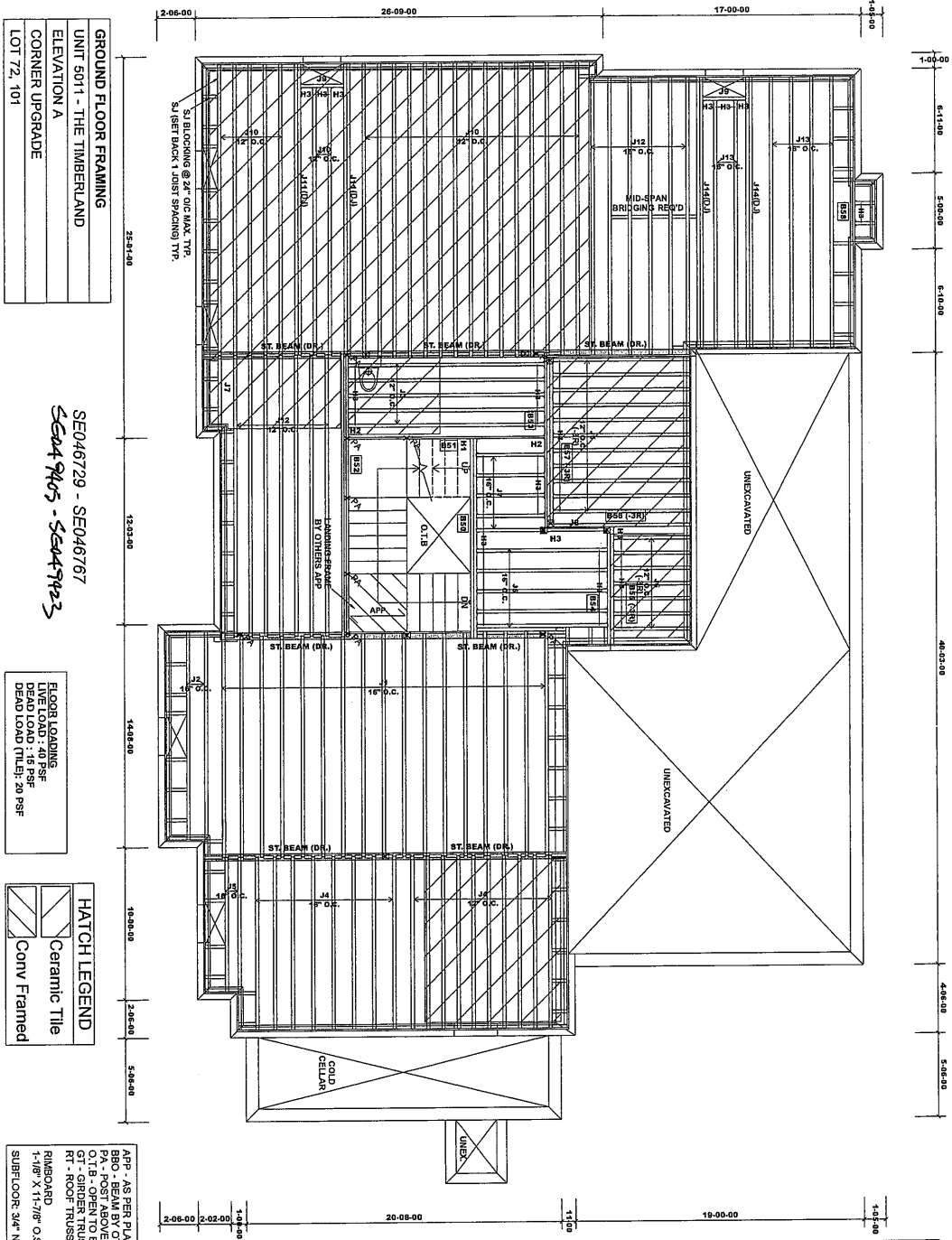




Prod	Length	Product	Area	Unit
B60	14'-00"	11/8" N-20	2	2
B61	13'-00"	1-3/4" x 11/8" VERSA-LAM® 2.0 3100 SP	1	1
B62	18'-00"	1-3/4" x 11/8" VERSA-LAM® 2.0 3100 SP	1	1
B63	17'-00"	1-3/4" x 11/8" VERSA-LAM® 2.0 3100 SP	1	1
B64	8'-00"	11/8" N-20	1	1
B65 (SR)	8'-00"	11/8" N-20	1	1
B66 (SR)	10'-00"	11/8" N-20	1	1
B67 (SR)	10'-00"	11/8" N-20	1	1
B68	4'-00"	1-3/4" x 11/8" VERSA-LAM® 2.0 3100 SP	2	2
J1	15'-00"	11/8" N-20	1	17
J2	14'-00"	11/8" N-20	1	2
J3	13'-00"	11/8" N-20	1	5
J4	12'-00"	11/8" N-20	1	18
J5	9'-00"	11/8" N-20	1	7
J6	4'-00"	11/8" N-20	1	1
J7	3'-00"	11/8" N-20	1	2
J8	20'-00"	11/8" N-40x	2	22
J9	20'-00"	11/8" N-40x	1	13
J10	18'-00"	11/8" N-40x	1	6
J11	18'-00"	11/8" N-40x	1	4
J12	18'-00"	11/8" N-40x	1	1
J13	18'-00"	11/8" N-40x	1	1
J14	18'-00"	11/8" N-40x	1	1
J15	18'-00"	11/8" N-40x	1	1
J16	18'-00"	11/8" N-40x	1	1
J17	18'-00"	11/8" N-40x	1	1
J18	18'-00"	11/8" N-40x	1	1
J19	18'-00"	11/8" N-40x	1	1
J20	18'-00"	11/8" N-40x	1	1
J21	18'-00"	11/8" N-40x	1	1
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J97	18'-00"	11/8" N-40x	1	1
J98	18'-00"	11/8" N-40x	1	1
J99	18'-00"	11/8" N-40x	1	1
J100	18'-00"	11/8" N-40x	1	1

Prod	Qty	Material	Product
H1	1	1/2" x 1/2" x 1/2"	1/2" x 1/2" x 1/2"
H2	1	1/2" x 1/2" x 1/2"	1/2" x 1/2" x 1/2"
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Blocking panels are required over all interior Squash blocks are required under concentrated loads.

Ceramic Tile Application as per O.B.C. 5.30.6

Provide 1-joist blocking between cantilevered joists (along bearing) and imbedded closure at ends.

Do not scale - refer to architectural plans for dimensions.

Job Title: 45147

Layout ID: 343073-346142*

Plan Log: 118158

Builder: Gold Park Homes

Project: Pine Valley Ph2

Model: 5011 A CU - Lot 72, 101

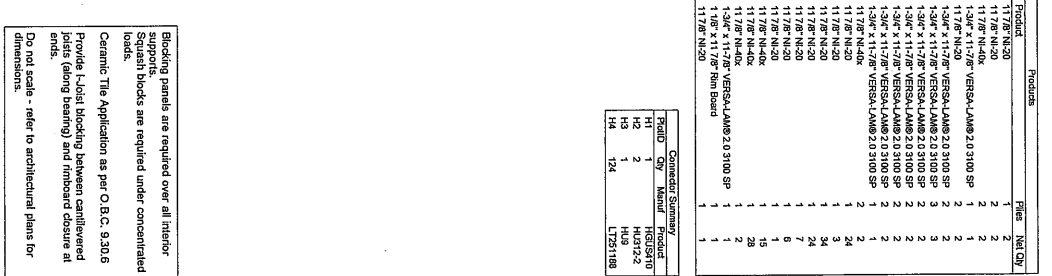
Location: Vaughan ON

Sheet: 1 of 2

Date: Jul 14, 2022

Designer: TL

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[illegible]

Connector Summary			
PartID	Qty	Manuf	Product
H1	1		HGUS410
H2	2		HU312-2
H3	1		HU9
H4	124		LT251108

THESE DRAWINGS CONSTITUTE THE PROPERTY OF ALPA ROOF TRUSSES INC., AND SHALL NOT BE REPRODUCED, PUBLISHED, OR REDISTRIBUTED IN ANY MANNER OR UTILIZED FOR ANY PURPOSE OTHER THAN THE MANUFACTURE OF ROOF TRUSSES BY ALPA ROOF TRUSSES INC. AND WILL BE RETRACTED BY ALPA ROOF TRUSSES INC IF UTILIZED FOR ANY OTHER PURPOSE.

ROOF TRUSSES INC.,
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 Milek V. 8.5.3.233



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **343073 Ground A + Second A (1**
Level: **Second Floor**
Label: **B4 - i50668**
Type: **Beam**

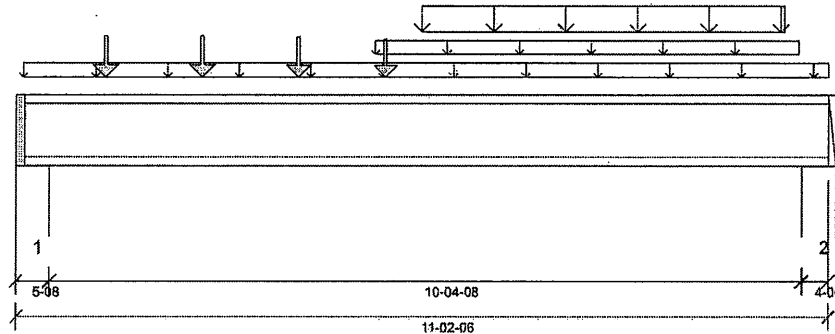
2 Ply Member
11 7/8" NI-20

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 04/01/2022 16:44



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/360,
TL Deflection Limit: L/240,

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 @ 10'- 11"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 1 1/8"	1.25D + 1.5L	1.00	6007 lb ft	11160 lb ft	Passed - 54%
Factored Shear:	10'- 9 15/16"	1.25D + 1.5L	1.00	2174 lb	4480 lb	Passed - 49%
Live Load (LL) Pos. Defl.:	5'- 7 3/4"	L		0.135"	L/360	Passed - L/920
Total Load (TL) Pos. Defl.:	5'- 7 15/16"	D + L		0.200"	L/240	Passed - L/623

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	2156 lb		4480 lb	16918 lb	Passed - 48%
2	4-06	1.25D + 1.5L	1.00	2190 lb		4480 lb	13457 lb	Passed - 49%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	11'- 2 3/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 1 1/4"	11'- 2 3/8"	FC2 Floor Decking (Plan View Fill)	Top	6 lb/ft	15 lb/ft	-	-
Uniform	4'- 11 1/2"	10'- 9 1/2"	FC2 Floor Decking (Plan View Fill)	Top	2 lb/ft	-	-	-
Uniform	5'- 7 1/8"	10'- 7 1/8"	Smoothed Load	Front	95 lb/ft	191 lb/ft	-	-
Point	1'- 2 3/4"	1'- 2 3/4"	J2(I50710)	Front	95 lb	254 lb	-	-
Point	2'- 6 3/4"	2'- 6 3/4"	J2(I50711)	Front	95 lb	254 lb	-	-
Point	3'- 10 3/4"	3'- 10 3/4"	J2(I51034)	Front	91 lb	241 lb	-	-
Point	5'- 1 1/8"	5'- 1 1/8"	J2(I50789)	Front	93 lb	210 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	2(I41619)	469 lb	1051 lb	-	-
2	10'- 10"	11'- 2 3/8"	E13(I41622)	515 lb	1027 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/beam/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. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



