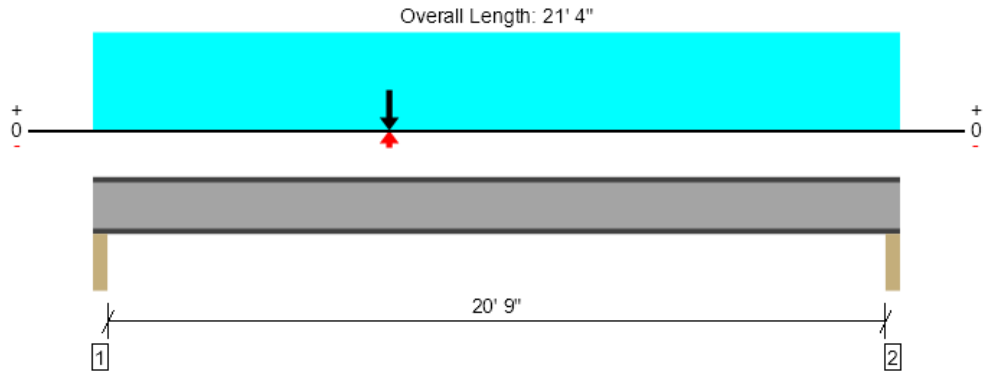
Weyerhaeuser

Garage Upper Floor, GU5

1 piece(s) W10X49 (A992) ASTM Steel



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern) [Group]
Member Reaction (lbs)	13146 @ 2"	25375 (3.50")	Passed (52%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans) [1]
Shear (lbs)	13101 @ 3 1/2"	68000	Passed (19%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans) [1]
Moment (Ft-lbs)	96055 @ 7' 10"	150699	Passed (64%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans) [1]
Live Load Defl. (in)	0.440 @ 9' 11 1/4"	0.700	Passed (L/573)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans) [1]
Total Load Defl. (in)	0.779 @ 9' 11 13/16"	1.050	Passed (L/323)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans) [1]

Member Length : 21' 4"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Bearing reinforcement may be required for support located at 2".
- Bearing reinforcement may be required for point load located at 7' 10".
- 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)						
	Total	Available	Required	Dead	Floor Live	Snow	Wind	Seismic	Factored	Accessories
1 - Column - HF	3.50"	3.50"	3.50"	5792	5785	3988	44	46/-46	13146	None
2 - Column - HF	3.50"	3.50"	3.50"	3849	3568	2293	25	26/-26	8259	None

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	0 to 21' 4"	N/A	49.0	--	--	--	--	
1 - Uniform (PSF)	0 to 21' 4" (Front)	1' 4"	13.0	40.0	--	--	--	Default Load
2 - Uniform (PLF)	0 to 21' 4" (Top)	N/A	48.0	--	--	--	--	
3 - Point (lb)	7' 10" (Top)	N/A	2634	--	4510	--	--	Linked from: GR3, Support 1
4 - Point (lb)	7' 10" (Top)	N/A	792	--	1390	--	--	Linked from: GR2, Support 3
5 - Point (lb)	7' 10" (Front)	N/A	3776	8216	381	69	72/-72	Linked from: GU2, Support 1

- Side loads are assumed to not induce cross-grain tension.

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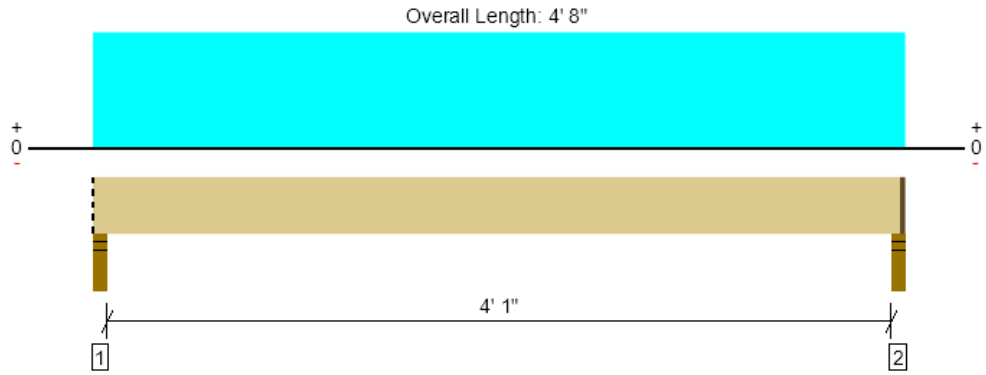
Weyerhaeuser

MEMBER REPORT

PASSED

Garage Upper Floor, GU6

1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	427 @ 4' 6"	1595 (2.25")	Passed (27%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	202 @ 1' 3 3/8"	3948	Passed (5%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	450 @ 2' 4"	8924	Passed (5%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.004 @ 2' 4"	0.108	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.006 @ 2' 4"	0.217	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 4' 6 3/4"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

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

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Factored	
1 - Stud wall - HF	3.50"	3.50"	1.50"	120	327	447	Blocking
2 - Stud wall - HF	3.50"	2.25"	1.50"	120	327	446	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.
- 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)	4' 7" 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 4' 6 3/4"	N/A	6.1	--	
1 - Uniform (PSF)	0 to 4' 8" (Front)	3' 6"	13.0	40.0	Default Load

- Side loads are assumed to not induce cross-grain tension.

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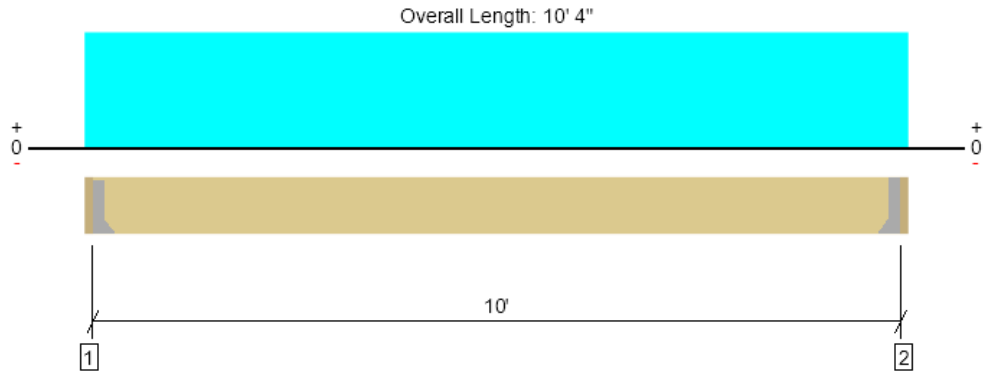
Weyerhaeuser

MEMBER REPORT

PASSED

Garage Upper Floor, GU7

1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	593 @ 2"	1969 (1.50")	Passed (30%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	475 @ 1' 1 7/8"	3948	Passed (12%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1482 @ 5' 2"	8924	Passed (17%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.045 @ 5' 2"	0.250	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.063 @ 5' 2"	0.500	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)

Member Length : 10'
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Floor Live	Factored	Accessories
1 - Hanger on 11 7/8" HF beam	2.00"	Hanger[1]	1.50"	174	438	612	See note [1]
2 - Hanger on 11 7/8" HF beam	2.00"	Hanger[1]	1.50"	174	438	612	See note [1]

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

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

•Maximum allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie

Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
1 - Face Mount Hanger	IUS1.81/9.5	2.00"	N/A	8-10dx1.5	2-10dx1.5	
2 - Face Mount Hanger	IUS1.81/9.5	2.00"	N/A	8-10dx1.5	2-10dx1.5	

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

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	2" to 10' 2"	N/A	6.1	--	
1 - Uniform (PLF)	0 to 10' 4" (Front)	N/A	27.8	84.8	Linked from: GU3, Support 2

- Side loads are assumed to not induce cross-grain tension.

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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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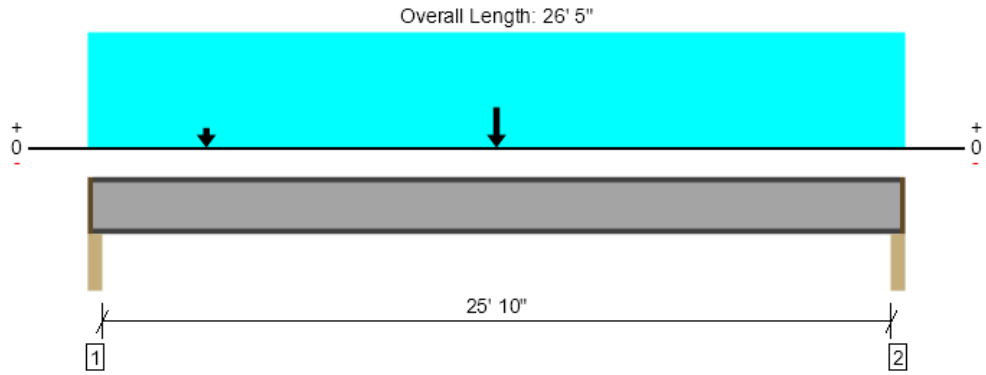
Weyerhaeuser

MEMBER REPORT

PASSED

Garage Upper Floor, GU8

1 piece(s) W10X30 (A992) ASTM Steel



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	4538 @ 2"	9478 (2.25")	Passed (48%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	4501 @ 3 1/2"	63000	Passed (7%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	42652 @ 13' 2 1/2"	91317	Passed (47%)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Live Load Defl. (in)	0.513 @ 13' 1 7/8"	0.652	Passed (L/611)	--	1.0 D + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.913 @ 13' 1 15/16"	1.304	Passed (L/343)	--	1.0 D + 0.75 L + 0.75 S (All Spans)

Member Length : 26' 2 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/480) and TL (L/240).
- 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)				
	Total	Available	Required	Dead	Floor Live	Snow	Factored	Accessories
1 - Column - HF	3.50"	2.25"	2.25"	1972	1674	1747	4538	1 1/4" Rim Board
2 - Column - HF	3.50"	2.25"	2.25"	1847	1359	1747	4176	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	Continuous	
Bottom Edge (Lu)	Continuous	

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Comments
0 - Self Weight (PLF)	1 1/4" to 26' 3 3/4"	N/A	30.0	--	--	
1 - Uniform (PLF)	0 to 26' 5" (Front)	N/A	32.3	98.3	--	Linked from: GU4, Support 2
2 - Point (lb)	3' 10" (Back)	N/A	174	438	--	Linked from: GU7, Support 1
3 - Point (lb)	13' 2 1/2" (Top)	N/A	2007	--	3493	Linked from: GR2, Support 2

- Side loads are assumed to not induce cross-grain tension.

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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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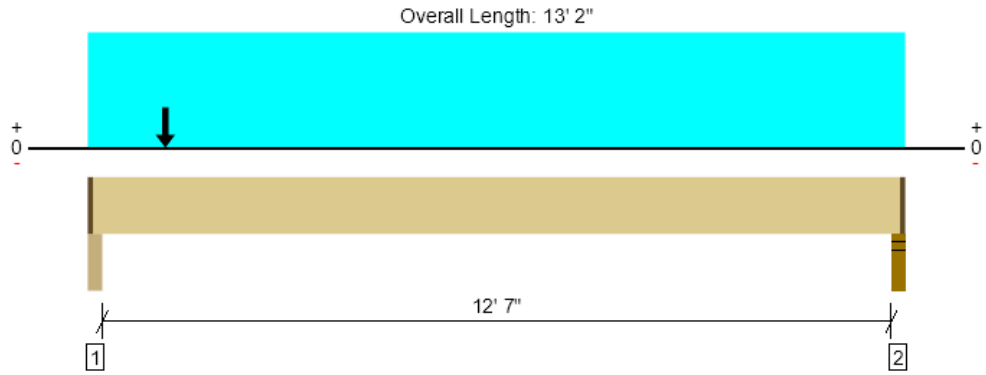
Weyerhaeuser

Garage Upper Floor, GU10

1 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1248 @ 2"	2855 (2.25")	Passed (44%)	--	1.0 D + 0.525 E + 0.75 L + 0.75 S (All Spans)
Shear (lbs)	993 @ 1' 3 3/8"	4541	Passed (22%)	1.15	1.0 D + 0.75 L + 0.75 S (All Spans)
Moment (Ft-lbs)	1723 @ 6' 2 7/8"	8924	Passed (19%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.079 @ 6' 3 9/16"	0.428	Passed (L/999+)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)
Total Load Defl. (in)	0.123 @ 6' 3 5/8"	0.642	Passed (L/999+)	--	1.0 D + 0.45 W + 0.75 L + 0.75 S (All Spans)

Member Length : 12' 11 1/2"
System : Floor
Member Type : Flush Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Allowed moment does not reflect the adjustment for the beam stability factor.

Supports	Bearing Length			Loads to Supports (lbs)						
	Total	Available	Required	Dead	Floor Live	Snow	Wind	Seismic	Factored	Accessories
1 - Column - HF	3.50"	2.25"	1.50"	427	351	538	291	306/-306	1254	1 1/4" Rim Board
2 - Stud wall - SPF	3.50"	2.25"	1.50"	171	351	50	27	28/-28	522	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	13' o/c	
Bottom Edge (Lu)	13' o/c	

•Maximum allowable bracing intervals based on applied load.

Vertical Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Snow (1.15)	Wind (1.60)	Seismic (1.60)	Comments
0 - Self Weight (PLF)	1 1/4" to 13' 3/4"	N/A	6.1	--	--	--	--	
1 - Uniform (PSF)	0 to 13' 2" (Front)	1' 4"	12.0	40.0	--	--	--	Default Load
2 - Point (lb)	1' 3" (Top)	N/A	308	--	588	318	334	

- Side loads are assumed to not induce cross-grain tension.

