

Graphical Illustration - Not To Scale  
 Member Cut Length - 30'  
 MemberPitch - 0/12

**Design Information:**

Building Code:	IRC2015	Floor Dead Load:	10.0 lb/ft <sup>2</sup>	Roof Dead Load:	10.0 lb/ft <sup>2</sup>	Ground Snow Load:	20.0 lb/ft <sup>2</sup>
Design Methodology:	ASD	Floor Live Load:	40.0 lb/ft <sup>2</sup>	Roof Live Load:	20.0 lb/ft <sup>2</sup>		
		Unbraced Length	Top: 1'- 10 1/2"	Bottom:	29'- 5"		

**Design Results:**

	Location	Design	Control	Result	LDF	Load Combination
Critical Moment (Pos)	25'- 11 1/4"	6534.15 lb ft	15236.13 lb ft	Passed - 43%	1.15	D + Lr
Critical Moment (Neg)	19'- 9 1/4"	-7817.38 lb ft	10125.29 lb ft	Passed - 77%	1.15	D + Lr
Critical Shear	9'	3687.37 lb	7198.04 lb	Passed - 51%	1.15	D + Lr
Live Load Deflection	24'- 10 1/2"	0'- 1/8"	0'- 3/4" (L/360)	Passed - L/873	-	Lr
Total Load Deflection	25'- 1/4"	0'- 1/4"	0'- 1" (L/240)	Passed - L/517	-	D + Lr
Max. Reaction			Supported Mt   Supporting Mt			
	0'- 4 1/2"	4422.85 lb	14437.50 lb   13956.25 lb	Passed - 32%	1.15	D + Lr
	0'- 4 1/2"	-1131.84 lb	20086.96 lb   -	Passed - 8%	1.60	0.6D + 0.6W
	10'	8039.33 lb	15421.89 lb   13956.27 lb	Passed - 58%	1.15	D + Lr
	10'	-953.91 lb	21456.55 lb   -	Passed - 7%	1.60	0.6D + 0.6W
	19'- 9 1/4"	8564.42 lb	15421.83 lb   13956.21 lb	Passed - 61%	1.15	D + Lr
	19'- 9 1/4"	-923.82 lb	21456.47 lb   -	Passed - 7%	1.60	0.6D + 0.6W
	29'- 7 1/2"	4496.98 lb	14437.52 lb   13956.27 lb	Passed - 32%	1.15	D + Lr
	29'- 7 1/2"	-1128.41 lb	20086.98 lb   -	Passed - 8%	1.60	0.6D + 0.6W

**Design Notes:**

\* Member design assumed proper ply to ply connection. Verify connection between plies according to code specification

**Loading:**

Type	Start	End	Source	Maximum Load Magnitudes			
				Dead	Floor Live	Roof Live	Snow
Self Weight	0'	30'	Self Weight	9 lb/ft	-	-	-
Uniform	1'- 3/4"	23'- 3/4"	Smoothed Load	370 lb/ft	-	385 lb/ft	229 lb/ft
Point	0'- 3/4"	0'- 3/4"	AE(Cond02)	817.00 lb	-	922.00 lb	548.00 lb
Point	2'- 3/4"	2'- 3/4"	A(Cond12)	-	-	-	-
Point	4'- 3/4"	4'- 3/4"	A(Cond05)	-	-	-	-
Point	6'- 3/4"	6'- 3/4"	A(Cond08)	-	-	-	-
Point	8'- 3/4"	8'- 3/4"	A(Cond11)	-	-	-	-
Point	10'- 3/4"	10'- 3/4"	A(Cond01)	-	-	-	-
Point	12'- 3/4"	12'- 3/4"	A(Cond14)	-	-	-	-
Point	14'- 3/4"	14'- 3/4"	A(Cond06)	-	-	-	-
Point	16'- 3/4"	16'- 3/4"	A(Cond02)	-	-	-	-
Point	18'- 3/4"	18'- 3/4"	A(Cond10)	-	-	-	-
Point	20'- 3/4"	20'- 3/4"	A(Cond03)	-	-	-	-
Point	22'- 3/4"	22'- 3/4"	A(Cond04)	-	-	-	-
Point	24'- 3/4"	24'- 3/4"	A(Cond09)	729.00 lb	-	745.00 lb	443.00 lb
Point	25'- 11 1/4"	25'- 11 1/4"	A(Cond13)	729.00 lb	-	745.00 lb	443.00 lb
Point	27'- 11 1/4"	27'- 11 1/4"	A(Cond07)	741.00 lb	-	770.00 lb	458.00 lb
Point	29'- 11 1/4"	29'- 11 1/4"	AE(Cond01)	817.00 lb	-	922.00 lb	548.00 lb

