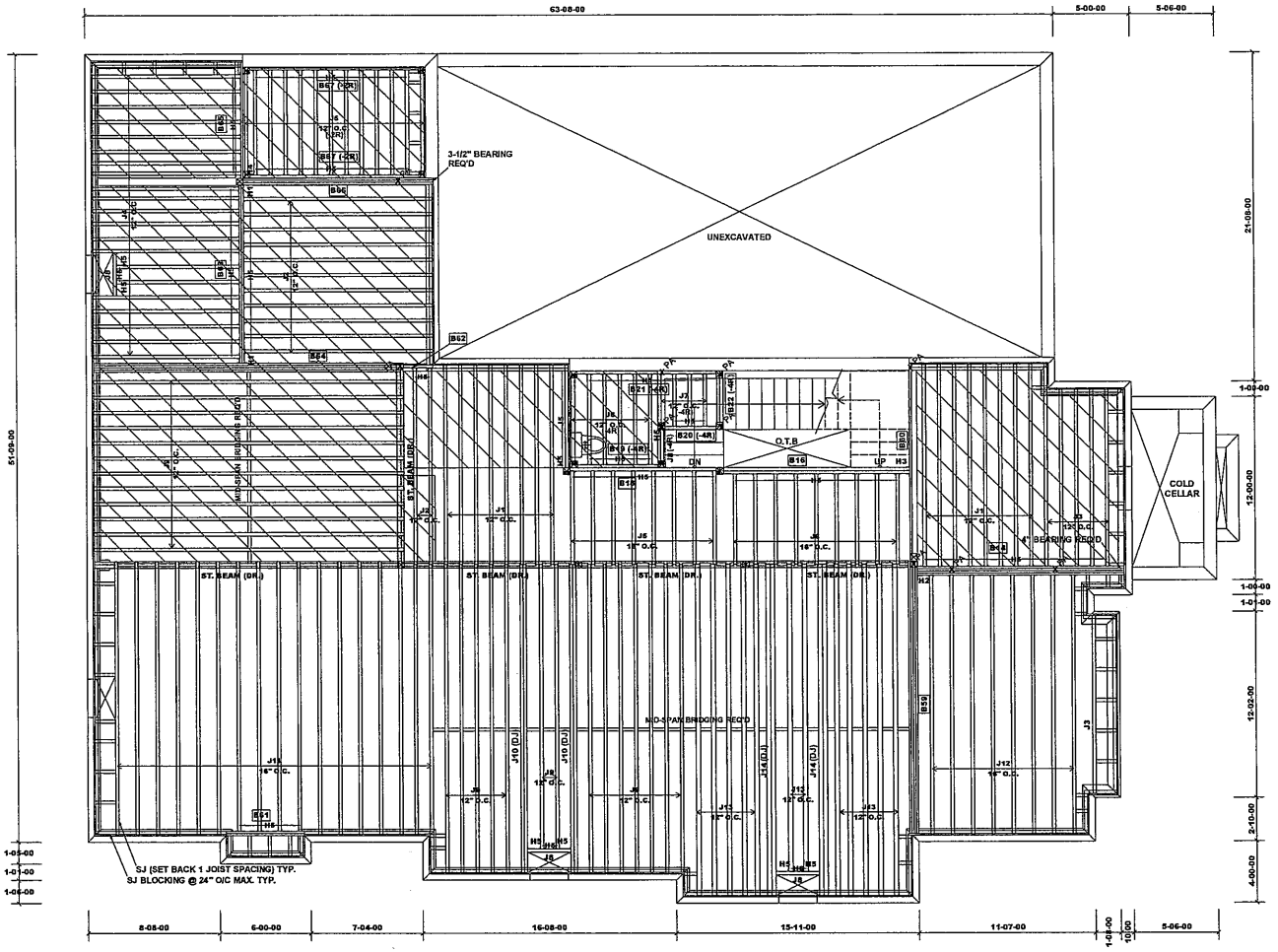


Products				
PlotID	Length	Product	Plies	Net Qty
B14	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	4	4
B16	13-00-00	11 7/8" NI-20	2	2
B18	11-00-00	11 7/8" NI-20	1	1
B19 (-4R)	7-00-00	11 7/8" NI-20	1	1
B20 (-4R)	5-00-00	11 7/8" NI-20	1	1
B21 (-4R)	10-00-00	11 7/8" NI-20	1	1
B22 (-4R)	4-00-00	11 7/8" NI-20	2	2
B59	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	4	4
B60	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B61	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B62	3-00-00	11 7/8" NI-20	1	1
B63	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B64	21-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	4	4
B65	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B66	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B67 (-2R)	12-00-00	11 7/8" NI-20	1	2
J1	14-00-00	11 7/8" NI-20	1	16
J2	13-00-00	11 7/8" NI-20	1	13
J3	12-00-00	11 7/8" NI-20	1	6
J4	10-00-00	11 7/8" NI-20	1	21
J5	7-00-00	11 7/8" NI-20	1	22
J6	6-00-00	11 7/8" NI-20	1	15
J7	4-00-00	11 7/8" NI-20	1	4
J8	3-00-00	11 7/8" NI-20	1	4
J9	21-00-00	11 7/8" NI-40x	1	26
J10	21-00-00	11 7/8" NI-40x	2	4
J11	18-00-00	11 7/8" NI-40x	1	17
J12	17-00-00	11 7/8" NI-40x	1	8
J13	22-00-00	11 7/8" NI-80	1	12
J14	22-00-00	11 7/8" NI-80	2	4
Ca1	240-00-00	1 1/8" x 11 7/8" Rim Board	1	1
Bk1	141-00-00	11 7/8" NI-20	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	2		HGUS410
H2	1		HHGU7.25-SDS5
H3	1		HU312-2
H4	1		HUS1.81/10
H5	127		LT251188
H6	2		LT351188

SE047042 - SE047089
SE048435 - SE048436
SE049456 - SE049472

GROUND FLOOR FRAMING
UNIT 6002 - THE KINGSVIEW
ELEVATION A
LOT 132

APP - AS PER PLAN
BBO - BEAM BY OTHERS
PA - POST ABOVE
O.T.B - OPEN TO BELOW
GT - GIRDER TRUSS
RT - ROOF TRUSS

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

SUBFLOOR: 3/4" NAILED & GLUED*

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

HATCH LEGEND
Ceramic Tile
Conv Framed

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

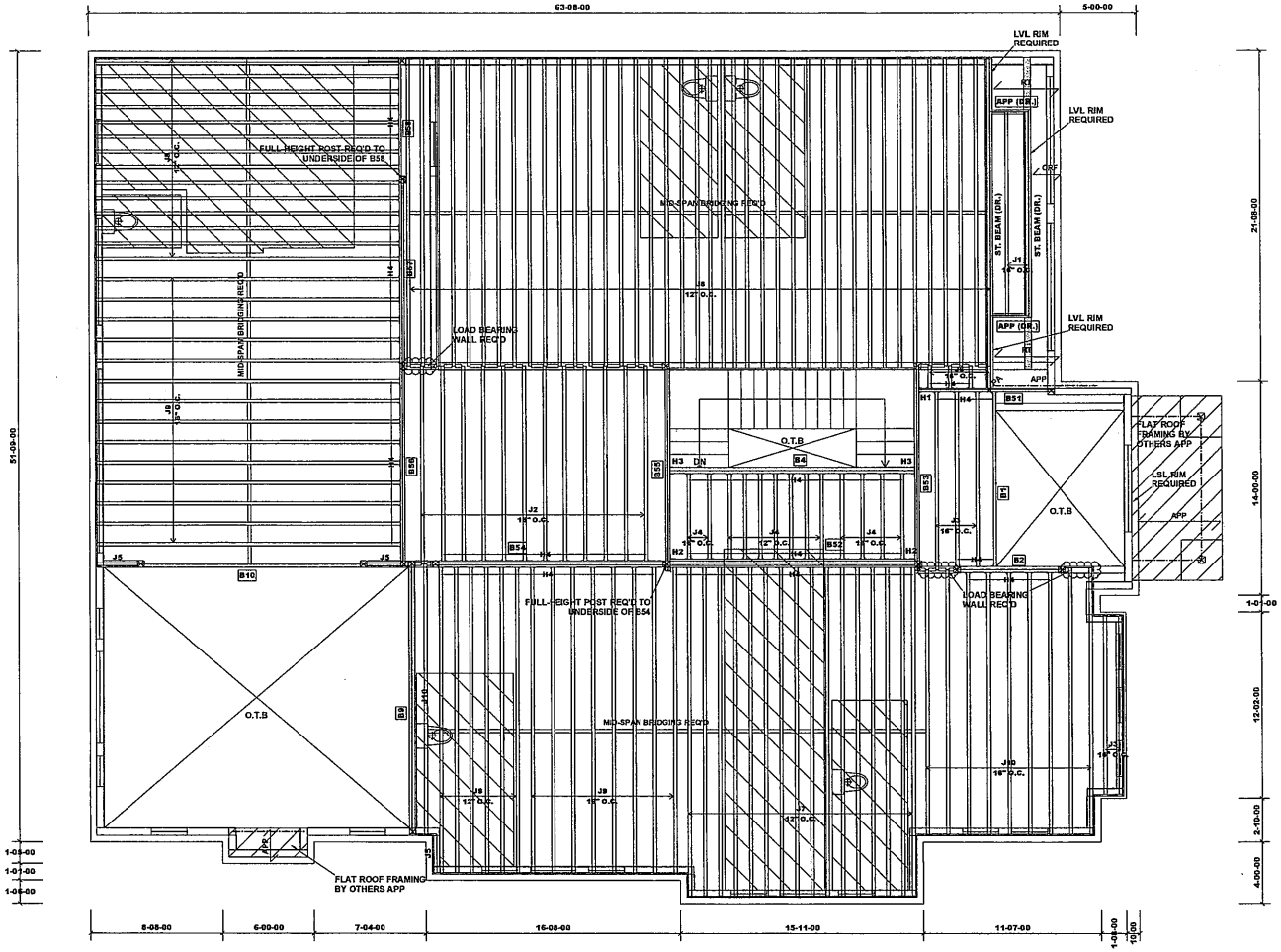
Ceramic Tile Application as per O.B.C. 9.30.6

Provide I-Joist blocking between cantilevered joists (along bearing) and rimboard closure at ends.

Do not scale - refer to architectural plans for dimensions.

Job Track:	45147	Builder:	Gold Park Homes	Location:	Vaughan ON	Sheet:	1 of 2
Layout ID:	343076-346388*	Project:	Pine Valley Ph2	SalesPerson:	Derek F.	Date:	Jul. 21, 2022
Plan Log:	117907	Model:	6002 A - Lot 132	Yard:	Home Lumber Inc.	Designer:	TL

Mitek V. 8.5.3.233



Products				
PlotID	Length	Product	Plies	Net Qty
B1	12-00-00	11 7/8" NI-20	1	1
B2	8-00-00	11 7/8" NI-20	2	2
B4	17-00-00	11 7/8" NI-20	2	2
B9	18-00-00	11 7/8" NI-20	2	2
B10	16-00-00	11 7/8" NI-20	1	1
B51	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B52	17-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	4	4
B53	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B54	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B55	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B56	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B57	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B58	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
J1	14-00-00	11 7/8" NI-20	1	2
J2	13-00-00	11 7/8" NI-20	1	12
J3	12-00-00	11 7/8" NI-20	1	5
J4	6-00-00	11 7/8" NI-20	1	13
J5	3-00-00	11 7/8" NI-20	1	3
J6	2-00-00	11 7/8" NI-20	1	4
J7	22-00-00	11 7/8" NI-40x	1	16
J8	21-00-00	11 7/8" NI-40x	1	40
J9	20-00-00	11 7/8" NI-40x	1	42
J10	18-00-00	11 7/8" NI-40x	1	10
Ca1	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
Ca2	195-00-00	1 1/8" x 11 7/8" Rim Board	1	1
Bk1	100-00-00	11 7/8" NI-20	1	1

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1		HGUS410
H2	2		HGUS7.25/10
H3	2		HUS12-2
H4	109		LT251188

SECOND FLOOR FRAMING
UNIT 6002 - THE KINGSVIEW
ELEVATION A
LOT 132

APP - AS PER PLAN
BBO - BEAM BY OTHERS
PA - POST ABOVE
O.T.B - OPEN TO BELOW
GT - GIRDER TRUSS
RT - ROOF TRUSS

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

SUBFLOOR: 3/4" NAILED & GLUED*

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

HATCH LEGEND
Ceramic Tile
Conv Framed

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

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

Provide I-Joist blocking between cantilevered joists (along bearing) and rimboard closure at ends.

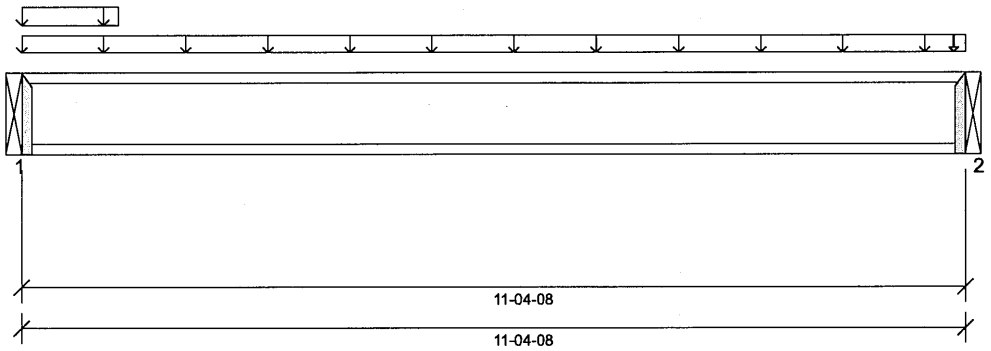
Do not scale - refer to architectural plans for dimensions.

Job Track:	45147	Builder:	Gold Park Homes	Location:	Vaughan ON	Sheet:	2 of 2
Layout ID:	343076-346388*	Project:	Pine Valley Ph2	SalesPerson:	Derek F.	Date:	Jul. 21, 2022
Plan Log:	117907	Model:	6002 A - Lot 132	Yard:	Home Lumber Inc.	Designer:	TL

Mitek V. 8.5.3.233

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Second Floor** Label: **B1 - i55944** 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 04/25/2022 18:16



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,

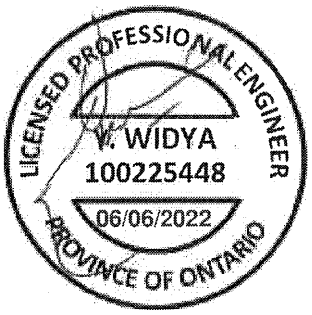
Lateral Restraint Requirements:

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: 11'- 4 1/2"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 769 psi Beam @ 11'- 4 1/2"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 7 3/16"	1.25D + 1.5L	1.00	853 lb ft	5580 lb ft	Passed - 15%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	373 lb	2240 lb	Passed - 17%
Live Load (LL) Pos. Defl.:	5'- 8 1/4"	L		0.042"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	5'- 7 7/8"	D + L		0.065"	L/240	Passed - L/999

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	1-12	1.25D + 1.5L	1.00	374 lb		1970 lb	-	Passed - 19%
2	1-12	1.25D + 1.5L	1.00	305 lb		1970 lb	-	Passed - 15%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	LT251188		-	-	-	Connector manually specified by the user.
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'	11'- 4 1/2"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	-0'	11'- 4 1/2"	FC3 Floor Decking (Plan View Fill)	Top	9 lb/ft	24 lb/ft	-	-
Uniform	0'	1'- 2"	User Load	Top	60 lb/ft	-	-	-
Point	11'- 2 13/16"	11'- 2 13/16"	User Load	Top	2 lb	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B2(i56074)	134 lb	137 lb	-	-
2	11'- 4 1/2"	11'- 4 1/2"	B3(i56101)	74 lb	141 lb	-	-

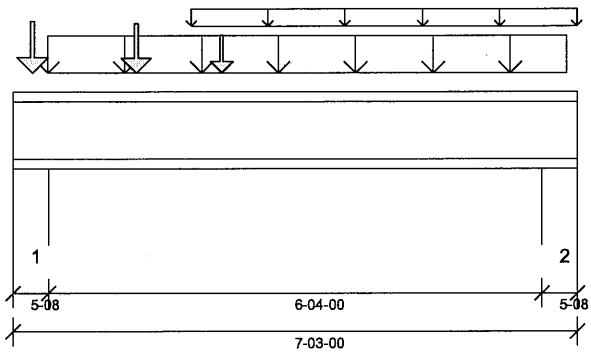
DESIGN NOTES

- 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.