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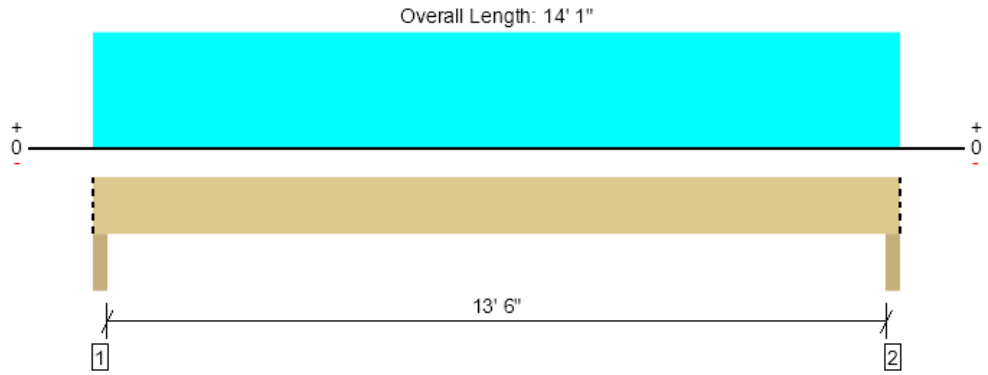
Weyerhaeuser

Entry Canopy, C1

1 piece(s) 4 x 10 DF No.1



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Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1413 @ 2"	7656 (3.50")	Passed (18%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	1200 @ 1' 3/4"	4468	Passed (27%)	1.15	1.0 D + 1.0 S (All Spans)
Moment (Ft-lbs)	4743 @ 7' 1/2"	5740	Passed (83%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.282 @ 7' 1/2"	0.688	Passed (L/586)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	0.411 @ 7' 1/2"	0.917	Passed (L/401)	--	1.0 D + 1.0 S (All Spans)

Member Length : 14' 1"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

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

Supports	Bearing Length			Loads to Supports (lbs)			
	Total	Available	Required	Dead	Snow	Factored	Accessories
1 - Column - HF	3.50"	3.50"	1.50"	445	968	1413	Blocking
2 - Column - HF	3.50"	3.50"	1.50"	445	968	1413	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' 1" o/c	
Bottom Edge (Lu)	14' 1" 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' 1"	N/A	8.2	--	
1 - Uniform (PSF)	0 to 14' 1" (Front)	5' 6"	10.0	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

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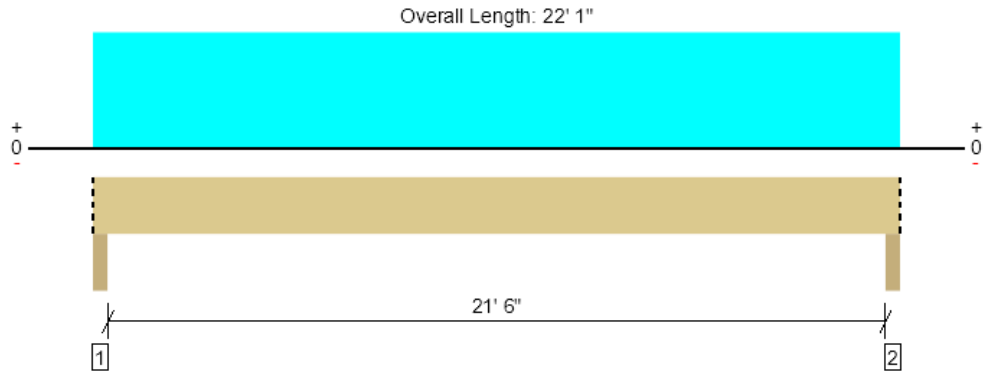
Weyerhaeuser

Entry Canopy, C2

1 piece(s) 5 1/2" x 9 1/2" 24F-V4 DF Glulam



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2266 @ 2"	12513 (3.50")	Passed (18%)	--	1.0 D + 1.0 S (All Spans)
Shear (lbs)	2043 @ 1' 1"	10615	Passed (19%)	1.15	1.0 D + 1.0 S (All Spans)
Pos Moment (Ft-lbs)	12134 @ 11' 1/2"	19028	Passed (64%)	1.15	1.0 D + 1.0 S (All Spans)
Live Load Defl. (in)	0.979 @ 11' 1/2"	1.087	Passed (L/267)	--	1.0 D + 1.0 S (All Spans)
Total Load Defl. (in)	1.461 @ 11' 1/2"	1.450	Passed (L/179)	--	1.0 D + 1.0 S (All Spans)

Member Length : 22' 1"
System : Roof
Member Type : Drop Beam
Building Use : Residential
Building Code : IBC 2018
Design Methodology : ASD
Member Pitch : 0/12

- Deflection criteria: LL (L/240) and TL (L/180).
- Allowed moment does not reflect the adjustment for the beam stability factor.
- Volume factor of 1.00 was calculated for positive bending using length L = 21' 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	Snow	Factored	
1 - Column - HF	3.50"	3.50"	1.50"	748	1518	2266	Blocking
2 - Column - HF	3.50"	3.50"	1.50"	748	1518	2266	Blocking

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

Lateral Bracing	Bracing Intervals	Comments
Top Edge (Lu)	22' 1" o/c	
Bottom Edge (Lu)	22' 1" 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 22' 1"	N/A	12.7	--	
1 - Uniform (PSF)	0 to 22' 1" (Front)	5' 6"	10.0	25.0	Default Load

• Side loads are assumed to not induce cross-grain tension.

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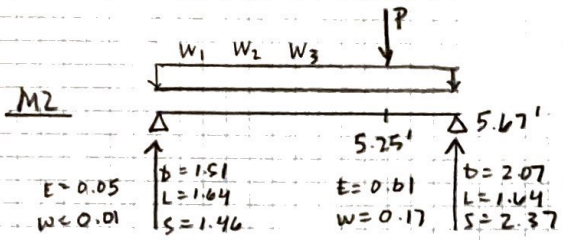
Weyerhaeuser

MAIN FLOOR FRAMING

M2



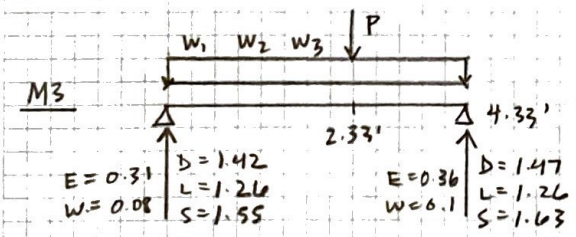
	W_1	W_2	W_3	P
D	189	254	72	0.66
L	580	–	–	–
S	–	488	–	1.07
E	–	–	–	±0.50
W	–	–	–	±0.18

$V = 6.44\ k$ $V_r = 7.01\ k$ EX. 6×12 OK

$M = 6.09\ kft$ $M_r = 13.64\ kft$

$\Delta_{D+L} = 0.024" = L/1000+$

M3



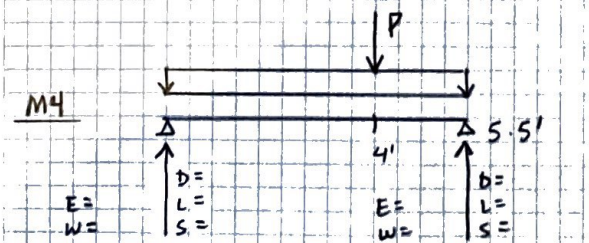
	W_1	W_2	W_3	P
D				
L				
S				
E				
W				

$V = 4.45k$ $V_r = 7.01\ k$ EX. 6×12 OK

$M = 6.16\ kft$ $M_r = 13.64\ kft$

$\Delta_{D+L} = 0.009" = L/1000+$

M4



	W_1	W_2	W_3	P
D				
L				
S				
E				
W				

$V = 5.77$ $V_r = 7.01\ k$ EX. 6×12 OK

$M = 7.45\ kft$ $M_r = 13.64\ kft$

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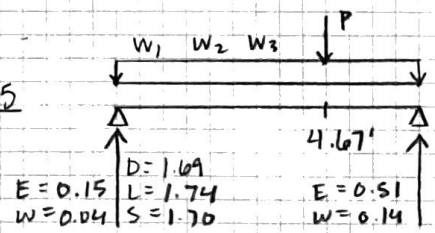
MAIN FLOOR FRAMING (CONT.)

	W_1	W_2	W_3	P
D				
L				
S				
E				
W				

*SEE PREV. PAGE

M5



$V = 6.26k$ $V_r = 7.01k$

$M = 8.13$ k-ft $M_r = 13.64$ k-ft

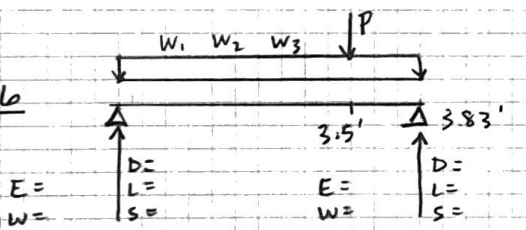
EX. 6x12 OK

$\Delta_{D+L} = 0.031" = L/1000+$

	W_1	W_2	W_3	P
D				
L				
S				
E				
W				

*SEE PREV. PAGE

M6



$V = 3.62k$ $V_r = 7.01k$

$M = 1.54k$ $M_r = 13.64$ k-ft

EX. 6x12 OK

$\Delta_{D+L} = 0.003" = L/1000+$

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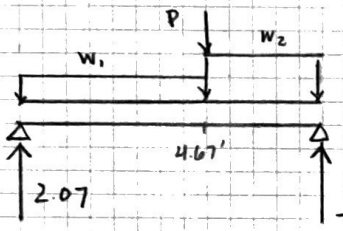
UPPER FLOOR FRAMING

U6



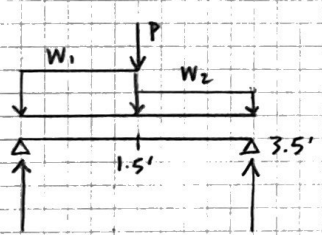
	W_1	W_2	P
D	172	396	0.49
L	250	250	—
S	175	606	0.79
E	—	—	±0.50
W	—	—	±0.18

$V = 3.81\ k$ $\quad V_r = 5.40\ k$ $\quad$ **USE (2) 2x12**

$M = 4.20\ k\text{-}ft$ $\quad M_r = 8.24\ k\text{-}ft$

$C_d = 1.6$

U5



	W_1	W_2	P
D	396	172	0.49
L	250	250	—
S	606	175	0.79
E	—	—	±0.50
W	—	—	±0.18

$V = 2.2$ $\quad V_r = 3.38\ k$ $\quad$ **USE (2) 2x12**

$M = 2.125\ k\text{-}ft$ $\quad M_r = 5.15\ k\text{-}ft$

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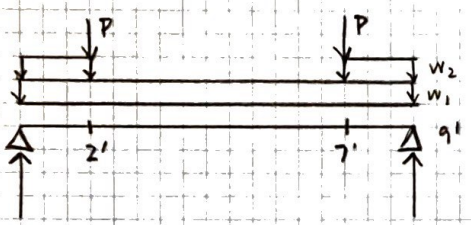
GARAGE UPPER FLOOR FRAMING

GU9



	D	L	S	E	W
W_1	157	262	–	–	–
W_2	112	–	221	–	–
P	0.31	–	0.59	±0.23	±0.19

$V = 3.26$ $\quad V_r = 6.15\,k$

$M = 5.93\,k$ $\quad M_r = 11.2\,k\text{-}ft$

$\Delta_{TL} = 0.186" = L/581$

USE (2) LVL 1 3/4 × 9 1/4

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SECTION 3: LATERAL

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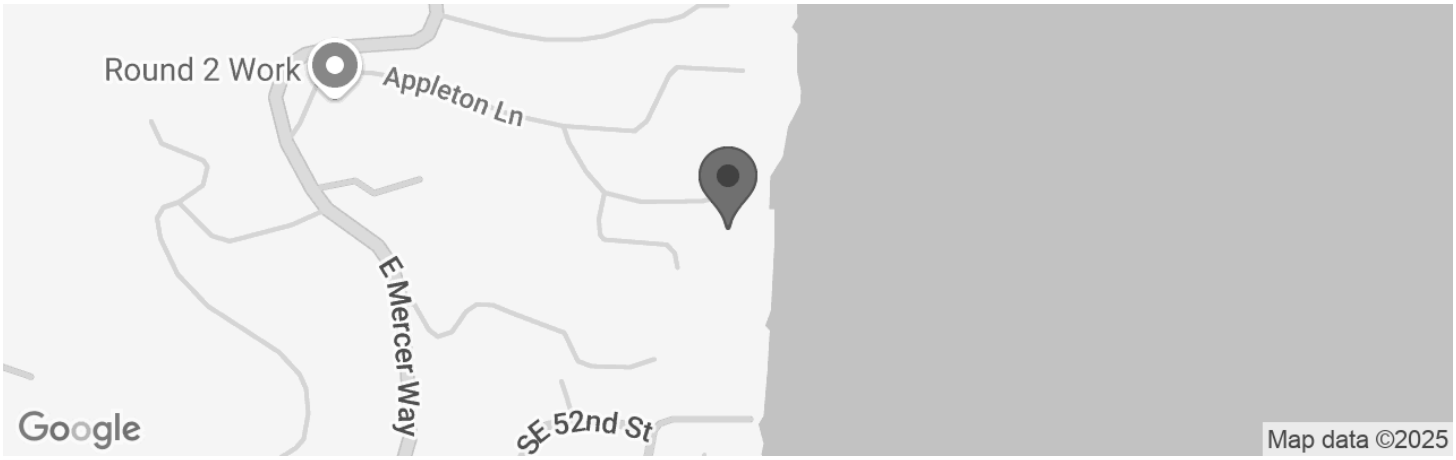
USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error.
USGS web services are now operational so this tool should work as expected.

