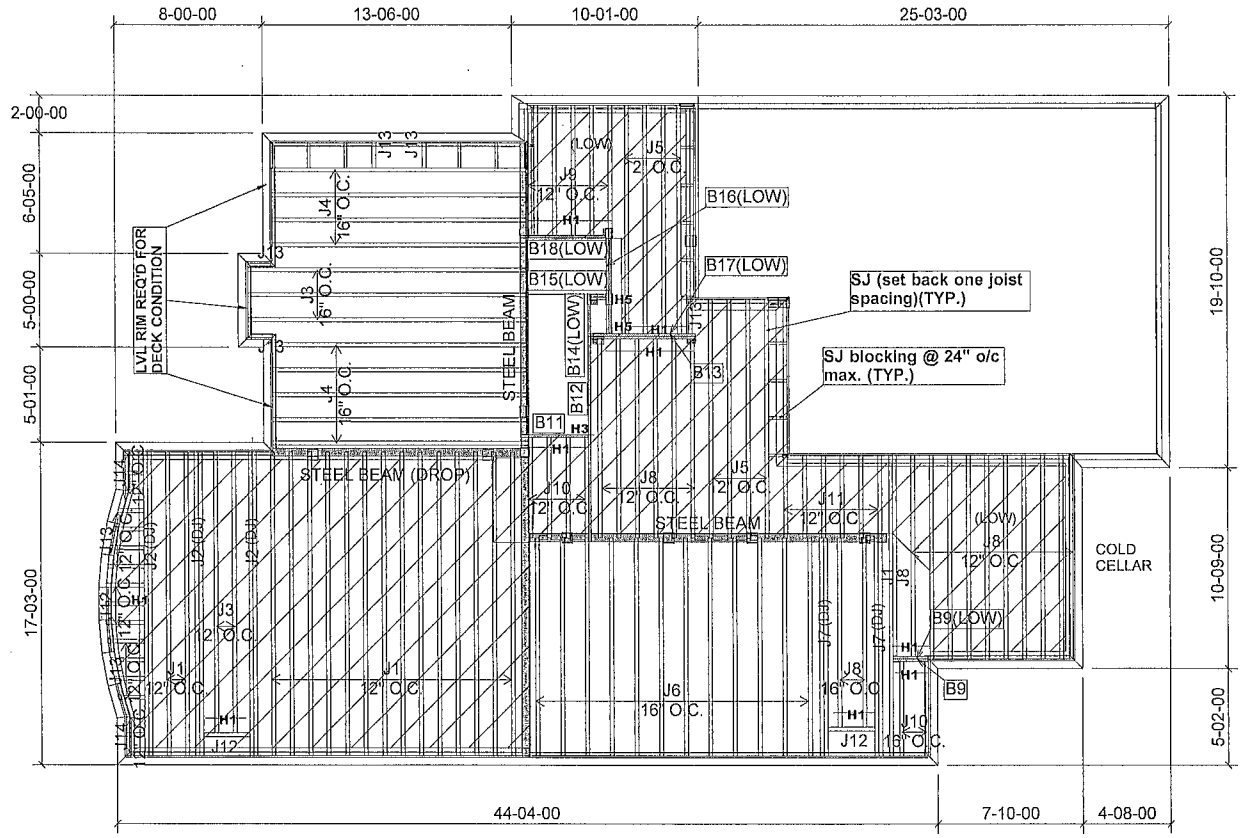


Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	9 1/2" NI-40x	1	17
J2	17-00-00	9 1/2" NI-40x	2	6
J3	16-00-00	9 1/2" NI-40x	1	5
J4	14-00-00	9 1/2" NI-40x	1	9
J5	13-00-00	9 1/2" NI-40x	1	8
J6	12-00-00	9 1/2" NI-40x	1	12
J7	12-00-00	9 1/2" NI-40x	2	4
J8	11-00-00	9 1/2" NI-40x	1	19
J9	7-00-00	9 1/2" NI-40x	1	6
J10	6-00-00	9 1/2" NI-40x	1	6
J11	5-00-00	9 1/2" NI-40x	1	6
J12	3-00-00	9 1/2" NI-40x	1	5
J13	2-00-00	9 1/2" NI-40x	1	13
J14	1-00-00	9 1/2" NI-40x	1	6
B12	11-00-00	VERSALAM-10 2.0E	1	1
B17(LOW)	6-00-00	VERSALAM-10 2.0E	1	1
B13	6-00-00	VERSALAM-10 2.0E	2	2
B16(LOW)	6-00-00	VERSALAM-10 2.0E	2	2
B18(LOW)	5-00-00	VERSALAM-10 2.0E	1	1
B11	4-00-00	VERSALAM-10 2.0E	1	1
B14(LOW)	3-00-00	VERSALAM-10 2.0E	1	1
B9	2-00-00	VERSALAM-10 2.0E	1	1
B9(LOW)	2-00-00	VERSALAM-10 2.0E	1	1
B15(LOW)	1-00-00	VERSALAM-10 2.0E	2	2

HANGER SCHEDULE

H1----------IUS2.56/9.5
H3----------HUS1.81/10
H5----------HGUS410

RIMBOARD

1-1/8" X 9.5" O.S.B

SUBFLOOR : 5/8" NAILED & GLUED

1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls. Multiple squash blocks are req'd under concentrated loads.

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

Do not scale - refer to architectural plans for dimensions.

S42-2 ELEV. A
FIRST FLOOR FRAMING
& WOD & WOB CONDITION
& UPGRADED REAR
REVISED : MARCH 6, 2018

Ceramic Tile
- Build up by Builder
- Ceramic Tile

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

T.1505027-T.1505045 +T.1803025-T.180303~~0~~

JT: 44997/97055
File: 295517(247297)
287868

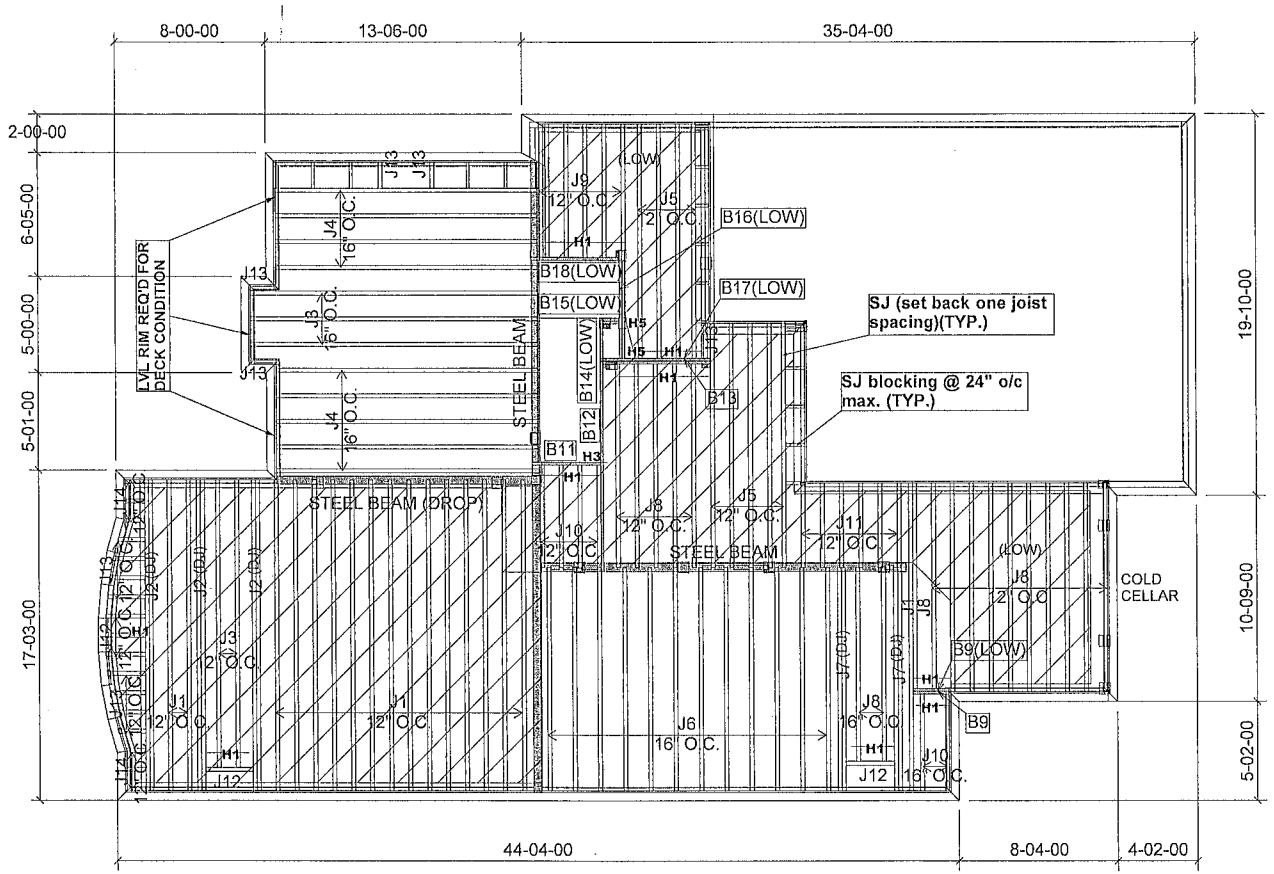
Builder: Bayview Wellington
Project: Green Valley Estates East

Location: Bradford
Date: Sept. 9, 2017

Designer: SG
Sheet: 1 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Mario
Tamarack Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	9 1/2" NI-40x	1	17
J2	17-00-00	9 1/2" NI-40x	2	6
J3	16-00-00	9 1/2" NI-40x	1	5
J4	14-00-00	9 1/2" NI-40x	1	9
J5	13-00-00	9 1/2" NI-40x	1	9
J6	12-00-00	9 1/2" NI-40x	1	12
J7	12-00-00	9 1/2" NI-40x	2	4
J8	11-00-00	9 1/2" NI-40x	1	18
J9	7-00-00	9 1/2" NI-40x	1	6
J10	6-00-00	9 1/2" NI-40x	1	6
J11	5-00-00	9 1/2" NI-40x	1	6
J12	3-00-00	9 1/2" NI-40x	1	5
J13	2-00-00	9 1/2" NI-40x	1	13
J14	1-00-00	9 1/2" NI-40x	1	6
B12	11-00-00	VERSALAM-10 2.0E	1	1
B17(LOW)	6-00-00	VERSALAM-10 2.0E	1	1
B13	6-00-00	VERSALAM-10 2.0E	2	2
B16(LOW)	6-00-00	VERSALAM-10 2.0E	2	2
B18(LOW)	5-00-00	VERSALAM-10 2.0E	1	1
B11	4-00-00	VERSALAM-10 2.0E	1	1
B14(LOW)	3-00-00	VERSALAM-10 2.0E	1	1
B9	2-00-00	VERSALAM-10 2.0E	1	1
B9(LOW)	2-00-00	VERSALAM-10 2.0E	1	1
B15(LOW)	1-00-00	VERSALAM-10 2.0E	2	2

HANGER SCHEDULE

H1----------IUS2.56/9.5
H3----------HUS1.81/10
H5----------HGUS410

RIMBOARD

1-1/8" X 9.5" O.S.B

SUBFLOOR : 5/8" NAILED & GLUED

1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls. Multiple squash blocks are req'd under concentrated loads.

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

Do not scale - refer to architectural plans for dimensions.

S42-2 B & C
FIRST FLOOR FRAMING
& WOD & WOB CONDITION
& UPGRADED REAR
REVISED : MARCH 6, 2018

Ceramic Tile
- Build up by Builder
- Ceramic Tile

FLOOR LOADING:

LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

JT: 44997/97055
File: 295517(247297)
287868

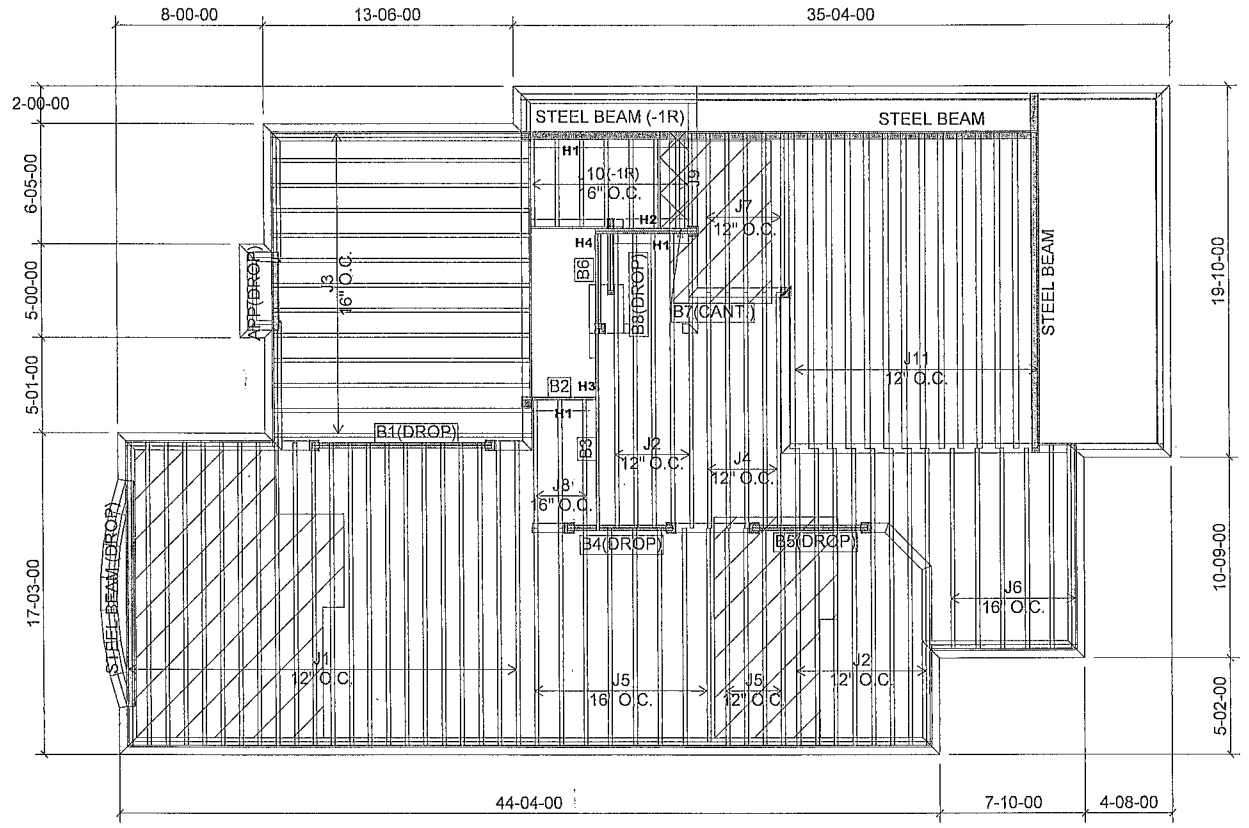
Builder: Bayview Wellington
Project: Green Valley Estates East

Location: Bradford
Date: Sept. 9, 2017

Designer: SG
Sheet: 2 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Mario
Tamarack Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	9 1/2" NI-40x	1	22
J2	16-00-00	9 1/2" NI-40x	1	13
J3	14-00-00	9 1/2" NI-40x	1	13
J4	13-00-00	9 1/2" NI-40x	1	5
J5	12-00-00	9 1/2" NI-40x	1	12
J6	11-00-00	9 1/2" NI-40x	1	6
J7	9-00-00	9 1/2" NI-40x	1	5
J8	7-00-00	9 1/2" NI-40x	1	3
J9	6-00-00	9 1/2" NI-40x	1	1
J10	5-00-00	9 1/2" NI-40x	1	8
J11	17-00-00	9 1/2" NI-80	1	14
B3	11-00-00	VERSALAM-10 2.0E	1	1
B1(DROP)	10-00-00	VERSALAM-10 2.0E	2	2
B5(DROP)	7-00-00	VERSALAM-10 2.0E	2	2
B4(DROP)	6-00-00	VERSALAM-10 2.0E	2	2
B6	6-00-00	VERSALAM-10 2.0E	2	2
B7(CANT.)	6-00-00	VERSALAM-10 2.0E	2	2
B2	4-00-00	VERSALAM-10 2.0E	1	1
B8(DROP)	4-00-00	VERSALAM-10 2.0E	2	2

HANGER SCHEDULE

H1----------IUS2.56/9.5
H2----------THAI322
H3----------HUS1.81/10
H4----------HUC410

RIMBOARD

1-1/8" X 9.5" O.S.B

SUBFLOOR : 5/8" NAILED & GLUED

1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls. Multiple squash blocks are req'd under concentrated loads.

