

JOB SUMMARY REPORT 13109 Homewood Drive

First Floor							
Member Name	Results	Current Solution	Comments				
Girder #A	Passed	4 piece(s) 2 x 12 SPF No.1/No.2					
Girder #B	Passed	4 piece(s) 2 x 12 SPF No.1/No.2					
Girder #C	Passed	2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL					
Garage Ceiling Joist	Passed	1 piece(s) 2 x 8 SP No.2 @ 16" OC					
Garage Center Beam	Passed	1 piece(s) W12X26 (A992) ASTM Steel					
Ceiling Joist - Open Room S1	Passed	2 piece(s) 2 x 8 SP No.2 @ 16" OC					
Ceiling Joist - Open Room S3	Passed	2 piece(s) 2 x 8 SP No.2 @ 16" OC					
Ceiling Joists - Foyer	Passed	1 piece(s) 2 x 8 SP No.2 @ 12" OC					
Header - Laundry	Passed	3 piece(s) 2 x 8 SP No.2					
Header - Garage Mudroom	Passed	2 piece(s) 2 x 10 SP No.2					
Header - Mud Room Left	Passed	3 piece(s) 2 x 12 SP No.2					
Header - Garage Door	Passed	2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL					
Second Floor							
Member Name	Results	Current Solution	Comments				
Header - 2nd S Closet	Passed	3 piece(s) 2 x 12 SP No.2					
Header - Front Window LEFT	Passed	3 piece(s) 2 x 10 SP No.2					
Header - Front Window RIGHT	Passed	3 piece(s) 2 x 12 SP No.2					
Header - Loft Windows	Passed	2 piece(s) 2 x 6 SP No.2					
Floor Joists	Passed	1 piece(s) 11 7/8" TJI @ 210 @ 16" OC					
Ceiling Joists - Main	Passed	2 piece(s) 2 x 6 SP No.2 @ 16" OC					
Flush Beam	Passed	2 piece(s) 2 x 10 SP No.2					
Roof							
Member Name	Results	Current Solution	Comments				
Rafter - Living Room	Passed	2 piece(s) 2 x 10 SP No.2 @ 16" OC					
Rafter - Foyer	Failed	1 piece(s) 2 x 10 SP No.2 @ 16" OC					
Rafter - Front Porch	Passed	1 piece(s) 2 x 6 SP No.2 @ 16" OC					
Hip #A	Passed	2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL					
Rafter - Bedrooms	Passed	1 piece(s) 2 x 10 SP No.2 @ 16" OC					
Rafter - Second Story Loft	Passed	1 piece(s) 2 x 8 SP No.2 @ 16" OC					
Rafter - Second Story Bedroom	Passed	1 piece(s) 2 x 10 SP No.2 @ 16" OC					
Roof Braces							
Member Name	Results	Current Solution	Comments				
RB-1	Passed	3 piece(s) 2 x 4 SP No.2					



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First Floor, Girder #A 4 piece(s) 2 x 12 SPF No.1/No.2





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	4464 @ 2"	8925 (3.50")	Passed (50%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	2797 @ 1' 2 3/4"	6075	Passed (46%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	6622 @ 3' 3 1/2"	8902	Passed (74%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.035 @ 3' 3 1/2"	0.156	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.047 @ 3' 3 1/2"	0.313	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 3.5% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports (
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Plate on concrete - SPF	3.50"	3.50"	1.75"	1073	3390	4463	Blocking
2 - Plate on concrete - SPF	3.50"	3.50"	1.75"	1073	3390	4463	Blocking
Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.							

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

			Dead	Floor Live	
Vertical Loads	Location (Side)	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 6' 7"	N/A	17.1		
1 - Uniform (PSF)	0 to 6' 7" (Top)	25' 9"	12.0	40.0	Default Load

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First Floor, Girder #B 4 piece(s) 2 x 12 SPF No.1/No.2





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5862 @ 2"	8925 (3.50")	Passed (66%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	3673 @ 1' 2 3/4"	6075	Passed (60%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	8695 @ 3' 3 1/2"	8902	Passed (98%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.047 @ 3' 3 1/2"	0.208	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.061 @ 3' 3 1/2"	0.313	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/360) and TL (L/240).

• A 3.5% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports (
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Plate on concrete - SPF	3.50"	3.50"	2.30"	1396	4466	5862	Blocking
2 - Plate on concrete - SPF	3.50"	3.50"	2.30"	1396	4466	5862	Blocking
Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.							