OSHPD

4836 E Mercer Way, Mercer Island, WA 98040, USA

Latitude, Longitude: 47.55892189999999, -122.2098538



Date	1/3/2025, 3:33:12 PM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.431	MCE_R ground motion. (for 0.2 second period)
S_1	0.497	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.718	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.145	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.613	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.735	Site modified peak ground acceleration
T_L	6	Long-period transition period in seconds
SsRT	1.431	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.587	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	4.039	Factored deterministic acceleration value. (0.2 second)
S1RT	0.497	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.553	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	1.574	Factored deterministic acceleration value. (1.0 second)
PGAd	1.355	Factored deterministic acceleration value. (Peak Ground Acceleration)

Type	Value	Description
PGA_{UH}	0.613	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.902	Mapped value of the risk coefficient at short periods
C_{R1}	0.898	Mapped value of the risk coefficient at a period of 1 s
C_V	1.386	Vertical coefficient

DISCLAIMER

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SEISMIC DESIGN

ASCE 7-16
Equivalent Lateral Force Procedure

RISK Category	II		Table 1.5-1
Seismic Design Category	D		Table 11.6-1
Importance Factor	1.00		Table 1.5-2
Site Class	D		Table 20.3-1 **per Geotech or DEFAULT**
S_S	143.10	%g	(from SEAOC/OSHPD website tool)
S_1	49.70	%g	(from SEAOC/OSHPD website tool)
F_a	1.20		Table 11.4-1 **USE Fa=1.2 for DEFAULT Site Class D**
F_v	1.80		Table 11.4-2
C_t	0.02		Table 12.8-2
x	0.75		Table 12.8-2
h_n	24.00	feet	(height to highest level)
$S_{MS} = Fa*Ss$	1.7172		Eq. 11.4-1
$S_{M1} = Fv*S1$	0.8946		Eq. 11.4-2
$S_{DS} = (2/3)*S_{MS}$	1.1448	g	Eq. 11.4-3
$S_{D1} = (2/3)*S_{M1}$	0.5964	g	Eq. 11.4-4
Period $T_a = C_t*h_n\text{^}x$	0.2169	s	Eq. 12.8-7
T_o	0.1042	s	per section 11.4.6
T_S	0.5210	s	per section 11.4.6
S_a	1.1448	g	per section 11.4.6
R	6.5		Table 12.2-1
Ωo	2.5		Table 12.2-1
C_d	4		Table 12.2-1
Section 12.8 (ELF) ok?	Yes		Table 12.6-1

Equivalent Lateral Force Procedure (section 12.8)

Cs	0.1761		Eq. 12.8-2
W, weight	86,505	lb	per table below
Q_E	15,235	lb	Eq. 12.8-1

Vertical Force Distribution (section 12.8.3)
k = 1.00

Level	Hx	Floor Area	Seismic Dead Ld	Floor Wt.	Wall Length	Wall Wt.	Total Wt.	WxHx	Cvx	(LRFD) Q_E	(ASD) $0.7Q_E$
	(ft)	(ft2)	(psf)	(k)	(ft)	(k)	(k)	(k-ft)	(%)	(k)	(k)
Roof	21.00	1346	15	20.2	179	8.6	28.8	604.5	50.3	7.67	5.37
Upper Floor	10.33	2304	13	30.0	224	21.2	51.1	528.1	44.0	6.70	4.69
Patio Roof	10.33	550	12	6.6	0	0.0	6.6	68.2	5.7	0.87	0.61
							86.50	1200.73	100.00	15.24	**10.66**

SEISMIC DESIGN

ASCE 7-16
Equivalent Lateral Force Procedure

RISK Category	II		Table 1.5-1
Seismic Design Category	D		Table 11.6-1
Importance Factor	1.00		Table 1.5-2
Site Class	D		Table 20.3-1 **per Geotech or DEFAULT**
S_S	143.10	%g	(from SEAOC/OSHPD website tool)
S_1	49.70	%g	(from SEAOC/OSHPD website tool)
F_a	1.20		Table 11.4-1 **USE Fa=1.2 for DEFAULT Site Class D**
F_v	1.80		Table 11.4-2
C_t	0.02		Table 12.8-2
x	0.75		Table 12.8-2
h_n	24.00	feet	(height to highest level)
$S_{MS} = Fa*Ss$	1.7172		Eq. 11.4-1
$S_{M1} = Fv*S1$	0.8946		Eq. 11.4-2
$S_{DS} = (2/3)*S_{MS}$	1.1448	g	Eq. 11.4-3
$S_{D1} = (2/3)*S_{M1}$	0.5964	g	Eq. 11.4-4
Period $T_a = C_t*h_n\text{^}x$	0.2169	s	Eq. 12.8-7
T_o	0.1042	s	per section 11.4.6
T_S	0.5210	s	per section 11.4.6
S_a	1.1448	g	per section 11.4.6
R	1.25		Table 12.2-1
Ωo	1.25		Table 12.2-1
C_d	1.25		Table 12.2-1
Section 12.8 (ELF) ok?	Yes		Table 12.6-1

Equivalent Lateral Force Procedure (section 12.8)

Cs	0.9158		Eq. 12.8-2
W, weight	84,861	lb	per table below
Q_E	77,719	lb	Eq. 12.8-1

Vertical Force Distribution (section 12.8.3)
k = 1.00

Level	Hx	Floor Area	Seismic Dead Ld	Floor Wt.	Wall Length	Wall Wt.	Total Wt.	WxHx	Cvx	(LRFD) Q_E	(ASD) $0.7Q_E$
	(ft)	(ft2)	(psf)	(k)	(ft)	(k)	(k)	(k-ft)	(%)	(k)	(k)
Roof	21.00	1346	15	20.2	179	8.6	28.8	604.5	51.1	39.69	27.78
Upper Floor	10.33	2304	13	30.0	224	21.2	51.1	528.1	44.6	34.67	24.27
Patio Roof	10.33	413	12	5.0	0	0.0	5.0	51.2	4.3	3.36	2.35
							84.86	1183.74	100.00	77.72	**54.40**

SEISMIC DESIGN

ASCE 7-16
Equivalent Lateral Force Procedure

RISK Category	II		Table 1.5-1
Seismic Design Category	D		Table 11.6-1
Importance Factor	1.00		Table 1.5-2
Site Class	D		Table 20.3-1 **per Geotech or DEFAULT**
S_S	143.10	%g	(from SEAOC/OSHPD website tool)
S_1	49.70	%g	(from SEAOC/OSHPD website tool)
F_a	1.20		Table 11.4-1 **USE Fa=1.2 for DEFAULT Site Class D**
F_v	1.80		Table 11.4-2
C_t	0.02		Table 12.8-2
x	0.75		Table 12.8-2
h_n	21.00	feet	(height to highest level)
$S_{MS} = Fa*Ss$	1.7172		Eq. 11.4-1
$S_{M1} = Fv*S1$	0.8946		Eq. 11.4-2
$S_{DS} = (2/3)*S_{MS}$	1.1448	g	Eq. 11.4-3
$S_{D1} = (2/3)*S_{M1}$	0.5964	g	Eq. 11.4-4
Period $T_a = C_t*h_n\text{^}x$	0.1962	s	Eq. 12.8-7
T_o	0.1042	s	per section 11.4.6
T_S	0.5210	s	per section 11.4.6
S_a	1.1448	g	per section 11.4.6
R	6.5		Table 12.2-1
Ωo	2.5		Table 12.2-1
C_d	3.5		Table 12.2-1
Section 12.8 (ELF) ok?	Yes		Table 12.6-1

Equivalent Lateral Force Procedure (section 12.8)

Cs	0.1761		Eq. 12.8-2
W, weight	47,980	lb	per table below
Q_E	8,450	lb	Eq. 12.8-1

Vertical Force Distribution (section 12.8.3)
k = 1.00

Level	Hx	Floor Area	Seismic Dead Ld	Floor Wt.	Wall Length	Wall Wt.	Total Wt.	WxHx	Cvx	(LRFD) Q_E	(ASD) $0.7Q_E$
	(ft)	(ft2)	(psf)	(k)	(ft)	(k)	(k)	(k-ft)	(%)	(k)	(k)
Roof	18.00	1464	12	17.6	138.5	5.6	23.2	417.2	65.1	5.50	3.85
Upper Floor	9.00	1132	12	13.6	138.5	11.2	24.8	223.2	34.9	2.95	2.06
							47.98	640.41	100.00	8.45	**5.92**

WIND DESIGN

ASCE 7-16
Simplified Envelope Method (Chapter 28)

$p_s = \lambda \, K_{zt} \, I \, p_{s30}$

λ = adjustment factor = 1.55
I = importance factor = 1.00
K_{zt} = topographic factor = 1.00

Part of Figure 28.6-1 - Adjustment Factor for Building Height and Exposure, λ

Mean Roof Height	Exposure		
(ft)	B	C	D
15	1.00	1.21	**1.47**
16	1.00	1.23	**1.49**
17	1.00	1.24	**1.50**
18	1.00	1.26	**1.52**
19	1.00	1.27	**1.53**
20	1.00	1.29	**1.55**
21	1.00	1.30	**1.56**
22	1.00	1.31	**1.57**
23	1.00	1.33	**1.59**
24	1.00	1.34	**1.60**
25	1.00	1.35	**1.61**
26	1.00	1.36	**1.62**
27	1.00	1.37	**1.63**
28	1.00	1.38	**1.64**
29	1.00	1.39	**1.65**
30	1.00	1.40	**1.66**

Zone
Computation

a = 10% of least horizontal dimension or 0.4 x h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 feet.

w =	26.50 ft	x 0.1 =	2.65 ft
h =	21.00 ft	x 0.4 =	8.40 ft
w =	26.50 ft	x 0.04 =	1.06 ft

a = 3.00 ft
2a = 6 ft

Zone B - end zone of roof
Zone A - end zone of wall

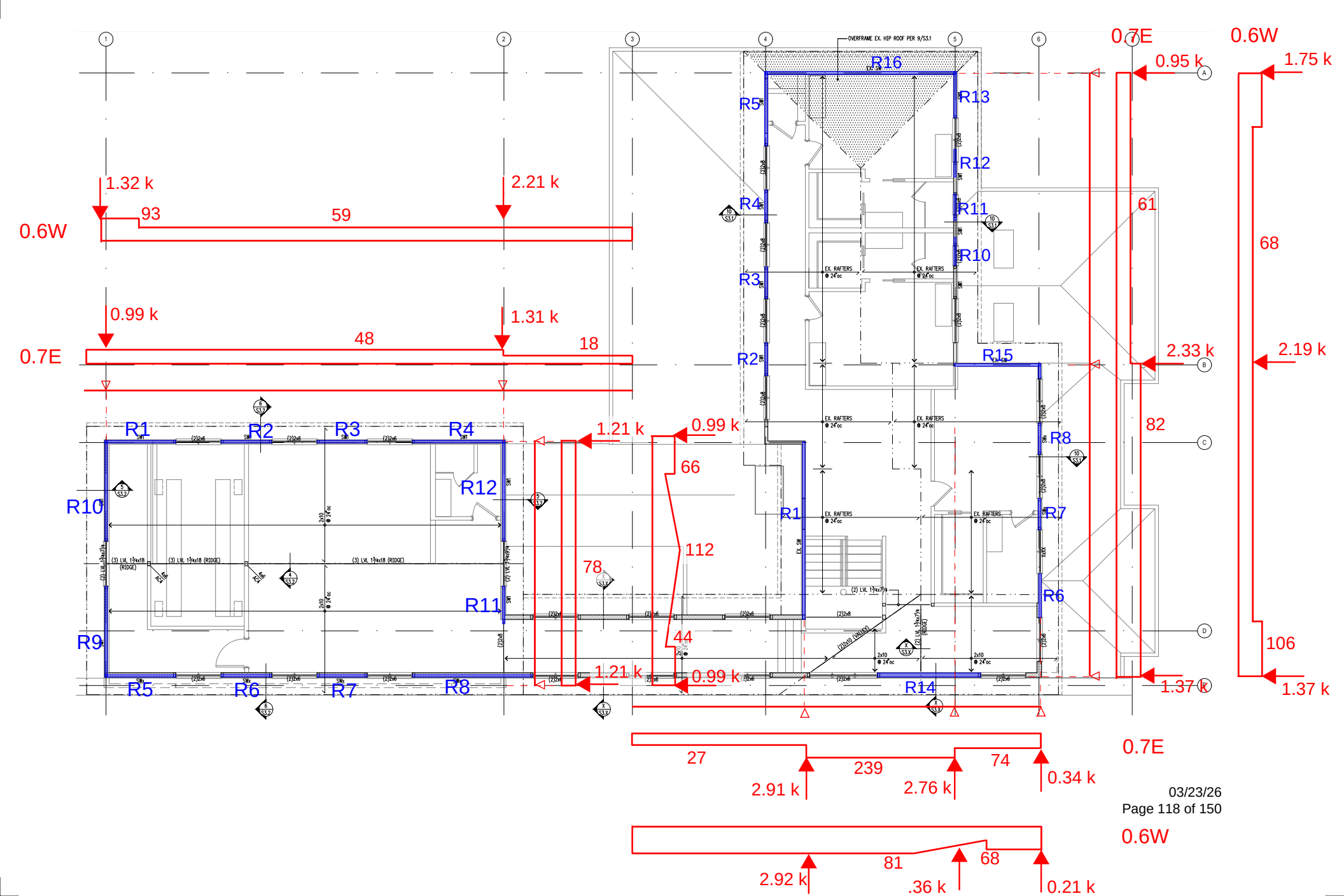
Zone D - interior zone of roof
Zone C - interior zone of wall

