

		Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	13
J1DJ	14-00-00	9 1/2" NI-40x	2	6
J2	12-00-00	9 1/2" NI-40x	1	12
J2DJ	12-00-00	9 1/2" NI-40x	2	4
J3	10-00-00	9 1/2" NI-40x	1	2
J4	6-00-00	9 1/2" NI-40x	1	3
J5	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	2
J7	18-00-00	9 1/2" NI-80	1	23
B2	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary						
Qty	Manuf	Product				
4	H1	IUS2.56/9.5				
13	H1	IUS2.56/9.5				
5	H1	IUS2.56/9.5				
6	H1	IUS2.56/9.5				
2	H1	IUS2.56/9.5				
1	H2	HU310-2				
1	H2	HU310-2				
2	H3	IUS1.81/10				



FROM PLAN DATED: MAR 2021
BUILDER: ROYAL PINE HOMES

SITE: CENTREFIELD

MODEL: 38-12 ELEVATION: A

LOT:

CITY: WATERDOWN

SALESMAN: WILL GARCIA

DESIGNER: LBV **REVISION:** lbv

NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F
REQ'D UNDER INTERIOR UNIFORM LOAD
BEARING WALLS. MULTIPLE SQUASH
BLOCKS REQ'D UNDER CONCENTRATED
LOADS. SEE FIGURE 1. CANTILEVERED
JOISTS INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING AND
RIMBOARD CLOSURE AT ENDS. SEE
FIGURES 4 & 5 FOR REINFORCEMENT
REQUIREMENTS. FOR HOLES INCLUDING
DUCT CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE
APPLICATION AS PER O.B.C 9.30.6.

DATE: 2021-05-20

1st FLOOR

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft²

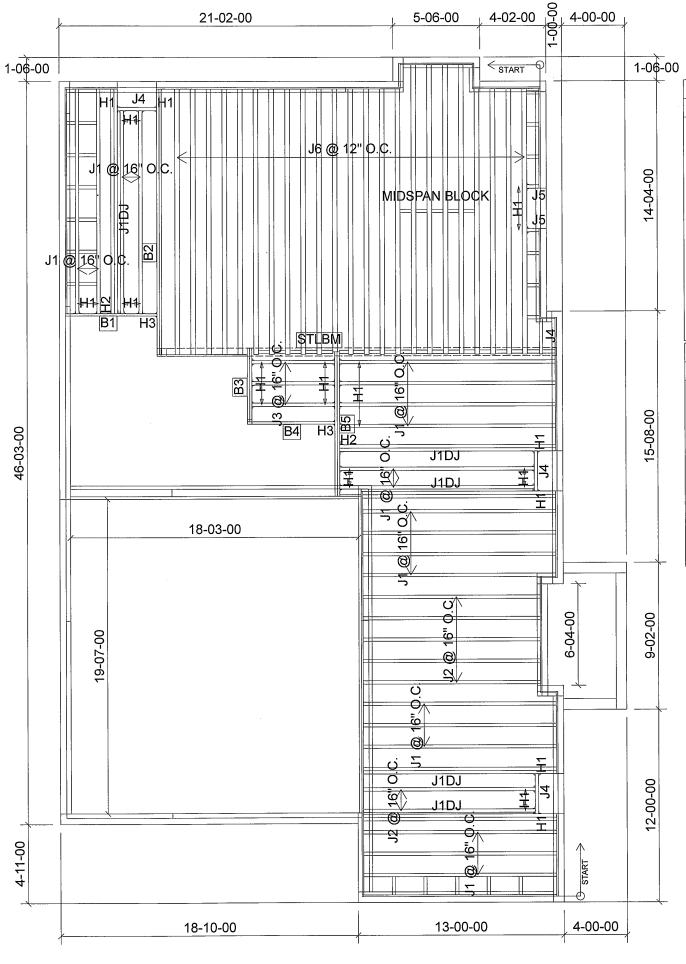
DITE CITY OF RICHMOND HILL DID/ft BUILDING DIVISION

TILE LOAD: 20.0 lb/ft²

03/08/2022

SUBFLOOR: 3/4" GLUED AND NAILED RECEIVED

Per:___joshua.nabua



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	20
J1DJ	14-00-00	9 1/2" NI-40x	2	10
J2	12-00-00	9 1/2" NI-40x	1	7
J3	6-00-00	9 1/2" NI-40x	1	3
J4	4-00-00	9 1/2" NI-40x	1	4
J5	2-00-00	9 1/2" NI-40x	1	2
J6	18-00-00	9 1/2" NI-80	1	23
B2	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
В3	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary					
Qty	Manuf	Product			
4	H1	IUS2.56/9.5			
13	+ H1	IUS2.56/9.5			
3	H1	IUS2.56/9.5			
4	H1	IUS2.56/9.5			
2	H1	IUS2.56/9.5			
2	H1	IUS2.56/11.88			
2	H1	IUS2.56/11.88			
1	H2	HU310-2			
1	H2	HU310-2			
2	H3	IUS1.81/10			



FROM PLAN DATED: MAR 2021
BUILDER: ROYAL PINE HOMES

SITE: CENTREFIELD

MODEL: 38-12 ELEVATION: B

LOT:

CITY: WATERDOWN

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION: lbv

NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft²

CITY OF RICHMOND HILL BUILDING DIVISION

TILE LOAD: 20.0 lb/ft²

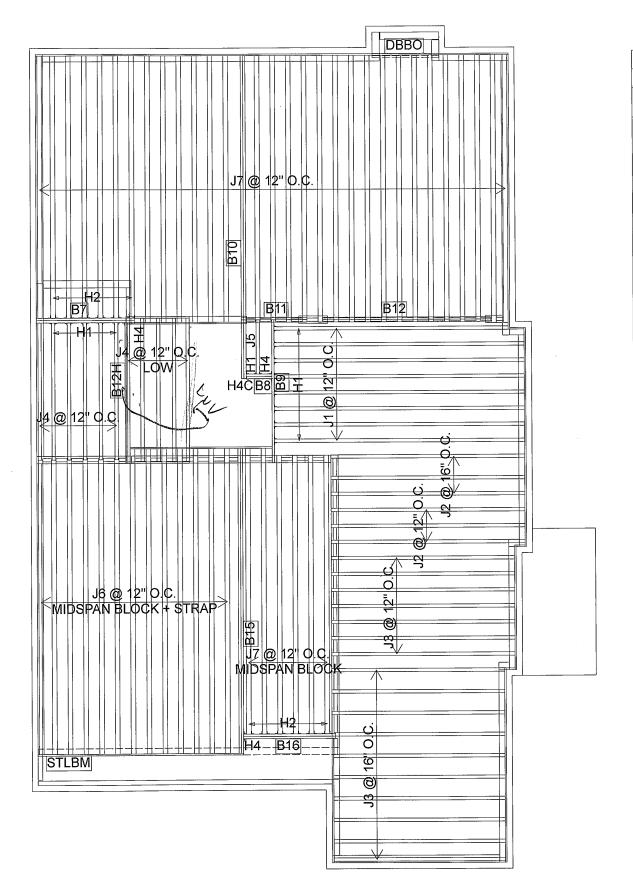
03/08/2022

SUBFLOOR: 3/4" GLUED AND NALED IVED

Per:___joshua.nabua

DATE: 2021-05-20

1st FLOOR



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	8
J2	14-00-00	9 1/2" NI-40x	1	6
J3	12-00-00	9 1/2" NI-40x	1	17
J4	10-00-00	9 1/2" NI-40x	1	11
J5	4-00-00	9 1/2" NI-40x	1	1
J6	20-00-00	9 1/2" NI-80	1	13
J7	18-00-00	9 1/2" NI-80	1	36
B10	22-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	20-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12₩	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary								
Qty Manuf Product								
8	H1	IUS2.56/9.5						
6	H1	IUS2.56/9.5						
12	H2	IUS3.56/9.5						
1	H4C	HUC410						
1	H4	HGUS410						
2	H4	HGUS410						



FROM PLAN DATED: AUG 2020 **BUILDER: ROYAL PINE HOMES**

SITE: CENTREFIELD

MODEL: 38-12

ELEVATION: A

LOT:

CITY: WATERDOWN

SALESMAN: WILL GARCIA

DESIGNER: LBV **REVISION:**

NOTES:

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH **BLOCKS REQ'D UNDER CONCENTRATED** LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

DATE: 2020-10-30

2ND FLOOR

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

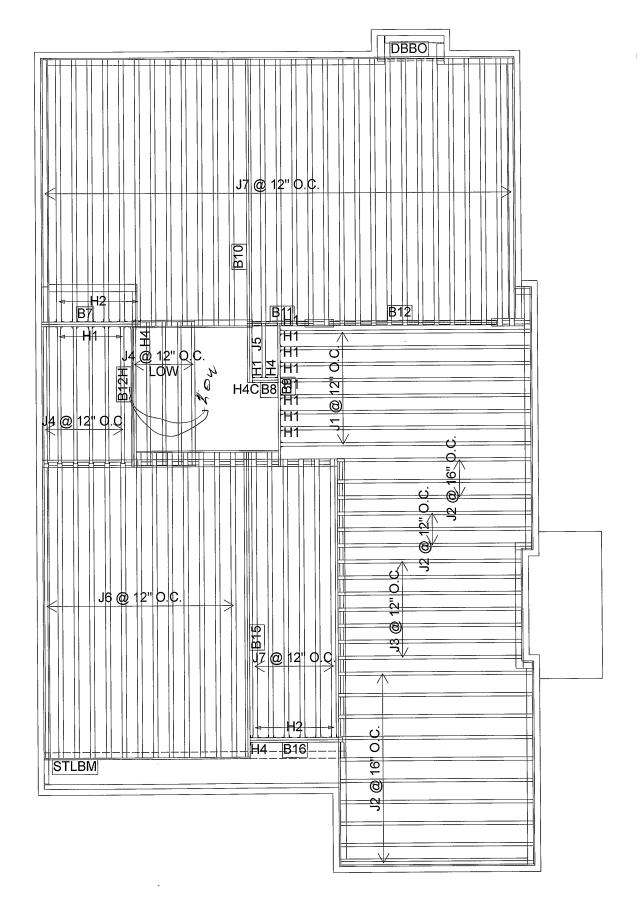
LOADING:

CITY OF RICHMOND HILL BUILDING DIVISION

03/08/2022

SUBFLOOR: 5/8" GLUED AND NAILEDEIVED

Per:____joshua.nabua



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	8
J2	14-00-00	9 1/2" NI-40x	1	16
J3	12-00-00	9 1/2" NI-40x	1	7
J4	10-00-00	9 1/2" NI-40x	1	11
J5	4-00-00	9 1/2" NI-40x	1	1
J6	20-00-00	9 1/2" NI-80	1	13
J7	18-00-00	9 1/2" NI-80	1	36
B10	22-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	20-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12€ \) 10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7 `	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary								
Qty Manuf Product								
8	H1	IUS2.56/9.5						
6	H1	IUS2.56/9.5						
12	H2	IUS3.56/9.5						
1	H4C	HUC410						
1	H4	HGUS410						
2	H4	HGUS410						



FROM PLAN DATED: AUG 2020
BUILDER: ROYAL PINE HOMES

SITE: CENTREFIELD

MODEL: 38-12 **ELEVATION**: B

LOT:

CITY: WATERDOWN

SALESMAN: WILL GARCIA

DESIGNER: LBV REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F
REQ'D UNDER INTERIOR UNIFORM LOAD
BEARING WALLS. MULTIPLE SQUASH
BLOCKS REQ'D UNDER CONCENTRATED
LOADS. SEE FIGURE 1. CANTILEVERED
JOISTS INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING AND
RIMBOARD CLOSURE AT ENDS. SEE
FIGURES 4 & 5 FOR REINFORCEMENT
REQUIREMENTS. FOR HOLES INCLUDING
DUCT CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE
APPLICATION AS PER O.B.C 9.30.6.

DATE: 2020-10-30

2ND FLOOR

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft² DEAD LOAD: 15.0 lb/ft²

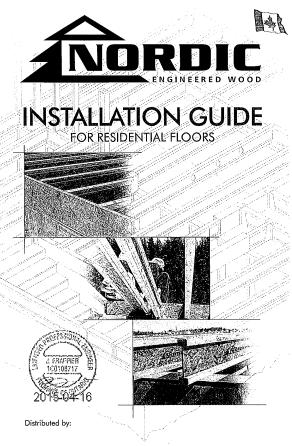
TILE LOAD: 20.0 lb/ff

CITY OF RICHMOND HILL BUILDING DIVISION

03/08/2022

SUBFLOOR: 5/8" GLUED AND NAILED

Per:____joshua.nabua





Never stack building

SAFETY AND CONSTRUCTION PRECAUTIONS

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 Guideline

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.

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 an centre, and must be secured with a minimum of two 2-1/2* nails featened to the top surface of each I-pists. Nail the bracing to a lateral restraint at the end of each boy. Lop ends of adjoining bracing over at least two I-pists.

