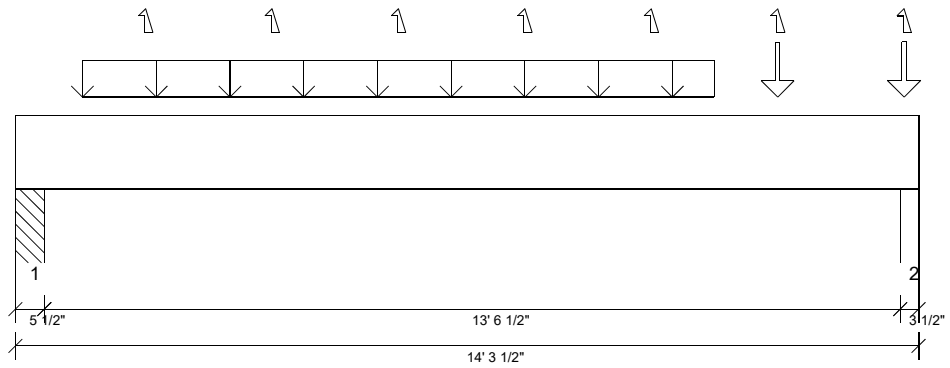
MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM10 - i140** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 | Designed by Single Member Design Engine in MiTek® Structure Version 8.5.1.199.Update9.12 | Report Version: 2021.03.26 09/26/2022 08:21



DESIGN INFORMATION

Building Code:	IRC2015
Design Methodology:	ASD
Risk Category:	II (General Construction) Residential
Service Condition:	Dry
LL Deflection Limit:	L/480,
TL Deflection Limit:	L/360,

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: 1'- 10 1/2" Bottom: 14'

Bearing Stress of Support Material:

- 725 psi Column @ 0'- 4 1/2"
- 875 psi Wall @ 14'- 1"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	8'- 3/4"	D + Lr	1.15	12607 lb ft	27890 lb ft	Passed - 45%
Max Shear:	1'- 7 1/2"	D + Lr	1.15	3332 lb	10706 lb	Passed - 31%
Live Load (LL) Pos. Defl.:	7'- 2 5/8"	0.75(L + Lr + 0.6W)		0.145"	L/480	Passed - L/999
Total Load (TL) Pos. Defl.:	7'- 2 11/16"	D + 0.75(L + Lr + 0.6W)		0.286"	L/360	Passed - L/568

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	5 1/2"	D + Lr	1.15	3355 lb		14437 lb	13956 lb	Passed - 24%
2	3 1/2"	D + Lr	1.15	4236 lb		9188 lb	10719 lb	Passed - 46%

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	14'- 3 1/2"	Self Weight	Top	14 lb/ft	-	-	-	-
Uniform	1'- 3/4"	11'- 3/4"	Smoothed Load	Top	264 lb/ft	-	-	265 lb/ft	126 lb/ft
Point	2'- 3/4"	2'- 3/4"	A2(c01)	Top	-	-	-	-	-322 lb
Point	4'- 3/4"	4'- 3/4"	A2(c02)	Top	-	-	-	-	-322 lb
Point	6'- 3/4"	6'- 3/4"	A2(c03)	Top	-	-	-	-	-322 lb
Point	8'- 3/4"	8'- 3/4"	A3(c01)	Top	-	-	-	-	-322 lb
Point	10'- 3/4"	10'- 3/4"	A3(c02)	Top	-	-	-	-	-321 lb
Point	12'- 3/4"	12'- 3/4"	A3(c03)	Top	520 lb	-	-	514 lb	253/-321 lb
Point	14'- 3/4"	14'- 3/4"	A4G(c01)	Top	561 lb	-	-	503 lb	256/-325 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'- 5 1/2"	Pt3(i141)	1726 lb	-	-	1627 lb	1216 lb/ -1428 lb
2	14'	14'- 3 1/2"	W1(i3)	2200 lb	-	-	2038 lb	1216 lb/ -1428 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.

