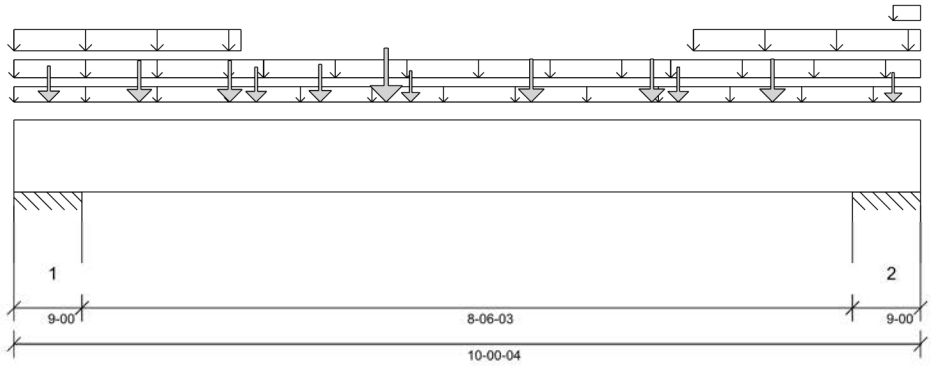
MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member	Status:
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING	1 3/4" x 9 1/2" (2.0E 3100)	Design
	MODEL:	CAROL 12	Label:	B5 DR - i6144	WestFraser LVL	Passed
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 2 5/16" Bottom: 8'- 5 3/16"

Factored Resistance of Support Material:

- 812 psi Wall @ 0'- 8"
- 812 psi Wall @ 9'- 4 1/4"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071139 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 4 5/8"	1.25D + 1.5L + S	1.00	11438 lb ft	23299 lb ft	Passed - 49%
Factored Neg. Moment:	0'- 8"	1.25D + 1.5L + S	1.00	281 lb ft	21761 lb ft	Passed - 1%
Factored Shear:	1'- 6 1/2"	1.25D + 1.5L + S	1.00	4955 lb	11052 lb	Passed - 45%
Live Load (LL) Pos. Defl.:	4'- 11 5/16"	L + 0.5S		0.115"	L/372	Passed - L/889
Total Load (TL) Pos. Defl.:	4'- 11 7/16"	D + L + 0.5S		0.226"	L/248	Passed - L/451
Permanent Deflection:	4'- 11 1/2"			-	L/360	Passed - L/946

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	9-00	1.25D + 1.5L + S	1.00	6405 lb		32862 lb	25657 lb	Passed - 25%
2	9-00	1.25D + 1.5L + S	1.00	5648 lb		32862 lb	25657 lb	Passed - 22%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 1/4"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	-0'	10'- 1/4"	User Load	Top	15 lb/ft	-	26 lb/ft	-
Uniform	0'	2'- 9 1/8"	R1(i6110)	Top	100 lb/ft	-	-	-
Uniform	0'	2'- 6 1/8"	R1(i6110)	Top	95 lb/ft	-	77 lb/ft	-
Uniform	2'- 9 1/8"	7'- 3 1/8"	R1(i6110)	Top	100 lb/ft	-	-	-
Uniform	7'- 3 1/8"	10'- 1/4"	R1(i6110)	Top	100 lb/ft	-	-	-
Uniform	7'- 6 1/8"	10'- 1/4"	R1(i6110)	Top	95 lb/ft	-	77 lb/ft	-
Uniform	9'- 8 5/8"	10'- 1/4"	R1(i6110)	Top	13 lb/ft	27 lb/ft	-	-
Point	0'- 4 5/8"	0'- 4 5/8"	J6(i6002)	Top	164 lb	327 lb	-	-
Point	1'- 4 5/8"	1'- 4 5/8"	J6(i6003)	Top	203 lb	405 lb	-	-
Point	2'- 4 5/8"	2'- 4 5/8"	J6(i6240)	Top	203 lb	405 lb	-	-
Point	2'- 8 1/8"	2'- 8 1/8"	R1(i6110)	Top	276 lb	-	193 lb	-
Point	3'- 4 5/8"	3'- 4 5/8"	J6(i6201)	Top	176 lb	351 lb	-	-
Point	4'- 1 3/8"	4'- 1 3/8"	B8(i6227)	Top	376 lb	506 lb	-	-
Point	4'- 4 5/8"	4'- 4 5/8"	J2(i6207)	Top	129 lb	257 lb	-	-
Point	5'- 8 5/8"	5'- 8 5/8"	J2(i6149)	Top	214 lb	428 lb	-	-
Point	7'- 5/8"	7'- 5/8"	J2(i6300)	Top	214 lb	428 lb	-	-
Point	7'- 4 1/8"	7'- 4 1/8"	R1(i6110)	Top	274 lb	-	192 lb	-
Point	8'- 4 5/8"	8'- 4 5/8"	J2(i6093)	Top	214 lb	428 lb	-	-
Point	9'- 8 5/8"	9'- 8 5/8"	J2(i6281)	Top	116 lb	232 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 9"	-	2249 lb	2031 lb	528 lb	-
++>	0'- 1 7/8"	0'- 1 7/8"	E22(i69)	928 lb	838 lb	218 lb	-
++>	0'- 6 7/8"	0'- 6 7/8"	E21(i63)	1321 lb	1193 lb	310 lb	-
2	9'- 3 1/4"	10'- 1/4"	-	2041 lb	1744 lb	500 lb	-
++>	9'- 5 3/8"	9'- 5 3/8"	E19(i75)	1199 lb	1024 lb	294 lb	-
++>	9'- 10 3/8"	9'- 10 3/8"	E18(i62)	842 lb	720 lb	206 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B5 DR - i6144		
	CITY:	RICHMOND HILL	Type:	Beam		

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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

STRUCTURAL COMPONENT ONLY
DWG # TF23071139 PG 2/2

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	3 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B6 DR - i6096		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

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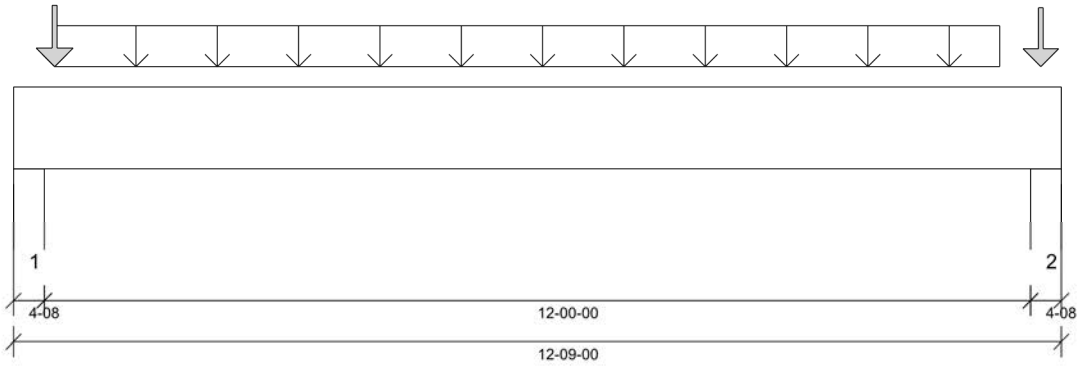


DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 10 3/4" Bottom: 12'- 9"

Factored Resistance of Support Material:

- 812 psi Wall @ 0'- 3 1/2"
- 812 psi Wall @ 12'- 5 1/2"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C
NAIL FROM BOTH FACES (STAGGER 1/2 SPACE)

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071140

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 6"	1.25D + 1.5L	1.00	25526 lb ft	53017 lb ft	Passed - 48%
Factored Shear:	1'- 4 3/8"	1.25D + 1.5L	1.00	7596 lb	20723 lb	Passed - 37%
Live Load (LL) Pos. Defl.:	6'- 4 1/2"	L		0.220"	L/372	Passed - L/653
Total Load (TL) Pos. Defl.:	6'- 4 1/2"	D + L		0.336"	L/248	Passed - L/428

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-08	1.25D + 1.5L	1.00	8441 lb		24570 lb	19184 lb	Passed - 44%
2	4-08	1.25D + 1.5L	1.00	8750 lb		24570 lb	19184 lb	Passed - 46%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 9"	Self Weight	Top	18 lb/ft	-	-	-
Uniform	0'- 6"	12'	Smoothed Load	Top	315 lb/ft	633 lb/ft	-	-
Point	0'- 6"	0'- 6"	J1(i5988)	Top	176 lb	353 lb	-	-
Point	12'- 6"	12'- 6"	J1(i6000)	Top	167 lb	334 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 1/2"	25(i158)	2066 lb	3916 lb	-	-
2	12'- 4 1/2"	12'- 9"	26(i159)	2131 lb	4047 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

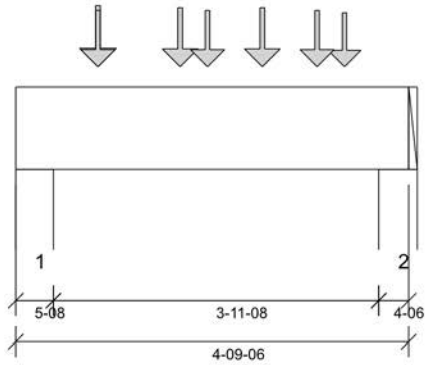
CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B7 - i6112 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 0'- 10 1/4"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 4'- 6"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071141

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 4"	1.25D + 1.5L	1.00	3249 lb ft	35345 lb ft	Passed - 9%
Factored Shear:	1'- 5 3/8"	1.25D + 1.5L	1.00	2960 lb	13815 lb	Passed - 21%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	1.00	2982 lb		20022 lb	11844 lb	Passed - 25%
2	4-06	1.25D + 1.5L	1.00	2858 lb		15925 lb	9420 lb	Passed - 30%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 9 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Point	1'	1'	J6(i6002)	Front	211 lb	422 lb	-	-
Point	2'	2'	J6(i6003)	Front	201 lb	403 lb	-	-
Point	3'	3'	J6(i6240)	Front	201 lb	403 lb	-	-
Point	4'	4'	J6(i6201)	Front	178 lb	356 lb	-	-
Point	1'	1'	J2(i6064)	Back	189 lb	377 lb	-	-
Point	2'- 4"	2'- 4"	J2(i5919)	Back	189 lb	377 lb	-	-
Point	3'- 8"	3'- 8"	J2(i5920)	Back	193 lb	373 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	26(i159)	723 lb	1385 lb	-	-
2	4'- 5"	4'- 9 3/8"	9(i84)	695 lb	1326 lb	-	-