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

Do not scale - refer to architectural plans for dimensions.

FLOOR LOADING:

LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

S42-2 ELEV.A
SECOND FLOOR FRAMING
& UPGRADED REAR
REVISED : MARCH 6, 2018

Ceramic Tile
Build up by Builder
Ceramic Tile

JT: 44997/97055
File: 295517(247297)
287868

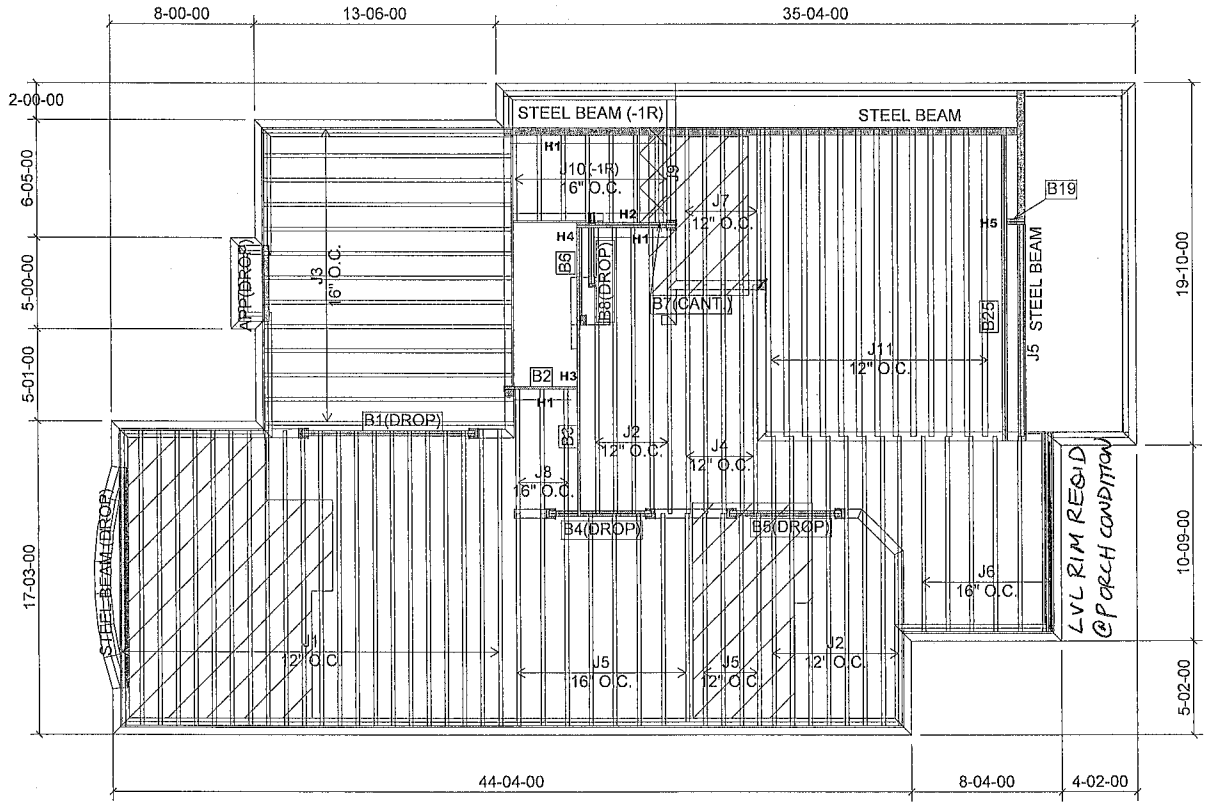
Builder: Bayview Wellington
Project: Green Valley Estates East

Location: Bradford
Date: Sept. 9, 2017

Designer: SG
Sheet: 3 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Mario
Tamarack Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	9 1/2" NI-40x	1	22
J2	16-00-00	9 1/2" NI-40x	1	13
J3	14-00-00	9 1/2" NI-40x	1	13
J4	13-00-00	9 1/2" NI-40x	1	5
J5	12-00-00	9 1/2" NI-40x	1	13
J6	11-00-00	9 1/2" NI-40x	1	7
J7	9-00-00	9 1/2" NI-40x	1	5
J8	7-00-00	9 1/2" NI-40x	1	3
J9	6-00-00	9 1/2" NI-40x	1	1
J10	5-00-00	9 1/2" NI-40x	1	8
J11	17-00-00	9 1/2" NI-80	1	13
B25	18-00-00	VERSALAM-10 2.0E	2	2
B3	11-00-00	VERSALAM-10 2.0E	1	1
B1(DROP)	10-00-00	VERSALAM-10 2.0E	2	2
B5(DROP)	7-00-00	VERSALAM-10 2.0E	2	2
B4(DROP)	6-00-00	VERSALAM-10 2.0E	2	2
B6	6-00-00	VERSALAM-10 2.0E	2	2
B7(CANT.)	6-00-00	VERSALAM-10 2.0E	2	2
B2	4-00-00	VERSALAM-10 2.0E	1	1
B8(DROP)	4-00-00	VERSALAM-10 2.0E	2	2
B19	1-00-00	VERSALAM-10 2.0E	2	2

HANGER SCHEDULE

H1----------IUS2.56/9.5
H2----------THAI322
H3----------HUS1.81/10
H4----------HUC410
H5----------HGUS410

RIMBOARD

1-1/8" X 9.5" O.S.B

SUBFLOOR : 5/8" NAILED & GLUED

1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls. Multiple squash blocks are req'd under concentrated loads.

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

Do not scale - refer to architectural plans for dimensions.

FLOOR LOADING:

LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

S42-2 ELEV. B
SECOND FLOOR FRAMING
& UPGRADED REAR
REVISED : MARCH 6, 2018

Ceramic Tile
Build up by Builder
Ceramic Tile

JT: 44997/97055
File: 295517(247297) 287868

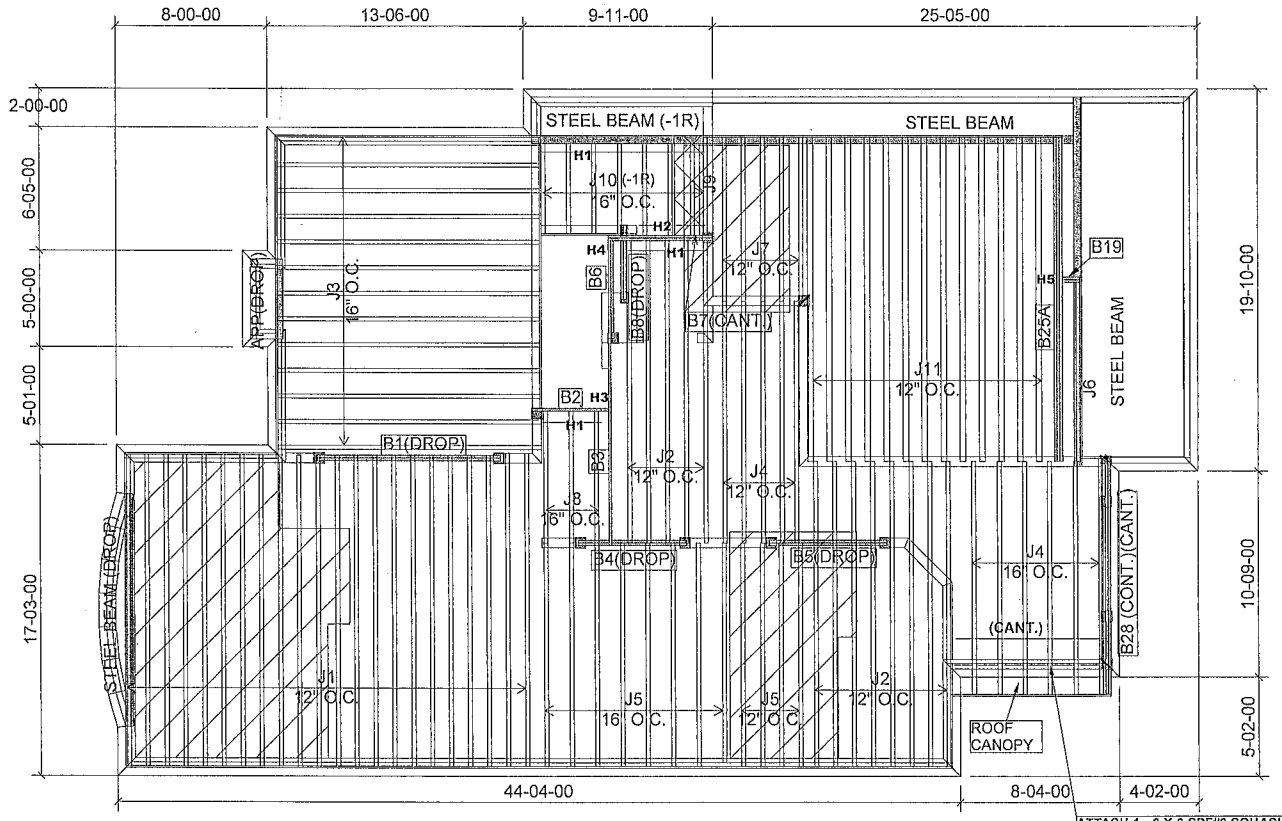
Builder: Bayview Wellington
Project: Green Valley Estates East

Location: Bradford
Date: Sept. 9, 2017

Designer: SG
Sheet: 4 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Mario
Tamarack Lumber



-B28 13-00-00 VERSALAM-10 2.0E 2 2

Products

PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	9 1/2" NI-40x	1	22
J2	16-00-00	9 1/2" NI-40x	1	13
J3	14-00-00	9 1/2" NI-40x	1	13
J4	13-00-00	9 1/2" NI-40x	1	11
J5	12-00-00	9 1/2" NI-40x	1	12
J6	10-00-00	9 1/2" NI-40x	1	1
J7	9-00-00	9 1/2" NI-40x	1	5
J8	7-00-00	9 1/2" NI-40x	1	3
J9	6-00-00	9 1/2" NI-40x	1	1
J10	5-00-00	9 1/2" NI-40x	1	8
J11	17-00-00	9 1/2" NI-80	1	13
B25A	17-00-00	VERSALAM-10 2.0E	3	3
B3	11-00-00	VERSALAM-10 2.0E	1	1
B1(DROP)	10-00-00	VERSALAM-10 2.0E	2	2
B5(DROP)	7-00-00	VERSALAM-10 2.0E	2	2
B4(DROP)	6-00-00	VERSALAM-10 2.0E	2	2
B6	6-00-00	VERSALAM-10 2.0E	2	2
B7(CANT.)	6-00-00	VERSALAM-10 2.0E	2	2
B2	4-00-00	VERSALAM-10 2.0E	1	1
B8(DROP)	4-00-00	VERSALAM-10 2.0E	2	2
B19	1-00-00	VERSALAM-10 2.0E	2	2

HANGER SCHEDULE

H1----------IUS2.56/9.5
H2----------THAI322
H3----------HUS1.81/10
H4----------HUC410
H5----------HGUS410

RIMBOARD

1-1/8" X 9.5" O.S.B

SUBFLOOR : 5/8" NAILED & GLUED

ATTACH 1 - 2 X 6 SPF#2 SQUASH BLOCK TO ONE SIDE OF EACH JOIST TO SUPPORT EXTERIOR LOAD BEARING WALL ABOVE. MULTIPLE SQUASH BLOCKS ARE REQ'D TO SUPPORT CONCENTRATED LOADS

1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls. Multiple squash blocks are req'd under concentrated loads.

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

Do not scale - refer to architectural plans for dimensions.