SE047042

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Second Floor** Label: **B2 - i56074** Type: **Beam**	**2 Ply Member** **11 7/8" NI-20**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 | Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 | Report Version: 2021.03.26 04/25/2022 18:16

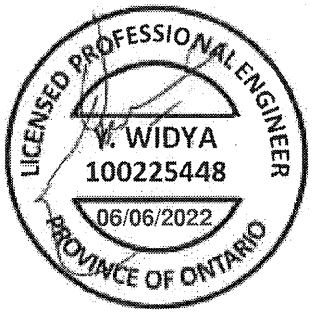


DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:
Both ends of the member and the outer supports must be laterally restrained. Top and bottom edges of the member must be fully restrained or have the following maximum unbraced length:
Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:
- 615 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 6'- 10 1/2"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 9 3/8"	1.25D + 1.5L	1.00	4862 lb ft	11160 lb ft	Passed - 44%
Factored Neg. Moment:	0'- 4 1/2"	1.25D + 1.5L	1.00	78 lb ft	11160 lb ft	Passed - 1%
Factored Shear:	0'- 5 9/16"	1.25D + 1.5L	1.00	3053 lb	4480 lb	Passed - 68%
Live Load (LL) Pos. Defl.:	3'- 6 7/8"	L		0.051"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 6 15/16"	D + L		0.078"	L/240	Passed - L/970

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	3676 lb		4480 lb	16918 lb	Passed - 82%
2	5-08	1.25D + 1.5L	1.00	2927 lb		4480 lb	16918 lb	Passed - 65%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	7'- 3"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 5 3/8"	7'- 1 3/8"	Smoothed Load	Front	130 lb/ft	348 lb/ft	-	-
Uniform	2'- 3 1/2"	7'- 3"	User Load	Top	60 lb/ft	-	-	-
Point	0'- 3"	0'- 3"	J3(i55732)	Back	118 lb	315 lb	-	-
Point	1'- 7"	1'- 7"	J3(i55546)	Back	111 lb	295 lb	-	-
Point	2'- 8 1/4"	2'- 8 1/4"	B1(i55944)	Back	134 lb	137 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	6(i41705)	837 lb	1780 lb	-	-
2	6'- 9 1/2"	7'- 3"	5(i41704)	742 lb	1307 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.

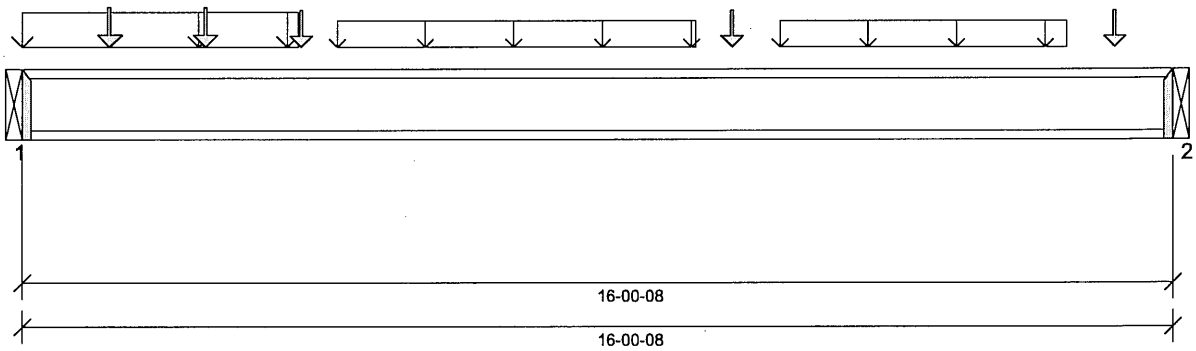
PLY TO PLY CONNECTION

- 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.

SE047043

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Second Floor** Label: **B4 - i56059** Type: **Beam**	**2 Ply Member** **11 7/8" NI-20**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 04/25/2022 18:17



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

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

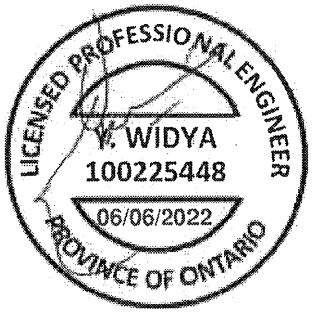
Top: 0' Bottom: 1'- 1 1/2"

Factored Resistance of Support Material:

- 769 psi Beam @ 0'
- 769 psi Beam @ 16'- 1/2"

Reinforcement Accessories Required

- Critical Reaction Web Stiffener @ 0'



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	6'- 10 3/4"	1.25D + 1.5L	1.00	10192 lb ft	11160 lb ft	Passed - 91%
Factored Shear:	0'- 1/16"	1.25D + 1.5L	1.00	3541 lb	4480 lb	Passed - 79%
Live Load (LL) Pos. Defl.:	7'- 9 11/16"	L		0.510"	L/360	Passed - L/377
Total Load (TL) Pos. Defl.:	7'- 9 3/4"	D + L		0.720"	L/240	Passed - L/267
Permanent Deflection:	7'- 9 15/16"			-	L/360	Passed - L/996

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	3543 lb		3940 lb	-	Passed - 90%
2	1-12	1.25D + 1.5L	1.00	2215 lb		3940 lb	-	Passed - 56%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
1	HU312-2		-	-	-	Connector manually specified by the user.
2	HU312-2		-	-	-	Connector manually specified by the user.

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

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	16'- 1/2"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	3'- 10 1/4"	User Load	Top	90 lb/ft	240 lb/ft	-	-
Uniform	4'- 4 3/4"	9'- 4 3/4"	Smoothed Load	Front	48 lb/ft	128 lb/ft	-	-
Uniform	10'- 6 3/4"	14'- 6 3/4"	Smoothed Load	Front	48 lb/ft	128 lb/ft	-	-
Point	1'- 2 3/4"	1'- 2 3/4"	J4(i55953)	Front	65 lb	173 lb	-	-
Point	2'- 6 3/4"	2'- 6 3/4"	J4(i55819)	Front	64 lb	171 lb	-	-
Point	3'- 10 3/4"	3'- 10 3/4"	J4(i55841)	Front	56 lb	149 lb	-	-
Point	9'- 10 3/4"	9'- 10 3/4"	J4(i55915)	Front	56 lb	149 lb	-	-
Point	15'- 2 3/4"	15'- 2 3/4"	J4(i55590)	Front	55 lb	147 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'	B8(i56005)	710 lb	1770 lb	-	-
2	16'- 1/2"	16'- 1/2"	B6(i56046)	457 lb	1097 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.

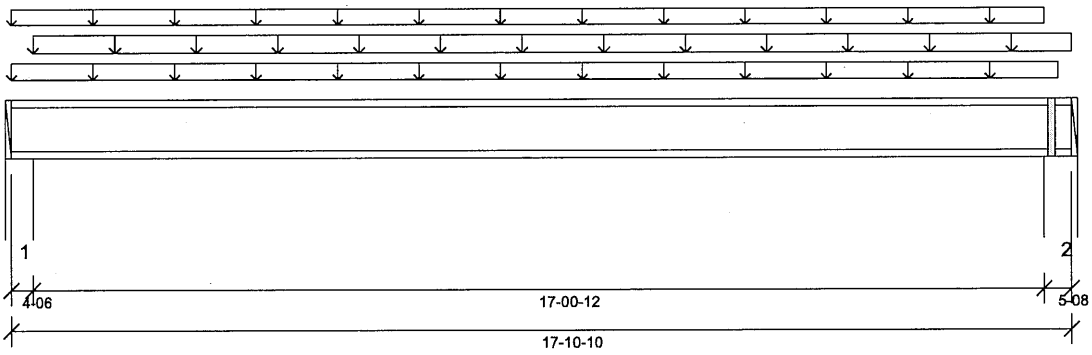
PLY TO PLY CONNECTION

- 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.

SE047045

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Second Floor** Label: **B9 - i56115** Type: **Beam**	**2 Ply Member** **11 7/8" NI-20**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 04/25/2022 18:18



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,

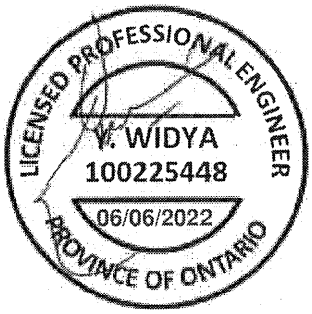
Lateral Restraint Requirements:

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: 17'- 3/4"

Factored Resistance of Support Material:

- 615 psi Wall @ 0'- 3 3/8"
- 615 psi Wall @ 17'- 6 1/8"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	8'- 10 9/16"	1.25D + 1.5L	0.77	4991 lb ft	8595 lb ft	Passed - 58%
Factored Shear:	0'- 4 7/16"	1.25D + 1.5L	0.77	1150 lb	3450 lb	Passed - 33%
Live Load (LL) Pos. Defl.:	8'- 10 3/4"	L		0.110"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	8'- 10 11/16"	D + L		0.430"	L/240	Passed - L/475
Permanent Deflection:	8'- 10 11/16"			-	L/360	Passed - L/687

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5L	0.77	1177 lb		3450 lb	10364 lb	Passed - 34%
2	5-08	1.25D + 1.5L	0.77	1191 lb		3450 lb	13029 lb	Passed - 35%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	17'- 10 5/8"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	17'- 7 7/8"	FC3 Floor Decking (Plan View Fill)	Top	7 lb/ft	18 lb/ft	-	-
Uniform	0'	17'- 5 1/8"	FC3 Floor Decking (Plan View Fill)	Top	3 lb/ft	8 lb/ft	-	-
Uniform	0'- 4 3/8"	17'- 10 5/8"	User Load	Top	60 lb/ft	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	E12(i41623)	660 lb	236 lb	-	-
2	17'- 5 1/8"	17'- 10 5/8"	8(i41726)	678 lb	228 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.

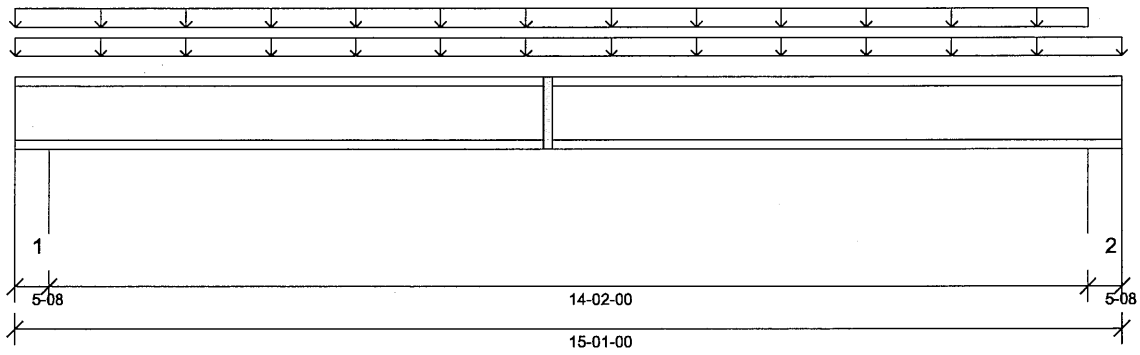
PLY TO PLY CONNECTION

- 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.

SE047050

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Second Floor** Label: **B10 - i55941** 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 04/25/2022 18:19

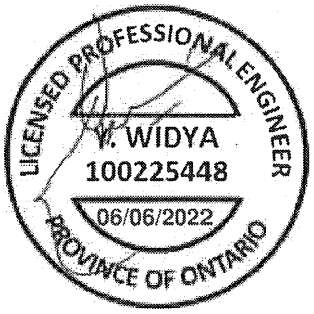


DESIGN INFORMATION

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: 7'- 7 3/8"

Factored Resistance of Support Material:
- 615 psi Wall @ 0'- 4 1/2"
- 615 psi Wall @ 14'- 8 1/2"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'- 6 1/2"	1.25D + 1.5L	0.81	3559 lb ft	4536 lb ft	Passed - 78%
Factored Shear:	0'- 5 9/16"	1.25D + 1.5L	0.81	983 lb	1821 lb	Passed - 54%
Live Load (LL) Pos. Defl.:	7'- 6 1/2"	L		0.127"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	7'- 6 1/2"	D + L		0.435"	L/240	Passed - L/390
Permanent Deflection:	7'- 6 1/2"			-	L/360	Passed - L/611

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	5-08	1.25D + 1.5L	0.81	1048 lb		1821 lb	6876 lb	Passed - 58%
2	5-08	1.25D + 1.5L	0.81	1012 lb		1821 lb	6876 lb	Passed - 56%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	15'- 1"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	15'- 1"	FC3 Floor Decking (Plan View Fill)	Top	11 lb/ft	31 lb/ft	-	-
Uniform	0'	14'- 7 1/2"	User Load	Top	60 lb/ft	-	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	7(i41725)	560 lb	231 lb	-	-
2	14'- 7 1/2"	15'- 1"	8(i41726)	534 lb	231 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.

SE047051

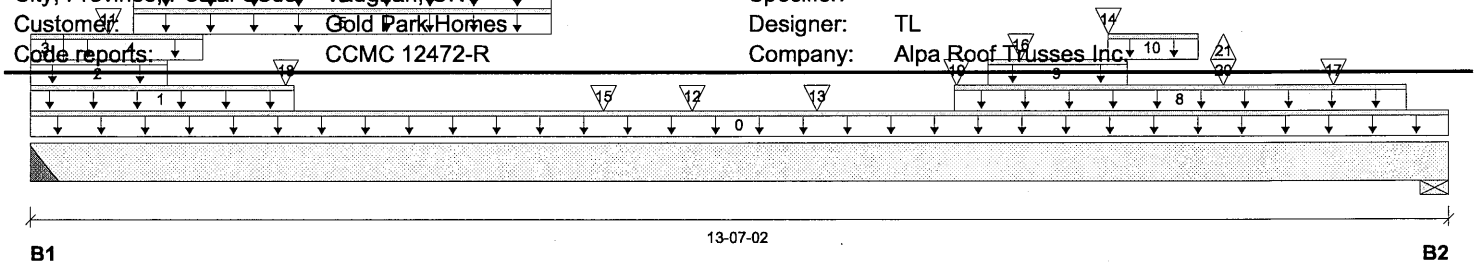
Quadruple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Ground Floor\Flush Beams\B14(i56016) (Flush Beam)

BC Design Engine Member Report | Dry | 1 span | No cant. | April 25, 2022 18:20:09
Build 8183