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

			Dead	Floor Live	
Vertical Loads	Location (Side)	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 6' 7"	N/A	17.1		
1 - Uniform (PSF)	0 to 6' 7" (Top)	33' 11"	12.0	40.0	Default Load

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First Floor, Girder #C 2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL

Overall Length: 6' 11"



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	7220 @ 4"	8181 (5.50")	Passed (88%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	4197 @ 1' 5 3/8"	7897	Passed (53%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	10194 @ 3' 5 1/2"	15854	Passed (64%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.078 @ 3' 5 1/2"	0.208	Passed (L/965)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.102 @ 3' 5 1/2"	0.313	Passed (L/738)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/360) and TL (L/240).

• A 11.2% decrease in the moment capacity has been added to account for lateral stability.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Plate on concrete - SPF	5.50"	5.50"	4.85"	1698	5522	7220	Blocking
2 - Plate on concrete - SPF	5.50"	5.50"	4.85"	1698	5522	7220	Blocking
- Placking Panale are accurated to carry no loade applied directly above them and the full load is applied to 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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Floor Live	
Vertical Loads	Location (Side)	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 6' 11"	N/A	12.1		
1 - Uniform (PSF)	0 to 6' 11" (Top)	39' 11"	12.0	40.0	Default Load

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First Floor, Garage Ceiling Joist 1 piece(s) 2 x 8 SP No.2 @ 16" OC





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	181 @ 2 1/2"	1695 (2.00")	Passed (11%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	158 @ 10 3/4"	1269	Passed (12%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	543 @ 6' 3 1/2"	717	Passed (76%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.099 @ 6' 3 1/2"	0.304	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.217 @ 6' 3 1/2"	0.608	Passed (L/673)		1.0 D + 1.0 L (All Spans)
TJ-Pro [™] Rating	N/A	N/A	N/A		N/A

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

• A 38.4% decrease in the moment capacity has been added to account for lateral stability.

• Applicable calculations are based on NDS.

· No composite action between deck and joist was considered in analysis.

	Bearing Length			Loads t	o Supports (
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.50"	101	84	185	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.50"	101	84	185	1 1/2" 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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Floor Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(1.00)	Comments
1 - Uniform (PSF)	0 to 12' 7"	16"	12.0	10.0	Default Load

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First Floor, Garage Center Beam 1 piece(s) W12X26 (A992) ASTM Steel







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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2441 @ 2"	12834 (3.50")	Passed (19%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	2390 @ 3 1/2"	56120	Passed (4%)		1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	16429 @ 13' 9 1/2"	23950	Passed (69%)		1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.291 @ 13' 9 1/2"	0.681	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.371 @ 13' 9 1/2"	1.362	Passed (L/881)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

• Applicable calculations are based on ANSI/AISC 360-16.

• A lateral-torsional buckling factor (Сь) of 1.0 has been assumed.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	3.50"	3.50"	524	1917	2441	Blocking
2 - Stud wall - SYP	3.50"	3.50"	3.50"	524	1917	2441	Blocking
Blocking Panels are assumed to carry no loads applied directly above them and the full load is applied to the member being designed.							

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

			Dead	Floor Live	
Vertical Loads	Location (Side)	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 27' 7"	N/A	26.0		
1 - Uniform (PSF)	0 to 27' 7"	1'	12.0	-	Default Load
2 - Uniform (PLF)	0 to 27' 7"	N/A	-	139.0	

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First Floor, Ceiling Joist - Open Room S1 2 piece(s) 2 x 8 SP No.2 @ 16" OC





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	208 @ 2 1/2"	3390 (2.00")	Passed (6%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	185 @ 10 3/4"	2538	Passed (7%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	719 @ 7' 2 1/2"	1815	Passed (40%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.086 @ 7' 2 1/2"	0.350	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.190 @ 7' 2 1/2"	0.700	Passed (L/884)		1.0 D + 1.0 L (All Spans)
TJ-Pro [™] Rating	N/A	N/A	N/A		N/A

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

• A 22.1% decrease in the moment capacity has been added to account for lateral stability.

· Applicable calculations are based on NDS.

· No composite action between deck and joist was considered in analysis.

	Bearing Length			Loads to Supports (Ibs)			
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.50"	115	96	211	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.50"	115	96	211	1 1/2" 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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Floor Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(1.00)	Comments
1 - Uniform (PSF)	0 to 14' 5"	16"	12.0	10.0	Default Load

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First Floor, Ceiling Joist - Open Room S3 2 piece(s) 2 x 8 SP No.2 @ 16" OC





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	288 @ 2 1/2"	3390 (2.00")	Passed (9%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	266 @ 10 3/4"	2538	Passed (10%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1394 @ 9' 11 1/2"	1422	Passed (98%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.325 @ 9' 11 1/2"	0.488	Passed (L/720)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.715 @ 9' 11 1/2"	0.975	Passed (L/327)		1.0 D + 1.0 L (All Spans)
TJ-Pro [™] Rating	N/A	N/A	N/A		N/A

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

• A 38.9% decrease in the moment capacity has been added to account for lateral stability.