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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM9 - i142** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

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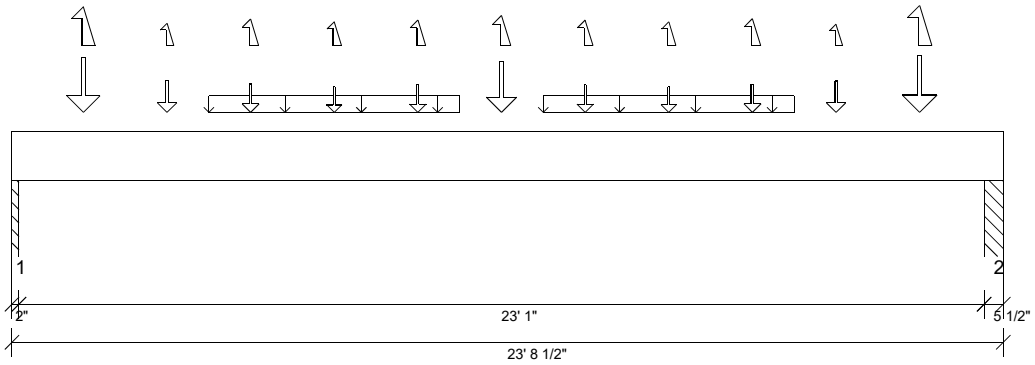

DESIGN INFORMATION

Building Code:	IRC2015
Design Methodology:	ASD
Risk Category:	II (General Construction) Residential
Service Condition:	Dry
LL Deflection Limit:	L/480,
TL Deflection Limit:	L/360,

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: 23'- 3 1/4" Bottom: 23'- 3 1/4"

Bearing Stress of Support Material:

- 725 psi Column @ 0'- 1"
- 725 psi Column @ 23'- 4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	11'- 8 1/2"	D + Lr	1.15	8884 lb ft	18187 lb ft	Passed - 49%
Max Neg. Moment:	15'- 8 1/2"	0.6D + 0.6W	1.60	316 lb ft	18927 lb ft	Passed - 2%
Max Shear:	22'- 1"	D + Lr	1.15	1454 lb	10706 lb	Passed - 14%
Live Load (LL) Pos. Defl.:	11'- 8 9/16"	Lr		0.263"	L/480	Passed - L/999
Total Load (TL) Pos. Defl.:	11'- 8 9/16"	D + Lr		0.543"	L/360	Passed - L/510

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	2"	D + Lr	1.15	1456 lb		5250 lb	5075 lb	Passed - 29%
1	2"	0.6D + 0.6W	1.60		-106 lb	-	-	
2	5 1/2"	D + Lr	1.15	1477 lb		14437 lb	13956 lb	Passed - 11%
2	5 1/2"	0.6D + 0.6W	1.60		-106 lb	-	-	

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	23'- 8 1/2"	Self Weight	Top	14 lb/ft	-	-	-	-
Uniform	4'- 8 1/2"	10'- 8 1/2"	Smoothed Load	Top	-	-	-	54 lb/ft	-
Uniform	12'- 8 1/2"	18'- 8 1/2"	Smoothed Load	Top	-	-	-	54 lb/ft	-
Point	1'- 8 1/2"	1'- 8 1/2"	A1G(c02)	Top	159 lb	-	-	173/-3 lb	164/-300 lb
Point	3'- 8 1/2"	3'- 8 1/2"	A1G(c02)	Top	60 lb	-	-	109 lb	51/-100 lb
Point	5'- 8 1/2"	5'- 8 1/2"	A1G(c02)	Top	95 lb	-	-	-	76/-153 lb
Point	7'- 8 1/2"	7'- 8 1/2"	A1G(c02)	Top	84 lb	-	-	-	54/-119 lb
Point	9'- 8 1/2"	9'- 8 1/2"	A1G(c02)	Top	95 lb	-	-	-	65/-140 lb
Point	11'- 8 1/2"	11'- 8 1/2"	A1G(c02)	Top	180 lb	-	-	199 lb	62/-195 lb
Point	13'- 8 1/2"	13'- 8 1/2"	A1G(c02)	Top	95 lb	-	-	-	65/-140 lb
Point	15'- 8 1/2"	15'- 8 1/2"	A1G(c02)	Top	84 lb	-	-	-	53/-118 lb
Point	17'- 8 1/2"	17'- 8 1/2"	A1G(c02)	Top	97 lb	-	-	-	77/-156 lb
Point	19'- 8 1/2"	19'- 8 1/2"	A1G(c02)	Top	54 lb	-	-	109 lb	47/-90 lb
Point	21'- 8 1/2"	21'- 8 1/2"	A1G(c02)	Top	167 lb	-	-	188/-3 lb	169/-313 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'- 2"	Pt3(i141)	748 lb	-	-	703/-3 lb	479 lb/ -924 lb
2	23'- 3"	23'- 8 1/2"	Pt2(i143)	761 lb	-	-	721/-3 lb	479 lb/ -924 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.