Job name:	45147-Model 6002	File name:	343076 Ground A + Second A (1,13).mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B14(i56016)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 13-07-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	7173 / 3	3540 / 0	28 / 0	
B2, 4-3/8"	5023 / 17	2740 / 0	35 / 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	13-07-02	Top		24			00-00-00
1	6(i41705)	Unf. Lin. (lb/ft)	L	00-00-00	02-06-04	Top		68			n\a
2	6(i41705)	Unf. Lin. (lb/ft)	L	00-00-00	01-03-12	Top	281	105			n\a
3	6(i41705)	Unf. Lin. (lb/ft)	L	00-00-00	00-03-12	Top	441				n\a
4	6(i41705)	Unf. Lin. (lb/ft)	L	00-03-12	01-07-12	Top	233	88			n\a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-14	04-11-14	Front	347	131			n\a
6	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-14	04-11-14	Back	274	135			n\a
7	6(i41705)	Unf. Lin. (lb/ft)	L	01-02-02	02-06-02	Top	326	122			n\a
8	-	Unf. Lin. (lb/ft)	L	08-10-04	13-02-04	Top		68			n\a
9	5(i41704)	Unf. Lin. (lb/ft)	L	09-02-02	10-06-02	Top	327	122			n\a
10	5(i41704)	Unf. Lin. (lb/ft)	L	10-03-14	11-02-04	Top	241	82			n\a
11	-	Conc. Pt. (lbs)	L	00-08-15	00-08-15	Front	693	287			n\a
12	-	Conc. Pt. (lbs)	L	06-04-01	06-04-01	Front	737	324			n\a
13	-	Conc. Pt. (lbs)	L	07-06-06	07-06-06	Front	752	388	63		n\a
14	-	Conc. Pt. (lbs)	L	10-03-15	10-03-15	Front	749	315			n\a
15	J1(i56008)	Conc. Pt. (lbs)	L	05-05-14	05-05-14	Back	274	151			n\a
16	J3(i56103)	Conc. Pt. (lbs)	L	09-05-14	09-05-14	Back	241	125			n\a
17	J3(i56063)	Conc. Pt. (lbs)	L	12-05-14	12-05-14	Back	251	132			n\a
18	6(i41705)	Conc. Pt. (lbs)	L	02-05-04	02-05-04	Top	1780	837			n\a
19	-	Conc. Pt. (lbs)	L	08-10-08	08-10-08	Top	2011	1041			n\a
20	-	Conc. Pt. (lbs)	L	11-05-02	11-05-02	Top	234	122			n\a
21	-	Conc. Pt. (lbs)	L	11-05-02	11-05-02	Top	-20	-45			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	41941 ft-lbs	73615 ft-lbs	57.0%	1	07-05-14
End Shear	13710 lbs	28927 lbs	47.4%	1	01-01-14
Total Load Deflection	L/325 (0.487")	n\a	73.9%	58	06-05-14
Live Load Deflection	L/490 (0.323")	n\a	73.5%	85	06-05-14
Max Defl.	0.487"	n\a	n\a	58	06-05-14
Span / Depth	13.3				

Bearing Supports

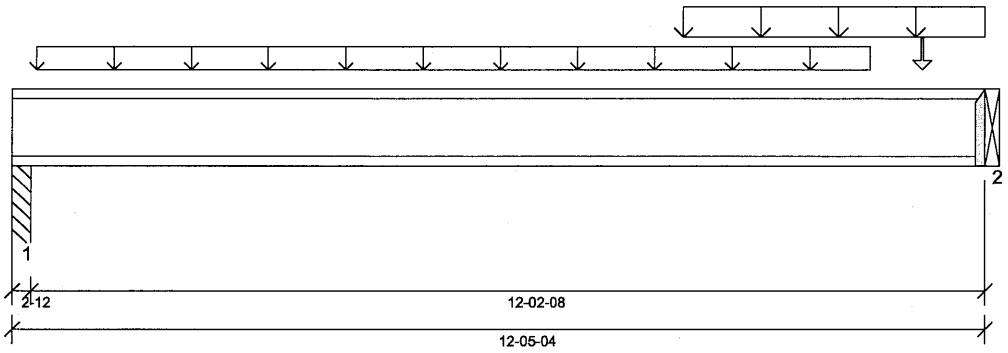
		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 7"	15212 lbs	n\a	89.1%	HGUS7.25/10
B2	Wall/Plate	4-3/8" x 7"	10995 lbs	58.4%	29.4%	Spruce-Pine-Fir

SDW22634 SIMPSON WOOD SCREW @ 12" O/C, STAGGERED IN 2 ROWS.
(TOP LOADED)

SE047055

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Ground Floor** Label: **B16 - i55288** Type: **Beam**	**2 Ply Member** **11 7/8" NI-20**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 — Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 — Report Version: 2021.03.26 04/25/2022 18:20



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,

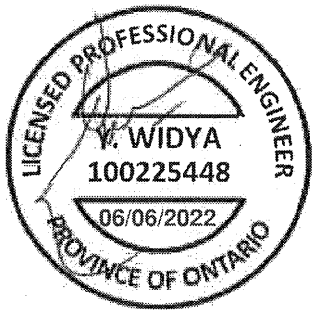
Lateral Restraint Requirements:

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'- 1 3/4"
- 769 psi Beam @ 12'- 5 1/4"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	7'- 7 5/8"	1.25D + 1.5L	1.00	6965 lb ft	11160 lb ft	Passed - 62%
Factored Shear:	12'- 5 3/16"	1.25D + 1.5L	1.00	3081 lb	4480 lb	Passed - 69%
Live Load (LL) Pos. Defl.:	6'- 6 1/16"	L		0.215"	L/360	Passed - L/682
Total Load (TL) Pos. Defl.:	6'- 6"	D + L		0.302"	L/240	Passed - L/485

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	2-12	1.25D + 1.5L	1.00	1883 lb		4180 lb	18348 lb	Passed - 45%
2	1-12	1.25D + 1.5L	1.00	3084 lb		3940 lb	-	Passed - 78%

CONNECTOR INFORMATION

ID	Part No.	Manufacturer	Nailing Requirements			Other Information or Requirement for Reinforcement Accessories
			Top	Face	Member	
2	HU312-2		-	-	-	Connector manually specified by the user.

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

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	12'- 5 1/4"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'- 3 5/8"	10'- 11 5/8"	Smoothed Load	Front	50 lb/ft	132 lb/ft	-	-
Uniform	8'- 7"	12'- 5 1/4"	User Load	Top	90 lb/ft	240 lb/ft	-	-
Point	11'- 7 5/8"	11'- 7 5/8"	J6(i55367)	Front	54 lb	145 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 3/4"	Pt1(i56157)	386 lb	934 lb	-	-
2	12'- 5 1/4"	12'- 5 1/4"	B17(i55995)	614 lb	1544 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.

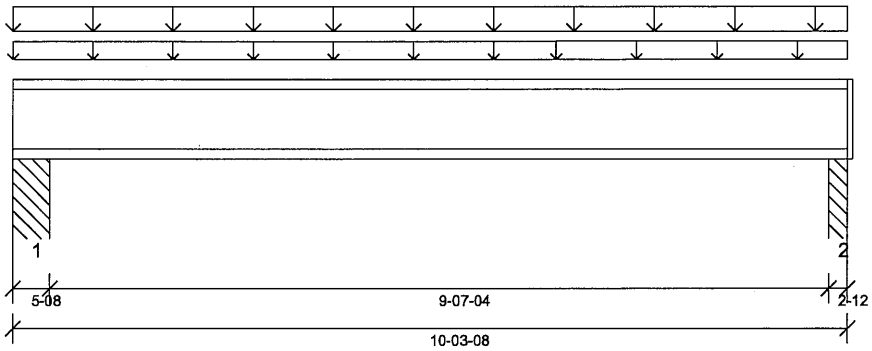
PLY TO PLY CONNECTION

- 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.

SE047057

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Ground Floor** Label: **B18 - i56153** 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 04/25/2022 18:21



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,

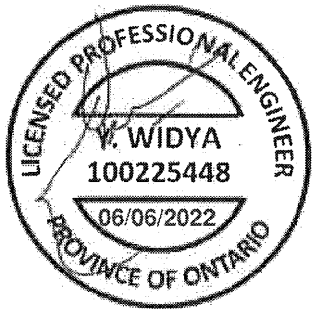
Lateral Restraint Requirements:

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'- 4 1/2"
- 1334 psi Column @ 10'- 1 3/4"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 5 11/16"	1.25D + 1.5L	1.00	3971 lb ft	5580 lb ft	Passed - 71%
Factored Shear:	10'- 11/16"	1.25D + 1.5L	1.00	1780 lb	2240 lb	Passed - 79%
Live Load (LL) Pos. Defl.:	5'- 3 13/16"	L		0.140"	L/360	Passed - L/824
Total Load (TL) Pos. Defl.:	5'- 3 1/4"	D + L		0.238"	L/240	Passed - L/483

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	1959 lb		2240 lb	18348 lb	Passed - 87%
2	2-12	1.25D + 1.5L	1.00	1804 lb		2090 lb	9174 lb	Passed - 86%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	10'- 3 1/2"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	10'- 3 1/2"	Smoothed Load	Top	53 lb/ft	140 lb/ft	-	-
Uniform	0'	6'- 8 1/2"	User Load	Top	60 lb/ft	-	-	-
Uniform	6'- 8 1/2"	10'- 3 1/2"	User Load	Top	19 lb/ft	50 lb/ft	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	Pt1(i56151)	602 lb	807 lb	-	-
2	10'- 3/4"	10'- 3 1/2"	Pt1(i56157)	448 lb	826 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.

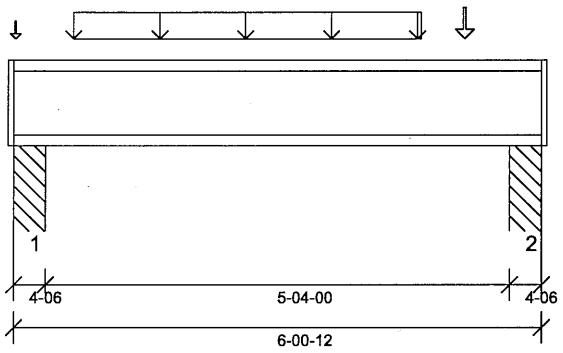
SE047059

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Ground Floor** Label: **B19 (-4R) - i56132** 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 04/25/2022 18:21



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,

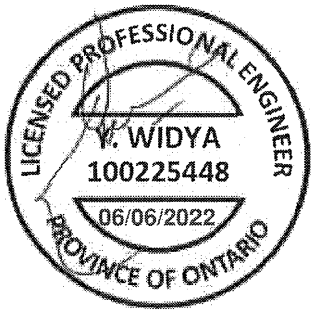
Lateral Restraint Requirements:

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'- 10 1/2"

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 3 3/8"
- 1334 psi Column @ 5'- 9 3/8"



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	3'- 2 1/4"	1.25D + 1.5L	1.00	1039 lb ft	5580 lb ft	Passed - 19%
Factored Shear:	5'- 8 5/16"	1.25D + 1.5L	1.00	688 lb	2240 lb	Passed - 31%
Live Load (LL) Pos. Defl.:	3'- 3/8"	L		0.018"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	3'- 3/8"	D + L		0.027"	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	4-06	1.25D + 1.5L	1.00	678 lb		2240 lb	14595 lb	Passed - 30%
2	4-06	1.25D + 1.5L	1.00	699 lb		2240 lb	14595 lb	Passed - 31%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	6'- 3/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'- 8 1/4"	4'- 8 1/4"	Smoothed Load	Back	64 lb/ft	128 lb/ft	-	-
Point	5'- 2 1/4"	5'- 2 1/4"	J6(i52472)	Back	54 lb	109 lb	-	-
Point	0'- 1/4"	0'- 1/4"	FC1 Floor Decking (Plan View Fill)	Top	6 lb	13 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	Pt2(i56130)	165 lb	315 lb	-	-
2	5'- 8 3/8"	6'- 3/4"	Pt2(i56133)	169 lb	325 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.

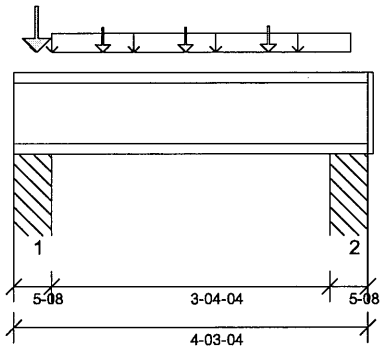
SE047060

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Ground Floor** Label: **B20 (-4R) - i56129** 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 04/25/2022 18:22



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'- 4 1/2"
- 1334 psi Column @ 3'- 10 3/4"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	2'- 7/8"	1.25D + 1.5L	1.00	382 lb ft	5580 lb ft	Passed - 7%
Factored Neg. Moment:	0'- 4 1/2"	1.25D + 1.5L	1.00	55 lb ft	5580 lb ft	Passed - 1%
Factored Shear:	0'- 5 9/16"	1.25D + 1.5L	1.00	424 lb	2240 lb	Passed - 19%

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	962 lb		2240 lb	18348 lb	Passed - 43%
2	5-08	1.25D + 1.5L	1.00	413 lb		2240 lb	18348 lb	Passed - 18%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	4'- 3 1/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'- 5 1/2"	4'- 3/4"	User Load	Top	19 lb/ft	50 lb/ft	-	-
Point	0'- 3 1/8"	0'- 3 1/8"	J8(i56134)	Front	9 lb	22 lb	-	-
Point	1'- 7/8"	1'- 7/8"	J7(i52470)	Back	28 lb	73 lb	-	-
Point	2'- 7/8"	2'- 7/8"	J7(i52452)	Back	29 lb	77 lb	-	-
Point	3'- 7/8"	3'- 7/8"	J7(i52460)	Back	32 lb	84 lb	-	-
Point	0'- 3 1/4"	0'- 3 1/4"	User Load	Top	92 lb	244 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 5 1/2"	Pt2(i56131)	198 lb	506 lb	-	-
2	3'- 9 3/4"	4'- 3 1/4"	Pt2(i56137)	76 lb	183 lb	-	-

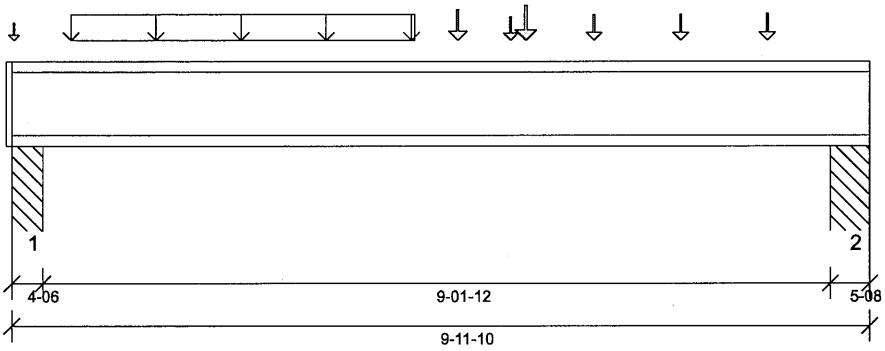
DESIGN NOTES

- 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.

SE047061

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Ground Floor** Label: **B21 (-4R) - i56159** 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 04/25/2022 18:22



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'- 10 1/2"

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 3 3/8"
- 1334 psi Column @ 9'- 7 1/8"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 2 1/4"	1.25D + 1.5L	1.00	2995 lb ft	5580 lb ft	Passed - 54%
Factored Shear:	0'- 4 7/16"	1.25D + 1.5L	1.00	1178 lb	2240 lb	Passed - 53%
Live Load (LL) Pos. Defl.:	4'- 11 1/8"	L		0.109"	L/360	Passed - L/999
Total Load (TL) Pos. Defl.:	4'- 11"	D + L		0.160"	L/240	Passed - L/684

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5L	1.00	1206 lb		2240 lb	14595 lb	Passed - 54%
2	5-08	1.25D + 1.5L	1.00	1034 lb		2240 lb	18348 lb	Passed - 46%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	9'- 11 5/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'- 8 1/4"	4'- 8 1/4"	Smoothed Load	Front	64 lb/ft	128 lb/ft	-	-
Point	5'- 2 1/4"	5'- 2 1/4"	J6(i52472)	Front	52 lb	104 lb	-	-
Point	5'- 9 5/8"	5'- 9 5/8"	J7(i52457)	Front	23 lb	58 lb	-	-
Point	6'- 9 1/4"	6'- 9 1/4"	J7(i52470)	Front	28 lb	75 lb	-	-
Point	7'- 9 1/4"	7'- 9 1/4"	J7(i52452)	Front	29 lb	77 lb	-	-
Point	8'- 9 1/4"	8'- 9 1/4"	J7(i52460)	Front	32 lb	84 lb	-	-
Point	0'- 1/4"	0'- 1/4"	FC1 Floor Decking (Plan View Fill)	Top	6 lb	13 lb	-	-
Point	5'- 11 3/4"	5'- 11 3/4"	User Load	Top	56 lb	145 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	Pt2(i56136)	282 lb	567 lb	-	-
2	9'- 6 1/8"	9'- 11 5/8"	Pt2(i56160)	227 lb	501 lb	-	-

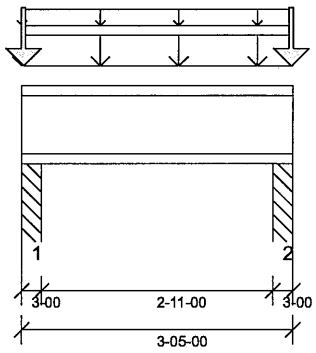
DESIGN NOTES

- 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.