DESIGN NOTES

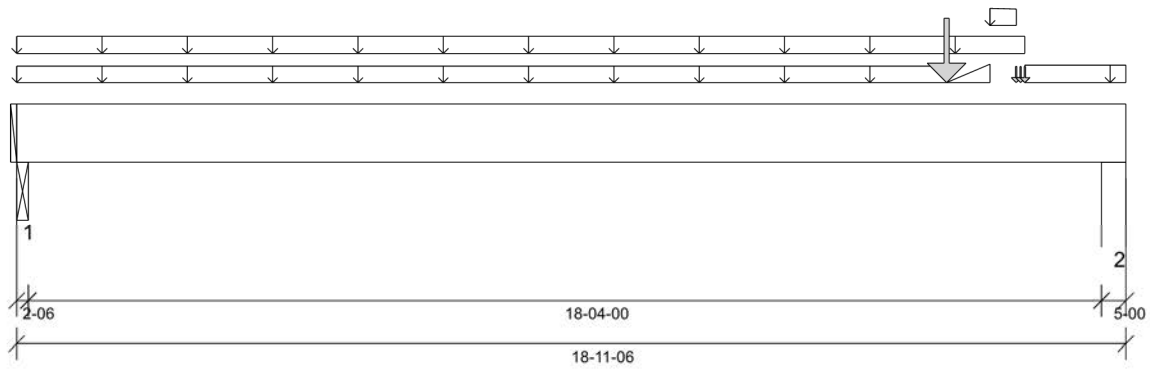
- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B8 - i6227 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 15'- 6 1/2"

Factored Resistance of Support Material:

- 1040 psi Beam @ 0'- 1 3/8"
- 615 psi Wall @ 18'- 7 3/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071142

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	15'- 10 5/8"	1.25D + 1.5L	1.00	12086 lb ft	35345 lb ft	Passed - 34%
Factored Shear:	17'- 6 1/2"	1.25D + 1.5L	1.00	4458 lb	13815 lb	Passed - 32%
Live Load (LL) Pos. Defl.:	10'- 4 15/16"	L		0.281"	L/372	Passed - L/782
Total Load (TL) Pos. Defl.:	10'- 4 1/16"	D + L		0.463"	L/248	Passed - L/475

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	1229 lb		8645 lb	8645 lb	Passed - 14%
2	5-00	1.25D + 1.5L	1.00	4531 lb		18200 lb	10766 lb	Passed - 42%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	18'- 11 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	17'- 2 11/16"	FC2 Floor Decking (Plan View Fill)	Top	7 lb/ft	15 lb/ft	-	-
Uniform	0'	15'- 10 5/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	5 lb/ft	-	-
Uniform	17'- 2 11/16"	18'- 11 3/8"	FC2 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Tapered	15'- 10 5/8"	16'- 7 1/2"	FC2 Floor Decking (Plan View Fill)	Top	0 To 15 lb/ft	0 To 30 lb/ft	-	-
Tapered	16'- 7 1/2"	17'- 15/16"	FC2 Floor Decking (Plan View Fill)	Top	7 To 3 lb/ft	15 To 6 lb/ft	-	-
Point	15'- 10 5/8"	15'- 10 5/8"	B9(i6058)	Front	1150 lb	2138 lb	-	-
Point	17'- 7/8"	17'- 7/8"	B14(i5841)	Front	7 lb	5 lb	-	-
Point	17'- 1 13/16"	17'- 1 13/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	17'- 2 11/16"	17'- 2 11/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	B5 DR(i6144)	376 lb	506 lb	-	-
2	18'- 6 3/8"	18'- 11 3/8"	9(i84)	1199 lb	2025 lb	-	-

DESIGN NOTES

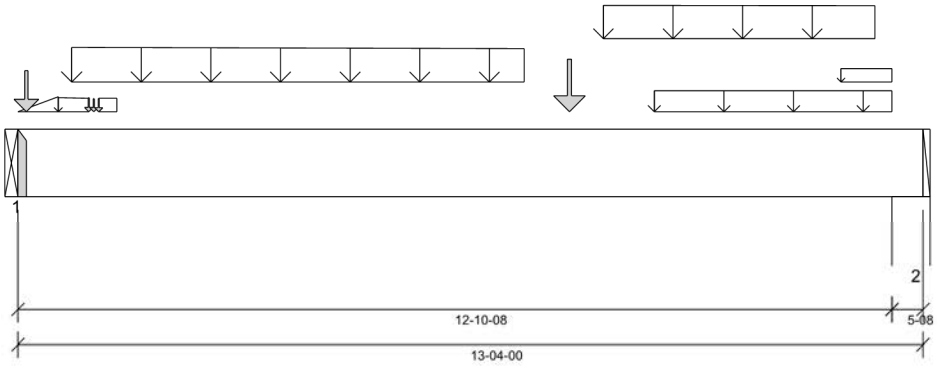
- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B9 - i6058		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 12'- 11 1/2"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071143 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 9 1/2"	1.25D + 1.5L	1.00	15151 lb ft	35345 lb ft	Passed - 43%
Factored Shear:	11'- 10 5/8"	1.25D + 1.5L	1.00	4821 lb	13815 lb	Passed - 35%
Live Load (LL) Pos. Defl.:	6'- 6 1/4"	L		0.223"	L/372	Passed - L/692
Total Load (TL) Pos. Defl.:	6'- 6 1/4"	D + L		0.343"	L/248	Passed - L/450

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	4654 lb		5460 lb	-	Passed - 85%
2	5-08	1.25D + 1.5L	1.00	4926 lb		20020 lb	11842 lb	Passed - 42%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	13'- 4"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	1'- 2 5/16"	1'- 5 1/2"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Uniform	9'- 4 1/2"	12'- 10 1/2"	User Load	Back	60 lb/ft	120 lb/ft	-	-
Uniform	12'- 1 1/2"	12'- 10 1/2"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Tapered	0'	0'- 7 1/8"	FC2 Floor Decking (Plan View Fill)	Top	0 To 15 lb/ft	0 To 30 lb/ft	-	-
Tapered	0'- 7 1/8"	1'- 9/16"	FC2 Floor Decking (Plan View Fill)	Top	7 To 3 lb/ft	15 To 6 lb/ft	-	-
Tapered	0'- 9 1/2"	7'- 5 1/2"	Smoothed Load	Front	164 To 155 lb/ft	327 To 311 lb/ft	-	-
Tapered	8'- 7 1/2"	12'- 7 1/2"	Smoothed Load	Front	155 To 152 lb/ft	308 To 304 lb/ft	-	-
Point	0'- 1 1/2"	0'- 1 1/2"	J2(i6207)	Front	128 lb	255 lb	-	-
Point	8'- 1 1/2"	8'- 1 1/2"	J2(i6285)	Front	179 lb	359 lb	-	-
Point	1'- 1/2"	1'- 1/2"	B14(i5841)	Back	7 lb	5 lb	-	-
Point	1'- 1 7/16"	1'- 1 7/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	1'- 2 5/16"	1'- 2 5/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B8(i6227)	1150 lb	2138 lb	-	-
2	12'- 10 1/2"	13'- 4"	22(i152)	1219 lb	2274 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B9 - i6058		
	CITY:	RICHMOND HILL	Type:	Beam		

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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

STRUCTURAL COMPONENT ONLY
DWG # TF23071143 PG 2/2

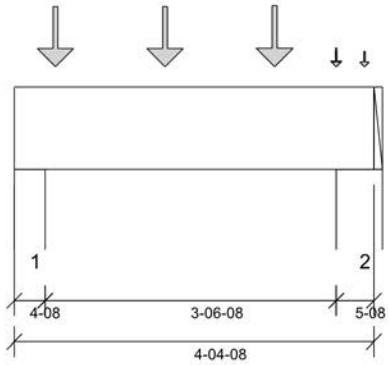
CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member	Status:
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING	1 3/4" x 11 7/8" (2.0E 3100)	Design
	MODEL:	CAROL 12	Label:	B10 - i6288	WestFraser LVL	Passed
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 1/2"
- 615 psi Wall @ 4'

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071144

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 10"	1.25D + 1.5L	1.00	1130 lb ft	35345 lb ft	Passed - 3%
Factored Shear:	1'- 4 3/8"	1.25D + 1.5L	1.00	1422 lb	13815 lb	Passed - 10%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-08	1.25D + 1.5L	1.00	1442 lb		16380 lb	9689 lb	Passed - 15%
2	5-08	1.25D + 1.5L	1.00	1111 lb		20020 lb	11842 lb	Passed - 9%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 4 1/2"	Self Weight	Top	12 lb/ft	-	-	-
Point	0'- 6"	0'- 6"	J3(i6182)	Back	245 lb	330 lb	-	-
Point	1'- 10"	1'- 10"	J3(i5929)	Back	245 lb	330 lb	-	-
Point	3'- 2"	3'- 2"	J3(i5930)	Back	238 lb	350 lb	-	-
Point	3'- 11"	3'- 11"	FC2 Floor Decking (Plan View Fill)	Top	47 lb	-	-	-
Point	3'- 11"	3'- 11"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	-	-	-
Point	4'- 3 1/8"	4'- 3 1/8"	FC2 Floor Decking (Plan View Fill)	Top	1 lb	1 lb	-	-
Point	4'- 3 1/8"	4'- 3 1/8"	FC2 Floor Decking (Plan View Fill)	Top	2 lb	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 1/2"	27(i180)	467 lb	601 lb	-	-
2	3'- 11"	4'- 4 1/2"	6(i82)	362 lb	410 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

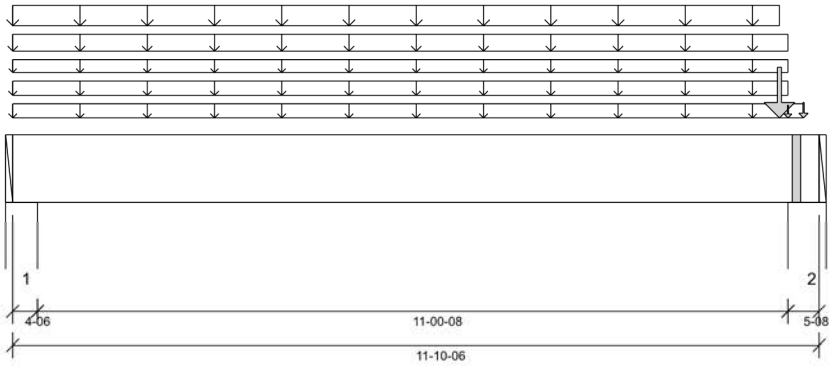
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member	Status:
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING	1 3/4" x 11 7/8" (2.0E 3100)	Design
	MODEL:	CAROL 12	Label:	B12 - i6457	WestFraser LVL	Passed
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 11'- 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 3/8"
- 615 psi Wall @ 11'- 5 7/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071145

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 11 7/8"	1.25D + 1.5S + L	1.00	8243 lb ft	35345 lb ft	Passed - 23%
Factored Shear:	10'- 5"	1.25D + 1.5S + L	1.00	2611 lb	13815 lb	Passed - 19%
Live Load (LL) Pos. Defl.:	5'- 11 3/16"	S + 0.5L		0.067"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 11"	D + S + 0.5L		0.143"	L/248	Passed - L/928

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5S + L	1.00	3043 lb		15925 lb	9420 lb	Passed - 32%
2	5-08	1.25D + 1.5S + L	1.00	5822 lb		20020 lb	11843 lb	Passed - 49%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	11'- 10 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	11'- 7 5/8"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	23 lb/ft	-	-
Uniform	0'	11'- 4 7/8"	E67(i5304)	Top	100 lb/ft	-	-	-
Uniform	-0'	11'- 4 7/8"	FC2 Floor Decking (Plan View Fill)	Top	15 lb/ft	-	26 lb/ft	-
Uniform	0'	11'- 4 7/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Uniform	0'	11'- 3 3/8"	E67(i5304)	Top	56 lb/ft	-	129 lb/ft	-
Point	11'- 3 3/8"	11'- 3 3/8"	E67(i5304)	Top	644 lb	-	1380 lb	-
Point	11'- 4 7/8"	11'- 4 7/8"	FC2 Floor Decking (Plan View Fill)	Top	1 lb	3 lb	-	-
Point	11'- 7 5/8"	11'- 7 5/8"	E66(i5298)	Top	70 lb	-	82 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	E14(i56)	1155 lb	173 lb	896 lb	-
2	11'- 4 7/8"	11'- 10 3/8"	7(i81)	1816 lb	165 lb	2313 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- User loads assume a bearing length of 3.5" in determining member capacity for loads near supports.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 2. Required Load Area: L=1.500", W=3.500". LDF=1.00, Pf=2875 lb, Q'r=5460 lb, Result=52.66%.

