



Customer:
Job Name:
City:
Customer Ph...

Job Name: **A**
Level: **Roof**
Label: **BM1 - i22**
Type: **Beam**

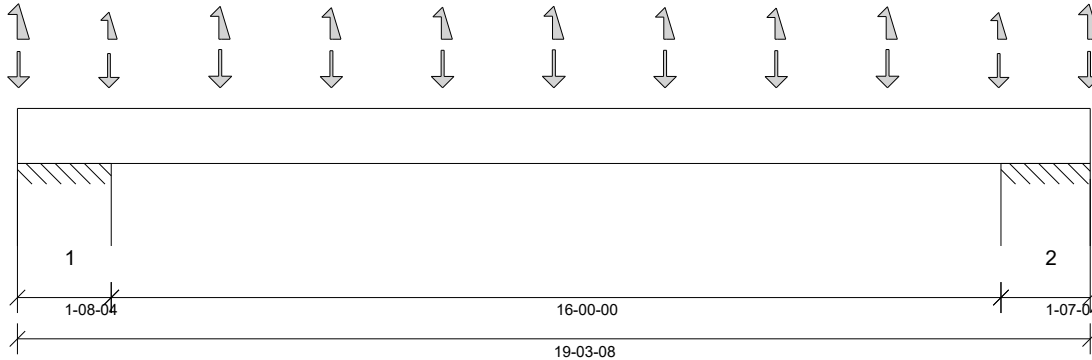
2 Ply Member
2.0 RigidLam DF LVL 1-3/4
x 11-7/8

Status:
Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.7.3.303.Update9.26

Report Version: 2021.03.26 07/19/2024 07:28



DESIGN INFORMATION

Building Code: IRC 2018
Design Methodology: ASD
Risk Category: II (General Construction) Residential
Service Condition: Dry
LL Deflection Limit: L/360, 0.75" (absolute)
TL Deflection Limit: L/240, 1.00" (absolute)

Lateral Restraint Requirements:
Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
Top: 19'- 3 1/2" Bottom: 19'- 3 1/2"

Bearing Stress of Support Material:

- 875 psi Wall @ 0'- 1 1/2"
- 875 psi Wall @ 1'- 6 3/4"
- 875 psi Wall @ 17'- 9 3/4"
- 875 psi Wall @ 19'- 2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	9'- 7 3/4"	D + Lr	1.15	1231 lb ft	18340 lb ft	Passed - 7%
Max Neg. Moment:	17'- 9 3/4"	D + Lr	1.15	2039 lb ft	18340 lb ft	Passed - 11%
Max Shear:	16'- 8 3/8"	D + Lr	1.15	694 lb	9241 lb	Passed - 8%
Live Load (LL) Neg. Defl.:	9'- 7 15/16"	0.6W		0.024"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	9'- 8 1/8"	D + Lr		0.038"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	7-08	0.6D + 0.6W	1.60	331 lb		27391 lb	22969 lb	Passed - 1%
1	7-08	D + Lr	1.15		-1332 lb	-	-	
1	1-00-12	D + Lr	1.15	2269 lb		33469 lb	39047 lb	Passed - 7%
1	1-00-12	0.6D + 0.6W	1.60		-697 lb	-	-	
2	1-00-04	D + Lr	1.15	2356 lb		32156 lb	37516 lb	Passed - 7%
2	1-00-04	0.6D + 0.6W	1.60		-711 lb	-	-	
2	7-00	0.6D + 0.6W	1.60	359 lb		25565 lb	21438 lb	Passed - 2%
2	7-00	D + Lr	1.15		-1327 lb	-	-	

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	19'- 3 1/2"	Self Weight	Top	11 lb/ft	-	-	-	-
Point	0'- 1/4"	0'- 1/4"	B1(Cond01)	Top	58 lb	-	37 lb	98 lb	32/-217 lb
Point	1'- 7 3/4"	1'- 7 3/4"	B1(Cond01)	Top	69 lb	-	25 lb	88 lb	21/-126 lb
Point	3'- 7 3/4"	3'- 7 3/4"	B1(Cond01)	Top	83 lb	-	36 lb	96 lb	31/-188 lb
Point	5'- 7 3/4"	5'- 7 3/4"	B1(Cond01)	Top	80 lb	-	34 lb	91 lb	28/-174 lb
Point	7'- 7 3/4"	7'- 7 3/4"	B1(Cond01)	Top	81 lb	-	34 lb	92 lb	31/-180 lb
Point	9'- 7 3/4"	9'- 7 3/4"	B1(Cond01)	Top	80 lb	-	35 lb	100 lb	28/-190 lb
Point	11'- 7 3/4"	11'- 7 3/4"	B1(Cond01)	Top	81 lb	-	34 lb	92 lb	31/-176 lb
Point	13'- 7 3/4"	13'- 7 3/4"	B1(Cond01)	Top	80 lb	-	34 lb	91 lb	29/-170 lb
Point	15'- 7 3/4"	15'- 7 3/4"	B1(Cond01)	Top	83 lb	-	36 lb	96 lb	31/-184 lb
Point	17'- 7 3/4"	17'- 7 3/4"	B1(Cond01)	Top	69 lb	-	25 lb	88 lb	21/-122 lb
Point	19'- 3 1/4"	19'- 3 1/4"	B1(Cond01)	Top	58 lb	-	37 lb	98 lb	33/-213 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	1'- 8 1/4"	W8(i19)	1176/-658 lb	-	388/-204 lb	1189/-673 lb	282 lb/-1128 lb
==>	0'- 1 1/2"	0'- 1 1/2"	W8(i19)	-658 lb	-	-204 lb	107/-664 lb	-
==>	1'- 6 3/4"	1'- 6 3/4"	W8(i19)	1176 lb	-	388 lb	1082/-9 lb	-
2	17'- 8 1/4"	19'- 3 1/2"	W7(i12)	1228/-712 lb	-	406/-223 lb	1222/-708 lb	282 lb/-1128 lb
==>	17'- 9 3/4"	17'- 9 3/4"	W7(i12)	1228 lb	-	406 lb	1124 lb	-
==>	19'- 2"	19'- 2"	W7(i12)	-712 lb	-	-223 lb	98/-708 lb	-

DESIGN 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.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- 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.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.



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- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (CL) = 0.58

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.