

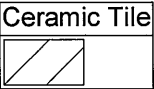
Products				
PlotID	Length	Product	Plies	Net Qty
B5	15-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B48	13-00-00	11 7/8" NI-20	2	2
B49	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B50	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B51	7-00-00	11 7/8" NI-20	2	2
B52	10-00-00	11 7/8" NI-20	2	2
B53	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B54	6-00-00	11 7/8" NI-20	1	1
B55	2-00-00	11 7/8" NI-20	2	2
Ca1	203-00-00	1 1/8" x 11 7/8" Rim Board	1	1
J1	15-00-00	11 7/8" NI-20	1	21
J2	13-00-00	11 7/8" NI-20	1	63
J3	13-00-00	11 7/8" NI-20	2	2
J4	12-00-00	11 7/8" NI-20	1	6
J5	11-00-00	11 7/8" NI-20	1	5
J6	10-00-00	11 7/8" NI-20	1	15
J7	8-00-00	11 7/8" NI-20	1	20
J8	7-00-00	11 7/8" NI-20	1	1
J9	4-00-00	11 7/8" NI-20	1	9

Connector Summary			
PlotID	Qty	Manuf	Product
H1	3		HU310-2
H2	2		HUS1.81/10
H3	69		LT251188

DESIGN LOADING:
LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED*
APP - AS PER PLAN
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6
Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.

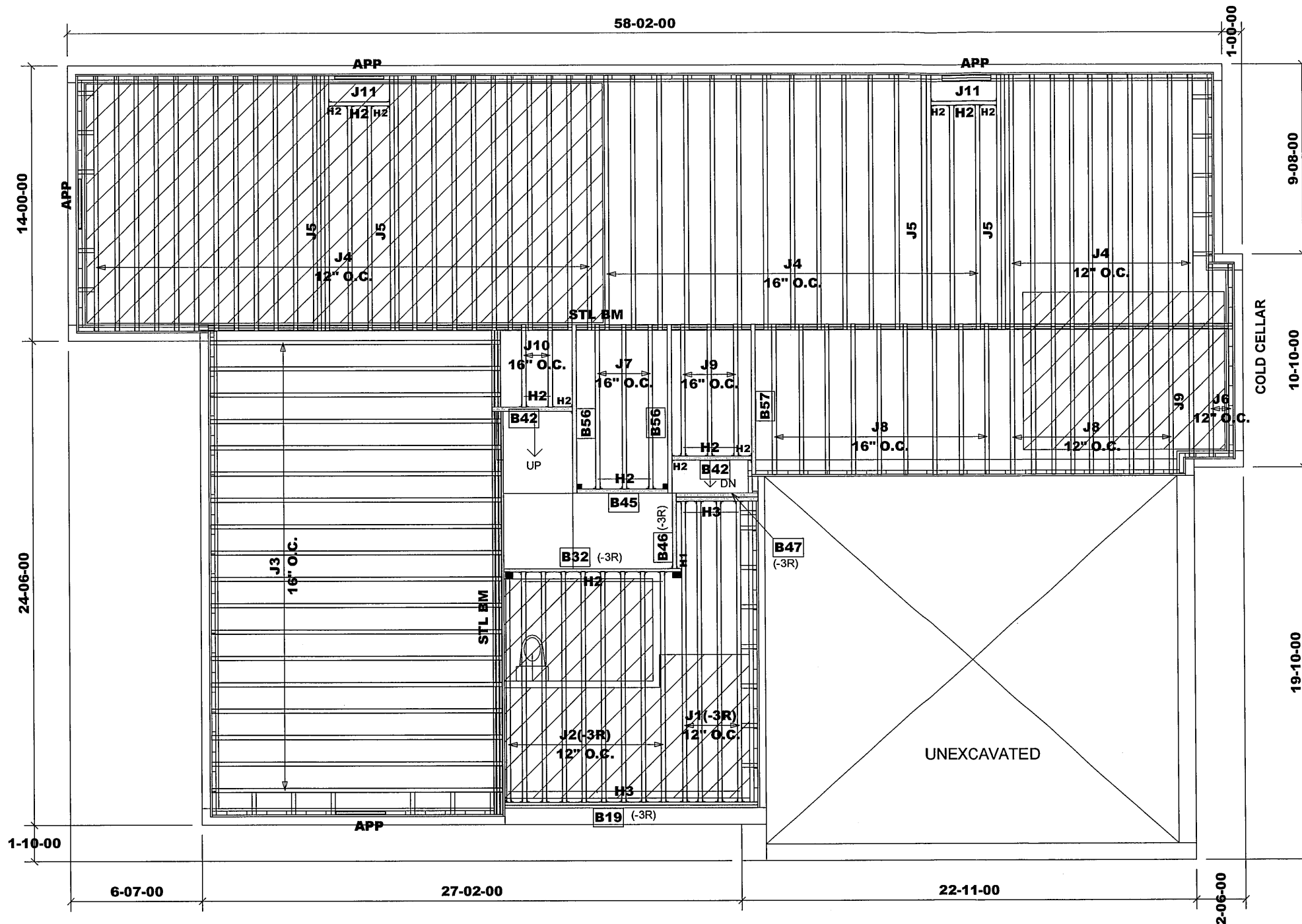


MODEL: 5003MOD - EL.C
- LOT 50(5-BEDRM)

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

SE007794 - SE007795 SE007808 SE007813
SG049790 - SG049804



Products				
PlotID	Length	Product	Plies	Net Qty
B19	13-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B32	9-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B42	5-00-00	11 7/8" NI-20	1	2
B45	5-00-00	11 7/8" NI-20	1	1
B46	4-00-00	9 1/2" NI-20	1	1
B47	5-00-00	9 1/2" NI-20	2	2
B56	9-00-00	11 7/8" NI-20	1	2
B57	8-00-00	11 7/8" NI-20	1	1
Ca1	28-00-00	1 1/8" x 9 1/2" Rim Board	1	1
Ca2	183-00-00	1 1/8" x 11 7/8" Rim Board	1	1
J1	16-00-00	9 1/2" NI-20	1	4
J2	12-00-00	9 1/2" NI-20	1	9
J3	15-00-00	11 7/8" NI-20	1	18
J4	13-00-00	11 7/8" NI-20	1	48
J5	13-00-00	11 7/8" NI-20	2	8
J6	10-00-00	11 7/8" NI-20	1	2
J7	9-00-00	11 7/8" NI-20	1	3
J8	8-00-00	11 7/8" NI-20	1	18
J9	7-00-00	11 7/8" NI-20	1	4
J10	5-00-00	11 7/8" NI-20	1	2
J11	4-00-00	11 7/8" NI-20	1	2

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HUC310
H2	28		LT251188
H3	17		LT259

DESIGN LOADING:

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

RIMBOARD

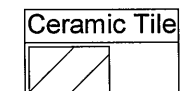
1- 1/8" X 9 1/2" O.S.B.
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED*

APP - AS PER PLAN
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

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



MODEL: 5003MOD - EL.C
- LOT 50

First Floor Framing

Do not scale - refer to architectural plans for dimensions



Job Track: 45147

Layout ID: 290683-346628*

Plan Log: 117907

Builder: Gold Park

Project: Pine Valley

Model: 5003C - LOT 50

Location: Vaughan

SalesPerson: Derek

Yard: Home Lumber

Sheet: 2 of 2

Date: 7/25/2022

Designer: NL

THESE DRAWINGS CONSTITUTE THE PROPERTY OF ALPA ROOF TRUSSES INC. SHALL NOT BE REPRODUCED, PUBLISHED, OR REDISTRIBUTED IN ANY MANNER OR UTILIZED BY ANY OTHER WITHOUT PERMISSION OF ALPA ROOF TRUSSES INC., AND WILL BE RETRACTED BY ALPA ROOF TRUSSES INC IF UTILIZED FOR ANY OTHER PURPOSE.

Mitek V. 8.5.3.233

B05 (Floor Beam)

Dry | 1 span | No cant.

March 18, 2020 11:24:44

BC CALC® Member Report

Build 7555

Job name: 45147 (5003)

File name: 290683

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

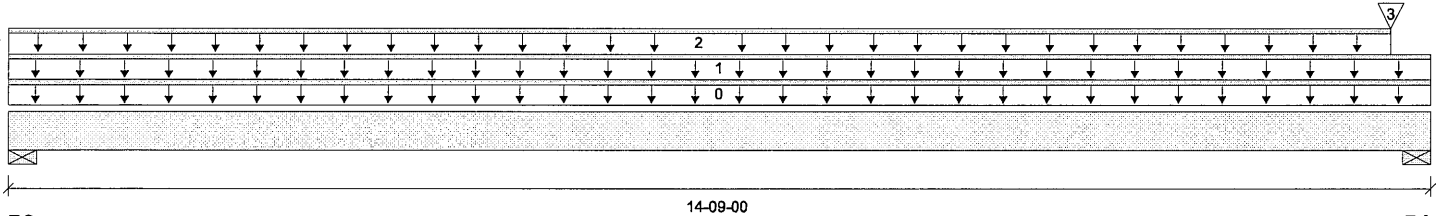
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 14-09-00

Reaction Summary (Down / Uplift) (lbs)

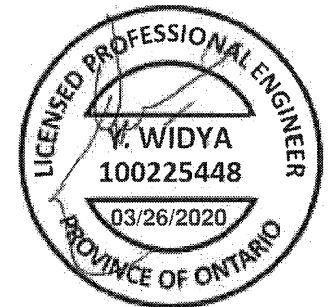
Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	428 / 0	758 / 0		
B1, 3-1/2"	2598 / 0	2288 / 0		

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	14-09-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	14-09-00	Top	27	74			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	14-04-00	Top	27	14			n/a
3		Conc. Pt. (lbs)	L	14-04-00	14-04-00	Top	2240	1577			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3785 ft-lbs	23005 ft-lbs	16.5%	0	07-06-13
End Shear	1909 lbs	14464 lbs	13.2%	1	13-05-10
Total Load Deflection	L/1045 (0.164")	n/a	23.0%	4	07-06-13
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	07-06-13
Max Defl.	0.164"	n/a	16.4%	4	07-06-13
Span / Depth	14.4				


Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	1062 lbs	21.7%	10.9%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	6757 lbs	89.7%	45.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum Total load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4

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

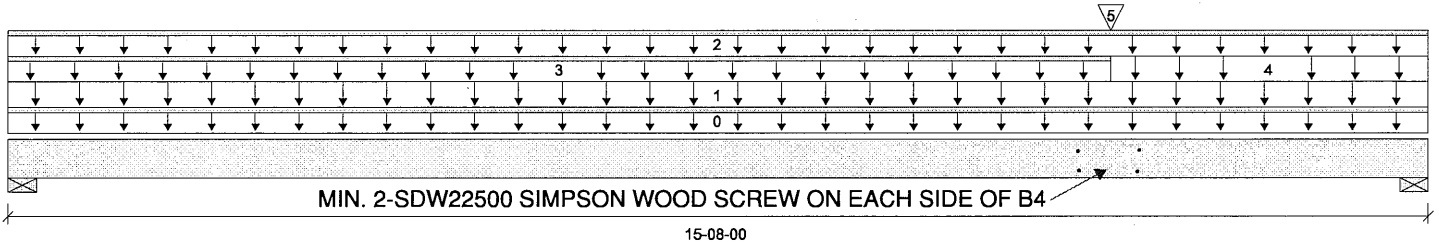
BC CALC® Member Report
Build 7555

B06 (Floor Beam)
Dry | 1 span | No cant.

