



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

Job Name: **02**  
Level: **2nd floor**  
Label: **BM1 - i186**  
Type: **Beam**

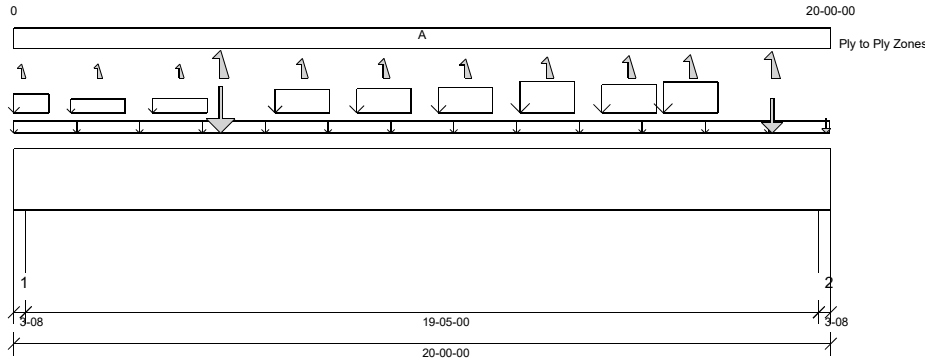
**2 Ply Member**  
**2.0 RigidLam DF LVL 1-3/4**  
**x 18**

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 06/12/2024 12:23



**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: 0' Bottom: 19'- 5"

**Bearing Stress of Support Material:**

- 875 psi Wall @ 0'- 2 1/2"
- 875 psi Wall @ 19'- 9 1/2"

**ANALYSIS RESULTS**

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	10'- 7 15/16"	D + Lr	1.15	29546 lb ft	53375 lb ft	Passed - 55%
Max Neg. Moment:	11'- 3/4"	0.6D + 0.6W	1.60	3107 lb ft	30374 lb ft	Passed - 10%
Max Shear:	18'- 2 1/2"	D + Lr	1.15	6212 lb	14007 lb	Passed - 44%
Live Load (LL) Neg. Defl.:	10'- 2 1/16"	0.6W		0.266"	L/360	Passed - L/876
Total Load (TL) Pos. Defl.:	10'- 15/16"	D + 0.75(L + Lr + 0.6W)		0.610"	L/240	Passed - L/381

**SUPPORT AND REACTION INFORMATION**

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	3-08	D + Lr	1.15	5232 lb		9187 lb	10719 lb	Passed - 57%
1	3-08	0.6D + 0.6W	1.60		-386 lb	-	-	
2	3-08	D + Lr	1.15	6853 lb		9187 lb	10719 lb	Passed - 75%
2	3-08	0.6D + 0.6W	1.60		-651 lb	-	-	