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 ps fan dead load of 15 ps. The ultimet limit states are based on the factored loads of 1.50L + 1.25D. The serviceobility limit states include the consideration for floor vibration and a live load deflection limit of L/48D. For multiple-span applications, the end spans shall be 40% or more of the adjector transparence of the different spans. or more of the adjacent span.
- 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 SB 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-71.2 6 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of grypsum and/or a row of blocking at mid-span.
- 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 1-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.
- 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

WEB STIFFENER INSTALLATION DETAILS

Approx. 2* I 1/8*-1/4* Gap

(4) 2-1/2* noils,
3* noils required.

STIFFENER SIZE REQUIREMENTS

See table below for web stiffener size requirements

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

1" x 2-5/16" minimum width

(1g)

attachment per detail 1b

Multiple I-joist header with full depth filler block shown. Nordic Lam or SCI

headers may also be used. Verify double I-joist capacity to suppor

1-1/2" x 2-5/16" mir

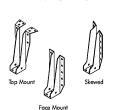
for I-joists with 3-1/2"

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

Joist Joist Depth Series			On centre	e spacing)		On centre spacing				
		12"	16"	19.2	24	12"	16	19.2	24	
	NI-20	15'-1"	14'-2'	13'-9'	13'-5"	16'-3"	15'-4"	14'-10'	14'-7"	
10.00	NI-40x	16'-1"	15'-2"	14'-8'	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"	
9-1/2"	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"	
21-24-54-5	NI-80	17'-3'	16'-3"	15'-8'	15'-9'	18'-10"	17'-6"	16'-11"	17'-0"	
25 1 2 3 3	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"	
11-7/8	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"	
2 N 287	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"	
Aller Mai	NI-90	20'-2°	18'-7"	17'-10"	17'-11"	22'-3'	20'-7"	19'-8"	19'-9"	
Laboration of	N1-90x	20'-4"	18'-9"	17'-11"	18'-0'	22'-5"	20'-9"	19'-10"	19-11"	
engrieering	NI-40x	20'-1"	18'-7"	17'-10"	17'-11'	22'-2"	20'-6"	19'-8"	19'-4"	
January 198	NI-60	20'-5"	18'-11'	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"	
14"	NI-70	21'-7"	20'-0'	19'-1"	19'-2'	23'-10"	22'-1"	21'-1"	21'-2"	
14	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'	
CE_3 : 0 : 0	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"	
P775 US	NI-60	22'-3*	20'-8'	19'-9"	19'-10"	24'-7'	22'-9"	21'-9"	21'-10'	
A 2 3 5 5 1	NI-70	23'-6"	21'-9'	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"	
16"	NI-80	23'-11'	22'-1'	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"	
426.54	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"	
1544 S 10	NI-90x	24'-8"	22'-9'	21'-9'	21'-10'	27-3	25'-2"	24'-0"	24'-1"	

I-JOIST HANGERS

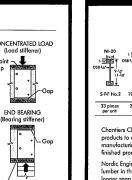
- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendation
- 3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum sagas.
- Web stiffeners are required 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 Hjoist properties table found of the Hjoist 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 greate than 2,370 lbs is applied to the top flange between supports, or in the case of a tip and the support. These values are for adjusted for other load durations as permitte by the code. The gap between the stiffene
- SI units conversion: 1 inch = 25.4 mm

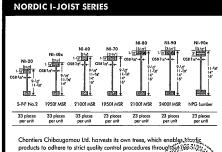


Blocking required vover all interior supports under load-bearing walls or when floor joists are not continuous over support

- NI blocking pane per detail 1 c

(1n)

Attach I-joist per detail 1b



products to adhere to strict quality control procedures through the products to adhere to strict quality control procedures through the product process. Every phase of the operation, from forest 10 file finished product, reflects our commitment to quality. Nordic Engineered Wood Lipists use only finger-jointed cack springer lumber in their flanges, ensuring consistent quality, superior strategies. (MX) onger span carrying capacity. 2015-04-1

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

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

Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sown lumber and wood structural panels conform to CAN/CSA-025 or CAN/CSA-0437 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" in joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4" to

1-1/2"

Flange Width Material Thickness

flangy vening stiffed

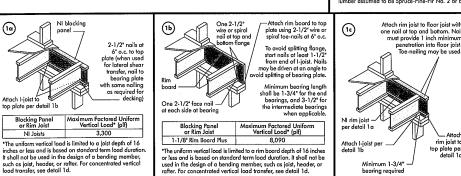
2015-04-16

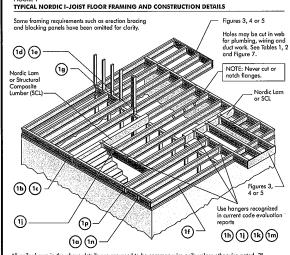
Double I-joist header

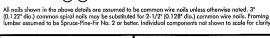
- 1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contribution
- 2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched. 3. Install i-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- 4. I-joists must be anchored securely to supports before floor sheathing is attached, and support
- 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for interest
- 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.

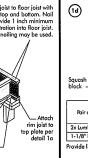
(1a)

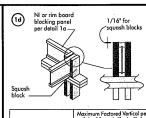
- 8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from 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
- 9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels
- 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 blocking beleded. 13. Provide permanent (sterol support of the bottom flange of all L-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all contilevered I-joists at the end support next to the cartilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or strutts must be used.
- 14. If square-edge panels are used, edges must be supported between 1-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 requirem approved building plans.

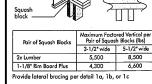


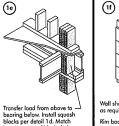










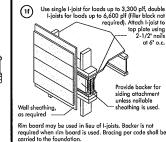


Nordic Lam or SCL

bearing area of blocks be to post above.

(i)

(1p)





Top- or face-mount hanger installed per manufacturer's 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.

Filler block

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

(lm) beam. 1/8" overhar allowed past inside face of wall or bean Filler block pe nstall hanger per *__l* nanufadurer's Top-mount hanger installed pe manufacturer's recommendation Note: Unless hanger sides laterally

support the top flange, bearing stiffeners shall be used.

Maximum support capacity = 1,620 lbs. Support back of I-joist web during nailling to prevent damage to web/flange connection.

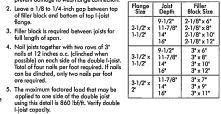
FILER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

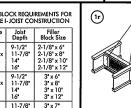
FILER BLOCK FOR DOUBLE I-JOIST CONSTRUCTION

FILER BLOCK FOR DOUBLE I-JOIST CONSTRUCTION

FILER BLOCK FOR BLOCK FOR DOUBLE I-JOIST CONSTRUCTION

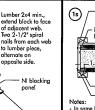
FILER BLO Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.



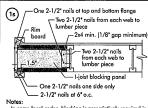


- Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side. - NI blocking

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



2-1/2"



— 2-1/2" noist at 6" o.c.

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

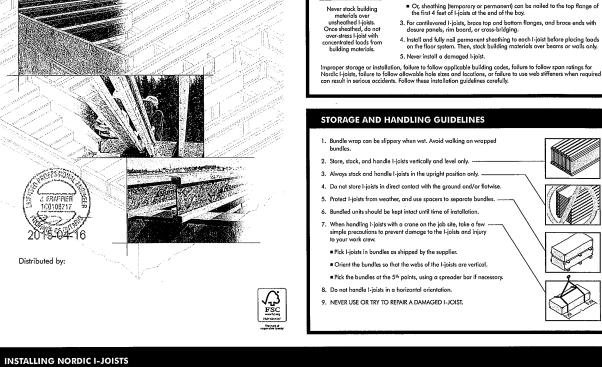
All nois are common spiral in this detail.

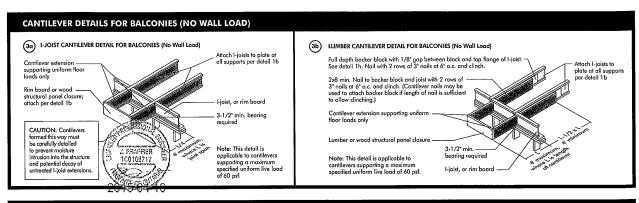
On the space of the spa

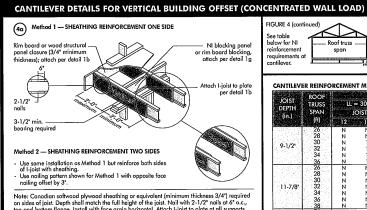
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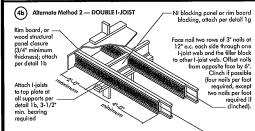
Per:____joshua.nabua







Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") require 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.



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 centrelline of the reinforcing panel from each side. Clinch when possible.

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 Roof trusses | 13'-0" maximum | Jack trusses | Jack span CANTILEVER REINFORCEMENT METHODS ALLOWED

DEPTH (in.)	SPAN	JOIST SPACING (in.)			JOIST SPACING (in.)			JOIST SPACING (in.)					
	(fi)	12		19.2		12		19.2		12	16	19.2	24
	26	N	N]	2	N	1	2	X	N	2	X	X
100	28	N	N	1	Х	N	1	2	X	N	2	Х	Х
9-1/2"	30	N	1	1	Х	- N	1	2	X	1	2	Х	Х
9-1/2	32	N	1	2	х	N	2	Х	Х	1	Х	. X	Х
1000	34	N	. 1	2	Х	- N	2	Х	Х	1	Х	Х	Х
0.000	36 26	N	1	2	Х	1	2	X	Χ	1	X	X	X
0.000	26	N	N	N	1	N	N	1	2	N	И	1	2
10.086	28	N	N	N	1	N	N	1	2	N	1	1	Х
100	30 32	N	N	N	1	N	N	1	2	N	1	2	Х
11-7/8"	32	N	N	1	1	N	N	1	2	N	1	2	Х
	34 36	N	N	1	2	N	1	. 1	Х	N	1	2	Х
	36	N	N	1	2	N	1	2	Х	N	1	2	Х
20,279,64	38 26	N	N	1	2	N	l	2	X	N_	2	X	X
	. 26	N	N	N	N	N	N	N	1	N	N	N	- 1
14 Jan 19	28	N	N	N	N	N	N	N	1	N	N	1	1
	30	N	N	N	N	N	N	N	1	N	N	1	2
14"	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	1	1	N.	N	1	2
4.44000	36	N	N	N	1	N	N)	2	N	1	1	2
	38	N	N	N	1	N	N		2	N	1	1	X
<u> </u>	40	N	N	N.	!	N	N_	!	2	N		2	X
	26	N	N	N	N	N	N	N	N	N	N	N	1
at engli	28	N	N	N	N	N	N	N	1	N	N	N	- !
JEE 24.	30	N	N	N	N	N	N	N	!	N	N	Ņ	. !
	32	N	N	N	N	N.	N	N	1	N	N	!	
16"	34	N	N	N	Ņ	N.	N	N		N	N	- !	2
	36 38	N	N	N		N	N	И	- !	N	N		2
	38	N	N	N		N	N	ıγ	ļ	N	N	- !	2
	40 42	N	N	N	- 1	N	N	- 1	2	N N	Ņ	- 1	ź

- N = No reinforcement required.
 1 = NI reinforced with 3/4" wood structural
- 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"
- tor larger openings, or multiple 3:0° width openings spaced less than 6:0° o.c., additional joist beneath the opening's cripple at the state of the space of of the
- 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. Conflevered joils supporting girder trusses or roof beams may require additional reinforcing.

ents for a span of

26 ft. shall be permitted to

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) GURE 5 (continued) Roof trusses

Girder Roof truss
span 2-0* For hip roofs with the jack trusses running parallel to the cantilevered floor joists the I-joist reinforcement Roof truss —— span — Roof truss – span 2'-0"
maximum
cantilever
5" maximum

Nato Consider softward	lail reinforcement to top nd bottom joist flanges ith 2-1/2" nails at 6"
plywood sheathing or equivalent (minimum thickness 3/4") required on	.c. (offset opposite face oiling by 3" when using inforcement on both des of I-joist)
Sb SET-BACK DETAIL Rim board or wood structural panel closure (3/4* minimum thickness), offich per detail 1b.	2016-04-16
Notes: Provide full depth blocking between joists over support (not shown for clarity) Altoch Hojat to plate at all supports per detail 1b. 3-1/2" minimum Hojats bearing required.	Attach joists to girder joist per detail 5c.
/ nail	l joist end using 3" s, toe-nail at top and om flanges.

Vertical solid sawn blocks through joist web and web of girder using 2-1/2" nails. (2x6 S-P-F No. 2 or better) nailed

Notes:

- Verify girder joist capacity if the back span exceeds the joist spacing.

- Attach double 1-joist per detail 1p, if required.

ROOF LOA | LL = 30 psf, DL = 15 psf | LL = 40 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | JOIST SPACING (in.) | JOIST SPACING (in.) | JOIST SPACING (in.) | 12 16 19.2 24 | 12 16 19.2 24 | 12 16 19.2 24 TRUSS SPAN (fi) 9-1/2" 11-7/8 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 . N = No reinforcement required. 1 = NI reinforced with 3/4" wood structural

- 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 1-joins.
 X = Try a deeper joist or closer spacing.
 2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor tolal load, and 80 pff wall load. Wall load is based on 3-0"
 - load of 40 psi of 12 to 24 o.c. from their the floor span requirements for a design live load of 40 psi and dead load of 15 psf, and a live load deflection limit of L/480. Use 12 o.c. requirements for lesser spacing.
- A. For conventional roof construction using a ridge beam, the Roof Trust Span column above is explored to the distance between the supporting well not the ridge beam. When the roof is formed using a ridge board, the Roof Trust Span is equivalent to the distance between the supporting well so sif a trust si used.