March 18, 2020 11:24:44

Job name: 45147 (5003)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290683
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses



Total Horizontal Product Length = 15-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2985 / 0	2200 / 0		
B1, 3-1/2"	4658 / 0	3257 / 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	15-08-00	Top		18			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	15-08-00	Top	40	20			07-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	15-08-00	Top		60			n/a
3		Unf. Lin. (lb/ft)	L	00-00-00	12-02-00	Top	27	14			n/a
4		Unf. Area (lb/ft²)	L	12-02-00	15-08-00	Top	40	15			02-06-00
5		Conc. Pt. (lbs)	L	12-02-00	12-02-00	Top	2578	1739			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	33155 ft-lbs	55212 ft-lbs	60.1%	1	09-07-06
End Shear	9919 lbs	21696 lbs	45.7%	1	14-04-10
Total Load Deflection	L/269 (0.679")	n/a	89.2%	4	08-01-00
Live Load Deflection	L/463 (0.394")	n/a	77.8%	5	08-03-01
Max Defl.	0.679"	n/a	67.9%	4	08-01-00
Span / Depth	15.4				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 5-1/4"	7227 lbs	63.9%	32.2%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 5-1/4"	11059 lbs	97.8%	49.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4

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

SE007795

B19 (Floor Beam)

Dry | 1 span | No cant.

March 18, 2020 11:24:44

BC CALC® Member Report

Build 7555

Job name: 45147 (5003)

File name: 290683

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

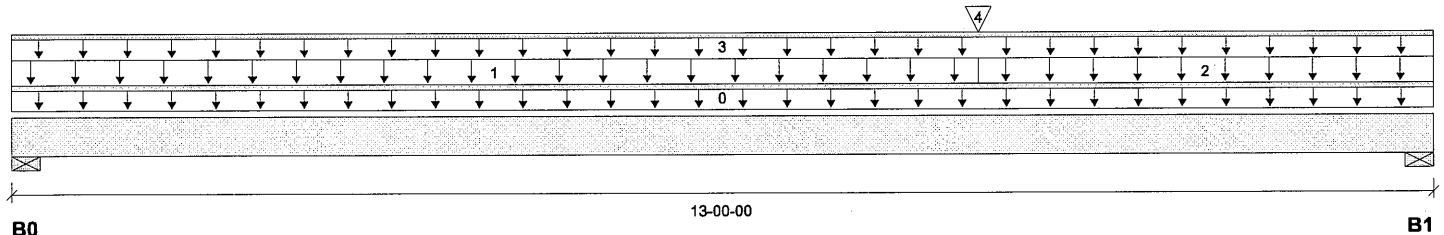
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 13-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1733 / 0	1331 / 0		
B1, 3-1/2"	2114 / 0	1536 / 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	13-00-00	Top		10			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-10-00	Top	40	20			06-00-00
2		Unf. Area (lb/ft²)	L	08-10-00	13-00-00	Top	40	20			08-00-00
3		Unf. Lin. (lb/ft)	L	00-00-00	13-00-00	Top		60			n/a
4		Conc. Pt. (lbs)	L	08-10-00	08-10-00	Top	394	236			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	14264 ft-lbs	23220 ft-lbs	61.4%	1	07-01-10
End Shear	4261 lbs	11571 lbs	36.8%	1	11-11-00
Total Load Deflection	L/259 (0.581")	n/a	92.7%	4	06-07-13
Live Load Deflection	L/452 (0.333")	n/a	79.6%	5	06-07-13
Max Defl.	0.581"	n/a	58.1%	4	06-07-13
Span / Depth	15.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	4264 lbs	56.6%	28.5%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5092 lbs	67.6%	34.1%	Spruce-Pine-Fir


Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,
STAGGERED IN 2 ROWS

B24 (Floor Beam)

Dry | 1 span | No cant.

March 18, 2020 11:24:44

BC CALC® Member Report

Build 7555

Job name: 45147 (5003)

File name: 290683

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

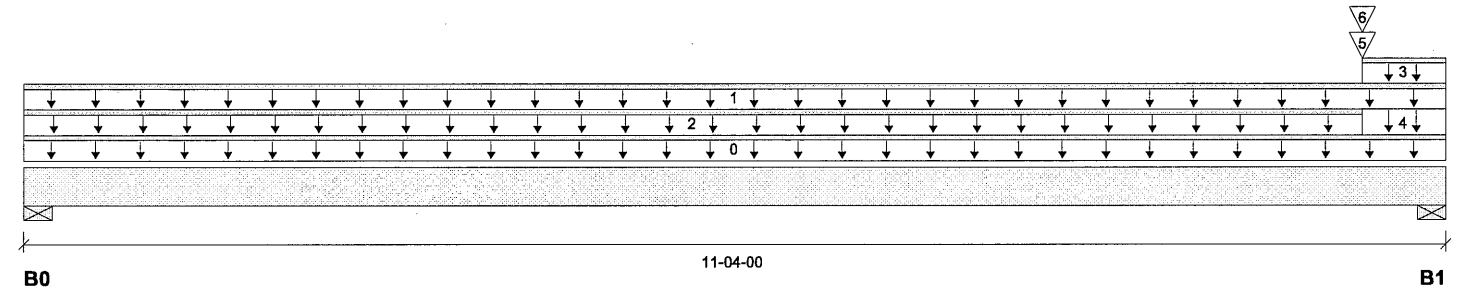
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 11-04-00

Reaction Summary (Down / Uplift) (lbs)

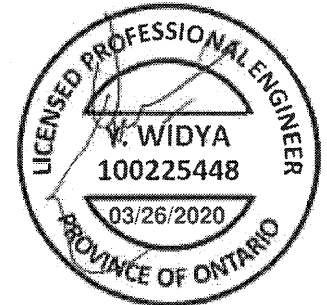
Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	332 / 0	264 / 0	15 / 0	
B1, 3-1/2"	922 / 0	1161 / 0	384 / 0	

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	11-04-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	Top	27	14			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	10-08-00	Top	27	14			n/a
3		Unf. Lin. (lb/ft)	L	10-08-00	11-04-00	Top		100			n/a
4		Unf. Area (lb/ft²)	L	10-08-00	11-04-00	Top		14	21		03-00-00
5		Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	660	690	63		n/a
6		Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top		196	294		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2523 ft-lbs	35392 ft-lbs	7.1%	1	06-05-14
End Shear	1530 lbs	14464 lbs	10.6%	1	10-00-10
Total Load Deflection	L/999 (0.041")	n/a	n/a	11	05-11-05
Live Load Deflection	L/999 (0.023")	n/a	n/a	15	05-09-10
Max Defl.	0.041"	n/a	n/a	11	05-11-05
Span / Depth	11.0				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	843 lbs	11.2%	5.6%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	3218 lbs	42.7%	21.5%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4

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

SE007813



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

1st Floor - Supply/BOM Flush Beams\B32(i24656) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 25, 2022 13:36:58

Build 8183

Job name: 45147(5003)

File name: 346628-C-LOT 50.mmdl

Address: Pine Valley

Description: 1st Floor - Supply/BOM Flush Beams\B32(i24656)

City, Province, Postal Code: Vaughan, ON

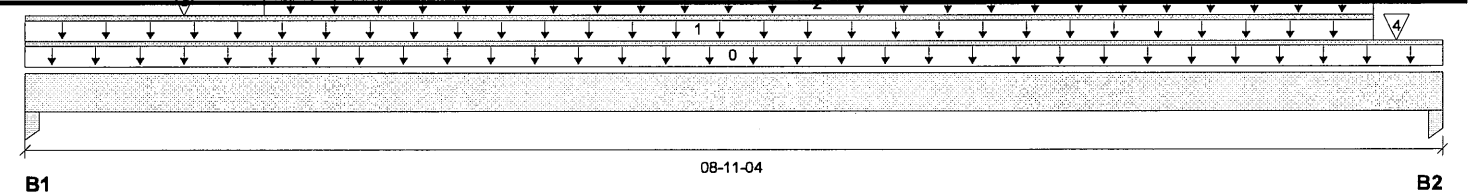
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 08-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1263 / 0	882 / 0		
B2, 5-1/4"	1822 / 0	1072 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-11-04	Top		5			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-00-00	08-06-00	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-00	08-06-00	Front	240	119			n/a
3	J2(i21840)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Front	215	108			n/a
4	-	Conc. Pt. (lbs)	L	08-07-12	08-07-12	Back	664	256			n/a
5	User Load	Conc. Pt. (lbs)	L	03-06-00	03-06-00	Top	500	188			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6592 ft-lbs	11610 ft-lbs	56.8%	1	04-00-00
End Shear	2701 lbs	5785 lbs	46.7%	1	01-03-00
Total Load Deflection	L/447 (0.219")	n/a	53.7%	4	04-04-08
Live Load Deflection	L/742 (0.132")	n/a	48.5%	5	04-04-08
Max Defl.	0.219"	n/a	n/a	4	04-04-08
Span / Depth	10.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 5-1/2" x 1-3/4"	2997 lbs	18.0%	25.5%	Spruce-Pine-Fir
B2	Column 5-1/4" x 1-3/4"	4073 lbs	25.6%	36.3%	Spruce-Pine-Fir

Notes

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

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®,

SG0497790



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **1st Floor - Supply/BOM**
Label: **B42 - i24470**
Type: **Beam**

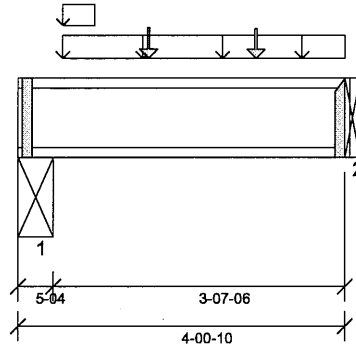
1 Ply Member
11 7/8" NI-20

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 07/25/2022 13:33



DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'- 4 1/4"
- 769 psi Beam @ 4'- 5/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 1 3/8"	1.25D + 1.5L	1.00	713 lb ft	5580 lb ft	Passed - 13%
Factored Shear:	0'- 5 5/16"	1.25D + 1.5L	1.00	703 lb	2240 lb	Passed - 31%
Total Load (TL) Pos. Defl.:	2'- 2 3/8"	D + L		0.013"	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	5-04	1.25D + 1.5L	1.00	707 lb		2240 lb	10093 lb	Passed - 32%
2	1-12	1.25D + 1.5L	1.00	703 lb		1970 lb	-	Passed - 36%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	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'	4'- 5/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'- 6 5/8"	4'- 5/8"	User Load	Top	45 lb/ft	120 lb/ft	-	-
Uniform	0'- 6 5/8"	0'- 11 3/8"	FC2 Floor Decking (Plan View Fill)	Top	43 lb/ft	85 lb/ft	-	-
Point	1'- 7 3/8"	1'- 7 3/8"	J11(i24471)	Back	59 lb	119 lb	-	-
Point	2'- 11 3/8"	2'- 11 3/8"	J11(i24518)	Back	56 lb	112 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/4"	STL BM (i16378)	152 lb	340 lb	-	-
2	4'- 5/8"	4'- 5/8"	B56(i24541)	151 lb	347 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.