S42-2 ELEV. C
SECOND FLOOR FRAMING
& UPGRADED REAR

REVISED : OCT. 16, 2017
REVISED : MARCH 6, 2018

Ceramic Tile
Build up by Builder
Ceramic Tile

FLOOR LOADING:

LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

JT: 44997/97055
File: 295517(247297)
287868

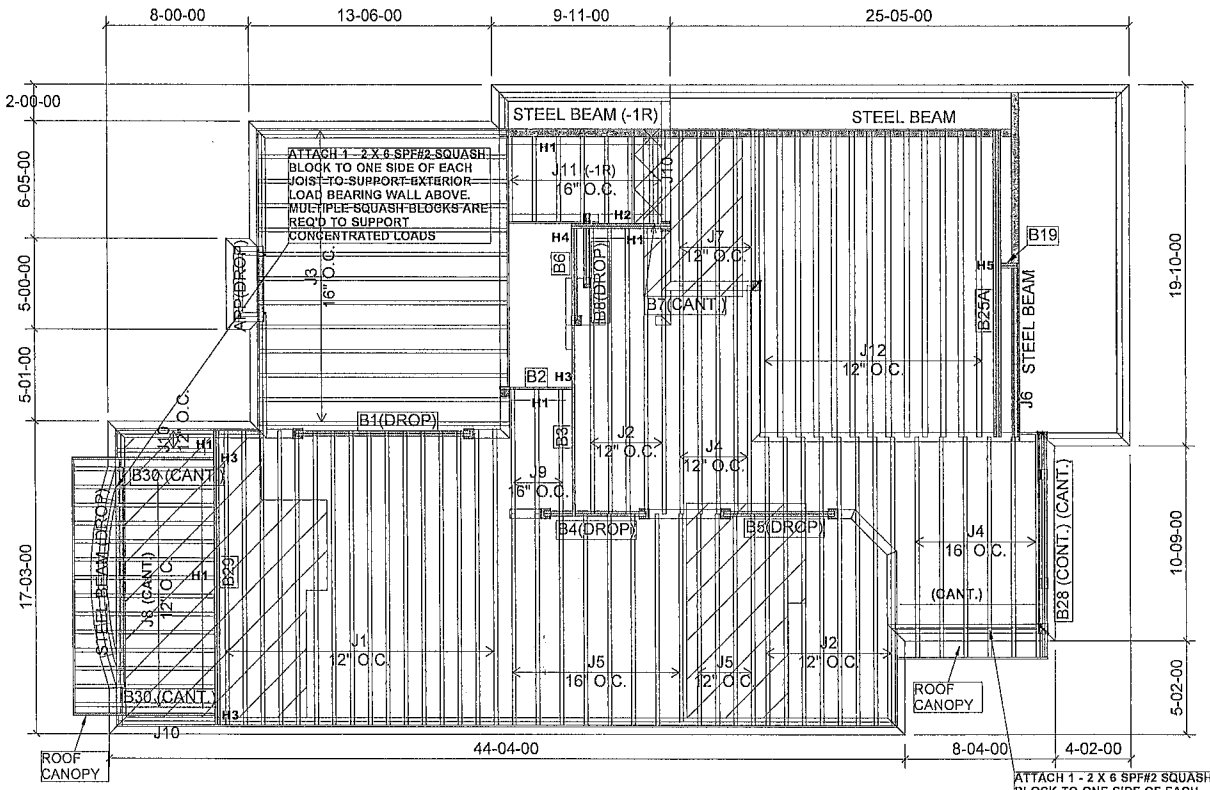
Builder: Bayview Wellington
Project: Green Valley Estates East

Location: Bradford
Date: Sept. 9, 2017

Designer: SG
Sheet: 5of6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Mario
Tamarack Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	9 1/2" NI-40x	1	16
J2	16-00-00	9 1/2" NI-40x	1	13
J3	14-00-00	9 1/2" NI-40x	1	13
J4	13-00-00	9 1/2" NI-40x	1	11
J5	12-00-00	9 1/2" NI-40x	1	12
J6	10-00-00	9 1/2" NI-40x	1	1
J7	9-00-00	9 1/2" NI-40x	1	5
J8	8-00-00	9 1/2" NI-40x	1	14
J9	7-00-00	9 1/2" NI-40x	1	3
J10	6-00-00	9 1/2" NI-40x	1	4
J11	5-00-00	9 1/2" NI-40x	1	8
J12	17-00-00	9 1/2" NI-80	1	13
B29	17-00-00	VERSALAM-10 2.0E	2	2
B25A	17-00-00	VERSALAM-10 2.0E	3	3
B3	11-00-00	VERSALAM-10 2.0E	1	1
B1(DROP)	10-00-00	VERSALAM-10 2.0E	2	2
B30 (CANT.)	8-00-00	VERSALAM-10 2.0E	1	2
B5(DROP)	7-00-00	VERSALAM-10 2.0E	2	2
B4(DROP)	6-00-00	VERSALAM-10 2.0E	2	2
B6	6-00-00	VERSALAM-10 2.0E	2	2
B7(CANT.)	6-00-00	VERSALAM-10 2.0E	2	2
B2	4-00-00	VERSALAM-10 2.0E	1	1
B8(DROP)	4-00-00	VERSALAM-10 2.0E	2	2
B19	1-00-00	VERSALAM-10 2.0E	2	2
B28	12-00-00	VERSALAM-10 2.0E	2	2

HANGER SCHEDULE

H1----------IUS2.56/9.5
H2----------THAI322
H3----------HUS1.81/10
H4----------HUC410
H5----------HGUS410

RIMBOARD

1-1/8" X 9.5" O.S.B

SUBFLOOR : 5/8" NAILED & GLUED

1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls. Multiple squash blocks are req'd 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.

S42-2 ELEV. C
SECOND FLOOR FRAMING
& UPGRADED REAR
& REAR UPGRADE

REVISED : OCT. 16, 2017
REVISED : MARCH 6, 2018

Ceramic Tile	
	Build up by Builder
	Ceramic Tile

FLOOR LOADING:

LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

ATTACH 1 - 2 X 6 SPF#2 SQUASH BLOCK TO ONE SIDE OF EACH JOIST TO SUPPORT EXTERIOR LOAD BEARING WALL ABOVE. MULTIPLE SQUASH BLOCKS ARE REQ'D TO SUPPORT CONCENTRATED LOADS

JT: 44997/97055
File: 295517(247297)
287868

Builder: Bayview Wellington
Project: Green Valley Estates East

Location: Bradford
Date: Sept. 9, 2017

Designer: SG
Sheet: 6 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Mario
Tamarack Lumber

NORDIC STRUCTURES

COMPANY
Alpa Roof Trusses Inc.
Mar. 6, 2018 13:17

PROJECT
Bayview Wellington
Green Valley Estates East
S42-2
Second Floor Framing
Beam3

Design Check Calculation Sheet

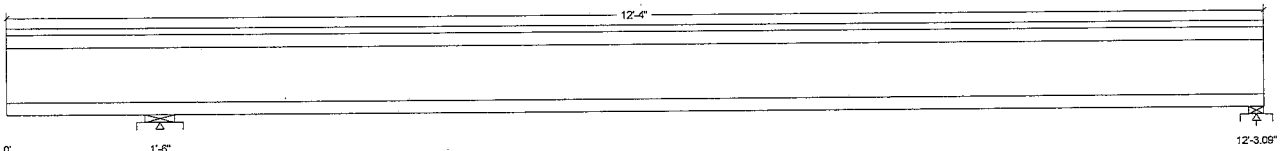
Nordic Sizer – Canada 7.0

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Snow	Partial Area	Yes	0.00	1.50	140.00		psf
Load2	Live	Partial Area	Yes	1.50	12.33	40.00		psf
Load4	Dead	Partial Area	No	0.00	1.50	20.00		psf
Load6	Dead	Partial Area	No	1.50	12.33	15.00		psf
Self-weight	Dead	Full UDL	No			2.7		plf

Load magnitude does not include Normal Importance factor from O86 Table 5.2.3.2. which is applied during analysis.

Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:								
Dead			169					119
Live			287					287
Snow			300					-20
Factored:								
Total			947					579
Bearing:								
Resistance								1855
Joist			3804					2767
Support			5381					
Des ratio								0.31
Joist			0.25					0.21
Support			0.18					#2
Load case			#5					-13/16
Length			3-1/2"					1-3/4
Min req'd			3-1/2					No
Stiffener			No					1.00
KD			1.00					1.00
KB support			1.00					769
fcp sup			769					1.00
Kzcp sup			1.00					

*Minimum bearing length for joists is 1-13/16" for exterior supports and 3-1/2" for intermediate supports
Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to KD factor. See Analysis results for reaction from critical load combination.

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

Supports: All - Rough Lumber Sill plate, No.1/No.2
Total length: 12'-4.0"; Clear span: 11'-4.25"; 10'-6.45"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling
This section PASSES the design code check.

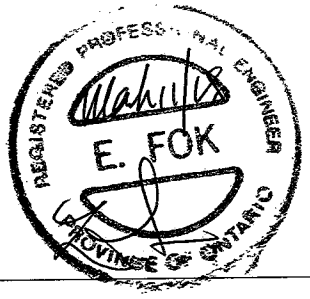
Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 606	Vr = 1895	lbs	Vf/Vr = 0.32
Moment(+)	Mf = 1546	Mr = 4824	lbs-ft	Mf/Mr = 0.32
Moment(-)	Mf = 356	Mr = 4824	lbs-ft	Mf/Mr = 0.07
Deflection:				
Interior Perm	0.03 = < L/999	0.36 = L/360	in	0.08
Live	0.08 = < L/999	0.36 = L/360	in	0.21
Total	0.10 = < L/999	0.54 = L/240	in	0.20
Cantil. Perm	-0.01 = < L/999	0.10 = L/180	in	0.10
Live	-0.03 = L/672	0.10 = L/180	in	0.27
Total	-0.04 = L/487	0.15 = L/120	in	0.25
Bare Defl'n	-0.03 = L/547	0.10 = L/180	in	0.33
Vibration	Lmax = 10'-9.1	Lv = 15'-9.3	ft	0.68
Defl'n	= 0.020	= 0.067	in	0.30

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#4
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
Mr-	4824	1.00	1.00	-	1.000	-	-	-	#3
EI	218.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:
Shear : LC #4 = 1.25D + 1.5L + (1.0)1.0S
Moment(+) : LC #2 = 1.25D + 1.5L
Moment(-) : LC #3 = 1.25D + (1.0)1.5S
Deflection: LC #1 = 1.0D (permanent)
LC #2 = 1.0D + 1.0L (live)
LC #2 = 1.0D + 1.0L (total)
LC #2 = 1.0D + 1.0L (bare joist)
Bearing : Support 1 - LC #0 = 1.4D
Support 2 - LC #5 = 1.25D + (1.0)1.5S + 1.0L
Support 3 - LC #2 = 1.25D + 1.5L
Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
L=live(use,occupancy) Ls=live(storage,equipment) f=fire
Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
CALCULATIONS:
Deflection: EIeff = 268e06 lb-in2 K= 4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)



Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis 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 this component based on the design criteria and loadings shown.
7. NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ STAGGERED IN TWO ROWS

T-1803025

NORDIC STRUCTURES

COMPANY
Alpa Roof Trusses Inc.
Mar. 6, 2018 10:35

PROJECT
Bayview Wellington
Green Valley Estates East
S42-2
Second Floor Framing
Beam3

Design Check Calculation Sheet

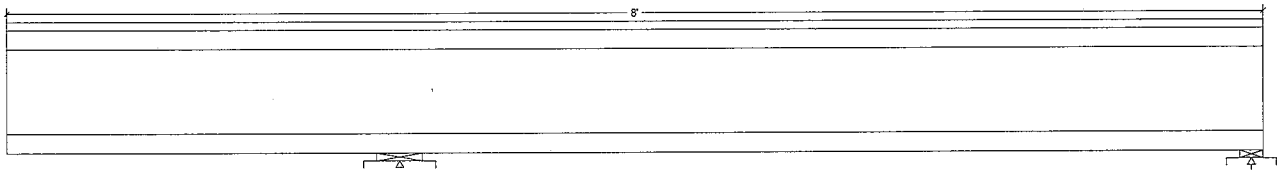
Nordic Sizer – Canada 7.0

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start	End	Magnitude Start	End	Unit
Load1	Snow	Partial Area	Yes	0.00	2.50	140.00		psf
Load2	Live	Partial Area	Yes	2.50	8.00	40.00		psf
Load3	Dead	Full Area	No			20.00		psf
Self-weight	Dead	Full UDL	No			2.7		plf

Load magnitude does not include Normal Importance factor from O86 Table 5.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:						
Dead			131			48
Live			108			108
Snow			431			-81
Factored:						
Uplift						77
Total			918			223
Bearing:						
Resistance						
Joist			3804			1655
Support			5381			2767
Des ratio						
Joist			0.24			0.12
Support			0.17			0.08
Load case			#5			#2
Length			3-1/2"			-13/16
Min req'd			3-1/2			1-3/4
Stiffener			No			No
KD			1.00			1.00
KB support			1.00			1.00
fcp sup			769			769
Kzcp sup			1.00			1.00

*Minimum bearing length for joists is 1-13/16" for exterior supports and 3-1/2" for intermediate supports
Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to KD factor. See Analysis results for reaction from critical load combination.

Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

Supports: All - Rough Lumber Sill plate, No.1/No.2
Total length: 8'; Clear span: 2'-4.25", 5'-2.45"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling
This section PASSES the design code check.

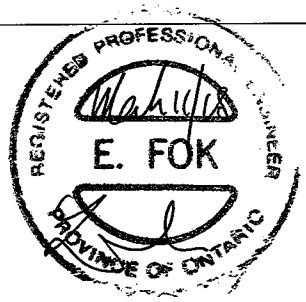
Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 596	Vr = 1895	lbs	Vf/Vr = 0.31
Moment(+)	Mf = 282	Mr = 4824	lbs-ft	Mf/Mr = 0.06
Moment(-)	Mf = 745	Mr = 4824	lbs-ft	Mf/Mr = 0.15
Deflection:				
Interior Perm	0.00 = < L/999	0.18 = L/360	in	0.00
Live	-0.00 = < L/999	0.18 = L/360	in	0.03
Total	-0.00 = < L/999	0.27 = L/240	in	0.02
Cantil. Perm	0.00 = < L/999	0.17 = L/180	in	0.00
Live	0.02 = < L/999	0.17 = L/180	in	0.10
Total	0.02 = < L/999	0.25 = L/120	in	0.07
Bare Defl'n	0.02 = < L/999	0.17 = L/180	in	0.11
Vibration	Lmax = 5'-5.1	Lv = 16'-8.5	ft	0.32
Defl'n	= 0.005	= 0.079	in	0.06

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#3
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
Mr-	4824	1.00	1.00	-	1.000	-	-	-	#3
EI	218.1 million		-	-	-	-	-	-	#3

CRITICAL LOAD COMBINATIONS:
Shear : LC #3 = 1.25D + (1.0)1.5S
Moment(+) : LC #2 = 1.25D + 1.5L
Moment(-) : LC #3 = 1.25D + (1.0)1.5S
Deflection: LC #1 = 1.0D (permanent)
LC #3 = 1.0D + (0.9)1.0S (live)
LC #3 = 1.0D + (0.9)1.0S (total)
LC #3 = 1.0D + (0.9)1.0S (bare joist)
Bearing : Support 1 - LC #0 = 1.4D
Support 2 - LC #5 = 1.25D + (1.0)1.5S + 1.0L
Support 3 - LC #2 = 1.25D + 1.5L
Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
L=live(usa,occupancy) Ls=live(storage,equipment) f=fire
Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
CALCULATIONS:
Deflection: EIeff = 258e06 lb-in2 K= 4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)



Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis 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 this component based on the design criteria and loadings shown.
7. NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ STAGGERED IN TWO ROWS