SE047062

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **343076 Ground A + Second A (1,** Level: **Ground Floor** Label: **B22 (-4R) - i52459** Type: **Beam**	**2 Ply Member** **11 7/8" NI-20**	Status: **Design Passed**

Illustration Not to Scale. Pitch: 0/12 | Designed by Single Member Design Engine in MiTek® Structure Version 8.5.3.233.Update5.15 | Report Version: 2021.03.26 04/25/2022 18:23



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:

- 1334 psi Column @ 0'- 2"
- 1334 psi Column @ 3'- 3"

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	1'- 8 1/2"	1.25D + 1.5L	1.00	444 lb ft	11160 lb ft	Passed - 4%
Factored Neg. Moment:	0'- 2"	1.25D + 1.5L	1.00	182 lb ft	11160 lb ft	Passed - 2%
Factored Shear:	0'- 3 1/16"	1.25D + 1.5L	1.00	766 lb	4480 lb	Passed - 17%

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	2099 lb		4240 lb	20019 lb	Passed - 50%
2	3-00	1.25D + 1.5L	1.00	2099 lb		4240 lb	20016 lb	Passed - 50%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	3'- 5"	Self Weight	Top	6 lb/ft	-	-	-
Uniform	0'	3'- 5"	User Load	Top	90 lb/ft	240 lb/ft	-	-
Uniform	0'	3'- 5"	FC1 Floor Decking (Plan View Fill)	Top	9 lb/ft	24 lb/ft	-	-
Point	0'- 1/4"	0'- 1/4"	User Load	Top	175 lb	647 lb	-	-
Point	3'- 4 3/4"	3'- 4 3/4"	User Load	Top	175 lb	647 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 3"	Pt2(i56137)	365 lb	1138 lb	-	-
2	3'- 2"	3'- 5"	Pt2(i56160)	346 lb	1068 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.

SE047063

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

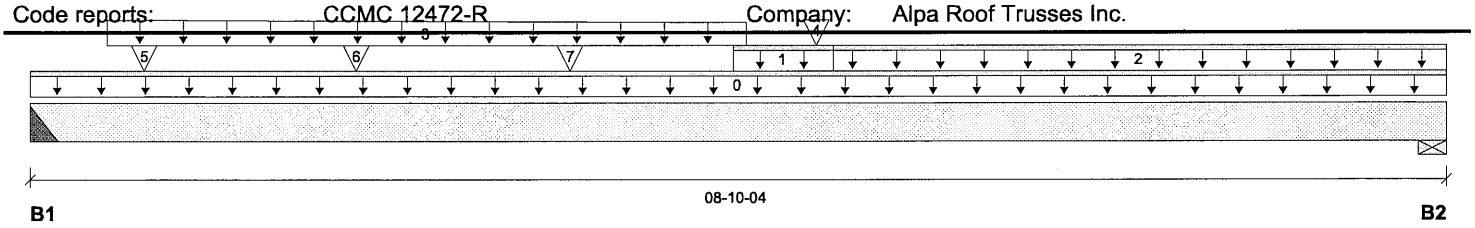
PASSED

Second Floor\Flush Beams\B51(i5546) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:13:32

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B51(i5546)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 08-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	820 / 0	914 / 0	697 / 0	
B2, 5-1/2"	371 / 0	1580 / 0	1598 / 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	08-10-04	Top		12			00-00-00
1	E26(i41638)	Unf. Lin. (lb/ft)	L	04-04-12	05-00-04	Top		1156	1651		n\a
2	E45(i44198)	Unf. Lin. (lb/ft)	L	05-00-04	08-10-04	Top		312	329		n\a
3	Smoothed Load	Trapezoidal (lb/ft)	L	00-05-12		Front	245	92			n\a
					04-05-12		219	82			
4	B1(i5150)	Conc. Pt. (lbs)	L	04-11-00	04-11-00	Front	141	74			n\a
5	J6(i5621)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	Back	36				n\a
6	J6(i5365)	Conc. Pt. (lbs)	L	02-00-08	02-00-08	Back	43				n\a
7	J6(i5485)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Back	41				n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9945 ft-lbs	32931 ft-lbs	30.2%	13	04-08-12
End Shear	3444 lbs	14464 lbs	23.8%	13	07-04-14
Total Load Deflection	L/999 (0.09")	n\a	n\a	35	04-04-12
Live Load Deflection	L/999 (0.054")	n\a	n\a	51	04-04-12
Max Defl.	0.09"	n\a	n\a	35	04-04-12
Span / Depth	8.4				

Bearing Supports

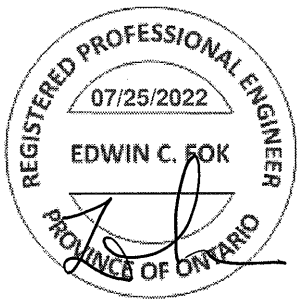
		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 3-1/2"	3069 lbs	n\a	35.9%	HGUS410
B2	Wall/Plate	5-1/2" x 3-1/2"	4744 lbs	40.1%	20.2%	Spruce-Pine-Fir

Cautions

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

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

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



SG0494S6

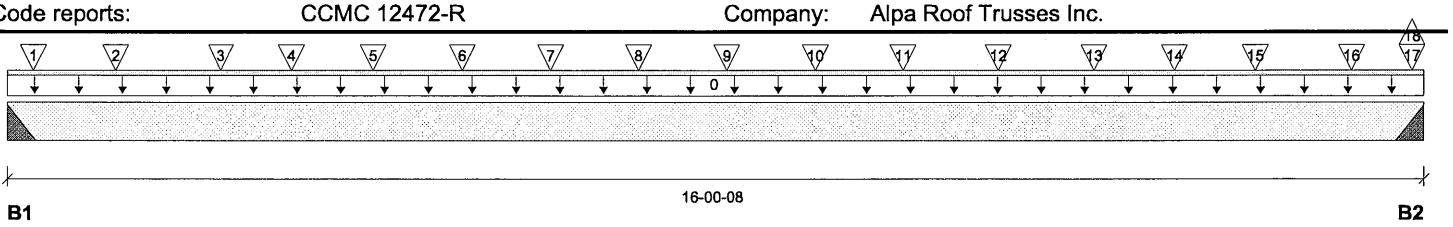
Quadruple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B52(i5369) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:13:57
Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B52(i5369)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 16-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	4411 / 0	2087 / 0		
B2, 2"	4439 / 0	2092 / 0	0 / 1	

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	16-00-08	Top		24			00-00-00
1	J9(i5624)	Conc. Pt. (lbs)	L	00-03-08	00-03-08	Front	449	168			n\a
2	-	Conc. Pt. (lbs)	L	01-02-11	01-02-11	Front	469	176			n\a
3	-	Conc. Pt. (lbs)	L	02-05-00	02-05-00	Front	164	225			n\a
4	J7(i5536)	Conc. Pt. (lbs)	L	03-02-10	03-02-10	Front	434	176			n\a
5	-	Conc. Pt. (lbs)	L	04-01-11	04-01-11	Front	577	272			n\a
6	-	Conc. Pt. (lbs)	L	05-01-13	05-01-13	Front	557	268			n\a
7	-	Conc. Pt. (lbs)	L	06-01-13	06-01-13	Front	557	268			n\a
8	-	Conc. Pt. (lbs)	L	07-01-13	07-01-13	Front	557	268			n\a
9	-	Conc. Pt. (lbs)	L	08-01-13	08-01-13	Front	557	268			n\a
10	-	Conc. Pt. (lbs)	L	09-01-13	09-01-13	Front	557	267			n\a
11	-	Conc. Pt. (lbs)	L	10-01-11	10-01-11	Front	577	242			n\a
12	-	Conc. Pt. (lbs)	L	11-02-11	11-02-11	Front	598	241			n\a
13	-	Conc. Pt. (lbs)	L	12-03-12	12-03-12	Front	598	242			n\a
14	J7(i5518)	Conc. Pt. (lbs)	L	13-02-10	13-02-10	Front	434	181			n\a
15	-	Conc. Pt. (lbs)	L	14-01-09	14-01-09	Front	598	242			n\a
16	-	Conc. Pt. (lbs)	L	15-02-11	15-02-11	Front	508	204			n\a
17	J7(i5430)	Conc. Pt. (lbs)	L	15-10-14	15-10-14	Front	225	84			n\a
18	J7(i5430)	Conc. Pt. (lbs)	L	15-10-14	15-10-14	Front	0		-1		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	36799 ft-lbs	73615 ft-lbs	50.0%	1	08-02-10
End Shear	8450 lbs	28927 lbs	29.2%	1	14-10-10
Total Load Deflection	L/318 (0.597")	n\a	75.4%	56	07-10-12
Live Load Deflection	L/474 (0.401")	n\a	75.9%	83	07-10-12
Max Defl.	0.597"	n\a	n\a	56	07-10-12
Span / Depth	16.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 7"	9225 lbs	n\a	54.0%	HGUS7.25/10
B2	Hanger	2" x 7"	9273 lbs	n\a	54.3%	HGUS7.25/10

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

CONNECT & PUT MEMBERS WITH SIMPSONS SDW 22634 WOOD SCREWS @ 12" O.C., STAGGERED IN 2 ROWS

SG049457

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

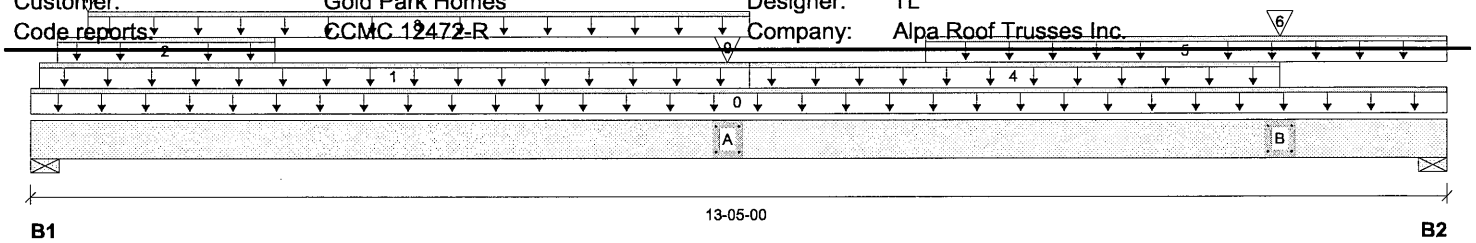
PASSED

Second Floor\Flush Beams\B53(i5375) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:16:14

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B53(i5375)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 13-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 9-1/4"	5382 / 0	2793 / 0	78 / 1	
B2, 2-3/4"	1425 / 0	1412 / 0	610 / 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	13-05-00	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-01-00	06-09-12	Top	26	10			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-03-00	02-03-12	Top		60			n\a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-06-08	06-09-12	Top	19	7			n\a
4	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	06-09-12	11-10-00	Top	29	11			n\a
5	WALL	Unf. Lin. (lb/ft)	L	08-05-12	13-05-00	Top		60			n\a
6	B51(i5546)	Conc. Pt. (lbs)	L	11-10-00	11-10-00	Front	809	902	688		n\a
7	B52(i5369)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Back	4433	2089			n\a
8	B52(i5369)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Back	0		-1		n\a
9	B4(i5377)	Conc. Pt. (lbs)	L	06-07-04	06-07-04	Back	1097	457			n\a

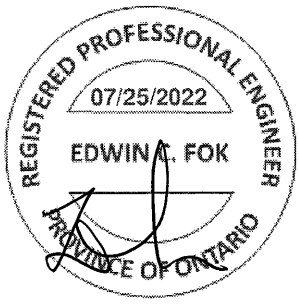
Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	11105 ft-lbs	35392 ft-lbs	31.4%	9	06-07-04
End Shear	4364 lbs	14464 lbs	30.2%	9	12-02-06
Total Load Deflection	L/696 (0.216")	n\a	34.5%	116	07-02-12
Live Load Deflection	L/1118 (0.135")	n\a	32.2%	168	07-00-04
Max Defl.	0.216"	n\a	n\a	116	07-02-12
Span / Depth	12.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	9-1/4" x 3-1/2"	11642 lbs	58.5%	29.5%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/4" x 3-1/2"	4513 lbs	76.2%	38.4%	Spruce-Pine-Fir

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



SG049458

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

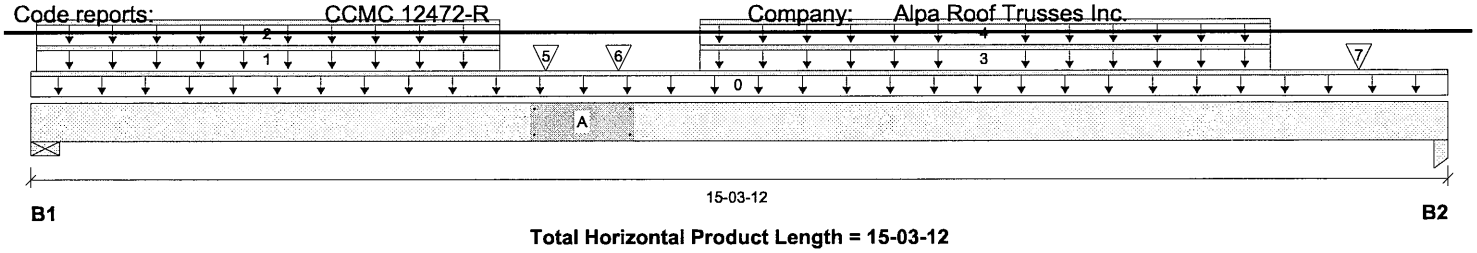
PASSED

Second Floor\Flush Beams\B54(i5690) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:16:32

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B54(i5690)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 15-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	5136 / 0	2156 / 0		
B2, 2"	4833 / 0	1964 / 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	15-03-12	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-12	05-00-12	Front	402	171			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-12	05-00-12	Back	276	104			n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	07-02-12	13-04-12	Front	435	163			n\a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	07-02-12	13-04-12	Back	281	105			n\a
5	J9(i5280)	Conc. Pt. (lbs)	L	05-06-12	05-06-12	Front	402	156			n\a
6	-	Conc. Pt. (lbs)	L	06-04-03	06-04-03	Front	816	306			n\a
7	-	Conc. Pt. (lbs)	L	14-04-02	14-04-02	Front	925	347			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	36588 ft-lbs	55211 ft-lbs	66.3%	1	07-10-12
End Shear	9248 lbs	21696 lbs	42.6%	1	14-01-14
Total Load Deflection	L/258 (0.69")	n\a	93.1%	4	07-10-12
Live Load Deflection	L/363 (0.489")	n\a	99.1%	5	07-10-12
Max Defl.	0.69"	n\a	n\a	4	07-10-12
Span / Depth	15.0				

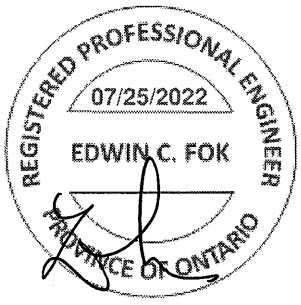
Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 5-1/4"	10398 lbs	58.5%	29.5%	Spruce-Pine-Fir
B2	Column	2" x 5-1/4"	9705 lbs	53.3%	75.8%	Spruce-Pine-Fir