53049791



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **1st Floor - Supply/BOM**
Label: **B45 - i24652**
Type: **Beam**

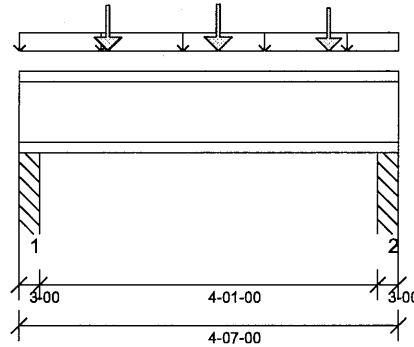
1 Ply Member
11 7/8" NI-20

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 07/25/2022 13:34



DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 2"
- 1334 psi Column @ 4'- 5"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 4 7/8"	1.25D + 1.5L	1.00	1047 lb ft	5580 lb ft	Passed - 19%
Factored Shear:	4'- 3 15/16"	1.25D + 1.5L	1.00	875 lb	2240 lb	Passed - 39%
Live Load (LL) Pos. Defl.:	2'- 3 1/2"	L		0.011"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	2'- 3 1/2"	D + L		0.021"	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	3-00	1.25D + 1.5L	1.00	850 lb		2120 lb	10008 lb	Passed - 40%
2	3-00	1.25D + 1.5L	1.00	895 lb		2120 lb	10007 lb	Passed - 42%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 7"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	4'- 7"	User Load	Top	60 lb/ft	-	-	-
Point	1'- 7/8"	1'- 7/8"	J8(i24501)	Back	111 lb	222 lb	-	-
Point	2'- 4 7/8"	2'- 4 7/8"	J8(i24542)	Back	115 lb	230 lb	-	-
Point	3'- 8 7/8"	3'- 8 7/8"	J8(i24449)	Back	100 lb	200 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3"	P12(i24649)	302 lb	315 lb	-	-
2	4'- 4"	4'- 7"	P12(i24651)	312 lb	337 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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- 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.



SG049792



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **1st Floor - Supply/BOM**
Label: **B46 - i24655**
Type: **Beam**

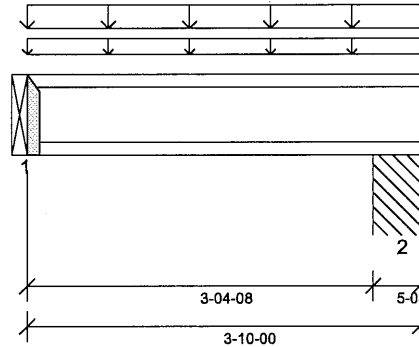
1 Ply Member
9 1/2" NI-20

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 07/25/2022 13:35



DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 3'- 5"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 1334 psi Column @ 3'- 5 1/2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 8 1/2"	1.25D + 1.5L	1.00	385 lb ft	4310 lb ft	Passed - 9%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	449 lb	1770 lb	Passed - 25%

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	450 lb		1630 lb	-	Passed - 28%
2	5-08	1.25D + 1.5L	1.00	559 lb		1770 lb	18348 lb	Passed - 32%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HUC310		-	-	-	Connector manually specified by the user.

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

SPECIFIED LOADS

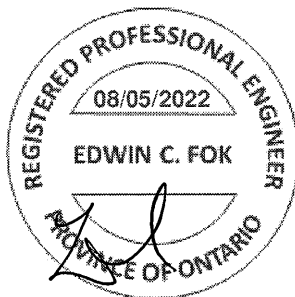
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 10"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	-0'	3'- 10"	User Load	Top	45 lb/ft	120 lb/ft	-	-
Uniform	-0'	3'- 10"	FC3 Floor Decking (Plan View Fill)	Top	6 lb/ft	11 lb/ft	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B32(i24656)	91 lb	224 lb	-	-
2	3'- 4 1/2"	3'- 10"	Pt3(i24657)	113 lb	279 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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- 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.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



SG049793



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **1st Floor - Supply/BOM**
Label: **B47 - i24087**
Type: **Beam**

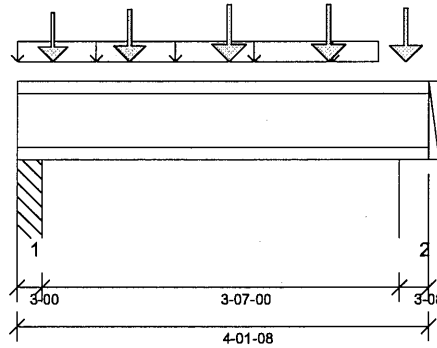
2 Ply Member
9 1/2" NI-20

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 07/25/2022 13:36



DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 2"
- 615 psi Wall @ 3'- 11"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 1 1/2"	1.25D + 1.5L	1.00	1534 lb ft	8620 lb ft	Passed - 18%
Factored Shear:	0'- 3 1/16"	1.25D + 1.5L	1.00	1736 lb	3540 lb	Passed - 49%
Live Load (LL) Pos. Defl.:	2'- 1/2"	L		0.013"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	2'- 9/16"	D + L		0.020"	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	3-00	1.25D + 1.5L	1.00	1778 lb		3416 lb	20017 lb	Passed - 52%
2	3-08	1.25D + 1.5L	1.00	1940 lb		3478 lb	10766 lb	Passed - 56%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 1 1/2"	Self Weight	Top	5 lb/ft	-	-	-
Uniform	0'	3'- 7 1/2"	User Load	Top	30 lb/ft	80 lb/ft	-	-
Point	0'- 4 1/4"	0'- 4 1/4"	J1(i21830)	Front	129 lb	259 lb	-	-
Point	1'- 1 1/2"	1'- 1 1/2"	J1(i21835)	Front	142 lb	284 lb	-	-
Point	2'- 1 1/2"	2'- 1 1/2"	J1(i21832)	Front	160 lb	321 lb	-	-
Point	3'- 1 1/2"	3'- 1 1/2"	J1(i24353)	Front	161 lb	320 lb	-	-
Point	3'- 10 3/4"	3'- 10 3/4"	8(i15448)	Top	217 lb	222 lb	-	-

UNFACTORED REACTIONS

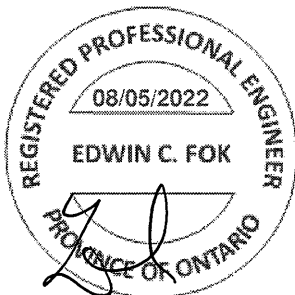
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3"	P13(i24657)	416 lb	853 lb	-	-
2	3'- 10"	4'- 1 1/2"	W21(i16383)	523 lb	843 lb	-	-

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

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



SG049794



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **2nd Floor - Supply/BOM**
Label: **B48 - i22790**
Type: **Beam**

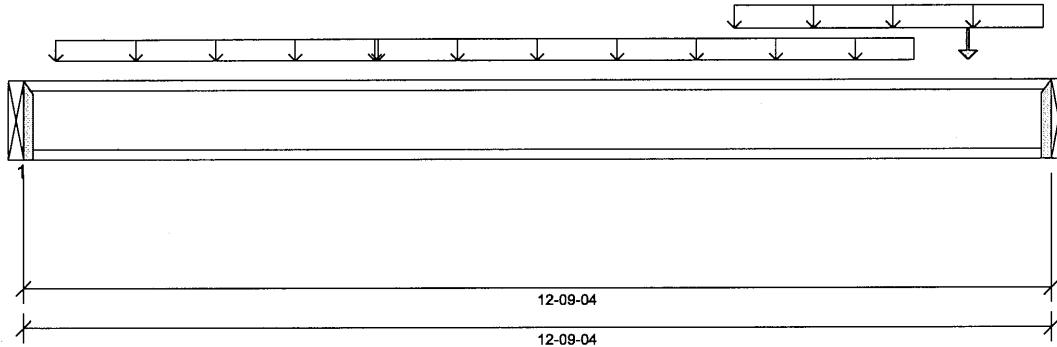
2 Ply Member
11 7/8" NI-20

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 07/25/2022 11:40



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, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 769 psi Beam @ 12'- 9 1/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'- 8 7/8"	1.25D + 1.5L	1.00	5053 lb ft	11160 lb ft	Passed - 45%
Factored Shear:	12'- 9 3/16"	1.25D + 1.5L	1.00	1963 lb	4480 lb	Passed - 44%
Live Load (LL) Pos. Defl.:	6'- 6 11/16"	L		0.156"	L/360	Passed - L/979
Total Load (TL) Pos. Defl.:	6'- 6 1/2"	D + L		0.238"	L/240	Passed - L/644

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	1329 lb		3940 lb	-	Passed - 34%
2	1-12	1.25D + 1.5L	1.00	1963 lb		3940 lb	-	Passed - 50%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HU310-2		-	-	-	Connector manually specified by the user.
2	HU310-2		-	-	-	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'	12'- 9 1/4"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	4'- 4 7/8"	11'- 7/8"	Smoothed Load	Back	46 lb/ft	92 lb/ft	-	-
Uniform	8'- 10"	12'- 8"	User Load	Top	45 lb/ft	120 lb/ft	-	-
Tapered	0'- 4 7/8"	4'- 4 7/8"	Smoothed Load	Back	41 To 48 lb/ft	83 To 95 lb/ft	-	-
Point	11'- 8 7/8"	11'- 8 7/8"	J10(22984)	Back	57 lb	113 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B50(22738)	333 lb	611 lb	-	-
2	12'- 9 1/4"	12'- 9 1/4"	B49(22861)	453 lb	929 lb	-	-

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as projected dead loads.
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- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.