 5. Confilement girls supporting wells as if a trust is used.

 6. Confilement girls supporting girlder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 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.
- . The maximum size hole or the maximum depth of a duct chase opening that can be at 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 davys be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 6. Where more than one hole is necessary, the distance between adjacent hole Where more than one hole is necessory, the distance between adjacent note 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 langest side of the langest rectangular hole or duck chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of lables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and
 may be ignored for purposes of calculating minimum distances between holes
 and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a confilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it
 meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- 11. Limit three maximum size holes per span, of which one may be a duct chase
- 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.

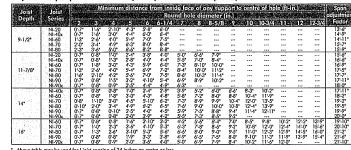
Duct chase opening (see Table 2 for minimum distance from bearing)

FIELD-CUT HOLE LOCATOR

of larger hole

8

IABLE ! 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



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

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

Dreduced = Lactual x D Where:

SAF

Disduced From the inside face of any support to centre of hole, reduced for less-than-maximur distance shall not be less than 6 inches from the face of the support to edge of the hole.

SAF = Span Adjustment Factor given in this toble.

D = The minimum distance from the inside face or any support to centre of hole from this toble.

If adjustment Factor given in this toble.

SAF SAF

SAF

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only Knockouts are prescored holes provided



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

For redangular holes, avoid over-cutling the corners, as this can cause unnecessar tesses concentrations. Slightly rounding the corners is recommended. Starting the redangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the hole is arother good method to minimize demage to the I-joist.



2015-04-16

Above table may be used for I-joist spacing of 24 inches on cerire or less.
 Due chose opening location distance is measured from inside foce of supports to centre of opening.
 The obove table is based on simple-span joists only. For other applications, contact your local distribution.
 Distances are based on uniformly loaded floor joists that meet the pan requirements for a design live local doad fold to Jr. print and live local dealed load of 13 pri, and a live load deflection limit of U.480. For other opplications, contact you local distribution.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.

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

- 2. Snap a chalk line across the 1-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

Maintain minimum 1/8" space between top and bottom flange – all duct chase openings and holes

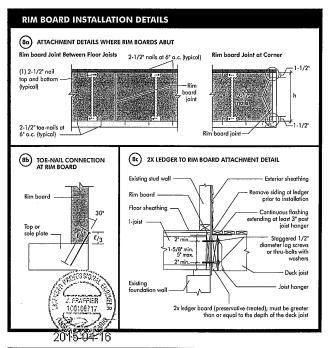
- 4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when topped into place with a block and sledgehammer. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding 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 ponels at a time before laying the neat row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 linc) that nused on 1-joint stingues.
- 8. Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of ponels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including 13C edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure occurate and consistent spacing.)
- 10. Complete all nailing of each panel before glue sets. Check the monufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or szew-snahn kails for panels 3/4-inch thick or less, and 2-1/2" ring- or szew-snahn kails 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

Maximum	Minimum	N N	ail Size and Ty	pe	Maximu	Maximum Spacing		
Joist	Panel	Common	Ring Thread		of Fa	steners		
Spacing (in.)	Thickness (in.)	Wire or Spiral Nails	Nails or Screws	Staples	Edges	Interm. 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.
- Stoples 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.
- 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.

INTURIANT INUIE:
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.





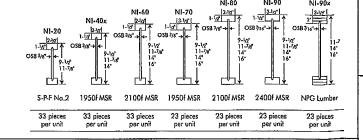


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Refer to the Installation Guide for Residential Floors for additional information. CCMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 1. The distance between the inside edge of the support and the centreline of ony hale or duct chase opening shall be in compliance with the requirements of
- Table 1 or 2, respectively.

 1. I-joist top and bottom florings 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 chose opening that
 can be cut into an 1-joist web shall equal the clear distance between the flanges of the L-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 moximum round hole permitted at that location.
 6. Where more than one hole is necessory, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest. snant exceed when the diameter of the longest side of the longest rectangular hale or duct chose opening) and each hale and duct chose opening and each hale and duct chose opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.

 7. A knockout is **not** considered a hale, may be utilized anywhere it accurs, and may be ignored for purposes of calculating minimum distances between hales and/or duct
- hase openings
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above 10. All holes and duct chase openings shall be cut in a workman-like
 - manner in accordance with the restrictions listed above and as ustrated 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 hale circumscribed around them.

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

l		[₩	inimun	n Distar	ice fro	m Insid	e Face	of Any	Support	to Ce	nice of	Hole (ft	- in.)		
Joist Depth	Joist Series						Rou	nd Hol	e Diom	eter (in.	}					
Бори	461163	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
	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"		***							
9-1/2"	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	***								
	NI-70	2'-0"	3'-4"	41-9"	6'-3"	8'-0"	8'-4"	***								
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"									***
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"				705		
i	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	ブ'-0"	8'-4"						
l	NI-60	0'-7"	11-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10.0	•••			•••	***	
11-7/8	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6-9"	7'-2*	8'-4'	10'-0°		***					
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5'	8'-6"	10'-3"	11'-4"			***		***	
1	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4-10		6'-9"	8'-9"	10'-2"						***
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	***	***			***			
	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"				
14"	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10'		7'-3'	8'-9"	9'-9"	10'-4"	12'-0"				
1	NJ-80	0'-10"	2'-0"	3'-4"	4-9	6'-2"	6'-5"	7'-6"	9`-0"	10'-0"	10'-8"					
Į	NJ-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"					***
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"		4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8'		12'-2'	
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10'		6'-3"	7'-8"	8'-6"	9-2	10'-8"			14'-0'	
16"	NI-80	0'-7°	1'-3"	2-6*	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9-5	11'-0"			14'-5'	
1	NI-90	0'-7°	0'-8"	0'-8*	1-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"			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'		

- Above table may be used for I-joist spacing of 24 inches on centre or less
- le lacation distance is measured from inside face of supports to centre of hole. stances in this chart are based on uniformly loaded ioists.
- The above table is based on the Hoists being used at their maximum spans. The minimum distance as given above may be reduced
 for shorter spans; contact your local distributor.

DUCT CHASE OPENING SIZES AND LOCATIONS

1-1-4	1-2-4	Minim	om distan	c o from in	side face	of supp	orts to ce	entre of o	opening (ft - in.)
Joist Depth	Joist Series				Duct Ch	ase Leng	th (in.)			
		8	10	12	14	16	18	20	22	24
	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"
9-1/2"	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'
	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"
11-7/8"	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"	91.70	10'-1"	10'-7"	10'-11"
	NJ-90x	7'-7*	8'-1"	8'-5"	8'-10"	9'-4'	9'-8"	10'-2*	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1°	10'-7"	111-2"	12'-0*	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
14*	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10-4*	10'-8"	11-2	11'-7"	12'-3'
14	NI-80	9'-0"	ðı-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'-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
	NI-60	10'-3"	10'-8"	1152	11'-6"	12'-1"	12-6	13'-2"	741-7"	14'-10"
	NI-70	10:-1:	10'-5"	11'-0"	11'-4"	17'-10'		12'-8"	13'-3"	14'-0"
16"	NI-80	10'-4'	10'-9"	11'-3"	111-9"	12'-1"	1247"	13'-1"	13'-8"	14'-4"
	N(-90	10-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	73'-6°	14'-2"	14'-10"
	N1-90x	13514	11'-5"	117-10	12'-4"	12'-10'	13'-2"	13'-9"	14-4°	15'-2"

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

Simple Span Only

Joist	Joist	Minim	um distan	ce from in	iside face	of suppo	orts to co	entre of o	opening (ff - in.)
Depth	Series				Duct Ch	ase Leng	th (in.)			
		8	10	12	14	16	18	20	22	24
	NJ-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"
9-1/2"	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"	65-10"	7'-3°	7'-8"	8'-2"	8'-6'
	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,-2,
	NI-60	7'-3"	7'-8*	8'-0"	B'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11,-0,
11-7/8"	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'	91-8"	10'-2*	10'-8"	17'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1°	10'-7"	111-2	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0'
14*	NI-70	8'-7°	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11-2	11'-7"	12'-3'
14	NI-80	9'-0"	91-3×	9-9	10,-1,	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90	9-2	9'-8"	10'-0"	10'-6"		11-5	11'-9"	12'-4"	12-11*
	N(-90x	9-4	9-9	10'-3"	10'-7"	11'-1"	11-7"	1241"	12'-7"	13'-2"
	NI-60	10'-3"	10'-8"	1152	11'-6"	12'-1"	12-6	13'-2"	741-7"	144-10
	NI-70	10-1	10'-5°	11'-0"	11-4	17'-10'		12'-8"	13'-3"	14'-0"
16"	NI-80	10'-4'	10'-9"	11'-3"	11'-9"	12'-1"	1247"	13'-1"	13'-8"	14.4
	N(-90	10-9	11-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14-2	14'-10"
	N1-90x	1351	111-5"	11-10	12'-4"	12'-10'	13'-2"	13'-9"	14-4	15'-2"

18. Offset nails from opposite face by 6°

-1/8" to 1/4" gap between top flange

each side at bearing 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) Minimum bearing length shall be 1-3/4° for the end bearings, and 3-1/2° for the intermediate bearings when applicable. Maximum Factored Vertical Load per Pair of Squash Blocks (lbs 5-1/2" wide 5.500 8.500

One 2-1/2*-

face pail at

bearing below blocks per detail 1d, Match bearing area of blocks below to post

ner detail th 2-1/2° nails at 6" a.c. to top plate --

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.

Vertical Load* (plf)

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based or

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.

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

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

—NI blocking panel per detail 1a

(1h) Bocker block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double 1-joist, drive three additional 2* paid the paid the second of the se backer black 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.

x Lumber

NI Joists

transfer, see detail 1d.

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".

NI blocking

panel per detail la

panel —

Attach I-joist to top plate per detail 1b

(bl)

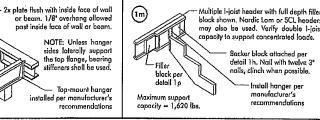
Top- or face-moun Double I-joist header NOTE: Unless hange sides laterally support the top flange, bearing stiffeners shall be used ker block required Filler block

tions. Verify double I-joist capacity to support

(both sides for face

(1) Structural Composite Lumber (SCL) For nailing schedules for multiple beams, see the manufacturer's installed per manufacturer's

NOTE: Unless hanger sides laterally support the top flange,



Maximum Factored Uniform

Vertical Load* (plf)

3,300

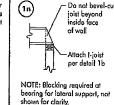
3-1/2" wide

1-1/8" Rim Board Plus 4,300 6,600

Provide lateral bracing per detail 1g or 1b

*The uniform vertical load is limited to a joist depth of 16

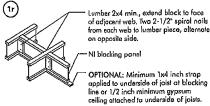
inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load

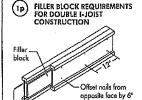


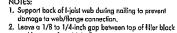
Filler Block Size

2-1/8" x 6"

2-1/8" x 12"







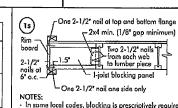
- and bottom of top I-joist flange.

 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.

 The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/fi. Verily double I-joist capacity

FIGURE 2



NOTES:

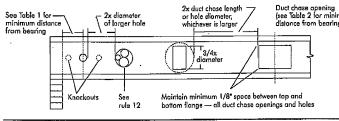
In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.

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 when nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not show to scale for clarity.

FIGURE 7

FIELD-CUT HOLE LOCATOR





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

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

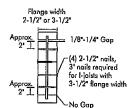
loles in webs should be out with a sharp saw.

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.

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 a
- A bearing stiffener is required when the I-joist is supported in a honger 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 cantillever, onywhere between the contilever fip 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 flame at the between the code. the stiffener and the flange is at the bottom.



Use same installation as Method 1 but reinforce both sides of (-jois) with sheathing.

pattern show for Method 1

Flange Size

-1/2*

-1/2° x

3-1/2°>

9-1/2

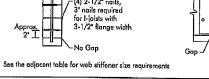
14" 16"

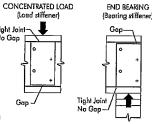
WEB STIFFENER INSTALLATION DETAILS

11-7/8"

11-7/8°

1-1/2*





STIFFENER SIZE REQUIREMENTS Web Stiffener Size Each Side of Web 1" x 2-5/16" 2-1/2" minimum width 1-1/2" x 2-5/16" 3-1/2°

SAFETY AND CONSTRUCTION PRECAUTIONS



fully fastened and braced, or serious injuries can result.



Never stock building materials over unsheathed Ljoists. Once thed, do not over-stress

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:

- Brace and nail each Lipist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.

 When Lipists 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.
- or buckling.

 ** Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet an centre, and must be secured with a minimum of two 2-1/2* nails fastened to the top surface of each 1-joist. Nail the bracing to a lateral restraint at the end of each box. Lop ends of odigining bracing over at least two 1-joists.

 **Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of 1-joists at the end of the box. 3. For confilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- 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.