• Applicable calculations are based on NDS.

· No composite action between deck and joist was considered in analysis.

	Bearing Length			Loads to Supports (lbs)			
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.50"	159	133	292	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.50"	159	133	292	1 1/2" 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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Floor Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(1.00)	Comments
1 - Uniform (PSF)	0 to 19' 11"	16"	12.0	10.0	Default Load

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First Floor, Ceiling Joists - Foyer 1 piece(s) 2 x 8 SP No.2 @ 12" OC





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	154 @ 2 1/2"	1695 (2.00")	Passed (9%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	137 @ 10 3/4"	1269	Passed (11%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	526 @ 7' 1 1/2"	642	Passed (82%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.124 @ 7' 1 1/2"	0.346	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.272 @ 7' 1 1/2"	0.692	Passed (L/611)		1.0 D + 1.0 L (All Spans)
TJ-Pro [™] Rating	N/A	N/A	N/A		N/A

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

• A 44.9% decrease in the moment capacity has been added to account for lateral stability.

• Applicable calculations are based on NDS.

· No composite action between deck and joist was considered in analysis.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.50"	86	71	157	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.50"	86	71	157	1 1/2" 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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Floor Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(1.00)	Comments
1 - Uniform (PSF)	0 to 14' 3"	12"	12.0	10.0	Default Load

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First Floor, Header - Laundry 3 piece(s) 2 x 8 SP No.2

Overall Length: 3' 6"



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1822 @ 0	3814 (1.50")	Passed (48%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	1734 @ 8 3/4"	3806	Passed (46%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	2666 @ 1' 6 1/2"	3038	Passed (88%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.023 @ 1' 8 3/4"	0.087	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.024 @ 1' 8 3/4"	0.175	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

• Allowed moment does not reflect the adjustment for the beam stability factor.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports (
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SPF	1.50"	1.50"	1.50"	35	1786	1821	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	35	1444	1479	None

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

•Maximum allowable bracing intervals based on applied load.

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 6"	N/A	8.3		
1 - Uniform (PSF)	0 to 3' 6"	1'	12.0	100.0	Default Load
2 - Point (lb)	1' 6 1/2"	N/A	-	2880	

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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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First Floor, Header - Garage Mudroom 2 piece(s) 2 x 10 SP No.2

PASSED





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	1362 @ 0	2543 (1.50")	Passed (54%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	1336 @ 10 3/4"	3238	Passed (41%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2010 @ 1' 6"	2802	Passed (72%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.011 @ 1' 7 5/16"	0.108	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.011 @ 1' 7 5/16"	0.162	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/360) and TL (L/240).

• A 1.8% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SYP	1.50"	1.50"	1.50"	31	1331	1362	None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	31	1143	1174	None

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

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 3"	N/A	7.0		
1 - Uniform (PSF)	0 to 3' 3"	1'	12.0	10.0	Default Load
2 - Point (lb)	1' 6"	N/A	-	2441	

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First Floor, Header - Mud Room Left 3 piece(s) 2 x 12 SP No.2

PASSED





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3673 @ 0	3814 (1.50")	Passed (96%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	3636 @ 1' 3/4"	5906	Passed (62%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	5622 @ 1' 6 1/2"	5933	Passed (95%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.013 @ 1' 8 3/4"	0.087	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.013 @ 1' 8 3/4"	0.175	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

Allowed moment does not reflect the adjustment for the beam stability factor.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports (
Supports	Total	Total Available Required		Dead	Floor Live	Total	Accessories
1 - Trimmer - SPF	1.50"	1.50"	1.50"	43	3630	3673	None
2 - Trimmer - SPF	1.50"	1.50"	1.50"	43	2861	2904	None

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

•Maximum allowable bracing intervals based on applied load.

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 6"	N/A	12.8		
1 - Uniform (PSF)	0 to 3' 6"	1'	12.0	10.0	Default Load
2 - Point (lb)	1' 6 1/2"	N/A	-	6456	

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First Floor, Header - Garage Door 2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3720 @ 0	3938 (1.50")	Passed (94%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	2574 @ 1' 1 3/8"	7897	Passed (33%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	3088 @ 10"	13423	Passed (23%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.040 @ 4' 1 1/4"	0.317	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.045 @ 4' 2 1/16"	0.475	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/360) and TL (L/240).