PLY TO PLY CONNECTION

- Member design assumed proper ply to ply connection by others. Verify connection between plies according to code specification and follow the manufacturer's installation instruction. Loads assumed to be distributed equally to each ply.



SG049795



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

PASSED

2nd Floor - Supply/BOM\Flush Beams\B49(i22861) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 25, 2022 11:40:39

Build 8183

Job name: 45147(5003)

File name: 346628-C-LOT 50.mmdl

Address: Pine Valley

Description: 2nd Floor - Supply/BOM\Flush Beams\B49(i22861)

City, Province, Postal Code: Vaughan, ON

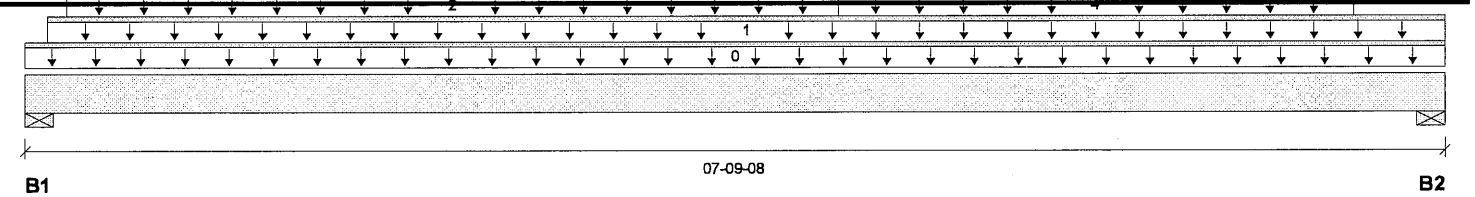
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC-12472-R

Company: Alpha Roof Trusses



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	635 / 0	549 / 0		
B2, 5-1/2"	708 / 0	591 / 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	07-09-08	Top		6			00-00-00
1	User Load	Unf. Lin. (lb/ft)	L	00-01-08	07-09-08	Top	27	70			n/a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-12	04-05-08	Top	22	11			n/a
3	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-04-04	07-09-08	Top	12	6			n/a
4	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-05-08	07-03-08	Top	7				n/a
5	B48(i22790)	Conc. Pt. (lbs)	L	04-03-00	04-03-00	Front	929	453			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4582 ft-lbs	17696 ft-lbs	25.9%	1	04-03-00
End Shear	1564 lbs	7232 lbs	21.6%	1	06-04-02
Total Load Deflection	L/999 (0.051")	n/a	n/a	4	03-11-13
Live Load Deflection	L/999 (0.029")	n/a	n/a	5	03-11-13
Max Defl.	0.051"	n/a	n/a	4	03-11-13
Span / Depth	7.1				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1638 lbs	27.7%	14.0%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	1801 lbs	30.4%	15.3%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum Total load deflection criteria.
 Design meets User specified (0.75") Maximum 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: 03-07-00.

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®,

S6049796



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

PASSED

2nd Floor - Supply/BOM\Flush Beams\B50(i23280) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 25, 2022 11:46:11

Build 8183

Job name: 45147(5003)

File name: 346628-C-LOT 50.mmdl

Address: Pine Valley

Description: 2nd Floor - Supply/BOM\Flush Beams\B50(i23280)

City, Province, Postal Code: Vaughan, ON

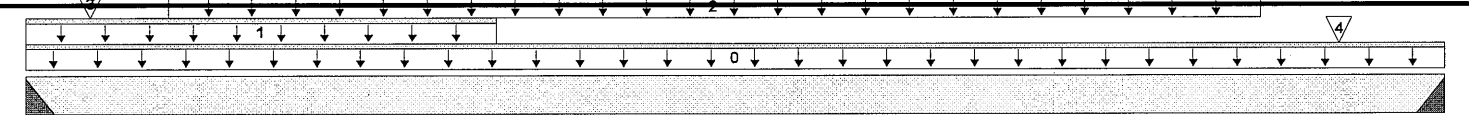
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-B

Company: Alpa Roof Trusses



B1

12-01-06

B2

Total Horizontal Product Length = 12-01-06

Reaction Summary (Down / Uplift) (lbs)

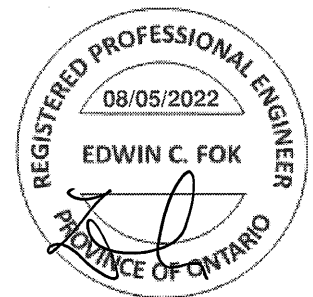
Bearing	Live	Dead	Snow	Wind
B1, 3"	2173 / 0	1141 / 0		
B2, 3"	1818 / 0	954 / 0		

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	12-01-06	Top		6			00-00-00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-00-02	Top	23	12			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-08	10-06-08	Front	284	142			n/a
3	J1(i23378)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Front	297	148			n/a
4	J1(i23459)	Conc. Pt. (lbs)	L	11-02-08	11-02-08	Front	339	169			n/a
5	B48(i23313)	Conc. Pt. (lbs)	L	03-09-10	03-09-10	Back	609	332			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13245 ft-lbs	17696 ft-lbs	74.8%	1	05-10-08
End Shear	4171 lbs	7232 lbs	57.7%	1	01-02-14
Total Load Deflection	L/297 (0.475")	n/a	80.9%	4	05-10-08
Live Load Deflection	L/452 (0.311")	n/a	79.6%	5	05-10-08
Max Defl.	0.475"	n/a	47.5%	4	05-10-08
Span / Depth	11.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	4685 lbs	n/a	73.2%	HUS1.81/10
B2	Hanger 3" x 1-3/4"	3920 lbs	n/a	61.2%	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.

SG049797



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **2nd Floor - Supply/BOM**
Label: **B51 - i23216**
Type: **Beam**

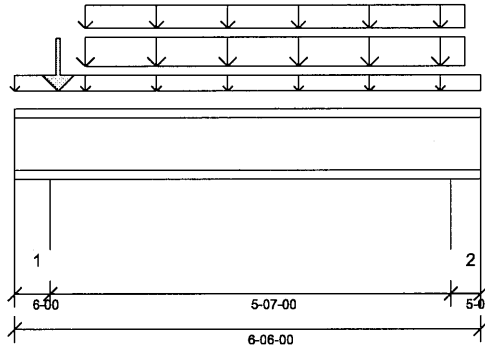
2 Ply Member
11 7/8" NI-20

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 07/25/2022 11:39



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, 0.75" (absolute)
TL Deflection Limit: L/240, 1.00" (absolute)

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 5"
- 615 psi Wall @ 6'- 2"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 11 7/8"	1.25D + 1.5L	1.00	3899 lb ft	11160 lb ft	Passed - 35%
Factored Shear:	6'- 15/16"	1.25D + 1.5L	1.00	2808 lb	4480 lb	Passed - 63%
Live Load (LL) Pos. Defl.:	3'- 3 9/16"	L		0.033"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 3 9/16"	D + L		0.054"	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	6'-00"	1.25D + 1.5L	1.00	2990 lb		4480 lb	18457 lb	Passed - 67%
2	5'-00"	1.25D + 1.5L	1.00	2849 lb		4480 lb	15380 lb	Passed - 64%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	6'- 6"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	6'- 6"	User Load	Top	60 lb/ft	-	-	-
Uniform	0'- 11 7/8"	6'- 3 3/8"	Smoothed Load	Back	121 lb/ft	241 lb/ft	-	-
Uniform	0'- 11 7/8"	6'- 3 3/8"	Smoothed Load	Front	76 lb/ft	151 lb/ft	-	-
Point	0'- 7 1/4"	0'- 7 1/4"	-	Front	207 lb	412 lb	-	-

UNFACTORED REACTIONS

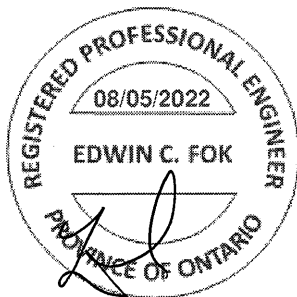
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 6"	2(115444)	853 lb	1268 lb	-	-
2	6'- 1"	6'- 6"	4(115439)	826 lb	1226 lb	-	-

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.



32049798



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **2nd Floor - Supply/BOM**
Label: **B52 - i24201**
Type: **Beam**

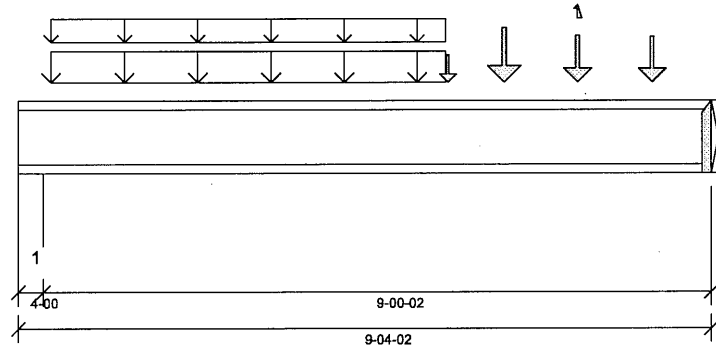
2 Ply Member
11 7/8" NI-20

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 07/25/2022 11:54



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, 0.75" (absolute)
TL Deflection Limit: L/240, 1.00" (absolute)

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 9 1/2"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3"
- 769 psi Beam @ 9'- 4 1/8"

Reinforcement Accessories Required

- Critical Reaction Web Stiffener @ 9'- 4 1/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 9 5/8"	1.25D + 1.5L	1.00	8893 lb ft	11160 lb ft	Passed - 80%
Factored Shear:	0'- 4 1/16"	1.25D + 1.5L	1.00	3804 lb	4480 lb	Passed - 85%
Live Load (LL) Pos. Defl.:	4'- 9 7/16"	L		0.154"	L/360	Passed - L/702
Total Load (TL) Pos. Defl.:	4'- 9 7/16"	D + L		0.233"	L/240	Passed - L/464

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	4-00	1.25D + 1.5L	1.00	3806 lb		4480 lb	12304 lb	Passed - 85%
2	1-12	1.25D + 1.5L	1.00	3535 lb		3940 lb	-	Passed - 90%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HU310-2		-	-	-	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'	9'- 4 1/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 5 1/4"	5'- 9 1/4"	Smoothed Load	Back	128 lb/ft	255 lb/ft	-	-
Uniform	0'- 5 1/4"	5'- 9 1/4"	Smoothed Load	Front	71 lb/ft	142 lb/ft	-	-
Point	5'- 9 5/8"	5'- 9 5/8"	J8(124249)	Front	75 lb	151 lb	-	-
Point	6'- 6 11/16"	6'- 6 11/16"	-	Front	223 lb	446 lb	-	-
Point	7'- 6 1/2"	7'- 6 1/2"	-	Front	181 lb	360/0 lb	-	-
Point	8'- 6 9/16"	8'- 6 9/16"	-	Front	175 lb	350 lb	-	-

UNFACTORED REACTIONS

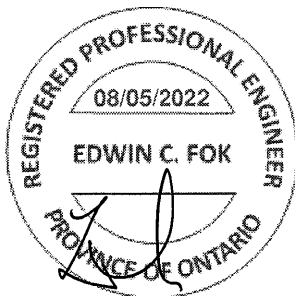
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4"	5(15442)	914 lb	1774 lb	-	-
2	9'- 4 1/8"	9'- 4 1/8"	B53(24044)	851 lb	1650 lb	-	-

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.