Improper storage or installation, foilure to follow applicable building cades, 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 accide Follow these installation guidelines corefully.



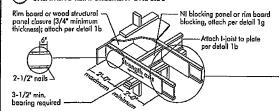
PRODUCT WARRANTY

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

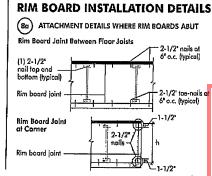
\$*?*********************************

Furthermore, Chantiers Chibougamau warrants that our produces, en utilized in accordance with our handling and installation interaction will meet or exceed our specifications for the lifetime of the structura.

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET Method 1 — SHEATHING REINFORCEMENT ONE SIDE Method 2 — SHEATHING REINFORCEMENT TWO SIDES



NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of jaist. Depth shall match the full height of the jaist. 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.



8b TOE-NAIL CONNECTION



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COMPANYOct. 14, 2020 14:56

PROJECT
J7 2ND FLR GARAGE.wwb

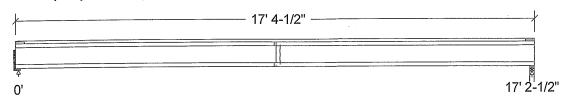
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Туре	Distribution	Pat-	Location	[ft]	Magnitud	e	Unit
	7.1		tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored: Dead Live	172 344	172 344
Factored: Total	731	731
Bearing: Capacity Joist Support	1893	1893 3866
Des ratio Joist Support	0.39 - #2	0.39 0.19 #2
Load case Length Min req'd	1-3/4	1-3/4 1-3/4
Stiffener KD	No 1.00	No 1.00
KB support fcp sup Kzcp sup	- - -	769 -

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic 9-1/2" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Hanger; 2 - Lumber Wall, No.1/No.2;

Total length: 17' 4-1/2"; Clear span: 17' 3/4"; 5/8" nailed and glued OSB sheathing with 1 row of blocking

This section PASSES the design code check.

Limit States Design using CSA 086-14 and Vibration Criterion:

	· · · · · · · · · · · · · · · · · · ·			
Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 731	Vr = 1895	lbs	Vf/Vr = 0.39
Moment(+)	Mf = 3146	Mr = 8958	lbs-ft	ASESMANMI = 0.35
Perm. Defl'n	0.12 = < L/999	0.57 = L/360	in 🎤 🤻	0.21
Live Defl'n	0.24 = L/847	0.43 = L/480	in //🗣 /	0.57
Total Defl'n	0.37 = L/564	0.86 = L/240	in /9/	C.142 O
Bare Defl'n	0.27 = L/758	0.57 = L/360	in 💹	KATSOULSKOS 60.45UIL
Vibration	Lmax = 17'-2.5	Lv = 18'-5.4	ft 🖔 💲	KATSOULAKOS \$0.93
Defl'n	= 0.030	= 0.037	in	0.822

CITY OF RICHMOND HILL 0.4BUILDING DIVISION

0.93 0.823/08/06/22

WG NO. TAM/Y*YCG -* ZU Stru**ctur**atived Gow: Onentshonlyabua

HOWINGE OF ONE

WoodWorks® Sizer

for NORDIC STRUCTURES

J7 2ND FLR GARAGE.wwb

Nordic Sizer – Canada 7.2

Page 2

						·				
Additiona	l Data:				·					
			KH			KT	KS	KN	LC#	
Vr	1895	1.00	1.00	-	_	-	-	-	#2	
Mr+	8958	1.00	1.00	•	1.000	-	-	-	#2	
EI	324.1 m	illion	_	-		_	-	-	#2	
CRITICAL L	OAD COMBI	NATIONS	S:							
	: LC #2			L						
Moment(+) : LC #2	= 1.2	5D + 1.51	L						
	on: LC #1									
	LC #2	= 1.01	D + 1.0L	(live)					
			D + 1.0L							
			D + 1.0L							
Bearing	: Suppo:	rt 1 - :	LC #2 = 3	1.25D +	1.5L					
-	Suppo	rt 2 - 1	LC #2 = :	1.25D +	1.5L					
Load Typ	es: D=dead	d W=wi	nd S=sno	ow H=e	arth,grou	ındwate	r E=ear	thquake		
					ive(stora			f=fire		
Load Pat	terns: s=	S/2 L=:	L+Ls _=1	no patt	ern load	in this	s span			
All Load	Combinat	ions (L	Cs) are	listed :	in the An	alysis	output			
CALCULATI	ONS:									
Eleff =	367.27 lb	-in^2	K = 4.946	e06 lbs				6611	DA Maran	******
"Live" d	eflection	is due	to all m	non-dead	d loads (live, v	wind, sn	ow) GUN	rukms Tu	UBG 2012
									AMENDED	
I RODA M. PAR	4								TR *** EX *** EX EX	W 123 W

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.





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PROJECT

J6 2ND FLR GARAGE.wwb

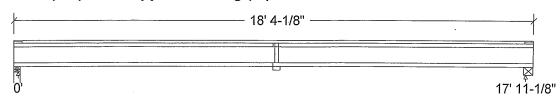
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitude		Unit
			tern	Start	End	Start :	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	179		179
Live	359		359
Factored:			ļ
Total	762		762
Bearing:			
Capacity			
Joist	1893		1893
Support	6659		-
Des ratio			
Joist	0.40		0.40
Support	0.11		-
Load case	#2		#2
Length	2-3/4		4
Min req'd	1-3/4		1-3/4
Stiffener	No	· ·	No
KD .	1.00		1.00
KB support	-		-
fcp sup	769		-
Kzcp sup	_		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic 9-1/2" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;

Total length: 18' 4-1/8"; Clear span: 17' 9-3/8"; 5/8" nailed and glued OSB sheathing with 1 row of blocking and strapping at blocking locations

This section PASSES the design code check.

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

ĺ	Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Ī	Shear	Vf = 762	Vr = 1895	lbs	VE/VI 0.40
1	Moment(+)	Mf = 3415	Mr = 8958	lbs-ft	ME7MY 4 0.38
-	Perm. Defl'n	0.14 = < L/999	0.60 = L/360	in	0.24
	Live Defl'n	0.28 = L/756	0.45 = L/480	in ,	19/19/19/20163
١	Total Defl'n	0.43 = L/504	0.90 = L/240	in	0.48U
-	Bare Defl'n	0.32 = L/676	0.60 = L/360	in	S. KATSOULUKOD . 53
	Vibration	Lmax = 17'-11.1	Lv = 19'-7.2	ft 🖁	5 S. MAI 3002 0.51
	Defl'n	= 0.028	= 0.035	in 🖔	0.82

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J6 2ND FLR GARAGE.wwb

Nordic Sizer - Canada 7.2

Page 2

```
Additional Data:
                                                                          LC#
FACTORS:
                     KD
                             KH
            1895
                    1.00
                            1.00
                                                                           #2
Vr
            8958
                    1.00
                            1.00
                                            1.000
                                                                          #2
Mr+
           324.1 million
                                                                          #2
ΕI
CRITICAL LOAD COMBINATIONS:
Shear : LC \#2 = 1.25D + 1.5L
Moment(+): LC \#2 = 1.25D + 1.5L
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)
           : Support 1 - LC #2 = 1.25D + 1.5L
Support 2 - LC #2 = 1.25D + 1.5L
Bearing
Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
             L=live(use,occupancy) Ls=live(storage,equipment)
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:
EIeff = 367.27 lb-in^2 K = 4.94e06 lbs
 "Live" deflection is due to all non-dead loads (live, wind, snow...)
                                                                        CONFORMS TO OBC 2012
```

Design Notes:

AWENDED 2020

- 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.



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COMPANYOct. 14, 2020 15:02

PROJECT
J7 2ND FLR.wwb

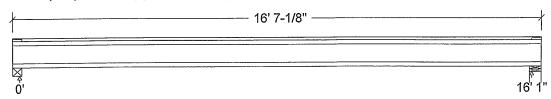
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution :	Pat-	Location	[ft]	Magnitud	e	Unit
		-	tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored: Dead Live	161 322		161 322
Factored: Total	684		684
Bearing:			
Capacity			
Joist	1893		1893
Support	12259		10841
Des ratio			
Joist	0.36		0.36
Support	0.06		0.06
Load case	#2		#2
Length	3-1/2		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		
fcp sup	1088		769
Kzcp sup	1.15	1. P. Jan ta annin la aning on top ploto. No office design instead	

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Nordic Lam Beam, 24F-1.9E; 2 - Lumber Wall, No.1/No.2;
Total length: 16' 7-1/8"; Clear span: 15' 11-1/4"; 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:

П		, ,			
	Criterion	Analysis Value	Design Value	Unit	Analysis/Design
l	Shear	Vf = 684	Vr = 1895	lbs	Vf/Vr = 0.36
1	Moment(+)	Mf = 2748	Mr = 8958	lbs-ft	MAXMS 6 . 0.31
١	Perm. Defl'n	0.09 = < L/999	0.54 = L/360	in	0,18
١	Live Defl'n	0.19 = < L/999	0.40 = L/480	in	19 1 men 2.47
١	Total Defl'n	0.28 = L/680	0.80 = L/240	in	36
1	Bare Defl'n	0.21 = L/914	0.54 = L/360	in	1 M
	Vibration	Lmax = 16'-1	Lv = 17'-9.5	ft	S. KATSOULETRUS 98
1	D 61 1	_ 0 020	- 0 040	in	73

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WoodWorks® Sizer

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J7 2ND FLR.wwb

Nordic Sizer - Canada 7.2

Page 2

											
Additional	Data:										
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#		
Vr	1895	1.00	1.00	-	_	_	-	_	#2		
Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2		
EI				-	_	-	-	-	#2		
CRITICAL LO	AD COMB	INATIONS	S:								
Shear	: LC #2	= 1.25	5D + 1.5I	J							
Moment(+)	: LC #2	= 1.25	5D + 1.5I								
Deflectio	n: LC #1	= 1.01) (perma	nent)							
	LC #2	= 1.01	0 + 1.0L	(live)						
			0 + 1.0L								
			0 + 1.0L								
Bearing											
			C #2 = 1								
Load Type											
					ive(stora			f=fire			
Load Patt											1
All Load		ions (LO	Cs) are l	isted :	in the An	alysis	output				- 1
CALCULATIC	NS:										ļ
Eleff = 3									CONFORMS T	aca a	2012
"Live" de	flection	is due	to all n	on-dead	d loads (live, w	ind, sno	ow)	caulaumo i	u upu	2012
Design No.	4-01								AWENDE	0 202	Ū

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 086-14 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.



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COMPANY Oct. 14, 2020 12:33 **PROJECT** J9 GRD FLR.wwb

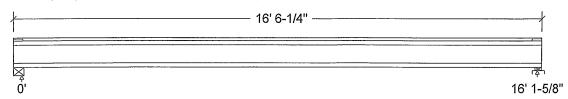
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution	Pat-	Location [ft]		Magnitude		Unit
			tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:	1.61	1.01
Dead	161	161
Live	323	323
Factored:		
Total	686	686
Bearing:		
Capacity		
Joist	1893	1893
Support	_	5573
Des ratio		
Joist	0.36	0.36
Support	_	0.12
Load case	#2	#2
Length	4	2-3/8
Min req'd	1-3/4	1-3/4
Stiffener	No	No
KD	1.00	1.00
KB support	-	1.00
fcp sup	_	769
Kzcp sup	-	1.09

Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c. Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2; Total length: 16' 6-1/4"; Clear span: 15' 11-7/8"; 5/8" nailed and glued OSB sheathing This section PASSES the design code check.

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 686	Vr = 1895	lbs	Vf./.V. 0.36
Moment(+)	Mf = 2766	Mr = 8958	lbs-ft	MIVMS O. 31
Perm. Defl'n	0.10 = < L/999	0.54 = L/360	in	0.18
Live Defl'n	0.19 = < L/999	0.40 = L/480	in	18 Place A. A.
Total Defl'n	0.29 = L/674	0.81 = L/240	in	36
Bare Defl'n	0.21 = L/906	0.54 = L/360	l in	200 400 II
Vibration	Lmax = 16'-1.6	Lv = 17'-5	ft	S. KATSOWLYMOP 335
Doflin	= 0.031	= 0.040	lin 🖁	70

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J9 GRD FLR.wwb

Nordic Sizer - Canada 7.2

Page 2

Additional	Data:											
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#			
Vr	1895	1.00			-	-	_	_	#2			
Mr+	8958	1.00		-	1.000	-	-	-	#2			
EI	324.1 m	illion	_	-	-	-	-	-	#2			
CRITICAL LO	DAD COMBI	INATIONS	S:									
Shear	: LC #2	= 1.25	5D + 1.5I									
Moment(+)	: LC #2	= 1.25	5D + 1.5I	ı								
Deflection	on: LC #1	= 1.01	D (perma	nent)								
			0 + 1.0L									
			0 + 1.0L									
			0 + 1.0L									
Bearing			LC #2 = 1									
	Suppo:	rt 2 - 1	LC #2 = 1	.25D +	1.5L							
Load Type	es: D=dead	d W=wir	nd S=sno	w H=ea	arth,grou	ndwate	r E=ear	thquake				
	L=live	e(use,oo	ccupancy)	Ls=l:	ive(stora	ge,equi	ipment)	f=fire				İ
Load Patt	erns: s=	S/2 L=I	L+Ls _=r	o patte	ern load	in this	s span					
All Load	Combinat:	ions (LO	Cs) are l	isted :	in the An	alysis	output					
CALCULATION	ONS:											
Eleff = 3									GUNFORMS	TN	ARE 2	N 12
"Live" de	eflection	is due	to all r	ion-dead	d loads (live, v	vind, sn	ow)	GRIS BUMB	1 0	AMA P	क्ष सम्ब
					· · · · · · · · · · · · · · · · · · ·				AMENI	ED	2020	
i												

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.
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COMPANY Oct. 14, 2020 12:34 **PROJECT** J9 GRD FLR FIRE PL.wwb

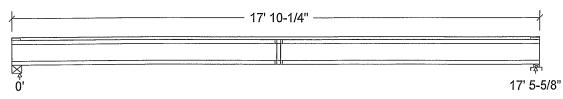
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitud	е	Unit
			tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored: Dead Live Factored:	175 349	175 349
Total	742	742
Bearing: Capacity Joist Support Des ratio	1893 -	1893 5573
Joist Support	0.39	0.39
Load case Length	#2 4	#2 2 - 3/8
Min req'd Stiffener	1-3/4 No	1-3/4 No
KD	1.00	1.00
KB support fcp sup	_	769
Kzcp sup		1.09

Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c. Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2;

Total length: 17' 10-1/4"; Clear span: 17' 3-7/8"; 3/4" nailed and glued OSB sheathing with 1 row of blocking This section PASSES the design code check.