• A 24.8% decrease in the moment capacity has been added to account for lateral stability.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SYP	1.50"	1.50"	1.50"	115	3605	3720	None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	115	390	505	None

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

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 9' 6"	N/A	12.1		
1 - Uniform (PSF)	0 to 9' 6"	1'	12.0	10.0	Default Load
2 - Point (Ib)	10"	N/A	-	3900	

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Second Floor, Header - 2nd S Closet 3 piece(s) 2 x 12 SP No.2





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2695 @ 0	3814 (1.50")	Passed (71%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	2668 @ 1' 3/4"	5906	Passed (45%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	5670 @ 2' 1 1/2"	5796	Passed (98%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.022 @ 2' 2 13/16"	0.112	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.022 @ 2' 2 13/16"	0.225	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 2.3% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (Ibs)			
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SYP	1.50"	1.50"	1.50"	56	2639	2695	None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	56	2361	2417	None

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

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 4' 6"	N/A	12.8		
1 - Uniform (PSF)	0 to 4' 6"	1'	12.0	-	Default Load
2 - Point (lb)	2' 1 1/2"	N/A	-	5000	

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Second Floor, Header - Front Window LEFT 3 piece(s) 2 x 10 SP No.2

PASSED



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	2720 @ 0	3814 (1.50")	Passed (71%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	2691 @ 10 3/4"	4856	Passed (55%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	4155 @ 1' 6 1/2"	4220	Passed (98%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.017 @ 1' 8 3/4"	0.087	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.018 @ 1' 8 3/4"	0.175	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 1.4% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SYP	1.50"	1.50"	1.50"	39	2681	2720	None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	39	2114	2153	None

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

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 6"	N/A	10.6		
1 - Uniform (PSF)	0 to 3' 6"	1'	12.0	10.0	Default Load
2 - Point (lb)	1' 6 1/2"	N/A	-	4760	

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Second Floor, Header - Front Window RIGHT 3 piece(s) 2 x 12 SP No.2

PASSED



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	3823 @ 0	3814 (1.50")	Passed (100%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	3786 @ 1' 3/4"	5906	Passed (64%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	5853 @ 1' 6 1/2"	5835	Passed (100%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.014 @ 1' 8 3/4"	0.087	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.014 @ 1' 8 3/4"	0.175	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 1.6% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports (
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SYP	1.50"	1.50"	1.50"	43	3780	3823	None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	43	2979	3022	None

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

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 3' 6"	N/A	12.8		
1 - Uniform (PSF)	0 to 3' 6"	1'	12.0	10.0	Default Load
2 - Point (lb)	1' 6 1/2"	N/A	-	6724	

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Second Floor, Header - Loft Windows 2 piece(s) 2 x 6 SP No.2



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	586 @ 0	2543 (1.50")	Passed (23%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	480 @ 7"	1925	Passed (25%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	952 @ 3' 3"	1227	Passed (78%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.055 @ 3' 3"	0.162	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.124 @ 3' 3"	0.313	Passed (L/628)		1.0 D + 1.0 L (All Spans)

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

• Deflection criteria: LL (L/480) and TL (L/5/16").

• A 2.6% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Trimmer - SYP	1.50"	1.50"	1.50"	326	260	586	None
2 - Trimmer - SYP	1.50"	1.50"	1.50"	326	260	586	None

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

			Dead	Floor Live	
Vertical Loads	Location	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	0 to 6' 6"	N/A	4.2		
1 - Uniform (PSF)	0 to 6' 6"	8'	12.0	10.0	Default Load

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Second Floor, Floor Joists 1 piece(s) 11 7/8" TJI ® 210 @ 16" OC



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	581 @ 2 1/2"	1069 (2.00")	Passed (54%)	1.00	1.0 D + 1.0 L (All Spans)
Shear (lbs)	569 @ 3 1/2"	1655	Passed (34%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2383 @ 8' 6"	3795	Passed (63%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.267 @ 8' 6"	0.415	Passed (L/744)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.348 @ 8' 6"	0.829	Passed (L/573)		1.0 D + 1.0 L (All Spans)
TJ-Pro [™] Rating	44	40	Passed		

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.

	Bearing Length			Loads t	o Supports		
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.75"	136	453	589	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.75"	136	453	589	1 1/2" 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)	4' 9" o/c					
Bottom Edge (Lu)	16' 9" o/c					

•TJI joists are only analyzed using Maximum Allowable bracing solutions.

•Maximum allowable bracing intervals based on applied load.

