



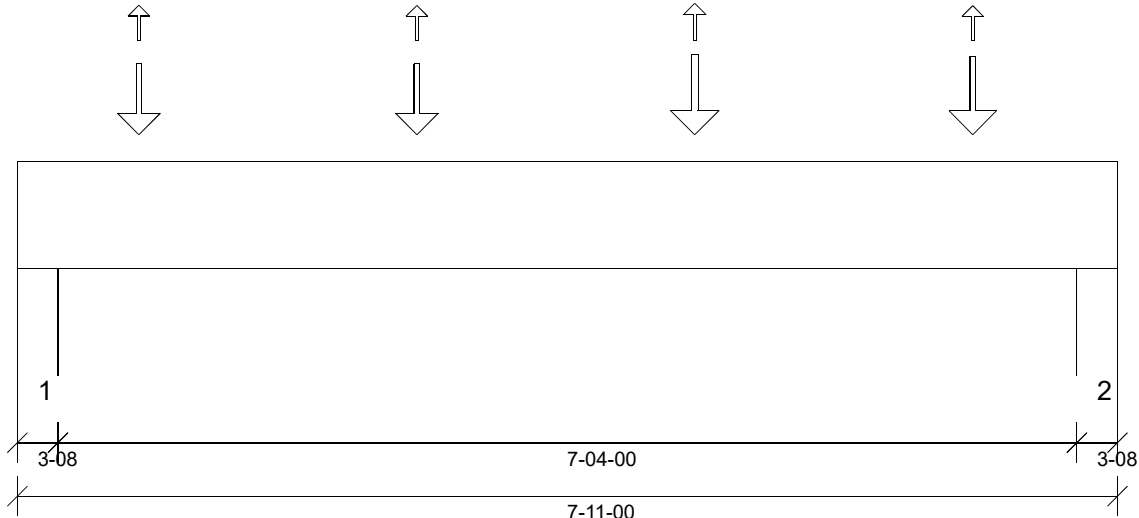
Job: 200464RT1
 Member Type: Beam | Level: 1st Floor
 MiTek SAPPiRE™ Structure Version 8.3.2.221.Update7
 Designed by Single Member Design Engine

Label: BM1-i49

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 Date: 04/06/2020 17:44:22

Member: 2 - 1-3/4X9-1/4 LP-LVL 2900Fb-2.0E

Status: Design Passed



Graphical Illustration - Not To Scale
 Member Cut Length - 7'- 11"
 MemberPitch - 0/12

Design Information:

Building Code:	IRC2015	Floor Dead Load:	10.0 lb/ft ²	Roof Dead Load:	10.0 lb/ft ²	Ground Snow Load:	0.0 lb/ft ²
Design Methodology:	ASD	Floor Live Load:	40.0 lb/ft ²	Roof Live Load:	20.0 lb/ft ²		
		Unbraced Length	Top: 1'- 10 1/2"	Bottom:	7'- 4"		

Design Results:

	Location	Design	Control	Result	LDF	Load Combination
Critical Moment (Pos)	4'- 10 1/2"	4188.11 lb ft	14277.88 lb ft	Passed - 29%	1.15	D + Lr
Critical Moment (Neg)	0'- 10 1/2"	-4.31 lb ft	19864.88 lb ft	Passed - 0%	1.60	0.6D + 0.6W
Critical Shear	1'- 3/4"	1987.02 lb	7073.94 lb	Passed - 28%	1.15	D + Lr
Live Load Deflection	3'- 11 7/8"	0'- 1/16"	0'- 3/4" (L/360)	Passed - L/999	-	0.75(L + Lr + 0.6W)
Total Load Deflection	3'- 11 7/8"	0'- 1/8"	0'- 1" (L/240)	Passed - L/913	-	D + 0.75(L + Lr + 0.6W)
Max. Reaction			Supported Mt Supporting Mt			
	0'- 2 1/2"	2247.89 lb	9187.42 lb 16206.61 lb	Passed - 24%	1.15	D + Lr
	0'- 2 1/2"	-3.28 lb	12782.50 lb -	Passed - 0%	1.60	0.6D + 0.6W
	7'- 8 1/2"	2342.44 lb	9187.37 lb 16206.53 lb	Passed - 25%	1.15	D + Lr