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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM8 - i139** Type: **Beam**	**3 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

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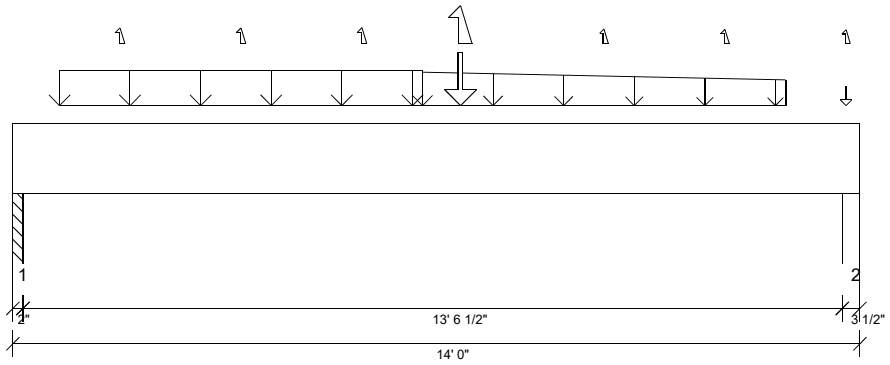

DESIGN INFORMATION

Building Code:	IRC2015
Design Methodology:	ASD
Risk Category:	II (General Construction) Residential
Service Condition:	Dry
LL Deflection Limit:	L/480,
TL Deflection Limit:	L/360,

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: 1'- 10 3/4" Bottom: 7'- 2 1/2"

Bearing Stress of Support Material:

- 725 psi Column @ 0'- 1"
- 875 psi Wall @ 13'- 9 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	7'- 4 1/4"	D + Lr	1.15	25592 lb ft	41835 lb ft	Passed - 61%
Max Neg. Moment:	7'- 4 1/4"	0.6D + 0.6W	1.60	1885 lb ft	58205 lb ft	Passed - 3%
Max Shear:	1'- 4"	D + Lr	1.15	5158 lb	16060 lb	Passed - 32%
Live Load (LL) Pos. Defl.:	6'- 11 11/16"	Lr		0.176"	L/480	Passed - L/925
Total Load (TL) Pos. Defl.:	6'- 11 5/8"	D + Lr		0.331"	L/360	Passed - L/490

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	2"	D + Lr	1.15	5186 lb		7875 lb	7613 lb	Passed - 68%
1	2"	0.6D + 0.6W	1.60		-136 lb	-	-	
2	3 1/2"	D + Lr	1.15	5521 lb		13782 lb	16079 lb	Passed - 40%
2	3 1/2"	0.6D + 0.6W	1.60		-6 lb	-	-	

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	14'	Self Weight	Top	21 lb/ft	-	-	-	-
Uniform	0'- 9 1/4"	6'- 9 1/4"	Smoothed Load	Top	267 lb/ft	-	-	270 lb/ft	129 lb/ft
Tapered	6'- 9 1/4"	12'- 9 1/4"	Smoothed Load	Top	243 To 189 lb/ft	-	-	248 To 140 lb/ft	115 To 49 lb/ft
Point	7'- 4 13/16"	7'- 4 13/16"	-	Front	1678 lb	-	-	2433/-214 lb	985/-2988 lb
Point	1'- 9 1/4"	1'- 9 1/4"	A2(c01)	Top	-	-	-	-	-329 lb
Point	3'- 9 1/4"	3'- 9 1/4"	A2(c02)	Top	-	-	-	-	-329 lb
Point	5'- 9 1/4"	5'- 9 1/4"	A2(c03)	Top	-	-	-	-	-364 lb
Point	9'- 9 1/4"	9'- 9 1/4"	A3(c02)	Top	-	-	-	-	-209 lb
Point	11'- 9 1/4"	11'- 9 1/4"	A3(c03)	Top	-	-	-	-	-156 lb
Point	13'- 9 1/4"	13'- 9 1/4"	A4G(c01)	Top	372 lb	-	-	247 lb	81/-107 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'- 2"	Pt2(i143)	2484 lb	-	-	2671/-100 lb	1015 lb/ -2710 lb
2	13'- 8 1/2"	14'	-	2765 lb	-	-	2789/-114 lb	-
++>	13'- 10 13/16"	13'- 10 13/16"	W4(i2)	1843 lb	-	-	1859/-76 lb	-
++>	13'- 11 7/16"	13'- 11 7/16"	W5(i1)	922 lb	-	-	930/-38 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.

