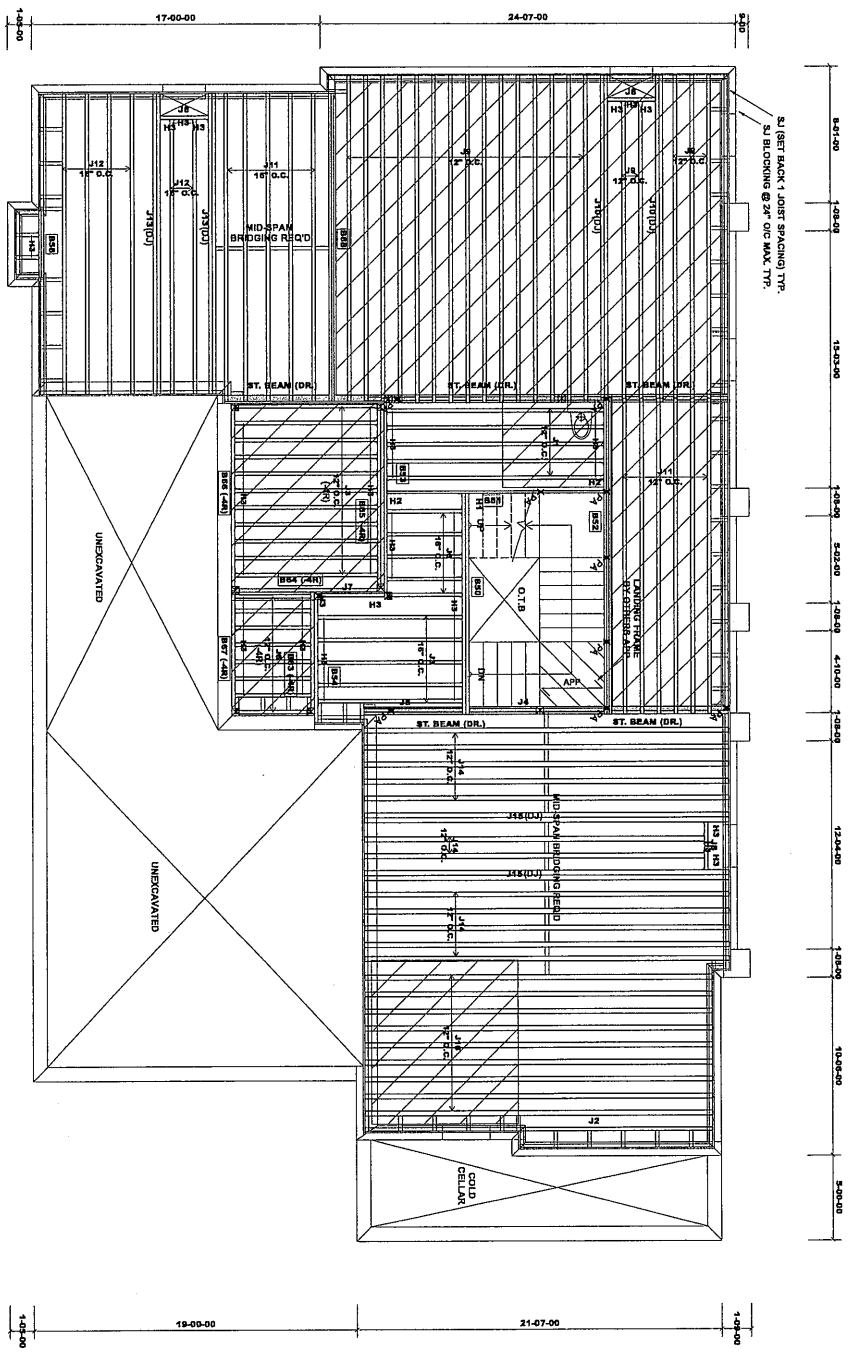




GROUND FLOOR FRAMING
UNIT 5011 - THE TIMBERLAND
ELEVATION B
LOT 67

SEO46729 - SEO46767
55047924 - 55047942

FLOOR LOADING
LIVE LOAD: 40 PSF
DEAD LOAD (FILL): 20 PSF

HATCH LEGEND
Ceramic Tile
Conv Framed

APP - AS PER PLAN
BBO - BEAM BY OTHERS
O.I.B - OPEN TO BELOW
RT - ROOF TRUSS
RIMBOARD
1-1/8" X 11-7/8" O.S.B
SUBFLOOR 3/4" NAILED & GULFED*

Blocking panels are required over all interior supports.
Spanish blocks are required under concentrated loads.
Ceramic Tile Application as per O.B.C. 9.30.6
Provide L-Block Blocking between cantilevered joists (along bearing) and imbedded closure at ends.
Do not scrib - refer to architectural plans for dimensions.

Field	Length	Product	Area	Qty
B80	14'-00.00	11 7/8" N-20	2	2
B82	13'-00.00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B83	12'-00.00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B84	4'-00.00	11 7/8" N-20	2	2
B85 (4/3)	4'-00.00	11 7/8" N-20	1	1
B86 (4/3)	4'-00.00	11 7/8" N-20	1	1
B87 (4/3)	4'-00.00	11 7/8" N-20	1	1
B88	19'-00.00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
J1	13'-00.00	11 7/8" N-20	1	1
J2	12'-00.00	11 7/8" N-20	1	1
J3	11'-00.00	11 7/8" N-20	1	1
J4	8'-00.00	11 7/8" N-20	1	1
J5	8'-00.00	11 7/8" N-20	1	1
J6	8'-00.00	11 7/8" N-20	1	1
J7	8'-00.00	11 7/8" N-20	1	1
J8	20'-00.00	11 7/8" N-40x	1	20
J9	20'-00.00	11 7/8" N-40x	1	20
J10	20'-00.00	11 7/8" N-40x	1	20
J11	20'-00.00	11 7/8" N-40x	1	20
J12	18'-00.00	11 7/8" N-40x	1	18
J13	18'-00.00	11 7/8" N-40x	1	18
J14	18'-00.00	11 7/8" N-40x	1	18
J15	22'-00.00	11 7/8" N-40	1	22
J16	22'-00.00	11 7/8" N-40	1	22
C41	22'-00.00	1-1/8" x 11 7/8" Rim Board	1	1
B41	9'-00.00	11 7/8" N-20	1	1

Field	Qty	Material
H1	1	H4332
H2	2	H4318
H3	80	L7231188

Job Title: 45147
Layout ID: 343073-346143*
Plan Log: 118158

Builder: Gold Park Homes
Project: Pine Valley Ph2
Model: 5011 B - Lot 67

Location: Vaughan ON
Salesperson: Derek F.
Vendor: Home Lumber Inc.

Sheet: 1 of 2
Date: Jul. 16, 2022
Designer: TL

THESE DRAWINGS CONSTITUTE THE PROPERTY OF ALTA ROOF TRUSSES INC. SHALL NOT BE REPRODUCED, COPIED, REPRODUCED, OR REPRODUCED IN ANY MANNER OR UTILIZED FOR ANY PURPOSE OTHER THAN THE MANUFACTURE OF ROOF TRUSSES INC. UTILIZED FOR ANY OTHER PURPOSE.
Mark V. 8.3.23

Connector Summary			
PlottID	Qty	Manuf	Product
H1	1		HGUSA10
H2	2		HU312-2
H3	54		LT251188

SECOND FLOOR FRAMING
UNIT 5011 - THE TIMBERLAND
ELEVATION B

FLOOR LOADING
LIVE LOAD : 40 PSF
DEAD LOAD : 15 PSF
DEAD LOAD (TILE): 20 PSF

HATCH LEGEND	
	Ceramic Tile
	Conv Framed

APP - AS PER PLAN
BBO - BEAM BY OTHERS
PA - POST ABOVE
O.T.B. - OPEN TO BELOW
GT - GIRDER TRUSS
RT - ROOF TRUSS
RIMBOARD
1-1/8" X 11-7/8" O.S.B
SUBFLOOR: 3/4" NAILED & GLUED*

Blocking panels are required over all interior supports.
Squeak blocks are required under concentrated loads.

Ceramic Tile Application as per O.B.C. 9.30.6

Provide 1:10 blocking between cantilevered joists (along bearing) and rimboard closure at ends.

Do not scale - refer to architectural plans for dimensions.

Job Track:	45147	Builder:	Gold Park Homes	Location:	Vaughan ON	Sheet:	2 of 2
Layout ID:	343073-346143*	Project:	Pine Valley Ph2	Supervisor:	Derek F.	Date:	Jul. 16, 2022
Plan Log:	118158	Model:	5011 B - Lot 67	Yard:	Home Lumber Inc.	Designer:	TL

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MADE IN U.S.A. 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**

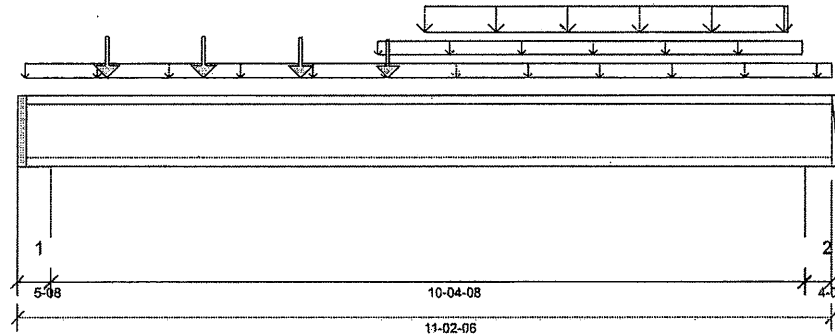
2 Ply Member
11 7/8" NI-20

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	8007 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	83 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/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.