PLY TO PLY CONNECTION

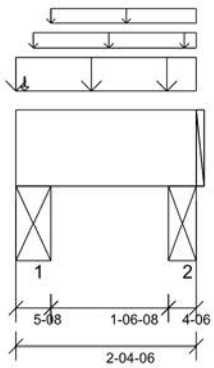
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B13 - i6099 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed	

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 6 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'- 4 1/2"
- 615 psi Beam @ 2'- 1"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071146

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 2 15/16"	1.25D + 1.5S + L	1.00	192 lb ft	35268 lb ft	Passed - 1%
Factored Shear:	1'- 1/8"	1.25D + 1.5S + L	1.00	145 lb	13785 lb	Passed - 1%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5S + L	1.00	760 lb		19976 lb	11813 lb	Passed - 6%
2	4-06	1.25D + 1.5S + L	1.00	695 lb		15893 lb	9398 lb	Passed - 7%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	2'- 4 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	2'- 4 3/8"	E64(i5285)	Top	200 lb/ft	-	210 lb/ft	-
Uniform	0'- 2 3/4"	2'- 4 3/8"	FC2 Floor Decking (Plan View Fill)	Top	8 lb/ft	17 lb/ft	-	-
Uniform	0'- 5 1/2"	2'- 4 3/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Point	0'- 1 3/8"	0'- 1 3/8"	FC2 Floor Decking (Plan View Fill)	Top	1 lb	1 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	STLBM(i156)	275 lb	22 lb	262 lb	-
2	2'	2'- 4 3/8"	STLBM(i155)	252 lb	29 lb	235 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

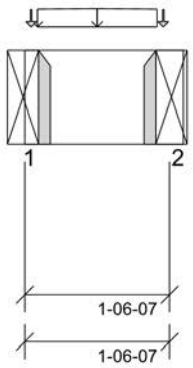
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	1 Ply Member	Status:
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING	1 3/4" x 11 7/8" (2.0E 3100)	Design
	MODEL:	CAROL 12	Label:	B14 - i5841	WestFraser LVL	Passed
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 3/4" Bottom: 1'- 2 15/16"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Beam @ 1'- 6 7/16"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	0'- 9 1/4"	1.25D + 1.5L	0.94	7 lb ft	16586 lb ft	Passed - 0%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	0.94	17 lb		2562 lb	-	Passed - 1%
2	1-08	1.25D + 1.5L	0.94	17 lb		2562 lb	-	Passed - 1%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	LS90		-	-	-	Connector manually specified by the user.
2	LS90		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	1'- 6 7/16"	Self Weight	Top	6 lb/ft	-	-	-
Tapered	0'- 1 5/8"	0'- 9 1/4"	FC2 Floor Decking (Plan View Fill)	Top	2 To 5 lb/ft	4 To 11 lb/ft	-	-
Tapered	0'- 9 1/4"	1'- 4 7/8"	FC2 Floor Decking (Plan View Fill)	Top	5 To 2 lb/ft	11 To 4 lb/ft	-	-
Point	0'- 13/16"	0'- 13/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	1 lb	-	-
Point	1'- 5 11/16"	1'- 5 11/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	1 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 1 3/4"	B8(i6227)	7 lb	5 lb	-	-
2	1'- 4 11/16"	1'- 6 7/16"	B9(i6058)	7 lb	5 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

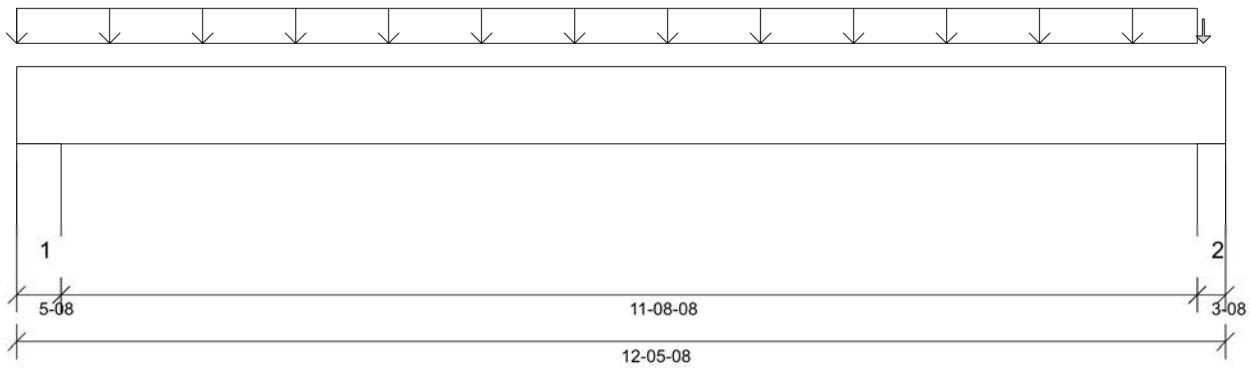
LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071147

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B1 L - i6315 Type: Beam	2 Ply Member 1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 11'- 6 1/2" Bottom: 11'- 8 1/2"

Factored Resistance of Support Material:

- 812 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 12'- 3"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
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PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071148

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 3 13/16"	1.25D + 1.5L	1.00	7685 lb ft	20419 lb ft	Passed - 38%
Factored Shear:	1'- 3"	1.25D + 1.5L	1.00	2451 lb	11052 lb	Passed - 22%
Live Load (LL) Pos. Defl.:	6'- 3 3/4"	L		0.184"	L/372	Passed - L/764
Total Load (TL) Pos. Defl.:	6'- 3 3/4"	D + L		0.284"	L/248	Passed - L/493

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	1.00	2760 lb		20020 lb	15631 lb	Passed - 18%
2	3-08	1.25D + 1.5L	1.00	2642 lb		12740 lb	7536 lb	Passed - 35%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 5 1/2"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'	12'- 2"	User Load	Front	100 lb/ft	200 lb/ft	-	-
Point	12'- 2 3/4"	12'- 2 3/4"	E26(i83)	Top	67 lb	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	1(i48)	687 lb	1255 lb	-	-
2	12'- 2"	12'- 5 1/2"	W57(i150)	714 lb	1178 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

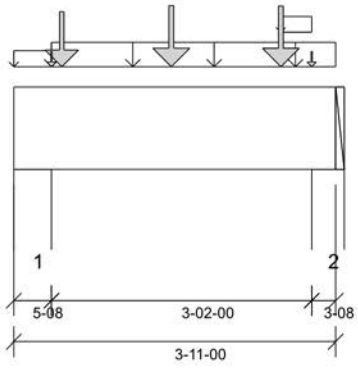
CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B2 - i6395 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed	

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 3'- 8 1/2"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
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PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071149

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 11"	1.25D + 1.5L	1.00	1447 lb ft	35345 lb ft	Passed - 4%
Factored Shear:	1'- 5 3/8"	1.25D + 1.5L	1.00	1572 lb	13815 lb	Passed - 11%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	1.00	1859 lb		20020 lb	11843 lb	Passed - 16%
2	3-08	1.25D + 1.5L	1.00	1817 lb		12740 lb	7536 lb	Passed - 24%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 11"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	0'- 5 1/2"	FC1 Floor Decking (Plan View Fill)	Top	6 lb/ft	11 lb/ft	-	-
Uniform	0'- 5 1/2"	3'- 11"	User Load	Top	60 lb/ft	120 lb/ft	-	-
Uniform	3'- 3"	3'- 7 1/2"	FC1 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Point	0'- 7"	0'- 7"	J1(i6360)	Front	194 lb	388 lb	-	-
Point	1'- 11"	1'- 11"	J1(i6335)	Front	223 lb	447 lb	-	-
Point	3'- 3"	3'- 3"	J1(i6394)	Front	221 lb	443 lb	-	-
Point	0'- 5 1/2"	0'- 5 1/2"	FC1 Floor Decking (Plan View Fill)	Top	0 lb	1 lb	-	-
Point	3'- 7 1/2"	3'- 7 1/2"	FC1 Floor Decking (Plan View Fill)	Top	1 lb	2 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	2(i49)	468 lb	887 lb	-	-
2	3'- 7 1/2"	3'- 11"	3(i53)	429 lb	816 lb	-	-

DESIGN NOTES

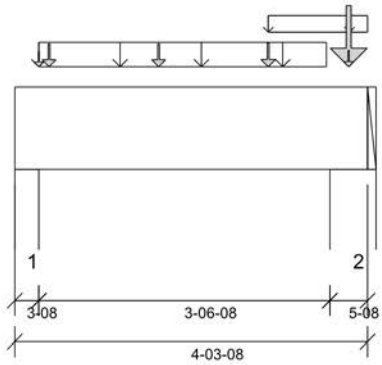
- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B3 - i6373 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 | Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 | Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2 1/2"
- 615 psi Wall @ 3'- 11"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071150

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 9"	1.25D + 1.5L	1.00	1364 lb ft	35345 lb ft	Passed - 4%
Factored Neg. Moment:	3'- 11"	1.25D + 1.5L	1.00	781 lb ft	35345 lb ft	Passed - 2%
Factored Shear:	2'- 10 1/8"	1.25D + 1.5L	1.00	1756 lb	13815 lb	Passed - 13%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L	1.00	1835 lb		12740 lb	7536 lb	Passed - 24%
2	5-08	1.25D + 1.5L	1.00	7227 lb		20020 lb	11842 lb	Passed - 61%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 3 1/2"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'- 3 1/2"	3'- 9 1/2"	User Load	Back	60 lb/ft	120 lb/ft	-	-
Uniform	3'- 1"	4'- 3 1/2"	FC1 Floor Decking (Plan View Fill)	Top	8 lb/ft	17 lb/ft	-	-
Point	0'- 5"	0'- 5"	J2(i6427)	Front	205 lb	410 lb	-	-
Point	1'- 9"	1'- 9"	J2(i6353)	Front	207 lb	414 lb	-	-
Point	3'- 1"	3'- 1"	J2(i6429)	Front	235 lb	451 lb	-	-
Point	0'- 3 1/2"	0'- 3 1/2"	FC1 Floor Decking (Plan View Fill)	Top	2 lb	3 lb	-	-
Point	4'- 3/4"	4'- 3/4"	22(i152)	Top	1302 lb	2392 lb	-	-
Point	4'- 3/4"	4'- 3/4"	FC1 Floor Decking (Plan View Fill)	Top	35 lb	51 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3 1/2"	5(i55)	512 lb	971 lb	-	-
2	3'- 10"	4'- 3 1/2"	W56(i149)	1745 lb	3190 lb	-	-

DESIGN NOTES

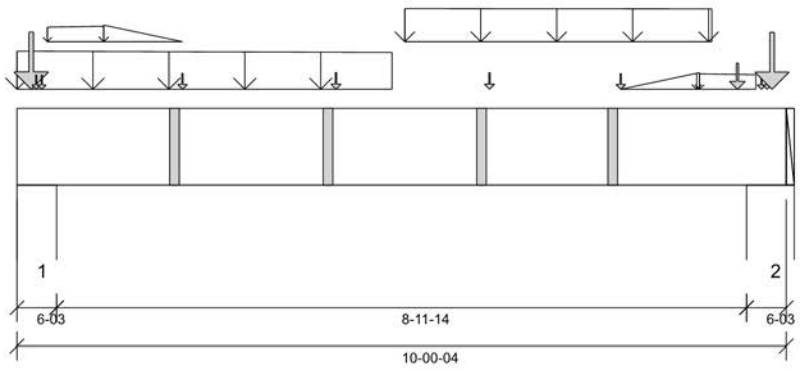
- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 2. Required Load Area: L=1.500", W=3.500". LDF=1.00, Pf=5216 lb, Q'r=5460 lb, Result=95.52%.