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

١.		•			
	Criterion	Analysis Value	Design Value	Unit	Analysis/Design
l	Shear	Vf = 742	Vr = 1895	lbs	Vf/Vr = 0.39
	Moment(+)	Mf = 3242	Mr = 8958	lbs-ft	Mf/Mr = 0.36
	Perm. Defl'n	0.13 = < L/999	0.58 = L/360	in	Mf/Mr = 0.36 0.22 0.58
١	Live Defl'n	0.25 = L/828	0.44 = L/480	in	0.58
	Total Defl'n	0.38 = L/552	0.87 = L/240	in 🖟	18 1 1014110 43
l	Bare Defl'n	0.29 = L/727	0.58 = L/360	in /	50CH
	Vibration	Lmax = 17'-5.6	Lv = 19'-4.7	ft /	90
1	Doflin	= 0.027	= 0.036	l in	I S KATSUUZAW

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J9 GRD FLR FIRE PL.wwb

Nordic Sizer - Canada 7.2

Page 2

Additional	Data:										
	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#		
	1895		1.00	_	_	-	-	-	#2		
	8958				1.000	-	-		#2		
EI	324.1 m	illion	-	_	-	-	-	_	#2		
CRITICAL LO											
Shear	: LC #2	= 1.25	5D + 1.5								
Moment(+)	: LC #2	= 1.25	5D + 1.5	L							
Deflection	on: LC #1	= 1.01) (perm	anent)							
			0 + 1.0L								
ļ			0 + 1.0L								
	LC #2	= 1.01) + 1.0L	(bare	joist)						
Bearing	: Suppo	rt 1 - 1	LC #2 = 1	1.25D +	1.5L						
	Suppo	rt 2 - 1	LC #2 = 1	1.25D +	1.51			4-1			
Load Type	es: D=dea	d W=Wll	nd S=sn	ow H=e	artn, grou	indwate:	r E=ear	tnquake			
	T=T1A	e (use, o	ccupancy) LS=1	ive(stora	ige, equ.	rbmenr)	r=rre			
Load Patt	erns: s=	S/2 L=1	L-LS _=	no patt	ern roau in the Ar	TII CIIT	s span				
		TOUS (L)	us, are .	IIStea	In the Ai	атузтз	Output				
CALCULATION		4 - AO 1	z_ 4 0.4.	006 lha							
Eleff = 3	3/5.38 ID	-111 Z 1	1.940 1 1 1 1 1	con-dos	d loade (livo v	wind an	ow 1	CANFORMS	TO ORG 2	20 IZ
Lrive, de	errection	is due	to all i	ion dea	u ioaus (TT (C)	wild, 311		7 HH PE 11 F)	ED 202 1	n
	4								AWEND	Ch Zazi	IJ
Design No	ites:										

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.

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NORDIC **STRUCTURES**

COMPANY Oct. 14, 2020 15:05

PROJECT J1 2ND FLR.wwb

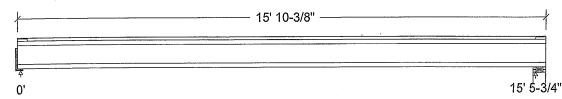
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Туре	Distribution	Pat-	Location	[ft]	Magnitude		Unit
			tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored: Dead Live	155 310	155 310
Factored: Total	658	658
Bearing: Capacity Joist Support	1859	1893 7744
Des ratio Joist Support	0.35	0.35 0.08
Load case Length	2	#2 4-3/8
Min req'd Stiffener	1-3/4 No	1-3/4 No 1.00
KD KB support	1.00	769
fcp sup	_	/03

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

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

Supports: 1 - Hanger; 2 - Lumber Wall, No.1/No.2;

Total length: 15' 10-3/8"; Clear span: 15' 4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design		
Shear	Vf = 658	Vr = 1895	lbs	Vf/Vr = 0.35		
Moment(+)	Mf = 2546	Mr = 4824	lbs-ft	ME/Mr = 0.53		1
Perm. Defl'n	0.11 = < L/999	0.52 = L/360	in	0.22		1
Live Defl'n	0.22 = L/831	0.39 = L/480	in ¿	0.58		I
Total Defl'n	0.33 = L/554	0.77 = L/240	in /	1012100.93		I
Bare Defl'n	0.26 = L/714	0.52 = L/360	in 🎉	0.50		
Vibration	Lmax = 15'-5.8	Lv = 16! - 8.5	ft 🗓	S. KATSOULAKOS . SECT	TY OF RICHMO	DND HILL
Defl'n	= 0.033	= 0.042	in 🖟	0.79	BUILDING	HON
			13	ALL THE CONTROL OF THE PARTY OF		

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J1 2ND FLR.wwb

Nordic Sizer - Canada 7.2

Page 2

Additional	Data:									
FACTORS:	f/E		KH		KL	KT	KS	KN	LC#	
Vr	1895	1.00	1.00	-	_	-	-	-	#2	
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2	
EI	218.1 m	illion	-		-	-	-	-	#2	
CRITICAL LO	DAD COMBI	NATIONS	S:							
Shear	: LC #2	= 1.25	5D + 1.5I	1						
Moment(+)	: LC #2	= 1.25	5D + 1.5I	ı						
Deflection	on: LC #1	= 1.01) (perma	nent)						
	LC #2	= 1.01	0 + 1.0L	(live						
	LC #2	= 1.01	0 + 1.0L	(tota	1)					
	LC #2	= 1.01	0 + 1.0L	(bare	joist)					
Bearing	: Suppor	rt 1 - 1	LC #2 = 1	25D +	1.5L					
	Suppor	rt 2 - 1	LC #2 = 1	.25D +	1.5L					
Load Type	es: D=dead	iiw=W b	nd S=sno	w H=e	arth,grou	ndwate	r E=ear	thquake		
	L=live	e(use,o	ccupancy)	Ls=l	ive(stora	ge,equ:	ipment)	f=fire		
Load Patt	terns: s=	S/2 L=	L+Ls _=r	no patt	ern load	in this	s span			
All Load	Combinat:	ions (L	Cs) are l	isted	in the An	alysis	output			
CALCULATION	ONS:									
ETeff = 2	258.29 lb	-in^2	$K = 4.94\epsilon$	e06 lbs					CONFORMS T	n nrc 2012
"Live" de	eflection	is due	to all r	ion-dea	d loads (live, v	wind, sn	ow)	eauloums i	n and war in
										EN 40 69 HJ

Design Notes:

AMENDED 2020

- 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.

S. KATSOWAKOS ST

CITY OF RICHMOND HILL BWG NO TAW ACCUPACE STREETURAL CONVERSO ONLY 022

RECEIVED
Per: joshua.nabua





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B1(i1670) (Flush Beam)

Passed

BC CALC® Member Report

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name: Address:

Address:
City, Province, Postal Code: WATERDOWN

File name:

38-12.mmdl

Wind

Description: 1ST FLR FRAMING\Flush Beams\B1(i1670)

Specifier:

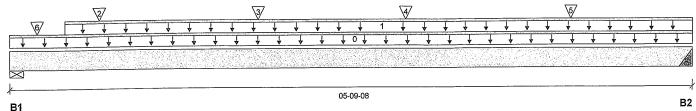
. :: LBV

Customer: Code reports:

CCMC 12472-R

Designer: L

Company:



Total Horizontal Product Length = 05-09-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	731 / 0	603 / 0
B2. 3"	662 / 0	578 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-09-08	Тор		5			00-00-00
1	1(i491)	Unf. Lin. (lb/ft)	L	00-05-08	05-09-08	Top		81			n\a
2	J1(i1754)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Top	295	147			n\a
3	J1(i1705)	Conc. Pt. (lbs)	L	02-01-00	02-01-00	Тор	330	165			n\a
4	-	Conc. Pt. (lbs)	L	03-03-13	03-03-13	Top	460	231			n\a
5	J1(i467)	Conc. Pt. (lbs)	L	04-09-00	04-09-00	Тор	304	152			n\a
6	F4(i207)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		26			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2629 ft-lbs	11610 ft-lbs	22.6%	1	03-01-00
End Shear	1604 lbs	5785 lbs	27.7%	1	04-09-00
Total Load Deflection	L/999 (0.038")	n\a	n\a	4	02-10-12
Live Load Deflection	L/999 (0.021")	n\a	n\a	5	02-10-12
Max Defl.	0.038"	n\a	n\a	4	02-10-12
Span / Depth	6.8				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	1849 lbs	49.1%	24.7%	Spruce-Pine-Fir
B2	Hanger	3" x 1-3/4"	1716 lbs	n\a	26.8%	IUS1.81/10

Cautions

Header for the hanger IUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model IUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



RECEIVED
Per:____joshua.nabua_



BC CALC® Member Report



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

PASSED

1ST FLR FRAMING\Flush Beams\B1(i1670) (Flush Beam) Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name: Address:

File name: Description:

38-12.mmdl 1ST FLR FRAMING\Flush Beams\B1(i1670)

City, Province, Postal Code: WATERDOWN

Specifier:

Designer:

Customer: Code reports:

Company: CCMC 12472-R

LBV

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.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



DWG NO. TAM LYHIY-20 STRUCTURÁL

Disclosure COME ONLY

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

questions, please call (800)232-0788 before installation.

BUILDING DIVISION

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BCRIMBOARDIM/BCI® BOISE GLULAM BO Floor Value®, VERSA-LAM®, VERSA-RIM PLUS®,

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

PASSED

1ST FLR FRAMING\Flush Beams\B2(i1838) (Flush Beam)

BC CALC® Member Report

Build 7493

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Job name:

Address:

City, Province, Postal Code: WATERDOWN

File name:

38-12.mmdl

1ST FLR FRAMING\Flush Beams\B2(i1838) Description:

Specifier:

LBV

Customer: Code reports:

CCMC 12472-R

Designer: Company:

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	Figure 1		**************************************	AT BUT										
병원들은 사람들은 전에 가게 되었다.														
	A		Sary R. A. S.		Asset Section Ass	ny toka ati	Ne service etc.	<u>Grigorija diking saje</u>	9978 S. S. S. S. S.	\$1,141a.p.46		1344 4540	35 3 3 4 3 5 4 4 4 4 5 5 5 5 5 5 5 5 5 5	1 10 6
	A				<u> 24. Kus 68</u>	<u> 1010-00-00</u>	Meridan dan dan dari			\$1, 140a. nu (1)		<u> </u>	98 FM FM 4446	<u> </u>

Total Horizontal Product Length = 16-06-04

Reaction Summary (Down / Uplift) (lbs)

Wind Dead Snow Live Bearing 923 / 0 874 / 0 B1, 4-7/8" 453 / 0 669 / 0 B2, 2-3/8"

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-06-04	Тор		10			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-06-04	Тор	23	11			n\a
2	2(j493)	Unf. Lin. (lb/ft)	L	00-03-10	02-01-02	Тор		65			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-04-14	15-03-06	Top	24	12			n\a
4	-	Conc. Pt. (lbs)	L	02-05-12	02-05-12	Top	643	578			n\a
5	J5(i447)	Conc. Pt. (lbs)	L	15-03-06	15-03-06	Тор	243	121			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5839 ft-lbs	23220 ft-lbs	25.1%	1	06-08-03
End Shear	2317 lbs	11571 lbs	20.0%	1	01-02-06
Total Load Deflection	L/478 (0.403")	n\a	50.2%	4	08-00-15
Live Load Deflection	L/852 (0.226")	n\a	42.3%	5	08-00-15
Max Defl.	0.403"	n\a	n\a	4	08-00-15
Snan / Denth	20.3				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Waterial
B1	Beam	4-7/8" x 3-1/2"	2478 lbs	34.0%	11.9%	Unspecified
B2	Wall/Plate	2-3/8" x 3-1/2"	1569 lbs	30.7%	15.5%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