Design Notes:

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

Loading:

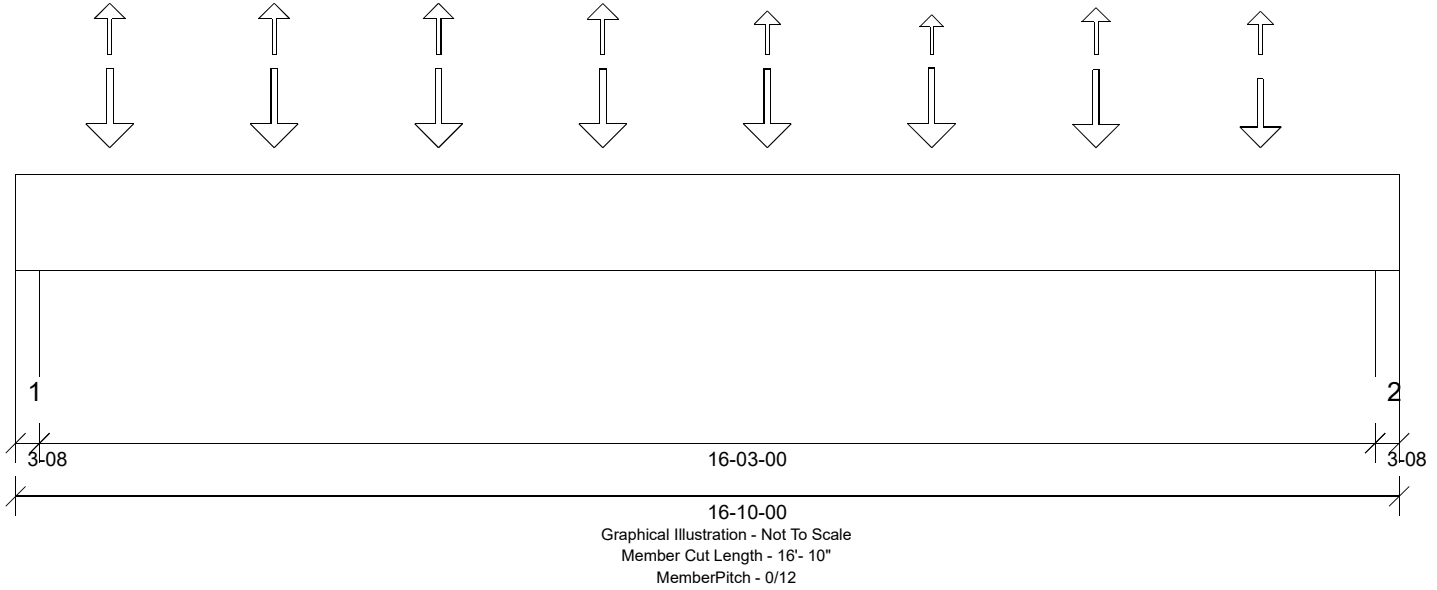
Type	Start	End	Source	Maximum Load Magnitudes			
				Dead	Floor Live	Roof Live	Snow
Self Weight	0'	7'- 11"	Self Weight	9 lb/ft	-	-	-
Point	0'- 10 1/2"	0'- 10 1/2"	A01(c02)	502.00 lb	-	530.00 lb	-
Point	2'- 10 1/2"	2'- 10 1/2"	A01(c01)	502.00 lb	-	530.00 lb	-
Point	4'- 10 1/2"	4'- 10 1/2"	A03(c01)	597.00 lb	-	653.00 lb	-
Point	6'- 10 1/2"	6'- 10 1/2"	A03(c02)	571.00 lb	-	632.00 lb	-

Support Information:

Support	Start	End	Source	Maximum Analysis Reactions			
				Dead	Floor Live	Roof Live	Snow
1	0'	0'- 3 1/2"	E4(i36)	1106.00 lb	-	1141.00 lb	-
2	7'- 7 1/2"	7'- 11"	E8(i25)	1139.00 lb	-	1204.00 lb	-

Errors, Warnings & Notes:

- * 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.