			Dead	Floor Live	
Vertical Load	Location	Spacing	(0.90)	(1.00)	Comments
1 - Uniform (PSF)	0 to 17'	16"	12.0	40.0	Default Load

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Second Floor, Ceiling Joists - Main 2 piece(s) 2 x 6 SP No.2 @ 16" OC





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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	236 @ 2 1/2"	3390 (2.00")	Passed (7%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	218 @ 9"	1925	Passed (11%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	929 @ 8' 2"	1174	Passed (79%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.331 @ 8' 2"	0.398	Passed (L/578)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.727 @ 8' 2"	0.796	Passed (L/263)		1.0 D + 1.0 L (All Spans)
TJ-Pro [™] Rating	N/A	N/A	N/A		N/A

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

• Deflection criteria: LL (L/480) and TL (L/240).

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

• A 19% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

· No composite action between deck and joist was considered in analysis.

	Bearing Length			Loads to Supports (Ibs)			
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.50"	131	109	240	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.50"	131	109	240	1 1/2" 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)	End Bearing Points	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Floor Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(1.00)	Comments
1 - Uniform (PSF)	0 to 16' 4"	16"	12.0	10.0	Default Load

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Second Floor, Flush Beam 2 piece(s) 2 x 10 SP No.2

Overall Length: 4' 7"



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	453 @ 2"	3390 (2.00")	Passed (13%)		1.0 D + 1.0 L (All Spans)
Shear (lbs)	257 @ 1' 3/4"	3238	Passed (8%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-Ibs)	472 @ 2' 3 1/2"	2779	Passed (17%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.003 @ 2' 3 1/2"	0.106	Passed (L/999+)		1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.006 @ 2' 3 1/2"	0.213	Passed (L/999+)		1.0 D + 1.0 L (All Spans)

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).

• A 2.6% decrease in the moment capacity has been added to account for lateral stability.

Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (lbs)			
Supports	Total	Available	Required	Dead	Floor Live	Total	Accessories
1 - Stud wall - SYP	3.50"	2.00"	1.50"	249	229	478	1 1/2" Rim Board
2 - Stud wall - SYP	3.50"	2.00"	1.50"	249	229	478	1 1/2" Rim Board
 Rim Board is assumed to carry all loads applie 	d directly abo	ve it hynassi	na the membe	er heina desia	ined		•

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

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

			Dead	Floor Live	
Vertical Loads	Location (Side)	Tributary Width	(0.90)	(1.00)	Comments
0 - Self Weight (PLF)	1 1/2" to 4' 5 1/2"	N/A	7.0		
1 - Uniform (PSF)	0 to 4' 7" (Top)	1'	12.0	10.0	Default Load
2 - Uniform (PLF)	0 to 4' 7" (Front)	N/A	90.0	90.0	

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Roof, Rafter - Living Room 2 piece(s) 2 x 10 SP No.2 @ 16" OC

Sloped Length: 26' 4 5/8"



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	493 @ 20' 3/4"	5933 (3.50")	Passed (8%)		1.0 D + 1.0 Lr (Alt Spans)
Shear (lbs)	450 @ 2' 4 5/8"	4047	Passed (11%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	2208 @ 10' 10 15/16"	4101	Passed (54%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Live Load Defl. (in)	0.418 @ 10' 10 3/8"	0.799	Passed (L/688)		1.0 D + 1.0 Lr (Alt Spans)
Total Load Defl. (in)	0.822 @ 10' 10 1/2"	1,199	Passed (L/350)		1.0 D + 1.0 Lr (Alt Spans)

· Deflection criteria: LL (L/360) and TL (L/240).

• Overhang deflection criteria: LL (2L/360) and TL (2L/240). Upward deflection on left cantilever exceeds overhang deflection criteria.

• Birdsmouth cut has not been analyzed.

A 15% increase in the moment capacity has been added to account for repetitive member usage.

Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (lbs)			
Supports	Total	Available	Required	Dead	Roof Live	Total	Accessories
1 - Birdsmouth - SYP	3.50"	3.50"	1.50"	284	291	575	Blocking
2 - Beveled Plate - SYP	3.50"	3.50"	1.50"	243	250	493	Blocking
Placking Dapole are accumed to carry no load	c applied dire	ctly above the	m and the ful	Lload is appli	d to the mon	hor hoing	docignod

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)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Roof Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 20' 3 1/4"	16"	15.0	20.0	Default Load

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Member Length : 27' 3/8"

System : Roof Member Type : Joist Building Use : Residential Building Code : IBC 2018 Design Methodology : ASD Member Pitch : 10/12



Roof, Rafter - Foyer 1 piece(s) 2 x 10 SP No.2 @ 16" OC

Sloped Length: 23' 2 9/16"



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

Load: Combination (Pattern)

1.0 D + 1.0 Lr (All Spans)

LDF

1.25

1.25

Member Length : 23' 10 1/4"

System : Roof Member Type : Joist Building Use : Residential Building Code : IBC 2018 Design Methodology : ASD Member Pitch : 10/12

Total Load Defl. (in) 1.335 @ 8' 11" · Deflection criteria: LL (L/360) and TL (L/240).