**LOADING**

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	20'	Self Weight	Top	17 lb/ft	-	-	-	-
Uniform	0'	19'- 11 1/2"	FC1 Floor Decking (Plan View Fill)	Top	10 lb/ft	40 lb/ft	-	-	-
Uniform	-0'	0'- 10 1/4"	W17(i148)	Top	204 lb/ft	-	65 lb/ft	188 lb/ft	57 lb/ft
Uniform	1'- 4 3/4"	2'- 8 3/4"	W17(i148)	Top	-	-	25 lb/ft	65 lb/ft	30 lb/ft
Uniform	3'- 4 3/4"	4'- 8 3/4"	W17(i148)	Top	62 lb/ft	-	26 lb/ft	68 lb/ft	32 lb/ft
Uniform	6'- 4 3/4"	7'- 8 3/4"	W17(i148)	Top	372 lb/ft	-	97 lb/ft	253 lb/ft	109 lb/ft
Uniform	8'- 4 3/4"	9'- 8 3/4"	W17(i148)	Top	386 lb/ft	-	107 lb/ft	280 lb/ft	115 lb/ft
Uniform	10'- 4 3/4"	11'- 8 3/4"	W17(i148)	Top	404 lb/ft	-	119 lb/ft	317 lb/ft	107 lb/ft
Uniform	12'- 4 3/4"	13'- 8 3/4"	W17(i148)	Top	572 lb/ft	-	184 lb/ft	502 lb/ft	165 lb/ft
Uniform	14'- 4 3/4"	15'- 8 3/4"	W17(i148)	Top	509 lb/ft	-	143 lb/ft	404 lb/ft	126 lb/ft
Uniform	15'- 10 3/4"	17'- 2 3/4"	W17(i148)	Top	536 lb/ft	-	166 lb/ft	521 lb/ft	147 lb/ft
Point	0'- 2 1/4"	0'- 2 1/4"	W17(i148)	Top	-	-	-	-16 lb	-202 lb
Point	2'- 3/4"	2'- 3/4"	W17(i148)	Top	-	-	-	-	-230 lb
Point	4'- 3/4"	4'- 3/4"	W17(i148)	Top	-	-	-	-	-210 lb
Point	5'- 3/4"	5'- 3/4"	W17(i148)	Top	1299 lb	-	396 lb	1080/-42 lb	362/-1393 lb
Point	7'- 3/4"	7'- 3/4"	W17(i148)	Top	-	-	-	-	-707 lb
Point	9'- 3/4"	9'- 3/4"	W17(i148)	Top	-	-	-	-	-721 lb
Point	11'- 3/4"	11'- 3/4"	W17(i148)	Top	-	-	-	-4 lb	-669 lb
Point	13'- 3/4"	13'- 3/4"	W17(i148)	Top	-	-	-	-	-848 lb
Point	15'- 3/4"	15'- 3/4"	W17(i148)	Top	-	-	-	-36 lb	-930 lb
Point	16'- 6 3/4"	16'- 6 3/4"	W17(i148)	Top	-	-	-	-76 lb	-977 lb
Point	18'- 6 3/4"	18'- 6 3/4"	W17(i148)	Top	771 lb	-	264 lb	778/-79 lb	245/-1255 lb
Point	19'- 10 5/8"	19'- 10 5/8"	W17(i148)	Top	120 lb	-	36 lb	107 lb	34 lb

**UNFACTORED REACTIONS**

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'- 3 1/2"	W1(i130)	2973 lb	400 lb	827 lb	2257/-76 lb	0 lb/-3620 lb
2	19'- 8 1/2"	20'	W11(i134)	3774 lb	400 lb	1081 lb	3082/-178 lb	0 lb/-3620 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.



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

Job Name: **02**  
Level: **2nd floor**  
Label: **BM1 - i186**  
Type: **Beam**

**2 Ply Member**  
**2.0 RigidLam DF LVL 1-3/4**  
**x 18**

Status:  
**Design**  
**Passed**

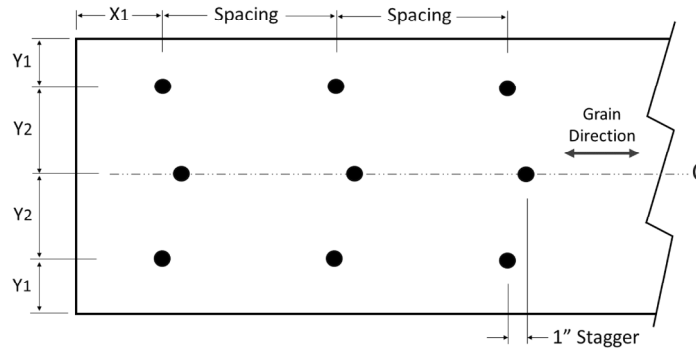
### DESIGN NOTES

- 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) = 1.00

### PLY TO PLY CONNECTION

- Zone A: Factored load = 0 plf. Use 12d (0.148"x3.25") nails. LDF = 1.00. Qty = 63. Row = 3, Spacing = 12"  
12d (0.148"x3.25") nails properties: D = 0.148" , L = 3.25". Fastener capacity = 117 lbs. X1 = 2.25" , Y1 = 0.75", Y2 = 1.5"  
Install fasteners from one face.  
X1 = Minimum end distance, X2 = Minimum edge distance, Y2 = Minimum row spacing.