SE04672



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**

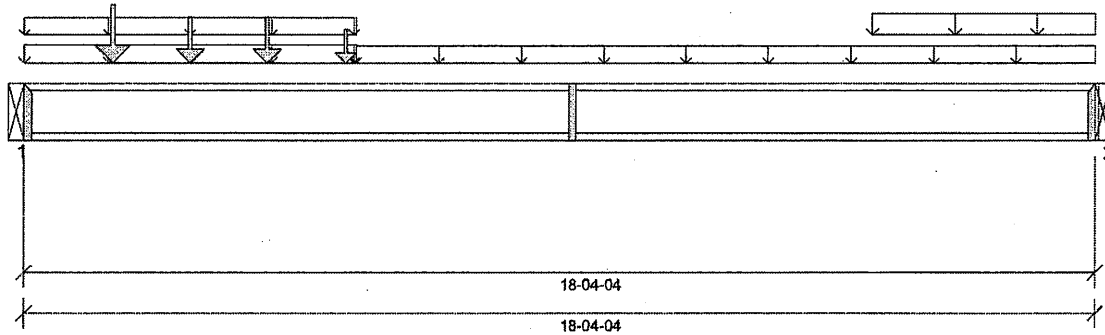
2 Ply Member
11 7/8" NI-40x

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'- 1/16"	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		0.476"	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	Top	Face	Member	Other Information or Requirement for Reinforcement Accessories
1	HU312-2	-	-	-	-	Connector manually specified by the user.
2	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'	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(I50736)	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	-	-

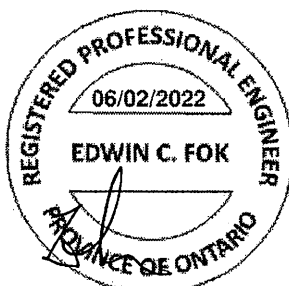
DESIGN NOTES

- 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





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

PASSED

Second Floor\Flush Beams\B44(i61596) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:44:10

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B44(i61596)

City, Province, Postal Code: Vaughan, ON

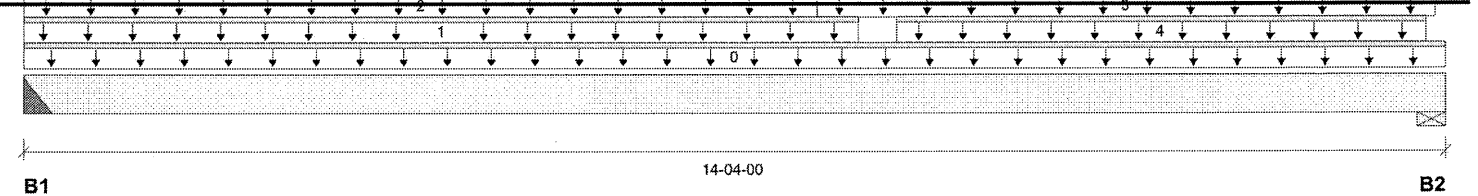
Specifier:

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"	806 / 0	797 / 0		
B2, 5-1/2"	2197 / 0	1135 / 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	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	Top	22	8			n/a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	08-00-00	14-02-12	Top	19	7			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	08-09-10	14-01-10	Front	374	140			n/a
5	B5(i61089)	Conc. Pt. (lbs)	L	08-02-08	08-02-08	Front	704	386			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13341 ft-lbs	35392 ft-lbs	37.7%	1	08-02-08
End Shear	4072 lbs	14464 lbs	28.2%	1	12-10-10
Total Load Deflection	L/546 (0.304")	n/a	44.0%	4	07-05-04
Live Load Deflection	L/916 (0.181")	n/a	39.3%	5	07-05-04
Max Defl.	0.304"	n/a	n/a	4	07-05-04
Span / Depth	14.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	2205 lbs	n/a	25.8%	HGUS410
B2	Wall/Plate 5-1/2" x 3-1/2"	4715 lbs	39.8%	20.1%	Spruce-Pine-Fir

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

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.

Notes

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

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

Hanger Manufacturer: Unassigned

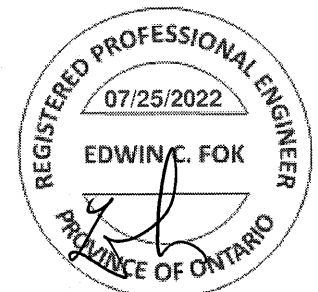
Resistance Factor phi has been applied to all presented results per CSA O86.

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: 04-04-11.



SE049924



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

PASSED

Second Floor\Flush Beams\B46(i61598) (Flush Beam)

BC Design Engine Member Report

Dry | 2 spans | R cant.

July 16, 2022 13:44:43

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B46(i61598)

City, Province, Postal Code: Vaughan, ON

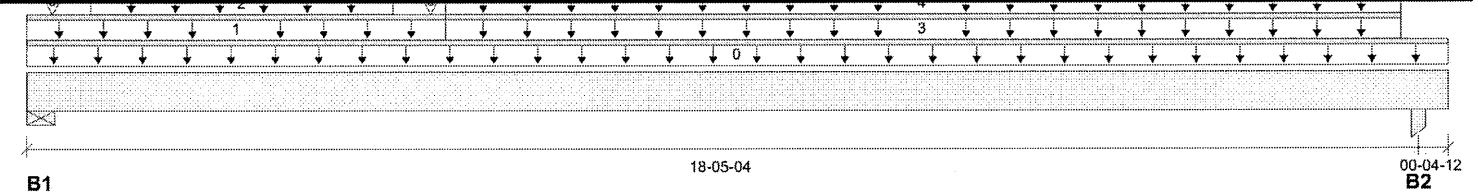
Specifier:

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	825 / 0		
B2, 5-1/2"	1110 / 0	1529 / 0		

Load Summary

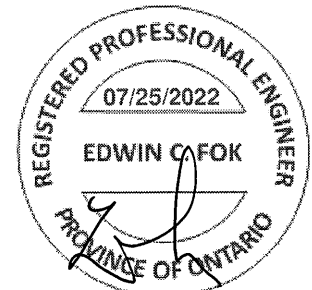
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-10-00	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	05-06-08	Top	15	6			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-02	04-10-02	Front	166	82			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	J3(i61076)	Conc. Pt. (lbs)	L	00-04-02	00-04-02	Front	121	60			n/a
6	J3(i61230)	Conc. Pt. (lbs)	L	05-04-02	05-04-02	Front	99	45			n/a
7	B44(i61596)	Conc. Pt. (lbs)	L	18-04-04	18-04-04	Front	813	799			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4847 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	2143 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 (0.346")	n/a	37.8%	9	09-00-02
Live Load Deflection	L/1674 (0.131")	n/a	21.5%	12	08-04-04
Total Neg. Defl.	2xL/1998 (-0.023")	n/a	n/a	9	18-10-00
Max Defl.	0.346"	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"	2407 lbs	55.9%	28.2%	Spruce-Pine-Fir
B2	Column 5-1/2" x 3-1/2"	3576 lbs	10.7%	15.2%	Spruce-Pine-Fir

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


86049425



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

PASSED

Second Floor\Flush Beams\B48(i61383) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:45:08

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B48(i61383)

City, Province, Postal Code: Vaughan, ON

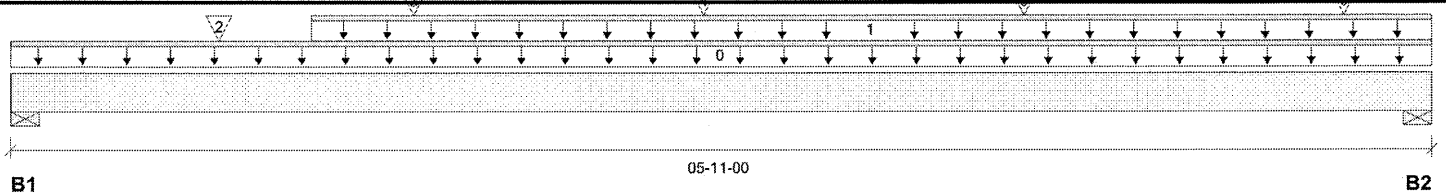
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 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	J7(i61105)	Conc. Pt. (lbs)	L	00-10-06	00-10-06	Front	375	159			n/a
3	-	Conc. Pt. (lbs)	L	01-08-02	01-08-02	Front	1431	966			n/a
4	-	Conc. Pt. (lbs)	L	02-10-10	02-10-10	Front	940	353			n/a
5	-	Conc. Pt. (lbs)	L	04-02-10	04-02-10	Front	993	373			n/a
6	J7(i61254)	Conc. Pt. (lbs)	L	05-06-10	05-06-10	Front	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®,

8E049426



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B50 - i61925**
Type: **Beam**

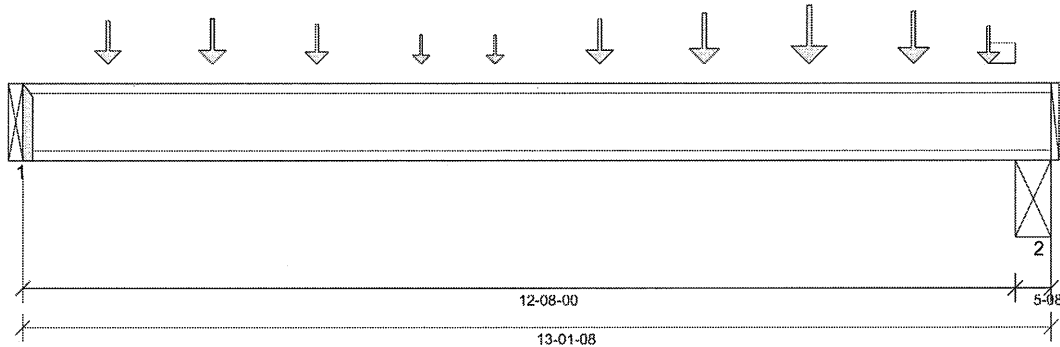
2 Ply Member
11 7/8" NI-20

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 07/16/2022 13:48



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, CBC 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	7180 lb ft	11160 lb ft	Passed - 64%
Factored Shear:	12'- 7 15/16"	1.25D + 1.5L	1.00	2698 lb	4480 lb	Passed - 60%
Live Load (LL) Pos. Defl.:	6'- 6"	L		0.235"	L/360	Passed - L/646
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	2044 lb		3940 lb	-	Passed - 52%
2	5-08	1.25D + 1.5L	1.00	2705 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"	J6(i62056)	Front	89 lb	236 lb	-	-
Point	2'- 5"	2'- 5"	J6(i62021)	Front	95 lb	253 lb	-	-
Point	3'- 9"	3'- 9"	J6(i62076)	Front	77 lb	203 lb	-	-
Point	5'- 1"	5'- 1"	J6(i62025)	Front	45 lb	120 lb	-	-
Point	6'- 3/8"	6'- 3/8"	J6(i62071)	Front	43 lb	115 lb	-	-
Point	7'- 4 3/8"	7'- 4 3/8"	J3(i61924)	Front	94 lb	250 lb	-	-
Point	8'- 8 3/8"	8'- 8 3/8"	J3(i61870)	Front	111 lb	295 lb	-	-
Point	10'- 3/8"	10'- 3/8"	J3(i61916)	Front	136 lb	361 lb	-	-
Point	11'- 4 3/8"	11'- 4 3/8"	J3(i61956)	Front	117 lb	310 lb	-	-
Point	12'- 3 7/8"	12'- 3 7/8"	J3(i61998)	Front	71 lb	185 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B51(i61888)	418 lb	1014 lb	-	-
2	12'- 8"	13'- 1 1/2"	ST. BEAM (DR.)i53634)	547 lb	1347 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



SE049027



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

PASSED

Ground Floor\Flush Beams\B51(i61888) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:49:01

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B51(i61888)

City, Province, Postal Code: Vaughan, ON

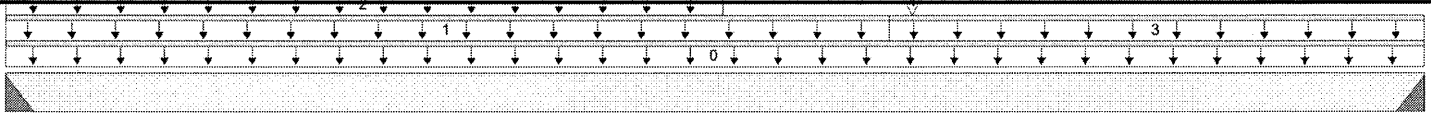
Specifier:

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(i61925)	Conc. Pt. (lbs)	L	08-02-08	08-02-08	Back	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				

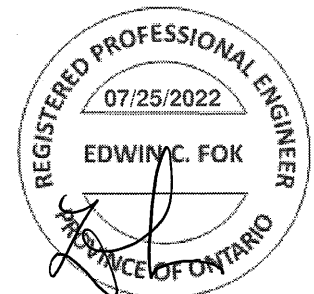
Bearing Supports

	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.