T-1803026

Boise Cascade

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

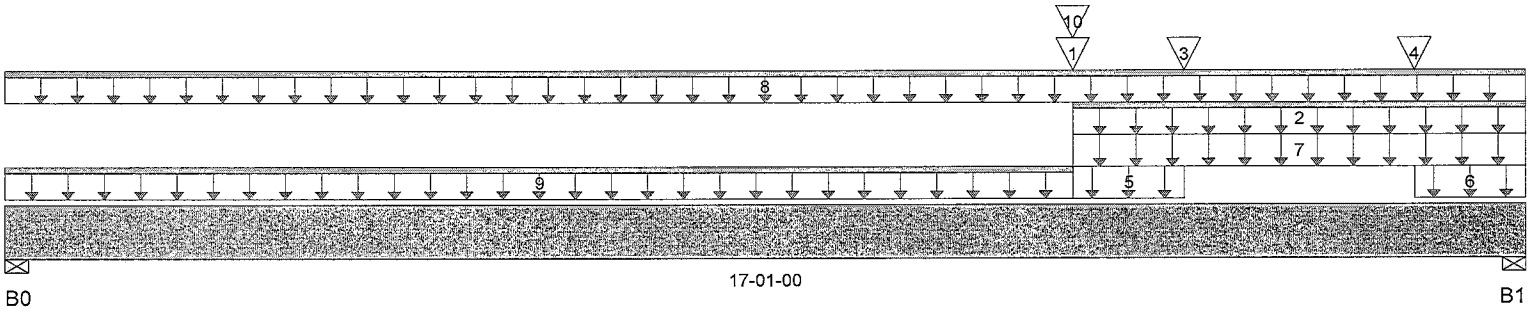
Floor Beam\25A

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October 16, 2017 15:42:50

BC CALC® Design Report

Build 6080		File Name:	247297.bcc
Job Name:	38514	Description:	Designs\25A
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 17-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	551 / 0	643 / 0	417 / 0	
B1, 3-1/2"	1,148 / 0	2,185 / 0	1,680 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	12-00-00	12-00-00	227	195	146		n/a
2		Unf. Lin. (lb/ft)	L	12-00-00	17-01-00	0	100			n/a
3		Conc. Pt. (lbs)	L	13-03-00	13-03-00	187	577	178		n/a
4		Conc. Pt. (lbs)	L	15-10-00	15-10-00	187	577	178		n/a
5		Unf. Area (lb/ft^2)	L	12-00-00	13-03-00	11	10	32		04-07-00
6		Unf. Area (lb/ft^2)	L	15-10-00	17-01-00	11	10	32		04-07-00
7		Unf. Area (lb/ft^2)	L	12-00-00	17-01-00	11	10	32		03-04-00
8		Unf. Lin. (lb/ft)	L	00-00-00	17-01-00	20	8			n/a
9		Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	20	8			n/a
10		Conc. Pt. (lbs)	L	12-00-00	12-00-00	218	207	672		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	15,885 ft-lbs	36,222 ft-lbs	43.9%	5	12-00-00
End Shear	5,078 lbs	17,356 lbs	29.3%	5	16-00-00
Total Load Defl.	L/309 (0.646")	0.831"	77.7%	13	09-03-04
Live Load Defl.	L/590 (0.338")	0.554"	61%	17	09-05-05
Max Defl.	0.646"	1"	64.6%	13	09-03-04
Span / Depth	21	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 5-1/4"	1,838 lbs	16.3%	8.2%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 5-1/4"	5,825 lbs	51.5%	26%	Spruce Pine Fir

Notes

Nail one ply to another with
3 ½" spiral nails @ 12"
o.c, staggered in 2 rows

Site Copy

T-1803027

Boise Cascade

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

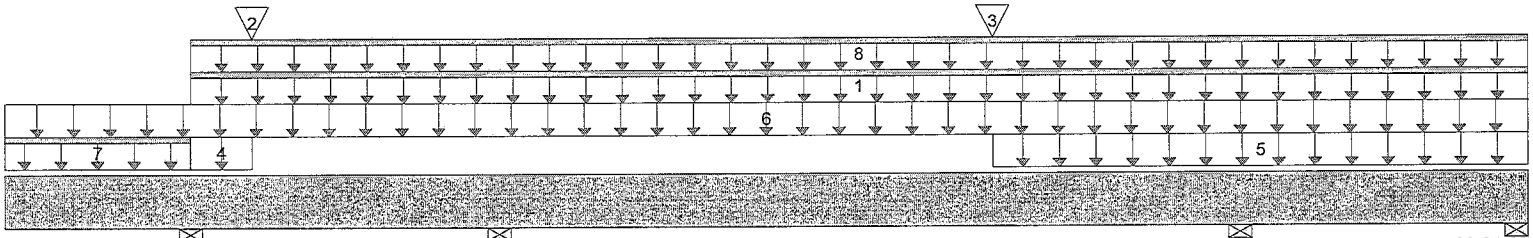
Floor Beam\28

Dry | 4 spans | Left cantilever | 0/12 slope (deg)

March 6, 2018 11:50:11

BC CALC® Design Report

Build 6536		File Name:	247297.bcc
Job Name:	38514	Description:	Designs\28
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 12-04-00

Reaction Summary (Down / Uplift) (lbs)

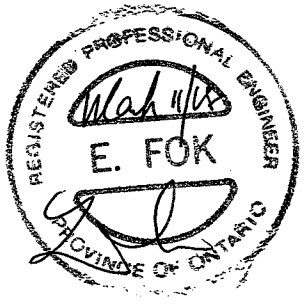
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	32 / 25	379 / 0	2,003 / 0	
B2, 4-1/2"	143 / 0	1,104 / 0	2,904 / 0	
B3, 4-1/2"	145 / 0	1,426 / 0	3,881 / 0	
B4, 3-1/2"	34 / 32	1 / 0	405 / 425	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	01-06-00	12-04-00	0	100			n/a
2		Conc. Pt. (lbs)	L	02-00-00	02-00-00		198	585		n/a
3		Conc. Pt. (lbs)	L	08-00-00	08-00-00		198	585		n/a
4		Unf. Area (lb/ft^2)	L	01-06-00	02-00-00		11	32		06-00-00
5		Unf. Area (lb/ft^2)	L	08-00-00	12-04-00		11	32		06-00-00
6		Unf. Area (lb/ft^2)	L	00-00-00	12-04-00		20	140		03-06-00
7		Unf. Lin. (lb/ft)	L	00-00-00	01-06-00		14	94		n/a
8		Unf. Lin. (lb/ft)	L	01-06-00	12-04-00	27	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,724 ft-lbs	23,220 ft-lbs	11.7%	108	07-05-03
Neg. Moment	-3,728 ft-lbs	-23,220 ft-lbs	16.1%	125	10-00-00
End Shear	867 lbs	11,571 lbs	7.5%	98	11-03-00
Cont. Shear	3,142 lbs	11,571 lbs	27.2%	125	09-00-04
Total Load Defl.	L/999 (0.017")	n/a	n/a	258	07-01-13
Live Load Defl.	L/999 (0.012")	n/a	n/a	351	07-01-13
Total Neg. Defl.	L/999 (-0.002")	n/a	n/a	273	02-11-13
Max Defl.	0.017"	n/a	n/a	258	07-01-13
Span / Depth	7.6	n/a	n/a		00-00-00



Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	3,494 lbs	29.5%	14.9%	Spruce Pine Fir
B2	Wall/Plate	4-1/2" x 3-1/2"	5,807 lbs	59.9%	30.2%	Spruce Pine Fir
B3	Wall/Plate	4-1/2" x 3-1/2"	7,677 lbs	79.2%	40%	Spruce Pine Fir
B4	Wall/Plate	3-1/2" x 3-1/2"	625 lbs	8.3%	4.2%	Spruce Pine Fir

Site Copy

Cautions

Nail one ply to another with
3 ½" spiral nails @ 12"
o.c, staggered in 2 rows

T-1803028

Boise Cascade

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

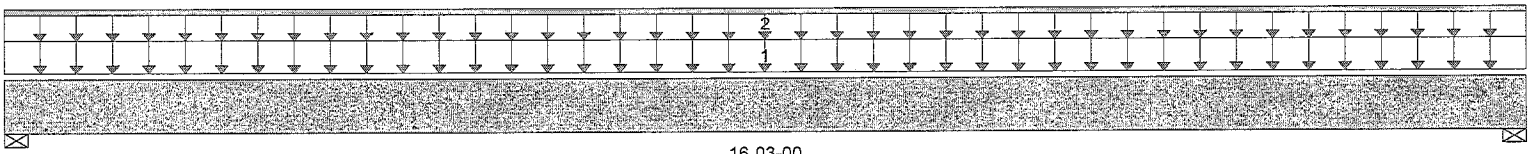
Floor Beam\29

Dry | 1 span | No cantilevers | 0/12 slope (deg)

March 6, 2018 10:36:13

BC CALC® Design Report

Build 6536		File Name:	247297.bcc
Job Name:	38514	Description:	Designs\29
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 16-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,138 / 0	647 / 0		
B1, 3-1/2"	1,137 / 0	647 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	16-03-00	40	20			03-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	16-03-00	20	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,649 ft-lbs	23,220 ft-lbs	41.6%	1	08-01-08
End Shear	2,180 lbs	11,571 lbs	18.8%	1	01-01-00
Total Load Defl.	L/308 (0.614")	0.79"	77.8%	4	08-01-08
Live Load Defl.	L/484 (0.392")	0.526"	74.4%	5	08-01-08
Max Defl.	0.614"	n/a	n/a	4	08-01-08
Span / Depth	19.9	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	2,515 lbs	33.4%	16.8%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2,515 lbs	33.4%	16.8%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

User Notes

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

Site Copy

T-1803029

Boise Cascade

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

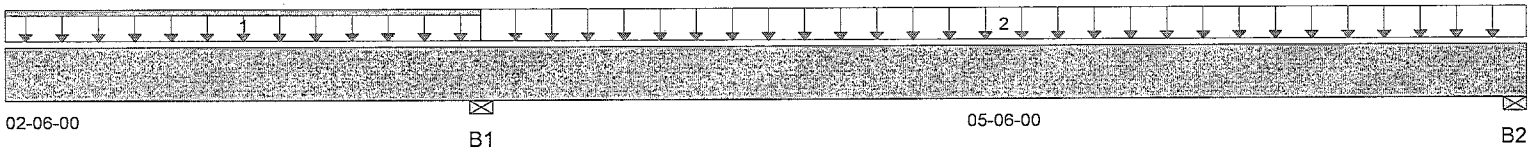
Floor Beam\30

Dry | 2 spans | Left cantilever | 0/12 slope (deg)

March 6, 2018 10:36:23

BC CALC® Design Report

Build 6536		File Name:	247297.bcc
Job Name:	38514	Description:	Designs\30
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 08-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	322 / 0	142 / 0		
B2, 3-1/2"	115 / 42	56 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	70	20			n/a
2		Unf. Area (lb/ft^2)	L	02-06-00	08-00-00	40	20			01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	269 ft-lbs	11,610 ft-lbs	2.3%	3	05-04-01
Neg. Moment	-425 ft-lbs	-11,610 ft-lbs	3.7%	1	02-06-00
End Shear	144 lbs	5,785 lbs	2.5%	3	06-11-00
Cont. Shear	235 lbs	5,785 lbs	4.1%	1	03-05-04
Total Load Defl.	2xL/1,998 (0.01")	n/a	n/a	9	00-00-00
Live Load Defl.	2xL/1,998 (0.009")	n/a	n/a	12	00-00-00
Total Neg. Defl.	2xL/1,998 (-0.004")	n/a	n/a	10	00-00-00
Max Defl.	0.004"	n/a	n/a	10	05-02-12
Span / Depth	6.7	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	661 lbs	17.5%	8.8%	Spruce Pine Fir
B2	Wall/Plate	3-1/2" x 1-3/4"	242 lbs	6.4%	3.2%	Spruce Pine Fir

Cautions

Long Cantilever: Sheathing required on bottom flange and adjacent back span or bracing designed by the design professional of record. Design professional of record must address uplift at supports.

Notes

Design meets User specified (2xL/240) Total load deflection criteria.
Design meets User specified (2xL/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

T-1803030

Boise Cascade

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

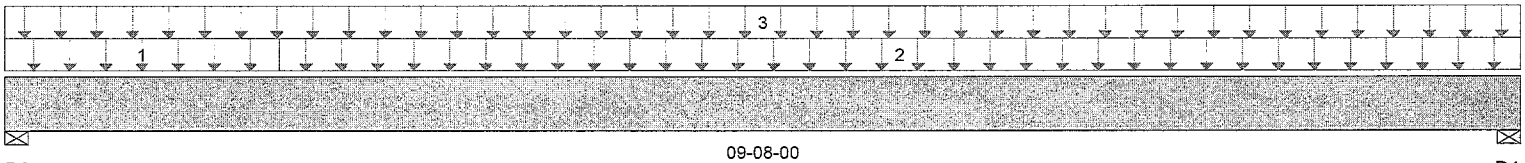
Floor Beam\01

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\01
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,708 / 0	753 / 0		
B1, 3-1/2"	1,708 / 0	692 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	01-09-00	40	20			08-02-00
2		Unf. Area (lb/ft^2)	L	01-09-00	09-08-00	40	15			08-02-00
3		Unf. Area (lb/ft^2)	L	00-00-00	09-08-00	40	15			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,530 ft-lbs	25,408 ft-lbs	0.3	1	04-10-03
End Shear	2,681 lbs	11,571 lbs	0.23	1	01-01-00
Total Load Defl.	L/686 (0.161")	0.46"	0.35	4	04-10-03
Live Load Defl.	L/999 (0.114")	n/a	n/a	5	04-10-03
Span / Depth	11.6	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	3,503 lbs	0.46	0.23	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3,427 lbs	0.45	0.23	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS
@ 12" O.C., STAGGERED IN TWO ROWS (TOP LOADED)

REGISTERED PROFESSIONAL ENGINEER
May 9/13
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150502

Boise Cascade

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

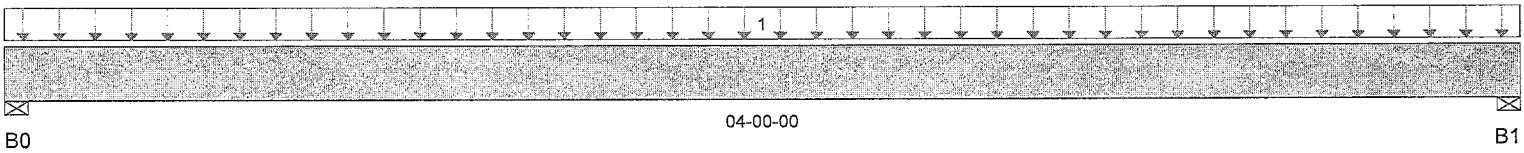
Floor Beam\02

BC CALC® Design Report

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\02
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	280 / 0	115 / 0		
B1, 3-1/2"	280 / 0	115 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	04-00-00	40	15			03-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	442 ft-lbs	12,704 ft-lbs	0.03	1	02-00-00
Shear	258 lbs	5,785 lbs	0.04	1	01-01-00
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	02-00-00
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-00-00
Span / Depth	4.5	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	563 lbs	0.15	0.08	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	563 lbs	0.15	0.08	Spruce Pine Fir