Notes

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

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



S6049459

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

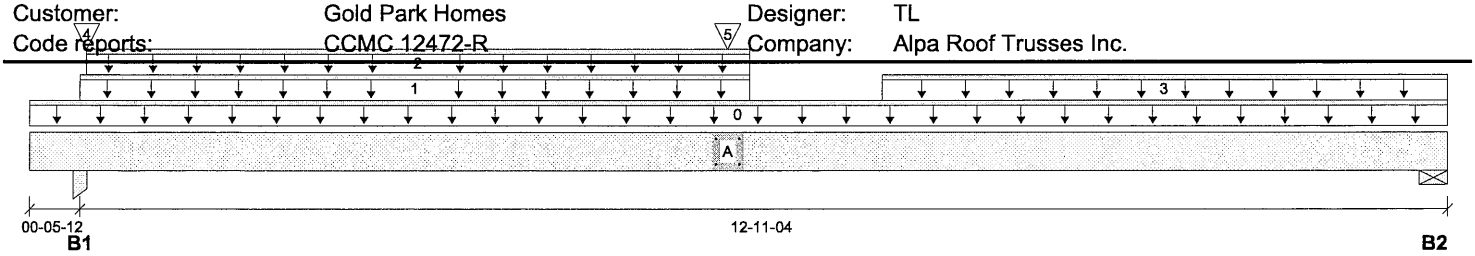
PASSED

Second Floor\Flush Beams\B55(i5458) (Flush Beam)

BC Design Engine Member Report — Dry | 2 spans | L cant. — July 20, 2022 19:16:48

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B55(i5458)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 13-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	5615 / 0	2708 / 0		
B2, 2-3/4"	964 / 0	720 / 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	13-05-00	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-05-12	06-09-12	Top	28	11			n\a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-06-08	06-09-12	Top	28	10			n\a
3	WALL	Unf. Lin. (lb/ft)	L	08-00-12	13-05-00	Top		60			n\a
4	B52(i5369)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Front	4417	2089			n\a
5	B4(i5377)	Conc. Pt. (lbs)	L	06-07-04	06-07-04	Front	1770	710			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	13330 ft-lbs	35392 ft-lbs	37.7%	3	06-07-04
Neg. Moment	-4 ft-lbs	-28585 ft-lbs	n\a	1	00-05-12
End Shear	2225 lbs	14464 lbs	15.4%	1	12-02-06
Cont. Shear	2406 lbs	14464 lbs	16.6%	1	01-08-06
Total Load Deflection	L/650 (0.236")	n\a	36.9%	10	06-09-12
Live Load Deflection	L/994 (0.154")	n\a	36.2%	13	06-09-12
Total Neg. Defl.	2xL/1998 (-0.027")	n\a	n\a	10	00-00-00
Max Defl.	0.236"	n\a	n\a	10	06-09-12
Span / Depth	12.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	5-1/2" x 3-1/2"	11807 lbs	35.4%	50.3%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/4" x 3-1/2"	2346 lbs	39.6%	20.0%	Spruce-Pine-Fir

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

SG049460

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

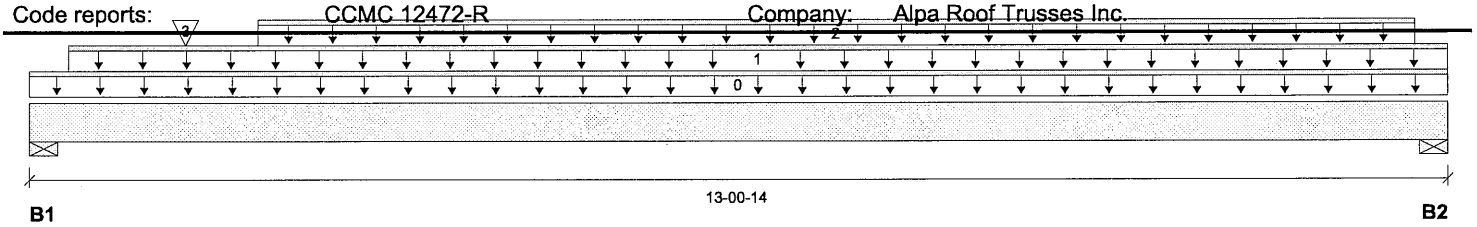
PASSED

Second Floor\Flush Beams\B56(i5426) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:17:03

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B56(i5426)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 13-00-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	2520 / 0	1024 / 0		
B2, 2-3/4"	2622 / 0	1061 / 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	13-00-14	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-04-06	13-00-14	Top	26	10			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-01-04	12-09-04	Back	398	149			n\a
3	J9(i5232)	Conc. Pt. (lbs)	L	01-05-04	01-05-04	Back	561	210			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17026 ft-lbs	35392 ft-lbs	48.1%	1	06-09-04
End Shear	4979 lbs	14464 lbs	34.4%	1	01-04-04
Total Load Deflection	L/436 (0.347")	n\a	55.1%	4	06-07-04
Live Load Deflection	L/612 (0.247")	n\a	58.9%	5	06-07-04
Max Defl.	0.347"	n\a	n\a	4	06-07-04
Span / Depth	12.7				

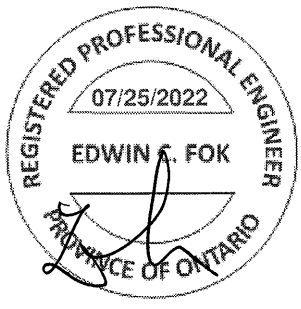
Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	5060 lbs	53.7%	27.1%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/4" x 3-1/2"	5259 lbs	88.8%	44.8%	Spruce-Pine-Fir

Notes

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

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



SG049461

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

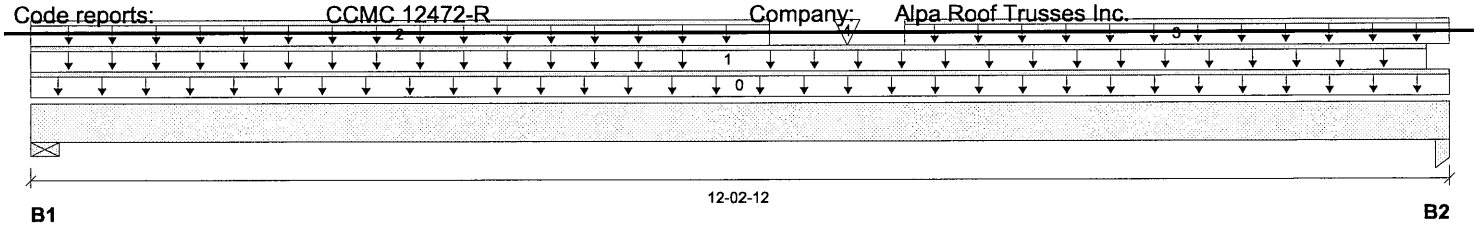
PASSED

Second Floor\Flush Beams\B57(i5637) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:17:18

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B57(i5637)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 12-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	2604 / 0	1078 / 0		
B2, 2-3/4"	2610 / 0	1192 / 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	12-02-12	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-00-06	Top	9	3			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-04-06	Back	417	156			n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	07-06-06	12-02-12	Back	423	194			n\a
4	J9(i5293)	Conc. Pt. (lbs)	L	07-00-06	07-00-06	Back	465	177			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	14604 ft-lbs	35392 ft-lbs	41.3%	1	05-08-06
End Shear	4527 lbs	14464 lbs	31.3%	1	11-00-02
Total Load Deflection	L/535 (0.267")	n\a	44.9%	4	06-02-06
Live Load Deflection	L/765 (0.187")	n\a	47.1%	5	06-00-06
Max Defl.	0.267"	n\a	n\a	4	06-02-06
Span / Depth	12.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/4" x 3-1/2"	5254 lbs	88.7%	44.7%	Spruce-Pine-Fir
B2	Column	2-3/4" x 3-1/2"	5404 lbs	32.4%	46.0%	Spruce-Pine-Fir

Notes

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

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

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

SE049462

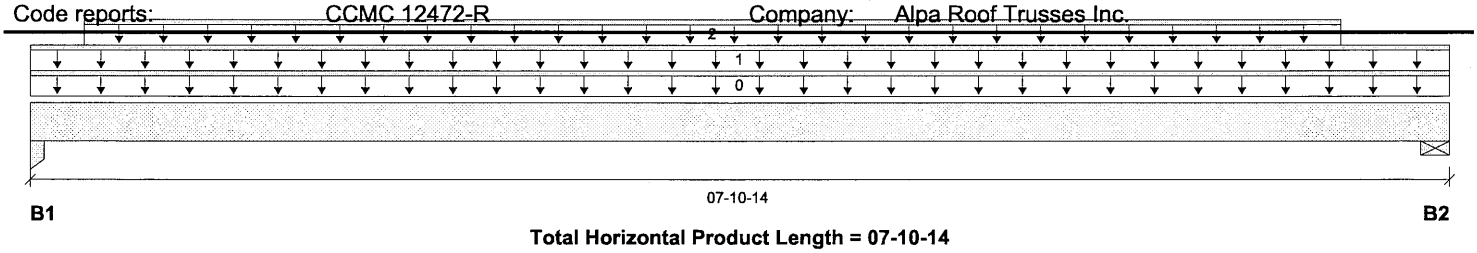
Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

Second Floor\Flush Beams\B58(i5217) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:17:56
Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Second Floor\Flush Beams\B58(i5217)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 07-10-14

Reaction Summary (Down / Uplift) (lbs)

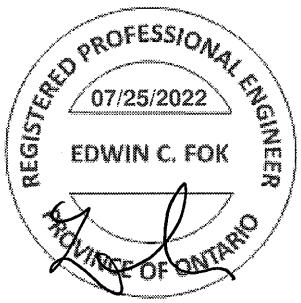
Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	1453 / 0	693 / 0		
B2, 4-3/8"	1392 / 0	665 / 0		

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	07-10-14	Top		6			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	07-10-14	Top	10	4			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-10	07-03-10	Back	395	183			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5946 ft-lbs	17696 ft-lbs	33.6%	1	03-09-10
End Shear	2675 lbs	7232 lbs	37.0%	1	06-06-10
Total Load Deflection	L/999 (0.084")	n\a	n\a	4	03-11-02
Live Load Deflection	L/999 (0.057")	n\a	n\a	5	03-11-02
Max Defl.	0.084"	n\a	n\a	4	03-11-02
Span / Depth	7.5				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	2-3/4" x 1-3/4"	3046 lbs	36.5%	51.9%	Spruce-Pine-Fir
B2	Wall/Plate	4-3/8" x 1-3/4"	2920 lbs	62.0%	31.3%	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 4
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-08.

Disclosure

SG049463

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

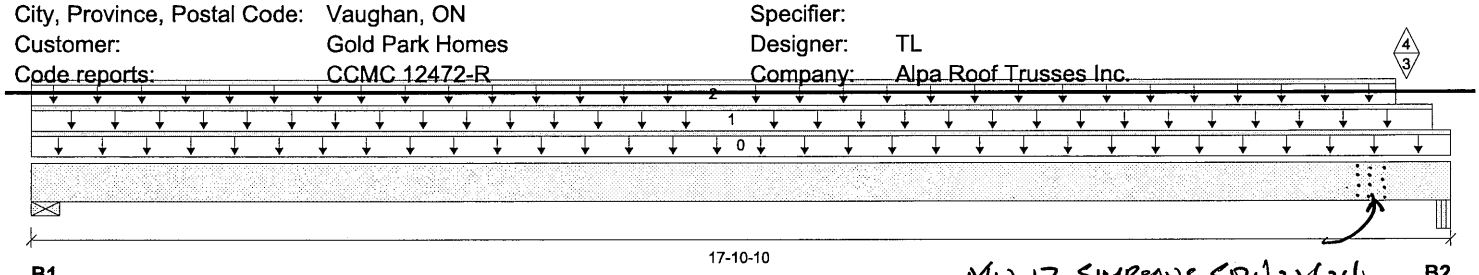
PASSED

Ground Floor\Flush Beams\B59(i8312) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:18:19

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B59(i8312)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 17-10-10

MIN. 12 SIMPSONS SDW 22624 WOOD SCREWS ON ONE SIDE OF BEAM K4

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/16"	535 / 0	427 / 0	0 / 0	
B2, 5-1/2"	12868 / 4	6719 / 0	104 / 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	17-10-10	Top		24			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	17-07-14	Top	24	9			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	17-02-06	Top	24	9			n\a
3	-	Conc. Pt. (lbs)	L	17-04-00	17-04-00	Top	12575	6405	104		n\a
4	-	Conc. Pt. (lbs)	L	17-04-00	17-04-00	Top	-4				n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7054 ft-lbs	73615 ft-lbs	9.6%	1	10-10-09
End Shear	4147 lbs	28927 lbs	14.3%	1	16-05-04
Total Load Deflection	L/1442 (0.145")	n\a	16.6%	58	09-02-12
Live Load Deflection	L/999 (0.084")	n\a	n\a	85	09-02-12
Max Defl.	0.145"	n\a	n\a	58	09-02-12
Span / Depth	17.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-5/16" x 7"	1336 lbs	13.6%	6.8%	Spruce-Pine-Fir
B2	Beam	5-1/2" x 7"	27804 lbs	93.9%	59.2%	Unspecified

Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4

Calculations assume unbraced length of Top: 00-00-00, Bottom: 09-11-11.

CONNECT 4 PLY MEMBERS WITH SIMPSONS SDW 22634 WOOD SCREWS @ 24" O.C., STAGGERED IN 2 ROWS

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

SEO494464

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

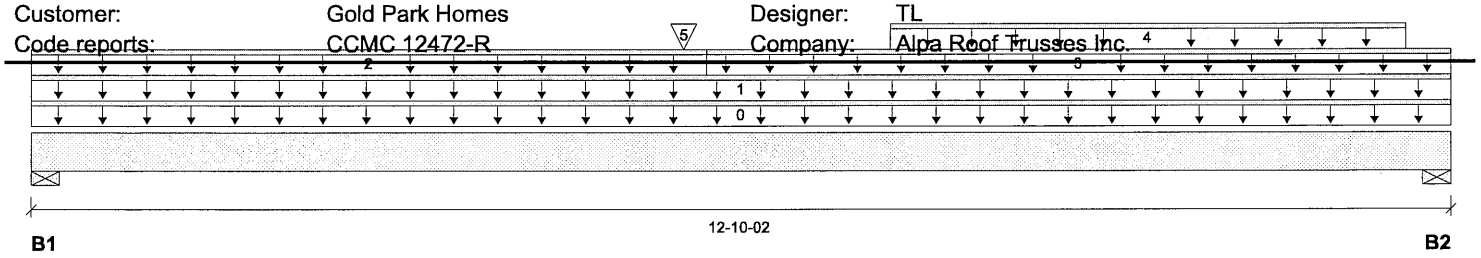
PASSED

Ground Floor\Flush Beams\B60(i8577) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:18:55

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B60(i8577)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 12-10-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1058 / 0	519 / 0		
B2, 2-3/8"	837 / 0	592 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-10-02	Top		6			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-10-02	Top	18	7			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	06-01-04	Top	18	7			n\a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	06-01-04	12-10-02	Top	3				n\a
4	WALL	Unf. Lin. (lb/ft)	L	07-09-04	12-05-04	Top		60			n\a
5	B16(i8375)	Conc. Pt. (lbs)	L	05-10-12	05-10-12	Back	1544	614			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10957 ft-lbs	17696 ft-lbs	61.9%	1	05-10-12
End Shear	2124 lbs	7232 lbs	29.4%	1	01-05-06
Total Load Deflection	L/410 (0.36")	n\a	58.5%	4	06-03-12
Live Load Deflection	L/622 (0.238")	n\a	57.9%	5	06-03-12
Max Defl.	0.36"	n\a	n\a	4	06-03-12
Span / Depth	12.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2236 lbs	37.8%	19.0%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/8" x 1-3/4"	1996 lbs	78.1%	39.4%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Calculations assume unbraced length of Top: 00-00-00, Bottom: 06-06-08.