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	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B4 - i6386 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:57



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 5 3/16"
- 615 psi Wall @ 9'- 7 1/16"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
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PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071151 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 4 5/8"	1.25D + 1.5L	1.00	8173 lb ft	35345 lb ft	Passed - 23%
Factored Neg. Moment:	0'- 5 3/16"	1.25D + 1.5L + S	1.00	708 lb ft	35345 lb ft	Passed - 2%
Factored Shear:	8'- 6 3/16"	1.25D + 1.5L	1.00	4037 lb	13815 lb	Passed - 29%
Live Load (LL) Pos. Defl.:	4'- 11 7/8"	L		0.061"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 11 7/8"	D + L		0.091"	L/248	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	6-03	1.25D + 1.5L + S	1.00	7226 lb		22567 lb	13349 lb	Passed - 54%
2	6-03	1.25D + 1.5L + S	1.00	6785 lb		22567 lb	13349 lb	Passed - 51%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 1/4"	Self Weight	Top	12 lb/ft	-	-	-
Tapered	0'	4'- 10 5/8"	Smoothed Load	Back	209 To 198 lb/ft	417 To 396 lb/ft	-	-
Tapered	0'- 4 3/4"	1'- 1 9/16"	FC1 Floor Decking (Plan View Fill)	Top	3 To 10 lb/ft	6 To 21 lb/ft	-	-
Tapered	1'- 1 9/16"	2'- 1 7/8"	FC1 Floor Decking (Plan View Fill)	Top	21 To 0 lb/ft	41 To 0 lb/ft	-	-
Tapered	5'- 5/8"	9'- 5/8"	Smoothed Load	Back	165 To 163 lb/ft	330 To 326 lb/ft	-	-
Tapered	7'- 10 3/8"	8'- 10 11/16"	FC1 Floor Decking (Plan View Fill)	Top	0 To 21 lb/ft	0 To 41 lb/ft	-	-
Tapered	8'- 10 11/16"	9'- 7 1/2"	FC1 Floor Decking (Plan View Fill)	Top	10 To 3 lb/ft	21 To 6 lb/ft	-	-
Point	2'- 1 7/8"	2'- 1 7/8"	Bk2(i6421)	Front	27 lb	54 lb	-	-
Point	4'- 1 7/8"	4'- 1 7/8"	Bk2(i6364)	Front	42 lb	84 lb	-	-
Point	6'- 1 7/8"	6'- 1 7/8"	Bk2(i6322)	Front	39 lb	78 lb	-	-
Point	7'- 10 3/8"	7'- 10 3/8"	Bk2(i6363)	Front	24 lb	49 lb	-	-
Point	9'- 4 5/8"	9'- 4 5/8"	J9(i6372)	Back	187 lb	375 lb	-	-
Point	0'- 2 1/4"	0'- 2 1/4"	E22(i69)	Top	966 lb	839 lb	218 lb	-
Point	0'- 3"	0'- 3"	FC1 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	0'- 3 7/8"	0'- 3 7/8"	FC1 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	9'- 8 3/8"	9'- 8 3/8"	FC1 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	9'- 9 1/4"	9'- 9 1/4"	FC1 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	9'- 10 1/16"	9'- 10 1/16"	E18(i62)	Top	948 lb	858 lb	206 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 6 3/16"	-	2119 lb	2974 lb	228 lb	-
++>	0'- 1 7/8"	0'- 1 7/8"	W33(i33)	1273 lb	1787 lb	137 lb	-
++>	0'- 5 1/2"	0'- 5 1/2"	W34(i34)	846 lb	1187 lb	91 lb	-
2	9'- 6 1/16"	10'- 1/4"	-	1911 lb	2720 lb	196 lb	-
++>	9'- 6 13/16"	9'- 6 13/16"	W35(i35)	763 lb	1086 lb	78 lb	-
++>	9'- 10 3/8"	9'- 10 3/8"	W24(i19)	1148 lb	1634 lb	118 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	1ST FLR FRAMING		
	MODEL:	CAROL 12	Label:	B4 - i6386		
	CITY:	RICHMOND HILL	Type:	Beam		

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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support.
  At support 1. Required Load Area: L=1.500", W=3.500". LDF=1.00, Pf=2684 lb, Q'r=5460 lb, Result=49.16%.
  At support 2. Required Load Area: L=1.500", W=3.500". LDF=1.00, Pf=2678 lb, Q'r=5460 lb, Result=49.05%.

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.

STRUCTURAL COMPONENT ONLY
DWG # TF23071151 PG 2/2

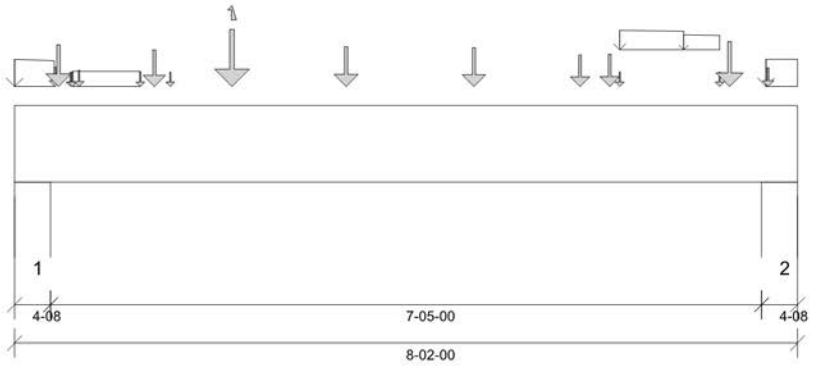
CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B5A DR - i12749		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:44



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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

Factored Resistance of Support Material:

- 812 psi Wall @ 0'- 3 1/2"
- 812 psi Wall @ 7'- 10 1/2"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

STRUCTURAL COMPONENT ONLY
DWG # TF23071152 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 5 1/2"	1.25D + 1.5L + S	1.00	10761 lb ft	23240 lb ft	Passed - 46%
Factored Shear:	1'- 2"	1.25D + 1.5L + S	1.00	5336 lb	11024 lb	Passed - 48%
Live Load (LL) Pos. Defl.:	4'- 1/4"	L + 0.5S		0.086"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 3/8"	D + L + 0.5S		0.163"	L/248	Passed - L/546

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-08	1.25D + 1.5L + S	1.00	7219 lb		16338 lb	12756 lb	Passed - 57%
2	4-08	1.25D + 1.5L + S	1.00	6118 lb		16339 lb	12757 lb	Passed - 48%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	8'- 2"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'	0'- 5"	R1(i12416)	Top	195 lb/ft	-	76 lb/ft	-
Uniform	0'- 7 1/4"	1'- 3 3/4"	Bk2(i7118)	Top	6 lb/ft	12 lb/ft	-	-
Uniform	7'- 10 1/16"	8'- 2"	R1(i12744)	Top	195 lb/ft	-	77 lb/ft	-
Tapered	6'- 3 3/4"	6'- 11 3/4"	Bk2(i12509)	Top	38 To 31 lb/ft	32 To 19 lb/ft	40 lb/ft	-
Tapered	6'- 11 3/4"	7'- 4 1/4"	Bk2(i12509)	Top	5 To 1 lb/ft	10 To 2 lb/ft	-	-
Point	0'- 5 1/16"	0'- 5 1/16"	R1(i12416)	Top	116 lb	8 lb	100 lb	-
Point	0'- 5 1/2"	0'- 5 1/2"	J7(i12531)	Top	590 lb	400 lb	245 lb	-
Point	0'- 7"	0'- 7"	R1(i12416)	Top	1 lb	2 lb	-	-
Point	0'- 7 1/4"	0'- 7 1/4"	Bk2(i7118)	Top	1 lb	2 lb	-	-
Point	0'- 8 1/16"	0'- 8 1/16"	Bk2(i7118)	Top	57 lb	-	32 lb	-
Point	1'- 3 3/4"	1'- 3 3/4"	Bk2(i7118)	Top	1 lb	2 lb	0 lb	-
Point	1'- 5 1/2"	1'- 5 1/2"	J6(i12741)	Top	419 lb	399 lb	190 lb	-
Point	1'- 7 1/2"	1'- 7 1/2"	Bk2(i12525)	Top	0 lb	-	0 lb	-
Point	2'- 3 3/16"	2'- 3 3/16"	B30(i12434)	Top	840 lb	922/-3 lb	173 lb	-
Point	3'- 5 1/2"	3'- 5 1/2"	J1(i12295)	Top	463 lb	495 lb	188 lb	-
Point	4'- 9 1/2"	4'- 9 1/2"	J1(i12809)	Top	448 lb	479 lb	182 lb	-
Point	5'- 10 13/16"	5'- 10 13/16"	B31(i12502)	Top	386 lb	278 lb	117 lb	-
Point	6'- 2 1/2"	6'- 2 1/2"	J1(i12806)	Top	352 lb	287 lb	180 lb	-
Point	6'- 3 3/4"	6'- 3 3/4"	Bk2(i12509)	Top	4 lb	3 lb	4 lb	-
Point	7'- 4 1/4"	7'- 4 1/4"	Bk2(i12509)	Top	0 lb	0 lb	-	-
Point	7'- 5 1/2"	7'- 5 1/2"	J1(i12465)	Top	668 lb	411 lb	305 lb	-
Point	7'- 10 5/16"	7'- 10 5/16"	R1(i12744)	Top	117 lb	1 lb	78 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 1/2"	E93(i7113)	2536 lb	2089/-2 lb	971 lb	-
2	7'- 9 1/2"	8'- 2"	E22(i69)	2174 lb	1627/-1 lb	904 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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							
	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B5A DR - i12749		
	CITY:	RICHMOND HILL	Type:	Beam		

- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

STRUCTURAL COMPONENT ONLY
DWG # TF23071152 PG 2/2

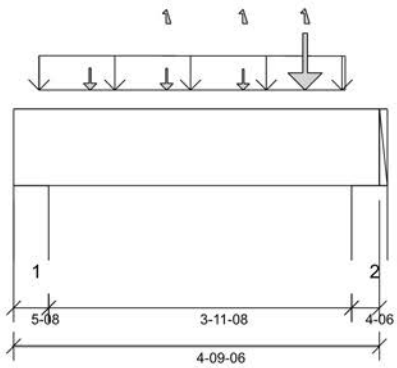
CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B7A - i12482 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:44