56049428



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

PASSED

Ground Floor\Flush Beams\B52(i61904) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:49:14

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B52(i61904)

City, Province, Postal Code: Vaughan, ON

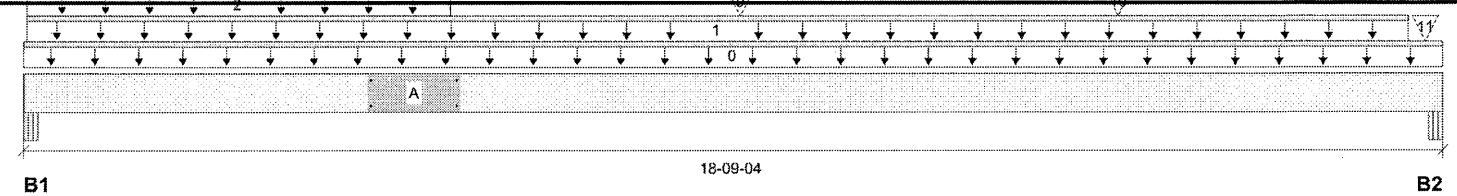
Specifier:

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, 3-1/4"	2110 / 0	1859 / 0		
B2, 5-1/2"	3322 / 0	3506 / 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	18-09-04	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	20				n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-00	04-03-00	Front	266	123			n/a
4	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-09-00	18-03-12	Top	9				n/a
5	J1(i61976)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Front	222	102			n/a
6	J1(i61996)	Conc. Pt. (lbs)	L	04-09-00	04-09-00	Front	247	113			n/a
7	B51(i61888)	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Front	750	630			n/a
8	LANDING	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Top	148	56			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(i61597)	Conc. Pt. (lbs)	L	18-06-08	18-06-08	Top	2345	2308			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	19881 ft-lbs	55211 ft-lbs	36.0%	1	05-06-14
End Shear	5075 lbs	21696 lbs	23.4%	1	01-03-02
Total Load Deflection	L/388 (0.562")	n/a	61.9%	4	08-09-02
Live Load Deflection	L/779 (0.28")	n/a	46.2%	5	08-09-02
Max Defl.	0.562"	n/a	n/a	4	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"	5489 lbs	52.3%	26.4%	Unspecified
B2	Beam 5-1/2" x 5-1/4"	9365 lbs	52.7%	26.6%	Unspecified

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: 12-08-00.

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



8049429



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

PASSED

Ground Floor\Flush Beams\B53(i63109) (Flush Beam)

BC Design Engineer Member Report

Dry | 1 span | No cant.

July 16, 2022 14:06:57

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B53(i63109)

City, Province, Postal Code: Vaughan, ON

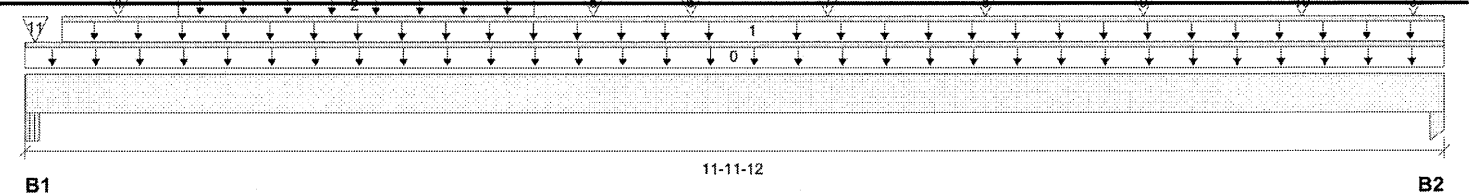
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 11-11-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-3/4"	1705 / 0	1134 / 0		
B2, 5-1/2"	1164 / 0	921 / 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	11-11-12	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-03-12	11-11-12	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-08	04-03-08	Back	263	106			n/a
3	J7(i63119)	Conc. Pt. (lbs)	L	11-08-10	11-08-10	Front	60	22			n/a
4	J1(i63127)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	Back	223	90			n/a
5	J1(i63134)	Conc. Pt. (lbs)	L	04-09-08	04-09-08	Back	243	97			n/a
6	B51(i63111)	Conc. Pt. (lbs)	L	05-07-06	05-07-06	Back	956	521			n/a
7	J6(i63148)	Conc. Pt. (lbs)	L	06-09-04	06-09-04	Back	118	44			n/a
8	J6(i63141)	Conc. Pt. (lbs)	L	08-01-04	08-01-04	Back	126	47			n/a
9	J6(i63153)	Conc. Pt. (lbs)	L	09-05-04	09-05-04	Back	126	47			n/a
10	J6(i63115)	Conc. Pt. (lbs)	L	10-09-04	10-09-04	Back	106	40			n/a
11	8(i41678)	Conc. Pt. (lbs)	L	00-01-00	00-01-00	Top	109	51			n/a

Controls Summary

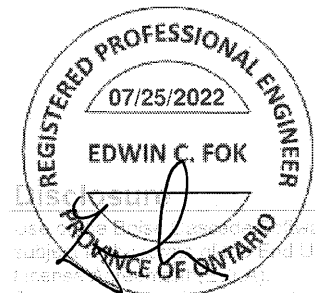
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	11888 ft-lbs	17696 ft-lbs	67.2%	1	05-07-06
End Shear	3431 lbs	7232 lbs	47.4%	1	01-03-10
Total Load Deflection	L/372 (0.366")	n/a	64.5%	4	05-09-02
Live Load Deflection	L/632 (0.215")	n/a	57.0%	5	05-09-02
Max Defl.	0.366"	n/a	n/a	4	05-09-02
Span / Depth	11.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 3-3/4" x 1-3/4"	3975 lbs	98.5%	49.6%	Unspecified
B2	Column 5-1/2" x 1-3/4"	2897 lbs	17.3%	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 9
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.



The output here is subject to the user's interpretation. Completion 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®,

SE049430



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B54 - i61938**
Type: **Beam**

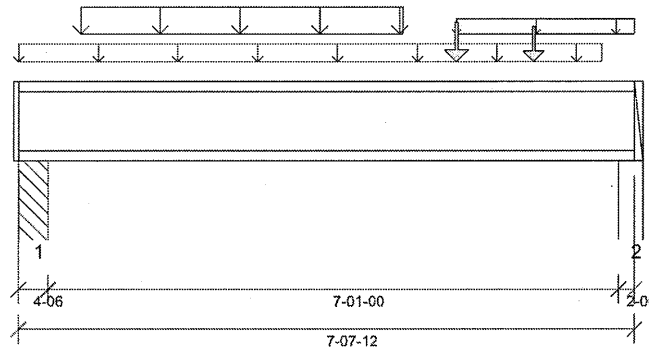
1 Ply Member
11 7/8" NI-20

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 07/16/2022 13:50



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	2821 lb ft	5580 lb ft	Passed - 51%
Factored Shear:	0'- 4 7/16"	1.25D + 1.5L	1.00	1376 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 7/8"	D + L		0.106"	L/240	Passed - L/803

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	1421 lb		2240 lb	14596 lb	Passed - 63%
2	2-06	1.25D + 1.5L	1.00	1332 lb		2045 lb	3653 lb	Passed - 65%

SPECIFIED LOADS

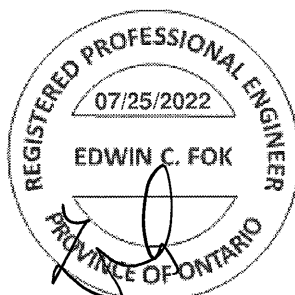
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 7 3/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	7'- 2 7/8"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'- 9 1/4"	4'- 9 1/4"	Smoothed Load	Back	68 lb/ft	179 lb/ft	-	-
Tapered	5'- 5 1/4"	7'- 7 3/4"	FC1 Floor Decking (Plan View Fill)	Top	-	11 To 6 lb/ft	-	-
Point	5'- 5 1/4"	5'- 5 1/4"	J3(i61956)	Back	75 lb	200 lb	-	-
Point	6'- 4 3/4"	6'- 4 3/4"	J3(i61998)	Back	63 lb	162 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	Pt1(i62077)	458 lb	565 lb	-	-
2	7'- 5 3/8"	7'- 7 3/4"	W39(i52072)	417 lb	542 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.



SE049431



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

PASSED

Ground Floor\Flush Beams\B58(i62030) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:50:43

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B58(i62030)

City, Province, Postal Code: Vaughan, ON

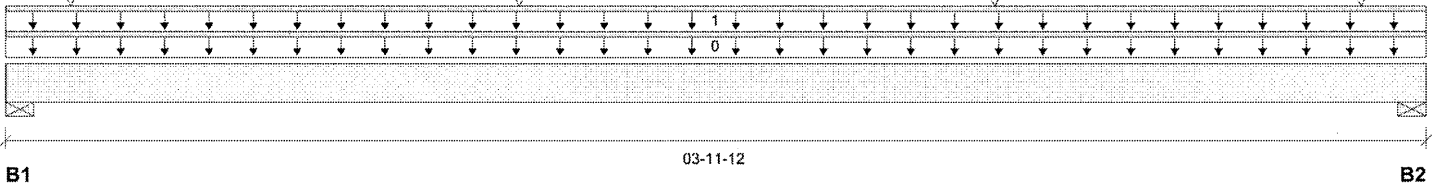
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 03-11-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	92 / 0	240 / 0		
B2, 2-3/8"	95 / 0	329 / 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	03-11-12	Top		12			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	03-11-12	Top	28	10			n/a
2	Bk1(i62074)	Conc. Pt. (lbs)	L	01-05-04	01-05-04	Front	40	15			n/a
3	Bk1(i62018)	Conc. Pt. (lbs)	L	02-09-04	02-09-04	Front	37	14			n/a
4	E4(i41612)	Conc. Pt. (lbs)	L	00-02-03	00-02-03	Top		182			n/a
5	E8(i41611)	Conc. Pt. (lbs)	L	03-09-09	03-09-09	Top		269			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	210 ft-lbs	35392 ft-lbs	0.6%	1	01-10-12
End Shear	135 lbs	14464 lbs	0.9%	1	02-09-08
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-11-12
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-11-12
Max Defl.	0"	n/a	n/a	4	01-11-12
Span / Depth	3.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 3-1/2"	337 lbs	10.1%	5.1%	Spruce-Pine-Fir
B2	Wall/Plate 2-3/8" x 3-1/2"	460 lbs	13.8%	7.0%	Spruce-Pine-Fir

Notes

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

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

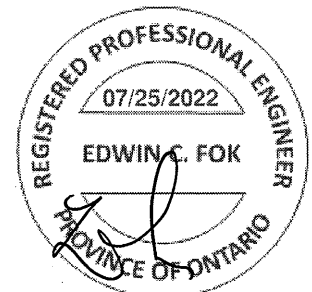
Resistance Factor phi has been applied to all presented results per CSA O86.