S6049465

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

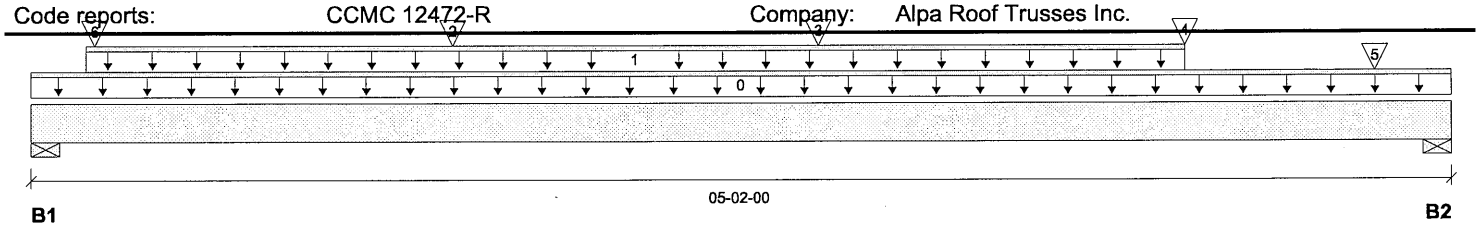
PASSED

Ground Floor\Flush Beams\B61(i8570) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:19:15

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B61(i8570)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 05-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	877 / 0	707 / 0		
B2, 3-1/2"	1127 / 0	800 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-02-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-06	04-02-06	Back	355	133			n\a
2	Bk1(i8550)	Conc. Pt. (lbs)	L	01-06-06	01-06-06	Front	40	15			n\a
3	Bk1(i8318)	Conc. Pt. (lbs)	L	02-10-06	02-10-06	Front	40	15			n\a
4	Bk1(i8360)	Conc. Pt. (lbs)	L	04-02-06	04-02-06	Front	32				n\a
5	-	Conc. Pt. (lbs)	L	04-10-11	04-10-11	Back	473	524			n\a
6	E16(i41614)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		347			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2148 ft-lbs	35392 ft-lbs	6.1%	1	02-02-06
End Shear	1355 lbs	14464 lbs	9.4%	1	01-03-06
Total Load Deflection	L/999 (0.006")	n\a	n\a	4	02-06-14
Live Load Deflection	L/999 (0.004")	n\a	n\a	5	02-06-14
Max Defl.	0.006"	n\a	n\a	4	02-06-14
Span / Depth	4.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	2200 lbs	29.2%	14.7%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	2690 lbs	35.7%	18.0%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-05-08.

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

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

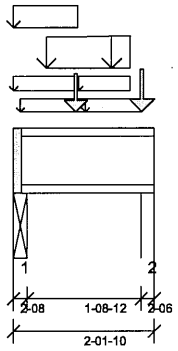
S60494666

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **346388** Level: **Ground Floor** Label: **B62 - i8426** 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 07/20/2022 19:19



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

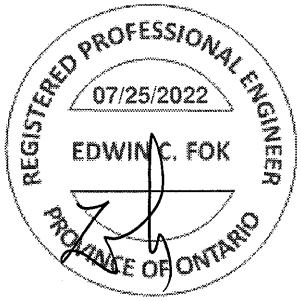
Lateral Restraint Requirements:

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

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

Factored Resistance of Support Material:

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



ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	0'- 11 3/8"	1.25D + 1.5L	1.00	732 lb ft	5580 lb ft	Passed - 13%
Factored Shear:	0'- 2 9/16"	1.25D + 1.5L	1.00	1165 lb	2240 lb	Passed - 52%

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	2-08	1.25D + 1.5L	1.00	1281 lb		2060 lb	4805 lb	Passed - 62%
1	2-08	1.25D + 1.5L	1.00	1281 lb		2060 lb	4805 lb	Passed - 62%
1	2-08	1.25D + 1.5L	1.00	1281 lb		2060 lb	4805 lb	Passed - 62%
2	2-06	1.25D + 1.5L	1.00	1569 lb		2045 lb	3652 lb	Passed - 77%
2	2-06	1.25D + 1.5L	1.00	1569 lb		2045 lb	3652 lb	Passed - 77%
2	2-06	1.25D + 1.5L	1.00	1569 lb		2045 lb	3652 lb	Passed - 77%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	2'- 1 5/8"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	0'	1'- 9 1/4"	2(i41625)	Top	68 lb/ft	-	-	-
Uniform	0'	0'- 11 3/4"	2(i41625)	Top	82 lb/ft	219 lb/ft	-	-
Uniform	0'- 1 1/4"	1'- 11 3/8"	FC2 Floor Decking (Plan View Fill)	Top	8 lb/ft	20 lb/ft	-	-
Uniform	0'- 6"	1'- 9 1/4"	2(i41625)	Top	158 lb/ft	421 lb/ft	-	-
Point	0'- 11 3/8"	0'- 11 3/8"	J2(i8544)	Front	117 lb	239 lb	-	-
Point	1'- 11 3/8"	1'- 11 3/8"	-	Front	156 lb	259 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 2 1/2"	ST. BEAM (DR.)(i41691)	297 lb	555 lb	-	-
2	1'- 11 1/4"	2'- 1 5/8"	-	408 lb	757 lb	-	-
++>	2'- 7/8"	2'- 7/8"	W42(i60973)	253 lb	469 lb	-	-
++>	2'- 1 3/16"	2'- 1 3/16"	W22(i41602)	155 lb	288 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.

SE049967

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

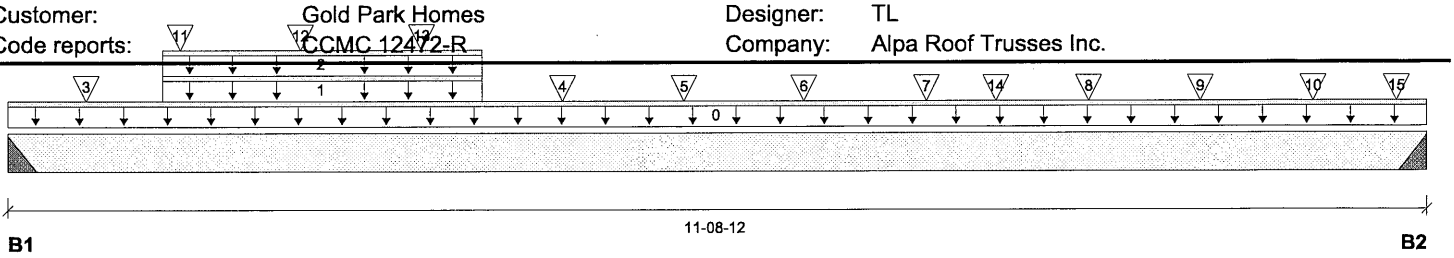
PASSED

Ground Floor\Flush Beams\B63(i8665) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:19:51

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B63(i8665)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 11-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	2555 / 0	2710 / 0		
B2, 2"	2606 / 0	1935 / 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	11-08-12	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	03-11-00	Front	286	412			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	03-11-00	Back	219				n\a
3	-	Conc. Pt. (lbs)	L	00-07-11	00-07-11	Front	427	292			n\a
4	-	Conc. Pt. (lbs)	L	04-07-00	04-07-00	Front	468	620			n\a
5	-	Conc. Pt. (lbs)	L	05-07-01	05-07-01	Front	419	518			n\a
6	-	Conc. Pt. (lbs)	L	06-07-00	06-07-00	Front	423	252			n\a
7	-	Conc. Pt. (lbs)	L	07-07-02	07-07-02	Front	459	231			n\a
8	-	Conc. Pt. (lbs)	L	08-11-04	08-11-04	Front	431	214			n\a
9	-	Conc. Pt. (lbs)	L	09-10-05	09-10-05	Front	415	206			n\a
10	-	Conc. Pt. (lbs)	L	10-09-08	10-09-08	Front	442	217			n\a
11	J4(i8685)	Conc. Pt. (lbs)	L	01-05-00	01-05-00	Back		219			n\a
12	J4(i8663)	Conc. Pt. (lbs)	L	02-05-00	02-05-00	Back		246			n\a
13	J4(i8661)	Conc. Pt. (lbs)	L	03-05-00	03-05-00	Back		236			n\a
14	J4(i8654)	Conc. Pt. (lbs)	L	08-02-00	08-02-00	Back	175	87			n\a
15	J4(i8677)	Conc. Pt. (lbs)	L	11-05-12	11-05-12	Back	157	72			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	20242 ft-lbs	35392 ft-lbs	57.2%	1	05-04-00
End Shear	6679 lbs	14464 lbs	46.2%	1	01-01-14
Total Load Deflection	L/387 (0.357")	n\a	62.0%	4	05-09-04
Live Load Deflection	L/760 (0.182")	n\a	47.4%	5	05-09-04
Max Defl.	0.357"	n\a	n\a	4	05-09-04
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 3-1/2"	7220 lbs	n\a	84.5%	HGUS410
B2	Hanger	2" x 3-1/2"	6327 lbs	n\a	74.1%	HGUS410

Cautions

Hanger model HGUS410 and seat length were input by the user

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

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

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

S6049468

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

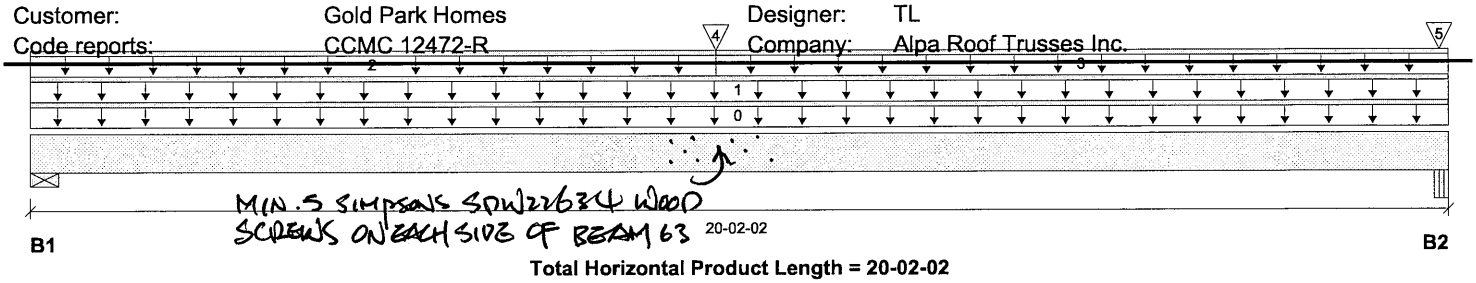
PASSED

Ground Floor\Flush Beams\B64(i8688) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:20:24

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B64(i8688)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 20-02-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	1663 / 0	1806 / 0		
B2, 3"	6918 / 0	3930 / 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	20-02-02	Top		24			00-00-00
1	-	Unf. Lin. (lb/ft)	L	00-00-00	20-02-02	Top	19	7			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	09-09-02	Top	14				n\a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	09-09-02	20-02-02	Top	21	8			n\a
4	B63(i8665)	Conc. Pt. (lbs)	L	09-09-02	09-09-02	Back	2548	2700			n\a
5	2(i41625)	Conc. Pt. (lbs)	L	20-00-08	20-00-08	Top	5295	2184			n\a

TOP LOADED

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	40992 ft-lbs	73615 ft-lbs	55.7%	1	09-09-02
End Shear	4639 lbs	28927 lbs	16.0%	1	01-02-04
Total Load Deflection	L/266 (0.897")	n\a	90.4%	4	09-11-12
Live Load Deflection	L/551 (0.433")	n\a	65.4%	5	09-11-12
Max Defl.	0.897"	n\a	n\a	4	09-11-12
Span / Depth	20.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/8" x 7"	4752 lbs	46.5%	23.4%	Spruce-Pine-Fir
B2	Beam	3" x 7"	15290 lbs	94.7%	59.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Calculations assume unbraced length of Top: 00-00-00, Bottom: 09-07-09.

CONNECT 4 PLY MEMBERS WITH SIMPSONS SDW22624 WOOD SCREWS @ 24" O.C., STAGGERED IN 2 ROWS

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

S6049469

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

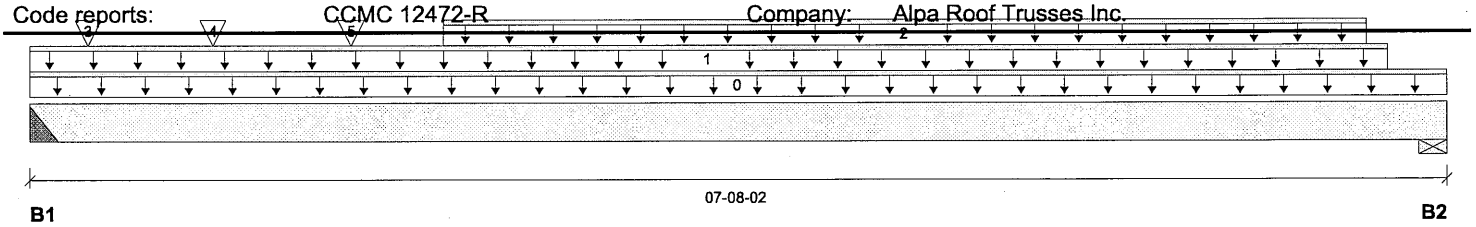
PASSED

Ground Floor\Flush Beams\B65(i8659) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:20:40

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B65(i8659)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 07-08-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	798 / 0	633 / 0		
B2, 2-3/8"	685 / 0	563 / 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	07-08-02	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-04-04	Top		60			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-02-14	07-02-14	Back	199	95			n\a
3	J4(i8669)	Conc. Pt. (lbs)	L	00-03-12	00-03-12	Back	157	72			n\a
4	J4(i8667)	Conc. Pt. (lbs)	L	00-11-14	00-11-14	Back	142	69			n\a
5	J4(i8694)	Conc. Pt. (lbs)	L	01-08-14	01-08-14	Back	174	84			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3494 ft-lbs	17696 ft-lbs	19.7%	1	03-08-14
End Shear	1615 lbs	7232 lbs	22.3%	1	06-05-14
Total Load Deflection	L/999 (0.051")	n\a	n\a	4	03-10-06
Live Load Deflection	L/999 (0.028")	n\a	n\a	5	03-10-06
Max Defl.	0.051"	n\a	n\a	4	03-10-06
Span / Depth	7.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	1988 lbs	n\a	46.6%	HUS1.81/10
B2	Wall/Plate	2-3/8" x 1-3/4"	1731 lbs	67.7%	34.1%	Spruce-Pine-Fir

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.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-08.

Disclosure

SG049470

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

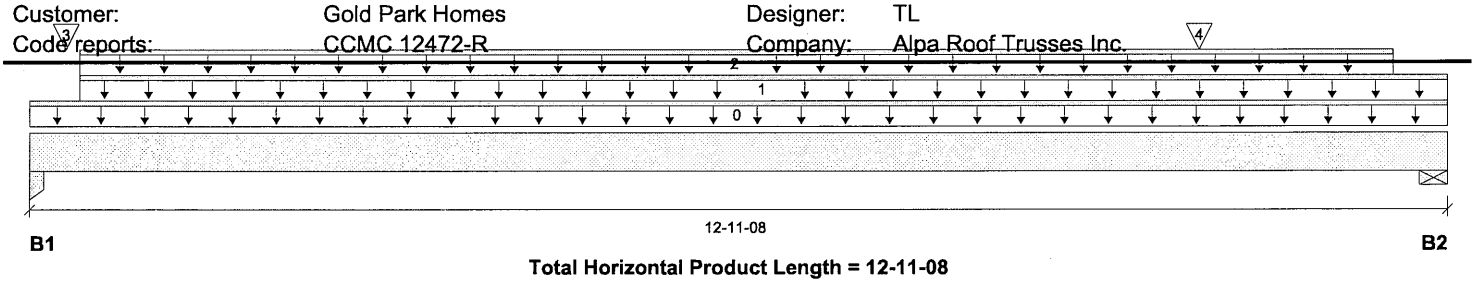
PASSED

Ground Floor\Flush Beams\B66(i8684) (Flush Beam)

BC Design Engine Member Report — Dry | 1 span | No cant. — July 20, 2022 19:20:57

Build 8183

Job name:	6002 A - Lot 132	File name:	346388.mmdl
Address:	Pine Valley Ph2	Description:	Ground Floor\Flush Beams\B66(i8684)
City, Province, Postal Code:	Vaughan, ON	Specifier:	
Customer:	Gold Park Homes	Designer:	TL
Code reports:	CCMC 12472-R	Company:	Alpa Roof Trusses Inc.