**Support Information:**

Support	Start	End	Source	Maximum Analysis Reactions			
				Dead	Floor Live	Roof Live	Snow
1	0'	0'- 5 1/2"	P1(i5)	2064.00 lb	-	2368.00/-185.00 lb	1298.00 lb
2	9'- 9 1/4"	10'- 2 3/4"	P5(i11)	4000.00 lb	-	4414.00 lb	2416.00 lb
3	19'- 6 1/2"	20'	P6(i12)	4077.00 lb	-	4457.00 lb	2450.00 lb
4	29'- 6 1/2"	30'	P4(i10)	2099.00 lb	-	2390.00/-181.00 lb	1313.00 lb

- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.

- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.



**Job: Neumann Barn**  
Member Type: Beam | Level: 1st Floor  
MiTek SAPPHIRE™ Structure Version 8.3.3.247.Update7  
Designed by Single Member Design Engine

**Label: BM1-i1**

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Date: 04/16/2020 13:55:42

**Member: 2 - 2.0 RigidLam DF LVL 1-3/4 x 9-1/4**

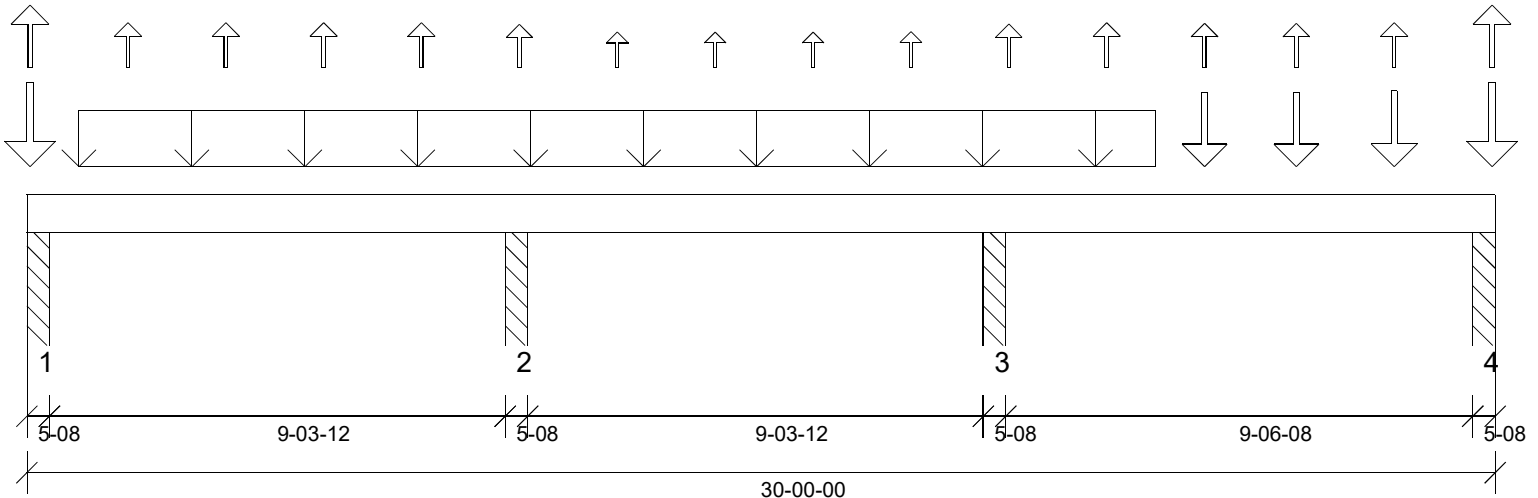
**Status: Design Passed**

### **Errors, Warnings & Notes:**

- \* CAUTION: The maximum net analysis reaction exceeds the user-defined maximum uplift value at one or more supports.
- \* The dead loads used in the design of this member were applied to the structure as projected dead loads.
- \* The member graphic, dimensions, and locations shown on this report are based on the centerline of the member.
- \* Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