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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM7 - i145** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

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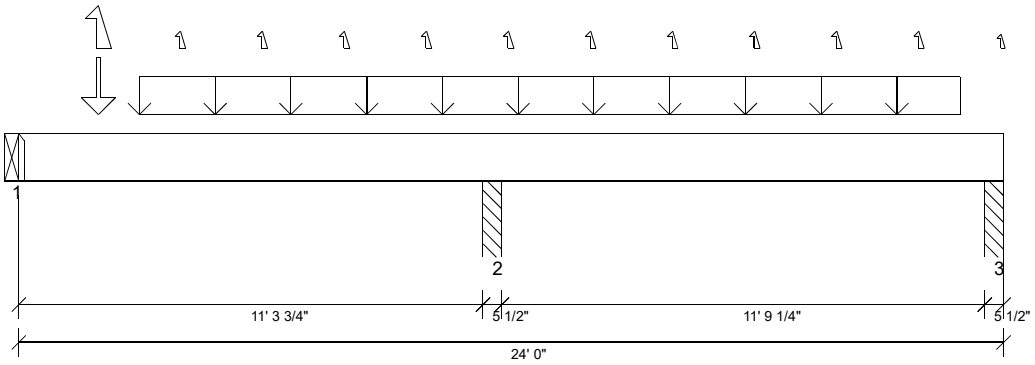

DESIGN INFORMATION

Building Code:	IRC2015
Design Methodology:	ASD
Risk Category:	II (General Construction) Residential
Service Condition:	Dry
LL Deflection Limit:	L/480,
TL Deflection Limit:	L/360,

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: 1'- 10 1/2" Bottom: 23'- 8 1/2"

Bearing Stress of Support Material:

- 405 psi Beam @ 0'
- 725 psi Column @ 11'- 6 1/2"
- 725 psi Column @ 23'- 7 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	3'- 11 1/4"	D + Lr	1.15	8849 lb ft	27890 lb ft	Passed - 32%
Max Neg. Moment:	11'- 6 1/2"	D + 0.75(L + Lr + 0.6W)	1.60	11413 lb ft	18604 lb ft	Passed - 61%
Max Shear:	10'- 1 3/4"	D + Lr	1.15	4266 lb	10706 lb	Passed - 40%
Live Load (LL) Pos. Defl.:	5'- 2 1/4"	Lr		0.070"	L/480	Passed - L/999
Live Load (LL) Neg. Defl.:	16'- 7 13/16"	Lr		0.030"	L/480	Passed - L/999
Total Load (TL) Pos. Defl.:	5'	D + Lr		0.111"	L/360	Passed - L/999
Total Load (TL) Neg. Defl.:	13'- 6 1/4"	D + Lr		0.012"	L/360	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	1 5/8"	D + 0.75(L + Lr + 0.6W)	1.60	4216 lb		4216 lb	-	Passed - 100%
1	1 5/8"	0.6D + 0.6W	1.60		-986 lb	-	-	
2	5 1/2"	D + Lr	1.15	8933 lb		15422 lb	13956 lb	Passed - 64%
3	5 1/2"	D + Lr	1.15	2463 lb		14437 lb	13956 lb	Passed - 18%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	N/A	N/A	N/A	N/A	N/A	Connector has not been designed. Connector to be specified by others.

* Connectors: Refer to manufacturer's specifications, fasteners requirements and installation instruction. Where header fasteners are longer than the width of the supporting member, install backer block or clinch header nails.