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 0'- 10 1/4"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 4'- 6"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071153

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'	1.25D + 1.5L	1.00	4722 lb ft	35345 lb ft	Passed - 13%
Factored Shear:	3'- 5 1/8"	1.25D + 1.5L	1.00	4223 lb	13815 lb	Passed - 31%
Total Load (TL) Pos. Defl.:	2'- 6 5/16"	D + L		0.011"	L/248	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	1.00	3644 lb		20022 lb	11844 lb	Passed - 31%
2	4-06	1.25D + 1.5L	1.00	6079 lb		15925 lb	9420 lb	Passed - 65%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 9 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Tapered	0'- 4"	4'- 4"	Smoothed Load	Back	143 To 139 lb/ft	284 To 279 lb/ft	-	-
Point	1'	1'	J7(i12365)	Front	210 lb	420 lb	-	-
Point	2'	2'	J7(i12531)	Front	199 lb	403 lb	-1 lb	-
Point	3'	3'	J6(i12741)	Front	172 lb	365/-1 lb	-10 lb	-
Point	3'- 9 11/16"	3'- 9 11/16"	B30(i12434)	Front	1243 lb	2130/-11 lb	-58 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	26(i159)	889 lb	1670/-2 lb	-14 lb	-
2	4'- 5"	4'- 9 3/8"	9(i84)	1556 lb	2775/-10 lb	-55 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.
- Bearing capacity of member at support 1, 2 was verified for the effect of concentrated load applied near the support. At support 2. Required Load Area: L=3.500", W=3.500". LDF=1.00, Pf=4732 lb, Q'r=9555 lb, Result=49.53%.

PLY TO PLY CONNECTION

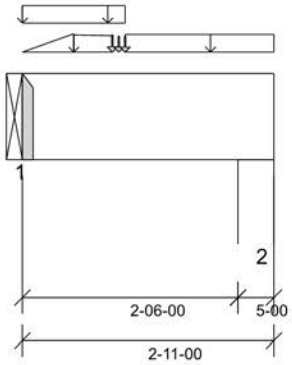
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B8A - i12768 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:44



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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 11/16"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 2'- 7"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071154

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 15/16"	1.25D + 1.5L	1.00	65 lb ft	35345 lb ft	Passed - 0%
Factored Shear:	1'- 6 1/8"	1.25D + 1.5L	1.00	26 lb	13815 lb	Passed - 0%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	114 lb		5460 lb	-	Passed - 2%
2	5-00	1.25D + 1.5L	1.00	110 lb		18200 lb	10766 lb	Passed - 1%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	2'- 11"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	1'- 2 5/16"	FC2 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Uniform	1'- 2 5/16"	2'- 11"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	21 lb/ft	-	-
Tapered	0'	0'- 7 1/8"	FC2 Floor Decking (Plan View Fill)	Top	0 To 15 lb/ft	0 To 30 lb/ft	-	-
Tapered	0'- 7 1/8"	1'- 9/16"	FC2 Floor Decking (Plan View Fill)	Top	7 To 3 lb/ft	15 To 6 lb/ft	-	-
Point	1'- 1/2"	1'- 1/2"	B14(i12208)	Front	7 lb	5 lb	-	-
Point	1'- 1 7/16"	1'- 1 7/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	1'- 2 5/16"	1'- 2 5/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B9A(i12428)	41 lb	45 lb	-	-
2	2'- 6"	2'- 11"	9(i84)	41 lb	40 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

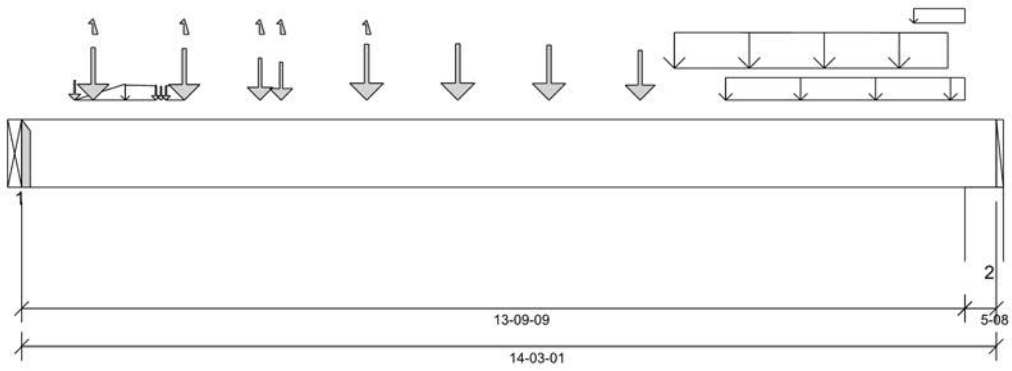
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B9A - i12428		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:44



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 13'- 10 9/16"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071155 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 4 9/16"	1.25D + 1.5L	1.00	17364 lb ft	35345 lb ft	Passed - 49%
Factored Shear:	12'- 9 11/16"	1.25D + 1.5L	1.00	5173 lb	13815 lb	Passed - 37%
Live Load (LL) Pos. Defl.:	6'- 11 5/8"	L		0.294"	L/372	Passed - L/562
Total Load (TL) Pos. Defl.:	6'- 11 9/16"	D + L		0.454"	L/248	Passed - L/364

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	4770 lb		5460 lb	-	Passed - 87%
2	5-08	1.25D + 1.5L	1.00	5278 lb		20020 lb	11842 lb	Passed - 45%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	14'- 3 1/16"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	2'- 1 5/16"	2'- 4 9/16"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Uniform	10'- 3 9/16"	13'- 9 9/16"	User Load	Back	60 lb/ft	120 lb/ft	-	-
Uniform	13'- 9/16"	13'- 9 9/16"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Tapered	0'- 9 5/16"	1'- 6 3/16"	FC2 Floor Decking (Plan View Fill)	Top	0 To 15 lb/ft	0 To 30 lb/ft	-	-
Tapered	1'- 6 3/16"	1'- 11 9/16"	FC2 Floor Decking (Plan View Fill)	Top	7 To 3 lb/ft	15 To 6 lb/ft	-	-
Tapered	9'- 6 9/16"	13'- 6 9/16"	Smoothed Load	Front	155 To 152 lb/ft	308 To 304 lb/ft	-	-
Point	1'- 9/16"	1'- 9/16"	J1(i12295)	Front	177 lb	403/-6 lb	-19 lb	-
Point	2'- 4 9/16"	2'- 4 9/16"	J1(i12809)	Front	173 lb	393/-5 lb	-18 lb	-
Point	3'- 5 13/16"	3'- 5 13/16"	B31(i12502)	Front	191 lb	231/-3 lb	-12 lb	-
Point	3'- 9 9/16"	3'- 9 9/16"	J1(i12806)	Front	107 lb	254/-2 lb	-15 lb	-
Point	5'- 9/16"	5'- 9/16"	J1(i12465)	Front	208 lb	422 lb	-2 lb	-
Point	6'- 4 9/16"	6'- 4 9/16"	J2(i12784)	Front	212 lb	424 lb	-	-
Point	7'- 8 9/16"	7'- 8 9/16"	J2(i12717)	Front	205 lb	410 lb	-	-
Point	9'- 9/16"	9'- 9/16"	J2(i12789)	Front	179 lb	359 lb	-	-
Point	0'- 9 5/16"	0'- 9 5/16"	B8A(i12768)	Back	41 lb	45 lb	-	-
Point	1'- 11 9/16"	1'- 11 9/16"	B14(i12208)	Back	7 lb	5 lb	-	-
Point	2'- 7/16"	2'- 7/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	2'- 1 5/16"	2'- 1 5/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B30(i12434)	1195 lb	2187/-14 lb	-54 lb	-
2	13'- 9 9/16"	14'- 3 1/16"	22(i152)	1309 lb	2426/-2 lb	-12 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status:	
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING			Design Passed
	MODEL:	CAROL 12	Label:	B9A - i12428			
	CITY:	RICHMOND HILL	Type:	Beam			

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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071155 PG 2/2

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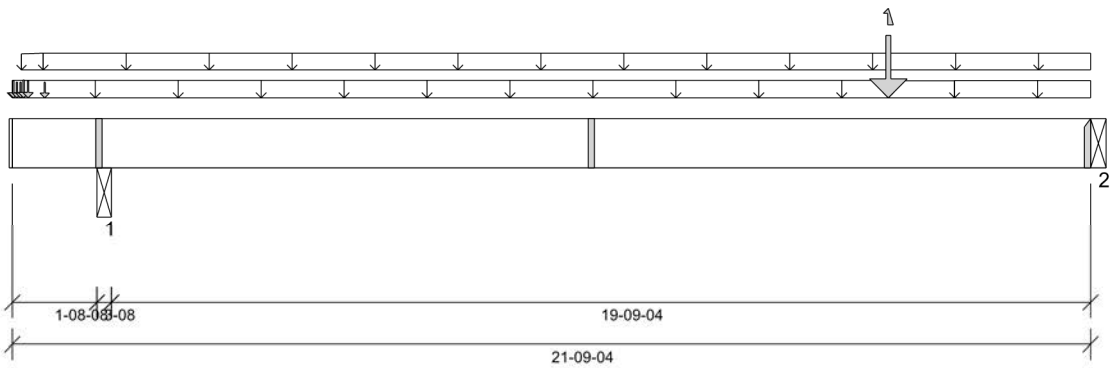
MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B30 - i12434 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:44



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 9'- 8 1/4"

Factored Resistance of Support Material:

- 1040 psi Beam @ 1'- 10 1/4"
- 615 psi Beam @ 21'- 9 1/4"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071156 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	17'- 8 1/4"	1.25D + 1.5L	1.00	18568 lb ft	35345 lb ft	Passed - 53%
Factored Neg. Moment:	1'- 10 1/4"	1.25D + 1.5S + L	0.65	969 lb ft	21653 lb ft	Passed - 4%
Factored Shear:	20'- 9 3/8"	1.25D + 1.5L	1.00	4645 lb	13815 lb	Passed - 34%
Live Load (LL) Pos. Defl.:	12'- 8 7/8"	L		0.534"	L/372	Passed - L/444
Total Load (TL) Pos. Defl.:	12'- 8 7/8"	D + L		0.846"	L/248	Passed - L/280
Permanent Deflection:	12'- 8 15/16"			-	L/360	Passed - L/783

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L + S	1.00	2603 lb		12740 lb	12740 lb	Passed - 20%
2	1-08	1.25D + 1.5L	1.00	4750 lb		5460 lb	-	Passed - 87%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	-0'	21'- 9 1/4"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	17'- 8 1/4"	FC2 Floor Decking (Plan View Fill)	Top	12 lb/ft	24 lb/ft	-	-
Uniform	0'- 7 1/2"	21'- 9 1/4"	FC2 Floor Decking (Plan View Fill)	Top	8 lb/ft	16 lb/ft	-	-
Uniform	17'- 8 1/4"	19'- 5/16"	FC2 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Uniform	19'- 5/16"	21'- 9 1/4"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	21 lb/ft	-	-
Tapered	0'- 2 3/16"	0'- 7 1/2"	FC2 Floor Decking (Plan View Fill)	Top	4 To 8 lb/ft	7 To 16 lb/ft	-	-
Point	17'- 8 1/4"	17'- 8 1/4"	B9A(i12428)	Front	1195 lb	2187/-14 lb	-54 lb	-
Point	0'- 1/4"	0'- 1/4"	FC2 Floor Decking (Plan View Fill)	Top	33 lb	3 lb	60 lb	-
Point	0'- 1 1/8"	0'- 1 1/8"	FC2 Floor Decking (Plan View Fill)	Top	4 lb	1 lb	6 lb	-
Point	0'- 2"	0'- 2"	FC2 Floor Decking (Plan View Fill)	Top	1 lb	-	1 lb	-
Point	0'- 2 3/4"	0'- 2 3/4"	30(i9939)	Top	96 lb	-	59 lb	-
Point	0'- 3 13/16"	0'- 3 13/16"	29(i9936)	Top	69 lb	-	43 lb	-
Point	0'- 7 7/8"	0'- 7 7/8"	FC2 Floor Decking (Plan View Fill)	Top	-	-	0 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	1'- 8 1/2"	2'	B5A DR(i12749)	840 lb	922/-3 lb	173 lb	-
2	21'- 9 1/4"	21'- 9 1/4"	B7A(i12482)	1243 lb	2130/-11 lb	58 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B30 - i12434 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser 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.
- The deflection at the cantilever for either live and/or total loads is less than 1/4" and therefore has been excluded from the deflection ratio considerations.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.