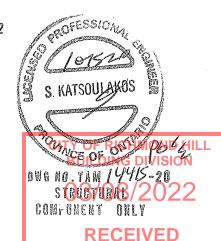
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

AMENDED 2020

Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



joshua.nabua





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B2(i1838) (Flush Beam)

PASSED

BC CALC® Member Report

City, Province, Postal Code: WATERDOWN

Build 7493

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Job name: Address:

File name: Description: 1ST FLR FRAMING\Flush Beams\B2(i1838)

Specifier:

Company:

Designer:

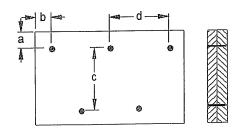
Customer: Code reports:

CCMC 12472-R

LBV

38-12.mmdl

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2"d = 2 4

Calculated Side Load = 257.9 lb/ft

Connectors are:

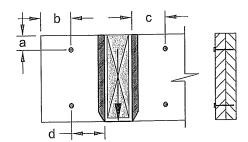
_ Nails

3-1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 6



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d

3-1/2" ARDOX SPIRAL



Disclosure

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

questions, please call (800)232-0788 before installation. Y OF RICHMOND HILL **BUILDING DIVISION**

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

PASSED

1ST FLR FRAMING\Flush Beams\B3(i1764) (Flush Beam)

BC CALC® Member Report Build 7493

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Job name:

File name:

38-12.mmdl

1ST FLR FRAMING\Flush Beams\B3(i1764)

Address:

Description:

Customer:

City, Province, Postal Code: WATERDOWN

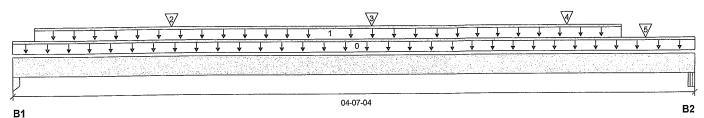
Specifier: Designer:

Code reports:

CCMC 12472-R

LBV

Company:



Total Horizontal Product Length = 04-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	431 / 0	236 / 0		
B2, 6"	622 / 0	359 / 0		

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-07-04	Тор		10			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-01-12	04-01-04	Тор	120	60			n\a
2	J4(j481)	Conc. Pt. (lbs)	L	01-00-12	01-00-12	Top	148	74			n\a
3	J4(j425)	Conc. Pt. (lbs)	L	02-04-12	02-04-12	Top	156	78			n\a
4	J4(i393)	Conc. Pt. (lbs)	L	03-08-12	03-08-12	Тор	122	61			n\a
5	11(i665)	Conc. Pt. (lbs)	L	04-03-04	04-03-04	Тор	150	99			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1076 ft-lbs	23220 ft-lbs	4.6%	1	02-04-12
End Shear	728 lbs	11571 lbs	6.3%	1	00-11-04
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	02-01-12
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	02-01-12
Max Defl.	0.004"	n\a	n\a	4	02-01-12
Span / Depth	5.2				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 3-1/2"	941 lbs	23.7%	12.6%	Unspecified
B2	Beam	6" x 3-1/2"	1383 lbs	15.4%	5.4%	Unspecified

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

AMENDED 2020

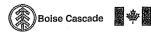
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9







Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B3(i1764) (Flush Beam)

PASSED

October 14, 2020 15:46:24

BC CALC® Member Report

Build 7493

Job name:

Address: City, Province, Postal Code: WATERDOWN

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: 38-12.mmdl

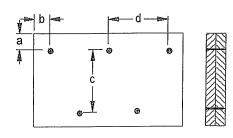
Description: 1ST FLR FRAMING\Flush Beams\B3(i1764)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 229 8

Calculated Side Load = 165.8 lb/ft

Connectors are:

Nails

3-1/2" ARDOX SPIRAL



OWO NO. TAM14416-20 STRUCTURAL Disclosure ONLY

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

questions, please call (800)232-0788 OND HILL before installation. **BUILDING DIVISION**

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

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obtain Installation Guide or ask





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

PASSED

1ST FLR FRAMING\Flush Beams\B4(i387) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name:

File name: Description: 38-12.mmdl

Address:

City, Province, Postal Code: WATERDOWN

Specifier:

1ST FLR FRAMING\Flush Beams\B4(i387)

Wind

Customer:

Designer:

LBV

Code reports:

CCMC 12472-R

Company:

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<i>)</i>																	ns	5-06-0	าย																	
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Total Horizontal Product Length = 05-06-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	67 / 0	47 / 0
B2, 3"	66 / 0	46 / 0

	ad Summary Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-06-08	Тор		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-06-08	Top	24	12			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	188 ft-lbs	11610 ft-lbs	1.6%	1	02-09-08
End Shear	98 lbs	5785 lbs	1.7%	1	01-01-00
Total Load Deflection	L/999 (0.003")	n\a	n\a	4	02-09-08
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	02-09-08
Max Defl.	0.003"	n\a	n\a	4	02-09-08
Span / Depth	6.5				

Bearin	ıg Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Column	3-1/2" x 1-3/4"	160 lbs	4.0%	2.1%	Unspecified	
B2	Hanger	3" x 1-3/4"	158 lbs	n\a	2.5%	IUS1.81/10	

SOUNCE OF DWG NO. TAN 14417 -20 STRUCTURAL

COMPONENT ONLY

Cautions

Header for the hanger IUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model IUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

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.

Hanger Manufacturer: Unassigned

CONFORMS TO OBC 2012

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

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

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9 AMENDED 2020

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Use of the Boise Cascade Software is

Disclosure

Guide and applicable building codes. To obtain Installation Guide or ask

questions, please call (800)232-0788
hafora installation YOF RICHMOND HILL

BUILDING DIVISION BC CALC®, BC FRAMER®, AJS™ ALLJOIST®, BC RIM BOARD™, BGI® BOISE GLULAM™, BO Floor Value®, VERSA-LAM®, VERSA-RIM PLUS®,

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B5(i1832) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name:

Address: City, Province, Postal Code: WATERDOWN

File name:

38-12.mmdl

LBV

Description:

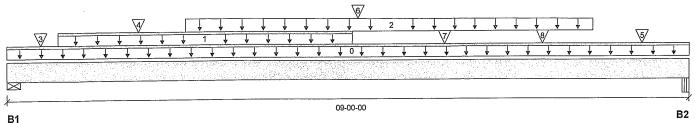
1ST FLR FRAMING\Flush Beams\B5(i1832)

Specifier:

Customer: Code reports:

CCMC 12472-R

Designer: Company:



Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/2"	1445 / 0	1143 / 0	681 / 0
B2 3"	1460 / 0	899 / 0	239 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		10			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-08-00	04-06-00	Top		120	240		n\a
2	Smoothed Load	Trapezoidal (lb/ft)	L	02-03-14		Top	293	147			n\a
_		•			07-08-10		266	133			
3		Conc. Pt. (lbs)	L	00-05-05	00-05-05	Top	356	207			n\a
4	J1(i401)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	. 317	158			n\a
5	-	Conc. Pt. (lbs)	L	08-04-08	08-04-08	Top	366	183			n\a
6	B4(i387)	Conc. Pt. (lbs)	L	04-06-14	04-06-14	Top	64	45			n\a
7	J4(i481)	Conc. Pt. (lbs)	L	05-08-08	05-08-08	Top	137	69			n\a
8	J4(i425)	Conc. Pt. (lbs)	L	07-00-08	07-00-08	Top	148	74			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8121 ft-lbs	23220 ft-lbs	35.0%	1	04-04-08
End Shear	3469 lbs	11571 lbs	30.0%	1	01-03-00
Total Load Deflection	L/660 (0.153")	n\a	36.4%	35	04-06-14
Live Load Deflection	L/999 (0.1")	n\a	n\a	51	04-06-14
Max Defl.	0.153"	n\a	n\a	35	04-06-14
Span / Depth	10.6				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	4277 lbs	36.1%	18.2%	Spruce-Pine-Fir
B2	Beam	3" x 3-1/2"	3552 lbs	79.2%	27.7%	Unspecified

Notes

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

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

CONFORMS TO OBC 2012

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

AMENDED 2020

Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9



joshua.nabua



BC CALC® Member Report



City, Province, Postal Code: WATERDOWN

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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i1832) (Flush Beam) Dry | 1 span | No cant.

Build 7493

Job name: Address:

October 14, 2020 15:46:24

File name:

1ST FLR FRAMING\Flush Beams\B5(i1832) Description:

38-12.mmdl

Specifier:

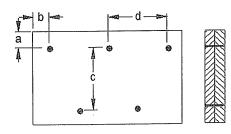
Designer: LBV

Customer: Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 12 8

Calculated Side Load = 821.6 lb/ft Connectors are: 16d A. n Nails

3-1/2" ARDOX SPIRAL



COMPONENT ONLY

Disclosure

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

before installation. **BUILDING DIVISION** BC CALC®, BC FRAMER®, AJS™,

ALLJOIST®, BC RIM BOARDTY, BOIR BOISE GLULAMTY, BC Floor Value®, VERSA-LAM®, VERSA-RIM PLUS®,

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BC CALC® Member Report



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

PASSED

2ND FLR FRAMING\Dropped Beams\B11(i1784) (Dropped Beam)

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: WATERDOWN

CCMC 12472-R

38-12.mmdl File name:

Description: 2ND FLR FRAMING\Dropped Beams\B11(i1784)

Specifier:

Designer: LBV

Company:

		4	
2/	3	+ + + + +	+ + + + + + + + + + + +
1 1 1 1 T	 	, , , , , , , ,	<u> </u>
		04-02-04	
31	-	Statition and Duadout Land	

Total Horizontal Product Length = 04-02-04

Commons (Down / Unlift) (lbc)

Reaction 5un	Illiary (Down / Of	Jiiit) (165)		
Bearing	Live	Dead	Snow	Wind
B1. 4"	2148 / 0	1233 / 0		
P2 6 1/4"	1534 / 0	802 / 0		

10	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-02-04	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-08	04-02-04	Top	366	184			n\a
2	B10(i1756)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	942	598			n\a
2	-	Conc. Pt. (lbs)	L	01-00-08	01-00-08	Тор	372	186			n\a
4	B9(i1149)	Conc. Pt. (lbs)	L	02-00-02	02-00-02	Тор	1398	725			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3738 ft-lbs	23220 ft-lbs	16.1%	1	02-00-02
End Shear	2507 lbs	11571 lbs	21.7%	1	01-01-08
Total Load Deflection	L/999 (0.01")	n\a	n\a	4	02-00-02
Live Load Deflection	L/999 (0.006")	n\a	n\a	5	02-00-02
Max Defl.	0.01"	n\a	n\a	4	02-00-02
Span / Depth	4.4				

Rearin	g Supports	Dim (I xW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	4764 lbs	25.5%	27.9%	Spruce-Pine-Fir
B2	Wall/Plate	6-1/4" x 3-1/2"	3303 lbs	11.3%	12.4%	Spruce-Pine-Fir

Notes

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

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

Calculations assume unbraced length of Top: 00-10-04, Bottom: 00-10-04.

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

AMENDED 2020

CONFORMS TO OBC 2012

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

WE BUTANNE

STRUCTURAL

joshua.nabua





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B11(i1784) (Dropped Beam)

PASSED

October 14, 2020 15:46:24

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

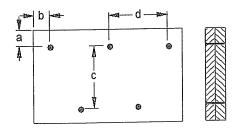
38-12.mmdl 2ND FLR FRAMING\Dropped Beams\B11(i1784) Description:

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



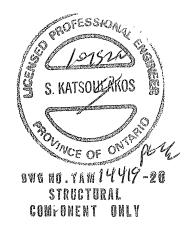
a minimum = 2" b minimum = 3"

c = 5-1/2" d = 200 8 11

Connectors are: 3-3/

, Nails

3-1/2" ARDOX SPIRAL



Disclosure

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BUILDING DIVISION BC CALC®, BC FRAMER® , AJS™

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

PASSED

2ND FLR FRAMING\Dropped Beams\B12(i1792) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name:

File name:

38-12.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B12(i1792)

City, Province, Postal Code: WATERDOWN

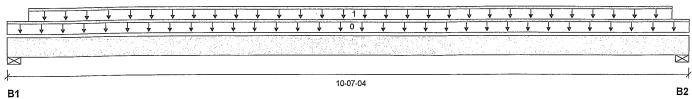
ATERDOWN

Specifier:

Customer: Code reports: CCMC 12472-R

Designer: LBV

Company:



Total Horizontal Product Length = 10-07-04

Snow

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead	
B1, 3-1/2"	1618 / 0	862 / 0	
B2 3-3/4"	1642 / 0	874 / 0	

	ad Summary Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-04	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-00	10-04-00	Top	325	163			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9103 ft-lbs	23220 ft-lbs	39.2%	1	04-10-00
End Shear	3275 lbs	11571 lbs	28.3%	1	01-01-00
Total Load Deflection	L/511 (0.238")	n\a	47.0%	4	05-04-00
Live Load Deflection	L/782 (0.155")	n\a	46.0%	5	05-04-00
Max Defl.	0.238"	n\a	n\a	4	05-04-00
Span / Depth	12.8				

Bearir	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	3505 lbs	21.4%	23.4%	Spruce-Pine-Fir
B2	Wall/Plate	3-3/4" x 3-1/2"	3557 lbs	20.3%	22.2%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume unbraced length of Top: 00-08-08, Bottom: 00-08-08. Resistance Factor phi has been applied to all presented results per CSA O86.