SE049799



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

PASSED

2nd Floor - Supply/BOM\Flush Beams\B53(i24044) (Flush Beam)

BC Design Engine Member Report

Dry | 1 span | No cant.

July 25, 2022 11:55:08

Build 8183

Job name: 45147(5003)

File name: 346628-C-LOT 50.mmdl

Address: Pine Valley

Description: 2nd Floor - Supply/BOM\Flush Beams\B53(i24044)

City, Province, Postal Code: Vaughan, ON

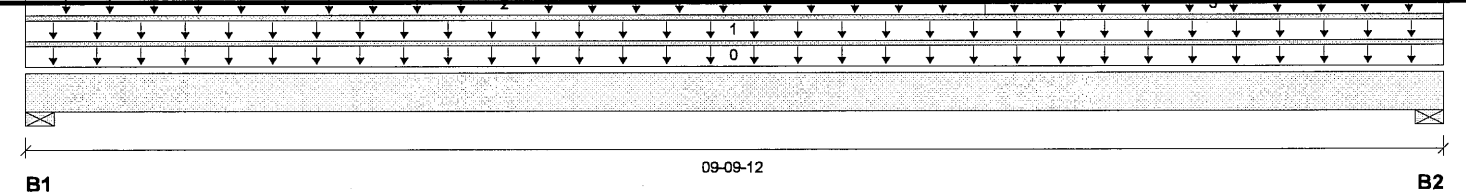
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	666 / 0	371 / 0		
B2, 4-3/8"	1302 / 0	698 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-09-12	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	09-09-12	Top	18	9			n/a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	06-07-10	Top	12	6			n/a
3	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	06-07-10	09-09-12	Top	20	10			n/a
4	B52(i24201)	Conc. Pt. (lbs)	L	06-07-10	06-07-10	Back	1650	851			n/a
5	B52(i24201)	Conc. Pt. (lbs)	L	06-07-10	06-07-10	Back	0				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7693 ft-lbs	17696 ft-lbs	43.5%	1	06-07-10
End Shear	2708 lbs	7232 lbs	37.4%	1	08-05-08
Total Load Deflection	L/811 (0.136")	n/a	29.6%	4	05-03-12
Live Load Deflection	L/999 (0.089")	n/a	n/a	5	05-03-12
Max Defl.	0.136"	n/a	13.6%	4	05-03-12
Span / Depth	9.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	1462 lbs	31.0%	15.7%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 1-3/4"	2825 lbs	60.0%	30.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum Total load deflection criteria.
 Design meets User specified (0.75") Maximum 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: 06-00-12.



Disclosure

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

SC049800



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **2nd Floor - Supply/BOM**
Label: **B54 - i24083**
Type: **Beam**

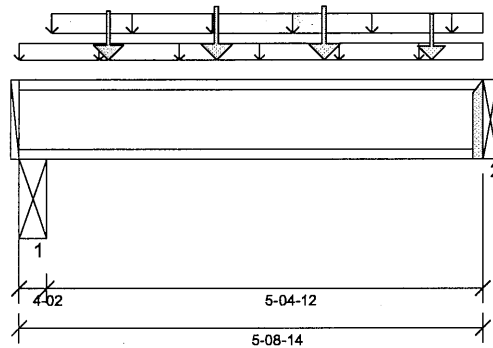
1 Ply Member
11 7/8" NI-20

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 07/25/2022 11:56



DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/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'-3 1/8"
- 769 psi Beam @ 5'-8 7/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'-8 7/16"	1.25D + 1.5L + S	0.99	2293 lb ft	5539 lb ft	Passed - 41%
Factored Shear:	5'-8 13/16"	1.25D + 1.5L + S	0.99	1610 lb	2223 lb	Passed - 72%
Live Load (LL) Pos. Defl.:	2'-11 15/16"	L + 0.5S		0.031"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'	D + L + 0.5S		0.061"	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	4-02	1.25D + 1.5L + S	0.99	1557 lb		2223 lb	7872 lb	Passed - 70%
2	1-12	1.25D + 1.5L + S	0.99	1611 lb		1970 lb	-	Passed - 82%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories		
			Top	Face	Member			
2	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

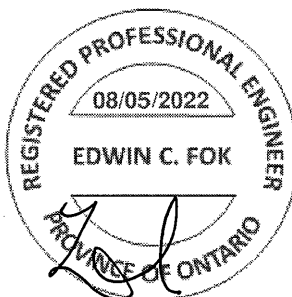
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	5'-8 7/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	-0'	5'-8 7/8"	User Load	Top	14 lb/ft	-	21 lb/ft	-
Uniform	0'-4 7/8"	5'-8 7/8"	E58(i20919)	Top	100 lb/ft	-	-	-
Point	1'-1 1/4"	1'-1 1/4"	J6(i24033)	Back	127 lb	254 lb	-	-
Point	2'-5 1/4"	2'-5 1/4"	J6(i24238)	Back	145 lb	290 lb	-	-
Point	3'-9 1/4"	3'-9 1/4"	J6(i24042)	Back	145 lb	290 lb	-	-
Point	5'-1 1/4"	5'-1 1/4"	J6(i24160)	Back	115 lb	229 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'-4 1/8"	STL BM(i15452)	571 lb	520 lb	63 lb	-
2	5'-8 7/8"	5'-8 7/8"	B24(i24343)	591 lb	543 lb	57 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.



56049801



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **2nd Floor - Supply/BOM**
Label: **B55 - i24223**
Type: **Beam**

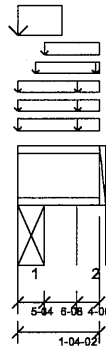
2 Ply Member
11 7/8" NI-20

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 07/25/2022 13:27



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, 0.75" (absolute)

TL Deflection Limit: L/240, 1.00" (absolute)

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 0'- 6 1/2"

Factored Resistance of Support Material:

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

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	0'- 8 11/16"	1.25D + 1.5S	1.00	8 lb ft	11160 lb ft	Passed - 0%
Factored Neg. Moment:	0'- 4 1/4"	1.25D + 1.5S + L	1.00	209 lb ft	11160 lb ft	Passed - 2%
Factored Shear:	0'- 5 5/16"	1.25D + 1.5S + L	1.00	890 lb	4480 lb	Passed - 20%

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	5-04	1.25D + 1.5S + L	1.00	2285 lb		4480 lb	20186 lb	Passed - 51%
2	4-06	1.25D + 1.5L	0.65	158 lb		2912 lb	8747 lb	Passed - 5%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	1'- 4 1/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	1'- 4 1/8"	E55(i20916)	Top	101 lb/ft	-	-	-
Uniform	0'	1'- 4 1/8"	FC1 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Uniform	0'	1'- 4 1/8"	-	Top	-	8 lb/ft	-	-
Uniform	0'	0'- 8 3/4"	E55(i20916)	Top	800 lb/ft	-	1215 lb/ft	-
Uniform	0'- 3 1/2"	1'- 4 1/8"	User Load	Top	14 lb/ft	-	21 lb/ft	-
Uniform	0'- 5 1/4"	1'- 4 1/8"	E55(i20916)	Top	28 lb/ft	-	42 lb/ft	-

UNFACTORED REACTIONS

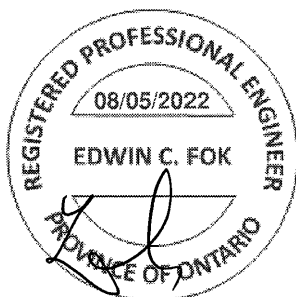
ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/4"	STL BM(i15414)	675 lb	21 lb	890 lb	-
2	0'- 11 3/4"	1'- 4 1/8"	E17(i15175)	128 lb	17 lb	81 lb	-

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.



SC049802



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **1st Floor - Supply/BOM**
Label: **B56 - i24541**
Type: **Beam**

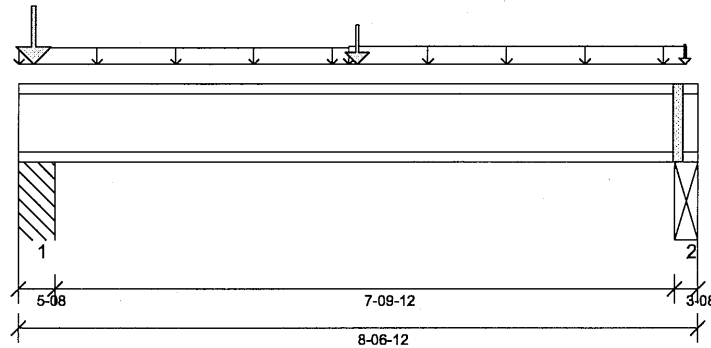
1 Ply Member
11 7/8" NI-20

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 07/25/2022 13:31



DESIGN INFORMATION

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

Design Methodology: LSD

Service Condition: Dry

LL Deflection Limit: L/360,

TL Deflection Limit: L/240,

Lateral Restraint Requirements:

Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:

Top: 0' Bottom: 3'- 11 1/2"

Factored Resistance of Support Material:

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

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	4'- 3 1/4"	1.25D + 1.5L	1.00	1949 lb ft	5580 lb ft	Passed - 35%
Factored Neg. Moment:	0'- 4 1/2"	1.25D + 1.5L	1.00	243 lb ft	5580 lb ft	Passed - 4%
Factored Shear:	8'- 3 3/16"	1.25D + 1.5L	1.00	684 lb	2240 lb	Passed - 31%
Live Load (LL) Pos. Defl.:	4'- 5"	L		0.050"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 5"	D + L		0.074"	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	1.00	1957 lb		2240 lb	18348 lb	Passed - 87%
2	3'-08	1.25D + 1.5L	1.00	849 lb		2180 lb	6729 lb	Passed - 39%

SPECIFIED LOADS

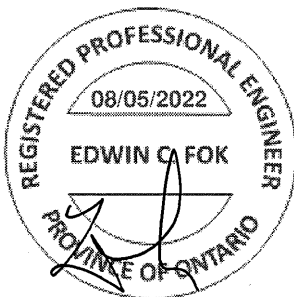
Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	8'- 6 3/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	-0'	4'- 2"	FC2 Floor Decking (Plan View Fill)	Top	13 lb/ft	26 lb/ft	-	-
Uniform	4'- 2"	8'- 5"	FC2 Floor Decking (Plan View Fill)	Top	24 lb/ft	48 lb/ft	-	-
Point	4'- 3 1/4"	4'- 3 1/4"	B42(i24470)	Back	151 lb	347 lb	-	-
Point	0'- 2 1/4"	0'- 2 1/4"	User Load	Top	240 lb	640 lb	-	-
Point	8'- 4 3/4"	8'- 4 3/4"	2(i15444)	Top	45 lb	62 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	Pl2(i24649)	412 lb	989 lb	-	-
2	8'- 3 1/4"	8'- 6 3/4"	STL BM (i16377)	204 lb	369 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.