Birdsmouth cut has not been analyzed.

Design Results

Shear (lbs)

Moment (Ft-lbs)

Live Load Defl. (in)

Member Reaction (lbs)

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

Actual @ Location

470 @ 2 1/2"

423 @ 10 5/8"

1998 @ 8' 11"

0.675 @ 8' 11"

Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (lbs)			
Supports	Total	Available	Required	Dead	Roof Live	Total	Accessories
1 - Birdsmouth - SYP	3.50"	3.50"	1.50"	232	238	470	Blocking
2 - Beveled Plate - SYP	3.50"	3.50"	1.50"	232	238	470	Blocking

Allowed

2966 (3.50")

2023

2051

0.756

1.134

Result

Passed (16%)

Passed (21%)

Passed (97%)

Passed (L/403)

Failed (L/204)

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)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Roof Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 17' 10"	16"	15.0	20.0	Default Load

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Roof, Rafter - Front Porch 1 piece(s) 2 x 6 SP No.2 @ 16" OC

Sloped Length: 6' 8 3/8"



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

LDF

1.25

1.25

--

Load: Combination (Pattern)

1.0 D + 1.0 Lr (All Spans)

Member Length : 6' 9 3/4"

System : Roof Member Type : Joist Building Use : Residential Building Code : IBC 2018 Design Methodology : ASD Member Pitch : 3/12

• Deflection criteria: LL (L/360) and TL (L/240)

• Birdsmouth cut has not been analyzed.

Design Results

Shear (lbs)

Moment (Ft-lbs)

Live Load Defl. (in)

Total Load Defl. (in)

Member Reaction (lbs)

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

Actual @ Location

154 @ 2 1/2"

119 @ 8 13/16"

219 @ 3' 3"

0.030 @ 3' 3"

0.053 @ 3' 3"

· Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (lbs)			
Supports	Total	Available	Required	Dead	Roof Live	Total	Accessories
1 - Birdsmouth - SYP	3.50"	3.50"	1.50"	67	87	154	Blocking
2 - Beveled Plate - SYP	3.50"	3.50"	1.50"	67	87	154	Blocking

Allowed

2966 (3.50")

1203

906

0.209

0.314

Result

Passed (5%)

Passed (10%)

Passed (24%)

Passed (L/999+)

Passed (L/999+)

• 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)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Roof Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 6' 6"	16"	15.0	20.0	Default Load

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Roof, Hip #A 2 piece(s) 1 3/4" x 11 7/8" 2.0E Microllam® LVL

Sloped Length: 35' 7 9/16"



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	5786 @ 16' 3 3/16"	6043 (3.50")	Passed (96%)		1.0 D + 1.0 S (Adj Spans)
Shear (lbs)	3300 @ 17' 3 1/8"	9081	Passed (36%)	1.15	1.0 D + 1.0 S (Adj Spans)
Moment (Ft-lbs)	8861 @ 24' 9 5/16"	20525	Passed (43%)	1.15	1.0 D + 1.0 S (Alt Spans)
Live Load Defl. (in)	0.236 @ 23' 11 1/16"	0.821	Passed (L/836)		1.0 D + 1.0 S (Alt Spans)
Total Load Defl. (in)	0.414 @ 23' 11 3/4"	1.094	Passed (L/476)		1.0 D + 1.0 S (Alt Spans)

System : Roof Member Type : Flush Beam Building Use : Residential Building Code : IBC 2018 Design Methodology : ASD Member Pitch : 7.07/12

• 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.

	Bearing Length		Loads to Supports (Ibs)				
Supports	Total	Available	Required	Dead	Snow	Total	Accessories
1 - Beveled Plate - SPF	3.50"	3.50"	1.50"	238	282/-3	520/-3	Blocking
2 - Beveled Plate - SPF	3.50"	3.50"	3.35"	2665	3121	5786	None
3 - Hanger on 11 7/8" SPF beam	3.50"	Hanger ¹	1.50"	1452	1813	3265	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)	16' 10" o/c				
Bottom Edge (Lu) 18' 4" o/c					
Maximum allowable bracing intervals based on applied load					

um allowable bracing intervals based on applied load.