#### FASTENER INSTALLATION – 3 ROWS (FROM ONE FACE)





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

Job Name: **02**  
Level: **2nd floor**  
Label: **BM2 - i185**  
Type: **Beam**

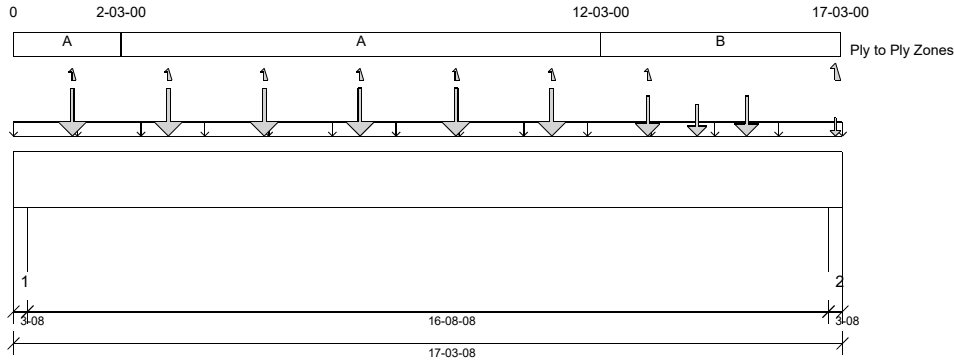
**2 Ply Member**  
**2.0 RigidLam DF LVL 1-3/4**  
**x 14**

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 06/12/2024 12:23



### 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: 0' Bottom: 1'- 8 1/2"

#### Bearing Stress of Support Material:

- 875 psi Wall @ 0'- 2 1/2"
- 875 psi Wall @ 17'- 1"

### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	9'- 2 3/4"	D + L	1.00	23329 lb ft	28972 lb ft	Passed - 81%
Max Shear:	1'- 5 1/2"	D + L	1.00	5394 lb	9473 lb	Passed - 57%
Live Load (LL) Pos. Defl.:	8'- 7 3/4"	L		0.532"	L/360	Passed - L/377
Total Load (TL) Pos. Defl.:	8'- 7 13/16"	D + L		0.745"	L/240	Passed - L/269

### SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	3-08	D + L	1.00	5481 lb		9188 lb	10719 lb	Passed - 60%
2	3-08	D + L	1.00	5178 lb		9188 lb	10719 lb	Passed - 56%

### LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	17'- 3 1/2"	Self Weight	Top	13 lb/ft	-	-	-	-
Uniform	0'	17'- 3 1/2"	FC1 Floor Decking (Plan View Fill)	Top	9 lb/ft	37 lb/ft	-	-	-
Point	1'- 2 3/4"	1'- 2 3/4"	F202(Cond08)	Back	322 lb	858 lb	1 lb	3/0 lb	1/4 lb
Point	3'- 2 3/4"	3'- 2 3/4"	F202(Cond07)	Back	321 lb	858 lb	1 lb	2 lb	1/3 lb
Point	5'- 2 3/4"	5'- 2 3/4"	F202(Cond06)	Back	321 lb	858 lb	1 lb	2 lb	1/3 lb
Point	7'- 2 3/4"	7'- 2 3/4"	F202(Cond05)	Back	321 lb	858 lb	1 lb	1 lb	1/3 lb
Point	9'- 2 3/4"	9'- 2 3/4"	F202(Cond04)	Back	321 lb	858 lb	0 lb	1 lb	0/2 lb
Point	11'- 2 3/4"	11'- 2 3/4"	F202(Cond03)	Back	322 lb	858 lb	1 lb	2/0 lb	1/3 lb
Point	13'- 2 3/4"	13'- 2 3/4"	F202(Cond02)	Back	269 lb	650 lb	1 lb	2/0 lb	1/2 lb
Point	14'- 3 1/8"	14'- 3 1/8"	F202(Cond09)	Back	215 lb	442 lb	-	-	-
Point	15'- 3 1/2"	15'- 3 1/2"	F202(Cond01)	Back	267 lb	650 lb	-	-	-
Point	17'- 1 3/4"	17'- 1 3/4"	W14(i144)	Top	65 lb	-	30 lb	78 lb	32/-175 lb

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'- 3 1/2"	W19(i150)	1558 lb	3923 lb	3 lb	8 lb	3 lb / -14 lb
2	17'	17'- 3 1/2"	W7(i139)	1570 lb	3608 lb	32 lb	83 lb	3 lb / -14 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) = 1.00

### PLY TO PLY CONNECTION

- Zone A: Factored load = 606 plf. Use 12d (0.148"x3.25") nails. LDF = 1.00. Qty = 39. Row = 3, Spacing = 12"
  - Zone B: Factored load = 637 plf. Use 12d (0.148"x3.25") nails. LDF = 1.00. Qty = 18. Row = 3, Spacing = 12"
- 12d (0.148"x3.25") nails properties: D = 0.148", L = 3.25". Fastener capacity = 117 lbs. X1 = 2.25", Y1 = 0.75", Y2 = 1.5"
- Install fasteners from one face.
- X1 = Minimum end distance, X2 = Minimum edge distance, Y2 = Minimum row spacing.