83046732



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **343073 Ground A + Second A (1,**
Level: **Second Floor**
Label: **B5 - I51035**
Type: **Beam**

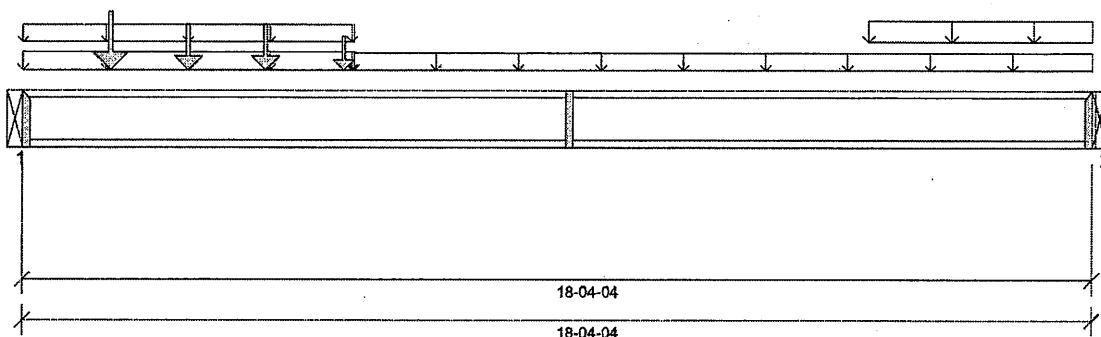
2 Ply Member
11 7/8" NI-40x

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 04/01/2022 16:44



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/360,
TL Deflection Limit: L/240,

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: 8'-9 1/8"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 769 psi Beam @ 18'-4 1/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'-5 7/8"	1.25D + 1.5L	1.00	7582 lb ft	12510 lb ft	Passed - 61%
Factored Shear:	0'-1 1/16"	1.25D + 1.5L	1.00	2575 lb	4680 lb	Passed - 55%
Live Load (LL) Pos. Defl.:	8'-8 15/16"	L		0.283"	L/360	Passed - L/779
Total Load (TL) Pos. Defl.:	8'-8"	D + L		0.478"	L/240	Passed - L/462

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	2579 lb		4020 lb	-	Passed - 64%
2	1-12	1.25D + 1.5L	1.00	1549 lb		4020 lb	-	Passed - 39%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements	Other Information or Requirement for Reinforcement Accessories
1	HU312-2	-	Top Face Member	Connector manually specified by the user.
2	HU312-2	-	Top Face Member	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'	18'-4 1/4"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	5'-8 1/4"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'	5'-8 1/4"	FC2 Floor Decking (Plan View Fill)	Top	10 lb/ft	25 lb/ft	-	-
Uniform	5'-8 1/4"	18'-4 1/4"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	29 lb/ft	-	-
Uniform	14'-6 1/4"	18'-4 1/4"	User Load	Top	32 lb/ft	84 lb/ft	-	-
Point	1'-5 7/8"	1'-5 7/8"	J4(I50738)	Front	155 lb	317 lb	-	-
Point	2'-9 7/8"	2'-9 7/8"	J4(I50735)	Front	110 lb	224 lb	-	-
Point	4'-1 7/8"	4'-1 7/8"	J4(I50734)	Front	110 lb	224 lb	-	-
Point	5'-6 1/16"	5'-6 1/16"	-	Front	59 lb	146 lb	-	-

UNFACTORED REACTIONS

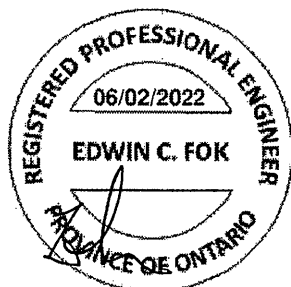
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B6(I50191)	814 lb	1040 lb	-	-
2	18'-4 1/4"	18'-4 1/4"	B8(I50995)	389 lb	710 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



SE046733



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B40(i56524) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:30:44

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B40(i56524)

City, Province, Postal Code: Vaughan, ON

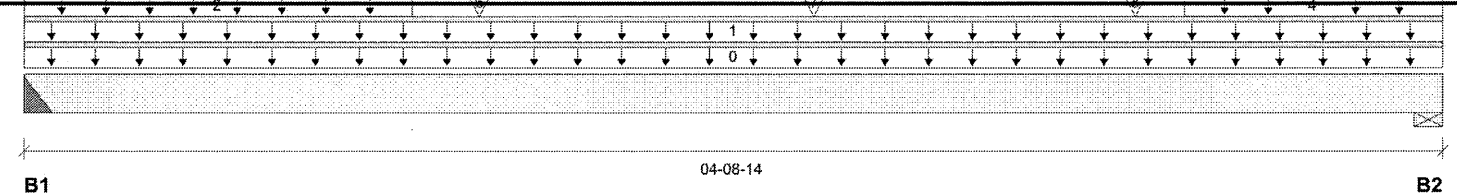
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: 3 Alpha Roof Trusses Inc.



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	346 / 0	497 / 0	261 / 0	
B2, 4-3/8"	313 / 0	596 / 0	284 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-14	Top		6			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	04-08-14	Top		21	32		n/a
2	E18(i41627)	Unf. Lin. (lb/ft)	L	00-00-00	01-03-08	Top		53	83		n/a
3	E18(i41627)	Unf. Lin. (lb/ft)	L	00-11-00	04-08-14	Top		101			n/a
4	E18(i41627)	Unf. Lin. (lb/ft)	L	03-10-08	04-08-14	Top		53	83		n/a
5	J5(i56728)	Conc. Pt. (lbs)	L	00-07-10	00-07-10	Back	155	75			n/a
6	-	Conc. Pt. (lbs)	L	01-06-03	01-06-03	Back	168	154	107		n/a
7	J5(i56498)	Conc. Pt. (lbs)	L	02-07-10	02-07-10	Back	168	81			n/a
8	-	Conc. Pt. (lbs)	L	03-08-08	03-08-08	Back	168	154	107		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1498 ft-lbs	17696 ft-lbs	8.5%	1	02-03-14
End Shear	1010 lbs	7232 lbs	14.0%	1	03-04-10
Total Load Deflection	L/999 (0.008")	n/a	n/a	35	02-03-02
Live Load Deflection	L/999 (0.004")	n/a	n/a	51	02-03-02
Max Defl.	0.008"	n/a	n/a	35	02-03-02
Span / Depth	4.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	2" x 1-3/4"	1401 lbs	n/a	32.8%	HU9
B2 Wall/Plate	4-3/8" x 1-3/4"	1499 lbs	31.8%	16.0%	Spruce-Pine-Fir

Cautions

Hanger model HU9 and seat length were input by the user.

Header for the hanger HU9 is a Double 11-7/8" I-joist.



SE049405



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Second Floor**
Label: **B41 - i56733**
Type: **Beam**

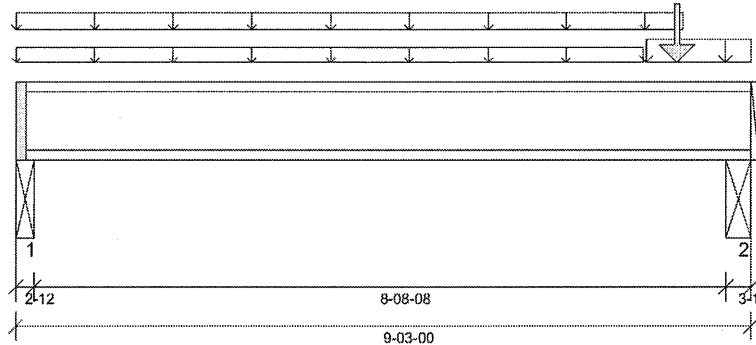
2 Ply Member
11 7/8" NI-20

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 07/15/2022 09:31



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/360,
TL Deflection Limit: L/240,

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: 8'- 1/4"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'- 1 3/4"
- 769 psi Beam @ 9'- 1/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 1/8"	1.25D + 1.5L + S	0.98	1393 lb ft	10935 lb ft	Passed - 13%
Factored Shear:	8'- 11 3/16"	1.25D + 1.5S + L	0.93	1650 lb	4176 lb	Passed - 40%
Live Load (LL) Pos. Defl.:	4'- 9 3/4"	L + 0.5S		0.019"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 10 5/16"	D + L + 0.5S		0.036"	L/240	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	2-12	1.25D + 1.5L	0.93	464 lb		3891 lb	9842 lb	Passed - 12%
2	3-12	1.25D + 1.5S + L	0.93	1723 lb		4120 lb	13442 lb	Passed - 42%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	9'- 3"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	8'- 4 3/4"	FC2 Floor Decking (Plan View Fill)	Top	13 lb/ft	35 lb/ft	-	-
Uniform	0'	7'- 10 3/4"	FC2 Floor Decking (Plan View Fill)	Top	4 lb/ft	-	-	-
Uniform	7'- 11 1/4"	9'- 3"	E19(i41630)	Top	128 lb/ft	-	42 lb/ft	-
Point	8'- 3 7/8"	8'- 3 7/8"	B40(i56524)	Back	477 lb	320 lb	255 lb	-

UNFACTORED REACTIONS

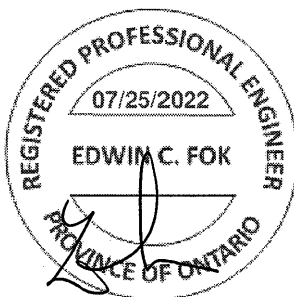
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/4"	ST. BEAM (DR.)(i41694)	151 lb	184 lb	23 lb	-
2	8'- 11 1/4"	9'- 3"	ST. BEAM (DR.)(i41693)	691 lb	428 lb	287 lb	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



SE0494.6



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B42(i56764) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:31:53

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B42(i56764)

City, Province, Postal Code: Vaughan, ON

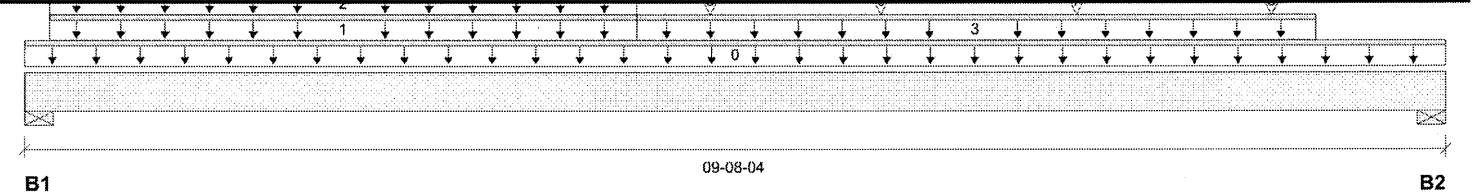
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	2509 / 0	1017 / 0		
B2, 5-1/2"	2159 / 0	874 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-08-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-00	04-02-00	Back	292	115			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-00	04-02-00	Front	224	84			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	04-02-00	08-09-10	Front	194	73			n/a
4	J3(i56706)	Conc. Pt. (lbs)	L	00-01-10	00-01-10	Front	298	112			n/a
5	J1(i56652)	Conc. Pt. (lbs)	L	04-08-00	04-08-00	Back	316	119			n/a
6	J1(i56698)	Conc. Pt. (lbs)	L	05-10-00	05-10-00	Back	365	137			n/a
7	J1(i56629)	Conc. Pt. (lbs)	L	07-02-00	07-02-00	Back	389	146			n/a
8	J1(i56802)	Conc. Pt. (lbs)	L	08-06-00	08-06-00	Back	341	128			n/a