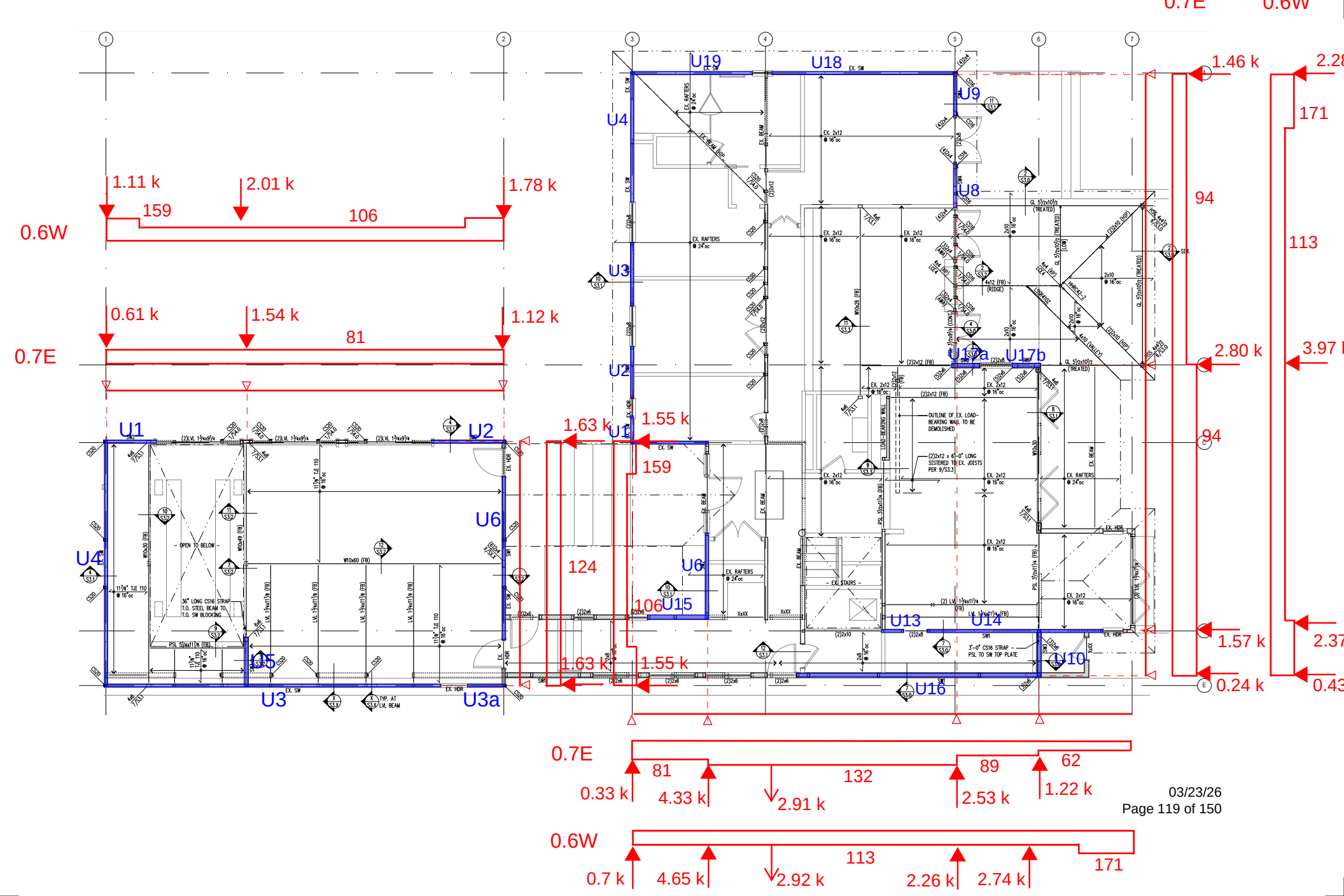
Part of Figure 28.6-1 - Method 2
Design Wind Pressure, p_{s30}

Basic Speed	Roof Angle	Roof Pitch	Horizontal Pressures (psf)			
			A	B	C	D
100	0 to 5	flat	15.9	-8.2	10.5	-4.9
	10	2	17.9	-7.4	11.9	-4.3
	15	3	19.9	-6.6	13.3	-3.8
	20	4	22.0	-5.8	14.6	-3.2
	25	6	19.9	3.2	14.4	3.3
	30 to 45	7 to 12	17.8	12.2	14.2	9.8

Design Wind Pressure, p_s

Basic Speed	Roof Angle	Roof Pitch	Horizontal Pressures (psf)				
			A	B	C	D	
100	0 to 5	flat	24.6	-12.7	16.3	-7.6	
	10	2	27.7	-11.5	18.4	-6.7	
	15	3	30.8	-10.2	20.6	-5.9	
	20	4	**34.1**	**-9.0**	**22.6**	**-5.0**	<<<
	25	6	30.8	5.0	22.3	5.1	
	30 to 45	7 to 12	27.6	18.9	22.0	15.2	


0.6W
1.32 k
93
59
2.21 k
0.7E
0.99 k
48
18
1.31 k
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
1.21 k
0.99 k
66
112
78
44
1.21 k
0.99 k
OVERFRAME EX. HIP ROOF PER 9/S3.1
EX. RAFTERS @ 24"oc
0.7E
0.95 k
61
2.33 k
82
1.37 k
0.6W
1.75 k
68
2.19 k
106
1.37 k
27
239
74
2.91 k
2.76 k
0.34 k
0.7E
0.6W
2.92 k
81
68
.36 k
0.21 k


0.7E
0.6W
1.11 k
2.01 k
1.78 k
159
106
0.61 k
1.54 k
1.12 k
81
U1
U2
U3
U3a
U4
U5
U6
U7
U8
U9
U10
U11
U12
U13
U14
U15
U16
U17a
U17b
U18
U19
1.63 k
1.55 k
124
106
1.46 k
2.80 k
1.57 k
0.24 k
94
113
171
2.28
3.97
2.37
0.43
0.33 k
4.33 k
2.91 k
2.53 k
1.22 k
0.7 k
4.65 k
2.92 k
2.26 k
2.74 k
132
89
62
OUTLINE OF EX. LOAD-BEARING WALL TO BE DEMOLISHED
OPEN TO BELOW
EX. STAIRS

HOUSE

LATERAL FORCE DISTRIBUTION

North-South
Walls Below Roof

va' = allowable shear values multiplied by (1.25-0.125 * h/l)
for wall aspect ratios greater than 2:1, and only for seismic

WALL				WIND					SEISMIC															
	L (ft)	h (ft)	h/l	F (lb)	V (abv)	V (total)	v (plf)	SW	F (lb)	V (abv)	V (total)	v (plf)	va'	SW	**SW**	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	**HD**	TL (lb)	C (lb)	**POST**
R1	19.00	8.00	0.42	1479	0	1479	78	--	1474	0	1474	78	N/A	--	**EX. SW**	11836	0	11836	623	1693	-1070	--	0	623	**(2)2x4**
																11836	0	11836	623	1693	-1070	--	0	623	**(2)2x4**
R2	3.50	8.00	2.29	273	0	273	78	SW1	272	0	272	78	80	SW1	**SW1**	2180	0	2180	623	272	350	**CS20**	0	623	**(2)2x4**
																2180	0	2180	623	272	350	**CS20**	0	623	**(2)2x4**
R3	3.50	8.00	2.29	273	0	273	78	SW1	272	0	272	78	80	SW1	**SW1**	2180	0	2180	623	272	350	**CS20**	0	623	**(2)2x4**
																2180	0	2180	623	272	350	**CS20**	0	623	**(2)2x4**
R4	3.50	8.00	2.29	273	0	273	78	SW1	272	0	272	78	80	SW1	**SW1**	2180	0	2180	623	272	350	**CS20**	0	623	**(2)2x4**
																2180	0	2180	623	272	350	**CS20**	0	623	**(2)2x4**
R5	8.00	8.00	1.00	623	0	623	78	SW1	621	0	621	78	N/A	SW1	**SW1**	4983	0	4983	623	623	0	--	0	623	**(2)2x4**
																4983	0	4983	623	623	0	--	0	623	**(2)2x4**
R6	4.67	8.00	1.71	90	0	90	19	SW1	140	0	140	30	N/A	--	**EX. SW**	1121	0	1121	240	416	-176	--	0	240	**(2)2x4**
																1121	0	1121	240	416	-176	--	0	240	**(2)2x4**
R7	3.33	8.00	2.40	64	0	64	19	SW1	100	0	100	30	32	SW1	**SW1**	799	0	799	240	297	-57	--	0	240	**(2)2x4**
																799	0	799	240	297	-57	--	0	240	**(2)2x4**
R8	3.33	8.00	2.40	64	0	64	19	SW1	100	0	100	30	32	SW1	**SW1**	799	0	799	240	297	-57	--	0	240	**(2)2x4**
																799	0	799	240	297	-57	--	0	240	**(2)2x4**
R9 - omit	1.67	8.00	4.79	0	0	0	0	--	0	0	0	0	0	--	**EX. SW**	0	0	0	0	149	-149	--	0	0	**(2)2x4**
																0	0	0	0	149	-149	--	0	0	**(2)2x4**
R10	3.50	8.00	2.29	259	0	259	74	SW1	633	0	633	181	188	SW1	**SW1**	5068	0	5068	1448	272	1175	**CS16**	0	1448	**(2)2x4**
																5068	0	5068	1448	272	1175	**CS16**	0	1448	**(2)2x4**
R11	3.25	8.00	2.46	241	0	241	74	SW1	588	0	588	181	192	SW1	**SW1**	4706	0	4706	1448	253	1195	**CS16**	0	1448	**(2)2x4**
																4706	0	4706	1448	253	1195	**CS16**	0	1448	**(2)2x4**
R12	3.50	8.00	2.29	259	0	259	74	SW1	633	0	633	181	188	SW1	**SW1**	5068	0	5068	1448	272	1175	**CS16**	0	1448	**(2)2x4**
																5068	0	5068	1448	272	1175	**CS16**	0	1448	**(2)2x4**
R13	5.00	8.00	1.60	370	0	370	74	SW1	905	0	905	181	N/A	SW1	**SW1**	7239	0	7239	1448	389	1059	**CS16**	0	1448	**(2)2x4**
																7239	0	7239	1448	389	1059	**CS16**	0	1448	**(2)2x4**

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HOUSE

East-West
Walls Below Roof

WALL				WIND					SEISMIC															
	L	h	h/l	F	V	V	v	SW	F	V	V	v	va'	SW	SW	M ot	M ot	M ot	OT	DL max	T	HD	TL	C	POST
	(ft)	(ft)		(lb)	(abv)	(total)	(plf)		(lb)	(abv)	(total)	(plf)				(lbft)	(abv)	(total)	(lb)	(lb)	(lb)		(lb)	(lb)	
R14	11.00	8.00	0.73	1370	0	1370	125	SW1	1370	0	1370	125	N/A	SW1	**SW1**	10960	0	10960	996	361	635	**CS20**	0	996	**(2)2x4**
																10960	0	10960	996	361	635	**CS20**	0	996	**(2)2x4**
R15	9.33	8.00	0.86	2190	0	2190	235	SW1	2330	0	2330	250	N/A	SW2	**SW2**	18640	0	18640	1998	306	1691	**CS16**	0	1998	**(2)2x4**
																18640	0	18640	1998	306	1691	**CS16**	0	1998	**(2)2x4**
R16	20.50	8.00	0.39	1750	0	1750	85	--	950	0	950	46	N/A	--	**EX. SW**	14000	0	14000	683	673	10	--	0	683	**(2)2x4**
																14000	0	14000	683	673	10	--	0	683	**(2)2x4**

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HOUSE

LATERAL FORCE DISTRIBUTION

East-West
Walls Below Third

va' = allowable shear values multiplied by (1.25-0.125 * h/l)
for wall aspect ratios greater than 2:1, and only for seismic

WALL	L (ft)	h (ft)	h/l	WIND F (lb)	V (abv)	V (total)	v (plf)	SW	SEISMIC F (lb)	V (abv)	V (total)	v (plf)	va'	SW	SW	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	HD	TL (lb)	C (lb)	POST
U1	2.67	8.67	3.25	65	0	65	24	--	30	0	30	11	14	--	**EX. SW**	560	0	560	210	171	39	--	0	210	**(2)2x4**
																560	0	560	210	171	39	--	0	210	**(2)2x4**
U2	5.50	8.67	1.58	133	0	133	24	SW1	63	0	63	11	N/A	SW1	**SW1**	1154	0	1154	210	351	-142	--	0	210	**(2)2x4**
																1154	0	1154	210	351	-142	--	0	210	**(2)2x4**
U3	6.75	8.67	1.28	163	0	163	24	SW1	77	0	77	11	N/A	SW1	**SW1**	1417	0	1417	210	431	-222	--	0	210	**(2)2x4**
																1417	0	1417	210	431	-222	--	0	210	**(2)2x4**
U4	14.00	8.67	0.62	339	0	339	24	--	160	0	160	11	N/A	--	**EX. SW**	2938	0	2938	210	895	-685	--	0	210	**(2)2x4**
																2938	0	2938	210	895	-685	--	0	210	**(2)2x4**
U5 - omit	3.00	8.67	2.89	0	0	0	0	--	0	0	0	0	0	--	**EX. SW**	0	0	0	0	192	-192	**LTTP2**	0	0	**(2)2x4**
																0	0	0	0	192	-192	**LTTP2**	0	0	**(2)2x4**
U6	9.25	8.67	0.94	4650	0	4650	503	SW3	4330	0	4330	468	N/A	SW4	**SW4**	40316	0	40316	4358	341	4017	**MSTCM40**	0	4358	**(2)2x4**
																40316	0	40316	4358	341	4017	**MSTCM40**	0	4358	**(2)2x4**
U7 - omit	2.75	8.67	3.15	706	0	706	257	SW1	908	0	908	330	386	SW2	**SW2**	7868	0	7868	2861	101	2760	**MSTCM40**	0	2861	**(2)2x4**
																7868	0	7868	2861	101	2760	**MSTCM40**	0	2861	**(2)2x4**
U8	4.67	8.67	1.86	1120	560	1681	360	SW2	1254	1368	2623	562	N/A	SW4	**SW4**	22737	0	22737	4869	655	4214	**MSTCM40**	0	4869	**(3)2x4**
																22737	5068	27805	5954	655	5299	**(2)MSTCM40**	0	5954	**(4)2x4**
U9	4.75	8.67	1.83	1140	570	1709	360	SW2	1276	1392	2667	562	N/A	SW4	**SW4**	23127	7239	30366	6393	666	5727	**(2)MSTCM40**	0	6393	**(4)2x4**
																23127	7239	30366	6393	666	5727	**(2)MSTCM40**	0	6393	**(4)2x4**
U10	5.00	8.67	1.73	2740	210	2950	590	SW3	1220	340	1560	312	N/A	SW2	**SW3**	25577	0	25577	5115	0	5115	**HDQ8**	0	5115	**(3)2x6**
																25577	0	25577	5115	0	5115	**HDQ8**	0	5115	**(3)2x6**