Total Horizontal Product Length = 12-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	4247 / 0	3454 / 0		
B2, 3-1/2"	3580 / 0	2218 / 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	12-11-08	Top		18			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-05-08	12-11-08	Top	28	11			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-05-08	12-05-08	Top		60			n\a
3	-	Conc. Pt. (lbs)	L	00-03-15	00-03-15	Front	3406	2572	} TOP LOADED		n\a
4	Pt1(i8271)	Conc. Pt. (lbs)	L	10-08-04	10-08-04	Top	4054	1959			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	16149 ft-lbs	55211 ft-lbs	29.3%	1	10-08-04
End Shear	7968 lbs	21696 lbs	36.7%	1	11-08-02
Total Load Deflection	L/838 (0.177")	n\a	28.6%	4	07-02-11
Live Load Deflection	L/999 (0.101")	n\a	n\a	5	07-04-06
Max Defl.	0.177"	n\a	n\a	4	07-02-11
Span / Depth	12.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	5-1/2" x 5-1/4"	10688 lbs	21.3%	30.3%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 5-1/4"	8142 lbs	72.0%	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 4
Calculations assume unbraced length of Top: 00-00-00, Bottom: 12-02-08.

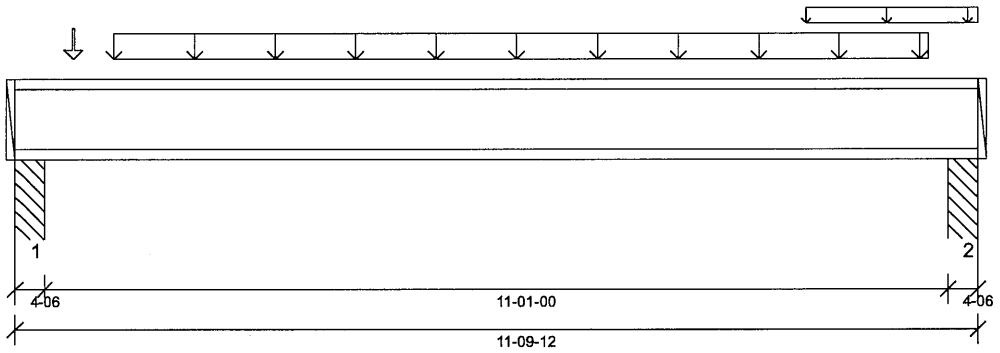
REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

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

SG049471

MiTek	Customer: **Gold Park Homes** Job Address: **Pine Valley Ph2** City: **Vaughan** Job Track: **45147**	Job Name: **346388** Level: **Ground Floor** Label: **B67 (-2R) - i1697** 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 07/20/2022 19:21



DESIGN INFORMATION

Building Code: NBCC 2015, Part9, BCBC 2018, ABC 2019, OBC 2012 (2019 Amendment)
Design Methodology: LSD
Service Condition: Dry
LL Deflection Limit: L/360,
TL Deflection Limit: L/240,

Lateral Restraint Requirements:

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

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

Factored Resistance of Support Material:

- 1334 psi Column @ 0'- 3 3/8"
- 1334 psi Column @ 11'- 6 3/8"

REGISTERED PROFESSIONAL ENGINEER
07/25/2022
EDWIN C. FOK
PROVINCE OF ONTARIO

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	LDF	Design	Limit	Result
Factored Pos. Moment:	5'- 8 1/2"	1.25D + 1.5L	1.00	4997 lb ft	5580 lb ft	Passed - 90%
Factored Shear:	0'- 4 7/16"	1.25D + 1.5L	1.00	1736 lb	2240 lb	Passed - 77%
Live Load (LL) Pos. Defl.:	5'- 10 7/8"	L		0.245"	L/360	Passed - L/542
Total Load (TL) Pos. Defl.:	5'- 10 7/8"	D + L		0.371"	L/240	Passed - L/358

SUPPORT AND REACTION INFORMATION

ID	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1	4-06	1.25D + 1.5L	1.00	1737 lb		2240 lb	14591 lb	Passed - 78%
2	4-06	1.25D + 1.5L	1.00	1685 lb		2240 lb	14595 lb	Passed - 75%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Face	Dead (D)	Live (L)	Snow (S)	Wind (W)
Self Weight	0'	11'- 9 3/4"	Self Weight	Top	3 lb/ft	-	-	-
Uniform	1'- 2 1/2"	11'- 2 1/2"	Smoothed Load	Back	72 lb/ft	146 lb/ft	-	-
Tapered	9'- 8 1/2"	11'- 9 3/4"	FC4 Floor Decking (Plan View Fill)	Top	-	11 To 8 lb/ft	-	-
Point	0'- 8 1/2"	0'- 8 1/2"	J5(i1749)	Back	59 lb	118 lb	-	-

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)	Wind (W)
1	0'	0'- 4 3/8"	Pt2(i1842)	419 lb	809 lb	-	-
2	11'- 5 3/8"	11'- 9 3/4"	Pt2(i1724)	407 lb	785 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.

SGOA9472

NORDIC
STRUCTURES

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

Notes:

1. 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.
2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
5. 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

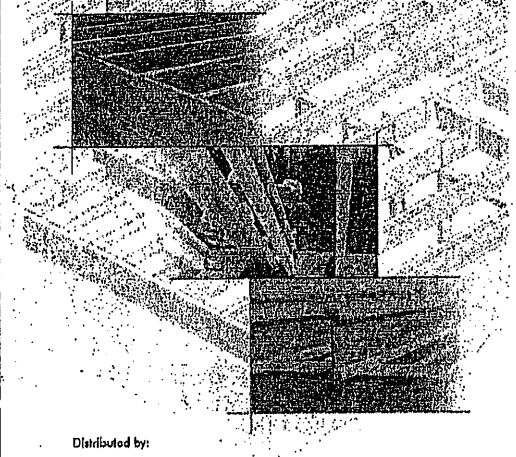
Installation must comply with latest documentation on I-Joist and other Nordic products from the http://nordic.ca/

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)

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 unsheathed I-Joists. Once sheathed, do not over-stress I-Joist with concentrated loads from building materials.

WARNING

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

Avoid Accidents by Following these Important Guidelines!

1. Brace and nail each I-Joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging 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 centre, and must be secured with a minimum of two 7-1/2" nails fastened in the top surface of each I-Joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-Joists.
   - Ply 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-bridging.
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 size and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

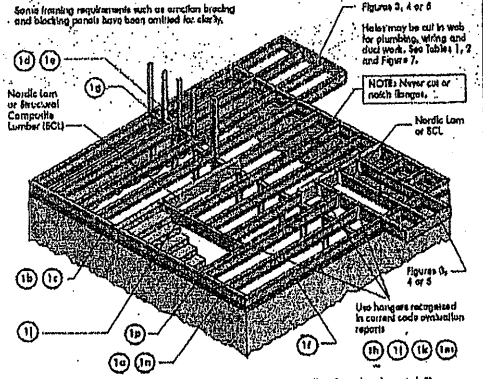
STORAGE AND HANDLING GUIDELINES

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 flatwise.
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-Joists and injury to your work crew.
   - Pick I-Joists in bundles as shipped by the supplier.
   - Orient the bundles so that the webs of the I-Joists are vertical.
   - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-Joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.

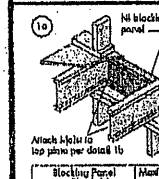
INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-Joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-Joist flanges should never be cut, drilled, or notched.
3. Install I-Joists so that top and bottom flanges are within 1/8 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 lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, nail I-Joists firmly to hanger bottoms to minimize settlement.
7. Leave a 1/16 inch gap between the I-Joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include kitchen fixtures, studio 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 end beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-Joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-Joists, and an I-Joist-compatible depth selected.
13. Provide permanent lateral support at the bottom flange of all I-Joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-Joists at the end support next to the cantilever extension. In the completed structure, the 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. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed in the flange's top face in accordance with the applicable building code requirements or approved building plans.

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

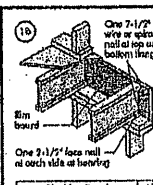


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



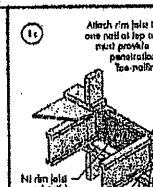
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

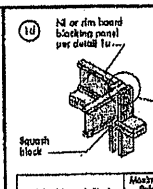
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bearing member, such as joist, header, or rafter. For concentrated vertical joist transfer, see detail 1d.



Blocking Panel or Rim Joist	Minimum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	5,090

*The uniform vertical load is limited to a rim board depth of 16 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 transfer, see detail 1d.





Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,500	6,600

Provide lateral bracing per detail 1a, 1b, or 1c

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 1810-096)

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGSB-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or 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 O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm; 1 foot = 0.305 m

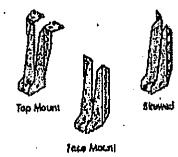
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS
SIMPLE AND MULTIPLE SPANS

[illegible]	[illegible]	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-5"	14'-10"	14'-7"
	[illegible]	16'-1"	15'-2"	14'-8"	14'-4"	17'-4"	16'-5"	15'-10"	15'-6"
	[illegible]	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	15'-6"
	[illegible]	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-7"	[illegible]
	[illegible]	17'-5"	16'-5"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	[illegible]
[illegible]	[illegible]	18'-11"	[illegible]	16'-5"	[illegible]	18'-4"	17'-5"	[illegible]	16'-7"
	[illegible]	19'-1"	17'-0"	16'-5"	[illegible]	20'-0"	18'-6"	17'-9"	17'-2"
	[illegible]	18'-4"	17'-3"	16'-7"	[illegible]	20'-3"	18'-9"	18'-0"	[illegible]
	[illegible]	19'-6"	18'-0"	17'-4"	[illegible]	21'-6"	19'-11"	19'-0"	[illegible]
	[illegible]	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	[illegible]
	[illegible]	20'-0"	18'-7"	17'-10"	17'-11"	22'-0"	[illegible]	19'-8"	[illegible]
	[illegible]	20'-4"	18'-9"	17'-11"	18'-0"	[illegible]	20'-9"	19'-10"	[illegible]
[illegible]	[illegible]	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	[illegible]	20'-6"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-10"
	[illegible]	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-10"
	[illegible]	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-6"	22'-2"
	[illegible]	22'-5"	20'-8"	19'-9"	[illegible]	24'-9"	22'-10"	21'-10"	21'-10"
	[illegible]	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-9"
[illegible]	[illegible]	[illegible]	20'-8"	19'-9"	19'-10"	[illegible]	22'-9"	21'-9"	22'-9"
	[illegible]	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-7"
	[illegible]	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	24'-1"
	[illegible]	24'-5"	22'-6"	21'-6"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
	[illegible]	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-10"

CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

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



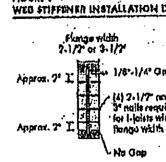
WEB STIFFENERS

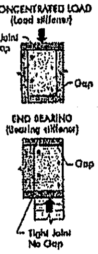
RECOMMENDATIONS:

- A *bearing stiffener* is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the *I-joist Construction Guide* (C101). The gap between the stiffener and the flange is at the top.
- A *bearing stiffener* is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A *load stiffener* is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



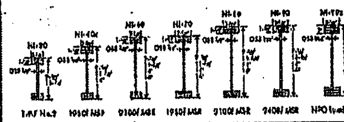


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

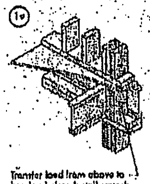
NORDIC I-JOIST SERIES



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

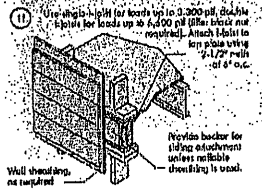
Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

(1e)



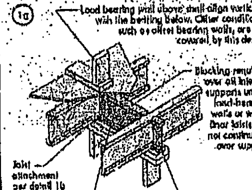
Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

(1f)



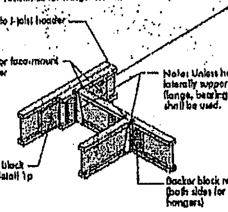
Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

(1g)



(1h)

Backer block (use if hanger load exceeds 360 lbs)
Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.



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

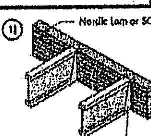
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

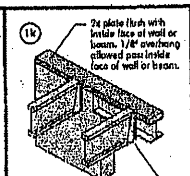
(1j)



For nailing schedules for multiple beams, see the manufacturer's recommendations.

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

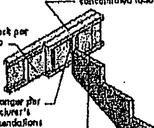
(1k)



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

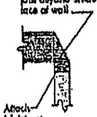
(1m)

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



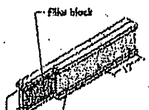
Maximum support capacity = 1,620 lbs.

(1n)



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

(1p)



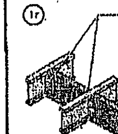
Notes:

1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

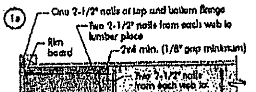
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"

(1r)



Optional: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

(1s)



Notes:

- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

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/

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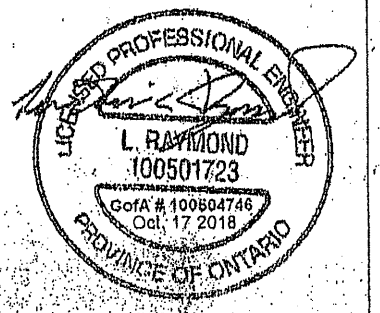
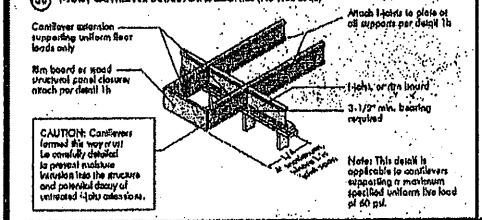
Document prepared for the use of Stephanie Gon from Alpa, Ontario. (Nordic Request 1810-095)

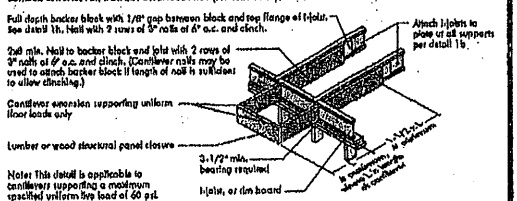


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

3a I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

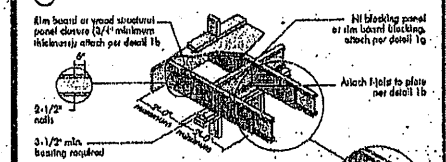


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

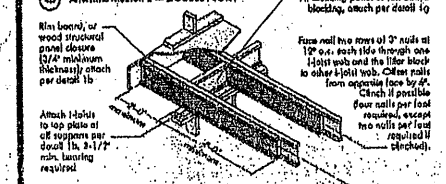


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/8") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate or all supports per detail 1b. Verify reinforced I-joist capacity.

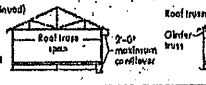
4b Alternate Method 2 — DOUBLE I-JOIST

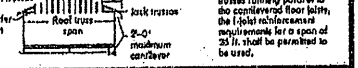


Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

FIGURE 4 (continued)

See table below for NI reinforcement requirements at cantilever.





For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 25 ft. shall be permitted to be used.