STRUCTURAL COMPONENT ONLY
DWG # TF23071156 PG 2/2

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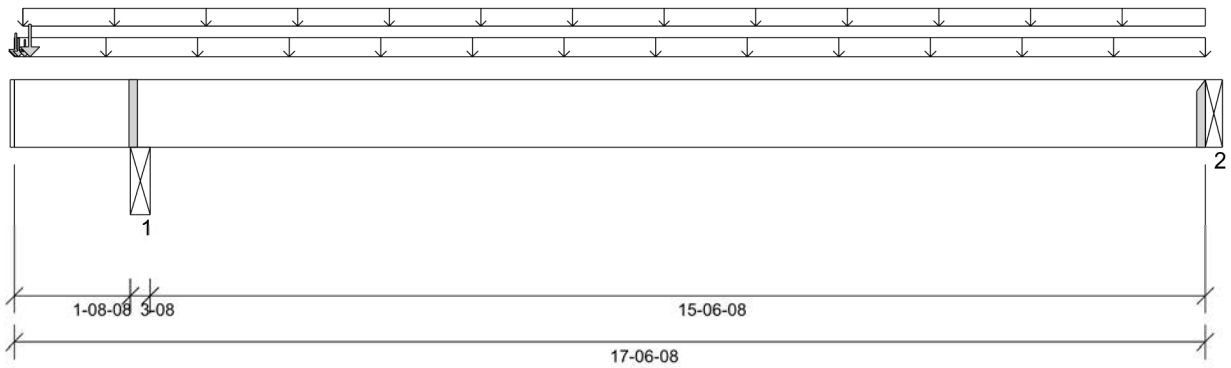
MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B31 - i12502 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed	

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:44



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 15'- 6 1/2"

Factored Resistance of Support Material:

- 1040 psi Beam @ 1'- 10 1/4"
- 615 psi Beam @ 17'- 6 1/2"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071157 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	9'- 11 7/16"	1.25D + 1.5L	0.95	2159 lb ft	33484 lb ft	Passed - 6%
Factored Neg. Moment:	1'- 10 1/4"	1.25D + 1.5S + L	0.68	620 lb ft	20120 lb ft	Passed - 3%
Factored Shear:	2'- 11 7/8"	1.25D + 1.5L	0.95	522 lb	13088 lb	Passed - 4%
Live Load (LL) Pos. Defl.:	9'- 8 3/8"	L		0.041"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	9'- 9 9/16"	D + L		0.071"	L/248	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-08	1.25D + 1.5L + S	0.65	681 lb		8281 lb	8281 lb	Passed - 8%
2	1-08	1.25D + 1.5L	0.95	587 lb		5172 lb	-	Passed - 11%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	17'- 6 1/2"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	17'- 6 1/2"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	22 lb/ft	-	-
Uniform	0'- 1 1/2"	17'- 6 1/2"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Point	0'- 1/4"	0'- 1/4"	FC2 Floor Decking (Plan View Fill)	Top	22 lb	-	41 lb	-
Point	0'- 3/4"	0'- 3/4"	FC2 Floor Decking (Plan View Fill)	Top	5 lb	1 lb	8 lb	-
Point	0'- 1 7/8"	0'- 1 7/8"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	-	0 lb	-
Point	0'- 2 3/4"	0'- 2 3/4"	30(i9939)	Top	91 lb	-	56 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	1'- 8 1/2"	2'	B5A DR(i12749)	386 lb	278 lb	117 lb	-
2	17'- 6 1/2"	17'- 6 1/2"	B9A(i12428)	191 lb	231/-3 lb	-12 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- The deflection at the cantilever for either live and/or total loads is less than 1/4" and therefore has been excluded from the deflection ratio considerations.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B31 - i12502		
	CITY:	RICHMOND HILL	Type:	Beam		

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.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071157 PG 2/2

CITY OF RICHMOND HILL
BUILDING DIVISION
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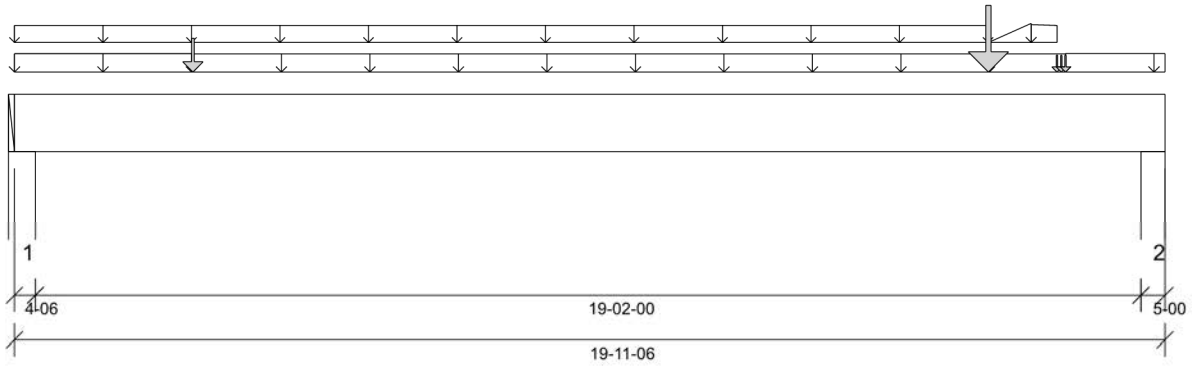
MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B8B - i9857		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 13'- 6"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 3/8"
- 615 psi Wall @ 19'- 7 3/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
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PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071158 PG 1/2

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	16'- 7 7/8"	1.25D + 1.5L	1.00	13505 lb ft	35345 lb ft	Passed - 38%
Factored Shear:	18'- 6 1/2"	1.25D + 1.5L	1.00	4980 lb	13815 lb	Passed - 36%
Live Load (LL) Pos. Defl.:	10'- 6"	L		0.422"	L/372	Passed - L/544
Total Load (TL) Pos. Defl.:	10'- 5 5/8"	D + L		0.685"	L/248	Passed - L/335
Permanent Deflection:	10'- 5 1/16"			-	L/360	Passed - L/903

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5L	1.00	2767 lb		15925 lb	9420 lb	Passed - 29%
2	5-00	1.25D + 1.5L	1.00	5065 lb		18200 lb	10766 lb	Passed - 47%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	19'- 11 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	16'- 10 5/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	5 lb/ft	-	-
Uniform	0'	3'- 1 1/8"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	21 lb/ft	-	-
Uniform	3'- 1 1/8"	18'- 2 11/16"	FC2 Floor Decking (Plan View Fill)	Top	9 lb/ft	19 lb/ft	-	-
Uniform	18'- 2 11/16"	19'- 11 3/8"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	22 lb/ft	-	-
Tapered	16'- 10 5/8"	17'- 7 1/2"	FC2 Floor Decking (Plan View Fill)	Top	0 To 15 lb/ft	0 To 30 lb/ft	-	-
Tapered	17'- 7 1/2"	18'- 15/16"	FC2 Floor Decking (Plan View Fill)	Top	7 To 3 lb/ft	15 To 6 lb/ft	-	-
Point	16'- 10 5/8"	16'- 10 5/8"	B9(i9832)	Front	1191 lb	2222 lb	-	-
Point	18'- 7/8"	18'- 7/8"	B14(i9280)	Front	7 lb	5 lb	-	-
Point	3'- 1 1/8"	3'- 1 1/8"	B43(i9838)	Back	404 lb	759 lb	-	-
Point	18'- 1 13/16"	18'- 1 13/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-
Point	18'- 2 11/16"	18'- 2 11/16"	FC2 Floor Decking (Plan View Fill)	Top	0 lb	0 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	E22(i69)	757 lb	1214 lb	-	-
2	19'- 6 3/8"	19'- 11 3/8"	9(i84)	1331 lb	2272 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	2ND FLR FRAMING		
	MODEL:	CAROL 12	Label:	B8B - i9857		
	CITY:	RICHMOND HILL	Type:	Beam		

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.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071158 PG 2/2

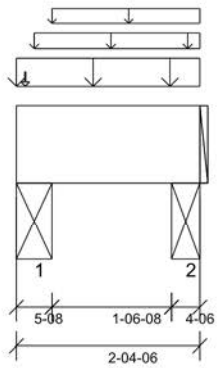
CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B13A - i9459 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 6 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'- 4 1/2"
- 615 psi Beam @ 2'- 1"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071159

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 2 15/16"	1.25D + 1.5S + L	0.95	137 lb ft	33447 lb ft	Passed - 0%
Factored Shear:	1'- 1/8"	1.25D + 1.5S + L	0.95	103 lb	13074 lb	Passed - 1%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5S + L	0.95	540 lb		18945 lb	11203 lb	Passed - 5%
2	4-06	1.25D + 1.5S + L	0.95	498 lb		15072 lb	8913 lb	Passed - 6%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	2'- 4 3/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	2'- 4 3/8"	E67(i8270)	Top	156 lb/ft	-	129 lb/ft	-
Uniform	0'- 2 3/4"	2'- 4 3/8"	FC2 Floor Decking (Plan View Fill)	Top	8 lb/ft	17 lb/ft	-	-
Uniform	0'- 5 1/2"	2'- 4 3/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Point	0'- 1 3/8"	0'- 1 3/8"	FC2 Floor Decking (Plan View Fill)	Top	1 lb	1 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	STLBM(i156)	221 lb	22 lb	161 lb	-
2	2'	2'- 4 3/8"	STLBM(i155)	203 lb	29 lb	144 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

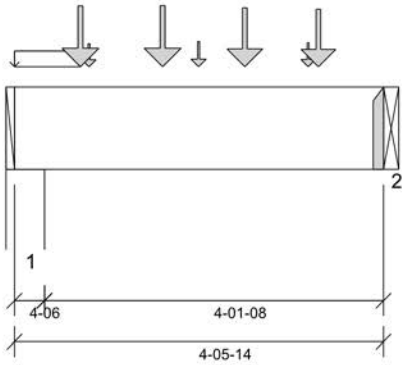
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B43 - i9838 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 0'- 8 1/4"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 3/8"
- 615 psi Beam @ 4'- 5 7/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

