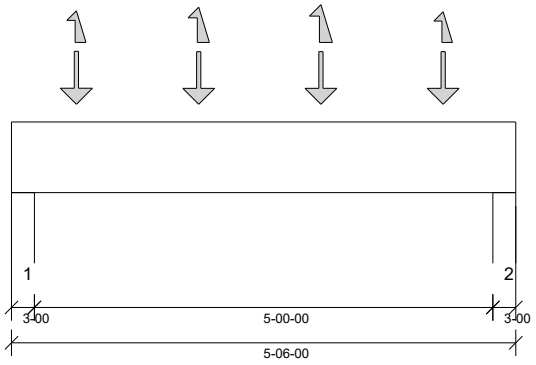
| | | | | | |
|---|---|---|---|---|---|
| MiTek | Customer:<br>Street 1:<br>City:<br>Customer Ph... | Job Name: **Hall 2024-SAN-075**<br>Level: **1st Floor**<br>Label: **DBM1 - i87**<br>Type: **Beam** | **2 Ply Member**<br>**2.1 RigidLam SP LVL 1-3/4 x 9-1/4** | Status:<br>**Design Passed** |

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.7.2.270.Update13.8

Report Version: 2021.03.26 01/28/2025 12:50




## 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: 5'- 6" Bottom: 5'- 6"

**Bearing Stress of Support Material:**

- 1323 psi Wall @ 0'- 2"
- 1323 psi Wall @ 5'- 4"

## ANALYSIS RESULTS

| Design Criteria | Location | Load Combination | LDF | Design | Limit | Result |
|---|---|---|---|---|---|---|
| Max Pos. Moment: | 3'- 4 1/2" | D + Lr | 1.15 | 2225 lb ft | 15320 lb ft | Passed - 15% |
| Max Neg. Moment: | 3'- 4 1/2" | 0.6D + 0.6W | 1.60 | 405 lb ft | 21067 lb ft | Passed - 2% |
| Max Shear: | 4'- 5 3/4" | D + Lr | 1.15 | 1472 lb | 7198 lb | Passed - 20% |
| Live Load (LL) Pos. Defl.: | 2'- 9" | Lr | | 0.020" | L/360 | Passed - L/999 |
| Total Load (TL) Pos. Defl.: | 2'- 9" | D + Lr | | 0.037" | 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 | 3-00 | D + Lr | 1.15 | 1802 lb | | 7875 lb | 13892 lb | Passed - 23% |
| 1 | 3-00 | 0.6D + 0.6W | 1.60 | | -263 lb | - | - | |
| 2 | 3-00 | D + Lr | 1.15 | 1740 lb | | 7875 lb | 13892 lb | Passed - 22% |
| 2 | 3-00 | 0.6D + 0.6W | 1.60 | | -256 lb | - | - | |

## LOADING

| Type | Start Loc | End Loc | Source | Face | Dead (D) | Live (L) | Snow (S) | Roof Live (Lr) | Wind (W) |
|---|---|---|---|---|---|---|---|---|---|
| Self Weight | 0' | 5'- 6" | Self Weight | Top | 9 lb/ft | - | - | - | - |
| Point | 0'- 8 1/2" | 0'- 8 1/2" | 1F01(c01) | Top | 409 lb | 21 lb | - | 471 lb | 113/-469 lb |
| Point | 2'- 1/2" | 2'- 1/2" | 1F01(c01) | Top | 404 lb | 21 lb | - | 467 lb | 112/-563 lb |
| Point | 3'- 4 1/2" | 3'- 4 1/2" | 1F01(c01) | Top | 405 lb | 21 lb | - | 467 lb | 112/-626 lb |
| Point | 4'- 8 1/2" | 4'- 8 1/2" | 1F01(c01) | Top | 405 lb | 21 lb | - | 467 lb | 112/-446 lb |

## UNFACTORED REACTIONS

| ID | Start Loc | End Loc | Source | Dead (D) | Live (L) | Snow (S) | Roof Live (Lr) | Wind (W) |
|---|---|---|---|---|---|---|---|---|
| 1 | 0' | 0'- 3" | E2(i4) | 850 lb | 43 lb | - | 953 lb | 206 lb/ -1288 lb |
| 2 | 5'- 3" | 5'- 6" | E3(i86) | 820 lb | 41 lb | - | 919 lb | 206 lb/ -1288 lb |

## DESIGN NOTES

- 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.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (CL) = 0.97

## 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.