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HOUSE

North-South
Walls Below Third

WALL	L (ft)	h (ft)	h/l	WIND F (lb)	V (abv)	V (total)	v (plf)	SW	SEISMIC F (lb)	V (abv)	V (total)	v (plf)	va'	SW	SW	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	HD	TL (lb)	C (lb)	POST
U12 - omit	4.25	8.67	2.04	0	0	0	0	SW1	0	0	0	0	0	SW1	**SW1**	0	0	0	0	206	-206	**LTTP2**	0	0	**(2)2x4**
																0	0	0	0	206	-206	**LTTP2**	0	0	**(2)2x4**
U13	2.33	8.67	3.72	200	0	200	86	SW1	144	0	144	62	79	SW1	**SW1**	1731	0	1731	743	0	743	**LTTP2**	0	743	**(2)2x4**
																1731	0	1731	743	0	743	**LTTP2**	0	743	**(2)2x4**
U14	18.83	8.67	0.46	1613	808	2421	129	SW1	1163	748	1912	102	N/A	SW1	**SW1**	20991	0	20991	1115	0	1115	**LTTP2**	0	1115	**(2)2x4**
																20991	0	20991	1115	0	1115	**LTTP2**	0	1115	**(2)2x4**
U15	6.50	8.67	1.33	557	0	557	86	SW1	402	0	402	62	N/A	SW1	**SW1**	4829	0	4829	743	200	542	**LTTP2**	0	743	**(2)2x4**
																4829	0	4829	743	200	542	**LTTP2**	0	743	**(2)2x4**
U16	26.00	8.67	0.33	430	1370	1800	69	SW1	240	1370	1610	62	N/A	SW1	**SW1**	15606	0	15606	600	802	-201	--	0	600	**(2)2x4**
																15606	0	15606	600	802	-201	--	0	600	**(2)2x4**
U17a	3.00	8.67	2.89	1985	1095	3080	1027	SW5	1165	1400	2565	855	962	SW6	**SW6**	26704	18640	45344	15115	733	14382	**HD19**	0	15115	**(5)2x4**
																26704	0	26704	8901	169	8732	**HDU11**	0	8901	**(5)2x4**
U17b	3.00	8.67	2.89	1985	1095	3080	1027	SW5	1165	1400	2565	855	962	SW6	**SW6**	26704	0	26704	8901	169	8732	**HDU11**	0	8901	**(5)2x4**
																26704	14000	40704	13568	821	12747	**HD19**	0	13568	**(5)2x4**
U18	19.75	8.67	0.44	1140	875	2015	102	--	730	475	1205	61	N/A	--	**EX. SW**	17470	14000	31470	1593	1163	431	**LTTP2**	0	1593	**(2)2x4**
																17470	0	17470	885	1163	-278	--	0	885	**(2)2x4**
U19	19.75	8.67	0.44	1140	875	2015	102	--	730	475	1205	61	N/A	--	**EX. SW**	17470	0	17470	885	1163	-278	--	0	885	**(2)2x4**
																17470	14000	31470	1593	1163	431	**LTTP2**	0	1593	**(2)2x4**

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GARAGE

LATERAL FORCE DISTRIBUTION

East-West
Walls Below Roof

va' = allowable shear values multiplied by (1.25-0.125 * h/l)
for wall aspect ratios greater than 2:1, and only for seismic

WALL				WIND					SEISMIC															
	L (ft)	h (ft)	h/l	F (lb)	V (abv)	V (total)	v (plf)	SW	F (lb)	V (abv)	V (total)	v (plf)	va'	SW	**SW**	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	**HD**	TL (lb)	C (lb)	**POST**
R1	7.67	5.50	0.72	266	0	266	35	SW1	326	0	326	55	N/A	SW1	**SW1**	2328	0	2328	304	358	-54	--	0	304	**(2)2x4**
																2328	0	2328	304	358	-54	--	0	304	**(2)2x4**
R2	5.50	5.50	1.00	191	0	191	35	SW1	234	0	234	55	N/A	SW1	**SW1**	1670	0	1670	304	257	47	**CS20**	0	304	**(2)2x4**
																1670	0	1670	304	257	47	**CS20**	0	304	**(2)2x4**
R3	5.33	5.50	1.03	185	0	185	35	SW1	226	0	226	55	N/A	SW1	**SW1**	1618	0	1618	304	249	55	**CS20**	0	304	**(2)2x4**
																1618	0	1618	304	249	55	**CS20**	0	304	**(2)2x4**
R4	10.00	5.50	0.55	347	0	347	35	SW1	425	0	425	55	N/A	SW1	**SW1**	3036	0	3036	304	466	-163	--	0	304	**(2)2x4**
																3036	0	3036	304	466	-163	--	0	304	**(2)2x4**
R5	7.67	8.00	1.04	242	0	242	32	SW1	296	0	296	50	N/A	SW1	**SW1**	3081	0	3081	402	409	-8	--	0	402	**(2)2x4**
																3081	0	3081	402	409	-8	--	0	402	**(2)2x4**
R6	5.50	8.00	1.45	174	0	174	32	SW1	212	0	212	50	N/A	SW1	**SW1**	2209	0	2209	402	294	108	**CS20**	0	402	**(2)2x4**
																2209	0	2209	402	294	108	**CS20**	0	402	**(2)2x4**
R7	5.33	8.00	1.50	168	0	168	32	SW1	206	0	206	50	N/A	SW1	**SW1**	2141	0	2141	402	285	117	**CS20**	0	402	**(2)2x4**
																2141	0	2141	402	285	117	**CS20**	0	402	**(2)2x4**
R8	12.83	8.00	0.62	405	0	405	32	SW1	496	0	496	50	N/A	SW1	**SW1**	5153	0	5153	402	685	-283	--	0	402	**(2)2x4**
																5153	0	5153	402	685	-283	--	0	402	**(2)2x4**

North South
Walls Below Roof

WALL				WIND					SEISMIC															
	L (ft)	h (ft)	h/l	F (lb)	V (abv)	V (total)	v (plf)	SW	F (lb)	V (abv)	V (total)	v (plf)	va'	SW	SW	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	HD	TL (lb)	C (lb)	POST
R9	10.75	7.50	0.70	660	0	660	61	SW1	495	0	495	60	N/A	SW1	**SW1**	4950	0	4950	460	372	88	**CS20**	0	460	**(2)2x4**
																4950	0	4950	460	372	88	**CS20**	0	460	**(2)2x4**
R10	10.75	7.50	0.70	660	0	660	61	SW1	495	0	495	60	N/A	SW1	**SW1**	4950	0	4950	460	372	88	**CS20**	0	460	**(2)2x4**
																4950	0	4950	460	372	88	**CS20**	0	460	**(2)2x4**
R11	10.75	7.50	0.70	1105	0	1105	103	SW1	655	0	655	79	N/A	SW1	**SW1**	8288	0	8288	771	372	398	**CS20**	0	771	**(2)2x4**
																8288	0	8288	771	372	398	**CS20**	0	771	**(2)2x4**
R12	10.75	7.50	0.70	1105	0	1105	103	SW1	655	0	655	79	N/A	SW1	**SW1**	8288	0	8288	771	372	398	**CS20**	0	771	**(2)2x4**
																8288	0	8288	771	372	398	**CS20**	0	771	**(2)2x4**

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GARAGE

LATERAL FORCE DISTRIBUTION

East-West
Walls Below Upper

va' = allowable shear values multiplied by (1.25-0.125 * h/l)
for wall aspect ratios greater than 2:1, and only for seismic

WALL				WIND					SEISMIC															
	L (ft)	h (ft)	h/l	F (lb)	V (abv)	V (total)	v (plf)	SW	F (lb)	V (abv)	V (total)	v (plf)	va'	SW	**SW**	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	**HD**	TL (lb)	C (lb)	**POST**
U1	5.50	8.00	1.45	775	495	1270	231	SW1	815	605	1420	336	N/A	SW2	**SW2**	14768	0	14768	2685	1450	1236	**LTTP2**	0	2685	**(2)2x4**
																14768	0	14768	2685	342	2344	**MSTCM40**	0	2685	**(2)2x4**
U2	5.50	8.00	1.45	775	495	1270	231	SW1	815	605	1420	336	N/A	SW2	**SW2**	14768	0	14768	2685	342	2344	**MSTCM40**	0	2685	**(2)2x4**
																14768	0	14768	2685	342	2344	**MSTCM40**	0	2685	**(2)2x4**
U3	36.00	8.00	0.22	1395	891	2286	64	EX. SW	1467	1089	2556	92	N/A	EX. SW	**EX. SW**	26582	0	26582	738	2236	-1497	**--**	0	738	**(2)2x4**
																26582	0	26582	738	2236	-1497	**--**	0	738	**(2)2x4**
U3a	4.00	8.00	2.00	155	99	254	64	EX. SW	163	121	284	92	N/A	EX. SW	**EX. SW**	2954	0	2954	738	248	490	**--**	0	738	**(2)2x4**
																2954	0	2954	738	248	490	**--**	0	738	**(2)2x4**

North-South
Walls Below Upper

WALL				WIND					SEISMIC															
	L (ft)	h (ft)	h/l	F (lb)	V (abv)	V (total)	v (plf)	SW	F (lb)	V (abv)	V (total)	v (plf)	va'	SW	SW	M ot (lbft)	M ot (abv)	M ot (total)	OT (lb)	DL max (lb)	T (lb)	HD	TL (lb)	C (lb)	POST
U4	26.33	8.00	0.30	1110	1320	2430	92	EX. SW	610	990	1600	79	N/A	EX. SW	**EX. SW**	19440	4950	24390	926	1161	-235	**--**	0	926	**(2)2x4**
																19440	4950	24390	926	1161	-235	**--**	0	926	**(2)2x4**
U5	5.33	8.00	1.50	2010	0	2010	377	SW2	1540	0	1540	376	N/A	SW3	**SW3**	16080	0	16080	3017	2689	328	**LTTP2**	0	3017	**(2)2x6**
																16080	0	16080	3017	0	3017	**MSTCM40**	0	3017	**(2)2x6**
U6	14.83	8.00	0.54	1780	2210	3990	269	SW1	1120	1310	2430	213	N/A	SW1	**SW1**	31920	0	31920	2152	0	2152	**LTTP2**	0	2152	**(2)2x4**
																31920	0	31920	2152	0	2152	**LTTP2**	0	2152	**(2)2x4**

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SECTION 4: FOUNDATION

SPREAD FOOTING DESIGN -- SQUARE

for 2000 psf Allowable Bearing Pressure

f'c = 2,500 psi
fy = 40 ksi

1'-6" square

P =	4.50	k	one-way:					
Pu =	7.34	k	phi Vc =	7.09	k	Vu =	1.53	k o.k.
p =	2,000	psf	(2) #4 each way					
h =	9.00	in	phi Mn =	6.05	k-ft	Mu =	1.38	k-ft o.k.
d =	5.25	in						
b =	18.00	in	two-way:					
bo =	35.00	in	phi Vc =	31.24	k	Vu =	5.60	k o.k.

2'-0" square

P =	8.00	k	one-way:					
Pu =	13.04	k	phi Vc =	9.45	k	Vu =	3.67	k o.k.
p =	2,000	psf	(3) #4 each way					
h =	9.00	in	phi Mn =	9.03	k-ft	Mu =	3.26	k-ft o.k.
d =	5.25	in						
b =	24.00	in	two-way:					
bo =	35.00	in	phi Vc =	31.24	k	Vu =	11.31	k o.k.

2'-6" square

P =	12.50	k	one-way:					
Pu =	20.38	k	phi Vc =	11.81	k	Vu =	6.62	k o.k.
p =	2,000	psf	(3) #4 each way					
h =	9.00	in	phi Mn =	9.11	k-ft	Mu =	6.37	k-ft o.k.
d =	5.25	in						
b =	30.00	in	two-way:					
bo =	35.00	in	phi Vc =	31.24	k	Vu =	18.64	k o.k.

3'-0" square

P =	18.00	k	one-way:					
Pu =	29.34	k	phi Vc =	14.18	k	Vu =	10.39	k o.k.
p =	2,000	psf	(5) #4 each way					
h =	9.00	in	phi Mn =	14.95	k-ft	Mu =	11.00	k-ft o.k.
d =	5.25	in						
b =	36.00	in	two-way:					
bo =	35.00	in	phi Vc =	31.24	k	Vu =	27.61	k o.k.