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 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

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


S2049432



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

PASSED

Second Floor\Flush Beams\B59(i61184) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:45:37

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B59(i61184)

City, Province, Postal Code: Vaughan, ON

Specifier:

Customer: Gold Park Homes

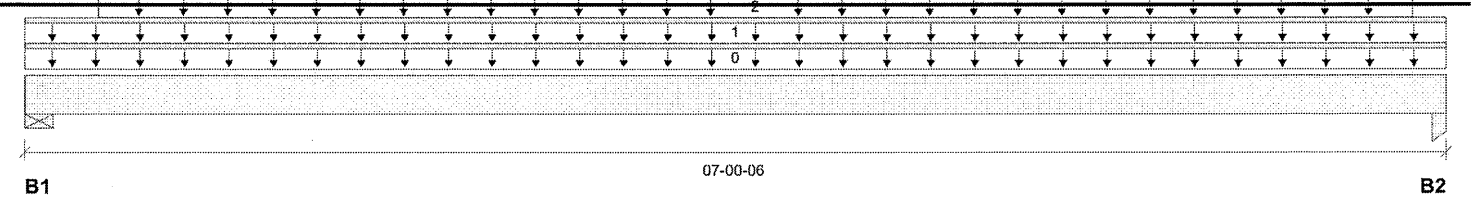
Designer: TL

Code reports:

CCMC 12472-R

Company:

Alpa Roof Trusses Inc.



Total Horizontal Product Length = 07-00-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1247 / 0	728 / 0		
B2, 2"	1269 / 0	735 / 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	07-00-06	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	07-00-06	Top	19	7			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-06	06-10-06	Top		60			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	04-03-04	Front	370	145			n/a
4	J7(i61358)	Conc. Pt. (lbs)	L	00-09-04	00-09-04	Front	308	120			n/a
5	J7(i61135)	Conc. Pt. (lbs)	L	04-09-04	04-09-04	Front	339	133			n/a
6	J7(i61325)	Conc. Pt. (lbs)	L	05-07-04	05-07-04	Front	308	121			n/a
7	J7(i61152)	Conc. Pt. (lbs)	L	06-05-04	06-05-04	Front	313	122			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4787 ft-lbs	35392 ft-lbs	13.5%	1	03-09-04
End Shear	2331 lbs	14464 lbs	16.1%	1	05-10-08
Total Load Deflection	L/999 (0.027")	n/a	n/a	4	03-07-12
Live Load Deflection	L/999 (0.017")	n/a	n/a	5	03-07-12
Max Defl.	0.027"	n/a	n/a	4	03-07-12
Span / Depth	6.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	2781 lbs	29.5%	14.9%	Spruce-Pine-Fir
B2	Column 2" x 3-1/2"	2823 lbs	23.2%	33.1%	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 @ 8" O/C
 STAGGERED IN 2 ROWS


S2049433



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

PASSED

Second Floor\Flush Beams\B60(i61214) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:45:51

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Second Floor\Flush Beams\B60(i61214)

City, Province, Postal Code: Vaughan, ON

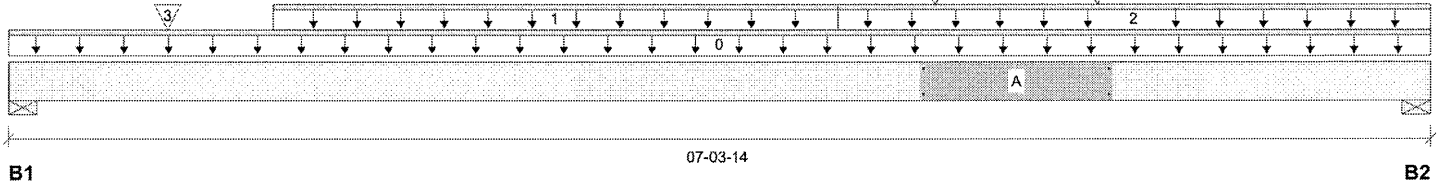
Specifier:

Customer: Gold Park Homes

Designer: TL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses Inc.



Total Horizontal Product Length = 07-03-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	2357 / 0	1087 / 0		
B2, 5-1/2"	2611 / 0	1201 / 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	07-03-14	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-04	04-03-04	Top	838	372			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-03-04	07-03-14	Top	406	178			n/a
3	-	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Front	639	280			n/a
4	J7(i61135)	Conc. Pt. (lbs)	L	04-09-04	04-09-04	Back	339	153			n/a
5	J7(i61325)	Conc. Pt. (lbs)	L	05-07-04	05-07-04	Back	308	139			n/a

Controls Summary

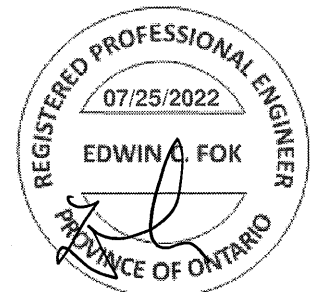
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8517 ft-lbs	35392 ft-lbs	24.1%	1	03-09-04
End Shear	4266 lbs	14464 lbs	29.5%	1	05-10-08
Total Load Deflection	L/999 (0.048")	n/a	n/a	4	03-07-14
Live Load Deflection	L/999 (0.033")	n/a	n/a	5	03-07-14
Max Defl.	0.048"	n/a	n/a	4	03-07-14
Span / Depth	6.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	4894 lbs	52.0%	26.2%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	5417 lbs	45.7%	23.1%	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: 00-08-08.

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



SG049434



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

Job Name: **346143**
Level: **Second Floor**
Label: **B61 - i61229**
Type: **Beam**

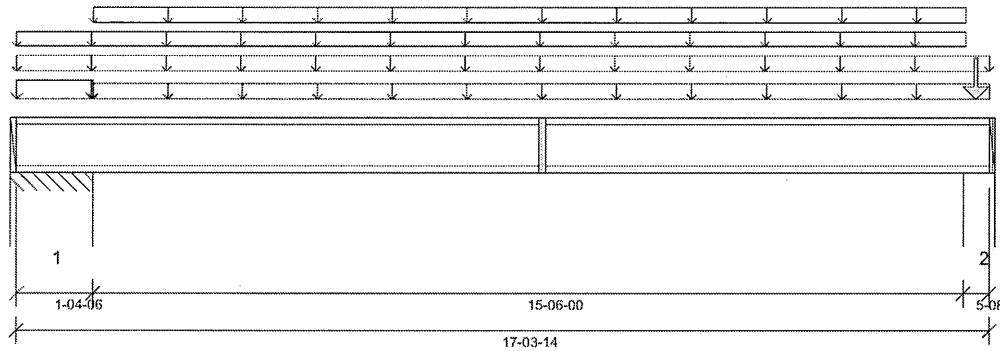
2 Ply Member
11 7/8" NI-40x

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 07/16/2022 13:46



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 @ 16'- 11 3/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	9'- 1 5/8"	1.25D + 1.5L	0.86	4517 lb ft	10788 lb ft	Passed - 42%
Factored Neg. Moment:	1'- 3 3/8"	1.25D + 1.5L	0.65	174 lb ft	8132 lb ft	Passed - 2%
Factored Shear:	1'- 4 7/16"	1.25D + 1.5L	0.86	1168 lb	4036 lb	Passed - 29%
Live Load (LL) Pos. Defl.:	9'- 1 1/8"	L		0.071"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	9'- 1 1/2"	D + L		0.228"	L/240	Passed - L/815

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	1.4D	0.65	1091 lb		3042 lb	32740 lb	Passed - 36%
2	5-08	1.25D + 1.5L	0.86	1706 lb		4036 lb	14589 lb	Passed - 42%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	17'- 3 7/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	17'- 3 7/8"	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	1'- 4 3/8"	17'- 3 7/8"	FC2 Floor Decking (Plan View Fill)	Top	30 lb/ft	-	-	-
Uniform	1'- 4 3/8"	16'- 10 7/8"	FC2 Floor Decking (Plan View Fill)	Top	30 lb/ft	-	-	-
Point	17'- 1"	17'- 1"	-	Front	84 lb	244 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)	2839/-1923 lb	1280/-897 lb	-	-
==>	0'- 1 1/2"	0'- 1 1/2"	E2(i41607)	-1923 lb	27/-897 lb	-	-
==>	1'- 2 7/8"	1'- 2 7/8"	E2(i41607)	2839 lb	1253 lb	-	-
2	16'- 10 3/8"	17'- 3 7/8"	15(i59044)	592 lb	465 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.



SE049425



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

Job Name: **346143**
Level: **Second Floor**
Label: **B62 (CONT.) - i61189**
Type: **Beam**

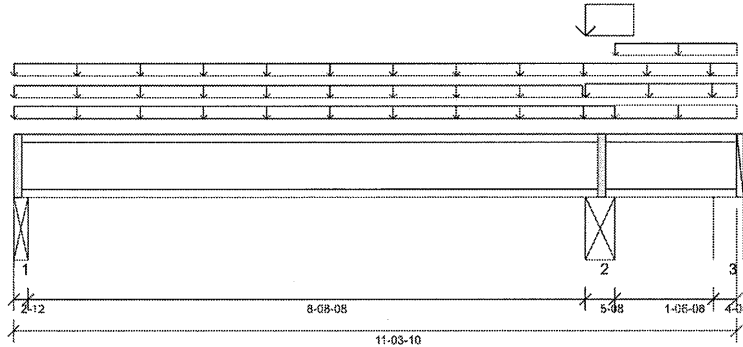
2 Ply Member
11 7/8" NI-20

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 07/16/2022 13:47



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, CBC 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'- 8 1/2"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'- 1 3/4"
- 769 psi Beam @ 9'- 2"
- 615 psi Wall @ 11'- 1/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 8 7/16"	1.25D + 1.5L	0.84	613 lb ft	9363 lb ft	Passed - 7%
Factored Neg. Moment:	9'- 2"	1.25D + 1.5L	0.84	851 lb ft	9363 lb ft	Passed - 9%
Factored Shear:	9'- 4 13/16"	1.25D + 1.5L + S	0.97	871 lb	4338 lb	Passed - 20%
Total Load (TL) Pos. Defl.:	4'- 1 7/16"	D + L		0.014"	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	0.84	359 lb		3507 lb	8871 lb	Passed - 10%
2	5-08	1.25D + 1.5L + S	0.97	1955 lb		9817 lb	20475 lb	Passed - 20%
3	4-06	1.25D + 1.5S + L	0.91	252 lb		4061 lb	12198 lb	Passed - 6%
3	4-06	0.9D + 1.5L	0.84		-228 lb	-	-	

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	11'- 3 5/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	11'- 3 5/8"	FC2 Floor Decking (Plan View Fill)	Top	8 lb/ft	21 lb/ft	-	-
Uniform	0'	9'- 4 3/4"	FC2 Floor Decking (Plan View Fill)	Top	8 lb/ft	22 lb/ft	-	-
Uniform	0'	8'- 10 3/4"	FC2 Floor Decking (Plan View Fill)	Top	4 lb/ft	-	-	-
Uniform	8'- 11 1/4"	11'- 3 5/8"	E78(i59028)	Top	101 lb/ft	-	-	-
Uniform	8'- 11 1/4"	9'- 8 1/4"	E78(i59028)	Top	361 lb/ft	-	569 lb/ft	-
Uniform	9'- 4 3/4"	11'- 3 5/8"	E78(i59028)	Top	27 lb/ft	-	42 lb/ft	-
Uniform	9'- 4 3/4"	11'- 3 5/8"	FC2 Floor Decking (Plan View Fill)	Top	-	8 lb/ft	-	-

UNFACTORED REACTIONS

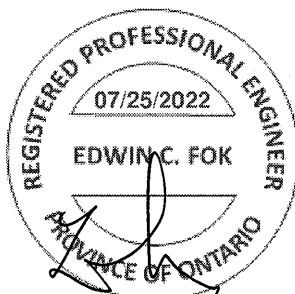
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/4"	ST. BEAM (DR.)(i41694)	94 lb	164 lb	-2 lb	-
2	8'- 11 1/4"	9'- 4 3/4"	ST. BEAM (DR.)(i41693)	648 lb	466 lb	408 lb	-
3	10'- 11 1/4"	11'- 3 5/8"	E9(i41609)	92 lb	38/-197 lb	101 lb	-

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.