SE049803



Customer: **Gold Park**
Job Address: **Pine Valley**
City: **Vaughan**
Job Track: **45147(5003)**

Job Name: **346628-C-LOT 50**
Level: **1st Floor - Supply/BOM**
Label: **B57 - i24513**
Type: **Beam**

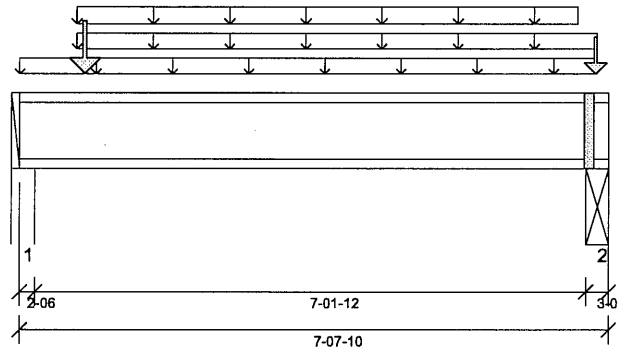
1 Ply Member
11 7/8" NI-20

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 07/25/2022 13:32



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: 6'- 4 3/4"

Factored Resistance of Support Material:

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

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 4 1/2"	1.25D + 1.5L	0.97	1304 lb ft	5439 lb ft	Passed - 24%
Factored Shear:	0'- 2 7/16"	1.25D + 1.5L	0.97	1100 lb	2184 lb	Passed - 50%
Live Load (LL) Pos. Defl.:	3'- 7 1/16"	L		0.021"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 8 1/16"	D + L		0.053"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-06	1.25D + 1.5L	0.97	1116 lb		1993 lb	3561 lb	Passed - 56%
2	3-08	1.25D + 1.5L	0.97	1017 lb		2125 lb	6559 lb	Passed - 48%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 7 5/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	7'- 5 7/8"	FC2 Floor Decking (Plan View Fill)	Top	11 lb/ft	21 lb/ft	-	-
Uniform	0'- 8 7/8"	7'- 5 7/8"	FC2 Floor Decking (Plan View Fill)	Top	9 lb/ft	18 lb/ft	-	-
Uniform	0'- 8 7/8"	7'- 2 7/8"	User Load	Top	60 lb/ft	-	-	-
Point	0'- 10 1/8"	0'- 10 1/8"	B42(i24505)	Back	149 lb	306 lb	-	-
Point	7'- 5 5/8"	7'- 5 5/8"	2(i15444)	Top	123 lb	146 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/8"	W22(i16382)	395 lb	420 lb	-	-
2	7'- 4 1/8"	7'- 7 5/8"	STL BM (i16377)	430 lb	315 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.
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- When the applied loads are coming from a member/post/wall above that does not sit directly on this beam, adequate load transfer elements, such as squash blocks, wall studs, or beveled plates are required to transfer the loads to this beam.



86049804

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'-5"	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'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-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	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

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

Details released after April 2014 supersedes N-C301

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

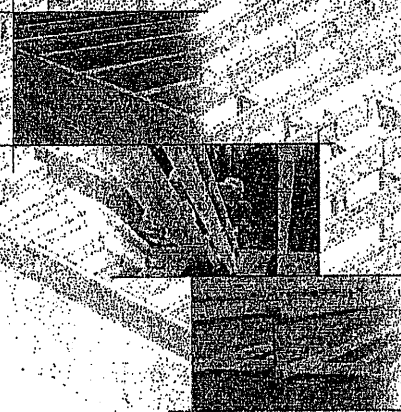
This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

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



N-C301/April 2014

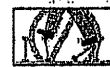
NORDIC ENGINEERED WOOD **INSTALLATION GUIDE** FOR RESIDENTIAL FLOORS



Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unbraced I-joists. Once sheathing is in place, do not cross-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.

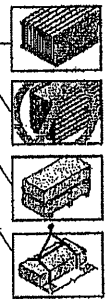
Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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

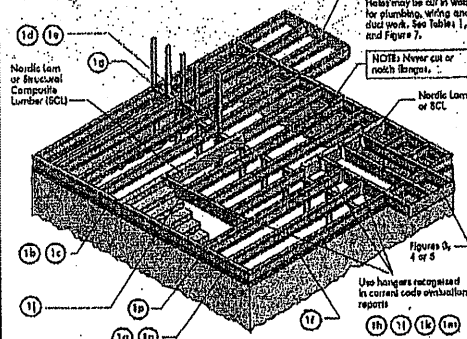


INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange width matches hanger width. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
5. Minimum bearing length: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, rest I-joists firmly to hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a hanger.
8. Concentrated loads greater than those that can normally be supported in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all 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 joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (see members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used at blocking or rim boards. I-joist blocking panels or other engineered wood products - such as rim board - must be cut to fit between the I-joists, and on I-joist-composite 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 near to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. One panel to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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

Some framing requirements such as wall bracing and blocking panels have been omitted for clarity.



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) concrete spiral nails may be substituted for 2-1/2" (0.1875" dia.) common wire nails. Framing lumber assumed to be Service-Prime Fir No. 2 or better. Individual components not shown to scale for clarity.

10

7-1/2" nails at 8" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with some nailing as required for blocking)

Attach I-joist to top plate per detail 11

Blocking Panel or Rim Joist	Maximum Fastened Uniform Vertical Load ¹ (psi)
Ni Joist	3,300

¹The uniform vertical load is limited to a joist depth of 14 inches or less and is based on standard term load duration. It shall not be used in the design of a bearing member, such as joist, header, or rafter. For concentrated vertical load members, see detail 14.

11

One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 7-1/2" wire or spiral nail at 8" o.c.

To avoid splitting flange, nail must be at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length must be 1-3/4" for the end bearing, and 3-1/2" for the intermediate bearing when applicable.

Blocking Panel or Rim Joist	Maximum Fastened Uniform Vertical Load ¹ (psi)
1-1/2" Rim Board Plus	0,000

¹The uniform vertical load is limited to a rim board depth of 14 inches or less and is based on standard term load duration. It shall not be used in the design of a bearing member, such as joist, header, or rafter. For concentrated vertical load members, see detail 14.

12

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

Attach I-joist to top plate per detail 11

Minimum 1-3/4" bearing required

13

1/16" for squash blocks

Plate of Squash Block	Maximum Fastened Uniform Vertical Load ¹ (psi)
3x Lumber	6,500
1-1/2" Rim Board Plus	4,500

¹Provide lateral bracing per detail 14, 15, or 16

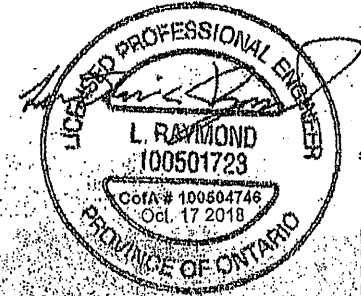
The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

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

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

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



N-C301/April 2014

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to single-span or multiple-span residential floor construction with design live load of 40 psf and dead load of 15 psf. The ultimate live load is based on the Federal loads of 1.50 x 1.750. The in-service live load shall include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent spans.
2. Spans are based on a composite floor with glued-sheathed 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. Joistres shall meet the requirements given in CGOS-7.2.6 Standard. No concrete topping or additional element was assumed. Increased spans may be obtained with the use of systems outside a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and 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 Limit States Design per CAN/CSA C308-09 Standard, and NRC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