Controls Summary

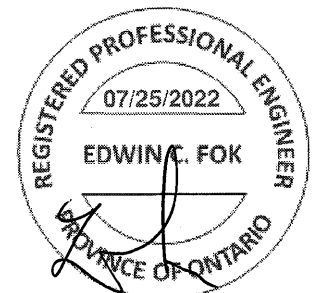
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10735 ft-lbs	35392 ft-lbs	30.3%	1	04-08-00
End Shear	4133 lbs	14464 lbs	28.6%	1	08-02-14
Total Load Deflection	L/999 (0.115")	n/a	n/a	4	04-08-00
Live Load Deflection	L/999 (0.082")	n/a	n/a	5	04-08-00
Max Defl.	0.115"	n/a	n/a	4	04-08-00
Span / Depth	9.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 3-1/2"	5034 lbs	85.0%	42.9%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	4331 lbs	36.6%	18.4%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-08.



NAIL ONE PLY TO ANOTHER WITH
 3-1/2" SPIRAL NAILS @ 12" O/C
 STAGGERED IN 2 ROWS

36049407



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B43(i57170) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:32:09

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B43(i57170)

City, Province, Postal Code: Vaughan, ON

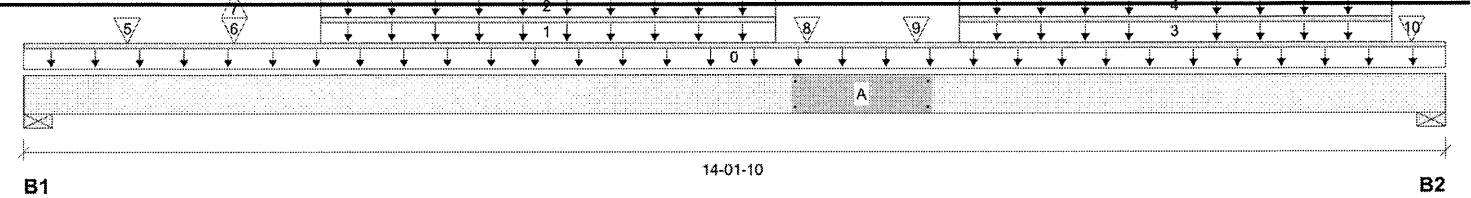
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 14-01-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	3275 / 1	1521 / 0		
B2, 2-3/4"	3542 / 0	1565 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-01-10	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-11-04	07-05-10	Back	324	152			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-11-04	07-05-10	Front	199	75			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	09-03-10	13-07-04	Back	273	110			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	09-03-10	13-07-04	Front	209	79			n/a
5	-	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Front	466	200			n/a
6	-	Conc. Pt. (lbs)	L	02-00-15	02-00-15	Front	474	205			n/a
7	-	Conc. Pt. (lbs)	L	02-00-15	02-00-15	Front	-1				n/a
8	-	Conc. Pt. (lbs)	L	07-09-06	07-09-06	Front	569	239			n/a
9	-	Conc. Pt. (lbs)	L	08-10-07	08-10-07	Front	569	228			n/a
10	J1(i56829)	Conc. Pt. (lbs)	L	13-09-10	13-09-10	Back	294	118			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	24760 ft-lbs	55211 ft-lbs	44.8%	1	06-11-10
End Shear	6703 lbs	21696 lbs	30.9%	1	12-11-00
Total Load Deflection	L/412 (0.398")	n/a	58.3%	6	07-03-07
Live Load Deflection	L/598 (0.274")	n/a	60.2%	8	07-03-07
Max Defl.	0.398"	n/a	n/a	6	07-03-07
Span / Depth	13.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 5-1/4"	6813 lbs	48.2%	24.3%	Spruce-Pine-Fir
B2	Wall/Plate 2-3/4" x 5-1/4"	7269 lbs	81.8%	41.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

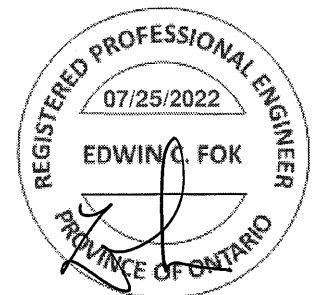
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-08.

NAIL ONE PLY TO ANOTHER WITH
3-1/2" SPIRAL NAILS @ 6" O/C
STAGGERED IN 2 ROWS



SG049408



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B44(i57101) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:32:30

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B44(i57101)

City, Province, Postal Code: Vaughan, ON

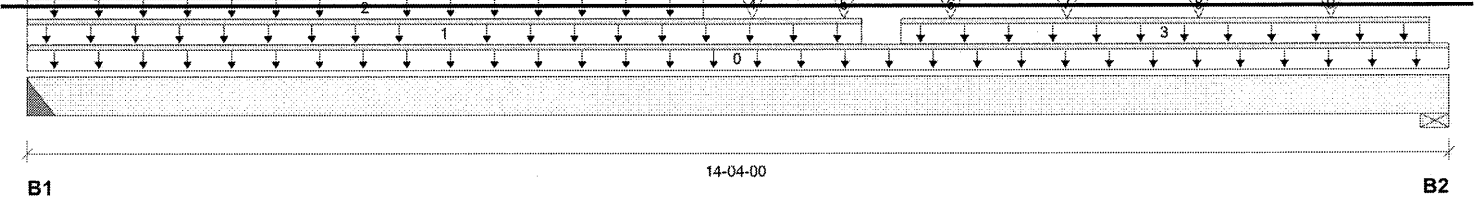
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	2780 / 0	1677 / 0		
B2, 5-1/2"	3998 / 0	1861 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-04-00	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-05-00	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-09-12	Front	304	140			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	08-09-12	14-01-10	Back	375	140			n/a
4	J1(i56582)	Conc. Pt. (lbs)	L	07-03-12	07-03-12	Front	295	130			n/a
5	-	Conc. Pt. (lbs)	L	08-02-13	08-02-13	Front	996	497			n/a
6	J1(i56652)	Conc. Pt. (lbs)	L	09-03-12	09-03-12	Front	316	119			n/a
7	J1(i56698)	Conc. Pt. (lbs)	L	10-05-12	10-05-12	Front	365	137			n/a
8	J1(i56629)	Conc. Pt. (lbs)	L	11-09-12	11-09-12	Front	389	146			n/a
9	J1(i56802)	Conc. Pt. (lbs)	L	13-01-12	13-01-12	Front	341	128			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	26241 ft-lbs	35392 ft-lbs	74.1%	1	08-02-08
End Shear	7555 lbs	14464 lbs	52.2%	1	12-10-10
Total Load Deflection	L/262 (0.633")	n/a	91.5%	4	07-03-12
Live Load Deflection	L/403 (0.412")	n/a	89.3%	5	07-03-12
Max Defl.	0.633"	n/a	n/a	4	07-03-12
Span / Depth	14.0				

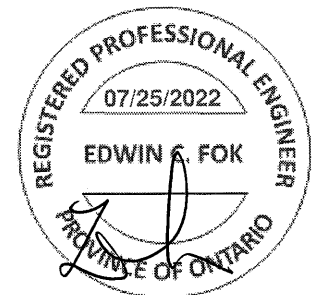
Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	6267 lbs	n/a	73.4%	HGUS410
B2	Wall/Plate 5-1/2" x 3-1/2"	8323 lbs	70.3%	35.4%	Spruce-Pine-Fir

Cautions

Hanger model HGUS410 and seat length were input by the user.

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL beam.

 NAIL ONE PLY TO ANOTHER WITH
 3-1/2" SPIRAL NAILS @ 9" O/C
 STAGGERED IN 2 ROWS


56049409



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B45(i57105) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:32:49

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B45(i57105)

City, Province, Postal Code: Vaughan, ON

Specifier:

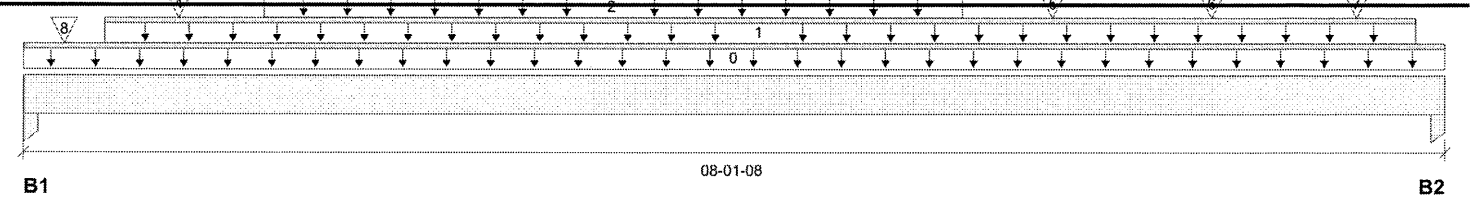
Customer: Gold Park Homes

Designer: TL

Code reports:

CCMC-12472-R

Company: Alfa Roof Trusses Inc.



Total Horizontal Product Length = 08-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2471 / 0	5434 / 0	6338 / 0	
B2, 2"	2557 / 0	1386 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-01-08	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-05-08	07-11-08	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-06	05-04-06	Back	370	145			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-06	05-04-06	Front	291	143			n/a
4	-	Conc. Pt. (lbs)	L	00-10-09	00-10-09	Front	599	264			n/a
5	-	Conc. Pt. (lbs)	L	05-10-09	05-10-09	Front	630	276			n/a
6	-	Conc. Pt. (lbs)	L	06-09-08	06-09-08	Front	574	252			n/a
7	-	Conc. Pt. (lbs)	L	07-07-08	07-07-08	Front	570	244			n/a
8	E59(i53541)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	4080	6338			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10511 ft-lbs	35392 ft-lbs	29.7%	1	03-10-12
End Shear	4702 lbs	14464 lbs	32.5%	1	06-11-10
Total Load Deflection	L/999 (0.08")	n/a	n/a	35	04-03-02
Live Load Deflection	L/999 (0.052")	n/a	n/a	51	04-03-02
Max Defl.	0.08"	n/a	n/a	35	04-03-02
Span / Depth	7.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 5-1/2" x 3-1/2"	18771 lbs	56.2%	79.9%	Spruce-Pine-Fir
B2	Column 2" x 3-1/2"	5569 lbs	45.9%	65.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Resistance Factor phi has been applied to all presented results per CSA O86.