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

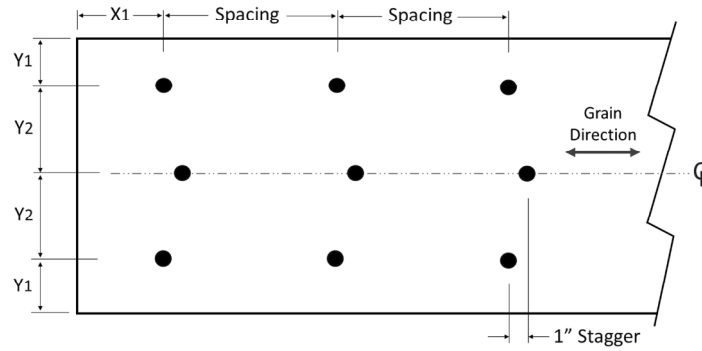
Job Name: **02**  
Level: **2nd floor**  
Label: **BM2 - i185**  
Type: **Beam**

**2 Ply Member**  
**2.0 RigidLam DF LVL 1-3/4**  
**x 14**

Status:  
**Design**  
**Passed**

**PLY TO PLY CONNECTION**

**FASTENER INSTALLATION – 3 ROWS (FROM ONE FACE)**





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

Job Name: **02**  
Level: **2nd floor**  
Label: **BM3 - i176**  
Type: **Beam**

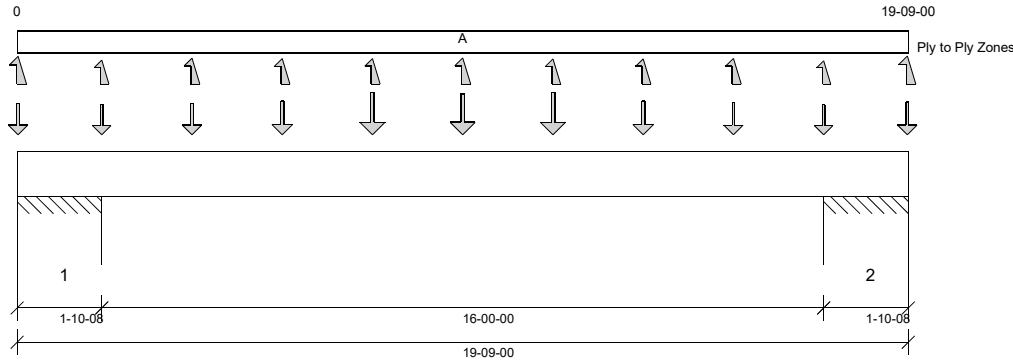
**2 Ply Member**  
**2.0 RigidLam DF LVL 1-3/4**  
**x 11-7/8**

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 06/12/2024 12:23



### 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'- 9" Bottom: 19'- 9"

#### Bearing Stress of Support Material:

- 875 psi Wall @ 0'- 1 1/2"
- 875 psi Wall @ 1'- 9"
- 875 psi Wall @ 18'
- 875 psi Wall @ 19'- 7 1/2"

### ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	9'- 10 1/2"	D + 0.75(L + Lr + 0.6W)	1.60	1792 lb ft	19326 lb ft	Passed - 9%
Max Neg. Moment:	18'	D + 0.75(L + Lr + 0.6W)	1.60	2708 lb ft	19326 lb ft	Passed - 14%
Max Shear:	16'- 10 5/8"	D + 0.75(L + Lr)	1.15	797 lb	9241 lb	Passed - 9%
Live Load (LL) Pos. Defl.:	9'- 11 5/16"	0.75(L + Lr + 0.6W)		0.028"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	9'- 10 15/16"	D + 0.75(L + Lr + 0.6W)		0.055"	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	8-04	0.6D + 0.6W	1.60	131 lb		30130 lb	25266 lb	Passed - 1%
1	8-04	D + 0.75(L + Lr)	1.15		-1430 lb	-	-	
1	1-02-04	D + 0.75(L + Lr)	1.15	2463 lb		37406 lb	43641 lb	Passed - 7%
1	1-02-04	0.6D + 0.6W	1.60		-401 lb	-	-	
2	1-02-08	D + 0.75(L + Lr)	1.15	2459 lb		38063 lb	44406 lb	Passed - 6%
2	1-02-08	0.6D + 0.6W	1.60		-385 lb	-	-	
2	8-00	0.6D + 0.6W	1.60	124 lb		29217 lb	24500 lb	Passed - 1%
2	8-00	D + 0.75(L + Lr)	1.15		-1344 lb	-	-	

### LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	19'- 9"	Self Weight	Top	11 lb/ft	-	-	-	-
Point	0'- 1/4"	0'- 1/4"	C1(Cond01)	Top	63 lb	5 lb	30 lb	99 lb	49/-195 lb
Point	1'- 10 1/2"	1'- 10 1/2"	C1(Cond01)	Top	74 lb	-4 lb	25 lb	93 lb	37/-142 lb
Point	3'- 10 1/2"	3'- 10 1/2"	C1(Cond01)	Top	78 lb	-4 lb	29 lb	93 lb	46/-167 lb
Point	5'- 10 1/2"	5'- 10 1/2"	C1(Cond01)	Top	91 lb	24/-5 lb	28 lb	91 lb	44/-161 lb
Point	7'- 10 1/2"	7'- 10 1/2"	C1(Cond01)	Top	128 lb	85 lb	29 lb	91 lb	47/-165 lb
Point	9'- 10 1/2"	9'- 10 1/2"	C1(Cond01)	Top	127 lb	84 lb	30 lb	101 lb	27/-174 lb
Point	11'- 10 1/2"	11'- 10 1/2"	C1(Cond01)	Top	128 lb	85 lb	29 lb	91 lb	47/-161 lb
Point	13'- 10 1/2"	13'- 10 1/2"	C1(Cond01)	Top	91 lb	24/-5 lb	28 lb	91 lb	44/-157 lb
Point	15'- 10 1/2"	15'- 10 1/2"	C1(Cond01)	Top	79 lb	-4 lb	29 lb	94 lb	46/-164 lb
Point	17'- 10 1/2"	17'- 10 1/2"	C1(Cond01)	Top	73 lb	-4 lb	24 lb	92 lb	37/-133 lb
Point	19'- 8 3/4"	19'- 8 3/4"	C1(Cond01)	Top	64 lb	5 lb	31 lb	102 lb	51/-199 lb

### UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	1'- 10 1/2"	W22(i172)	1342/-737 lb	494/-355 lb	303/-147 lb	1105/-588 lb	349 lb/-1056 lb
==>	0'- 1 1/2"	0'- 1 1/2"	W22(i172)	-737 lb	13/-329 lb	-147 lb	107/-580 lb	-
==>	1'- 9"	1'- 9"	W22(i172)	1342 lb	481/-26 lb	303 lb	998/-8 lb	-
2	17'- 10 1/2"	19'- 9"	W12(i140)	1348/-741 lb	494/-355 lb	305/-149 lb	1101/-580 lb	349 lb/-1056 lb
==>	18'	18'	W12(i140)	1348 lb	481/-26 lb	305 lb	999 lb	-
==>	19'- 7 1/2"	19'- 7 1/2"	W12(i140)	-741 lb	13/-329 lb	-149 lb	102/-580 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.



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

Job Name: **02**  
Level: **2nd floor**  
Label: **BM3 - i176**  
Type: **Beam**

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

Status:  
**Design**  
**Passed**

- Beam Stability Factor used in the calculation for Allowable Max Pos Moment (CL) = 0.57

### PLY TO PLY CONNECTION

- Zone A: Factored load = 0 plf. Use 12d (0.148"x3.25") nails. LDF = 1.00. Qty = 40. Row = 2, Spacing = 12"  
12d (0.148"x3.25") nails properties: D = 0.148", L = 3.25". Fastener capacity = 117 lbs. X1 = 2.25", Y1 = 0.75", Y2 = 1.5"  
Install fasteners from one face.

X1 = Minimum end distance, X2 = Minimum edge distance, Y2 = Minimum row spacing.

#### FASTENER INSTALLATION – 2 ROWS (FROM ONE FACE)