Design Information:

Building Code:	IRC2015	Floor Dead Load:	10.0 lb/ft ²	Roof Dead Load:	10.0 lb/ft ²	Ground Snow Load:	0.0 lb/ft ²
Design Methodology:	ASD	Floor Live Load:	40.0 lb/ft ²	Roof Live Load:	20.0 lb/ft ²		
		Unbraced Length	Top: 1'- 10 1/2"	Bottom:	16'- 3"		

Design Results:

	Location	Design	Control	Result	LDF	Load Combination
Critical Moment (Pos)	9'- 1 3/4"	16450.51 lb ft	29358.31 lb ft	Passed - 56%	1.15	D + Lr
Critical Moment (Neg)	7'- 1 3/4"	-1821.25 lb ft	6930.03 lb ft	Passed - 26%	1.60	0.6D + 0.6W
Critical Shear	1'- 5 1/2"	3759.37 lb	10706.50 lb	Passed - 35%	1.15	D + Lr
Live Load Deflection	8'- 4 13/16"	0'- 1/4"	0'- 3/4" (L/360)	Passed - L/694	-	0.75(L + Lr + 0.6W)
Total Load Deflection	8'- 4 7/8"	0'- 9/16"	0'- 1" (L/240)	Passed - L/362	-	D + 0.75(L + Lr + 0.6W)
Max. Reaction			Supported Mt/ Supporting Mt/			
	0'- 2 1/2"	4034.54 lb	9187.50 lb / 16206.75 lb	Passed - 44%	1.15	D + Lr
	0'- 2 1/2"	-552.95 lb	12782.61 lb / -	Passed - 4%	1.60	0.6D + 0.6W
	16'- 7 1/2"	3657.45 lb	9187.48 lb / 16206.71 lb	Passed - 40%	1.15	D + Lr
	16'- 7 1/2"	-199.11 lb	12782.58 lb / -	Passed - 2%	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'	16'- 10"	Self Weight	14 lb/ft	-	-	-
Point	1'- 1 3/4"	1'- 1 3/4"	C01(c01)	461.00 lb	-	490.00 lb	-
Point	3'- 1 3/4"	3'- 1 3/4"	C01(c02)	461.00 lb	-	490.00 lb	-
Point	5'- 1 3/4"	5'- 1 3/4"	C01(c03)	461.00 lb	-	490.00 lb	-
Point	7'- 1 3/4"	7'- 1 3/4"	C03(c01)	462.00 lb	-	490.00 lb	-
Point	9'- 1 3/4"	9'- 1 3/4"	C03(c02)	462.00 lb	-	490.00 lb	-
Point	11'- 1 3/4"	11'- 1 3/4"	C03(c03)	465.00 lb	-	496.00 lb	-
Point	13'- 1 3/4"	13'- 1 3/4"	C03(c04)	455.00 lb	-	475.00 lb	-
Point	15'- 1 3/4"	15'- 1 3/4"	C03(c05)	414.00 lb	-	394.00 lb	-

Support Information:

Support	Start	End	Source	Maximum Analysis Reactions			
				Dead	Floor Live	Roof Live	Snow
1	0'	0'- 3 1/2"	E1(i32)	2020.00 lb	-	2015.00 lb	-
2	16'- 6 1/2"	16'- 10"	E2(i45)	1857.00 lb	-	1800.00 lb	-

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