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.\n\nBC CALC®, BC FRAMER® , AJS™, ALLJOIST® , BC RIM BOARD™, BCI® , BOISE GLULAM™, SIMPLE FRAMING SYSTEM® , VERSA-LAM®, VERSA-RIM PLUS® , VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150502

Boise Cascade

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

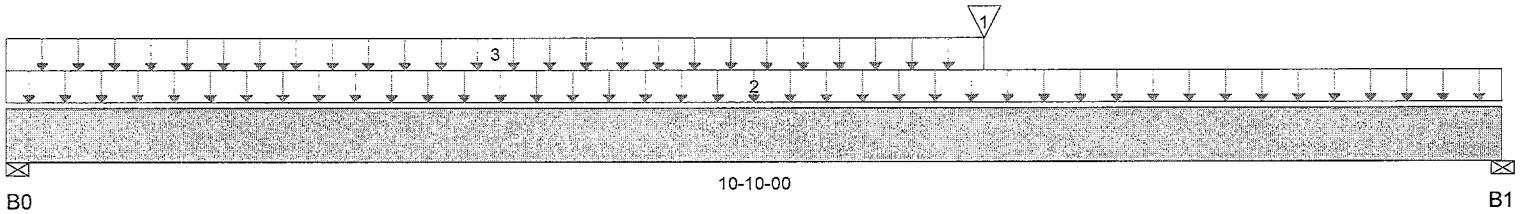
Floor Beam\03

BC CALC® Design Report

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\03
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 10-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	312 / 0	156 / 0		
B1, 1-3/4"	302 / 0	163 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	07-01-00	07-01-00	208	115			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	10-10-00	40	15			00-06-00
		Unf. Area (lb/ft^2)	L	00-00-00	07-01-00	40	15			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,094 ft-lbs	12,704 ft-lbs	0.16	1	06-08-08
End Shear	614 lbs	5,785 lbs	0.11	1	09-10-12
Total Load Defl.	L/999 (0.113")	n/a	n/a	4	05-07-00
Live Load Defl.	L/999 (0.074")	n/a	n/a	5	05-07-00
Span / Depth	13.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	663 lbs	0.18	0.09	Spruce Pine Fir
B1	Wall/Plate	1-3/4" x 1-3/4"	657 lbs	0.35	0.18	Spruce Pine Fir

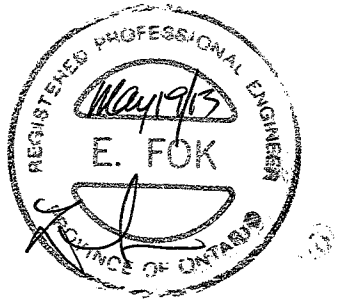
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

Disclosure



T-1505029

Boise Cascade

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

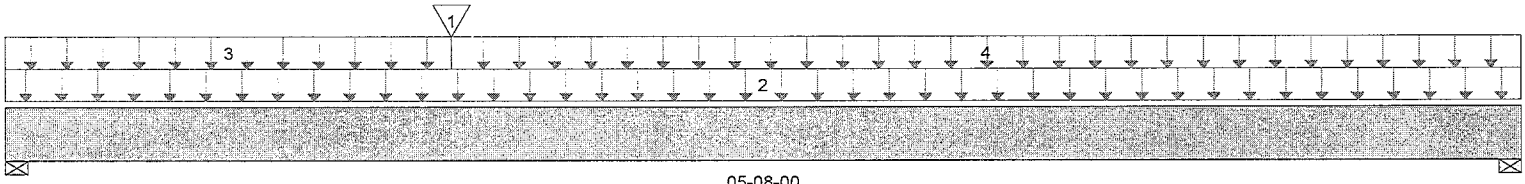
Floor Beam\04

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\04
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,529 / 0	629 / 0		
B1, 3-1/2"	1,618 / 0	645 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	01-08-00	01-08-00	312	156			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	05-08-00	40	15			05-10-00
		Unf. Area (lb/ft^2)	L	00-00-00	01-08-00	40	15			03-06-00
		Unf. Area (lb/ft^2)	L	01-08-00	05-08-00	40	15			08-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,034 ft-lbs	25,408 ft-lbs	0.16	1	02-08-09
End Shear	2,271 lbs	11,571 lbs	0.2	1	01-01-00
Total Load Defl.	L/999 (0.028")	n/a	n/a	4	02-09-11
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	02-09-11
Span / Depth	6.6	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	3,081 lbs	0.41	0.21	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3,233 lbs	0.43	0.22	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150530

Boise Cascade

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

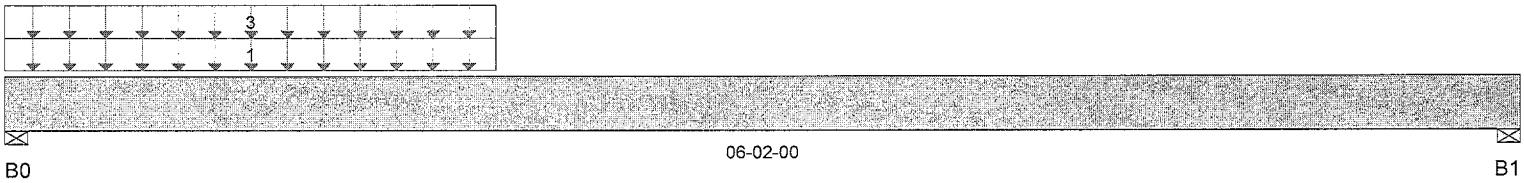
Floor Beam\05

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\05
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 06-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	840 / 0	450 / 0		
B1, 3-1/2"	134 / 0	97 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	02-00-00	40	20			05-10-00
3		Unf. Area (lb/ft^2)	L	00-00-00	02-00-00	40	20			06-04-00

ntrols Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,196 ft-lbs	25,408 ft-lbs	0.05	1	01-08-09
End Shear	689 lbs	11,571 lbs	0.06	1	01-01-00
Total Load Defl.	L/999 (0.008")	n/a	n/a	4	02-09-04
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	02-08-02
Span / Depth	7.2	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1,822 lbs	0.24	0.12	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	321 lbs	0.04	0.02	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

REGISTERED PROFESSIONAL ENGINEER
May 19/15
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150503 1

Boise Cascade

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

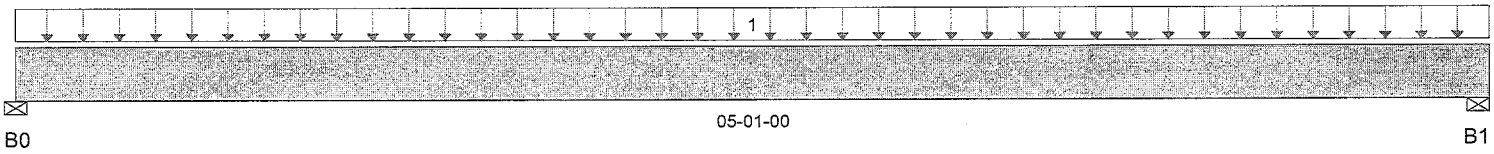
Floor Beam\06

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\06
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 05-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 1-3/4"	49 / 0	42 / 0		
B1, 3-1/2"	52 / 0	45 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	05-01-00	40	15			00-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	146 ft-lbs	25,408 ft-lbs	0.01	1	02-05-14
Shear	79 lbs	11,571 lbs	0.01	1	00-11-04
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	02-05-14
Live Load Defl.	L/999 (0")	n/a	n/a	5	02-05-14
Span / Depth	6	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	1-3/4" x 3-1/2"	127 lbs	0.03	0.02	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	134 lbs	0.02	0.01	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

REGISTERED PROFESSIONAL ENGINEER
May 19/15
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150523

Boise Cascade

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

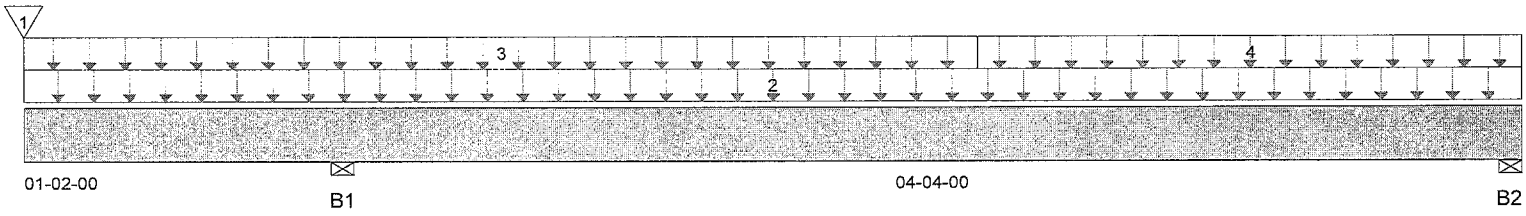
Floor Beam\07

Dry | 2 spans | Left cantilever | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272			
Name:	38514	File Name:	247297
Address:	Green Valley Estates, S42-2	Description:	Designs\07
City, Province, Postal Code:	Bradford, ON	Specifier:	
Customer:	Bayview Wellington	Designer:	SG
Code reports:	CCMC 12472-R	Company:	
		Misc:	



Total Horizontal Product Length = 05-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,488 / 0	628 / 0		
B2, 3-1/2"	958 / 84	361 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	00-00-00	00-00-00	52	45			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	05-06-00	40	15			08-00-00
		Unf. Area (lb/ft^2)	L	00-00-00	03-06-00	40	15			02-06-00
		Unf. Area (lb/ft^2)	L	03-06-00	05-06-00	40	20			02-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,677 ft-lbs	25,408 ft-lbs	0.07	3	03-03-06
Neg. Moment	-728 ft-lbs	-25,408 ft-lbs	0.03	1	01-02-00
End Shear	963 lbs	11,571 lbs	0.08	3	04-05-00
Cont. Shear	1,118 lbs	11,571 lbs	0.1	1	02-01-04
Total Load Defl.	L/999 (0.007")	n/a	n/a	10	03-02-14
Live Load Defl.	L/999 (0.005")	n/a	n/a	13	03-02-14
Total Neg. Defl.	2xL/1,998 (-0.006")	n/a	n/a	10	00-00-00
Span / Depth	5.2	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	3,018 lbs	0.4	0.2	Spruce Pine Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	1,888 lbs	0.25	0.13	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

er Notes

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

Site Copy

T-1505033

Boise Cascade

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

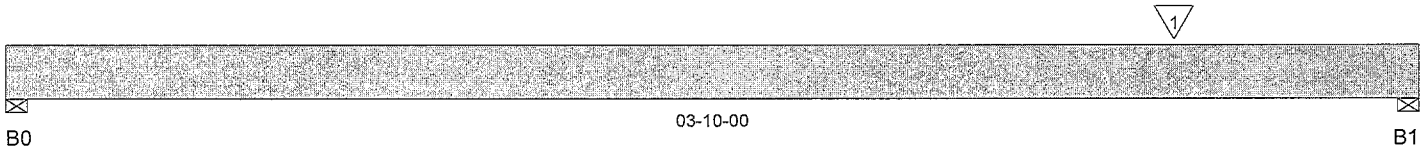
Floor Beam\08

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\08
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 03-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	193 / 0	100 / 0		
B1, 3-1/2"	1,295 / 0	565 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	03-02-00	03-02-00	1,488	628			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,157 ft-lbs	25,408 ft-lbs	0.05	1	03-02-00
Shear	1,047 lbs	11,571 lbs	0.09	1	02-09-00
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	02-01-13
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-01-13
Span / Depth	4.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	415 lbs	0.06	0.03	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2,648 lbs	0.35	0.18	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150303-4

Boise Cascade

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

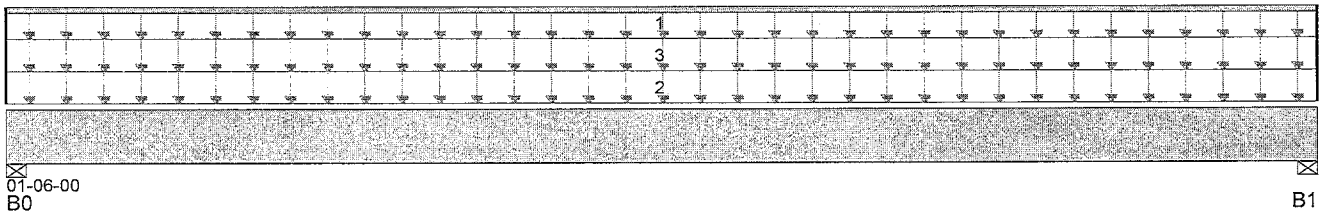
Floor Beam\19

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\19
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 01-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	227 / 0	195 / 0	146 / 0	
B1, 3-1/2"	227 / 0	195 / 0	146 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	01-06-00	0	100			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	01-06-00	11	10	32		06-00-00
		Unf. Area (lb/ft^2)	L	00-00-00	01-06-00	40	15			06-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	119 ft-lbs	25,408 ft-lbs	0	1	00-09-00
End Shear	292 lbs	11,571 lbs	0.03	1	01-01-00
Span / Depth	1.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	657 lbs	0.09	0.04	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	657 lbs	0.09	0.04	Spruce Pine Fir

Notes

Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-150503

Boise Cascade

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

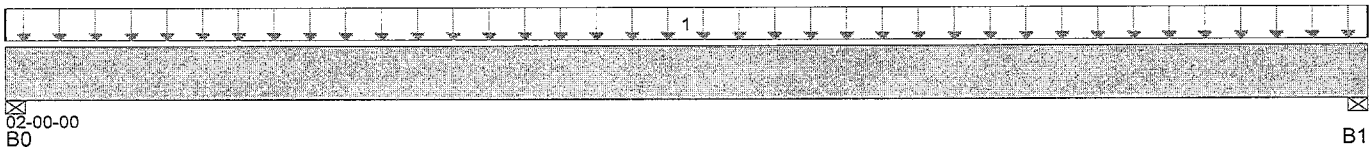
Floor Beam\09

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\09
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 02-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	220 / 0	115 / 0		
B1, 3-1/2"	220 / 0	115 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	02-00-00	40	20			05-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	141 ft-lbs	12,704 ft-lbs	0.01	1	01-00-00
Shear	39 lbs	5,785 lbs	0.01	1	01-01-00
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-00-00
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-00-00
Span / Depth	1.9	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	474 lbs	0.13	0.06	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	474 lbs	0.13	0.06	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