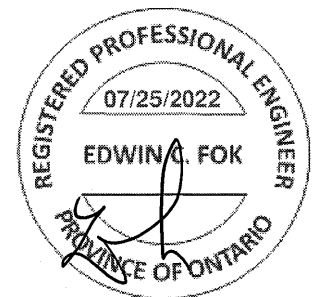
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-02.

 NAIL ONE PLY TO ANOTHER WITH
 3-1/2" SPIRAL NAILS @ 9" O/C
 STAGGERED IN 2 ROWS


SE049410



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B46(i57156) (Flush Beam)

BC Design Engine Member Report

Dry | 2 spans | R cant.

July 15, 2022 09:33:04

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B46(i57156)

City, Province, Postal Code: Vaughan, ON

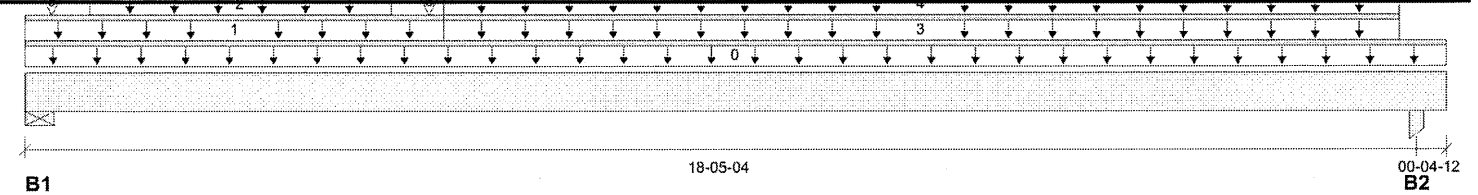
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	917 / 0	826 / 0		
B2, 5-1/2"	3068 / 0	2401 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-10-00	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	05-06-08	Top	15	6			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-02	04-10-02	Back	166	83			n/a
3	WALL	Unf. Lin. (lb/ft)	L	05-06-08	18-02-08	Top		60			n/a
4	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	05-06-08	18-02-08	Top	18	7			n/a
5	J6(i57083)	Conc. Pt. (lbs)	L	00-04-02	00-04-02	Back	121	60			n/a
6	J6(i57102)	Conc. Pt. (lbs)	L	05-04-02	05-04-02	Back	99	45			n/a
7	B44(i57101)	Conc. Pt. (lbs)	L	18-04-04	18-04-04	Back	2772	1671			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4849 ft-lbs	23005 ft-lbs	21.1%	0	09-00-02
Neg. Moment	-3 ft-lbs	-15713 ft-lbs	n/a	1	18-05-04
End Shear	2144 lbs	14464 lbs	14.8%	1	01-01-14
Cont. Shear	900 lbs	9401 lbs	9.6%	0	17-02-10
Total Load Deflection	L/635 (0.347")	n/a	37.8%	9	09-00-02
Live Load Deflection	L/1674 (0.131")	n/a	21.5%	12	08-06-03
Total Neg. Defl.	2xL/1998 (-0.023")	n/a	n/a	9	18-10-00
Max Defl.	0.347"	n/a	n/a	9	09-00-02
Span / Depth	18.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2" x 3-1/2"	2409 lbs	55.9%	28.2%	Spruce-Pine-Fir
B2	Column 5-1/2" x 3-1/2"	7604 lbs	22.8%	32.4%	Spruce-Pine-Fir


 NAIL ONE PLY TO ANOTHER WITH
 3-1/2" SPIRAL NAILS @ 12" O/C
 STAGGERED IN 2 ROWS

SGOA9411

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:33:20

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B47(i57159)

City, Province, Postal Code: Vaughan, ON

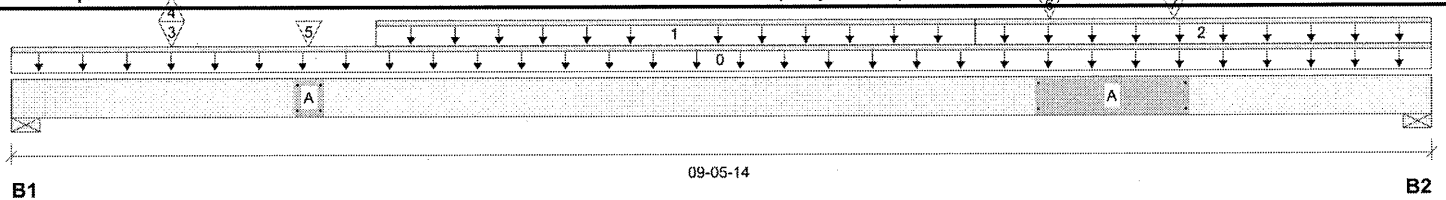
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 09-05-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	2811 / 4	1301 / 0		
B2, 5-1/2"	3394 / 0	1561 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-05-14	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-05-04	06-05-04	Top	803	357			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	06-05-04	09-05-14	Top	399	175			n/a
3	-	Conc. Pt. (lbs)	L	01-00-13	01-00-13	Front	442	194			n/a
4	-	Conc. Pt. (lbs)	L	01-00-13	01-00-13	Front	-4				n/a
5	-	Conc. Pt. (lbs)	L	01-11-13	01-11-13	Front	686	303			n/a
6	J9(i56715)	Conc. Pt. (lbs)	L	06-11-04	06-11-04	Front	339	153			n/a
7	J9(i56777)	Conc. Pt. (lbs)	L	07-09-04	07-09-04	Front	308	139			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	14749 ft-lbs	35392 ft-lbs	41.7%	1	04-11-04
End Shear	5892 lbs	14464 lbs	40.7%	1	08-00-08
Total Load Deflection	L/719 (0.147")	n/a	33.4%	6	04-08-08
Live Load Deflection	L/999 (0.1")	n/a	n/a	8	04-08-08
Max Defl.	0.147"	n/a	n/a	6	04-08-08
Span / Depth	8.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	5842 lbs	62.0%	31.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	7043 lbs	59.5%	30.0%	Spruce-Pine-Fir

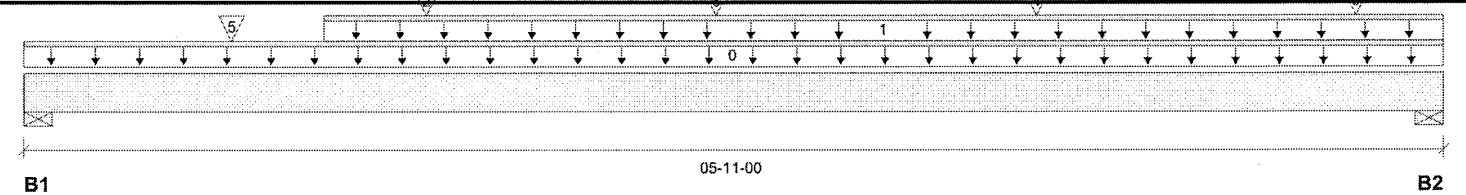
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-08.

NAIL ONE PLY TO ANOTHER WITH
 3-1/2" SPIRAL NAILS @ 8" O/C
 STAGGERED IN 2 ROWS

(PARTIAL TOP LOADS)





Total Horizontal Product Length = 05-11-00

Reaction Summary (Down / Uplift) (lbs)

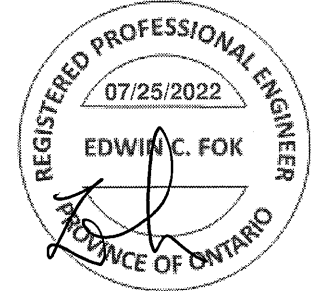
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2163 / 0	1281 / 0		
B2, 5-1/2"	2097 / 0	1084 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-11-00	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	01-03-00	05-11-00	Top		60			n/a
2	-	Conc. Pt. (lbs)	L	01-08-02	01-08-02	Front	1431	966			n/a
3	-	Conc. Pt. (lbs)	L	02-10-10	02-10-10	Front	940	353			n/a
4	-	Conc. Pt. (lbs)	L	04-02-10	04-02-10	Front	993	373			n/a
5	J9(i56725)	Conc. Pt. (lbs)	L	00-10-06	00-10-06	Back	375	159			n/a
6	J9(i56533)	Conc. Pt. (lbs)	L	05-06-10	05-06-10	Back	500	188			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6271 ft-lbs	17696 ft-lbs	35.4%	1	02-10-10
End Shear	4352 lbs	7232 lbs	60.2%	1	01-05-06
Total Load Deflection	L/999 (0.042")	n/a	n/a	4	02-10-10
Live Load Deflection	L/999 (0.027")	n/a	n/a	5	02-10-10
Max Defl.	0.042"	n/a	n/a	4	02-10-10
Span / Depth	5.2				


Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	4845 lbs	81.8%	41.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	4500 lbs	76.0%	38.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).
 Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods.
 Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Second Floor**
Label: **B49 - i56657**
Type: **Beam**

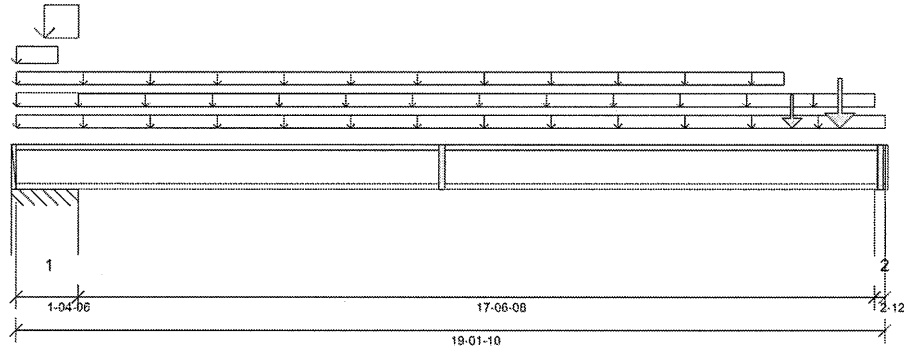
2 Ply Member
11 7/8" NI-40x

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 07/15/2022 09:34



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/360,

TL Deflection Limit: L/240,

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'- 4 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 1'- 3 3/8"
- 615 psi Wall @ 18'- 11 7/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	10'- 10 3/4"	1.25D + 1.5L	0.86	6521 lb ft	10771 lb ft	Passed - 61%
Factored Neg. Moment:	1'- 3 3/8"	1.25D + 1.5S + L	0.81	1068 lb ft	10076 lb ft	Passed - 11%
Factored Shear:	18'- 10 13/16"	1.25D + 1.5L	0.86	2474 lb	4029 lb	Passed - 61%
Live Load (LL) Pos. Defl.:	10'- 5 1/2"	L		0.154"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	10'- 4 1/4"	D + L		0.411"	L/240	Passed - L/512
Permanent Deflection:	10'- 3 1/2"			-	L/360	Passed - L/905