53049436



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B63 (-4R) - i62109**
Type: **Beam**

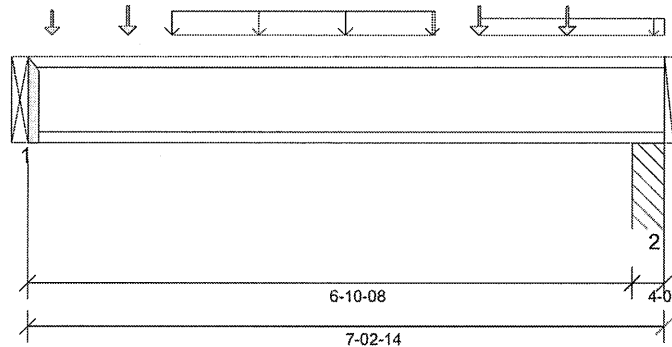
1 Ply Member
11 7/8" NI-20

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 07/16/2022 13:51



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/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'
- 1334 psi Column @ 6'- 11 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 1 5/8"	1.25D + 1.5L	1.00	1257 lb ft	5580 lb ft	Passed - 23%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	710 lb	2240 lb	Passed - 32%
Live Load (LL) Pos. Defl.:	3'- 5 3/4"	L		0.029"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 5 3/4"	D + L		0.044"	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	710 lb		1970 lb	-	Passed - 36%
2	4-06	1.25D + 1.5L	1.00	669 lb		2240 lb	14596 lb	Passed - 30%

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'- 2 7/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	1'- 7 5/8"	4'- 7 5/8"	Smoothed Load	Front	48 lb/ft	97 lb/ft	-	-
Tapered	5'- 1 5/8"	7'- 2 7/8"	FC3 Floor Decking (Plan View Fill)	Top	4 To 3 lb/ft	11 To 8 lb/ft	-	-
Point	0'- 3 1/4"	0'- 3 1/4"	J6(i62107)	Front	30 lb	60 lb	-	-
Point	1'- 1 5/8"	1'- 1 5/8"	J6(i62121)	Front	45 lb	90 lb	-	-
Point	5'- 1 5/8"	5'- 1 5/8"	J6(i62126)	Front	45 lb	90 lb	-	-
Point	6'- 1 5/8"	6'- 1 5/8"	J6(i62123)	Front	43 lb	87 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B64 (-4R)(i62094)	175 lb	331 lb	-	-
2	6'- 10 1/2"	7'- 2 7/8"	P12(i62101)	163 lb	307 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.



2304943



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B64 (-4R) - i62094**
Type: **Beam**

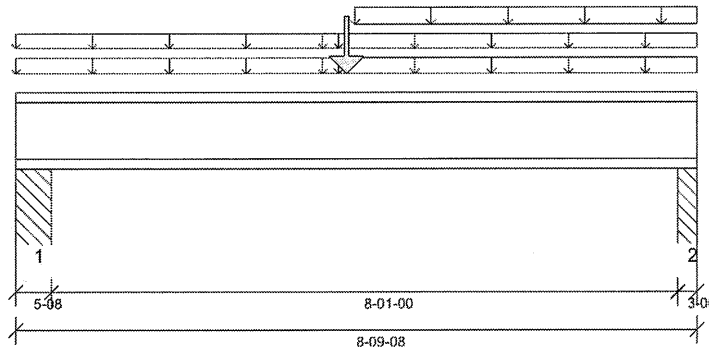
1 Ply Member
11 7/8" NI-20

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 07/16/2022 13:51



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/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'- 5"

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 4 1/2"
- 1334 psi Column @ 8'- 7 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 3 1/4"	1.25D + 1.5L	0.99	2235 lb ft	5514 lb ft	Passed - 41%
Factored Shear:	8'- 6 7/16"	1.25D + 1.5L	0.99	792 lb	2214 lb	Passed - 36%
Live Load (LL) Pos. Defl.:	4'- 5 7/16"	L		0.049"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 6 3/16"	D + L		0.094"	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	5-08	1.25D + 1.5L	0.99	683 lb		2214 lb	18132 lb	Passed - 31%
2	3-00	1.25D + 1.5L	0.99	837 lb		2095 lb	9890 lb	Passed - 40%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	8'- 9 1/2"	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"	8'- 9 1/2"	FC3 Floor Decking (Plan View Fill)	Top	10 lb/ft	26 lb/ft	-	-
Uniform	4'- 2"	8'- 9 1/2"	FC3 Floor Decking (Plan View Fill)	Top	3 lb/ft	-	-	-
Uniform	4'- 4 1/2"	8'- 9 1/2"	User Load	Top	60 lb/ft	-	-	-
Point	4'- 3 1/4"	4'- 3 1/4"	B63 (-4R)(i62109)	Back	175 lb	331 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	P12(i62106)	216 lb	266 lb	-	-
2	8'- 6 1/2"	8'- 9 1/2"	P12(i62097)	353 lb	273 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.



83049438



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B65 (-4R) - i62104**
Type: **Beam**

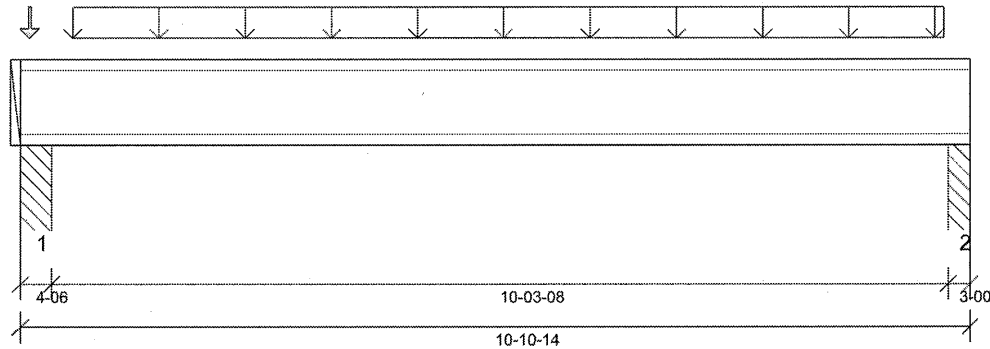
2 Ply Member
11 7/8" NI-20

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 07/16/2022 13:51



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/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	5423 lb ft	11160 lb ft	Passed - 49%
Factored Shear:	10'- 7 13/16"	1.25D + 1.5L	1.00	2019 lb	4480 lb	Passed - 45%
Live Load (LL) Pos. Defl.:	5'- 6 3/16"	L		0.117"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 6 3/16"	D + L		0.179"	L/240	Passed - L/689

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	2192 lb		4480 lb	29190 lb	Passed - 49%
2	3-00	1.25D + 1.5L	1.00	2021 lb		4240 lb	20019 lb	Passed - 48%

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	Front	92 lb/ft	184 lb/ft	-	-
Point	0'- 1 1/4"	0'- 1 1/4"	J3(i62110)	Front	54 lb	108 lb	-	-

UNFACTORED REACTIONS

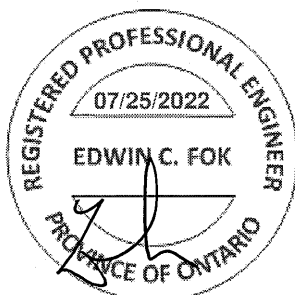
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	P12(i62098)	539 lb	1014 lb	-	-
2	10'- 7 7/8"	10'- 10 7/8"	P12(i62106)	497 lb	932 lb	-	-

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.



86049439



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B66 (-4R) - i62100**
Type: **Beam**

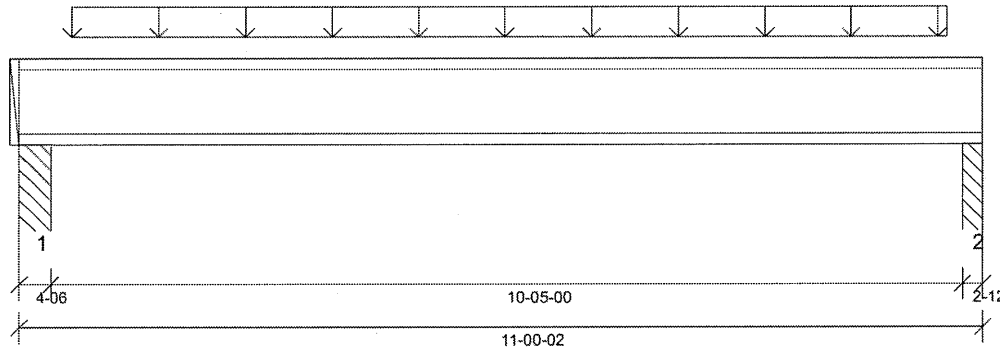
1 Ply Member
11 7/8" NI-20

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 07/16/2022 13:51



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/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'- 10 3/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 1 1/4"	1.25D + 1.5L	1.00	5270 lb ft	5580 lb ft	Passed - 94%
Factored Shear:	10'- 9 5/16"	1.25D + 1.5L	1.00	1886 lb	2240 lb	Passed - 84%
Live Load (LL) Pos. Defl.:	5'- 6 7/8"	L		0.234"	L/360	Passed - L/533
Total Load (TL) Pos. Defl.:	5'- 6 7/8"	D + L		0.355"	L/240	Passed - L/351

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	1878 lb		2240 lb	14595 lb	Passed - 84%
2	2-12	1.25D + 1.5L	1.00	1887 lb		2090 lb	9174 lb	Passed - 90%

SPECIFIED LOADS

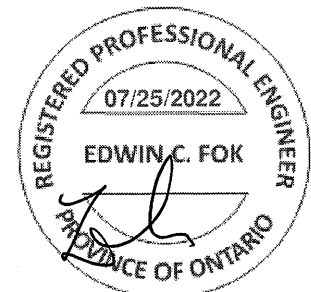
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	11'- 1/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'- 7 1/4"	10'- 7 1/4"	Smoothed Load	Back	88 lb/ft	175 lb/ft	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	PI2(i62102)	453 lb	874 lb	-	-
2	10'- 9 3/8"	11'- 1/8"	PI2(i62097)	455 lb	879 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.