CANTILEVER REINFORCEMENT METHODS ALLOWED

9-1/2"	24	N	N	1	2	N	1	2	X	N	2	X	X		
	26	N	N	1	2	N	1	2	X	N	2	X	X		
	28	N	1	2	X	N	2	X	X	1	X	X	X		
	30	N	1	2	X	N	2	X	X	1	X	X	X		
	32	N	1	2	X	N	2	X	X	1	X	X	X		
	34	N	1	2	X	1	2	X	X	1	X	X	X		
11-7/8"	24	1	N	N	1	1	N	1	2	1	N	1	2		
	26	1	N	N	1	1	N	1	2	1	N	1	2		
	28	1	N	N	1	1	N	1	2	1	1	2	X		
	30	1	N	1	2	1	N	2	X	1	2	X	X		
	32	1	N	1	2	1	1	2	X	1	2	X	X		
	34	1	1	2	X	1	2	X	X	1	X	X	X		
	36	2	1	2	X	2	2	X	X	2	X	X	X		
14"	24	N	N	N	1	N	N	1	1	N	N	1	1		
	26	N	N	N	1	N	N	1	1	N	N	1	1		
	28	N	N	N	1	N	N	1	1	N	N	1	2		
	30	N	N	1	1	N	N	1	2	N	N	1	2		
	32	N	N	1	1	N	N	1	2	N	N	1	2		
	34	N	N	1	1	N	N	1	2	N	N	1	2		
	36	N	N	1	2	N	N	1	2	N	1	2	X		
	38	N	N	1	2	N	N	1	2	N	1	2	X		
	40	N	N	1	2	N	N	1	2	N	1	2	X		
16"	24	N	N	N	N	N	N	N	1	N	N	N	1		
	26	N	N	N	N	N	N	N	1	N	N	N	1		
	28	N	N	N	N	N	N	N	1	N	N	N	1		
	30	N	N	N	N	N	N	N	1	N	N	N	1		
	32	N	N	N	1	N	N	N	1	N	N	1	1		
	34	N	N	N	1	N	N	N	1	N	N	1	2		
	36	N	N	N	1	N	N	N	1	N	N	1	2		
	38	N	N	N	1	N	N	N	1	N	N	1	2		
	40	N	N	N	1	N	N	N	1	N	N	1	2		

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Use a deeper joist or closer spacing.
2. Maximum design load shall be 15 psf roof dead load, 65 psf floor total load, and 90 psf wall load. Wall load is based on 2'-0" maximum width window or door openings.

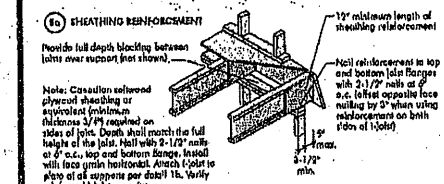
For larger openings, or multiple 2'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a 3/4 load deflection limit of L/480, plus 12" o.c. requirements for better spacing.

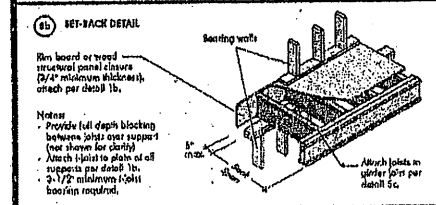
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls on which the ridge beam rests. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

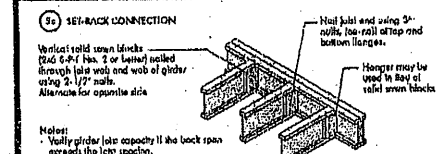
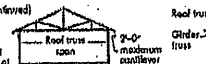
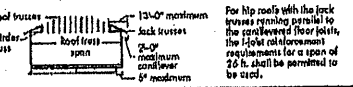


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.





For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 25 ft. shall be permitted to be used.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

9-1/2"	24	1	X	X	X	2	X	X	X	2	X	X	X		
	26	1	X	X	X	2	X	X	X	2	X	X	X		
	28	1	X	X	X	2	X	X	X	2	X	X	X		
	30	1	X	X	X	2	X	X	X	2	X	X	X		
	32	2	X	X	X	2	X	X	X	2	X	X	X		
	34	2	X	X	X	2	X	X	X	2	X	X	X		
11-7/8"	24	X	2	X	X	X	X	X	X	X	X	X	X		
	26	X	2	X	X	X	X	X	X	X	X	X	X		
	28	X	2	X	X	X	X	X	X	X	X	X	X		
	30	X	2	X	X	X	X	X	X	X	X	X	X		
	32	X	2	X	X	X	X	X	X	X	X	X	X		
	34	X	2	X	X	X	X	X	X	X	X	X	X		
	36	X	2	X	X	X	X	X	X	X	X	X	X		
14"	24	N	2	X	X	1	X	X	X	1	X	X	X		
	26	N	1	1	X	1	X	X	X	2	X	X	X		
	28	1	1	X	X	1	X	X	X	2	X	X	X		
	30	1	1	X	X	1	X	X	X	2	X	X	X		
	32	1	1	X	X	1	X	X	X	2	X	X	X		
	34	1	1	X	X	2	X	X	X	2	X	X	X		
	36	1	1	X	X	2	X	X	X	2	X	X	X		
	38	1	1	X	X	2	X	X	X	2	X	X	X		
	40	1	1	X	X	2	X	X	X	2	X	X	X		
16"	24	1	2	X	X	1	X	X	X	2	X	X	X		
	26	1	2	X	X	1	X	X	X	2	X	X	X		
	28	1	2	X	X	1	X	X	X	2	X	X	X		
	30	1	2	X	X	2	X	X	X	2	X	X	X		
	32	1	2	X	X	2	X	X	X	2	X	X	X		
	34	1	2	X	X	2	X	X	X	2	X	X	X		
	36	1	2	X	X	2	X	X	X	2	X	X	X		
	38	1	2	X	X	2	X	X	X	2	X	X	X		
	40	1	2	X	X	2	X	X	X	2	X	X	X		

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Use a deeper joist or closer spacing.
2. Maximum design load shall be 15 psf roof dead load, 65 psf floor total load, and 90 psf wall load. Wall load is based on 2'-0" maximum width window or door openings.

For larger openings, or multiple 2'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12" to 24" o.c. that meet the floor 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. 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 walls on which the ridge beam rests. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

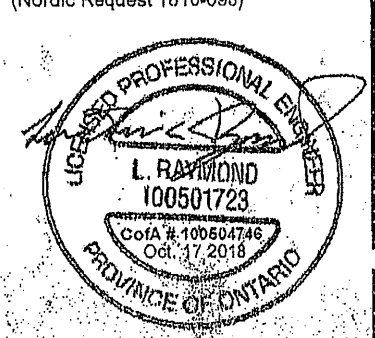
The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

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

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

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

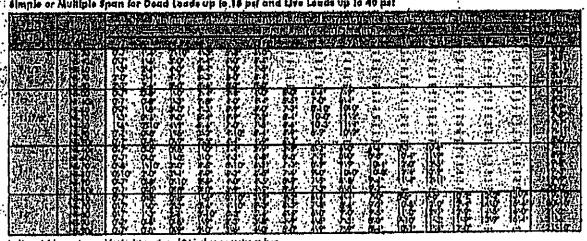


WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred 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 longer 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 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 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 rule number 6 above.
10. All holes and duct chase openings shall be cut in a workmanlike 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 10 psf and Live Loads up to 40 psf



1. Above table may be used for I-joist spacing of 24 inches on centre or less
2. Hole location distance is measured from inside face of supports to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.

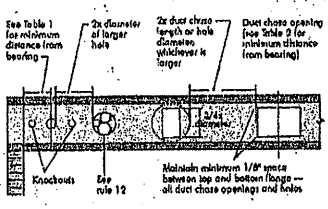
OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Floor Spans), the minimum distance from the centreline of the hole to the face of any support (D) at given above may be reduced as follows:

$$D_{reduced} = \frac{L_{actual}}{SAF} \times D$$

Where: $D_{reduced}$ = distance (cm for yields face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 2" inches from the face of the support to edge of the hole.
L_{actual} = the actual measured span distance between the inside faces of supports (ft).
SAF = Span Adjustment Factor given in this table.
D = the minimum distance from the inside face of any support to centre of hole from this table.
If $\frac{L_{actual}}{SAF}$ is greater than 1, use 1 in the above calculation for $\frac{L_{actual}}{SAF}$.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

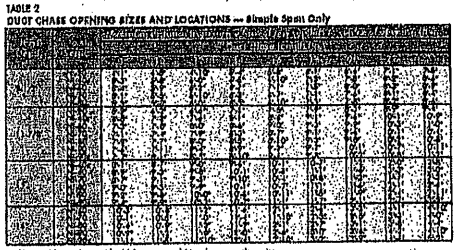
Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

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



1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other 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. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

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

FASTENERS FOR SHEATHING AND SUBFLOORING[1]

16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

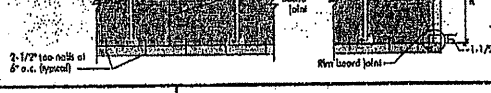
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 7/16-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/0-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CSA-O 1.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for floor system, applied in accordance with the manufacturer's recommendations. If OSB panels with tracked surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturers.

Refer NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

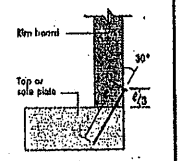
IMPORTANT NOTE!
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

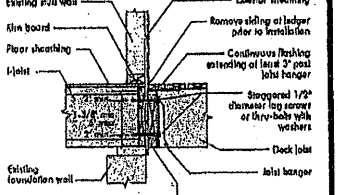
6a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

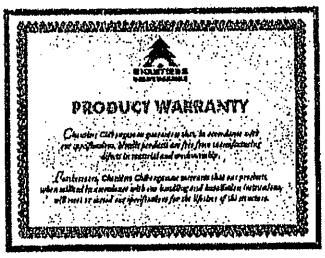


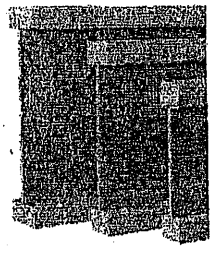
6b TOE-NAIL CONNECTION AT RIM BOARD



6c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



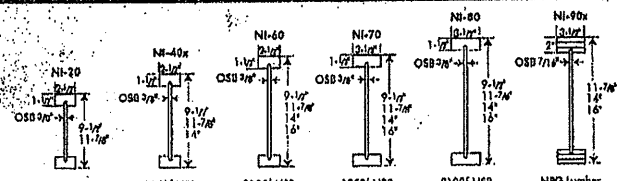




CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

NORDIC ENGINEERED WOOD

www.nordicewp.com



S-P-F No. 2	1950f MSR	2100f MSR	1950f MSR	2100f MSR	NPG lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred 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 (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
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 cantilevered 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 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.) Round Hole Diameter (in.)													
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-3"	---	---	---	---	---	---	---	---	---
	NI-70	2'-0"	3'-1"	4'-5"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-10"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---	---	---
	NI-60	0'-7"	1'-0"	2'-0"	4'-3"	5'-9"	6'-0"	7'-3"	9'-10"	10'-0"	---	---	---	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-3"	8'-6"	10'-3"	11'-4"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-0"	0'-9"	2'-3"	4'-4"	4'-9"	6'-0"	---	---	---	---	---	---	---	---
14"	NI-40x	0'-7"	0'-0"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"	---	---	---
	NI-60	0'-7"	0'-8"	1'-0"	2'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	---	---	---
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"	---	---	---
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---	---	---	---
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-2"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-3"	15'-6"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-8"	11'-0"	12'-3"	12'-9"	14'-5"	15'-9"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"	---	---

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of support to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.
4. The above table is based on the I-joists 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

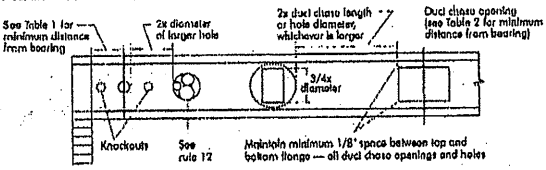
Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.) Duct Chase Length (in.)								
		8	10	12	14	16	18	20	22	24
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-2"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-5"	8'-9"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-2"	9'-7"	10'-3"	10'-9"	11'-0"
	NI-70	7'-1"	7'-6"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-0"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-0"
	NI-80	9'-0"	9'-5"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90x	9'-4"	9'-9"	10'-0"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"
	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-2"

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other 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-joists 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 prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts 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 unsheathed I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

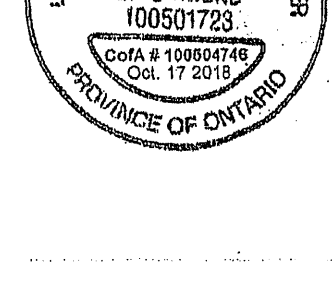
1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When 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 centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining 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-bridging.
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

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

Furthermore, Chantiers Chibougamau warrants that our products, when utilized in accordance with our handling 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.

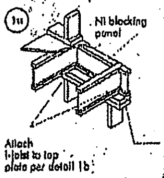
Details released after September 2013 supersedes N-303

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)

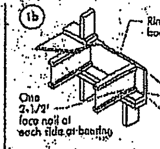
(1a)



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

(1b)



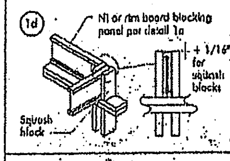
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

To avoid splitting flange, start nails 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 shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

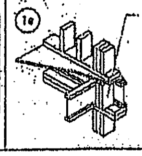
(1d)



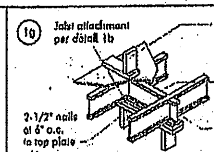
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b

(1e)



(1g)

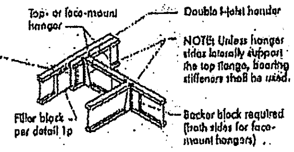


(1h) Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

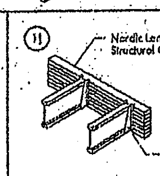
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



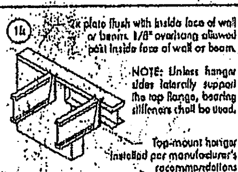
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

(1j)

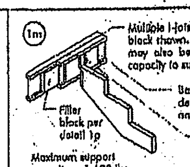


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

(1k)

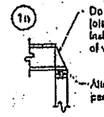


(1m)



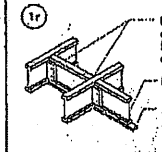
Maximum support capacity = 1,620 lbs.

(1n)

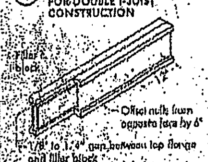


NOTE: Blocking required at bearing for lateral support, not shown for clarity.

(1r)



(1p) FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

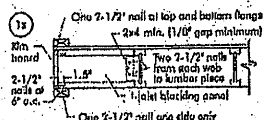


NOTES:

1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"

(1x)



NOTES:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

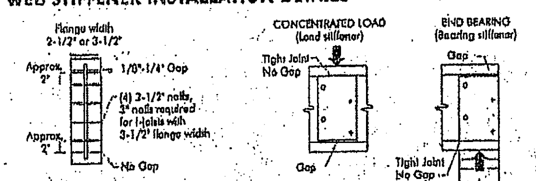
WEB STIFFENERS

RECOMMENDATIONS:

- A *bearing stiffener* is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A *bearing stiffener* is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A *load stiffener* is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS



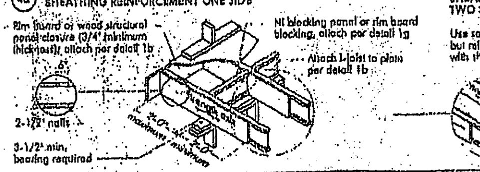
See the adjacent table for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

(4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE



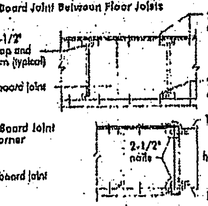
Method 2 — SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

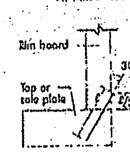
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

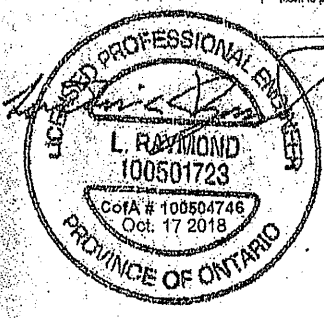
RIM BOARD INSTALLATION DETAILS

(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



(8b) TOE-NAIL CONNECTION AT RIM BOARD





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Document prepared for the use of Stephanie Gon from Alpe, Ontario. (Nordic Request 1810-096)