SMALL AND MIDDLE SPANS

1	2 1/2"	1.42	1.48	1.54	1.60	1.66	1.72	1.78	1.84	1.90	1.96	2.02	2.08	2.14	2.20	2.26	2.32	2.38	2.44	2.50	2.56	2.62	2.68	2.74	2.80	2.86	2.92	2.98	3.04	3.10	3.16	3.22	3.28	3.34	3.40	3.46	3.52	3.58	3.64	3.70	3.76	3.82	3.88	3.94	4.00	4.06	4.12	4.18	4.24	4.30	4.36	4.42	4.48	4.54	4.60	4.66	4.72	4.78	4.84	4.90	4.96	5.02	5.08	5.14	5.20	5.26	5.32	5.38	5.44	5.50	5.56	5.62	5.68	5.74	5.80	5.86	5.92	5.98	6.04	6.10	6.16	6.22	6.28	6.34	6.40	6.46	6.52	6.58	6.64	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.12	7.18	7.24	7.30	7.36	7.42	7.48	7.54	7.60	7.66	7.72	7.78	7.84	7.90	7.96	8.02	8.08	8.14	8.20	8.26	8.32	8.38	8.44	8.50	8.56	8.62	8.68	8.74	8.80	8.86	8.92	8.98	9.04	9.10	9.16	9.22	9.28	9.34	9.40	9.46	9.52	9.58	9.64	9.70	9.76	9.82	9.88	9.94	10.00	10.06	10.12	10.18	10.24	10.30	10.36	10.42	10.48	10.54	10.60	10.66	10.72	10.78	10.84	10.90	10.96	11.02	11.08	11.14	11.20	11.26	11.32	11.38	11.44	11.50	11.56	11.62	11.68	11.74	11.80	11.86	11.92	11.98	12.04	12.10	12.16	12.22	12.28	12.34	12.40	12.46	12.52	12.58	12.64	12.70	12.76	12.82	12.88	12.94	13.00	13.06	13.12	13.18	13.24	13.30	13.36	13.42	13.48	13.54	13.60	13.66	13.72	13.78	13.84	13.90	13.96	14.02	14.08	14.14	14.20	14.26	14.32	14.38	14.44	14.50	14.56	14.62	14.68	14.74	14.80	14.86	14.92	14.98	15.04	15.10	15.16	15.22	15.28	15.34	15.40	15.46	15.52	15.58	15.64	15.70	15.76	15.82	15.88	15.94	16.00	16.06	16.12	16.18	16.24	16.30	16.36	16.42	16.48	16.54	16.60	16.66	16.72	16.78	16.84	16.90	16.96	17.02	17.08	17.14	17.20	17.26	17.32	17.38	17.44	17.50	17.56	17.62	17.68	17.74	17.80	17.86	17.92	17.98	18.04	18.10	18.16	18.22	18.28	18.34	18.40	18.46	18.52	18.58	18.64	18.70	18.76	18.82	18.88	18.94	19.00	19.06	19.12	19.18	19.24	19.30	19.36	19.42	19.48	19.54	19.60	19.66	19.72	19.78	19.84	19.90	19.96	20.02	20.08	20.14	20.20	20.26	20.32	20.38	20.44	20.50	20.56	20.62	20.68	20.74	20.80	20.86	20.92	20.98	21.04	21.10	21.16	21.22	21.28	21.34	21.40	21.46	21.52	21.58	21.64	21.70	21.76	21.82	21.88	21.94	22.00	22.06	22.12	22.18	22.24	22.30	22.36	22.42	22.48	22.54	22.60	22.66	22.72	22.78	22.84	22.90	22.96	23.02	23.08	23.14	23.20	23.26	23.32	23.38	23.44	23.50	23.56	23.62	23.68	23.74	23.80	23.86	23.92	23.98	24.04	24.10	24.16	24.22	24.28	24.34	24.40	24.46	24.52	24.58	24.64	24.70	24.76	24.82	24.88	24.94	25.00	25.06	25.12	25.18	25.24	25.30	25.36	25.42	25.48	25.54	25.60	25.66	25.72	25.78	25.84	25.90	25.96	26.02	26.08	26.14	26.20	26.26	26.32	26.38	26.44	26.50	26.56	26.62	26.68	26.74	26.80	26.86	26.92	26.98	27.04	27.10	27.16	27.22	27.28	27.34	27.40	27.46	27.52	27.58	27.64	27.70	27.76	27.82	27.88	27.94	28.00	28.06	28.12	28.18	28.24	28.30	28.36	28.42	28.48	28.54	28.60	28.66	28.72	28.78	28.84	28.90	28.96	29.02	29.08	29.14	29.20	29.26	29.32	29.38	29.44	29.50	29.56	29.62	29.68	29.74	29.80	29.86	29.92	29.98	30.04	30.10	30.16	30.22	30.28	30.34	30.40	30.46	30.52	30.58	30.64	30.70	30.76	30.82	30.88	30.94	31.00	31.06	31.12	31.18	31.24	31.30	31.36	31.42	31.48	31.54	31.60	31.66	31.72	31.78	31.84	31.90	31.96	32.02	32.08	32.14	32.20	32.26	32.32	32.38	32.44	32.50	32.56	32.62	32.68	32.74	32.80	32.86	32.92	32.98	33.04	33.10	33.16	33.22	33.28	33.34	33.40	33.46	33.52	33.58	33.64	33.70	33.76	33.82	33.88	33.94	34.00	34.06	34.12	34.18	34.24	34.30	34.36	34.42	34.48	34.54	34.60	34.66	34.72	34.78	34.84	34.90	34.96	35.02	35.08	35.14	35.20	35.26	35.32	35.38	35.44	35.50	35.56	35.62	35.68	35.74	35.80	35.86	35.92	35.98	36.04	36.10	36.16	36.22	36.28	36.34	36.40	36.46	36.52	36.58	36.64	36.70	36.76	36.82	36.88	36.94	37.00	37.06	37.12	37.18	37.24	37.30	37.36	37.42	37.48	37.54	37.60	37.66	37.72	37.78	37.84	37.90	37.96	38.02	38.08	38.14	38.20	38.26	38.32	38.38	38.44	38.50	38.56	38.62	38.68	38.74	38.80	38.86	38.92	38.98	39.04	39.10	39.16	39.22	39.28	39.34	39.40	39.46	39.52	39.58	39.64	39.70	39.76	39.82	39.88	39.94	40.00	40.06	40.12	40.18	40.24	40.30	40.36	40.42	40.48	40.54	40.60	40.66	40.72	40.78	40.84	40.90	40.96	41.02	41.08	41.14	41.20	41.26	41.32	41.38	41.44	41.50	41.56	41.62	41.68	41.74	41.80	41.86	41.92	41.98	42.04	42.10	42.16	42.22	42.28	42.34	42.40	42.46	42.52	42.58	42.64	42.70	42.76	42.82	42.88	42.94	43.00	43.06	43.12	43.18	43.24	43.30	43.36	43.42	43.48	43.54	43.60	43.66	43.72	43.78	43.84	43.90	43.96	44.02	44.08	44.14	44.20	44.26	44.32	44.38	44.44	44.50	44.56	44.62	44.68	44.74	44.80	44.86	44.92	44.98	45.04	45.10	45.16	45.22	45.28	45.34	45.40	45.46	45.52	45.58	45.64	45.70	45.76	45.82	45.88	45.94	46.00	46.06	46.12	46.18	46.24	46.30	46.36	46.42	46.48	46.54	46.60	46.66	46.72	46.78	46.84	46.90	46.96	47.02	47.08	47.14	47.20	47.26	47.32	47.38	47.44	47.50	47.56	47.62	47.68	47.74	47.80	47.86	47.92	47.98	48.04	48.10	48.16	48.22	48.28	48.34	48.40	48.46	48.52	48.58	48.64	48.70	48.76	48.82	48.88	48.94	49.00	49.06	49.12	49.18	49.24	49.30	49.36	49.42	49.48	49.54	49.60	49.66	49.72	49.78	49.84	49.90	49.96	50.02	50.08	50.14	50.20	50.26	50.32	50.38	50.44	50.50	50.56	50.62	50.68	50.74	50.80	50.86	50.92	50.98	51.04	51.10	51.16	51.22	51.28	51.34	51.40	51.46	51.52	51.58	51.64	51.70	51.76	51.82	51.88	51.94	52.00	52.06	52.12	52.18	52.24	52.30	52.36	52.42	52.48	52.54	52.60	52.66	52.72	52.78	52.84	52.90	52.96	53.02	53.08	53.14	53.20	53.26	53.32	53.38	53.44	53.50	53.56	53.62	53.68	53.74	53.80	53.86	53.92	53.98	54.04	54.10	54.16	54.22	54.28	54.34	54.40	54.46	54.52	54.58	54.64	54.70	54.76	54.82	54.88	54.94	55.00	55.06	55.12	55.18	55.24	55.30	55.36	55.42	55.48	55.54	55.60	55.66	55.72	55.78	55.84	55.90	55.96	56.02	56.08	56.14	56.20	56.26	56.32	56.38	56.44	56.50	56.56	56.62	56.68	56.74	56.80	56.86	56.92	56.98	57.04	57.10	57.16	57.22	57.28	57.34	57.40	57.46	57.52	57.58	57.64	57.70	57.76	57.82	57.88	57.94	58.00	58.06	58.12	58.18	58.24	58.30	58.36	58.42	58.48	58.54	58.60	58.66	58.72	58.78	58.84	58.90	58.96	59.02	59.08	59.14	59.20	59.26	59.32	59.38	59.44	59.50	59.56	59.62	59.68	59.74	59.80	59.86	59.92	59.98	60.04	60.10	60.16	60.22	60.28	60.34	60.40	60.46	60.52	60.58	60.64	60.70	60.76	60.82	60.88	60.94	61.00	61.06	61.12	61.18	61.24	61.30	61.36	61.42	61.48	61.54	61.60	61.66	61.72	61.78	61.84	61.90	61.96	62.02	62.08	62.14	62.20	62.26	62.32	62.38	62.44	62.50	62.56	62.62	62.68	62.74	62.80	62.86	62.92	62.98	63.04	63.10	63.16	63.22	63.28	63.34	63.40	63.46	63.52	63.58	63.64	63.70	63.76	63.82	63.88	63.94	64.00	64.06	64.12	64.18	64.24	64.30	64.36	64.42	64.48	64.54	64.60	64.66	64.72	64.78	64.84	64.90	64.96	65.02	65.08	65.14	65.20	65.26	65.32	65.38	65.44	65.50	65.56	65.62	65.68	65.74	65.80	65.86	65.92	65.98	66.04	66.10	66.16	66.22	66.28	66.34	66.40	66.46	66.52	66.58	66.64	66.70	66.76	66.82	66.88	66.94	67.00	67.06	67.12	67.18	67.24	67.30	67.36	67.42	67.48	67.54	67.60	67.66	67.72	67.78	67.84	67.90	67.96	68.02	68.08	68.14	68.20	68.26	68.32	68.38	68.44	68.50	68.56	68.62	68.68	68.74	68.80	68.86	68.92	68.98	69.04	69.10	69.16	69.22	69.28	69.34	69.40	69.46	69.52	69.58	69.64	69.70	69.76	69.82	69.88	69.94	70.00	70.06	70.12	70.18	70.24	70.30	70.36	70.42	70.48	70.54	70.60	70.66	70.72	70.78	70.84	70.90	70.96	71.02	71.08	71.14	71.20	71.26	71.32	71.38	71.44	71.50	71.56	71.62	71.68	71.74	71.80	71.86	71.92	71.98	72.04	72.10	72.16	72.22	72.28	72.34	72.40	72.46	72.52	72.58	72.64	72.70	72.76	72.82	72.88	72.94	73.00	73.06	73.12	73.18	73.24	73.30	73.36	73.42	73.48	73.54	73.60	73.66	73.72	73.78	73.84	73.90	73.96	74.02	74.08	74.14	74.20	74.26	74.32	74.38	74.44	74.50	74.56	74.62	74.68	74.74	74.80	74.86	74.92	74.98	75.04	75.10	75.16	75.22	75.28	75.34	75.40	75.46	75.52	75.58	75.64	75.70	75.76	75.82	75.88	75.94	76.00	76.06	76.12	76.18	76.24	76.30	76.36	76.42
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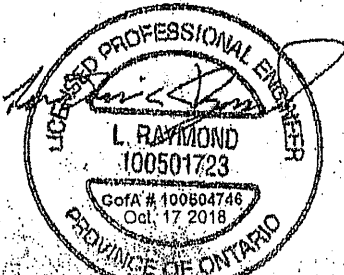
The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