Connector: Simpson Strong-Tie						
Support	Model	Seat Length	Top Fasteners	Face Fasteners	Member Fasteners	Accessories
3 - Face Mount Hanger	HHUS410X SLD30	3.00"	N/A	30-16d	10-16d	

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

			Dead	Snow	
Vertical Loads	Location (Side)	Tributary Width	(0.90)	(1.15)	Comments
0 - Self Weight (PLF)	0 to 30' 4 7/8"	N/A	12.1		
1 - Tapered (PLF)	0 to 2' 1 7/16"	N/A	0.0 to 35.7	0.0 to 53.0	Generated from Roof Geometry
2 - Tapered (PLF)	2' 1 7/16" to 30' 4 7/8"	N/A	0.0 to 236.6	0.0 to 353.6	Generated from Roof Geometry

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Member Length : 35' 10 1/2"



Roof, Rafter - Bedrooms 1 piece(s) 2 x 10 SP No.2 @ 16" OC

Sloped Length: 21' 3 1/8"



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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	389 @ 16' 1 1/2"	2966 (3.50")	Passed (13%)		1.0 D + 1.0 Lr (Alt Spans)
Shear (lbs)	348 @ 2' 4 5/8"	2023	Passed (17%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	1355 @ 8' 11 7/16"	2051	Passed (66%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Live Load Defl. (in)	0.318 @ 8' 10 13/16"	0.628	Passed (L/712)		1.0 D + 1.0 Lr (Alt Spans)
Total Load Defl. (in)	0.623 @ 8' 10 15/16"	0.942	Passed (L/363)		1.0 D + 1.0 Lr (Alt Spans)

System : Roof Member Type : Joist Building Use : Residential Building Code : IBC 2018 Design Methodology : ASD Member Pitch : 10/12

• Deflection criteria: LL (L/360) and TL (L/240).

• Overhang deflection criteria: LL (2L/360) and TL (2L/240). Upward deflection on left cantilever exceeds overhang deflection criteria.

• Birdsmouth cut has not been analyzed.

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

Applicable calculations are based on NDS.

	Bearing Length			Loads t	o Supports		
Supports	Total Available Required			Dead	Roof Live	Total	Accessories
1 - Birdsmouth - SYP	3.50"	3.50"	1.50"	234	239	473	Blocking
2 - Beveled Plate - SYP 3.50" 3.50" 1.50"			191	197	388	Blocking	
- Realing Danals are assumed to easy use leads applied directly above them and the full lead is applied to 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)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Roof Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 16' 4"	16"	15.0	20.0	Default Load

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Member Length : 21' 10 13/16"



Roof, Rafter - Second Story Loft 1 piece(s) 2 x 8 SP No.2 @ 16" OC

Sloped Length: 16' 9"



ons are horizontal. Member Length : 16' 10 13/16"

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

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	423 @ 1' 7 3/4"	3058 (3.50")	Passed (14%)		1.0 D + 1.0 Lr (All Spans)
Shear (lbs)	310 @ 2' 4 9/16"	1586	Passed (20%)	1.25	1.0 D + 1.0 Lr (All Spans)
Moment (Ft-lbs)	1202 @ 8' 10 15/16"	1456	Passed (83%)	1.25	1.0 D + 1.0 Lr (Alt Spans)
Live Load Defl. (in)	0.404 @ 8' 10 5/16"	0.495	Passed (L/441)		1.0 D + 1.0 Lr (Alt Spans)
Total Load Defl. (in)	0.712 @ 8' 10 3/8"	0.742	Passed (L/250)		1.0 D + 1.0 Lr (Alt Spans)

System : Roof Member Type : Joist Building Use : Residential Building Code : IBC 2018 Design Methodology : ASD Member Pitch : 3/12

PASSED

• Deflection criteria: LL (L/360) and TL (L/240).

• Overhang deflection criteria: LL (2L/360) and TL (2L/240). Upward deflection on left cantilever exceeds overhang deflection criteria.

• Birdsmouth cut has not been analyzed.

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (lbs)			
Supports	Total	Available	Required	Dead	Roof Live	Total	Accessories
1 - Birdsmouth - SYP	3.50"	3.50"	1.50"	184	238	422	Blocking
2 - Beveled Plate - SYP	3.50"	3.50"	1.50"	151	196	347	Blocking
· Placking Panals are assumed to carry no load	a applied dire	ethu ahava tha	m and the ful	Lood is popli	d to the men	hor hoing	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)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Roof Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 16' 3"	16"	15.0	20.0	Default Load

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Roof, Rafter - Second Story Bedroom 1 piece(s) 2 x 10 SP No.2 @ 16" OC

Sloped Length: 18' 4"