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Critical Shear	9'	3684.87 lb	7198.04 lb	Passed - 51%	1.15	D + Lr
Live Load Deflection	24'- 10 1/2"	0'- 1/8"	0'- 3/4" (L/360)	Passed - L/874	-	Lr
Total Load Deflection	25'- 1/4"	0'- 1/4"	0'- 1" (L/240)	Passed - L/517	-	D + Lr
Max. Reaction			Supported Mt   Supporting Mt			
	0'- 4 1/2"	4421.06 lb	14437.27 lb   13956.03 lb	Passed - 32%	1.15	D + Lr
	0'- 4 1/2"	-1120.84 lb	20086.64 lb   -	Passed - 8%	1.60	0.6D + 0.6W
	10'	8033.75 lb	15421.65 lb   13956.04 lb	Passed - 58%	1.15	D + Lr
	10'	-938.71 lb	21456.22 lb   -	Passed - 7%	1.60	0.6D + 0.6W
	19'- 9 1/4"	8559.87 lb	15421.83 lb   13956.21 lb	Passed - 61%	1.15	D + Lr
	19'- 9 1/4"	-923.84 lb	21456.47 lb   -	Passed - 7%	1.60	0.6D + 0.6W
	29'- 7 1/2"	4495.96 lb	14437.46 lb   13956.21 lb	Passed - 32%	1.15	D + Lr
	29'- 7 1/2"	-1128.41 lb	20086.90 lb   -	Passed - 8%	1.60	0.6D + 0.6W

**Design Notes:**

\* Member design assumed proper ply to ply connection. Verify connection between plies according to code specification

**Loading:**

Type	Start	End	Source	Maximum Load Magnitudes			
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Self Weight	0'	30'	Self Weight	9 lb/ft	-	-	-
Uniform	1'- 3/4"	23'- 3/4"	Smoothed Load	370 lb/ft	-	384 lb/ft	229 lb/ft
Point	0'- 3/4"	0'- 3/4"	AE(Cond02)	817.00 lb	-	922.00 lb	548.00 lb
Point	2'- 3/4"	2'- 3/4"	A(Cond12)	-	-	-	-
Point	4'- 3/4"	4'- 3/4"	A(Cond05)	-	-	-	-
Point	6'- 3/4"	6'- 3/4"	A(Cond08)	-	-	-	-
Point	8'- 3/4"	8'- 3/4"	A(Cond11)	-	-	-	-
Point	10'- 3/4"	10'- 3/4"	A(Cond01)	-	-	-	-
Point	12'- 3/4"	12'- 3/4"	A(Cond14)	-	-	-	-
Point	14'- 3/4"	14'- 3/4"	A(Cond06)	-	-	-	-
Point	16'- 3/4"	16'- 3/4"	A(Cond02)	-	-	-	-
Point	18'- 3/4"	18'- 3/4"	A(Cond10)	-	-	-	-
Point	20'- 3/4"	20'- 3/4"	A(Cond03)	-	-	-	-
Point	22'- 3/4"	22'- 3/4"	A(Cond04)	-	-	-	-
Point	24'- 3/4"	24'- 3/4"	A(Cond09)	729.00 lb	-	745.00 lb	443.00 lb
Point	25'- 11 1/4"	25'- 11 1/4"	A(Cond13)	729.00 lb	-	745.00 lb	443.00 lb
Point	27'- 11 1/4"	27'- 11 1/4"	A(Cond07)	741.00 lb	-	769.00 lb	458.00 lb
Point	29'- 11 1/4"	29'- 11 1/4"	AE(Cond01)	817.00 lb	-	922.00 lb	548.00 lb

**Support Information:**

Support	Start	End	Source	Maximum Analysis Reactions			
				Dead	Floor Live	Roof Live	Snow
1	0'	0'- 5 1/2"	P2(i6)	2064.00 lb	-	2367.00/-185.00 lb	1298.00 lb
2	9'- 9 1/4"	10'- 2 3/4"	P7(i13)	4000.00 lb	-	4408.00 lb	2416.00 lb
3	19'- 6 1/2"	20'	P8(i14)	4077.00 lb	-	4453.00 lb	2450.00 lb
4	29'- 6 1/2"	30'	P3(i9)	2099.00 lb	-	2389.00/-181.00 lb	1313.00 lb

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**Job: Neumann Barn**  
Member Type: Beam | Level: 1st Floor  
MiTek SAPPHIRE™ Structure Version 8.3.3.247.Update7  
Designed by Single Member Design Engine

**Label: BM3-i3**

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Date: 04/16/2020 13:55:44

**Member: 2 - 2.0 RigidLam DF LVL 1-3/4 x 9-1/4**

**Status: Design Passed**

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