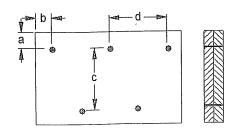
AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member





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Per:____joshua.nabua





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B12(i1792) (Dropped Beam)

PASSED

October 14, 2020 15:46:24

BC CALC® Member Report

Build 7493 Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

38-12.mmdl

File name: 2ND FLR FRAMING\Dropped Beams\B12(i1792) Description:

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2" b minimum = 3"

c = 5-1/2" d = 28 8 4

Connectors are:

, Nails

3-1/2" ARDOX SPIRAL



COMPONENT ONLY

Disclosure

before installation.

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

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> RECEIVED joshua.nabua





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

PASSED

2ND FLR FRAMING\Flush Beams\B10(i1756) (Flush Beam)

BC CALC® Member Report

Build 7493

Dry | 2 spans | L cant.

October 14, 2020 15:46:24

Job name:

File name: Description:

38-12.mmdl 2ND FLR FRAMING\Flush Beams\B10(i1756)

Wind

LBV

Address:

Specifier:

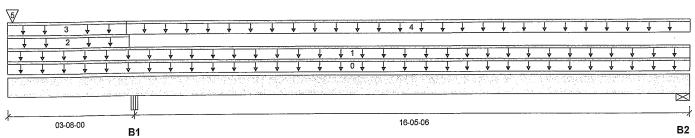
City, Province, Postal Code: WATERDOWN Customer:

Code reports:

CCMC 12472-R

Designer:

Company:



Total Horizontal Product Length = 20-01-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	945 / 0	600 / 0
B2, 4-3/8"	335 / 69	208 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	20-01-06	Top		10			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	20-01-06	Top	18	9			n\a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-06-04	Top	120	60			n\a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-05-04	Top	6	3			n\a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	03-05-04	20-01-06	Top	22	11			n\a
5	B8(i1483)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Тор	40	28			n\a

0 1 1 0		Factored	Demand/	0	1
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	2771 ft-lbs	23220 ft-lbs	11.9%	3	12-02-12
Neg. Moment	-2469 ft-lbs	-23220 ft-lbs	10.6%	2	03-08-00
End Shear	650 lbs	11571 lbs	5.6%	3	18-11-08
Cont. Shear	976 lbs	11571 lbs	8.4%	1	02-08-12
Total Load Deflection	L/1097 (0.177")	n\a	21.9%	10	12-00-01
Live Load Deflection	L/999 (0.122")	n\a	n\a	13	11-09-06
Total Neg. Defl.	2xL/1998 (-0.103")	n\a	n\a	10	00-00-00
Max Defl.	0.177"	n\a	n\a	10	12-00-01
Span / Depth	20.4				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 3-1/2"	2168 lbs 763 lbs	14.5% 8.1%	14.5% 4.1%	VL 2.0 3100 SP Spruce-Pine-Fir
B2	Wall/Plate	4-3/8" x 3-1/2"	703 IDS	0.170	4.170	Spruce-Fine-Fin

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.



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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B10(i1756) (Flush Beam)

PASSED

October 14, 2020 15:46:24

BC CALC® Member Report

Build 7493

Job name:

Address: City, Province, Postal Code: WATERDOWN

Customer: Code reports:

CCMC 12472-R

Dry | 2 spans | L cant.

38-12.mmdl File name:

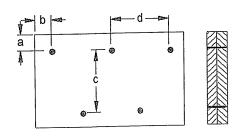
2ND FLR FRAMING\Flush Beams\B10(i1756) Description:

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 2 8 6

Calculated Side Load = 47.5 lb/ft

Connectors are:

յ Nails

3-1/2" ARDOX SPIRAL

1



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questions, please call (800)232-0788 before installation. OF RICHMOND HILL

BUILDING DIVISION
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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12H(i1775) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name: Address:

File name:

38-12.mmdl

LBV

City, Province, Postal Code: WATERDOWN

Specifier:

Description: 2ND FLR FRAMING\Flush Beams\B12H(i1775)

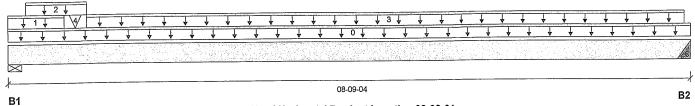
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-09-04

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-7/8"	75 / 0	141 / 0
B2, 4"	72 / 0	79 / 0

Load Summary							Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-09-04	Тор		10			00-00-00
1	15(i713)	Unf. Lin. (lb/ft)	L	00-00-00	80-80-00	Тор		65			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	01-00-00	Top	20	10			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	08-08-04	Top	17	9			n\a
4	14(i712)	Conc. Pt. (lbs)	L	00-10-04	00-10-04	Тор		16			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	400 ft-lbs	23220 ft-lbs	1.7%	1	04-05-09
End Shear	211 lbs	11571 lbs	1.8%	1	01-03-06
Total Load Deflection	L/999 (0.007")	n\a	n\a	4	04-05-09
Live Load Deflection	L/999 (0.003")	n\a	n\a ¹	5	04-05-09
Max Defl.	0.007"	n\a	n\a	4	04-05-09
Span / Depth	10.2				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	_
B1	Wall/Plate	5-7/8" x 3-1/2"	197 lbs	2.4%	1.2%	Spruce-Pine-Fir	
B2	Hanger	4" x 3-1/2"	206 lbs	n\a	1.2%	HGUS410	

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

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.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

AMENDED 2020

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

STREETING MOND HIL COMPARENTS DIVISION

joshua.nabua





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12H(i1775) (Flush Beam)

PASSED

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name:

Address: City, Province, Postal Code: WATERDOWN

BC CALC® Member Report

Customer: CCMC 12472-R Code reports:

38-12.mmdl File name:

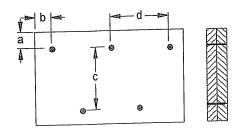
2ND FLR FRAMING\Flush Beams\B12H(i1775) Description:

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 20 8 "1

Connectors are:

. . Nails . A

3-1/2" ARDOX SPIRAL



OWG NO. TAN 1442220 STRUCTURAL CONFONENT ONLY

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BUILDING DIVISION

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PASSED

2ND FLR FRAMING\Flush Beams\B15(i1815) (Flush Beam)

Dry | 2 spans | R cant.

October 14, 2020 15:46:24

BC CALC® Member Report Build 7493

Job name: Address:

File name: Description:

38-12.mmdl 2ND FLR FRAMING\Flush Beams\B15(i1815)

Customer:

City, Province, Postal Code: WATERDOWN

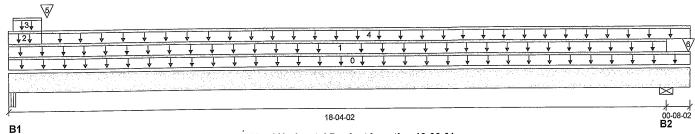
Specifier:

Designer: LBV

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 19-00-04

Reaction Sun	nmary (Down / Up	olitt) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1. 4-1/8"	1180 / 0	1508 / 0	1059 / 0		
B2, 5-1/2"	296 / 0	319 / 0	44 / 0		

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-00-04	Тор		10			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	18-04-02	Тор	17	9			n\a
2	E42(i550)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Top		81			n\a
3	E42(i550)	Unf. Lin. (lb/ft)	L	00-01-10	00-10-14	Тор		75	163		n\a
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-10-14	19-00-04	Тор	10	5			n\a
-		Conc. Pt. (lbs)	L	01-00-10	01-00-10	Top	977	1220	977		n\a
5 6	- 14(i712)	Conc. Pt. (lbs)	L	18-11-10	18-11-10	Тор		43			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4575 ft-lbs	23220 ft-lbs	19.7%	2	06-08-06
Neg. Moment		-15093 ft-lbs	0.3%	0	18-04-02
End Shear	4160 lbs	11571 lbs	35.9%	1	01-01-10
Cont. Shear	727 lbs	11571 lbs	6.3%	1	17-03-14
Total Load Deflection	L/523 (0.414")	n\a	45.9%	82	08-08-11
Live Load Deflection	L/914 (0.237")	n\a	39.4%	120	08-08-11
Total Neg. Defl.	2xL/1998 (-0.046")	n\a	n\a	82	19-00-04
Max Defl.	0.414"	n\a	n\a	82	08-08-11
Span / Depth	22.8				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 3-1/2"	4714 lbs	76.4%	26.8%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	887 lbs	7.5%	3.8%	Spruce-Pine-Fir

Cautions

Concentrated side load(s) 10,11,12,13,14 are closer than 18" from end of member. Please consult a technical representative or Professional of Record. OVO



STRUCTURAL CONFUNENT ONLY

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Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B15(i1815) (Flush Beam)

Dry | 2 spans | R cant.

PASSED

BC CALC® Member Report

Build 7493

October 14, 2020 15:46:24

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: WATERDOWN

File name: Description:

2ND FLR FRAMING\Flush Beams\B15(i1815)

Specifier:

Designer:

CCMC 12472-R

LBV

38-12.mmdl

Company:

Notes

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

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

canfarms to obc 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

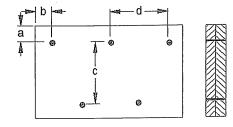
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 28 8

Connectors are: .

., Nails 3.1/2" ARDOX SPIRAL



000 10. TAN 1442320 STRUCTURAL COMPONENT ONLY

Disclosure

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

questions, please call (800)232-0788 before installation. **BUILDING DIVISION**

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

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PASSED

2ND FLR FRAMING\Flush Beams\B16(i1828) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report**

October 14, 2020 15:46:24

Build 7493

Job name: Address:

Customer:

Code reports:

City, Province, Postal Code: WATERDOWN

CCMC 12472-R

File name:

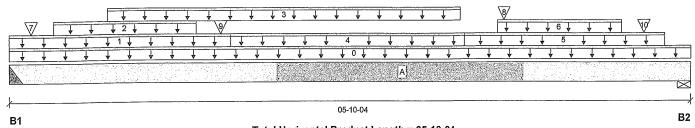
38-12.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16(i1828)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 05-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	
B1. 4"	1027 / 0	1200 / 0	939 / 0	
B2 2-3/4"	919 / 0	1013 / 0	691 / 0	

l o:	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-10-04	Тор		10			00-00-00
1	E46(i559)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-08	Top		81			n\a
2	E46(i559)	Unf. Lin. (lb/ft)	L	00-04-08	01-07-00	Тор	•	48	111		n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-00	03-10-00	Тор	354	176			n\a
4	E47(i560)	Unf. Lin. (lb/ft)	L	01-10-08	03-10-08	Тор		41			n\a
5	E41(i548)	Unf. Lin. (lb/ft)	L	03-10-08	05-07-08	Тор		81			n\a
6	E41(i548)	Unf. Lin. (lb/ft)	L	04-02-00	05-03-00	Тор		48	111		n\a
7	-	Conc. Pt. (lbs)	L	00-02-04	00-02-04	Тор	262	440	635		n\a
8	_	Conc. Pt. (lbs)	L	04-02-11	04-02-11	Top	355	257	140		n\a
9	E46(i559)	Conc. Pt. (lbs)	L	01-09-08	01-09-08	Top		83	146		n\a
10	-	Conc. Pt. (lbs)	L	05-05-06	05-05-06	Тор	265	363	454		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3658 ft-lbs	23220 ft-lbs	15.8%	1	03-04-00
End Shear	2274 lbs	11571 lbs	19.7%	1	01-01-08
Total Load Deflection	L/999 (0.029")	n\a	n\a	35	03-00-04
Live Load Deflection	L/999 (0.018")	n\a	n\a	51	03-00-04
Max Defl.	0.029"	n\a	n\a	35	03-00-04
Span / Depth	6.8				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	3979 lbs	n\a	23.3%	HGUS410
B2	Wall/Plate	2-3/4" x 3-1/2"	3336 lbs	56.3%	28.4%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



joshua.nabua



BC CALC® Member Report



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

2ND FLR FRAMING\Flush Beams\B16(i1828) (Flush Beam)

Dry | 1 span | No cant.

October 14, 2020 15:46:24

PASSED

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

File name: Description:

Specifier: Designer:

Customer: Code reports:

CCMC 12472-R

LBV

38-12.mmdl

Company:

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.

CONFORMS TO OBC 2012

2ND FLR FRAMING\Flush Beams\B16(i1828)

AMENDED 2020

Hanger Manufacturer: Unassigned

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

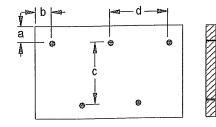
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2" d = 2 8

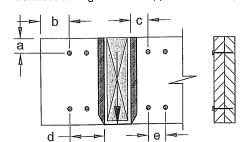
Calculated Side Load = 374.9 lb/ft Connectors are: 16d And Nails

3-1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 20+21+33



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4" Connectors are: 3

Nails

3-1/2" ARDOX SPIRAL



886 NO. TAN 1442420 STRUCTURAL COMPONENT ONLY

Disclosure

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PASSED

2ND FLR FRAMING\Flush Beams\B7(i1685) (Flush Beam)

Dry | 1 span | No cant.