85049440



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

Job Name: **346143**
Level: **Ground Floor**
Label: **B67 (-4R) - i62105**
Type: **Beam**

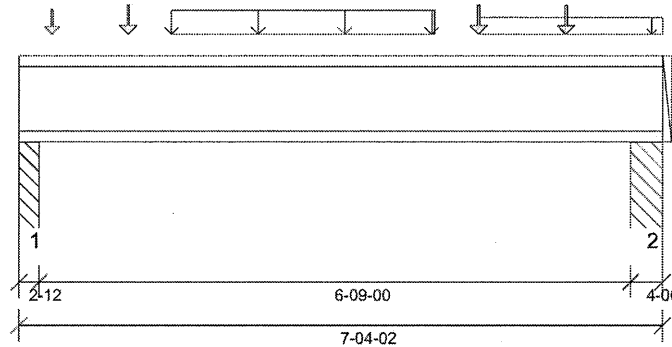
1 Ply Member
11 7/8" NI-20

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 07/16/2022 13:52



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:

- 1334 psi Column @ 0'- 1 3/4"
- 1334 psi Column @ 7'- 3/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 2 7/8"	1.25D + 1.5L	1.00	1240 lb ft	5580 lb ft	Passed - 22%
Factored Shear:	0'- 2 13/16"	1.25D + 1.5L	1.00	714 lb	2240 lb	Passed - 32%
Live Load (LL) Pos. Defl.:	3'- 7 1/4"	L		0.028"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 7 1/4"	D + L		0.043"	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	1.00	715 lb		2090 lb	9174 lb	Passed - 34%
2	4-06	1.25D + 1.5L	1.00	665 lb		2240 lb	14595 lb	Passed - 30%

SPECIFIED LOADS

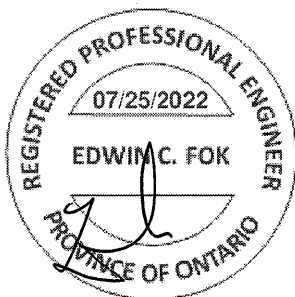
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 4 1/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	1'- 8 7/8"	4'- 8 7/8"	Smoothed Load	Back	48 lb/ft	97 lb/ft	-	-
Tapered	5'- 2 7/8"	7'- 4 1/8"	FC3 Floor Decking (Plan View Fill)	Top	4 To 3 lb/ft	11 To 8 lb/ft	-	-
Point	0'- 4 1/2"	0'- 4 1/2"	J6(i62107)	Back	30 lb	60 lb	-	-
Point	1'- 2 7/8"	1'- 2 7/8"	J6(i62121)	Back	45 lb	90 lb	-	-
Point	5'- 2 7/8"	5'- 2 7/8"	J6(i62126)	Back	45 lb	90 lb	-	-
Point	6'- 2 7/8"	6'- 2 7/8"	J6(i62123)	Back	43 lb	87 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/4"	Pl2(i62097)	176 lb	333 lb	-	-
2	6'- 11 3/4"	7'- 4 1/8"	Pl2(i62108)	162 lb	305 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.
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83049441



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

PASSED

Ground Floor\Flush Beams\B68(i62087) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 16, 2022 13:52:25

Build 8183

Job name: 5011 B - Lot 67

File name: 346143.mmdl

Address: Pine Valley Ph2

Description: Ground Floor\Flush Beams\B68(i62087)

City, Province, Postal Code: Vaughan, ON

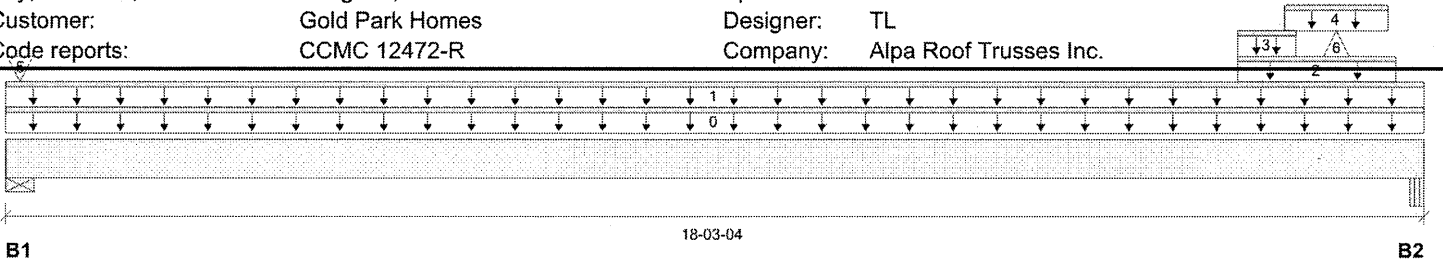
Specifier:

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, 2-7/16"	1699 / 0	3218 / 0		
B2, 4-3/8"	1186 / 1	1078 / 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	18-03-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-03-04	Top	42	16			n/a
2	15(i59044)	Unf. Lin. (lb/ft)	L	15-10-06	17-10-14	Top		68			n/a
3	15(i59044)	Unf. Lin. (lb/ft)	L	15-10-06	16-07-06	Top	620	789			n/a
4	15(i59044)	Unf. Lin. (lb/ft)	L	16-05-10	17-09-10	Top	261	98			n/a
5	E2(i41607)	Conc. Pt. (lbs)	L	00-02-03	00-02-03	Top	1253	2880			n/a
6	15(i59044)	Conc. Pt. (lbs)	L	17-01-10	17-01-10	Top	-1				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5812 ft-lbs	35392 ft-lbs	16.4%	1	10-10-04
End Shear	2903 lbs	14464 lbs	20.1%	1	16-11-00
Total Load Deflection	L/850 (0.252")	n/a	28.2%	6	09-07-04
Live Load Deflection	L/1550 (0.138")	n/a	23.2%	8	09-07-04
Max Defl.	0.252"	n/a	n/a	6	09-07-04
Span / Depth	18.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-7/16" x 3-1/2"	4506 lbs	78.4%	67.1%	Unspecified
B2	Beam 4-3/8" x 3-1/2"	3127 lbs	33.2%	16.7%	Unspecified

Notes

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

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

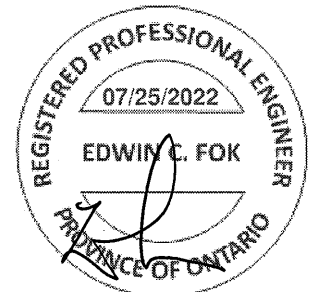
Resistance Factor phi has been applied to all presented results per CSA O86.

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: 08-11-13.

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


SE049442

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'-6"	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'-8"	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'-9"	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"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
14"	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"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
16"	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	26'-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'-6"	21'-6"	20'-4"
	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-8"
14"	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"
	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"
16"	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.

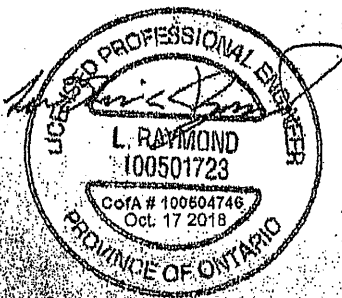
The construction details for residential designs are prone to changes.

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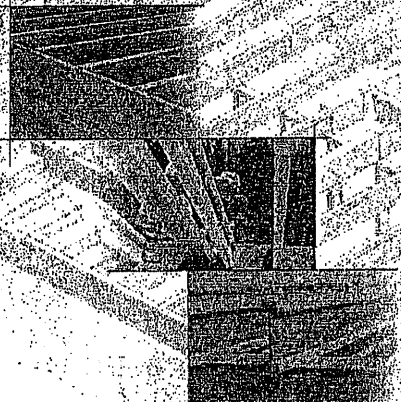
Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)



N-C301/April 2014



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



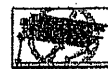
Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unbraced I-joists. Once installed, do not over-stress I-joist 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 planned 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 1 1/2 inch minimum, at least 8 feet long and spaced no more than 8 feet on center, and must be secured with a minimum of two 2-1/2 inch nails to the top flange of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Top ends of bracing 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 cross panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. They, stack building materials over beams or joists 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 live and dead loads, or failure to use web stiffeners when required can result in serious accidents. Follow this installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

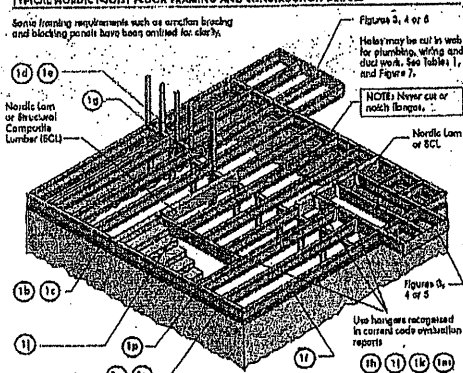
1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or surfaces.
5. Protect I-joists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



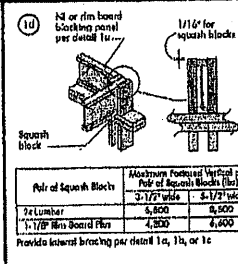
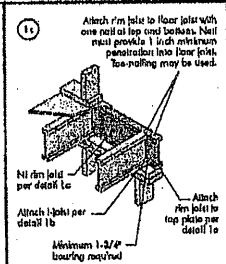
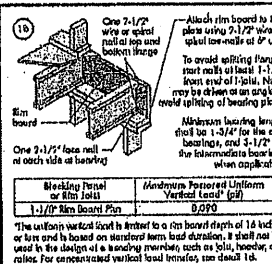
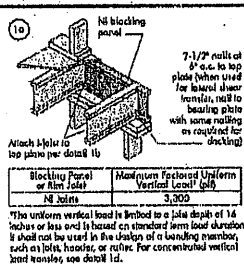
INSTALLING NORDIC I-JOISTS

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 blocking length is 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, nail I-joists firmly to hanger bottoms to eliminate movement.
7. Leave a 1/16 inch gap between the I-joist end and a header.
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 support unusual or heavy loads from the I-joist's bottom flange. Whenever possible, instead of concentrated 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 end bearing bearing walls, use full depth blocking panels, rim board, or spack blocks (cripple members) to transfer gravity loads through the floor system to the end 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 must be of an engineered wood product - such as rim board - must be cut to fit between the I-joists, and on I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the adjacent 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. Once panels are 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 blocking Spacing nails installed in 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\"/>



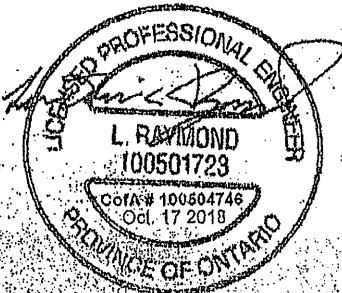
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Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

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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 floor spans are based on the factored loads of 1.50L + 1.75D. The serviceability limit states include the combination for floor vibration and the 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 oriented strand board (OSB) 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. Adhesive must meet the requirements given in CAN/CSA A-206 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of approved and/or use of blocking at mid-spans.
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 spacings 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 use of the design properties.
6. Tables are based on Unit Stress Design per CAN/CSA A-206 Standard, and NRC 7010.
7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 304.8 mm

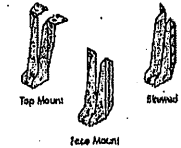
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

SINGLE AND MULTIPLE SPANS		SINGLE SPAN		MULTIPLE SPAN	
Joist Depth	Joist Spacing	Span (ft)	Span (m)	Span (ft)	Span (m)
10-10	19.2"	21.4'	6.52	21.4'	6.52
10-10	24"	18.4'	5.61	18.4'	5.61
12-12	19.2"	24.4'	7.44	24.4'	7.44
12-12	24"	20.4'	6.22	20.4'	6.22
14-14	19.2"	27.4'	8.35	27.4'	8.35
14-14	24"	23.4'	7.13	23.4'	7.13
16-16	19.2"	30.4'	9.27	30.4'	9.27
16-16	24"	26.4'	8.05	26.4'	8.05
18-18	19.2"	33.4'	10.20	33.4'	10.20
18-18	24"	29.4'	8.96	29.4'	8.96
20-20	19.2"	36.4'	11.11	36.4'	11.11
20-20	24"	32.4'	9.86	32.4'	9.86
22-22	19.2"	39.4'	12.02	39.4'	12.02
22-22	24"	35.4'	10.76	35.4'	10.76
24-24	19.2"	42.4'	12.92	42.4'	12.92
24-24	24"	38.4'	11.73	38.4'	11.73
26-26	19.2"	45.4'	13.84	45.4'	13.84
26-26	24"	41.4'	12.63	41.4'	12.63
28-28	19.2"	48.4'	14.75	48.4'	14.75
28-28	24"	44.4'	13.54	44.4'	13.54
30-30	19.2"	51.4'	15.66	51.4'	15.66
30-30	24"	47.4'	14.45	47.4'	14.45

CCMC EVALUATION REPORT 1302-2-A

I-JOIST HANGERS

1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
2. All hangers must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, hanger width and load capacity based on the maximum spans.
4. Web stiffeners are required when the ends of the hangers do not laterally brace the top flange of the I-joist.