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

Design Results Actual @ Location Allowed Result LDF Load: Combination (Pattern) Member Reaction (lbs) 329 @ 13' 10 1/2" 2966 (3.50") Passed (11%) 1.0 D + 1.0 Lr (Alt Spans) Shear (lbs) 289 @ 2' 4 5/8" 2023 Passed (14%) 1.25 1.0 D + 1.0 Lr (All Spans) Moment (Ft-lbs) 959 @ 7' 10 1/8" 2051 Passed (47%) 1.25 1.0 D + 1.0 Lr (Alt Spans) Live Load Defl. (in) 0.161 @ 7' 9 5/16' 0.531 Passed (L/999+) 1.0 D + 1.0 Lr (Alt Spans) Total Load Defl. (in) 0.314 @ 7' 9 7/16" 0.796 Passed (L/609) 1.0 D + 1.0 Lr (Alt Spans)

System : Roof Member Type : Joist Building Use : Residential Building Code : IBC 2018

Member Length : 18' 11 11/16"

PASSED

Design Methodology : ASD Member Pitch : 10/12

• Deflection criteria: LL (L/360) and TL (L/240)

• Overhang deflection criteria: LL (2L/360) and TL (2L/240).

• Birdsmouth cut has not been analyzed.

• A 15% increase in the moment capacity has been added to account for repetitive member usage.

Applicable calculations are based on NDS.

	Bearing Length			Loads to Supports (Ibs)			
Supports	Total	Available	Required	Dead	Roof Live	Total	Accessories
1 - Birdsmouth - SYP	3.50"	3.50"	1.50"	205	210	415	Blocking
2 - Beveled Plate - SYP	3.50"	3.50"	1.50"	162	167	329	Blocking
· Placking Papals are accumed to carry no load	c applied dire	ethu ahava tha	m and the ful	Llood is spoli	d to the men	hor hoing	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)	Continuous	
Bottom Edge (Lu)	End Bearing Points	

			Dead	Roof Live	
Vertical Load	Location (Side)	Spacing	(0.90)	(non-snow: 1.25)	Comments
1 - Uniform (PSF)	0 to 14' 1"	16"	15.0	20.0	Default Load

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Roof Braces, RB-1 3 piece(s) 2 x 4 SP No.2

Wall Height: 9'

Member Height: 8' 7 1/2"

Tributary Width: 1'

PASSED



Design Results	Actual	Allowed	Result	LDF	Load: Combination
Slenderness	30	50	Passed (59%)		
Compression (lbs)	2380	6944	Passed (34%)	1.00	1.0 D + 1.0 L
Plate Bearing (lbs)	2380	8899	Passed (27%)		1.0 D + 1.0 L
Lateral Reaction (lbs)	65			1.60	1.0 D + 0.6 W
Lateral Shear (lbs)	60	2940	Passed (2%)	1.60	1.0 D + 0.6 W
Lateral Moment (ft-lbs)	140 @ mid-span	1341	Passed (10%)	1.60	1.0 D + 0.6 W
Total Deflection (in)	0.06 @ mid-span	0.86	Passed (L/1777)		1.0 D + 0.6 W
Bending/Compression	0.16	1	Passed (16%)	1.60	1.0 D + 0.45 W + 0.75 L + 0.75 Lr

· Lateral deflection criteria: Wind (L/120)

· Input axial load eccentricity for the design is zero

Applicable calculations are based on NDS.

• The column stability factor (Kf = 0.6) applied to this design assumes nailed built-up columns per NDS section 15.3.3. For Weyerhaeuser ELP products refer to the U.S. Wall Guide for multiple-member connection requirements.

Comments

Top Dbl 2X Southern Pine Member Type : Column Base 2X Southern Pine Building Code : IBC 201	Supports	Туре	Material	System : Wall
Base 2X Southern Pine Design Mathadology A	Тор	Dbl 2X	Southern Pine	Member Type : Column
	Base	2X	Southern Pine	Desian Methodoloav : ASE

Drawing is Conceptual

Lateral Connections							
Supports	Connector	Type/Model	Quantity	Connector Nailing			
Тор	Nails	8d x 2.5" Box (Toe)	1	N/A			
Base	Nails	8d x 2.5" Box (Toe)	1	N/A			

• Nailed connection at the top of the member is assumed to be nailed through the bottom 2x plate prior to placement of the top 2x of the double top plate assembly.

		Dead	Floor Live	
Vertical Load	Tributary Width	(0.90)	(1.00)	Comments
1 - Point (lb)	N/A	-	2380	Default Load

Max Unbraced Length

			Wind	
Lateral Load	Location	Tributary Width	(1.60)	Comments
1 - Uniform (PSF)	Full Length	1'	25.1	

 ASCE/SEI 7 Sec. 30.4: Exposure Category (B), Mean Roof Height (33'), Topographic Factor (1.0), Wind Directionality Factor (0.85), Basic Wind Speed (115), Risk Category(II), Effective Wind Area determined using full member span and trib. width. • IBC Table 1604.3, footnote f: Deflection checks are performed using 42% of this lateral wind load.

8'

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