Disclosure

T-1505036

Boise Cascade

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

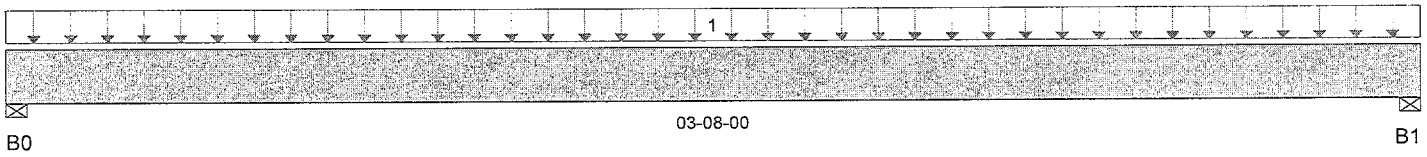
Floor Beam\11

Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-15-15

BC CALC® Design Report

P[illegible] 3272		File Name:	247297.bcc
[illegible] Name:	38514	Description:	Designs\11
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 03-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	477 / 0	247 / 0		
B1, 3-1/2"	477 / 0	247 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	03-08-00	40	20			06-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	719 ft-lbs	12,704 ft-lbs	0.06	1	01-10-00
End Shear	419 lbs	5,785 lbs	0.07	1	01-01-00
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	01-10-00
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	01-10-00
Span / Depth	4.1	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1,024 lbs	0.27	0.14	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1,024 lbs	0.27	0.14	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

Disclosure

REGISTERED PROFESSIONAL ENGINEER
May 19/15
E. FOK
PROVINCE OF ONTARIO

T-150503

Boise Cascade

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

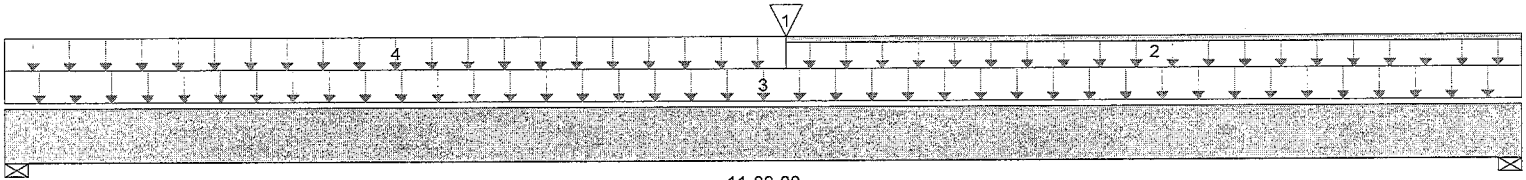
Floor Beam\12

Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-15-15

BC CALC® Design Report

P[illegible] 3272		File Name:	247297.bcc
[illegible]Name:	38514	Description:	Designs\12
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	491 / 0	350 / 0		
B1, 3-1/2"	430 / 0	492 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	05-08-00	05-08-00	477	247			n/a
		Unf. Lin. (lb/ft)	L	05-08-00	11-00-00	0	60			n/a
		Unf. Area (lb/ft^2)	L	00-00-00	11-00-00	40	20			00-08-00
4		Unf. Area (lb/ft^2)	L	00-00-00	05-08-00	40	20			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,476 ft-lbs	12,704 ft-lbs	0.35	1	05-08-00
End Shear	1,111 lbs	5,785 lbs	0.19	1	09-11-00
Total Load Defl.	L/558 (0.227")	0.527"	0.43	4	05-06-04
Live Load Defl.	L/1,008 (0.126")	0.351"	0.36	5	05-06-04
Span / Depth	13.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1,175 lbs	0.31	0.16	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1,260 lbs	0.33	0.17	Spruce Pine Fir

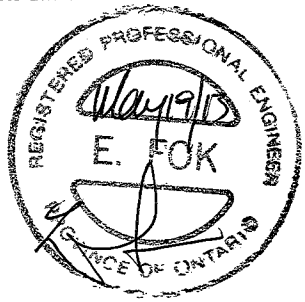
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

[illegible] ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS
[illegible] O.C., STAGGERED IN TWO ROWS

Disclosure



T-1505039

Boise Cascade

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

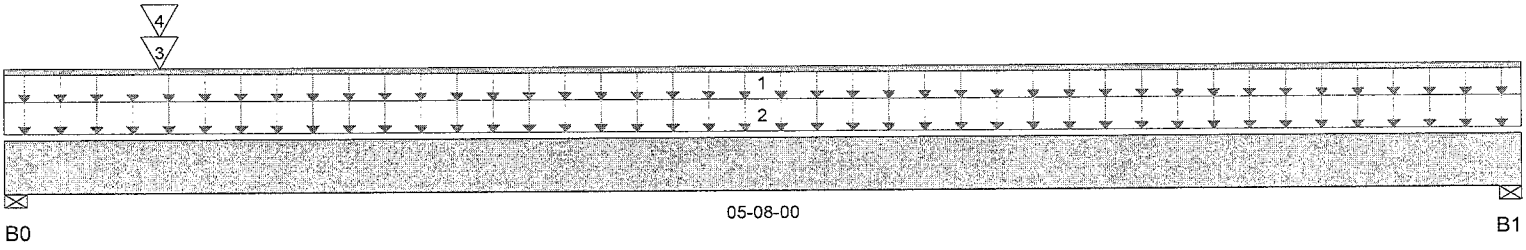
Floor Beam\13

Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-15-15

BC CALC® Design Report

P[illegible] 3272		File Name:	247297.bcc
[illegible]ame:	38514	Description:	Designs\13
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	950 / 0	709 / 0		
B1, 3-1/2"	647 / 0	524 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
		Unf. Lin. (lb/ft)	L	00-00-00	05-08-00	0	60			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	05-08-00	40	20			05-06-00
3		Conc. Pt. (lbs)	L	00-07-00	00-07-00	302	163			n/a
4		Conc. Pt. (lbs)	L	00-07-00	00-07-00	49	52			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,024 ft-lbs	25,408 ft-lbs	0.08	1	02-08-11
End Shear	1,209 lbs	11,571 lbs	0.1	1	01-01-00
Total Load Defl.	L/999 (0.014")	n/a	n/a	4	02-09-06
Live Load Defl.	L/999 (0.008")	n/a	n/a	5	02-09-06
Span / Depth	6.6	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	2,312 lbs	0.31	0.15	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1,625 lbs	0.22	0.11	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

[illegible]r Notes

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

REGISTERED PROFESSIONAL ENGINEER
May 9/15
E. FOK
PROVINCE OF ONTARIO

Site Copy

T-1505.40

Boise Cascade

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

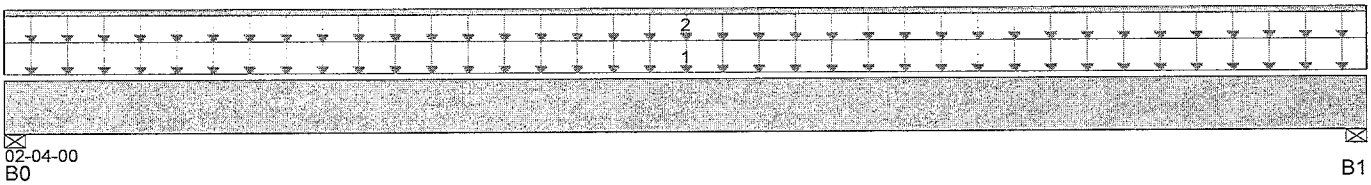
Floor Beam\14

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build	3272	File Name:	247297
Name:	38514	Description:	Designs\14
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 02-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	31 / 0	87 / 0		
B1, 3-1/2"	31 / 0	87 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	02-04-00	40	15			00-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	46 ft-lbs	8,258 ft-lbs	0.01	0	01-02-00
End Shear	9 lbs	3,761 lbs	0	0	01-01-00
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-02-00
Span / Depth	2.4	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	122 lbs	0.05	0.03	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	122 lbs	0.05	0.03	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

Disclosure

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

T-150504 1

Boise Cascade

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

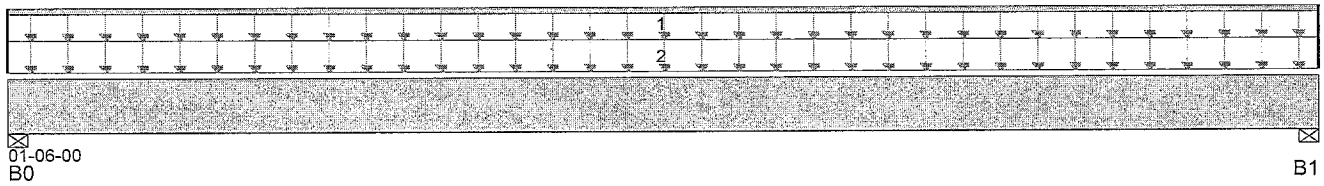
Floor Beam\15

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build	3272	File Name:	247297
Name:	38514	Description:	Designs\15
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 01-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	35 / 0	62 / 0		
B1, 3-1/2"	35 / 0	62 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	01-06-00	0	60			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	01-06-00	40	15			01-02-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	16 ft-lbs	8,258 ft-lbs	0	0	00-09-00
End Shear	38 lbs	3,761 lbs	0.01	0	01-01-00
Span / Depth	1.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	86 lbs	0.04	0.02	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	86 lbs	0.04	0.02	Spruce Pine Fir

Notes

Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

Disclosure

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Boise Cascade

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

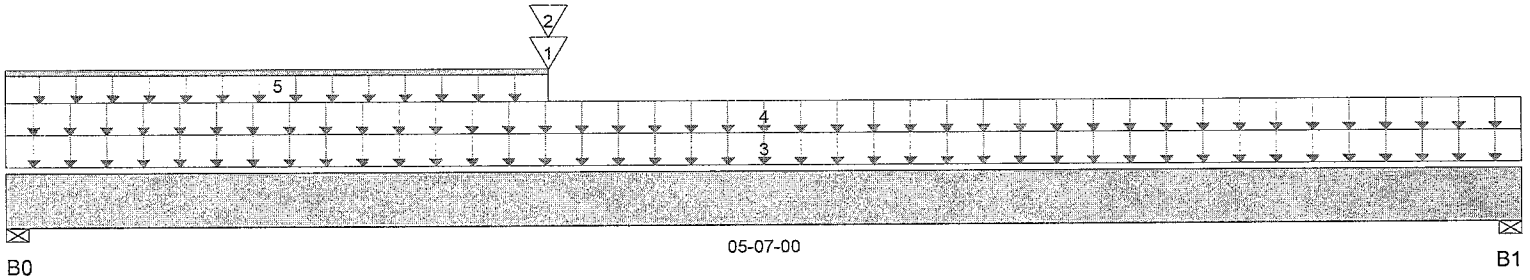
Floor Beam\16

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\16
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 05-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	279 / 0	290 / 0		
B1, 3-1/2"	209 / 0	157 / 0		

Load Summary

Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
	Conc. Pt. (lbs)	L	02-00-00	02-00-00	35	62			n/a
2	Conc. Pt. (lbs)	L	02-00-00	02-00-00	193	100			n/a
3	Unf. Area (lb/ft^2)	L	00-00-00	05-07-00	40	20			00-06-00
4	Unf. Area (lb/ft^2)	L	00-00-00	05-07-00	40	15			00-08-00
5	Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,026 ft-lbs	25,408 ft-lbs	0.04	1	02-00-00
End Shear	585 lbs	11,571 lbs	0.05	1	01-01-00
Total Load Defl.	L/999 (0.006")	n/a	n/a	4	02-07-08
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-08-07
Span / Depth	6.5	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	782 lbs	0.1	0.05	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	510 lbs	0.07	0.03	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

Other Notes

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

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO
May 9/17

Site Copy

T-15050493

Boise Cascade

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

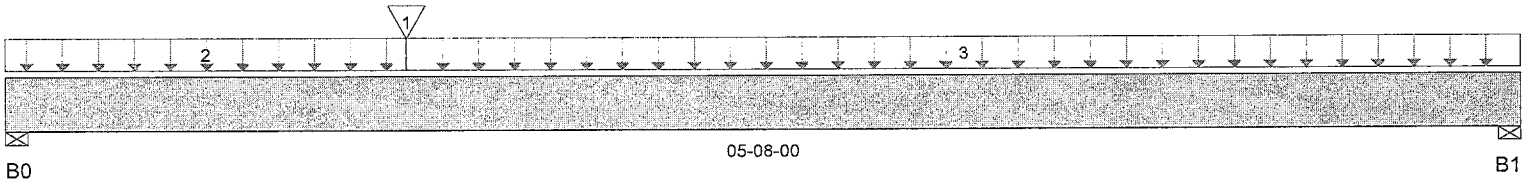
Floor Beam\17

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\17
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	641 / 0	440 / 0		
B1, 3-1/2"	736 / 0	417 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	01-06-00	01-06-00	279	290			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	01-06-00	40	15			01-02-00
3		Unf. Area (lb/ft^2)	L	01-06-00	05-08-00	40	20			06-02-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,134 ft-lbs	12,704 ft-lbs	0.17	1	02-07-05
End Shear	1,406 lbs	5,785 lbs	0.24	1	01-01-00
Total Load Defl.	L/999 (0.03")	n/a	n/a	4	02-09-01
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	02-10-03
Span / Depth	6.6	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1,512 lbs	0.4	0.2	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1,626 lbs	0.43	0.22	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

Disclosure

T-150504Q

Boise Cascade

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

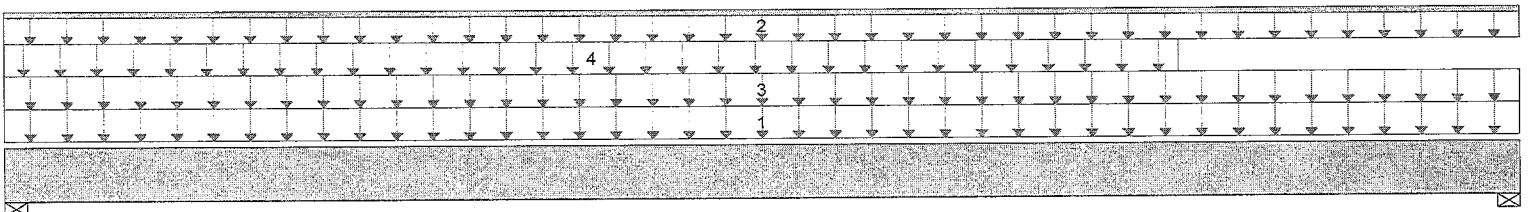
Floor Beam\18

Dry | 1 span | No cantilevers | 0/12 slope (deg)

October-26-14

BC CALC® Design Report

Build 3272		File Name:	247297
Name:	38514	Description:	Designs\18
Address:	Green Valley Estates, S42-2	Specifier:	
City, Province, Postal Code:	Bradford, ON	Designer:	SG
Customer:	Bayview Wellington	Company:	
Code reports:	CCMC 12472-R	Misc:	