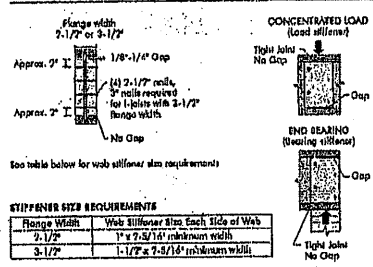
WEB STIFFENERS

RECOMMENDATIONS

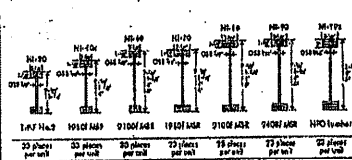
1. A bearing stiffener is required in all engineered applications with factored live loads greater than those in the design properties table based on the Unit Stress Design (USD) of the joist. The gap between the stiffener and the flange is at the top.
2. A bearing stiffener is required when the joist is supported by a hanger and the side of the hanger does not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
3. A load stiffener is required in locations where a factored concentrated load greater than 2,500 lbs is applied to the top flange between supports or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted in the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



NORDIC I-JOIST SERIES



Chorley Cliftonwood Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood Joists use only finger-jointed black spruce lumber in web hangers, ensuring consistent quality, superior strength, and longer span carrying capacity.

10 Transfer load from above to bearing below. Install gusset blocks per detail 1d. Block, bearing area of blocks below as per detail.

11 Use single I-joist for loads up to 3,200 lbs. Double I-joists for loads up to 6,400 lbs. (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

12 Provide backup for (filler attachment) unless reliable blocking is used.

13 Rein board may be used in lieu of I-joists. Backup is not required when rein board is used. Blocking per detail shall be carried to the transverse.

14 7/8 plate (bush) with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

15 Top or face-mount hanger installed per manufacturer's recommendations. For nesting voids for multiple beams, use the manufacturer's recommendations. Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

16 Top-mount hanger installed per manufacturer's recommendations. Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

17 7/8 plate (bush) with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

18 Multiple I-joist header with full depth filler block shown. Nordic Lom or SCL hangers may also be used. Verify double I-joist capacity to support concentrated loads.

19 Filler block per detail 1p.

20 Install hanger per manufacturer's recommendations. Backup block detailed per detail 1b. Nail with twice 5" nails, clinch when possible. Maximum support capacity = 1,620 lbs.

21 Do not level cut joint beyond table face of wall.

22 Attach I-joist per detail 1b.

23 Note: Blocking required if bearing for lateral support, not shown for clarity.

24 Backer block (use 8 hanger head brand 3x8) before installing a backer block in a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch, install backer block to top flange. Use twice 5" nails, clinch when possible. Maximum support capacity for hanger for this detail = 1,620 lbs.

25 Double I-joist header.

26 Top or face-mount hanger.

27 Filler block per detail 1p.

28 Backer block required (both sides for face-mount hangers).

29 Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

30 For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

31 BACKER BLOCKS (blocks must be long enough to permit required nailing without splitting).

Flange Width	Material Thickness Required	Minimum Depth
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/2"

32 Minimum grade for backer block material shall be 2-4F No. 2 or better for solid wood lumber and wood structural panels conforming to CAN/CSA A-206 or CAN/CSA A-207 Standard.

33 For face-mount hangers use nail joint depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".

34 Notes:

- In some local codes, blocking is prescriptively required in the first joint space for first and second joint space) next to the corner joint. Where required, see local code requirements for spacing of the blocking.
- All nailing is common nailing in this detail.

35 Notes:

1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3" nails at 18 inches o.c. attached where permitted on each side of the double I-joist. Total of four nails per foot required. 8 nails can be attached, only two nails per foot are required.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 850 lbs/ft. Verify double I-joist capacity.

36 Filler block.

37 Offset nails from opposite face by 6".

38 1/8" to 1/4" gap between top flange and filler block.

39 Notes:

- One 2-1/2" nails at top and bottom flange.
- Two 2-1/2" nails from each web to lumber piece.
- 2x4 min. (1/8" gap minimum).
- Two 2-1/2" nails (1/8" gap minimum) from each web to lumber piece.
- One 2-1/2" nails are wide only.
- 2-1/2" nails at 6" o.c.

40 Notes:

- Lumber 2x4 min., material block to face of adjacent web.
- Two 2-1/2" nails from each web to lumber piece, alternate on opposite side.
- No blocking panel.
- Optimal: Minimum 1x4 inch drop applied to underside of joist at blocking line or 1/2 inch minimum gap nailing oriented to underside of joist.

41 Notes:

- One 2-1/2" nails at top and bottom flange.
- Two 2-1/2" nails from each web to lumber piece.
- 2x4 min. (1/8" gap minimum).
- Two 2-1/2" nails (1/8" gap minimum) from each web to lumber piece.
- One 2-1/2" nails are wide only.
- 2-1/2" nails at 6" o.c.

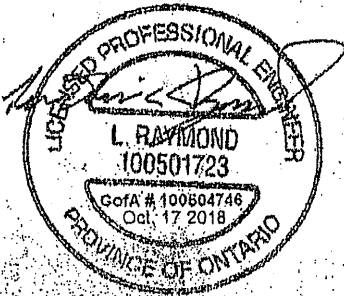
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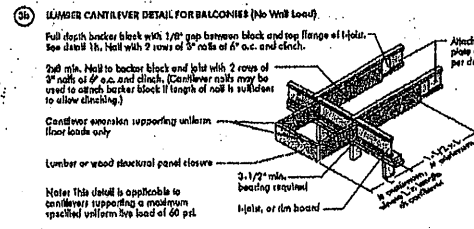
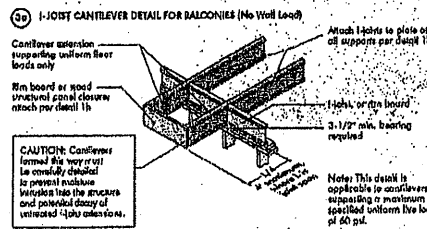
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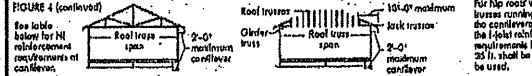
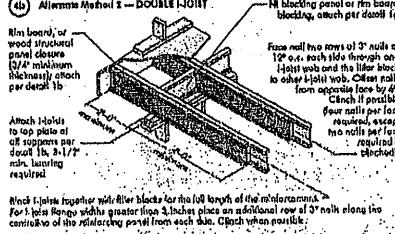
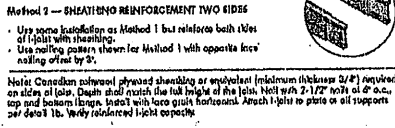
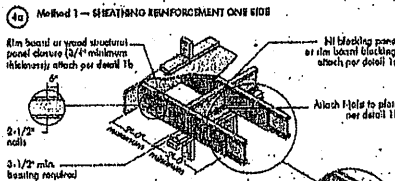


N-C301/April 2014

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

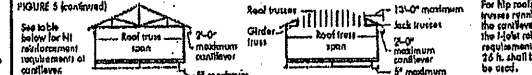
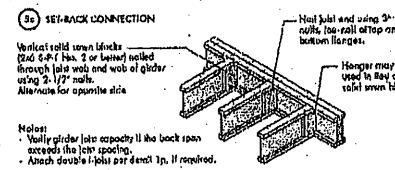
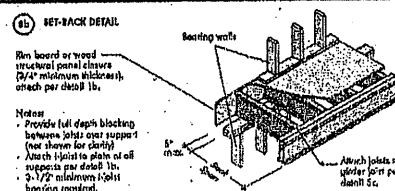
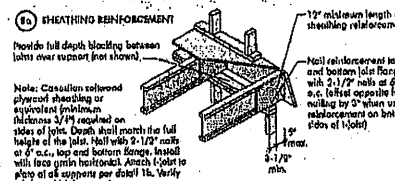


CANTILEVER REINFORCEMENT METHODS ALLOWED

Span (ft)	10-0" max cantilever				12-0" max cantilever				14-0" max cantilever				16-0" max cantilever				18-0" max cantilever			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

1. N = No reinforcement required.
2. N = Reinforced with 3/4" wood structural panel on one side only.
3. N = Reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. N = Reinforced with 3/4" wood structural panel on one side, or double I-joist.
5. Minimum design load shall be 15 psf and shall be applied to full span of cantilever.
6. For larger openings, or multiple 3-0" with openings spaced less than 6-0" o.c., additional reinforcement shall be provided in the top chord of the cantilever.
7. Table applies to joists 12" to 24" o.c. Not used for joists greater than 24" o.c. For joists greater than 24" o.c., see detail 1b and detail 1c for a design load of 40 psf and detail 1d for a design load of 60 psf. Reinforcement shall be based on 3-0" maximum width of joist or deck spacing.
8. For conventional roof trusses using a ridge beam, the roof truss span column above is equivalent to the distance between the supporting wall and the ridge beam. When the wall is framed using a ridge beam, the roof truss span is equivalent to the distance between the supporting wall and the ridge beam.
9. Cantilevered joist supporting glider doors or roof beams may require additional reinforcement.

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

Span (ft)	10-0" max cantilever				12-0" max cantilever				14-0" max cantilever				16-0" max cantilever				18-0" max cantilever			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

1. N = No reinforcement required.
2. N = Reinforced with 3/4" wood structural panel on one side only.
3. N = Reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. N = Reinforced with 3/4" wood structural panel on one side, or double I-joist.
5. Minimum design load shall be 15 psf and shall be applied to full span of cantilever.
6. For larger openings, or multiple 3-0" with openings spaced less than 6-0" o.c., additional reinforcement shall be provided in the top chord of the cantilever.
7. Table applies to joists 12" to 24" o.c. Not used for joists greater than 24" o.c. For joists greater than 24" o.c., see detail 1b and detail 1c for a design load of 40 psf and detail 1d for a design load of 60 psf. Reinforcement shall be based on 3-0" maximum width of joist or deck spacing.
8. For conventional roof trusses using a ridge beam, the roof truss span column above is equivalent to the distance between the supporting wall and the ridge beam. When the wall is framed using a ridge beam, the roof truss span is equivalent to the distance between the supporting wall and the ridge beam.
9. Cantilevered joist supporting glider doors or roof beams may require additional reinforcement.