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	24'	Self Weight	Top	14 lb/ft	-	-	-	-
Uniform	2'- 11 1/4"	22'- 11 1/4"	Smoothed Load	Top	285 lb/ft	-	-	266 lb/ft	128 lb/ft
Point	1'- 11 1/4"	1'- 11 1/4"	B2(c01)	Top	1406 lb	-	-	2207 lb	958/-3071 lb
Point	3'- 11 1/4"	3'- 11 1/4"	B2(c02)	Top	-	-	-	-	-326 lb
Point	5'- 11 1/4"	5'- 11 1/4"	B2(c03)	Top	-	-	-	-	-326 lb
Point	7'- 11 1/4"	7'- 11 1/4"	B2(c04)	Top	-	-	-	-	-326 lb
Point	9'- 11 1/4"	9'- 11 1/4"	B2(c05)	Top	-	-	-	-	-326 lb
Point	11'- 11 1/4"	11'- 11 1/4"	B2(c06)	Top	-	-	-	-	-326 lb
Point	13'- 11 1/4"	13'- 11 1/4"	B2(c07)	Top	-	-	-	-	-326 lb
Point	15'- 11 1/4"	15'- 11 1/4"	B2(c08)	Top	-	-	-	-	-326 lb
Point	17'- 11 1/4"	17'- 11 1/4"	B2(c09)	Top	-	-	-	-	-326 lb
Point	19'- 11 1/4"	19'- 11 1/4"	B2(c10)	Top	-	-	-	-	-326 lb
Point	21'- 11 1/4"	21'- 11 1/4"	B2(c11)	Top	-	-	-	-	-326 lb
Point	23'- 11 1/4"	23'- 11 1/4"	B1G(c01)	Top	-	-	-	-4 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'	BM8(i139)	1678 lb	-	-	2433/-214 lb	1585 lb/ -3322 lb
2	11'- 3 3/4"	11'- 9 1/4"	Pt6(i146)	4605 lb	-	-	4328 lb	1585 lb/ -3322 lb
3	23'- 6 1/2"	24'	Pt1(i144)	1205 lb	-	-	1259/-241 lb	1585 lb/ -3322 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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM7 - i145** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	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.

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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM11 - i135** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

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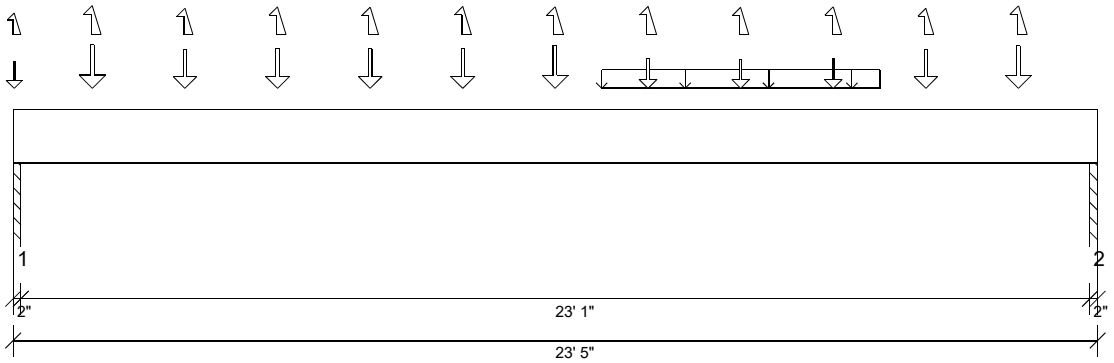


DESIGN INFORMATION

Building Code:	IRC2015
Design Methodology:	ASD
Risk Category:	II (General Construction) Residential
Service Condition:	Dry
LL Deflection Limit:	L/480,
TL Deflection Limit:	L/360,

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: 23'- 5" Bottom: 23'- 5"

Bearing Stress of Support Material:

- 725 psi Column @ 0'- 1"
- 725 psi Column @ 23'- 4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	11'- 8 7/16"	D + Lr	1.15	8061 lb ft	18094 lb ft	Passed - 45%
Max Neg. Moment:	15'- 8 1/2"	0.6D + 0.6W	1.60	239 lb ft	18818 lb ft	Passed - 1%
Max Shear:	1'- 4"	D + Lr	1.15	1300 lb	10706 lb	Passed - 12%
Live Load (LL) Pos. Defl.:	11'- 8 7/16"	Lr		0.240"	L/480	Passed - L/999
Total Load (TL) Pos. Defl.:	11'- 8 1/2"	D + Lr		0.499"	L/360	Passed - L/554