Total Horizontal Product Length = 05-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,176 / 0	655 / 0		
B1, 3-1/2"	961 / 0	574 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	05-02-00	40	20			03-07-00
		Unf. Lin. (lb/ft)	L	00-00-00	05-02-00	0	60			n/a
3		Unf. Area (lb/ft^2)	L	00-00-00	05-02-00	40	15			02-06-00
4		Unf. Area (lb/ft^2)	L	00-00-00	04-00-00	40	15			05-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,720 ft-lbs	12,704 ft-lbs	0.21	1	02-06-08
End Shear	1,527 lbs	5,785 lbs	0.26	1	04-01-00
Total Load Defl.	L/999 (0.031")	n/a	n/a	4	02-07-01
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	02-07-01
Span / Depth	5.9	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2,583 lbs	0.69	0.35	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2,158 lbs	0.57	0.29	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

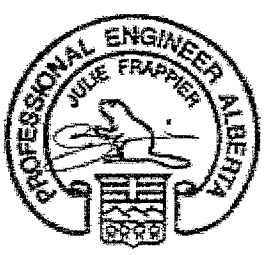
User Notes

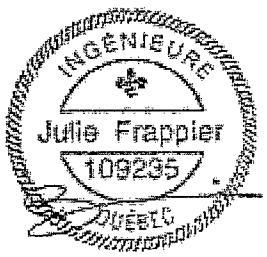
NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS
O.C., STAGGERED IN TWO ROWS

Disclosure

REGISTERED PROFESSIONAL ENGINEER
L. FOK
PROVINCE OF ONTARIO

T-150504J





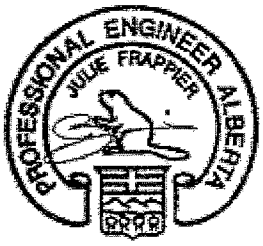
Maximum Floor Spans

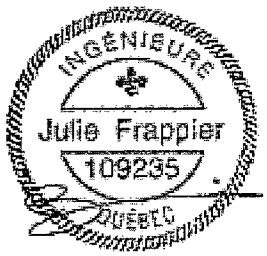
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/360 Deflection Limit
5/8" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	N/A	17'-1"	15'-5"	14'-6"	N/A
	NI-40x	17'-11"	16'-11"	16'-4"	N/A	18'-5"	17'-4"	16'-7"	N/A
	NI-60	18'-2"	17'-1"	16'-6"	N/A	18'-7"	17'-6"	16'-10"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-5"	N/A	20'-2"	18'-8"	17'-6"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-3"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

1. Maximum clear span applicable to simple-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, a live load deflection limit of L/360 and a total load deflection limit of L/240.
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. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end 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 uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.





Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/360 Deflection Limit
5/8" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	13'-11"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

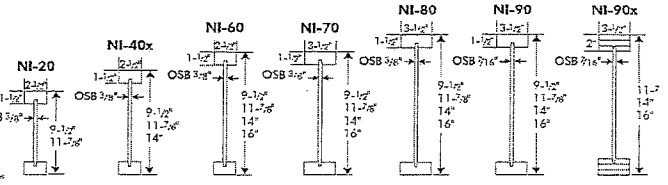
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-4"	14'-10"	13'-11"	N/A	16'-4"	14'-10"	13'-11"	N/A
	NI-40x	17'-11"	16'-10"	15'-7"	N/A	18'-5"	16'-10"	15'-7"	N/A
	NI-60	18'-2"	17'-1"	16'-1"	N/A	18'-7"	17'-2"	16'-1"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	17'-10"	16'-9"	N/A	19'-8"	17'-10"	16'-9"	N/A
	NI-40x	21'-0"	19'-6"	17'-9"	N/A	21'-7"	19'-6"	17'-9"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-4"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-3"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-1"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 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, a live load deflection limit of L/360 and a total load deflection limit of L/240.
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. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end 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 uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

NORDIC ENGINEERED WOOD

www.nordicewp.com



S-P-F No.2	1950f MSR	2100f MSR	1950f MSR	2100f MSR	2400f 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	23 pieces per unit

efer to the *Installation Guide for Residential Floors* for additional information.
:CMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

:ULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into 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 longest 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-lik 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'-5"	---	---	---	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	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'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-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'-5"	8'-6"	10'-3"	11'-4"	---	---	---	---	---	---
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---	---	---	---
14"	NI-40x	0'-7"	0'-8"	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'-8"	3'-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-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"	---	---	---
	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'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"	11'-9"	13'-9"	15'-4"
	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 supports 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

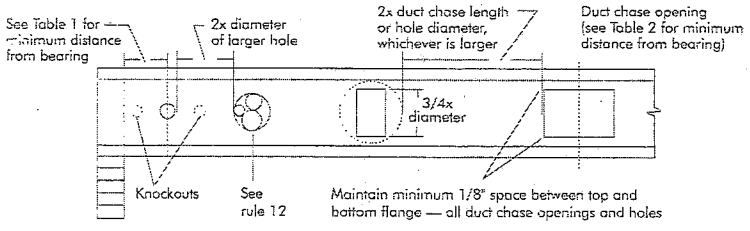
Simple Span Only

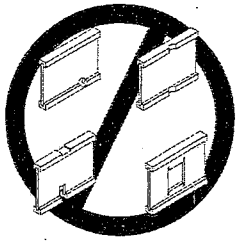
Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)								
		Duct Chase Length (in.)								
		8	10	12	14	16	18	20	22	24
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	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'-0"	9'-3"	9'-9"	10'-3"	11'-0"
	NI-70	7'-1"	7'-4"	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-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"
	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'-8"
	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'-3"
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"
	NI-90x	9'-4"	9'-9"	10'-3"	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-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	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 liv 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 a 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 16 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

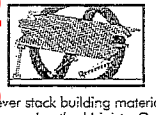
Never drill, cut or notch the flange, or over-cut the web.

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 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.

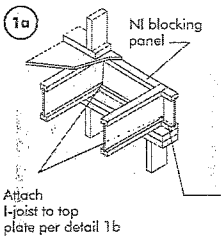
CHANTIERS CHIBOUGAMAU

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.

1a

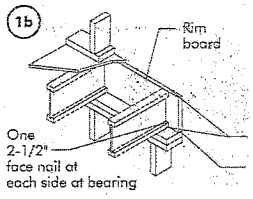


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*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.

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

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.

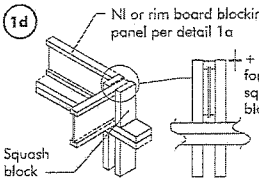
One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

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.

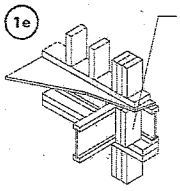
1d



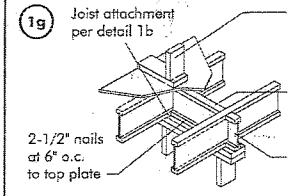
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b

1e



1g



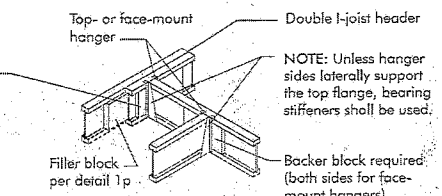
1h Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum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

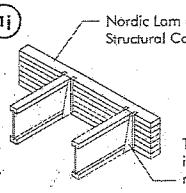
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

** 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".



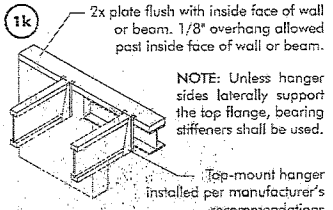
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

1i

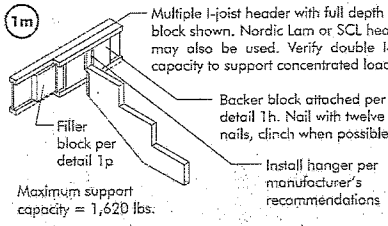


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

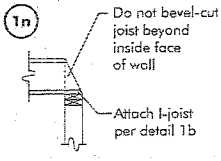
1k



1m

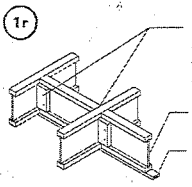


1n

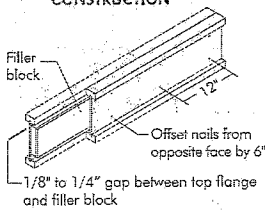


NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1r



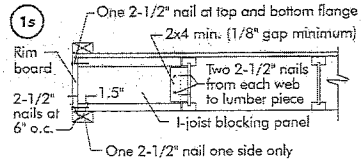
1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION



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"

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.

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.

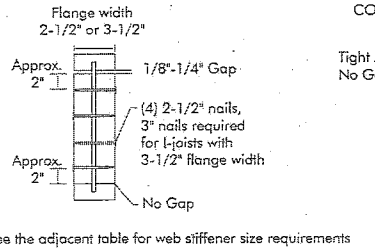
WEB STIFFENERS

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



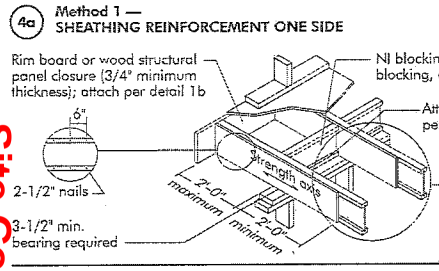
See the adjacent table for web stiffener size requirements

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"	1-1/4" x 2-5/16" minimum width

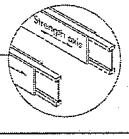
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

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.



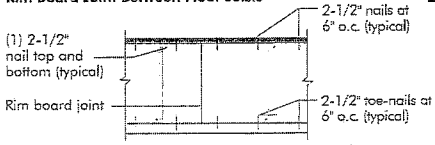
Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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.

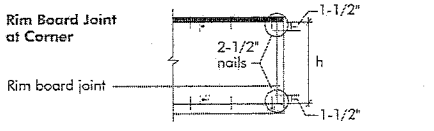
RIM BOARD INSTALLATION DETAILS

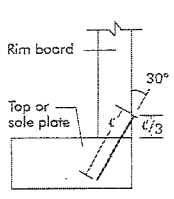
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists



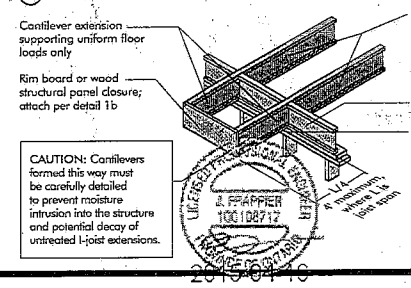
Rim Board Joint at Corner





CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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



CAUTION: Cantilevers formed this way must be carefully detailed to prevent moisture intrusion into the structure and potential decay of untreated I-joist extensions.

Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

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

Full depth backer block with 1/8" gap between block and top flange of I-joist. See detail 1h. Nail with 2 rows of 3" nails at 6" o.c. and clinch.

2x8 min. Nail to backer block and joist with 2 rows of 3" nails at 6" o.c. and clinch. (Cantilever nails may be used to attach backer block if length of nail is sufficient to allow clinching.)

Cantilever extension supporting uniform floor loads only

Lumber or wood structural panel closure

3-1/2" min. bearing required

I-joist, or rim board

Attach I-joists to plate at all supports per detail 1b

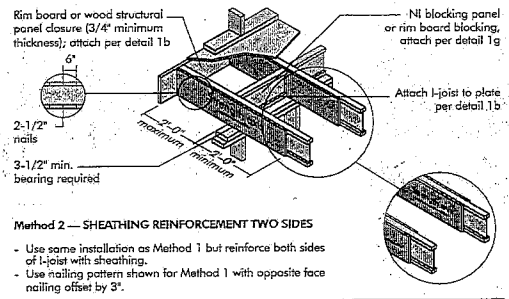
1-1/2 x L 4" minimum

L/4 maximum, where L is length of cantilever

Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

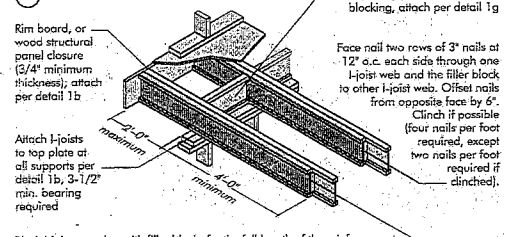


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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 3/4") 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.

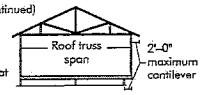
4b Alternate Method 2 — DOUBLE I-JOIST

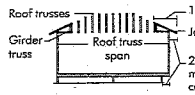


Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

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 26 ft. shall be permitted to be used.

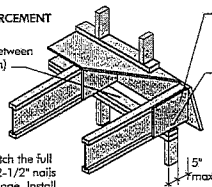
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24
9-1/2"	26	N	N	2	X	N	1	2	X	1	2	X	X
	28	N	N	X	X	N	2	X	X	2	X	X	X
	30	N	1	X	X	N	2	X	X	2	X	X	X
	32	N	1	X	X	1	2	X	X	2	X	X	X
	34	N	2	X	X	1	2	X	X	X	X	X	X
	36	1	2	X	X	2	X	X	X	X	X	X	X
11-7/8"	26	N	N	N	1	N	N	1	2	N	1	2	X
	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X
	34	N	1	2	X	N	2	X	X	2	X	X	X
	36	N	2	X	X	1	2	X	X	2	X	X	X
	38	1	2	X	X	2	X	X	X	X	X	X	X
14"	26	N	N	N	N	N	N	N	1	N	N	1	2
	28	N	N	N	1	N	N	1	2	N	1	2	X
	30	N	N	1	2	N	N	1	2	N	1	2	X
	32	N	N	1	2	N	1	2	X	N	1	2	X
	34	N	1	2	X	N	1	2	X	1	2	X	X
	36	N	1	2	X	N	2	X	X	1	2	X	X
	38	N	2	X	X	1	2	X	X	2	X	X	X
	40	1	2	X	X	2	X	X	X	2	X	X	X
16"	26	N	N	N	N	N	N	N	N	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	1	2
	30	N	N	N	1	N	N	1	2	N	N	1	2
	32	N	N	1	2	N	N	1	2	N	1	2	X
	34	N	N	1	2	N	1	2	X	N	1	2	X
	36	N	1	2	X	N	1	2	X	1	2	X	X
	38	N	1	2	X	N	2	X	X	1	2	X	X
	40	N	2	X	X	1	2	X	X	2	X	X	X
	42	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 = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-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 lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge 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)

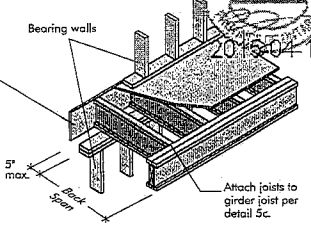
5a SHEATHING REINFORCEMENT



Provide full depth blocking between joists over support (not shown)

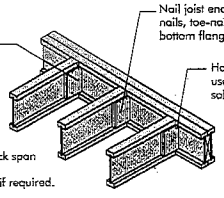
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

5b SET-BACK DETAIL



Notes:
- Provide full depth blocking between joists over support (not shown for clarity)
- Attach I-joist to plate at all supports per detail 1b.
- 3-1/2" minimum I-joist bearing required.