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	1-04-06	1.25D + 1.5L + S	0.67	2926 lb		3137 lb	33763 lb	Passed - 93%
2	2-12	1.25D + 1.5L	0.86	2489 lb		3714 lb	7283 lb	Passed - 67%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	19'- 1 5/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	19'- 1 5/8"	FC2 Floor Decking (Plan View Fill)	Top	10 lb/ft	26 lb/ft	-	-
Uniform	0'	16'- 10 7/8"	FC2 Floor Decking (Plan View Fill)	Top	3 lb/ft	8 lb/ft	-	-
Uniform	-0'	1'- 4 3/8"	E15(i41631)	Top	101 lb/ft	-	-	-
Uniform	-0'	0'- 10 7/8"	E15(i41631)	Top	150 lb/ft	-	236 lb/ft	-
Uniform	0'- 7 3/8"	1'- 4 3/8"	E15(i41631)	Top	628 lb/ft	-	988 lb/ft	-
Uniform	1'- 4 3/8"	18'- 10 7/8"	User Load	Top	60 lb/ft	-	-	-
Point	17'- 1"	17'- 1"	-	Back	78 lb	244 lb	-	-
Point	18'- 1 5/8"	18'- 1 5/8"	J10(i56684)	Back	156 lb	417 lb	-	-

UNFACTORED REACTIONS

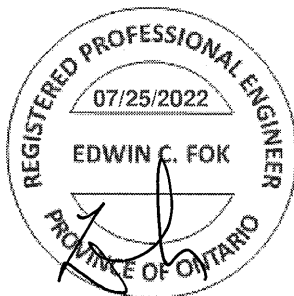
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	1'- 4 3/8"	E2(i41607)	4051/-2400 lb	1982/-1489 lb	956 lb	-
==>	0'- 1 1/2"	0'- 1 1/2"	E2(i41607)	-2400 lb	27/-1489 lb	376 lb	-
==>	1'- 2 7/8"	1'- 2 7/8"	E2(i41607)	4051 lb	1955 lb	580 lb	-
2	18'- 10 7/8"	19'- 1 5/8"	8(i41678)	747 lb	818 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



SE049444



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Ground Floor**
Label: **B50 - i57182**
Type: **Beam**

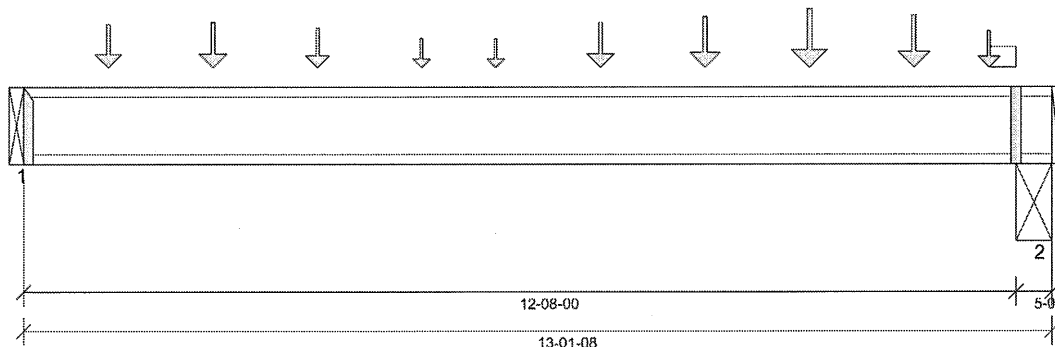
2 Ply Member
11 7/8" NI-20

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 07/15/2022 09:34



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/360,

TL Deflection Limit: L/240,

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:

- 769 psi Beam @ 0'
- 769 psi Beam @ 12'- 9"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'- 4 3/8"	1.25D + 1.5L	1.00	7175 lb ft	11160 lb ft	Passed - 64%
Factored Shear:	12'- 7 15/16"	1.25D + 1.5L	1.00	2683 lb	4480 lb	Passed - 60%
Live Load (LL) Pos. Defl.:	6'- 6"	L		0.235"	L/360	Passed - L/647
Total Load (TL) Pos. Defl.:	6'- 6"	D + L		0.331"	L/240	Passed - L/459

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	2043 lb		3940 lb	-	Passed - 52%
2	5-08	1.25D + 1.5L	1.00	2695 lb		4480 lb	21148 lb	Passed - 60%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HU312-2		-	-	-	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'- 1 1/2"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	12'- 3 7/8"	12'- 8"	FC1 Floor Decking (Plan View Fill)	Top	32 lb/ft	84 lb/ft	-	-
Point	1'- 1"	1'- 1"	J7(i57049)	Back	89 lb	236 lb	-	-
Point	2'- 5"	2'- 5"	J7(i57038)	Back	95 lb	253 lb	-	-
Point	3'- 9"	3'- 9"	J7(i57054)	Back	77 lb	203 lb	-	-
Point	5'- 1"	5'- 1"	J7(i57039)	Back	45 lb	120 lb	-	-
Point	6'- 3/8"	6'- 3/8"	J7(i57052)	Back	43 lb	115 lb	-	-
Point	7'- 4 3/8"	7'- 4 3/8"	J5(i56983)	Back	94 lb	250 lb	-	-
Point	8'- 8 3/8"	8'- 8 3/8"	J5(i56873)	Back	111 lb	295 lb	-	-
Point	10'- 3/8"	10'- 3/8"	J5(i56893)	Back	136 lb	361 lb	-	-
Point	11'- 4 3/8"	11'- 4 3/8"	J5(i56884)	Back	117 lb	310 lb	-	-
Point	12'- 3 7/8"	12'- 3 7/8"	J5(i57143)	Back	68 lb	177 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B51(i57087)	418 lb	1014 lb	-	-
2	12'- 8"	13'- 1 1/2"	ST. BEAM (DR.) (i53634)	545 lb	1342 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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

SG049415





Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Ground Floor\Flush Beams\B51(i57087) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:34:33

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B51(i57087)

City, Province, Postal Code: Vaughan, ON

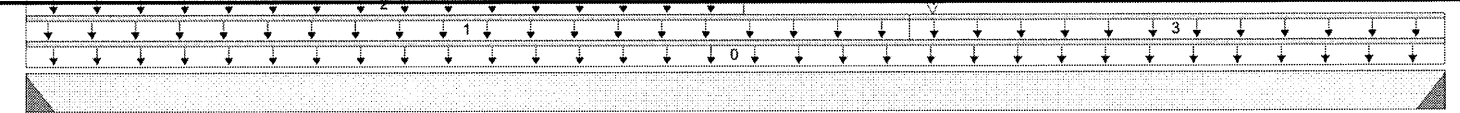
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpha Roof Trusses Inc.



B1

12-10-04

B2

Total Horizontal Product Length = 12-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	732 / 0	624 / 0		
B2, 2"	968 / 0	525 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-10-04	Top		6			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	Top	18	7			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-06-00	Top		60			n/a
3	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	08-00-00	12-10-04	Top	40	15			n/a
4	B50(i57182)	Conc. Pt. (lbs)	L	08-02-08	08-02-08	Front	1014	418			n/a
5	LANDING	Conc. Pt. (lbs)	L	03-10-00	03-10-00	Top	308	116			n/a
6	STAIR	Conc. Pt. (lbs)	L	08-00-14	08-00-14	Top	43	16			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8655 ft-lbs	17696 ft-lbs	48.9%	1	08-02-08
End Shear	2010 lbs	7232 lbs	27.8%	1	11-08-06
Total Load Deflection	L/458 (0.331")	n/a	52.4%	4	06-08-04
Live Load Deflection	L/737 (0.206")	n/a	48.8%	5	06-08-04
Max Defl.	0.331"	n/a	n/a	4	06-08-04
Span / Depth	12.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1877 lbs	n/a	44.0%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	2108 lbs	n/a	49.4%	HUS1.81/10

Cautions

Hanger model HUS1.81/10 and seat length were input by the user.

Header for the hanger HUS1.81/10 is a Triple 1-3/4" x 11-7/8" LVL beam.



36049416



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Ground Floor\Flush Beams\B52(i57097) (Flush Beam)

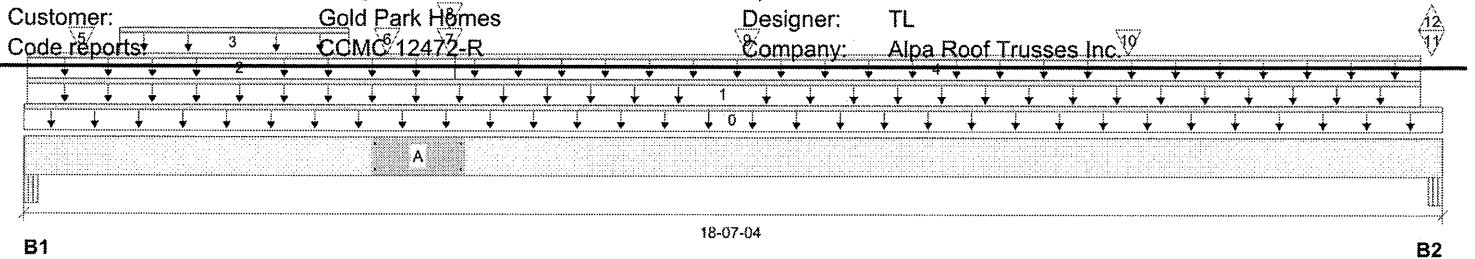
BC Design Engine Member Report
Build 8183

Dry | 1 span | No cant.

July 15, 2022 09:34:49

Job name: 5011 A CU - Lot 72, 101
Address: Pine Valley Ph2
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park Homes
Code reports: CCMC 12472-R

File name: 346142.mmdl
Description: Ground Floor\Flush Beams\B52(i57097)
Specifier:
Designer: TL
Company: Alpa Roof Trusses Inc.