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 Gori from Alpa, Ontario. (Nordic Request 1810-095)



N-C301/April 2014

WEB HOLES

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, field-cut holes should be drilled on the middle of the web.
4. The maximum size hole or the maximum 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 should 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 length of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be drilled 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 shall be permitted anywhere in a conditioned section of a joist. Holes of greater size may be permitted subject to notification.
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 its respective load above and as illustrated in Figure 7.
11. Limit three maximum fire holes per span, at 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 described 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

Span Length (ft)	Minimum Distance from Support (in)	Maximum Distance from Support (in)
10	12	12
12	12	12
14	12	12
16	12	12
18	12	12
20	12	12
22	12	12
24	12	12
26	12	12
28	12	12
30	12	12
32	12	12
34	12	12
36	12	12
38	12	12
40	12	12

1. Above table may be used for 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.

OPTIONALS:

The above table is based on the joist being used at its maximum span. If the joist is placed at less than full maximum span (see Maximum Span Table), the maximum distance from the centre of the hole to the face of any support (2) as given above may be reduced as follows:

$$\text{Reduced} = \frac{\text{Actual} \times L}{L_{\text{max}}}$$

Where:

Reduced =

Actual =

L =

L_{max} =

D =

2 =

3 =

4 =

5 =

6 =

7 =

8 =

9 =

10 =

11 =

12 =

13 =

14 =

15 =

16 =

17 =

18 =

19 =

20 =

21 =

22 =

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88 =

89 =

90 =

91 =

92 =

93 =

94 =

95 =

96 =

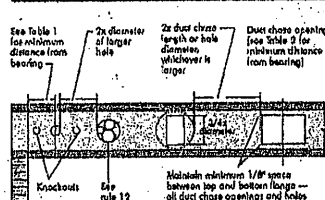
97 =

98 =

99 =

100 =

FIGURE 7
FIELD-CUT HOLE LOCATOR



A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes.

Knockouts are preformed 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 16 inches on centre along the length of the joist. Where possible, it is preferable to use knockouts instead of field-cut holes.



For rectangular holes, avoid over-cutting the corners, as this can create unnecessary stress concentrations. Ideally, rounding the corners is recommended. Rounding the rectangular hole by cutting a 1/4 inch diameter hole in each of the four corners and then filing the hole between the holes is another good method to minimize damage to the I-joist.

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Span Length (ft)	Minimum Distance from Support (in)	Maximum Distance from Support (in)
10	12	12
12	12	12
14	12	12
16	12	12
18	12	12
20	12	12
22	12	12
24	12	12
26	12	12
28	12	12
30	12	12
32	12	12
34	12	12
36	12	12
38	12	12
40	12	12

1. Above table may be used for joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of support to centre of opening.
3. The above table is based on uniformly loaded joists. For other applications, consult your local distributor.
4. Distances are based on uniformly loaded joists but must be spaced apart for a design live load of 40 psf and dead load of 15 psf and a live load deflection limit of L/360. For other applications, consult your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or oil from joist flanges before gluing.
2. Snap a chalk line across the joist floor line from the wall (or panel edge alignment) and on a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels or a line, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4 inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double T-joists.
6. Apply two thin coats of glue on I-joists where panels are laid to ensure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue may be continuous or spaced, but small squares must be applied at a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all joints and 1/16-inch at all edges, including T&G edges, is recommended. Use a mallet tool or an 1-1/2" common nail to ensure accurate and consistent spacing.
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring or steam-shank nails for panels 3/4-inch thick or less, and 3-1/2" ring or steam-shank nails for thicker panels. Space nails per the table below. Close nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING (1)

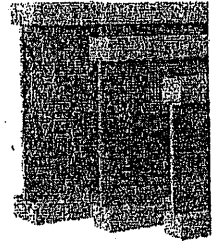
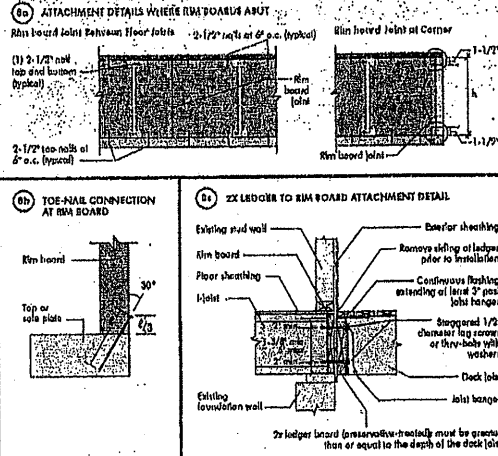
Joist Spacing (in)	Decking (in)	Subflooring (in)	Joist Spacing (in)	Decking (in)	Subflooring (in)
16	16	2	1-3/4"	2	1"
20	16	2	1-3/4"	2	1"
24	16	2	1-3/4"	2	1"

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 2/16-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/16-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require continuation in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CSA-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Flooring for Floor Systems, applied in accordance with the manufacturer's recommendations. If OSB panels with treated surfaces and adhesive are to be used, use only solvent-based glue; check with panel manufacturer.

Note: NRC-NRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:
Floor sheathing must be fastened to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

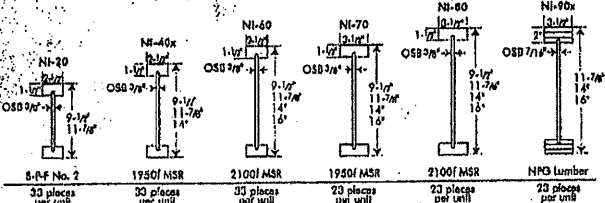


CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

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:

- 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.
- Joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into a joist web shall equal the clear distance between the flanges of the joist minus 1/4 inch. A minimum of 1/8 inch shall always be maintained between the top or bottom of the hole or opening and the adjacent joist flange.

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 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 (or 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.
- 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.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a conditioned section of a joist. Holes of greater size may be permitted subject to verification.

- 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.
- 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.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole disconnected around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 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"	4-3"	5-8"	6-0"	...	...	...	...	...	...
	NI-40x	0-7"	1-0"	2-10"	4-3"	5-8"	6-0"	...	...	...	...	...	...
	NI-60	1-3"	2-0"	4-0"	5-4"	7-0"	7-5"	...	...	...	...	...	...
	NI-70	2-0"	3-4"	6-0"	6-3"	8-0"	8-4"	...	...	...	...	...	...
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	...	...	...
	NI-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	...	...	...
	NI-60	0-7"	1-0"	2-0"	4-0"	5-0"	6-0"	7-3"	8-10"	10-0"	...	...	...
	NI-70	1-0"	2-4"	4-0"	5-4"	6-6"	7-2"	8-4"	10-0"	11-2"	...	...	...
14"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	...	...	...
	NI-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	...	...	...
	NI-60	0-7"	1-0"	2-0"	4-0"	5-0"	6-0"	7-3"	8-10"	10-0"	...	...	...
	NI-70	1-0"	2-4"	4-0"	5-4"	6-6"	7-2"	8-4"	10-0"	11-2"	...	...	...
16"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	...	...	...
	NI-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	...	...	...
	NI-60	0-7"	1-0"	2-0"	4-0"	5-0"	6-0"	7-3"	8-10"	10-0"	...	...	...
	NI-70	1-0"	2-4"	4-0"	5-4"	6-6"	7-2"	8-4"	10-0"	11-2"	...	...	...

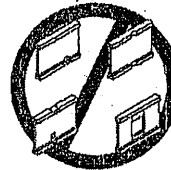
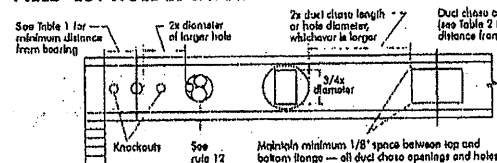
- Above table may be used for joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of support to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the joists being used at their maximum span. The 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"	4-3"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-9"	...	...	...
	NI-40x	5-3"	5-8"	6-0"	6-10"	7-0"	7-5"	8-0"	8-2"	8-4"	...	...	...
	NI-60	5-1"	5-5"	6-10"	6-3"	6-7"	7-1"	7-6"	8-0"	8-3"	8-9"	...	...
	NI-70	5-1"	5-5"	6-10"	6-3"	6-7"	7-1"	7-6"	8-0"	8-3"	8-9"	...	...
11-7/8"	NI-20	5-9"	6-3"	6-8"	7-1"	7-5"	7-9"	8-4"	8-9"	9-4"	...	...	...
	NI-40x	6-9"	7-3"	7-8"	8-1"	8-6"	9-1"	9-6"	10-1"	10-9"	...	...	...
	NI-60	7-9"	7-4"	8-0"	8-3"	8-7"	9-2"	9-6"	10-3"	11-0"	...	...	...
	NI-70	7-1"	7-4"	7-9"	8-3"	8-7"	9-2"	9-6"	10-3"	11-0"	...	...	...
14"	NI-20	7-9"	7-4"	8-0"	8-3"	8-7"	9-2"	9-6"	10-3"	11-0"	...	...	...
	NI-40x	8-9"	8-4"	9-0"	9-3"	9-7"	10-2"	10-6"	11-3"	12-0"	...	...	...
	NI-60	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	...	...	...
	NI-70	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	...	...	...
16"	NI-20	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	14-1"	14-10"	...	...	...
	NI-40x	10-1"	10-5"	11-0"	11-4"	11-10"	12-0"	12-8"	13-2"	14-0"	...	...	...
	NI-60	10-4"	10-9"	11-3"	11-7"	12-1"	12-7"	13-1"	13-9"	14-4"	...	...	...
	NI-70	11-1"	11-5"	11-10"	12-4"	12-10"	13-2"	13-9"	14-4"	15-2"	...	...	...

- Above table may be used for joist spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of support to centre of opening.
- The above table is based on simple-span joists only. For other applications, contact your local distributor.
- 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.
- The above table is based on the joists being used at their maximum span. 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 joists. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

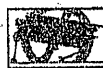
Holes in webs should be cut with a sharp saw.

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 cut between the holes is another good method to minimize damage to the joist.

SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unfastened joists. Once installed, do not over-stress joists with concentrated loads from building materials.

WARNING: 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:

- Brace and nail each joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the joists. Until this sheathing is applied, temporary bracing, often called stiles, or temporary sheathing must be applied to prevent joist rollover or buckling.
 - Temporary bracing or stiles must be 1x4 inch minimum, at least 6 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 joist). Nail the bracing to a lateral restraint at the end of each joist, top ends of adjoining bracing over at least two joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of joists at the end of the bay.
- For cantilevered joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
- Install and fully nail permanent sheathing to each joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic 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

Stephane Gon guarantees this, in accordance with our specifications. Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Stephane Gon 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 Stephane Gon from Alpa, Ontario. (Nordic Request 1810-095)

