MiTek	Customer: Street 1: City: Customer Ph...	Job Name: **Olaniyi 2024-SAN-071** Level: **1st Floor** Label: **GDH - i83** Type: **Beam**	**3 Ply Member** **2.1 RigidLam SP LVL 1-3/4 x 20**	Status: **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

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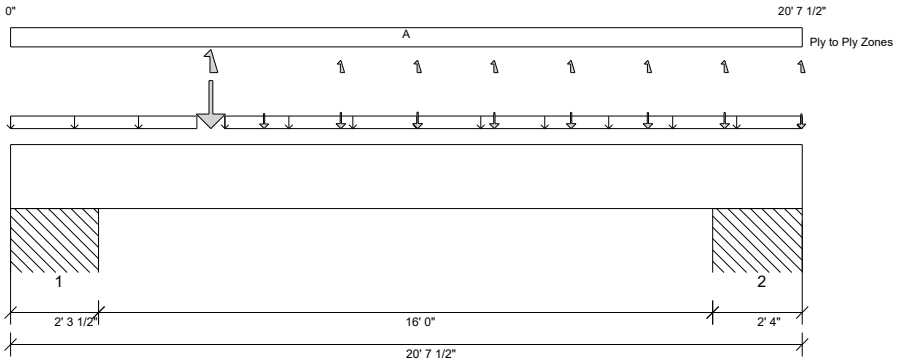

DESIGN INFORMATION

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: 15'- 1/2" Bottom: 20'- 7 1/2"

Bearing Stress of Support Material:

- 725 psi Column @ 2'- 2"
- 725 psi Column @ 18'- 5"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	8'- 9 13/16"	D + L	1.00	9922 lb ft	81636 lb ft	Passed - 12%
Max Neg. Moment:	2'- 2"	D + 0.75(L + Lr)	1.15	25551 lb ft	87253 lb ft	Passed - 29%
Max Shear:	3'- 11 1/2"	D + 0.75(L + Lr)	1.15	10885 lb	23345 lb	Passed - 47%
Live Load (LL) Pos. Defl.:	9'- 8 13/16"	0.75(L + Lr + 0.6W)		0.063"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	9'- 6 15/16"	D + 0.75(L + Lr + 0.6W)		0.123"	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	9 1/2"	D + 0.75(L + Lr)	1.15		-12465 lb	-	-	
1	1' 6"	D + 0.75(L + Lr)	1.15	23519 lb		70875 lb	68513 lb	Passed - 34%
2	1' 6 1/2"	D + L	1.00	13552 lb		72844 lb	70416 lb	Passed - 19%
2	9 1/2"	D + L	1.00		-6918 lb	-	-	

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	20'- 7 1/2"	Self Weight	Top	28 lb/ft	-	-	-	-
Uniform	0'	4'- 10 1/4"	.(i16)	Top	15 lb/ft	-	-	-	-
Uniform	5'- 7"	20'- 7 1/2"	.(i15)	Top	15 lb/ft	-	-	-	-
Point	5'- 2 5/8"	5'- 2 5/8"	1TFB1(i14)	Top	5268 lb	326 lb	-	4941/-27 lb	884/-3519 lb
Point	6'- 7 1/4"	6'- 7 1/4"	.(i15)	Top	281 lb	727 lb	-	-	-
Point	8'- 7 1/4"	8'- 7 1/4"	.(i15)	Top	391 lb	806 lb	-	95 lb	17/-106 lb
Point	10'- 7 1/4"	10'- 7 1/4"	.(i15)	Top	426 lb	806 lb	-	163/-12 lb	24/-148 lb
Point	12'- 7 1/4"	12'- 7 1/4"	.(i15)	Top	357 lb	806 lb	-	104/-15 lb	10/-66 lb
Point	14'- 7 1/4"	14'- 7 1/4"	.(i15)	Top	390 lb	806 lb	-	103 lb	17/-105 lb
Point	16'- 7 1/4"	16'- 7 1/4"	.(i15)	Top	381 lb	806 lb	-	93 lb	15/-95 lb
Point	18'- 7 1/4"	18'- 7 1/4"	.(i15)	Top	383 lb	806 lb	-	93 lb	15/-98 lb
Point	20'- 7 1/4"	20'- 7 1/4"	.(i15)	Top	253 lb	529 lb	-	61 lb	10/-63 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	2'- 3 1/2"	PBO7(i82)	12375/-6396 lb	5655/-3469 lb	-	9247/-4700 lb	407 lb/ -4116 lb
==>	0'- 1 1/2"	0'- 1 1/2"	PBO7(i82)	-6396 lb	-3469 lb	-	44/-4622 lb	-
==>	2'- 2"	2'- 2"	PBO7(i82)	12375 lb	5655 lb	-	9203/-78 lb	-
2	18'- 3 1/2"	20'- 7 1/2"	PBO6(i80)	6208/-3186 lb	8008/-3776 lb	-	2791/-1772 lb	407 lb/ -4116 lb
==>	18'- 5"	18'- 5"	PBO6(i80)	6208 lb	7479 lb	-	2730/-53 lb	-
==>	20'- 6"	20'- 6"	PBO6(i80)	-3186 lb	529/-3776 lb	-	61/-1719 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.
- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (CL) = 0.82

PLY TO PLY CONNECTION

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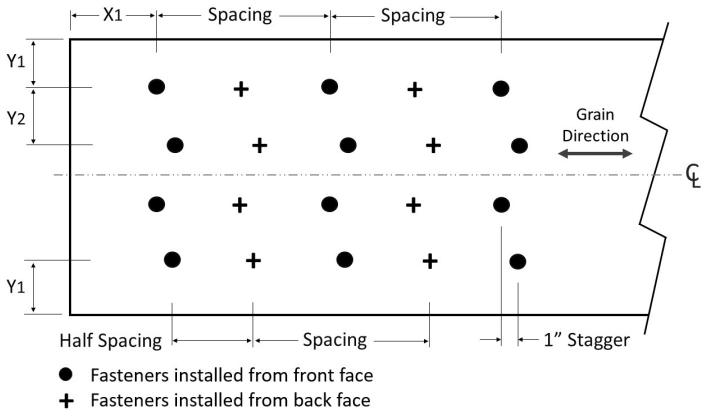
PLY TO PLY CONNECTION

- Zone A: Factored load = 0 plf. Use 12d (0.131"x3.25") nails. LDF = 1.00. Qty = 168. Row = 4, Spacing = 12"
  12d (0.131"x3.25") nails properties: D = 0.131" , L = 3.25". Fastener capacity = 105 lbs. X1 = 2" , Y1 = 0.75", Y2 = 1.5"
  Install fasteners from both faces.
  X1 = Minimum end distance, X2 = Minimum edge distance, Y2 = Minimum row spacing.

FASTENER INSTALLATION – 4 ROWS (FROM BOTH FACES)



● Fasteners installed from front face
+ Fasteners installed from back face