B1 18-07-04 B2
Total Horizontal Product Length = 18-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/4"	2218 / 0	1902 / 0		
B2, 3-1/2"	5739 / 0	4253 / 0	0 / 254	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-07-04	Top		18			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-08	18-03-12	Top		60			n/a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-08	05-07-12	Top	24				n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-00	04-03-00	Back	266	123			n/a
4	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	05-07-12	18-03-12	Top	29	11			n/a
5	J3(i57017)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Back	222	102			n/a
6	J3(i57032)	Conc. Pt. (lbs)	L	04-09-00	04-09-00	Back	247	113			n/a
7	B51(i57087)	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Back	750	630			n/a
8	LANDING	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Top	148				n/a
9	LANDING	Conc. Pt. (lbs)	L	09-05-12	09-05-12	Top	339	127			n/a
10	LANDING	Conc. Pt. (lbs)	L	14-05-12	14-05-12	Top	339	127			n/a
11	Pt1(i57147)	Conc. Pt. (lbs)	L	18-05-08	18-05-08	Top	4598	2996			n/a
12	Pt1(i57147)	Conc. Pt. (lbs)	L	18-05-08	18-05-08	Top			-254		n/a

(TOP LOADED)

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	20904 ft-lbs	55211 ft-lbs	37.9%	1	05-07-12
End Shear	5279 lbs	21696 lbs	24.3%	1	01-03-02
Total Load Deflection	L/363 (0.6")	n/a	66.1%	34	08-09-02
Live Load Deflection	L/709 (0.307")	n/a	50.8%	50	08-09-02
Max Defl.	0.6"	n/a	n/a	34	08-09-02
Span / Depth	18.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 3-1/4" x 5-1/4"	5705 lbs	43.5%	27.4%	Unspecified
B2	Beam 3-1/2" x 5-1/4"	13924 lbs	98.5%	62.1%	Unspecified

NAIL ONE PLY TO ANOTHER WITH
3-1/2" SPIRAL NAILS @ 6" O/C
STAGGERED IN 2 ROWS



SE049417



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Ground Floor\Flush Beams\B53(i57124) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 15, 2022 09:35:06

Build 8183

Job name: 5011 A CU - Lot 72, 101

File name: 346142.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B53(i57124)

City, Province, Postal Code: Vaughan, ON

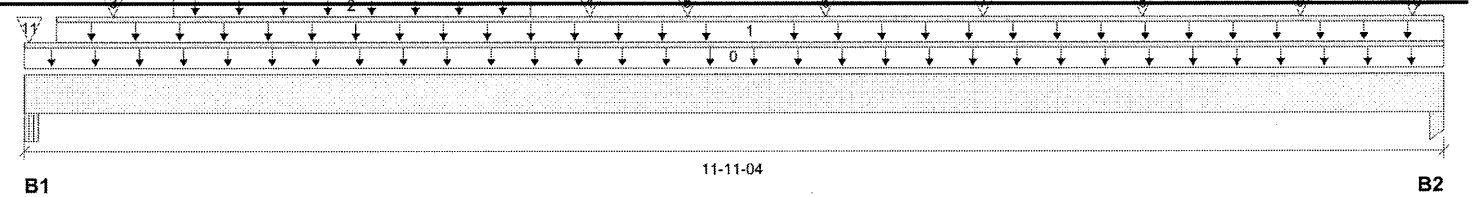
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 11-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/4"	1705 / 0	1133 / 0		
B2, 5-1/2"	1164 / 0	921 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-11-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-03-04	11-11-04	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-00	04-03-00	Front	263	106			n/a
3	J3(i57017)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Front	223	90			n/a
4	J3(i57032)	Conc. Pt. (lbs)	L	04-09-00	04-09-00	Front	243	97			n/a
5	B51(i57087)	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Front	956	521			n/a
6	J7(i57049)	Conc. Pt. (lbs)	L	06-08-12	06-08-12	Front	118	44			n/a
7	J7(i57038)	Conc. Pt. (lbs)	L	08-00-12	08-00-12	Front	126	47			n/a
8	J7(i57054)	Conc. Pt. (lbs)	L	09-04-12	09-04-12	Front	126	47			n/a
9	J7(i57039)	Conc. Pt. (lbs)	L	10-08-12	10-08-12	Front	106	40			n/a
10	J8(i57021)	Conc. Pt. (lbs)	L	11-08-02	11-08-02	Back	60	22			n/a
11	8(i41678)	Conc. Pt. (lbs)	L	00-00-08	00-00-08	Top	109	51			n/a

Controls Summary

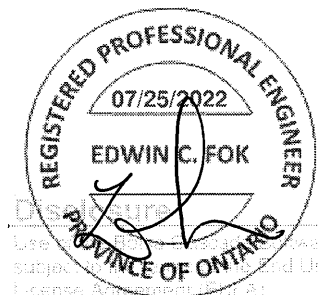
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	11888 ft-lbs	17696 ft-lbs	67.2%	1	05-06-14
End Shear	3431 lbs	7232 lbs	47.4%	1	01-03-02
Total Load Deflection	L/372 (0.366")	n/a	64.5%	4	05-08-10
Live Load Deflection	L/632 (0.215")	n/a	57.0%	5	05-08-10
Max Defl.	0.366"	n/a	n/a	4	05-08-10
Span / Depth	11.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 3-1/4" x 1-3/4"	3975 lbs	90.9%	57.3%	Unspecified
B2	Column 5-1/2" x 1-3/4"	2897 lbs	17.4%	24.7%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.



Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

SE049418



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Ground Floor**
Label: **B54 - i57086**
Type: **Beam**

1 Ply Member

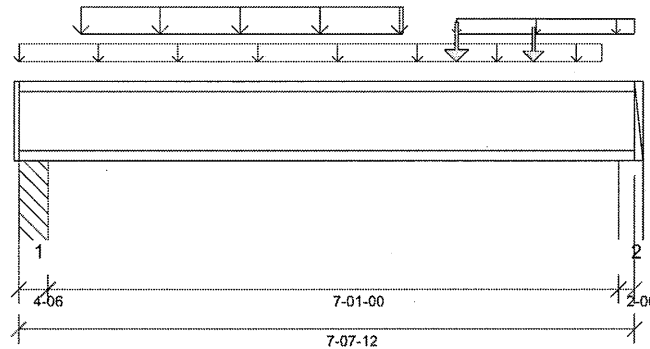
11 7/8" NI-20

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 07/15/2022 09:35



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/360,

TL Deflection Limit: L/240,

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:

- 1334 psi Column @ 0'- 3 3/8"
- 615 psi Wall @ 7'- 6 3/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 1 1/4"	1.25D + 1.5L	1.00	2817 lb ft	5580 lb ft	Passed - 50%
Factored Shear:	0'- 4 7/16"	1.25D + 1.5L	1.00	1375 lb	2240 lb	Passed - 61%
Live Load (LL) Pos. Defl.:	3'- 10 13/16"	L		0.061"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 10 13/16"	D + L		0.106"	L/240	Passed - L/804

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	1420 lb		2240 lb	14595 lb	Passed - 63%
2	2-06	1.25D + 1.5L	1.00	1327 lb		2045 lb	3653 lb	Passed - 65%

SPECIFIED LOADS

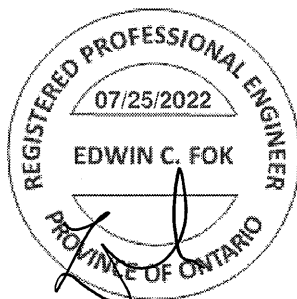
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 7 3/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	7'- 2 7/8"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'- 9 1/4"	4'- 9 1/4"	Smoothed Load	Front	68 lb/ft	179 lb/ft	-	-
Tapered	5'- 5 1/4"	7'- 7 3/4"	FC1 Floor Decking (Plan View Fill)	Top	-	11 To 6 lb/ft	-	-
Point	5'- 5 1/4"	5'- 5 1/4"	J5(i56884)	Front	75 lb	200 lb	-	-
Point	6'- 4 3/4"	6'- 4 3/4"	J5(i57143)	Front	63 lb	158 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	Pt1(i57183)	458 lb	565 lb	-	-
2	7'- 5 3/8"	7'- 7 3/4"	W39(i52072)	417 lb	538 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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.



SG049419



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Ground Floor**
Label: **B55 (-3R) - i57076**
Type: **Beam**

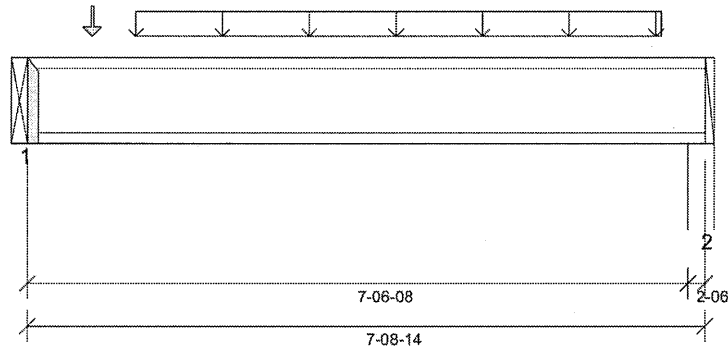
1 Ply Member
11 7/8" NI-20

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 07/15/2022 09:36



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/360,

TL Deflection Limit: L/240,

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:

- 769 psi Beam @ 0'
- 615 psi Wall @ 7'- 7 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 8 7/8"	1.25D + 1.5L	1.00	1686 lb ft	5580 lb ft	Passed - 30%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	806 lb	2240 lb	Passed - 36%
Live Load (LL) Pos. Defl.:	3'- 9 3/4"	L		0.044"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 9 3/4"	D + L		0.067"	L/240	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	806 lb		1970 lb	-	Passed - 41%
2	2-06	1.25D + 1.5L	1.00	798 lb		2045 lb	3653 lb	Passed - 39%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	LT251188		-	-	-	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

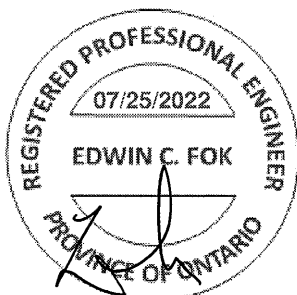
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 8 7/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	1'- 2 7/8"	7'- 2 7/8"	Smoothed Load	Back	53 lb/ft	108 lb/ft	-	-
Point	0'- 8 7/8"	0'- 8 7/8"	J7(i57069)	Back	48 lb	98 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B56 (-3R)(i57070)	196 lb	374 lb	-	-
2	7'- 6 1/2"	7'- 8 7/8"	W19(i41601)	194 lb	371 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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.



86049420



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Ground Floor**
Label: **B56 (-3R) - i57070**
Type: **Beam**

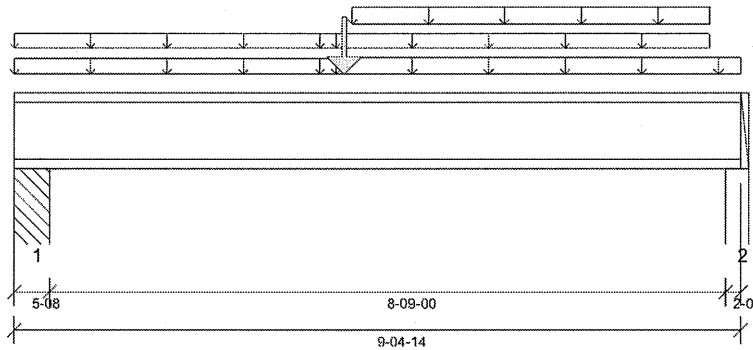
1 Ply Member
11 7/8" NI-20

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 07/15/2022 09:36



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/360,

TL Deflection Limit: L/240,

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: 4'- 10"

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 4 1/2"
- 615 psi Wall @ 9'- 3 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 3 1/4"	1.25D + 1.5L	1.00	2795 lb ft	5580 lb ft	Passed - 50%
Factored Shear:	9'- 2 7/16"	1.25D + 1.5L	1.00	912 lb	2240 lb	Passed - 41%
Live Load (LL) Pos. Defl.:	4'- 8 13/16"	L		0.070"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 9 11/16"	D + L		0.133"	L/240	Passed - L/787

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	826 lb		2240 lb	18348 lb	Passed - 37%
2	2-06	1.25D + 1.5L	1.00	933 lb		2045 lb	3653 lb	Passed - 46%

SPECIFIED LOADS

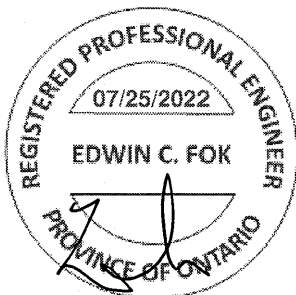
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	9'- 4 7/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	4'- 2"	FC3 Floor Decking (Plan View Fill)	Top	8 lb/ft	20 lb/ft	-	-
Uniform	0'	4'- 2"	FC3 Floor Decking (Plan View Fill)	Top	2 lb/ft	-	-	-
Uniform	4'- 2"	9'- 4 7/8"	FC3 Floor Decking (Plan View Fill)	Top	13 lb/ft	35 lb/ft	-	-
Uniform	4'- 2"	9'	FC3 Floor Decking (Plan View Fill)	Top	4 lb/ft	-	-	-
Uniform	4'- 4 1/2"	9'	User Load	Top	60 lb/ft	-	-	-
Point	4'- 3 1/4"	4'- 3 1/4"	B55 (-3R)(i57076)	Front	196 lb	374 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	PI2(i57081)	266 lb	335 lb	-	-
2	9'- 2 1/2"	9'- 4 7/8"	W38(i52071)	368 lb	310 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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.