October 14, 2020 15:46:24

BC CALC® Member Report Build 7493

Job name: Address:

File name:

38-12.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B7(i1685)

City, Province, Postal Code: WATERDOWN

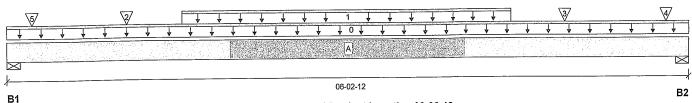
Specifier:

Designer: LBV

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 06-02-12

Reaction Summary (Down / Uplift) (lbs)

Reaction Sur	Live	Dead	Snow	Wind
B1. 5-1/2"	1218 / 0	662 / 0		
B2, 6-1/4"	1635 / 0	889 / 0		

Loc	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-02-12	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-07-00	04-07-00	Top	500	250			n\a
2		Conc. Pt. (lbs)	L	01-01-00	01-01-00	Тор	465	232			n\a
2	-	Conc. Pt. (lbs)	L	05-01-00	05-01-00	Top	484	242			n\a
3	-	Conc. Pt. (lbs)	1.	06-00-03	06-00-03	Top	397	240			n\a
4	- E44(i554)	Conc. Pt. (lbs)	Ĺ	00-02-12	00-02-12	Тор		24			n\a
Ü	E44(1004)	331.31 (183)				•					

Controls Summary	Factored Demand	Factored Resistance	Demand <i>l</i> Resistance	Case	Location
	3959 ft-lbs	23220 ft-lbs	17.1%	1	03-01-00
Pos. Moment	2434 lbs	11571 lbs	21.0%	1	04-11-00
End Shear			n\a	4	03-01-00
Total Load Deflection	L/999 (0.028")	n∖a		5	03-01-00
Live Load Deflection	L/999 (0.019")	n\a	n∖a	=	
Max Defl.	0.028"	n\a	n\a	4	03-01-00
Span / Depth	6.8				

Rearin	ıg Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	2654 lbs	22.4%	11.3%	Spruce-Pine-Fir
B2	Wall/Plate	6-1/4" x 3-1/2"	3563 lbs	26.5%	13.4%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



STRUCTURAL DIVISION
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Per:





City, Province, Postal Code: WATERDOWN

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B7(i1685) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7493 Job name:

Dry | 1 span | No cant.

October 14, 2020 15:46:24

File name:

2ND FLR FRAMING\Flush Beams\B7(i1685) Description:

38-12.mmdl

Specifier:

Designer: LBV

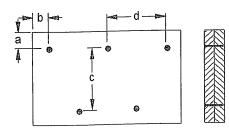
Customer: Code reports:

Address:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

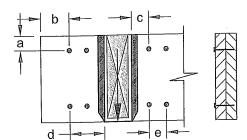
c = 5-1/2" d = 200 8

Calculated Side Load = 346.4 lb/ft Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 5+4+7+6+8+9



a minimum = 2"

b minimum = 4" c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are: ^ Nails

3-1/2" ARDOX SPIRAL

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BUILDING DIVISION

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PASSED

October 14, 2020 15:46:24

2ND FLR FRAMING\Flush Beams\B8(i1483) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

City, Province, Postal Code: WATERDOWN

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: 38-12.mmdl

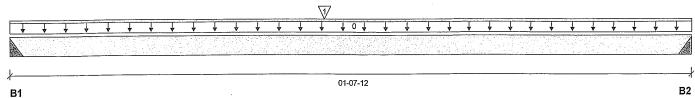
Description: 2ND FLR FRAMING\Flush Beams\B8(i1483)

Specifier:

Designer: LBV

Wind

Company:



Total Horizontal Product Length = 01-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 2-1/2"	37 / 0	26 / 0	
B2 4"	36 / 0	26 / 0	

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-07-12	Тор		10			00-00-00
1	J5(i1397)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Top	73	36			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	50 ft-lbs	23220 ft-lbs	0.2%	1	00-09-00
End Shear	28 lbs	11571 lbs	0.2%	1	00-06-04
Span / Depth	1.6				

Bearing	a Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2-1/2" x 3-1/2"	88 lbs	n\a	0.8%	HUC410
B2	Hanger	4" x 3-1/2"	87 lbs	n\a	0.5%	HGUS410

Cautions

Header for the hanger HUC410 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HGUS410 is a Single 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

AMENDED 2020

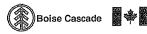
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition. Importance Factor : Normal Part code : Part 9 CONFORMS TO OBC 2012

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BC CALC® Member Report



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

PASSED

2ND FLR FRAMING\Flush Beams\B8(i1483) (Flush Beam)

Dry | 1 span | No cant.

October 14, 2020 15:46:24

Build 7493

Job name: Address:

City, Province, Postal Code: WATERDOWN

Customer: Code reports:

CCMC 12472-R

File name: 38-12.mmdl

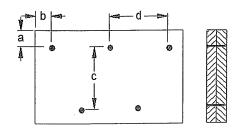
Description: 2ND FLR FRAMING\Flush Beams\B8(i1483)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2" d = 24 8

Calculated Side Load = 77.3 lb/ft

Connectors are: : ::

🖽 Nails

3-1/2" ARDOX SPIRAL



1WG NO. TAN 1442/2 STRUCTURAL COMPONENT ONLY

Disclosure

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before installation. **BUILDING DIVISION**

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City, Province, Postal Code: WATERDOWN

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B9(i1149) (Flush Beam)

Passed

Tributary

POUNTE OF ONLY

186 NO. TAM 1942/20

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 1 span | No cant.

October 14, 2020 15:46:24

File name:

38-12.mmdl

2ND FLR FRAMING\Flush Beams\B9(i1149) Description:

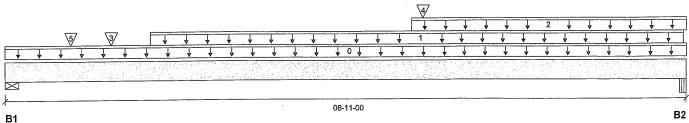
Specifier:

Designer: LBV

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-11-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/2"	1190 / 0	636 / 0
R2 1-3/4"	1397 / 0	724 / 0

Lo	ad Summary						Live	Dead	Snow	vvina	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-11 - 00	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-08	08-10-08	Тор	314	156			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-03-00	08-11-00	Тор	19	10			n\a
3	J1(i1192)	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top	278	139		and the same of	n\a
4	B8(i1483)	Conc. Pt. (lbs)	L	05-04-12	05-04-12	Top	33	24	e de la companya de l	REPORT OF	n)a
5	14(i712)	Conc. Pt. (lbs)	L	00-10-04	00-10-04	Тор		16		15	1520 at

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	6267 ft-lbs	11610 ft-lbs	54.0%	1	04-04-08
End Shear	2637 lbs	5785 lbs	45.6%	1	07-11-12
Total Load Deflection	L/448 (0.226")	n\a	53.6%	4	04-07-02
Live Load Deflection	L/682 (0.149")	n\a	52.8%	5	04-07-02
Max Defl.	0.226"	n\a	n\a	4	04-07-02
Span / Depth	10.7				

Bearin	ıg Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2581 lbs	43.6%	22.0%	Spruce-Pine-Fir
B2	Beam	1-3/4" x 1-3/4"	3001 lbs	80.3%	80.3%	VL 2.0 3100 SP

Notes

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

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

AMENDED 2020

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

STRUCTURAL COMPONENT ONLY Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to CONFORMS TO OBC 2012 anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788

before installation. **BUILDING DIVISION**

BC CALC®, BC FRAMER® , AJS™ ALLJOIST®, BC RIM BOARDTM, BGI® BOISE GLULAM BO Floor Value , VERSA-LAM®, VERSA-RIM PLUS®,

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Live Load = 40 psf, Dead Load = 15 psf Simple Spans, L/480 Deflection Limit 5/8" OSB G&N Sheathing







			Ba	are			1/2" Gyp:	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
·		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	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
	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
11-7/8"	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
	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
14"	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
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.011	NI-70	23'-6"	2 1'- 9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	N1-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

			Mid-Spar	n Blocking		Mid-S	pan Blocking ar	nd 1/2" Gypsum	Ceiling
Depth	Series	On Centre Spacing			On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	. 16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	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
	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
11-7/8"	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
	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
14"	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
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
. =11	N1-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
16"	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/480 and a total load deflection limit of L/240.

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^{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.

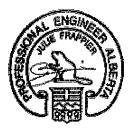
^{4.} Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

^{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.



Live Load = 40 psf, Dead Load = 15 psf Simple Spans, L/480 Deflection Limit 3/4" OSB G&N Sheathing







			Ва	are			1/2" Gyp:	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
Depar.		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
,	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	N1-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
11-7/8"	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
16"	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

			Mid-Spar	n Blocking		Mid-S	pan Blocking an	d 1/2" Gypsum	Ceiling	
Depth	Series	es On Centre Spacing				On Centre Spacing				
Берил	5555	12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"	
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"	
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"	
5-1/2	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"	
	N1-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"	
	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"	
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"	
	NI-60	22'-1"	20'-7"	19'-7"	18 -4"	22'-8"	20'-10"	19'-8"	18'-4"	
11-7/8"	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"	
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"	
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"	
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"	
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"	
14"	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"	
14	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"	
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"	
	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"	
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"	
16"	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"	
	NI-80 NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"	

^{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/480 and a total load deflection limit of L/240.

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^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 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.



Live Load = 40 psf, Dead Load = 30 psf Simple Spans, L/480 Deflection Limit 5/8" OSB G&N Sheathing







Depth	Series	Bare On Centre Spacing				1/2" Gypsum Ceiling On Centre Spacing			
·····	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
9-1/2"	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
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	N1-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	N1-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
11-7/8"	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
	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
14"	N1-70	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
	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
16"	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 On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling			
						On Centre Spacing			
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
9-1/2"	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
,	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
1-11	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	N1-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
16"	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/480 and a total load deflection limit of L/240.

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^{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.



Live Load = 40 psf, Dead Load = 30 psf Simple Spans, L/480 Deflection Limit 3/4" OSB G&N Sheathing







Depth		Bare On Centre Spacing				1/2" Gypsum Ceiling On Centre Spacing				
	Series									
_		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"	
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"	
9-1/2"	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"	
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"	
	NI-80	18'-3"	18'-3" 17'-1" 16'-5" 15'-9" 18'-8" 17'-5" 16	16'-9"	15'-10"					
	N1-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"	
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"	
11-7/8"	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"	
11-//0	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"	
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"	
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"	
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"	
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"	
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"	
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"	
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"	
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"	
16"	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"	
10	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"	
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"	

Depth	Series	Mid-Span Blocking On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling			
						On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
9-1/2"	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"
	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
11 7/0"	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
11-7/8"	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
14"	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
16"	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
10	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"

^{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/480 and a total load deflection limit of L/240.

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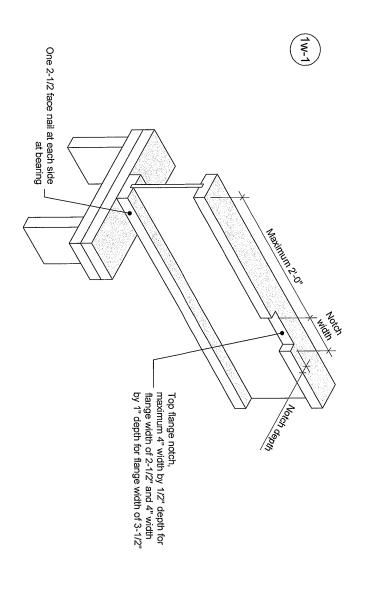
^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

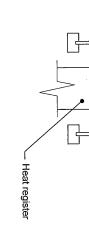
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

^{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.





and 1" depth for flange width of 3-1/2" Maximum 1/2" depth for flange width of 2-1/2"

- Notes:

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

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

 2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 3-1/2 inches.

 width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.

 3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.

 4. For other applications, contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity. T 514-871-8526 1 866 817-3418 Notch in I-joist for Heat Register

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic ca or contact Nordic Structures.

CATEGORY

I-joist - Typical Floor Framing and Construction Details

STRUCTURES

nordic.ca

DOCUMENT

DATE

2018-04-10

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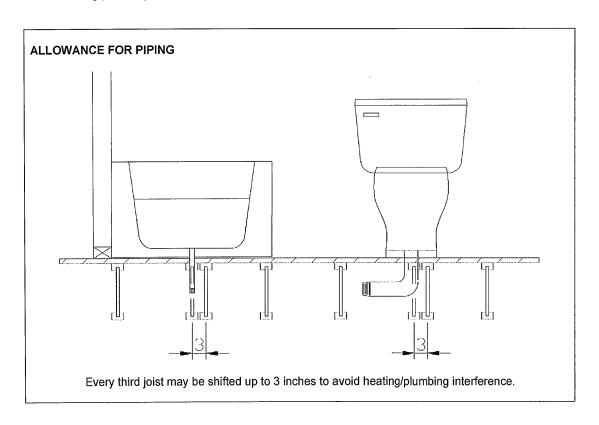
Limit States Design

Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.



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