3'-6" square

P =	24.50	k	one-way:					
Pu =	39.94	k	phi Vc =	22.84	k	Vu =	13.07	k o.k.
p =	2,000	psf	(5) #4 each way					
h =	11.00	in	phi Mn =	21.08	k-ft	Mu =	17.47	k-ft o.k.
d =	7.25	in						
b =	42.00	in	two-way:					
bo =	43.00	in	phi Vc =	53.00	k	Vu =	37.32	k o.k.

4'-9" square

P =	45.13	k	one-way:					
Pu =	73.55	k	phi Vc =	73.74	k	Vu =	14.52	k o.k.
p =	2,000	psf	(8) #4 each way					
h =	21.00	in	phi Mn =	148,35	k-ft	Mu =	43.67	k-ft o.k.
d =	17.25	in						
b =	57.00	in	two-way:					
bo =	83.00	in	phi Vc =	243.40	k	Vu =	63.81	k o.k.

FOOTING WITH COMBINED AXIAL AND FLEXURAL LOADS

FOOTING AT GRID B

Sizes and Loads:

superstructure:			
wall	5,642	lb	
footing:			
length	13.00	ft	(along same axis as applied moment)
width	3.50	ft	(perpendicular to applied moment)
depth	2.50	ft	
weight	16,494	lb	
soil abv.	0	lb	
total R =	22,136	lb	
M =	82,654	lbft	
e =	3.73	ft	
B/6 =	2.17	ft	

Bearing Pressures:

Reaction is OUTSIDE kern.

(Use these results)			(Do not use these results)		
x =	2.77	ft	fa =	487	psf
			fb =	838	psf
fp =	1524	psf	fp =	1325	psf
Fa =	2,667	psf	Fa =	2,667	psf

Stability:

Mot =	82,654	lbft	(using 0.7E, per ASD Load Combinations)
Mr =	86,329	lbft	(using 0.6D, per ASD Load Combinations)

CONCRETE BEAM ANALYSIS

FOOTING AT GRID B

Moment

phiMn = phi [Asfy (d - Asfy / 1.7f'cb)]

fy =	60.00	ksi
f'c =	2.50	ksi
b =	42.00	in
d =	26.00	in
As =	3.95	in2
phi =	0.90	
phiMn =	438.55	kft
	5262.59	k-in

(5) #8 cont.

Minimum flexural reinforcement (rho = 200/fy):

As min = 3.64 in2

For structural slabs, temperature and shrinkage reinforcement shall be provided:

ratio =	0.0020	(Grade 40)
b =	42.00	in
cover =	1.00	in
h =	4.00	in
As min =	0.34	in2
ratio =	0.0018	(Grade 60)
b =	42.00	in
cover =	1.50	in
h =	8.00	in
As min =	0.60	in2

Shear

phiVc = phi [2 (f'c ^ 1/2) bd]

f'c =	2.50	ksi
b =	42.00	in
d =	26.00	in
phi =	0.85	
phiVc =	92.82	k

phiVs = phi Av fy d / s

s =	6.00	in
Av =	0.39	in2
phiVs =	86.19	k

phiVn = phiVc + phiVs

phiVn = 179.01 k

#4 @ 6in

A minimum area of shear reinforcement shall be provided where Vu exceeds 1/2 phiVc:

1/2 phiVc = 46.41 k

Except for:

1. Slabs and footings.
2. Concrete joist construction (per 1908.11).
3. Beams with total depth not greater than 10", 2-1/2 x flange thickness, or 1/2 web width.

Minimum shear reinforcement Av = 50 bw s / fy

Av min = 0.21 in2

s = d/2 =	13.00	in
s = d/4 =	6.50	in

FOOTING WITH COMBINED AXIAL AND FLEXURAL LOADS

CANTILEVER COLUMN FOOTING

Sizes and Loads:

superstructure:			
wall	2,000	lb	
footing:			
length	6.00	ft	(along same axis as applied moment)
width	6.00	ft	(perpendicular to applied moment)
depth	2.00	ft	
weight	10,440	lb	
soil abv.	0	lb	
total R =	12,440	lb	
M =	12,000	lbft	
e =	0.96	ft	
B/6 =	1.00	ft	

Bearing Pressures:

(Do not use these results)			Reaction is INSIDE kern. (Use these results)		
x =	2.04	ft	fa =	346	psf
			fb =	333	psf
fp =	679	psf	fp =	679	psf
Fa =	2,667	psf	Fa =	2,000	psf

Stability:

Mot =	12,000	lbft	(using 0.7E, per ASD Load Combinations)
Mr =	22,392	lbft	(using 0.6D, per ASD Load Combinations)

Cantilever Column Anchorage

1.Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description:
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB_H
Diameter (inch): 0.625
Effective Embedment depth, h_{ef} (inch): 20.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 22.13
C_{min} (inch): 3.75
S_{min} (inch): 3.75

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 2500
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

Base Plate
Length x Width x Thickness (inch): 8.00 x 8.00 x 1.00
Yield stress: 36000 psi

Profile type/size: HSS4X4X1/2

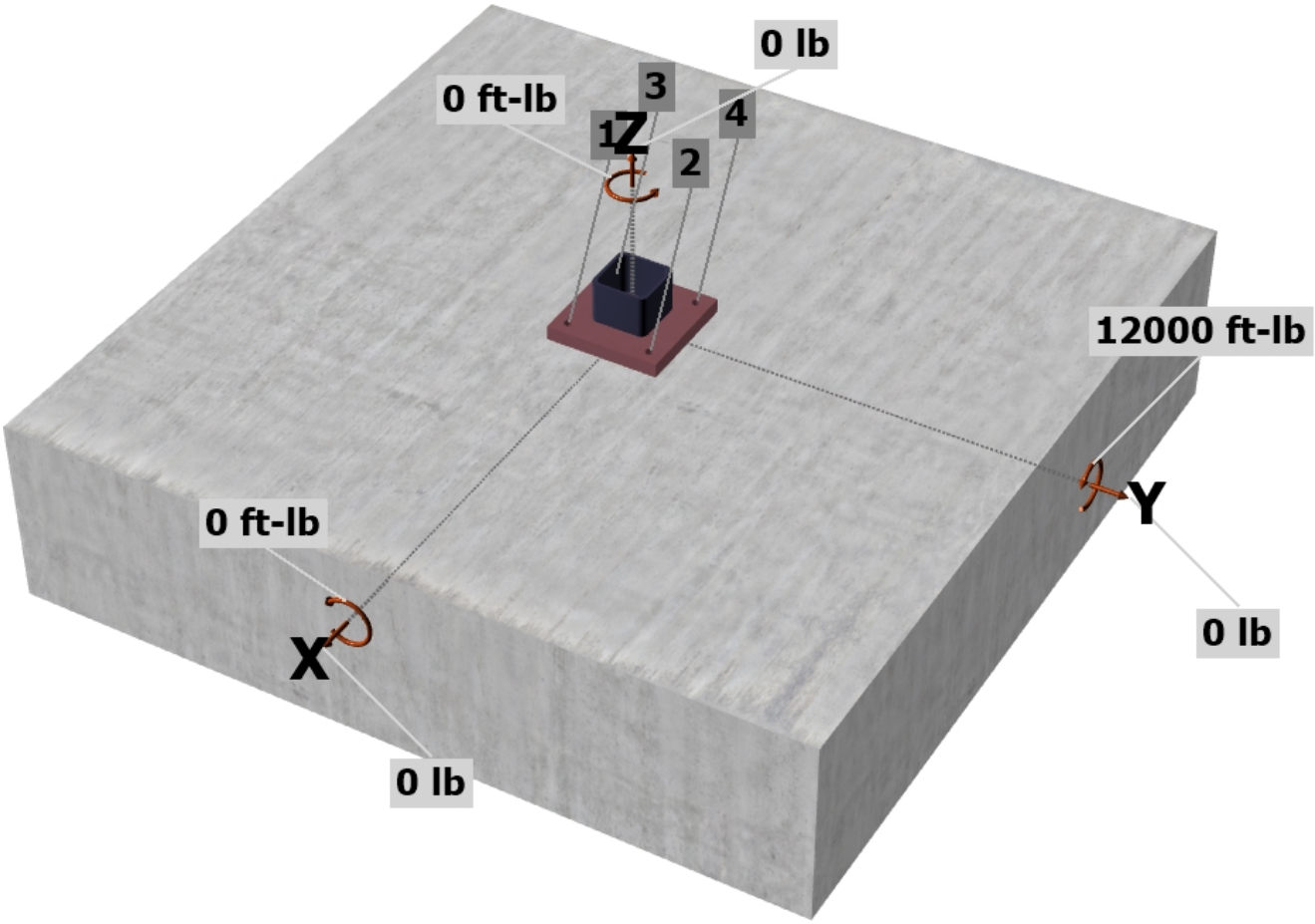
Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB5H (5/8"Ø)

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: Not applicable
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Strength level loads:

N_{ua} [lb]: 0
V_{uax} [lb]: 0
V_{uay} [lb]: 0
M_{ux} [ft-lb]: 0
M_{uy} [ft-lb]: 12000
M_{uz} [ft-lb]: 0

<Figure 1>



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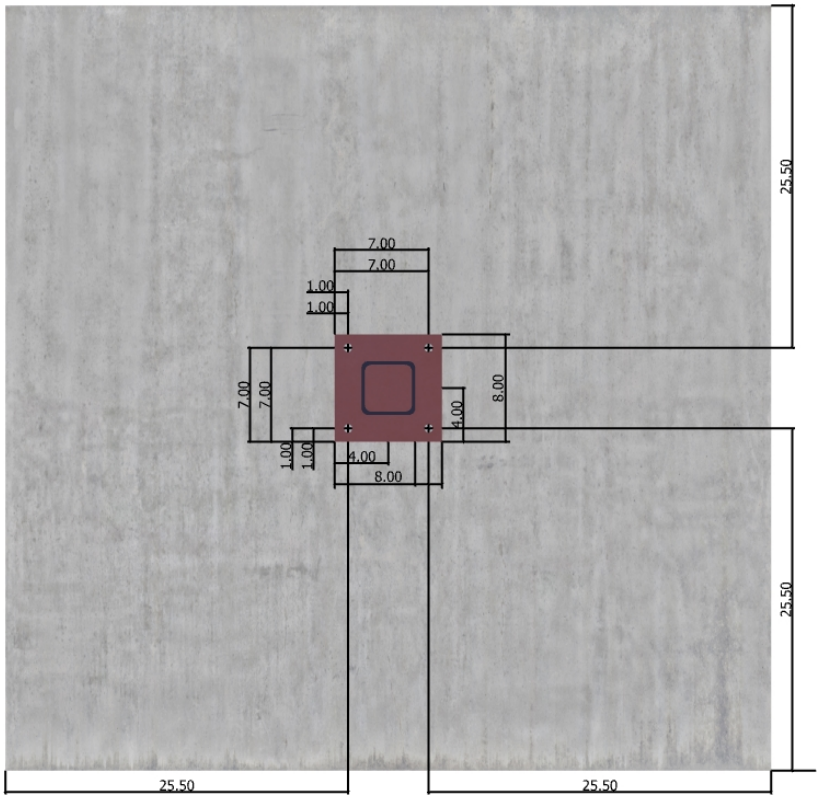
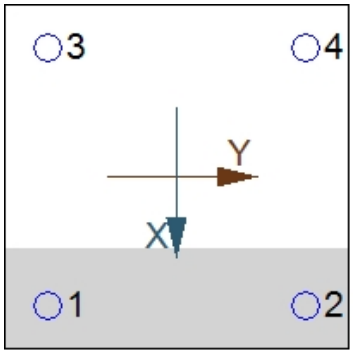

25.50
7.00
7.00
1.00
1.00
7.00
7.00
8.00
4.00
1.00
1.00
4.00
8.00
25.50
25.50
25.50

3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0
3	11562.2	0.0	0.0	0.0
4	11562.2	0.0	0.0	0.0
Sum	23124.3	0.0	0.0	0.0

Maximum concrete compression strain (‰): 0.57
Maximum concrete compression stress (psi): 2492
Resultant tension force (lb): 23124
Resultant compression force (lb): 23125
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

<Figure 3>



4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
27120	0.75	20340

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = 16\lambda_a\sqrt{f'_c}h_{ef}^{5/3}$ (Eq. 17.4.2.2b)

λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
1.00	2500	17.000	89916

$\phi N_{cbg} = \phi\,(A_{Nc}/A_{Nco})\,\Psi_{ec,N}\,\Psi_{ed,N}\,\Psi_{c,N}\,\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1b)

A_{Nc} (in²)	A_{Nco} (in²)	$c_{a,min}$ (in)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cbg} (lb)
2956.88	2601.00	25.50	1.000	1.000	1.00	1.000	89916	0.70	71553

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$\phi N_{pn} = \phi\Psi_{c,P}N_p = \phi\Psi_{c,P}8A_{brg}f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in²)	f'_c (psi)	ϕ	ϕN_{pn} (lb)
1.0	2.10	2500	0.70	29372

11. Results

11. Interaction of Tensile and Shear Forces (Sec. D.7)?

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	**11562**	**20340**	**0.57**	**Pass (Governs)**
Concrete breakout	23124	71553	0.32	Pass
Pullout	11562	29372	0.39	Pass

PAB5H (5/8"Ø) with hef = 20.000 inch meets the selected design criteria.

12. Warnings

- Calculated concrete compression stress exceeds the permissible bearing stress of diameter 0.85f'c per ACI 318 Section 22.8.3.2.

- Designer must exercise own judgement to determine if this design is suitable.