SE049421



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Ground Floor**
Label: **B57 (-3R) - i57077**
Type: **Beam**

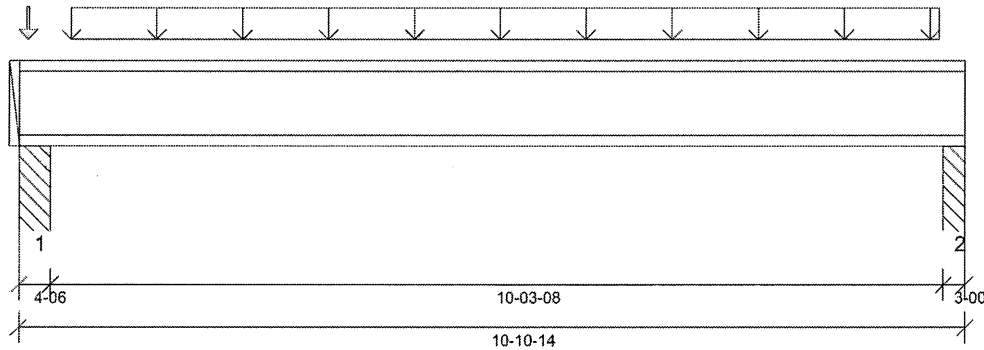
2 Ply Member
11 7/8" NI-20

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 07/15/2022 09:36



DESIGN INFORMATION

Building Code: NBCC 2015, Part 9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

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:

- 1334 psi Column @ 0'- 3 3/8"
- 1334 psi Column @ 10'- 8 7/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 1 1/4"	1.25D + 1.5L	1.00	5696 lb ft	11160 lb ft	Passed - 51%
Factored Shear:	10'- 7 13/16"	1.25D + 1.5L	1.00	2121 lb	4480 lb	Passed - 47%
Live Load (LL) Pos. Defl.:	5'- 6 3/16"	L		0.123"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 6 3/16"	D + L		0.188"	L/240	Passed - L/656

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	2308 lb		4480 lb	29188 lb	Passed - 52%
2	3-00	1.25D + 1.5L	1.00	2123 lb		4240 lb	20018 lb	Passed - 50%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 10 7/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 7 1/4"	10'- 7 1/4"	Smoothed Load	Back	96 lb/ft	194 lb/ft	-	-
Point	0'- 1 1/4"	0'- 1 1/4"	J5(i57066)	Back	58 lb	116 lb	-	-

UNFACTORED REACTIONS

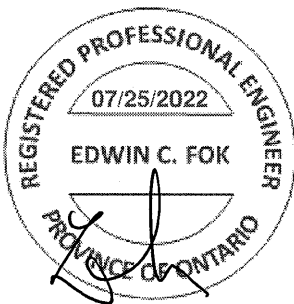
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	P12(i57078)	562 lb	1072 lb	-	-
2	10'- 7 7/8"	10'- 10 7/8"	P12(i57081)	518 lb	982 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Source information for the loads and supports are provided for reference only. Verify that all loads and support conditions are correct.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Unless already specified on this report, anchorage for uplift reactions to be specified by others. Installation of member and accessories (if required) as per manufacturer's instruction.
- 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. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



SG049422



Customer: **Gold Park Homes**
Job Address: **Pine Valley Ph2**
City: **Vaughan**
Job Track: **45147**

Job Name: **346142**
Level: **Ground Floor**
Label: **B58 - i56638**
Type: **Beam**

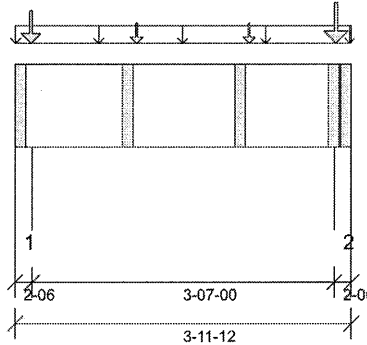
2 Ply Member
1-3/4" x 11-7/8" VERSA-
LAM 2.0 3100 SP

Status:
Design
Passed

Illustration Not to Scale. Pitch: 0/12

Designed by Boise Cascade Design Engine in MITek® Structure Version
8.5.3.233.Update5.15

Report Version: 2021.03.26 07/15/2022 09:37



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/360,

TL Deflection Limit: L/240,

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
unbraced lengths as indicated in the Design Notes.

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 1 3/16"
- 615 psi Wall @ 3'- 10 9/16"

NAIL ONE PLY TO ANOTHER WITH
3-1/2" SPIRAL NAILS @ 6" O/C
STAGGERED IN 2 ROWS

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Moment:	1'- 10 3/4"	1.25D+1.50L	1.00	211 lb ft	35392 lb ft	Passed - 1%
Factored Shear:	2'- 9 1/2"	1.25D+1.50L	1.00	136 lb	14464 lb	Passed - 1%
Live Load (LL) Deflection:	1'- 11 3/4"	1.00L		0.000"	L/360	Passed - L/999
Total Load (TL) Deflection:	1'- 11 3/4"	1.00D+1.00L		0.000"	L/240	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	2-06	1.40D	0.65	337 lb		6592 lb	3324 lb	Passed - 10%
2	2-06	1.40D	0.65	460 lb		6594 lb	3325 lb	Passed - 14%

SPECIFIED LOADS

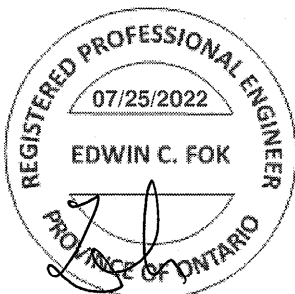
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 11 3/4"	Self Weight	Top	12 lb/ft	-	-	-
Uniform	0'	3'- 11 3/4"	FC1 Floor Decking (Plan View Fill)	Top	10 lb/ft	28 lb/ft	-	-
Point	1'- 5 1/4"	1'- 5 1/4"	Bk1(i56212)	Back	15 lb	41 lb	-	-
Point	2'- 9 1/4"	2'- 9 1/4"	Bk1(i56171)	Back	14 lb	37 lb	-	-
Point	0'- 2 3/16"	0'- 2 3/16"	E4(i41612)	Top	182 lb	-	-	-
Point	3'- 9 9/16"	3'- 9 9/16"	E8(i41611)	Top	269 lb	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	-	247 lb	95 lb	-	-
++>	0'- 7/16"	0'- 7/16"	W4(i41585)	84 lb	32 lb	-	-
++>	0'- 3/4"	0'- 3/4"	W5(i41583)	163 lb	63 lb	-	-
2	3'- 9 3/8"	3'- 11 3/4"	-	324 lb	98 lb	-	-
++>	3'- 10 15/16"	3'- 10 15/16"	W7(i41586)	214 lb	65 lb	-	-
++>	3'- 11 3/8"	3'- 11 3/8"	W8(i41595)	110 lb	33 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
- Lateral stability factor (KL) was based on user preference to use the width of one ply.
- 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.
- Design meets Code minimum (L/240) Total load deflection criteria.
- Design meets Code minimum (L/360) Live load deflection criteria.
- Resistance Factor phi has been applied to all presented results per CSA O86.
- BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
- Design based on Dry Service Condition.
- Importance Factor : Normal Part code : Part 4
- Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.
- Design results provided by Boise Cascade - for support contact Boise Cascade Software Support at (800) 405-5969



82049423

Maximum Floor Spans – M4.1, L/360

Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/360 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing



Maximum Floor Spans

Joist depth	Joist series	Bare				1/2 in. gypsum ceiling			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	14'-11"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-8"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-8"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap				Mid-span blocking and 1/2 in. gypsum ceiling			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	17'-1"	15'-5"	14'-6"	13'-5"	17'-1"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-6"	16'-7"	14'-11"	19'-2"	17'-8"	16'-7"	14'-11"
	NI-60	18'-11"	17'-8"	16'-10"	15'-7"	19'-5"	18'-0"	16'-10"	15'-7"
	NI-80	20'-3"	18'-10"	17'-11"	17'-2"	20'-8"	19'-3"	18'-4"	17'-5"
11-7/8"	NI-20	20'-3"	18'-8"	17'-6"	16'-1"	20'-7"	18'-8"	17'-6"	16'-1"
	NI-40x	21'-10"	20'-4"	19'-0"	17'-0"	22'-5"	20'-10"	19'-0"	17'-0"
	NI-60	22'-1"	20'-7"	19'-8"	18'-7"	22'-8"	21'-2"	20'-3"	18'-8"
	NI-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-8"	21'-6"	20'-4"
14"	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-8"
	NI-40x	24'-5"	22'-9"	20'-11"	18'-8"	25'-1"	22'-11"	20'-11"	18'-8"
	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'-6"	23'-10"	22'-9"	21'-4"
	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
16"	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-8"	23'-2"
	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	25'-0"	23'-1"
	NI-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"

Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

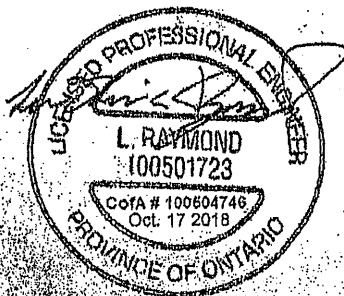
The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

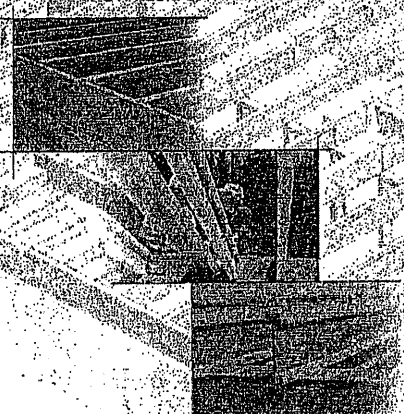
Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



N-C301/April 2014



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or unless they are fully braced.



Never stack building materials over unbraced I-joists. Once installed, do not cross across I-joist with concentrated loads from building materials.