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Downward Reaction	Uplift Reaction	Resistance of Member	Resistance of Support	Result
1	2"	D + Lr	1.15	1404 lb		5250 lb	5075 lb	Passed - 28%
1	2"	0.6D + 0.6W	1.60		-69 lb	-	-	
2	2"	D + Lr	1.15	1314 lb		5250 lb	5075 lb	Passed - 26%
2	2"	0.6D + 0.6W	1.60		-55 lb	-	-	

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	23'- 5"	Self Weight	Top	14 lb/ft	-	-	-	-
Uniform	12'- 8 1/2"	18'- 8 1/2"	Smoothed Load	Top	-	-	-	55 lb/ft	-
Point	0'- 1/4"	0'- 1/4"	B1G(c01)	Top	48 lb	-	-	37/-4 lb	32/-61 lb
Point	1'- 8 1/2"	1'- 8 1/2"	B1G(c01)	Top	114 lb	-	-	121 lb	60/-144 lb
Point	3'- 8 1/2"	3'- 8 1/2"	B1G(c01)	Top	82 lb	-	-	109 lb	54/-115 lb
Point	5'- 8 1/2"	5'- 8 1/2"	B1G(c01)	Top	91 lb	-	-	112 lb	60/-131 lb
Point	7'- 8 1/2"	7'- 8 1/2"	B1G(c01)	Top	88 lb	-	-	109 lb	58/-126 lb
Point	9'- 8 1/2"	9'- 8 1/2"	B1G(c01)	Top	91 lb	-	-	109 lb	63/-135 lb
Point	11'- 8 7/16"	11'- 8 7/16"	B1G(c01)	Top	116 lb	-	-	134 lb	42/-131 lb
Point	13'- 8 1/2"	13'- 8 1/2"	B1G(c01)	Top	92 lb	-	-	-	63/-135 lb
Point	15'- 8 1/2"	15'- 8 1/2"	B1G(c01)	Top	88 lb	-	-	-	58/-126 lb
Point	17'- 8 1/2"	17'- 8 1/2"	B1G(c01)	Top	91 lb	-	-	-	60/-131 lb
Point	19'- 8 1/2"	19'- 8 1/2"	B1G(c01)	Top	83 lb	-	-	109 lb	54/-116 lb
Point	21'- 8 1/2"	21'- 8 1/2"	B1G(c01)	Top	111 lb	-	-	118 lb	58/-141 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
1	0'	0'- 2"	Pt1(i144)	740 lb	-	-	664/-4 lb	437 lb/ -855 lb
2	23'- 3"	23'- 5"	Pt4(i129)	690 lb	-	-	624 lb	437 lb/ -855 lb

DESIGN NOTES

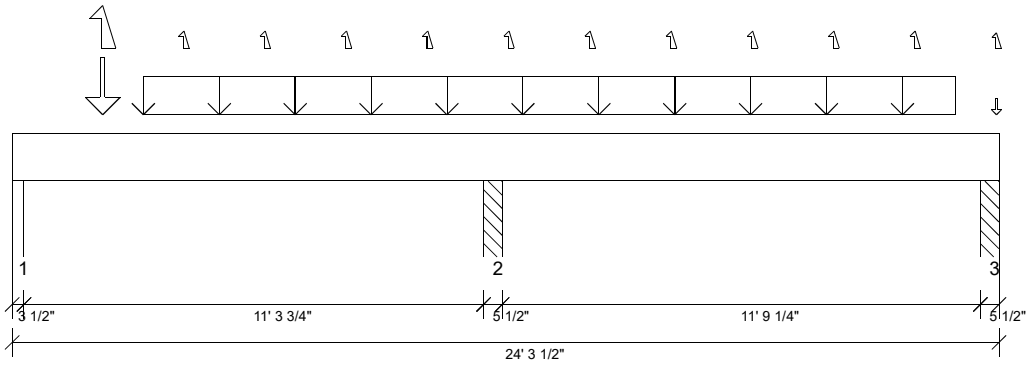
- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based 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.