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

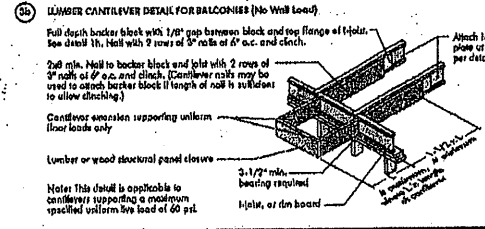
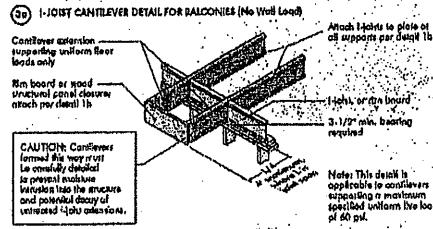
This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

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

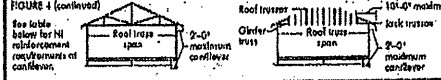
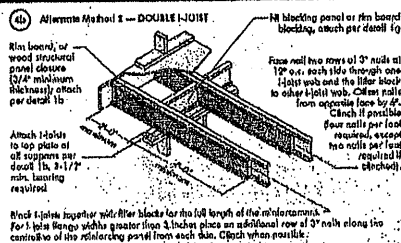
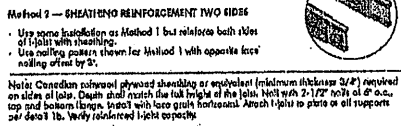
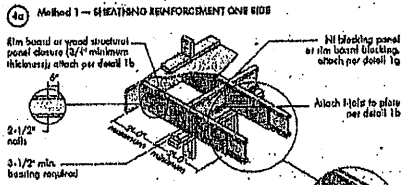


N-C301/April 2014

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)



CANTILEVER REINFORCEMENT METHODS ALLOWED

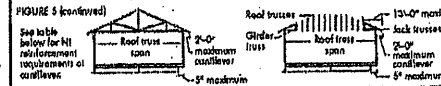
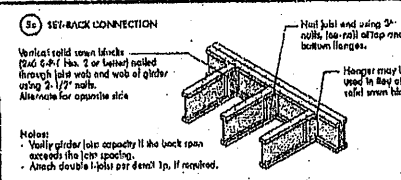
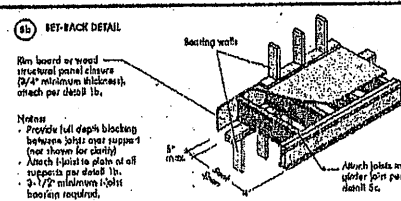
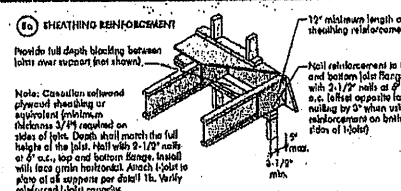
Span (ft)	Method 1 (One Side)		Method 2 (Two Sides)		Method 3 (Double Joist)	
	1	2	1	2	1	2
10	X	X	X	X	X	X
12	X	X	X	X	X	X
14	X	X	X	X	X	X
16	X	X	X	X	X	X
18	X	X	X	X	X	X
20	X	X	X	X	X	X
22	X	X	X	X	X	X
24	X	X	X	X	X	X
26	X	X	X	X	X	X
28	X	X	X	X	X	X
30	X	X	X	X	X	X

1. N = No reinforcement required.
2. = HI reinforced with 3/4" wood structural panel on one side only.
3. = HI reinforced with 3/4" wood structural panel on both sides, or double joist.
4. = by design per code requirements.
5. Maximum design load shall be 15 psf roof dead load, 45 psf live load, and 0.0 psf wind load. Wall load is based on 2'-0" maximum width window or door opening.
6. For larger openings, or multiple 2'-0" with openings spaced less than 6'-0" o.c., additional joist reinforcement is required.
7. Joist spans to joist 12' to 24' o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 10 psf and a live load deflection limit of L/180. Use 12" o.c. requirements for better spacing.

4. For conventional roof construction 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 roof is framed using a ridge beam, the roof truss span is equivalent to the distance between the supporting walls on either side.

5. Cantilevered joist supporting glider doors or roof beams may require additional reinforcing.

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



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

Span (ft)	Method 1 (One Side)		Method 2 (Two Sides)		Method 3 (Double Joist)	
	1	2	1	2	1	2
10	X	X	X	X	X	X
12	X	X	X	X	X	X
14	X	X	X	X	X	X
16	X	X	X	X	X	X
18	X	X	X	X	X	X
20	X	X	X	X	X	X
22	X	X	X	X	X	X
24	X	X	X	X	X	X
26	X	X	X	X	X	X
28	X	X	X	X	X	X
30	X	X	X	X	X	X

1. N = No reinforcement required.
2. = HI reinforced with 3/4" wood structural panel on one side only.
3. = HI reinforced with 3/4" wood structural panel on both sides, or double joist.
4. = by design per code requirements.
5. Maximum design load shall be 15 psf roof dead load, 45 psf live load, and 0.0 psf wind load. Wall load is based on 2'-0" maximum width window or door opening.
6. For larger openings, or multiple 2'-0" with openings spaced less than 6'-0" o.c., additional joist reinforcement is required.
7. Joist spans to joist 12' to 24' o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 10 psf and a live load deflection limit of L/180. Use 12" o.c. requirements for better spacing.

4. For conventional roof construction 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 roof is framed using a ridge beam, the roof truss span is equivalent to the distance between the supporting walls on either side.

5. Cantilevered joist supporting glider doors or roof beams may require additional reinforcing.

The construction details for residential designs are prone to changes.

Details released after April 2014 supersede 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)



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. Joint 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 size of the largest square hole (or twice the length of the largest side of the largest 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 exceeding 1 1/2 inches or smaller shall be permitted anywhere in a continuous section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1 1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of Table 1 or 2.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the guidelines listed above and as illustrated in Figure 7.
11. Install three maximum 2x4 joists per span, at which time may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole location shown on them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

Minimum value		Maximum value		Mean value		Standard deviation		Coefficient of variation		Skewness		Kurtosis		Jarque-Bera		Ljung-Box		Durbin-Watson		Shapiro-Wilk		Kolmogorov-Smirnov		Anderson-Darling		Cramér-von Mises		Brier score		Mean absolute error		Root mean square error		Mean squared error		Logarithmic loss		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill score		Brier skill score		Mean absolute skill score		Root mean square skill score		Mean squared skill score		Logarithmic skill 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CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / September 2013



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centerline 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 centered on the middle of the web.
4. The maximum size hole of 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 size of the largest square hole for twice the length of the longest side of the largest rectangular hole or duct chase opening, and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a conditioned section of a joist. Holes of greater size may be permitted subject to verification.

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

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

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

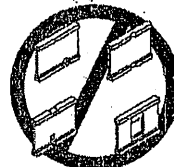
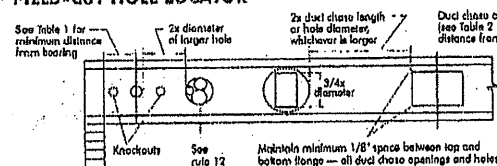
1. Above table may be used for I-Joist spacing of 24 inches on center or less.
2. Hole location is measured from inside face of support to center of hole.
3. Distances in this chart are based on uniformly loaded joists.
4. The above table is based on the I-Joist being used at their maximum spans. The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

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft. - in.)											
		Duct Chase Length (in.)											
9-1/2"	Ni-20	4'-1"	4'-3"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"	7'-9"	7'-9"	7'-9"
	Ni-40x	5'-0"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	8'-6"	8'-6"	8'-6"
	Ni-60	5'-4"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	8'-6"	8'-6"	8'-6"	8'-6"
	Ni-70	5'-1"	5'-5"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	8'-6"	8'-6"	8'-6"
	Ni-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	8'-6"	8'-6"	8'-6"
11-7/8"	Ni-20	5'-0"	5'-4"	5'-8"	6'-1"	6'-5"	6'-9"	6'-9"	7'-3"	7'-7"	7'-7"	7'-7"	7'-7"
	Ni-40x	6'-0"	6'-4"	6'-8"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	9'-1"	9'-1"	9'-1"
	Ni-60	6'-4"	6'-8"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	9'-1"	9'-1"	9'-1"	9'-1"
	Ni-70	6'-1"	6'-5"	6'-9"	7'-3"	7'-7"	8'-1"	8'-5"	8'-9"	9'-3"	9'-3"	9'-3"	9'-3"
	Ni-80	6'-2"	6'-6"	7'-0"	7'-4"	7'-8"	8'-2"	8'-6"	9'-0"	9'-4"	9'-4"	9'-4"	9'-4"
14"	Ni-20	5'-1"	5'-5"	5'-9"	6'-3"	6'-7"	6'-7"	7'-1"	7'-5"	7'-9"	7'-9"	7'-9"	7'-9"
	Ni-40x	6'-1"	6'-5"	6'-9"	7'-3"	7'-7"	8'-1"	8'-5"	8'-9"	9'-3"	9'-3"	9'-3"	9'-3"
	Ni-60	6'-5"	6'-9"	7'-3"	7'-7"	8'-1"	8'-5"	8'-9"	9'-3"	9'-3"	9'-3"	9'-3"	9'-3"
	Ni-70	6'-2"	6'-6"	7'-0"	7'-4"	7'-8"	8'-2"	8'-6"	9'-0"	9'-4"	9'-4"	9'-4"	9'-4"
	Ni-80	6'-3"	6'-7"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	9'-5"	9'-5"	9'-5"	9'-5"
16"	Ni-20	5'-3"	5'-7"	6'-1"	6'-5"	6'-9"	6'-9"	7'-3"	7'-7"	8'-1"	8'-1"	8'-1"	8'-1"
	Ni-40x	6'-3"	6'-7"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	9'-5"	9'-5"	9'-5"	9'-5"
	Ni-60	6'-7"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	9'-5"	9'-5"	9'-5"	9'-5"	9'-5"
	Ni-70	6'-4"	6'-8"	7'-2"	7'-6"	8'-0"	8'-4"	8'-8"	9'-2"	9'-6"	9'-6"	9'-6"	9'-6"
	Ni-80	6'-5"	6'-9"	7'-3"	7'-7"	8'-1"	8'-5"	8'-9"	9'-3"	9'-7"	9'-7"	9'-7"	9'-7"

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

FIGURE 7
FIELD-CUT HOLE LOCATOR

Knockouts are pre-cored 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 18 inches on center along the length of the joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unsecured I-joists. Once struts are in place, do not over-stress I-joists with concentrated loads from building materials.

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

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



PRODUCT WARRANTY

Shantree Construction guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Shantree Construction warrants that our products, when installed in accordance with our detailing 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 supersedes N-303

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

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

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