WARNING

I-joists are not stable until completely fastened, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each joist as it is installed using temporary blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is placed at floor location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 6 feet on center, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each joist. Nail the bracing to a lateral restraint at the end of each bay. Top ends of strutting bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, check building materials over beams or walls only.
5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable loads and locations, or failure to use web stiffeners when required can result in serious accidents. Follow basic installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

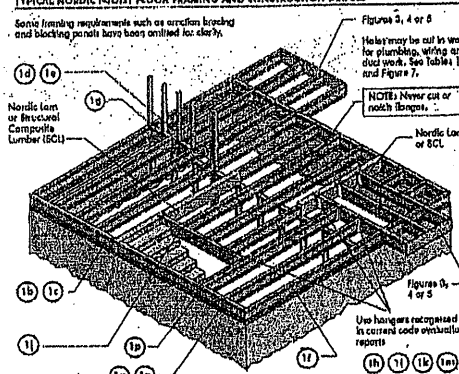
1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or debris.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joist and injury to your work crew.
 - Pick I-joists in bundles or shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 3/4 points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE CRY TAY TO REPAIR A DAMAGED I-JOIST.



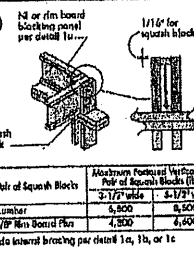
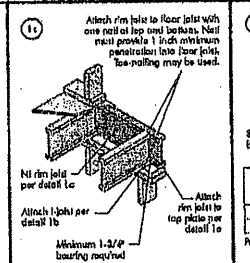
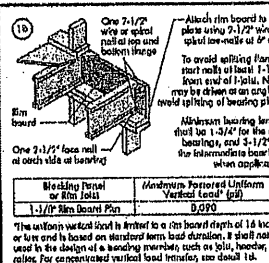
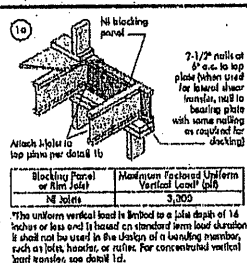
INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
5. Minimum bearing length: 12-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly to hanger bottoms to minimize settlement.
7. Leave a 1/4 inch gap between the I-joist end and a hanger.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all recommended loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joist or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or spacers (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products - such as rim board - must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at lateral supports of multiple-span joists. Initially support the bottom flange of all cantilevered I-joists at the support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Other panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia) common spiral nails may be substituted for 2-1/2" (0.125" dia) common wire nails. Framing lumber assumed to be Service-First No. 2 or better. Individual components not shown to scale for clarity.



The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



N-C301/April 2014

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate live loads are based on the factored loads of 1.50 L + 1.25 D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent spans.
2. Spans are based on a composite floor with glass-faced or coated steel deck (GFR) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. All joists shall meet the requirements given in CGS-7.1.2.6 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of dynamic analysis or a row of bridging at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and loadings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the V10 of the design properties.
6. Tables are based on Unit Stress Design per CAN/CSA C308-09 Standard, and NRC 2010.
7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

	15'	142"	14'	138"	13'	134"	12'	130"	11'	126"	10'	122"	9'	118"	8'	114"	7'	110"	6'	106"	5'	102"	4'	98"	3'	94"	2'	90"	1'	86"	0'	82"	0'	78"	0'	74"	0'	70"	0'	66"	0'	62"	0'	58"	0'	54"	0'	50"	0'	46"	0'	42"	0'	38"	0'	34"	0'	30"	0'	26"	0'	22"	0'	18"	0'	14"	0'	10"	0'	6"	0'	2"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"	0'	0"
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Document prepared for the use of
Stephanie Gori from Alpa, Ontario
(Nordic Request 1810-096)

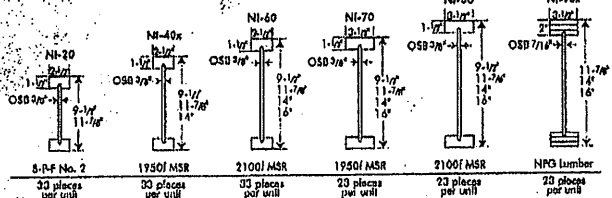


CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / September 2013



Refer to the Installation Guide for Residential Floors for additional information.
CCMC EVALUATION REPORT 13032-R



WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, hole cut holes should be centred on the middle of the web.
4. The maximum size hole of the minimum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

5. The sides of square holes or longest sides of rectangular holes shall not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole for twice the length of the longest side of the largest rectangular hole or duct chase opening and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a non-sheathed section of a joist. Holes of greater size may be permitted subject to verification.

9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 18 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft. - in.)											
		Round Hole Diameter (in.)											
9-1/2"	NI-20	0-7"	1-0"	2-10"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"
	NI-40x	0-7"	1-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"	12-0"
	NI-60	1-0"	2-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"	12-0"	13-0"
	NI-70	2-0"	3-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"	12-0"	13-0"	14-0"
	NI-80	2-0"	3-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"	12-0"	13-0"	14-0"
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-40x	0-7"	0-8"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-60	0-7"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"
	NI-70	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"	12-0"
	NI-80	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"	11-0"	12-0"
14"	NI-20	0-7"	0-8"	0-9"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-40x	0-7"	0-8"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-60	0-7"	0-8"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-70	0-7"	0-8"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-80	0-7"	0-8"	1-0"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
16"	NI-20	0-7"	0-8"	0-9"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-40x	0-7"	0-8"	0-9"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-60	0-7"	0-8"	0-9"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-70	0-7"	0-8"	0-9"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"
	NI-80	0-7"	0-8"	0-9"	2-0"	3-0"	4-0"	5-0"	6-0"	7-0"	8-0"	9-0"	10-0"

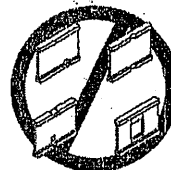
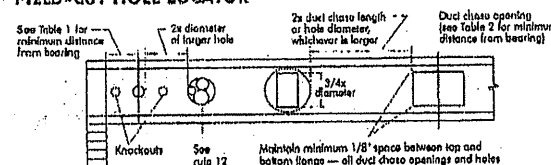
1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of support to centre of hole.
3. Distances in this table are based on uniformly loaded joists.
4. The above table is based on the I-joist being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft. - in.)											
		Duct Chase Length (in.)											
9-1/2"	NI-20	4-1"	4-0"	4-10"	5-0"	5-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"
	NI-40x	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-60	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-70	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-80	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
11-7/8"	NI-20	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-40x	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-60	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-70	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-80	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
14"	NI-20	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-40x	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-60	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-70	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-80	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
16"	NI-20	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-40x	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-60	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-70	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"
	NI-80	5-0"	5-0"	6-0"	6-0"	6-0"	7-0"	7-0"	8-0"	8-0"	9-0"	9-0"	10-0"

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other conditions, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
5. The above table is based on the I-joist being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR

Knockouts are predrilled holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the rest of the hole is another good method to minimize damage to the I-joist.

SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unbraced I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is present at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails (driven to the top surface of each I-joist). Nail the bracing to a lateral restraint at the end of each bay. Top ends of adjoining bracing over or below two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.



PRODUCT WARRANTY

Garrett's Chongmen guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Garrett's Chongmen warrants that our products, when utilized in accordance with our building and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

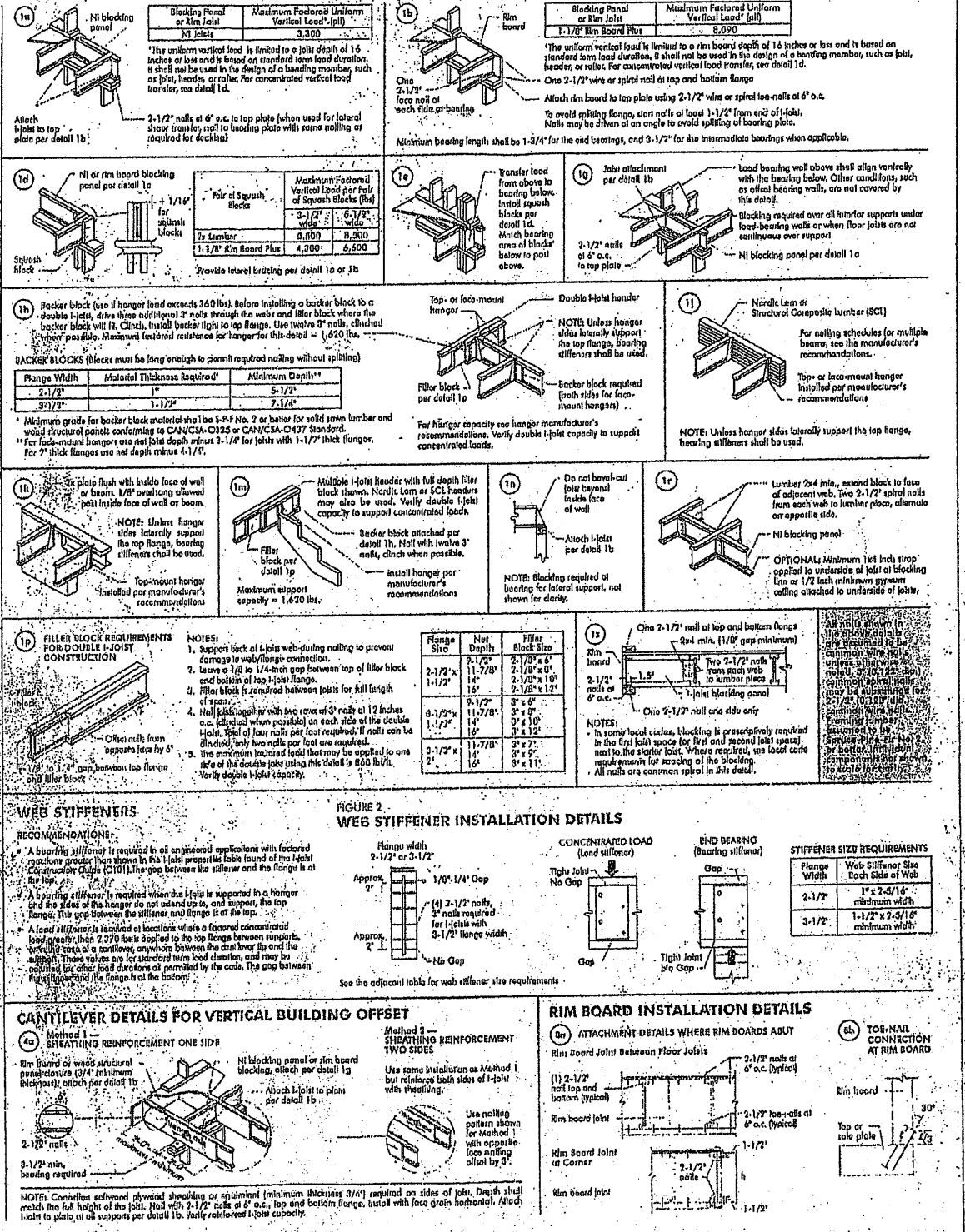
The construction details for residential designs are prone to changes.

Details released after September 2013 supersede N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



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