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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM12 - i136** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 | Designed by Single Member Design Engine in MiTek® Structure Version 8.5.1.199.Update9.12 | Report Version: 2021.03.26 09/26/2022 08:22



DESIGN INFORMATION

Building Code:	IRC2015
Design Methodology:	ASD
Risk Category:	II (General Construction) Residential
Service Condition:	Dry
LL Deflection Limit:	L/480,
TL Deflection Limit:	L/360,

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: 1'- 10 1/2" Bottom: 23'- 8 1/2"

Bearing Stress of Support Material:

- 875 psi Wall @ 0'- 2 1/2"
- 725 psi Column @ 11'- 10"
- 725 psi Column @ 23'- 11"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Max Pos. Moment:	4'- 2 3/4"	D + Lr	1.15	9072 lb ft	27890 lb ft	Passed - 33%
Max Neg. Moment:	11'- 10"	D + 0.75(L + Lr + 0.6W)	1.60	11579 lb ft	18604 lb ft	Passed - 62%
Max Shear:	10'- 5 1/4"	D + Lr	1.15	4325 lb	10706 lb	Passed - 40%
Live Load (LL) Pos. Defl.:	5'- 5 3/16"	Lr		0.073"	L/480	Passed - L/999
Live Load (LL) Neg. Defl.:	16'- 11 5/16"	Lr		0.031"	L/480	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 3"	D + Lr		0.116"	L/360	Passed - L/999
Total Load (TL) Neg. Defl.:	13'- 10 9/16"	D + Lr		0.013"	L/360	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 1/2"	D + 0.75(L + Lr + 0.6W)	1.60	4192 lb		9188 lb	10719 lb	Passed - 46%
1	3 1/2"	0.6D + 0.6W	1.60		-969 lb	-	-	
2	5 1/2"	D + Lr	1.15	9026 lb		15422 lb	13956 lb	Passed - 65%
3	5 1/2"	D + Lr	1.15	2579 lb		14437 lb	13956 lb	Passed - 18%

LOADING

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Roof Live (Lr)	Wind (W)
Self Weight	0'	24'- 3 1/2"	Self Weight	Top	14 lb/ft	-	-	-	-
Uniform	3'- 2 3/4"	23'- 2 3/4"	Smoothed Load	Top	285 lb/ft	-	-	269 lb/ft	130 lb/ft
Point	2'- 2 3/4"	2'- 2 3/4"	B2(c01)	Top	1407 lb	-	-	2210 lb	960/-3056 lb
Point	4'- 2 3/4"	4'- 2 3/4"	B2(c02)	Top	-	-	-	-	-329 lb
Point	6'- 2 3/4"	6'- 2 3/4"	B2(c03)	Top	-	-	-	-	-329 lb
Point	8'- 2 3/4"	8'- 2 3/4"	B2(c04)	Top	-	-	-	-	-329 lb
Point	10'- 2 3/4"	10'- 2 3/4"	B2(c05)	Top	-	-	-	-	-329 lb
Point	12'- 2 3/4"	12'- 2 3/4"	B2(c06)	Top	-	-	-	-	-329 lb
Point	14'- 2 3/4"	14'- 2 3/4"	B2(c07)	Top	-	-	-	-	-329 lb
Point	16'- 2 3/4"	16'- 2 3/4"	B2(c08)	Top	-	-	-	-	-329 lb
Point	18'- 2 3/4"	18'- 2 3/4"	B2(c09)	Top	-	-	-	-	-329 lb
Point	20'- 2 3/4"	20'- 2 3/4"	B2(c10)	Top	-	-	-	-	-329 lb
Point	22'- 2 3/4"	22'- 2 3/4"	B2(c11)	Top	-	-	-	-	-329 lb
Point	24'- 2 3/4"	24'- 2 3/4"	B1G(c01)	Top	102 lb	-	-	83/-8 lb	69/-128 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"	W4(i2)	1669 lb	-	-	2418/-214 lb	1576 lb/ -3283 lb
2	11'- 7 1/4"	12'- 3/4"	Pt5(i125)	4636 lb	-	-	4388 lb	1576 lb/ -3283 lb
3	23'- 10"	24'- 3 1/2"	Pt4(i129)	1261 lb	-	-	1319/-248 lb	1576 lb/ -3283 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.

MiTek	CUSTOMER: Checked by:: Drawing Nu... Scale:: **NTS**	Job Name: **22061132** Level: **2nd Floor** Label: **BM12 - i136** Type: **Beam**	**2 Ply Member** **1 3/4" x 14" 2.0E Microllam® LVL**	Status: **Design Passed**

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.