STRUCTURAL COMPONENT ONLY
DWG # TF23071160

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 2 7/8"	1.25D + 1.5L	1.00	1977 lb ft	35345 lb ft	Passed - 6%
Factored Shear:	1'- 4 1/4"	1.25D + 1.5L	1.00	935 lb	13815 lb	Passed - 7%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5L	1.00	1857 lb		15925 lb	9420 lb	Passed - 20%
2	1-08	1.25D + 1.5L	1.00	1621 lb		5460 lb	-	Passed - 30%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 5 7/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	0'- 9 5/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Point	0'- 10 7/8"	0'- 10 7/8"	J5(i9886)	Front	31 lb	62 lb	-	-
Point	2'- 2 7/8"	2'- 2 7/8"	J5(i9868)	Front	39 lb	78 lb	-	-
Point	3'- 6 7/8"	3'- 6 7/8"	J5(i9422)	Front	35 lb	70 lb	-	-
Point	0'- 9 5/8"	0'- 9 5/8"	J1(i9435)	Back	179 lb	357 lb	-	-
Point	1'- 9 5/8"	1'- 9 5/8"	J1(i9513)	Back	180 lb	360 lb	-	-
Point	2'- 9 5/8"	2'- 9 5/8"	J1(i9572)	Back	171 lb	342 lb	-	-
Point	3'- 8 3/8"	3'- 8 3/8"	J1(i9559)	Back	165 lb	331 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	E23(i65)	452 lb	846 lb	-	-
2	4'- 5 7/8"	4'- 5 7/8"	B8B(i9857)	404 lb	759 lb	-	-

DESIGN NOTES

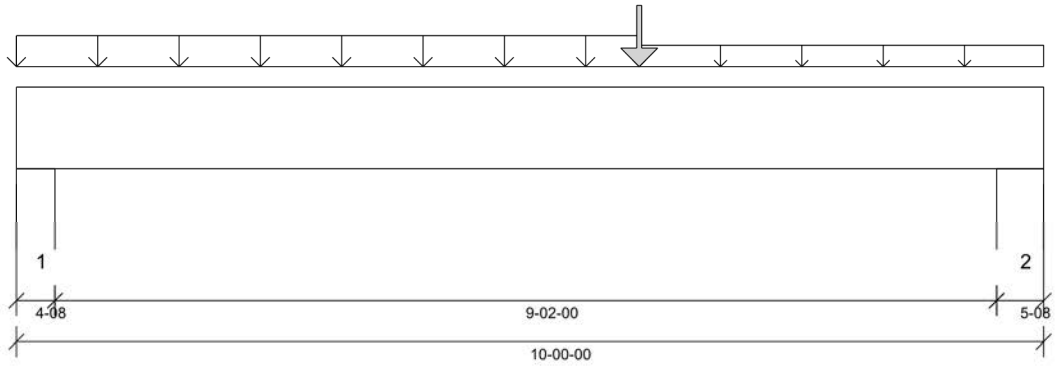
- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B44 DR - i9185 Type: Beam	2 Ply Member 1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 9'- 6 1/2" Bottom: 9'- 6 1/2"

Factored Resistance of Support Material:

- 812 psi Wall @ 0'- 3 1/2"
- 812 psi Wall @ 9'- 7 1/2"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071161

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 8"	1.25D + 1.5S	1.00	6443 lb ft	21331 lb ft	Passed - 30%
Factored Shear:	1'- 2"	1.25D + 1.5S	1.00	2014 lb	11052 lb	Passed - 18%
Live Load (LL) Pos. Defl.:	5'- 1/16"	S		0.094"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 1/16"	D + S		0.141"	L/248	Passed - L/780

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-08	1.25D + 1.5S	1.00	2536 lb		16380 lb	12789 lb	Passed - 20%
2	5-08	1.25D + 1.5S	1.00	2194 lb		20019 lb	15630 lb	Passed - 14%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'	6'- 3/4"	User Load	Top	99 lb/ft	-	208 lb/ft	-
Uniform	6'- 3/4"	10'	User Load	Top	34 lb/ft	-	85 lb/ft	-
Point	6'- 3/4"	6'- 3/4"	User Load	Top	293 lb	-	623 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 1/2"	E73(i8284)	609 lb	-	1193 lb	-
2	9'- 6 1/2"	10'	E71(i8286)	513 lb	-	1026 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

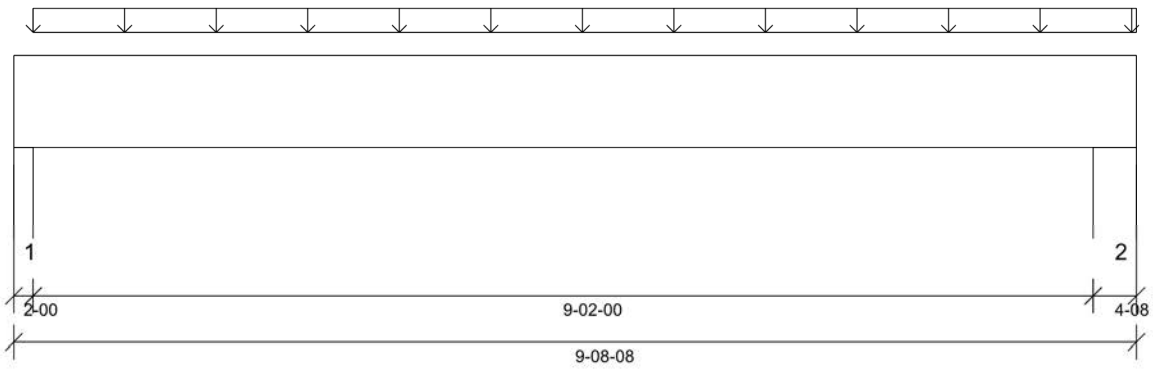
PLY TO PLY CONNECTION

- 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.

CITY OF RICHMOND HILL
BUILDING DIVISION
05/01/2024
RECEIVED
Per: joshua.nabua

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 2ND FLR FRAMING Label: B45 DR - i9159 Type: Beam	2 Ply Member 1 3/4" x 9 1/2" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 9'- 8 1/2" Bottom: 9'- 8 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1"
- 812 psi Wall @ 9'- 5"

PLY TO PLY CONNECTION:
3 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 8" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

STRUCTURAL COMPONENT ONLY
DWG # TF23071162

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 8 15/16"	1.25D + 1.5S	1.00	1976 lb ft	21261 lb ft	Passed - 9%
Factored Shear:	8'- 6 1/2"	1.25D + 1.5S	1.00	690 lb	11052 lb	Passed - 6%
Live Load (LL) Pos. Defl.:	4'- 9"	S		0.030"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 9"	D + S		0.045"	L/248	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-00	1.25D + 1.5S	1.00	835 lb		7280 lb	4305 lb	Passed - 19%
2	4-08	1.25D + 1.5S	1.00	902 lb		16380 lb	12789 lb	Passed - 7%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	9'- 8 1/2"	Self Weight	Top	9 lb/ft	-	-	-
Uniform	0'- 2"	9'- 8 1/2"	User Load	Top	34 lb/ft	-	85 lb/ft	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2"	E71(i8286)	201 lb	-	390 lb	-
2	9'- 4"	9'- 8 1/2"	E75(i8283)	216 lb	-	421 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

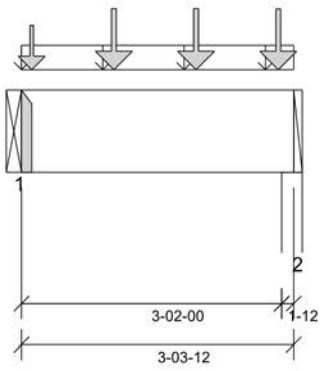
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	1ST FLR FRAMING		
	MODEL:	CAROL 12	Label:	B2A - i9798		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Beam @ 0'
- 615 psi Wall @ 3'- 3"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071163

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 7 15/16"	1.25D + 1.5L	1.00	1286 lb ft	35345 lb ft	Passed - 4%
Factored Shear:	2'- 2 1/8"	1.25D + 1.5L	1.00	1649 lb	13815 lb	Passed - 12%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-08	1.25D + 1.5L	1.00	1688 lb		5460 lb	-	Passed - 31%
2	1-12	1.25D + 1.5L	1.00	1955 lb		6364 lb	3765 lb	Passed - 52%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 3 3/4"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	-0'	3'- 3 3/4"	User Load	Top	60 lb/ft	120 lb/ft	-	-
Point	0'- 1 1/2"	0'- 1 1/2"	J1(i9915)	Front	113 lb	227 lb	-	-
Point	1'- 1 1/2"	1'- 1 1/2"	J1(i9923)	Front	178 lb	357 lb	-	-
Point	2'- 1 1/2"	2'- 1 1/2"	J1(i9860)	Front	178 lb	357 lb	-	-
Point	3'- 1 1/2"	3'- 1 1/2"	J1(i9819)	Front	177 lb	354 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B41(i9803)	404 lb	773 lb	-	-
2	3'- 2"	3'- 3 3/4"	3(i53)	479 lb	920 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

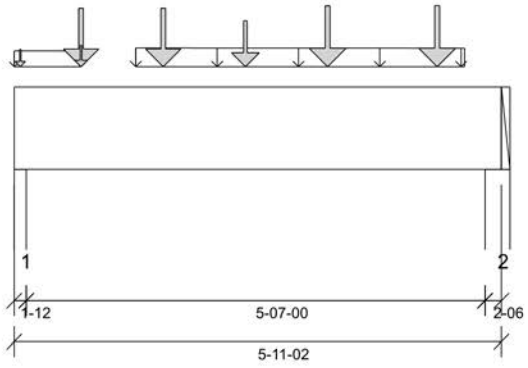
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	1ST FLR FRAMING		
	MODEL:	CAROL 12	Label:	B40 - i9906		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3/4"
- 615 psi Wall @ 5'- 9 3/4"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071164

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 9 3/4"	1.25D + 1.5L	1.00	3182 lb ft	35345 lb ft	Passed - 9%
Factored Shear:	1'- 1 5/8"	1.25D + 1.5L	1.00	2082 lb	13815 lb	Passed - 15%
Total Load (TL) Pos. Defl.:	2'- 11 1/8"	D + L		0.014"	L/248	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-12	1.25D + 1.5L	1.00	2148 lb		6376 lb	3772 lb	Passed - 57%
2	2-06	1.25D + 1.5L	1.00	2072 lb		8645 lb	5114 lb	Passed - 41%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	5'- 11 1/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	0'- 9 3/4"	FC1 Floor Decking (Plan View Fill)	Top	4 lb/ft	7 lb/ft	-	-
Tapered	1'- 5 3/4"	5'- 5 3/4"	Smoothed Load	Back	23 To 22 lb/ft	47 To 43 lb/ft	-	-
Point	0'- 9 3/4"	0'- 9 3/4"	J1(i9916)	Front	175 lb	351 lb	-	-
Point	1'- 9 3/4"	1'- 9 3/4"	J1(i9851)	Front	175 lb	351 lb	-	-
Point	2'- 9 3/4"	2'- 9 3/4"	J1(i9863)	Front	124 lb	249 lb	-	-
Point	3'- 9 3/4"	3'- 9 3/4"	J2(i9776)	Front	185 lb	370 lb	-	-
Point	5'- 1 3/4"	5'- 1 3/4"	J2(i9870)	Front	186 lb	372 lb	-	-
Point	0'- 9 3/4"	0'- 9 3/4"	J6(i9791)	Back	25 lb	50 lb	-	-
Point	0'- 7/8"	0'- 7/8"	User Load	Top	9 lb	18 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 1 3/4"	3(i53)	523 lb	981 lb	-	-
2	5'- 8 3/4"	5'- 11 1/8"	5(i55)	517 lb	965 lb	-	-