LTTP2 (epoxy)

1.Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description: LTTP2
LRFD Loads:

1.0E = 1813 lb
1.0W = 2689 lb
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Bonded anchor
Material: F1554 Grade 36
Diameter (inch): 0.500
Effective Embedment depth, h_{ef} (inch): 8.000
Code report: ICC-ES ESR-4057
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 9.25
c_{ac} (inch): 14.57
C_{min} (inch): 1.75
S_{min} (inch): 2.50

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 24.00
State: Cracked
Compressive strength, f'_c (psi): 2500
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Hole condition: Dry concrete
Inspection: Continuous
Temperature range, Short/Long: 150/110°F
Ignore 6do requirement: Not applicable
Build-up grout pad: No

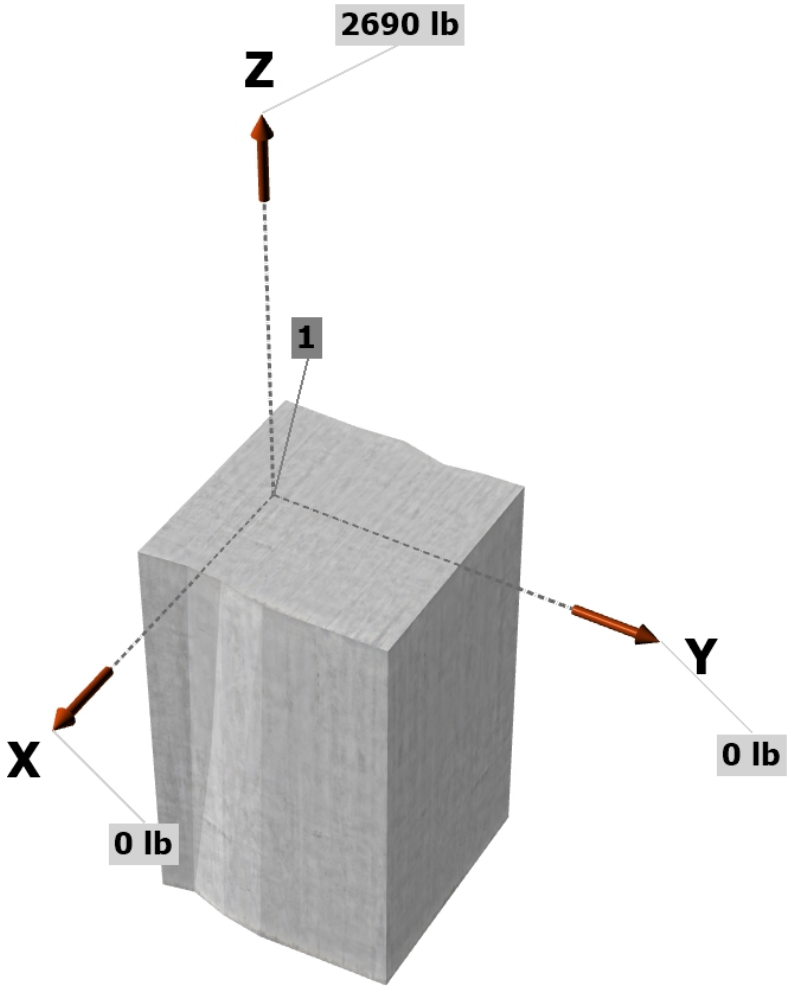
Recommended Anchor
Anchor Name: SET-3G - SET-3G w/ 1/2"Ø F1554 Gr. 36
Code Report: ICC-ES ESR-4057

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: No
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Strength level loads:

N_{ua} [lb]: 2690
V_{uax} [lb]: 0
V_{uay} [lb]: 0

<Figure 1>



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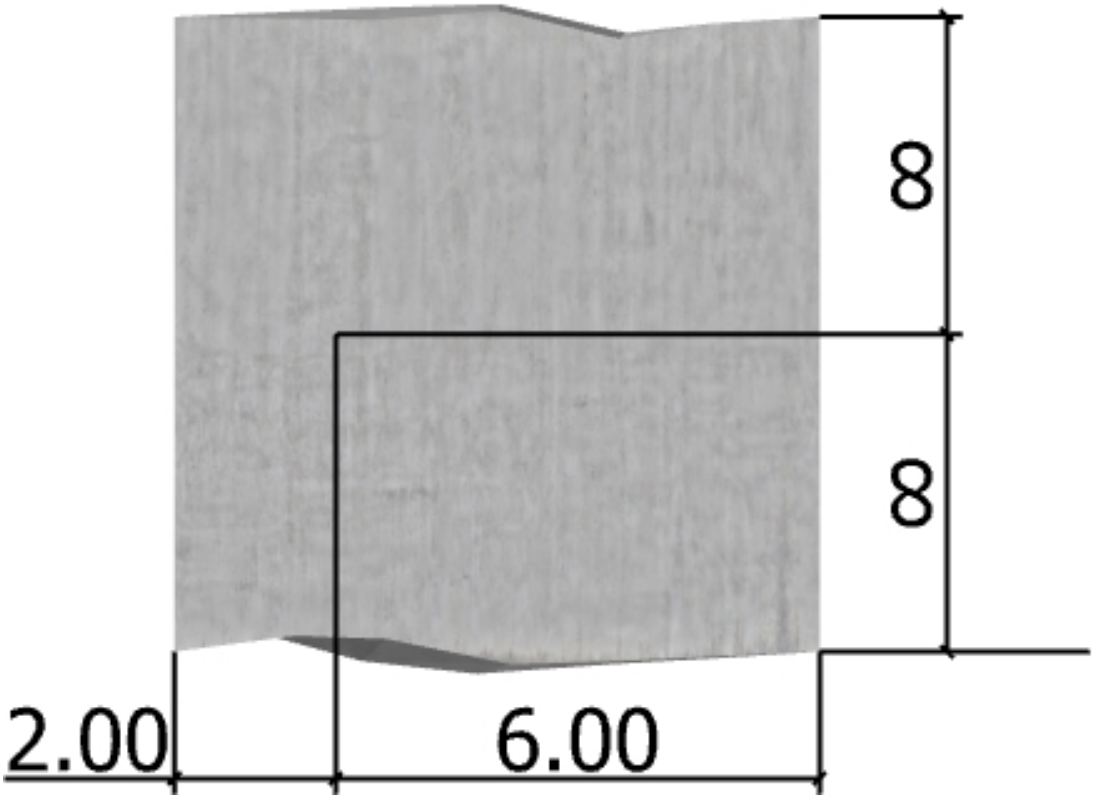


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	2690.0	0.0	0.0	0.0
Sum	2690.0	0.0	0.0	0.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 2690
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
8235	0.75	6176

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.4.2.2a)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
17.0	1.00	2500	8.000	19233

$\phi N_{cb} = \phi (A_{Nc} / A_{Nco}) \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cb} (lb)
192.00	576.00	2.00	0.750	1.00	1.000	19233	0.65	3125

6. Adhesive Strength of Anchor in Tension (Sec. 17.4.5)

$\tau_{k,cr} = \tau_{k,cr} f_{short\text{-}term} K_{sat} (f'_c / 2{,}500)^n$

$\tau_{k,cr}$ (psi)	$f_{short\text{-}term}$	K_{sat}	f'_c (psi)	n	$\tau_{k,cr}$ (psi)
1402	1.00	1.00	2500	0.24	1402

$N_{ba} = \lambda_a \tau_{cr} \pi d_a h_{ef}$ (Eq. 17.4.5.2)

λ_a	τ_{cr} (psi)	d_a (in)	h_{ef} (in)	N_{ba} (lb)
1.00	1402	0.50	8.000	17618

$\phi N_a = \phi (A_{Na} / A_{Na0}) \Psi_{ed,Na} \Psi_{cp,Na} N_{ba}$ (Sec. 17.3.1 & Eq. 17.4.5.1a)

A_{Na} (in^2)	A_{Na0} (in^2)	c_{Na} (in)	$c_{a,min}$ (in)	$\Psi_{ed,Na}$	$\Psi_{cp,Na}$	N_{ba} (lb)	ϕ	ϕN_a (lb)
114.67	205.45	7.17	2.00	0.784	1.000	17618	0.65	5009

11. Results

11. Interaction of Tensile and Shear Forces (Sec. D.7)?

Tension	Factored Load, N_{ua} (lb)	Design Strength, ϕN_n (lb)	Ratio	Status
Steel	2690	6176	0.44	Pass
Concrete breakout	**2690**	**3125**	**0.86**	**Pass (Governs)**
Adhesive	2690	5009	0.54	Pass

SET-3G w/ 1/2"Ø F1554 Gr. 36 with hef = 8.000 inch meets the selected design criteria.

12. Warnings

- Minimum spacing and edge distance requirement of 6da per ACI 318 Sections 17.7.1 and 17.7.2 for torqued cast-in-place anchor is waived per designer option.

- Designer must exercise own judgement to determine if this design is suitable.

- Refer to manufacturer's product literature for hole cleaning and installation instructions.

HDQ8 (cast in)

1.Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description: HDQ8
LRFD Loads:

1.0E = 3894 lb
1.0W = 7308 lb
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 0.875
Effective Embedment depth, h_{ef} (inch): 6.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 8.38
C_{min} (inch): 5.25
S_{min} (inch): 5.25

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 9.00
State: Cracked
Compressive strength, f'_c (psi): 2500
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

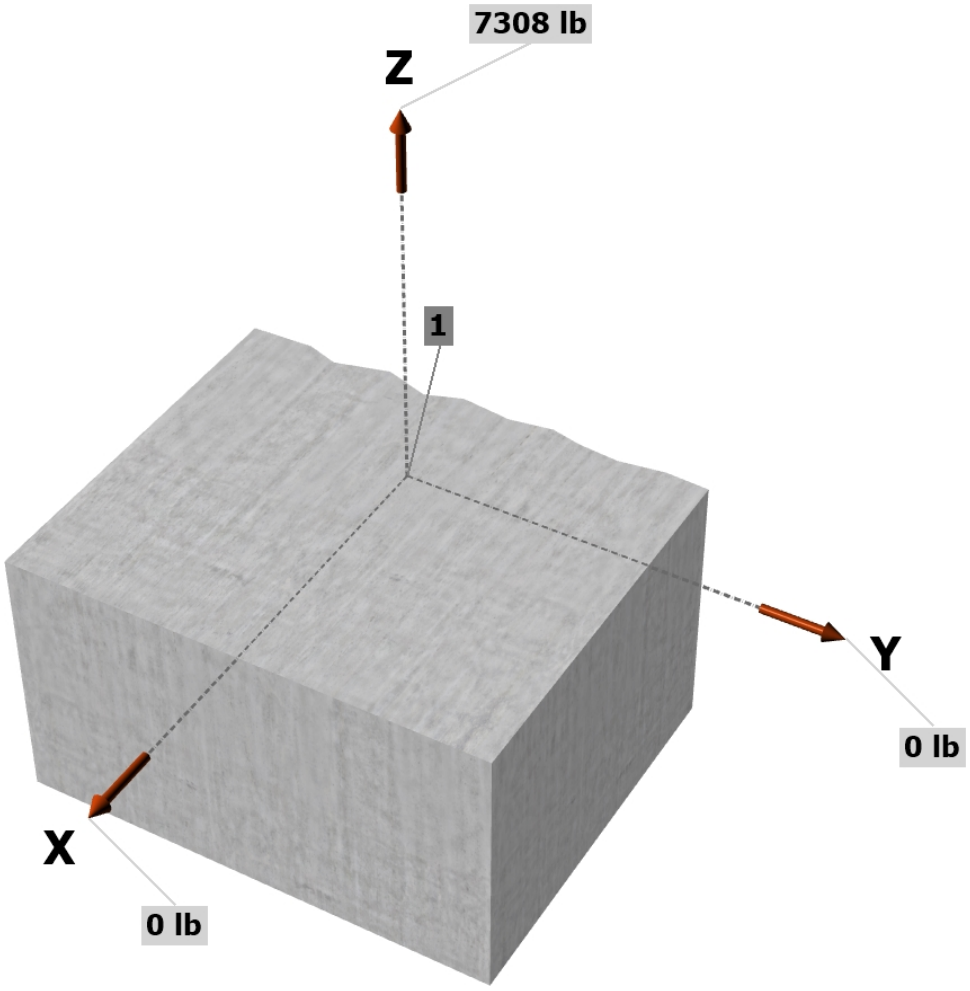
Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB7 (7/8"Ø)

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: Not applicable
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

Strength level loads:

N_{ua} [lb]: 7308
V_{uax} [lb]: 0
V_{uay} [lb]: 0

<Figure 1>



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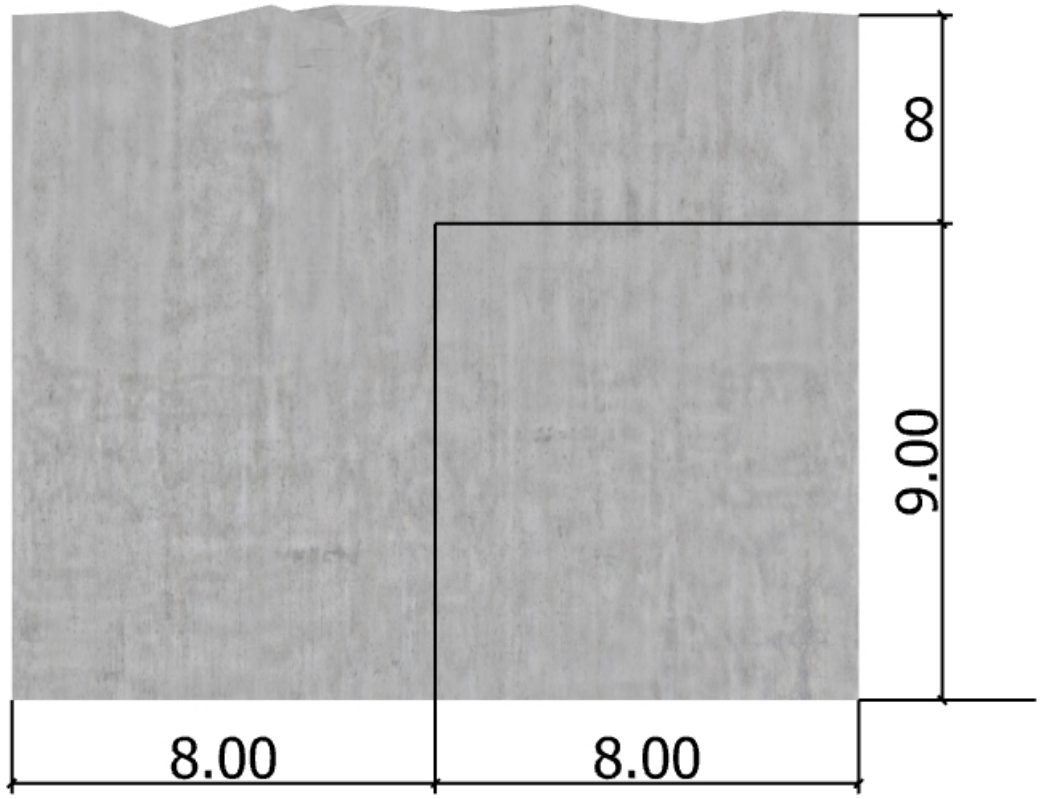


3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	7308.0	0.0	0.0	0.0
Sum	7308.0	0.0	0.0	0.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 7308
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
26795	0.75	20096

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = k_c \lambda_a \sqrt{f'_c} h_{ef}^{1.5}$ (Eq. 17.4.2.2a)

k_c	λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
24.0	1.00	2500	6.000	17636

$\phi N_{cb} = \phi \, (A_{Nc} / A_{Nco}) \Psi_{ed,N} \Psi_{c,N} \Psi_{cp,N} N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cb} (lb)
307.50	324.00	8.00	0.967	1.00	1.000	17636	0.70	11326

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$\phi N_{pn} = \phi \Psi_{c,P} N_p = \phi \Psi_{c,P} 8 A_{brg} f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in^2)	f'_c (psi)	ϕ	ϕN_{pn} (lb)
1.0	4.07	2500	0.70	56910

11. Results

11. Interaction of Tensile and Shear Forces (Sec. D.7)?

Tension	Factored Load, N_{ua} (lb)	Design Strength, øN_n (lb)	Ratio	Status
Steel	7308	20096	0.36	Pass
Concrete breakout	**7308**	**11326**	**0.65**	**Pass (Governs)**
Pullout	7308	56910	0.13	Pass

PAB7 (7/8"Ø) with hef = 6.000 inch meets the selected design criteria.

12. Warnings

- Designer must exercise own judgement to determine if this design is suitable.

HD19/HDU11 (cast in)

1.Project information

Customer company:
Customer contact name:
Customer e-mail:
Comment:

Project description: HD19/HDU11
LRFD Loads:

1.0E = 11438 lb
1.0W = 16331 lb
Location:
Fastening description:

2. Input Data & Anchor Parameters

General
Design method:ACI 318-14
Units: Imperial units

Anchor Information:
Anchor type: Cast-in-place
Material: AB
Diameter (inch): 1.250
Effective Embedment depth, h_{ef} (inch): 24.000
Anchor category: -
Anchor ductility: Yes
h_{min} (inch): 27.00
C_{min} (inch): 7.50
S_{min} (inch): 7.50

Base Material
Concrete: Normal-weight
Concrete thickness, h (inch): 30.00
State: Cracked
Compressive strength, f'_c (psi): 2500
$\Psi_{c,V}$: 1.0
Reinforcement condition: B tension, B shear
Supplemental reinforcement: Not applicable
Reinforcement provided at corners: No
Ignore concrete breakout in tension: No
Ignore concrete breakout in shear: No
Ignore 6do requirement: No
Build-up grout pad: No

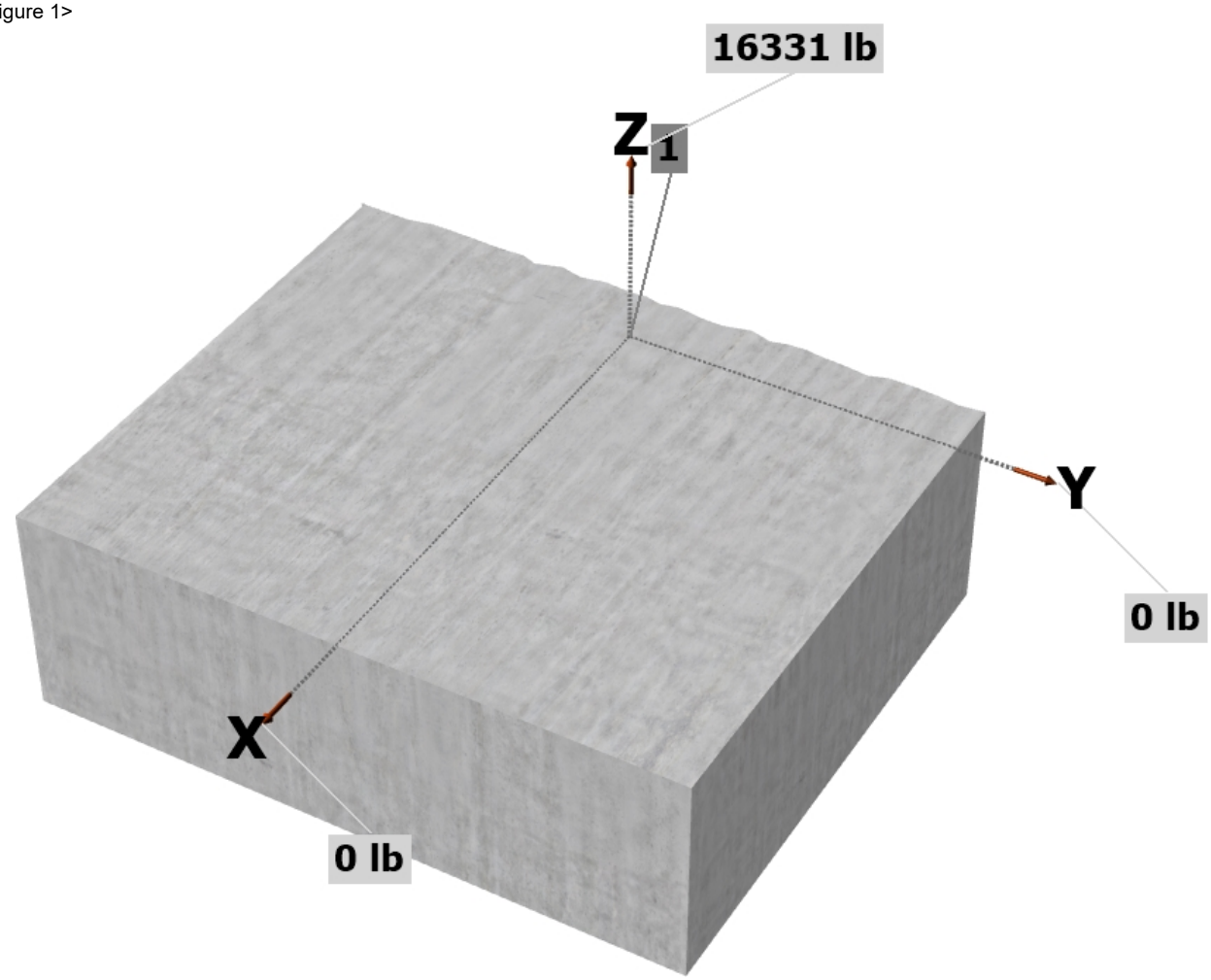
Recommended Anchor
Anchor Name: PAB Pre-Assembled Anchor Bolt - PAB10 (1 1/4"Ø)

Load and Geometry
Load factor source: ACI 318 Section 5.3
Load combination: not set
Seismic design: No
Anchors subjected to sustained tension: Not applicable
Apply entire shear load at front row: No
Anchors only resisting wind and/or seismic loads: No

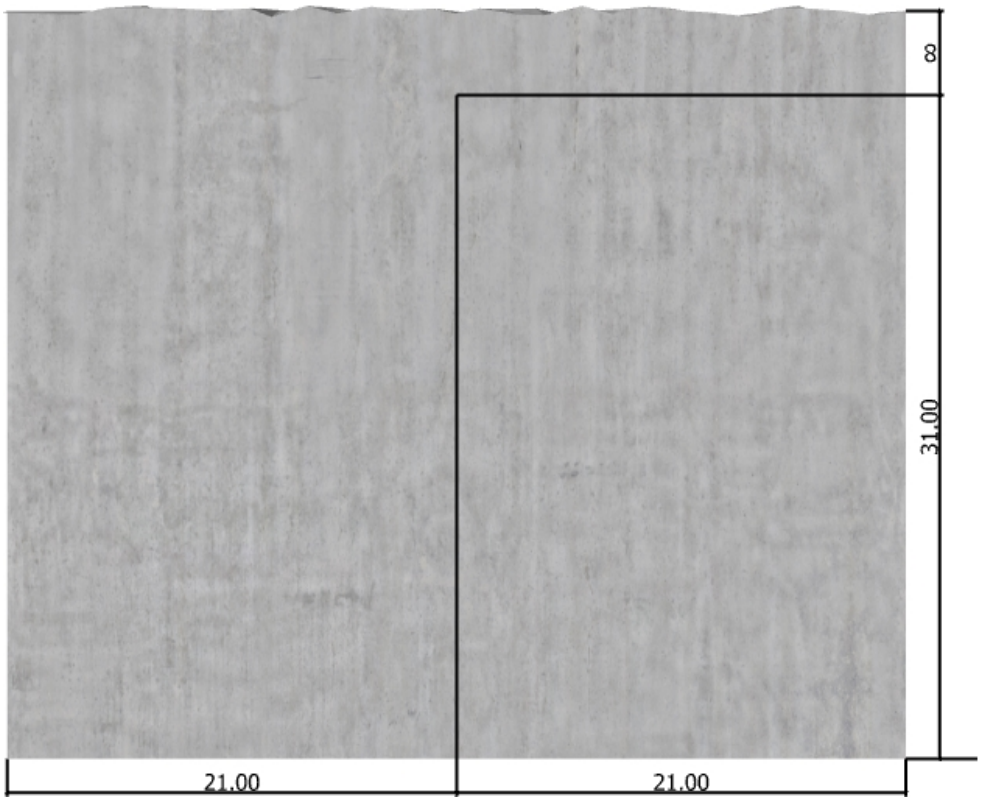
Strength level loads:

N_{ua} [lb]: 16331
V_{uax} [lb]: 0
V_{uay} [lb]: 0

<Figure 1>



<Figure 2>



3. Resulting Anchor Forces

Anchor	Tension load, N_{ua} (lb)	Shear load x, V_{uax} (lb)	Shear load y, V_{uay} (lb)	Shear load combined, $\sqrt{(V_{uax})^2+(V_{uay})^2}$ (lb)
1	16331.0	0.0	0.0	0.0
Sum	16331.0	0.0	0.0	0.0

Maximum concrete compression strain (‰): 0.00
Maximum concrete compression stress (psi): 0
Resultant tension force (lb): 16331
Resultant compression force (lb): 0
Eccentricity of resultant tension forces in x-axis, e'_{Nx} (inch): 0.00
Eccentricity of resultant tension forces in y-axis, e'_{Ny} (inch): 0.00

4. Steel Strength of Anchor in Tension (Sec. 17.4.1)

N_{sa} (lb)	ϕ	ϕN_{sa} (lb)
56200	0.75	42150

5. Concrete Breakout Strength of Anchor in Tension (Sec. 17.4.2)

$N_b = 16\lambda_a\sqrt{f'_c}h_{ef}^{5/3}$ (Eq. 17.4.2.2b)

λ_a	f'_c (psi)	h_{ef} (in)	N_b (lb)
1.00	2500	20.667	124511

$\phi N_{cb} = \phi\,(A_{Nc}/A_{Nco})\,\Psi_{ed,N}\,\Psi_{c,N}\,\Psi_{cp,N}N_b$ (Sec. 17.3.1 & Eq. 17.4.2.1a)

A_{Nc} (in^2)	A_{Nco} (in^2)	$c_{a,min}$ (in)	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$	N_b (lb)	ϕ	ϕN_{cb} (lb)
2677.50	3844.00	21.00	0.903	1.00	1.000	124511	0.70	54834

6. Pullout Strength of Anchor in Tension (Sec. 17.4.3)

$\phi N_{pn} = \phi\Psi_{c,P}N_p = \phi\Psi_{c,P}8A_{brg}f'_c$ (Sec. 17.3.1, Eq. 17.4.3.1 & 17.4.3.4)

$\Psi_{c,P}$	A_{brg} (in^2)	f'_c (psi)	ϕ	ϕN_{pn} (lb)
1.0	8.39	2500	0.70	117516

11. Results

11. Interaction of Tensile and Shear Forces (Sec. D.7)?

Tension	Factored Load, N_{ua} (lb)	Design Strength, øN_n (lb)	Ratio	Status
Steel	**16331**	**42150**	**0.39**	**Pass (Governs)**
Concrete breakout	16331	54834	0.30	Pass
Pullout	16331	117516	0.14	Pass

PAB10 (1 1/4"Ø) with hef = 24.000 inch meets the selected design criteria.

12. Warnings

- Designer must exercise own judgement to determine if this design is suitable.