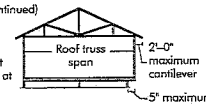
5c SET-BACK CONNECTION

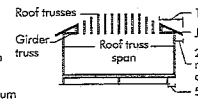


Notes:
- Verify girder joist capacity if the back span exceeds the joist spacing.
- Attach double I-joist per detail 1p, if required.

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 26 ft. shall be permitted to be used.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf — JOIST SPACING (in.) 12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	X	X	X	X
	30	2	X	X	X	2	X	X	X	X	X	X	X
	32	2	X	X	X	X	X	X	X	X	X	X	X
	34	2	X	X	X	X	X	X	X	X	X	X	X
	36	2	X	X	X	X	X	X	X	X	X	X	X
11-7/8"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	2	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	X	X	X	2	X	X	X	2	X	X	X
	36	1	X	X	X	2	X	X	X	2	X	X	X
	38	2	X	X	X	X	X	X	X	X	X	X	X
14"	26	N	2	X	X	N	2	X	X	1	X	X	X
	28	N	2	X	X	1	2	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	2	X	X	X	2	X	X	X	2	X	X	X
	38	2	X	X	X	X	X	X	X	X	X	X	X
	40	2	X	X	X	X	X	X	X	X	X	X	X
16"	26	N	2	X	X	N	2	X	X	N	2	X	X
	28	N	2	X	X	1	2	X	X	1	2	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	2	X	X	X	2	X	X	X	2	X	X	X
	36	2	X	X	X	2	X	X	X	2	X	X	X
	38	2	X	X	X	2	X	X	X	2	X	X	X
	40	2	X	X	X	2	X	X	X	2	X	X	X
	42	2	X	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.
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   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-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 lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge 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.

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 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 shall be 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)													Span Adjustment Factor
		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'-0"	4'-3"	5'-8"	6'-0"									5'-6"
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"									6'-1"
	NI-40	0'-7"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"									6'-9"
	NI-60	0'-7"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"									6'-9"
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"									7'-7"
	NI-80	2'-0"	3'-4"	5'-0"	6'-7"	8'-5"	8'-9"									8'-0"
	NI-90	2'-0"	3'-4"	5'-0"	6'-7"	8'-5"	8'-9"									8'-0"
11-7/8"	NI-20	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	5'-6"
	NI-40x	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	6'-1"
	NI-40	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	6'-9"
	NI-60	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	6'-9"
	NI-70	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	7'-7"
	NI-80	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	8'-0"
	NI-90	0'-7"	0'-8"	1'-1"	2'-3"	3'-0"	3'-2"	4'-0"	4'-4"	4'-8"	5'-4"	5'-9"	6'-1"	6'-8"	7'-0"	8'-0"
14"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	4'-2"	4'-6"	5'-2"	6'-0"	6'-4"	8'-3"	10'-2"	6'-1"
	NI-40	0'-7"	0'-8"	1'-0"	2'-0"	3'-4"	3'-8"	4'-8"	5'-2"	5'-6"	6'-2"	7'-2"	8'-0"	9'-8"	11'-9"	6'-9"
	NI-60	0'-7"	0'-8"	1'-0"	2'-0"	3'-4"	3'-8"	4'-8"	5'-2"	5'-6"	6'-2"	7'-2"	8'-0"	9'-8"	11'-9"	6'-9"
	NI-70	0'-7"	0'-8"	1'-0"	2'-0"	3'-4"	3'-8"	4'-8"	5'-2"	5'-6"	6'-2"	7'-2"	8'-0"	9'-8"	11'-9"	7'-7"
	NI-80	0'-7"	0'-8"	1'-0"	2'-0"	3'-4"	3'-8"	4'-8"	5'-2"	5'-6"	6'-2"	7'-2"	8'-0"	9'-8"	11'-9"	8'-0"
	NI-90	0'-7"	0'-8"	1'-0"	2'-0"	3'-4"	3'-8"	4'-8"	5'-2"	5'-6"	6'-2"	7'-2"	8'-0"	9'-8"	11'-9"	8'-0"
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-10"	4'-2"	4'-8"	5'-4"	6'-0"	6'-8"	7'-0"	8'-5"	9'-8"	9'-10"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-0"	7'-8"	8'-6"	9'-2"	9'-8"	10'-8"	12'-0"	10'-4"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-8"	6'-9"	7'-7"	8'-3"	9'-2"	9'-10"	10'-5"	12'-3"	12'-9"	10'-8"
	NI-90	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-8"	6'-9"	7'-7"	8'-3"	9'-2"	9'-10"	10'-5"	12'-3"	12'-9"	10'-8"
18"	NI-60	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	4'-2"	4'-6"	5'-2"	6'-0"	6'-4"	8'-3"	10'-2"	9'-10"
	NI-70	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	4'-2"	4'-6"	5'-2"	6'-0"	6'-4"	8'-3"	10'-2"	10'-4"
	NI-80	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	4'-2"	4'-6"	5'-2"	6'-0"	6'-4"	8'-3"	10'-2"	10'-8"
	NI-90	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	4'-2"	4'-6"	5'-2"	6'-0"	6'-4"	8'-3"	10'-2"	10'-8"

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:

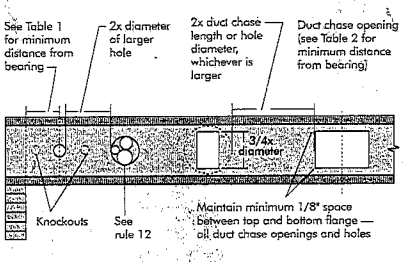
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Floor Spans), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

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

Where:
- $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in) — Duct chase length (in)							
		8"	10"	12"	14"	16"	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	4'-4"	4'-8"	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-5"	7'-9"
	NI-40	5'-1"	5'-5"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"
	NI-60	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-90	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
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'-5"
	NI-40	7'-1"	7'-7"	8'-0"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"
	NI-60	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"
	NI-70	7'-1"	7'-7"	8'-0"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"
	NI-80	7'-8"	7'-11"	8'-4"	8'-8"	9'-0"	9'-5"	9'-9"	10'-2"	10'-7"
	NI-90	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'-9"	12'-8"
	NI-40	8'-7"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	13'-0"
	NI-60	8'-7"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	13'-0"
	NI-70	8'-7"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	13'-0"
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"
	NI-90x	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"
16"	NI-60	9'-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'-8"	12'-2"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	NI-90x	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"

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-joists four feet in 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 two lines 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]

Maximum Joist Spacing (in)	Minimum Panel Thickness (in)	Nail Size and Type — Common Wire or Spiral Nail	Ring Thread Nail	Staples	Maximum Spacing of Fasteners — Panel Edges	Intermediate Supports
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"

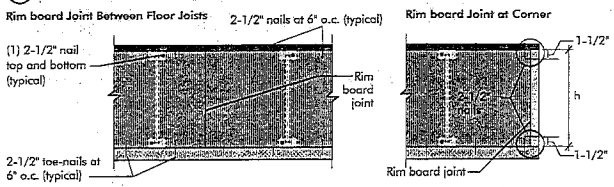
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

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

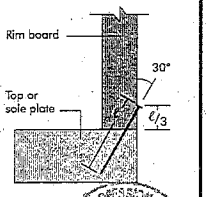
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

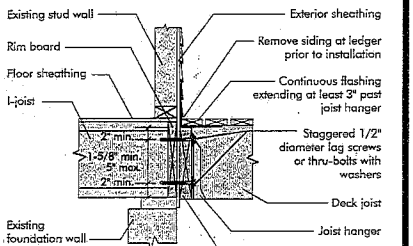
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

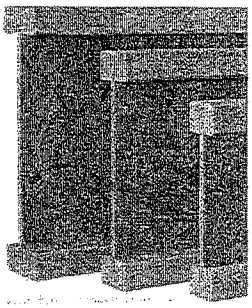


8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

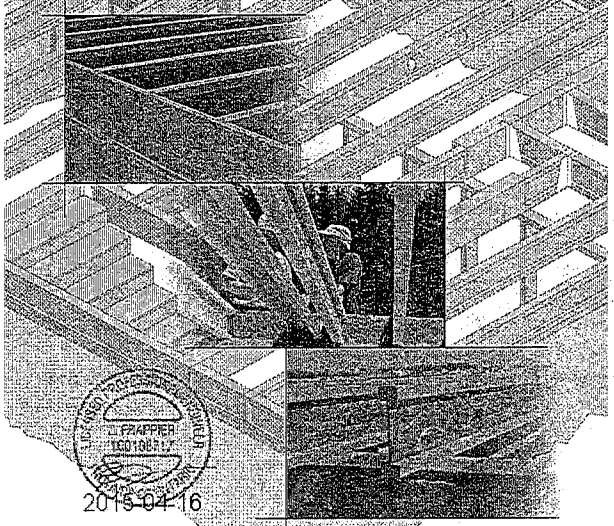




N-G301 / November 2014

NORDIC
ENGINEERED WOOD

INSTALLATION GUIDE
FOR RESIDENTIAL FLOORS



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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.

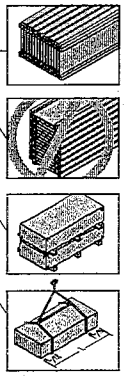
Avoid Accidents by Following these Important Guidelines:

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 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.

STORAGE AND HANDLING GUIDELINES

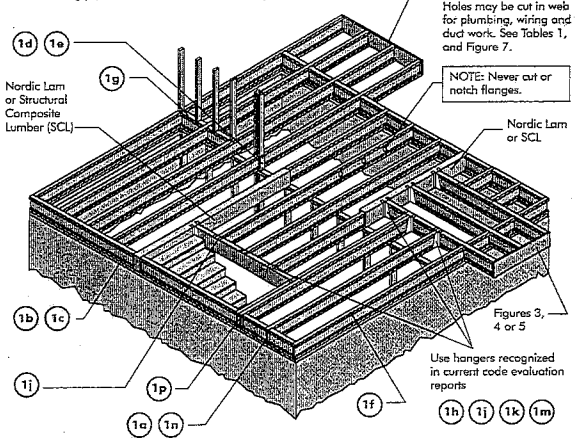
1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists 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

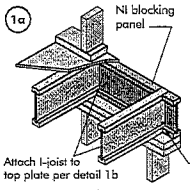
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in 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 track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge **may never** be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at 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 to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" 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.

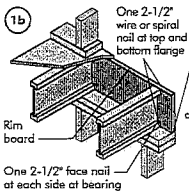
1a



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.

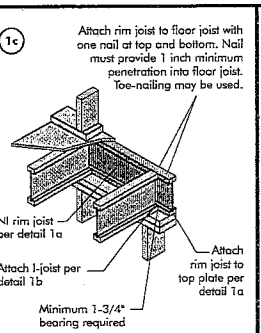
1b



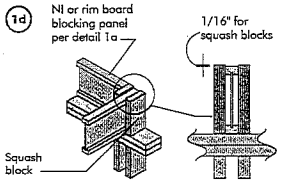
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*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.

1c



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	4,300	6,600

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

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 CGBS-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

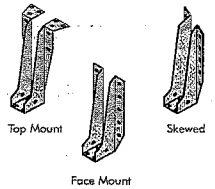
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS
SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple Spans On centre spacing				Multiple Spans On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-4"	14'-10"	14'-7"
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"
	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-1"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	16'-10"
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-0"
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7"
	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"
	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
14"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"
	NI-70	21'-7"	20'-0"	19'-2"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	21'-6"
	NI-90	22'-5"	20'-8"	19'-9"	19'-10"	24'-9"	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-0"
16"	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	21'-10"
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"
	NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-1"

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.



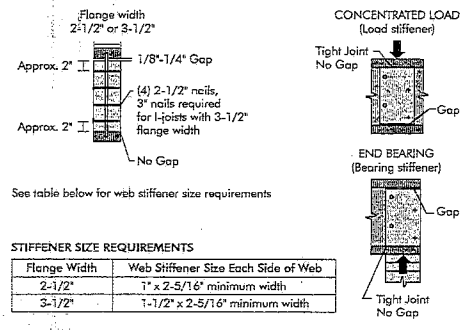
WEB STIFFENERS

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

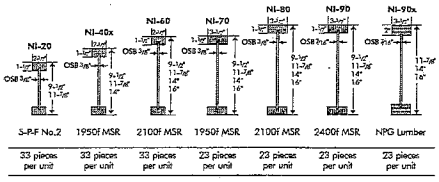


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

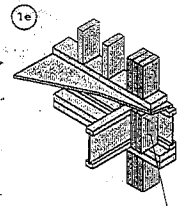
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES

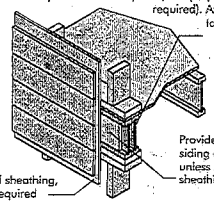


Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

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.

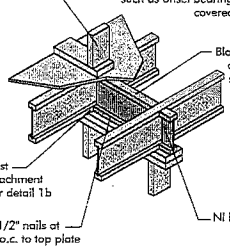


1e — Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

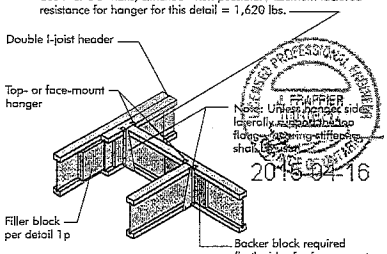


1f — Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

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.



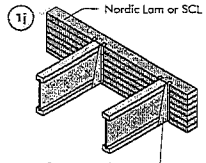
1g — Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.



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.

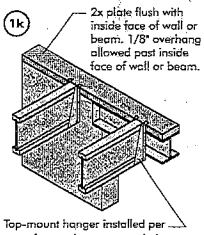
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

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



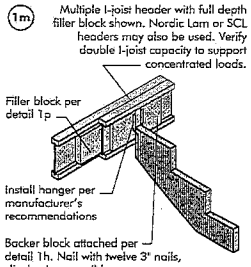
1j — For nailing schedules for multiple beams, see the manufacturer's recommendations.

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



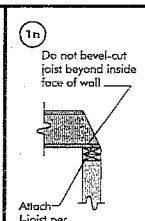
1k — 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

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.



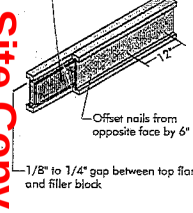
1n — Do not bevel-cut joist beyond inside face of wall

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

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".

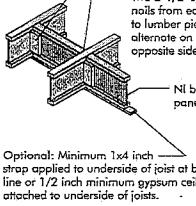


1p

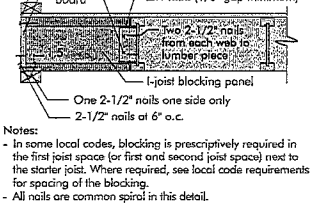
Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3" 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



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.