DESIGN NOTES

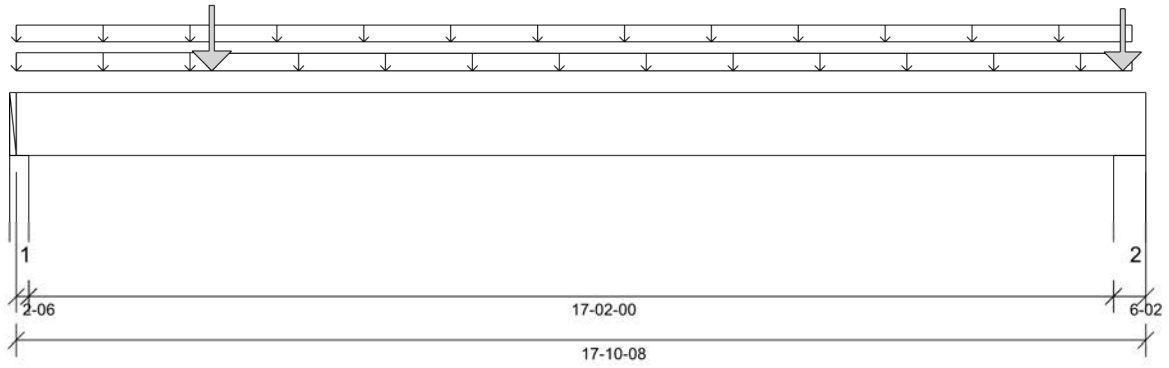
- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B41 - i9803 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 14'- 1 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/8"
- 615 psi Wall @ 17'- 5 3/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 12" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071165

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 3"	1.25D + 1.5L	1.00	5666 lb ft	35345 lb ft	Passed - 16%
Factored Shear:	1'- 2 1/4"	1.25D + 1.5L	1.00	1932 lb	13815 lb	Passed - 14%
Live Load (LL) Pos. Defl.:	7'- 11 3/4"	L		0.124"	L/372	Passed - L/999
Total Load (TL) Pos. Defl.:	8'- 7/8"	D + L		0.214"	L/248	Passed - L/963

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	2022 lb		8645 lb	5114 lb	Passed - 40%
2	6-02	1.25D + 1.5L	1.00	2493 lb		22295 lb	13189 lb	Passed - 19%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	17'- 10 1/2"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	17'- 7 7/8"	FC1 Floor Decking (Plan View Fill)	Top	3 lb/ft	5 lb/ft	-	-
Uniform	0'	3'- 1 1/8"	FC1 Floor Decking (Plan View Fill)	Top	11 lb/ft	21 lb/ft	-	-
Uniform	3'- 1 1/8"	17'- 7 7/8"	FC1 Floor Decking (Plan View Fill)	Top	7 lb/ft	15 lb/ft	-	-
Point	17'- 6 1/8"	17'- 6 1/8"	B2A(i9798)	Front	404 lb	773 lb	-	-
Point	3'- 1 1/8"	3'- 1 1/8"	B42(i9804)	Back	438 lb	826 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W33(i33)	566 lb	883 lb	-	-
2	17'- 4 3/8"	17'- 10 1/2"	2(i49)	676 lb	1092 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

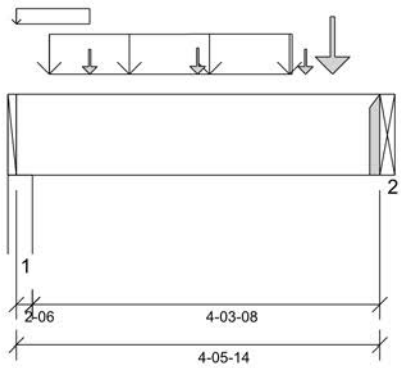
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B42 - i9804 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed	

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 07/27/2023 14:56



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/8"
- 615 psi Beam @ 4'- 5 7/8"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 6" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071166

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 2 7/8"	1.25D + 1.5L	1.00	2154 lb ft	35345 lb ft	Passed - 6%
Factored Shear:	3'- 6"	1.25D + 1.5L	1.00	949 lb	13815 lb	Passed - 7%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	1.00	1735 lb		8645 lb	5114 lb	Passed - 34%
2	1-08	1.25D + 1.5L	1.00	1787 lb		5460 lb	-	Passed - 33%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HGUS410		-	-	-	Connector manually specified by the user.

* 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.

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 5 7/8"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	0'- 10 7/8"	FC1 Floor Decking (Plan View Fill)	Top	3 lb/ft	6 lb/ft	-	-
Tapered	0'- 4 7/8"	3'- 4 7/8"	Smoothed Load	Back	179 To 180 lb/ft	357 To 361 lb/ft	-	-
Point	0'- 10 7/8"	0'- 10 7/8"	J6(i9841)	Front	36 lb	73 lb	-	-
Point	2'- 2 7/8"	2'- 2 7/8"	J6(i9856)	Front	41 lb	83 lb	-	-
Point	3'- 6 7/8"	3'- 6 7/8"	J6(i9805)	Front	37 lb	75 lb	-	-
Point	3'- 10 7/8"	3'- 10 7/8"	J1(i9912)	Back	156 lb	313 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W31(i12)	427 lb	801 lb	-	-
2	4'- 5 7/8"	4'- 5 7/8"	B41(i9803)	438 lb	826 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

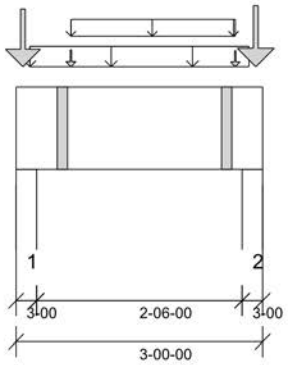
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER:	GREENPARK HOMES	Job Name:	CAROL 12	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed
	SITE:	TRINIGROUP DEVELOPMENTS	Level:	1ST FLR FRAMING		
	MODEL:	CAROL 12	Label:	B15 - i5614		
	CITY:	RICHMOND HILL	Type:	Beam		

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 03-07-2023 07:38



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2"
- 615 psi Wall @ 2'- 10"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071167

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 5 11/16"	1.25D + 1.5L	0.65	127 lb ft	22974 lb ft	Passed - 1%
Factored Shear:	1'- 2 7/8"	1.25D + 1.5L	0.65	77 lb	8980 lb	Passed - 1%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-00	1.25D + 1.5L + S	0.79	994 lb		8655 lb	5120 lb	Passed - 19%
2	3-00	1.25D + 1.5L + S	0.79	1057 lb		8655 lb	5120 lb	Passed - 21%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'- 2"	2'- 10"	E62(i131)	Top	100 lb/ft	-	-	-
Uniform	0'- 8"	2'- 8"	FC1 Floor Decking (Plan View Fill)	Top	10 lb/ft	20 lb/ft	-	-
Point	0'- 8"	0'- 8"	Bk2(i5580)	Front	8 lb	16 lb	-	-
Point	2'- 8"	2'- 8"	Bk2(i5645)	Front	4 lb	8 lb	-	-
Point	0'- 1"	0'- 1"	E5(i70)	Top	346 lb	38 lb	251 lb	-
Point	2'- 11"	2'- 11"	E61(i130)	Top	370 lb	38 lb	277 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3"	W5(i31)	533 lb	70 lb	267 lb	-
2	2'- 9"	3'	W7(i11)	517 lb	70 lb	261 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

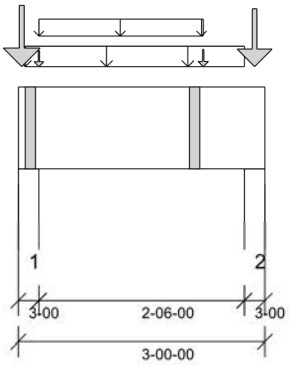
- Member design assumed proper ply to ply connection by others. Fastener spacing along length of member must not exceed 4 times depth of member. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally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

MiTek	BUILDER: GREENPARK HOMES SITE: TRINIGROUP DEVELOPMENTS MODEL: CAROL 12 CITY: RICHMOND HILL	Job Name: CAROL 12 Level: 1ST FLR FRAMING Label: B15A - i10982 Type: Beam	2 Ply Member 1 3/4" x 11 7/8" (2.0E 3100) WestFraser LVL	Status: Design Passed	

Illustration Not to Scale. Pitch: 0/12

Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15

Report Version: 2021.03.26 03-07-2023 07:51



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/372,
TL Deflection Limit: L/248,

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'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 2"
- 615 psi Wall @ 2'- 10"

PLY TO PLY CONNECTION:
4 ROWS OF 3.25" PNEUMATIC GUN NAILS (0.120"x3.25") @ 4" O/C

PLY TO PLY CONNECTION ASSUMES ANY SUPPORTED BEAM HANGERS ARE FASTENED TO THIS BEAM WITH MIN. 3.5" FASTENERS.

LICENSED PROFESSIONAL ENGINEER
7/27/23
C. M. HEYENS
100505065
PROVINCE OF ONTARIO

STRUCTURAL COMPONENT ONLY
DWG # TF23071168

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 7 3/8"	1.25D + 1.5L	0.65	129 lb ft	22974 lb ft	Passed - 1%
Factored Shear:	1'- 2 7/8"	1.25D + 1.5L	0.65	68 lb	8980 lb	Passed - 1%

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	3-00	1.25D + 1.5L + S	0.78	1054 lb		8568 lb	5069 lb	Passed - 21%
2	3-00	1.25D + 1.5L + S	0.78	930 lb		8568 lb	5069 lb	Passed - 18%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'- 1"	2'- 9"	E62(i131)	Top	100 lb/ft	-	-	-
Uniform	0'- 3"	2'- 3"	FC1 Floor Decking (Plan View Fill)	Top	10 lb/ft	20 lb/ft	-	-
Point	0'- 3"	0'- 3"	Bk2(i10905)	Front	3 lb	6 lb	-	-
Point	2'- 3"	2'- 3"	Bk2(i11073)	Front	9 lb	18 lb	-	-
Point	0'- 1/2"	0'- 1/2"	E5(i70)	Top	348 lb	38 lb	267 lb	-
Point	2'- 10 1/2"	2'- 10 1/2"	E61(i130)	Top	349 lb	38 lb	218 lb	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3"	W5(i31)	546 lb	75 lb	284 lb	-
2	2'- 9"	3'	W7(i11)	485 lb	65 lb	201 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of all plies. (Consult with manufacturer for guideline pertaining to this design option.)
- 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.
- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

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.