

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	20
J1DJ	18-00-00	9 1/2" NI-40x	2	4
J2	16-00-00	9 1/2" NI-40x	1	14
J2DJ	16-00-00	9 1/2" NI-40x	2	4
J3	14-00-00	9 1/2" NI-40x	1	10
J3DJ	14-00-00	9 1/2" NI-40x	2	4
J4	12-00-00	9 1/2" NI-40x	1	3
J5	10-00-00	9 1/2" NI-40x	1	2
J6	6-00-00	9 1/2" NI-40x	1	12
J7	4-00-00	9 1/2" NI-40x	1	3
J8	2-00-00	9 1/2" NI-40x	1	2
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5

CITY OF HAMILTON
Building Division

Permit No. **21-163000**

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

[Signature] **APR 08 2022**

FOR JDL DATE

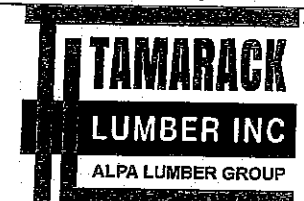
DATE: 8/16/21

1st FLOOR FRAMING

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

NOV 29 2021

REC BY _____ DATE _____
REF'D TO _____ DATE _____



FROM PLAN DATED: JAN 2021

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH. 4

MODEL: VALLEYCREEK 5A

ELEVATION: 2

LOT: 553

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

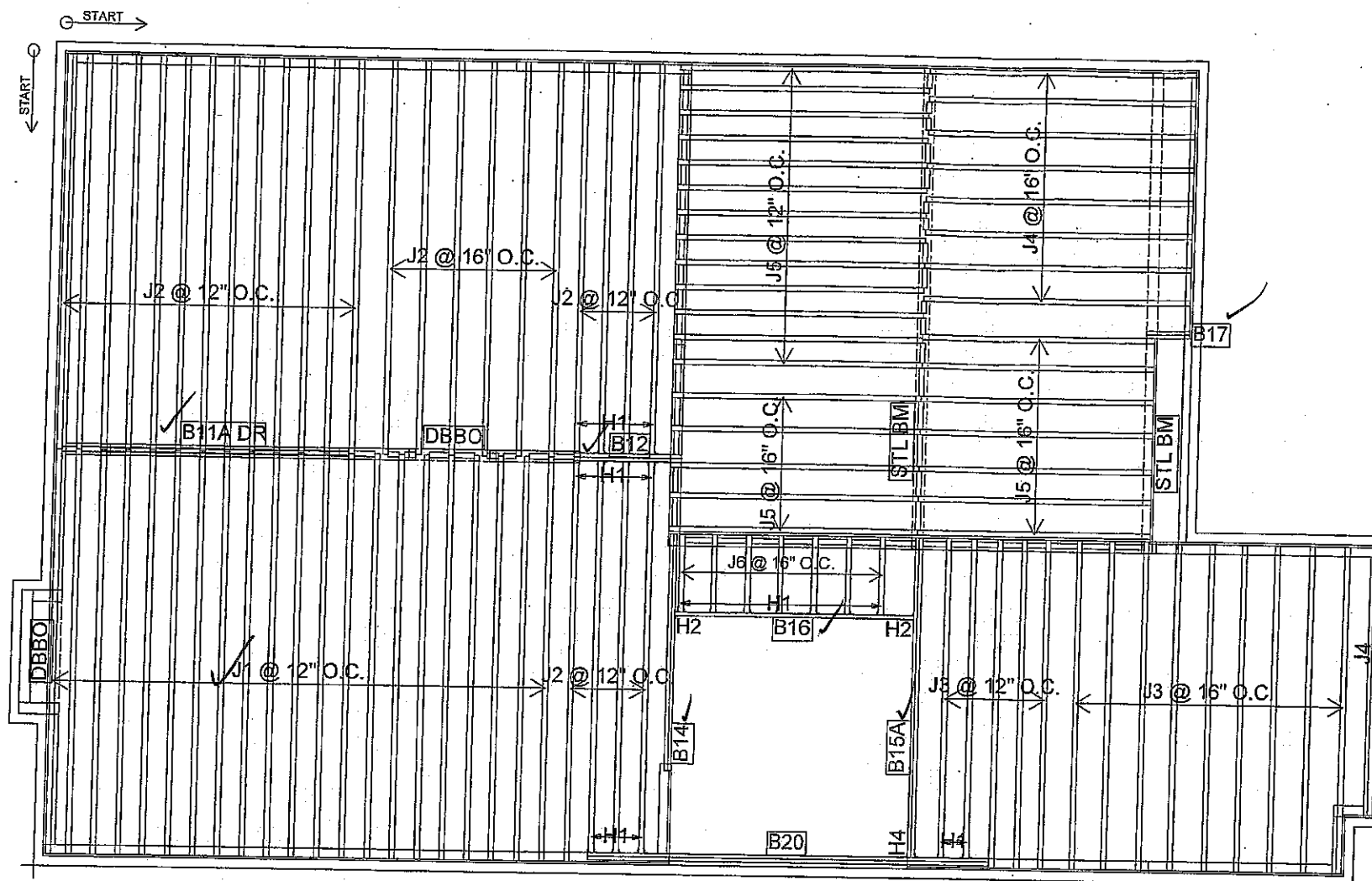
DESIGNER: AJ

REVISION: CH

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: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	21
J2	16-00-00	9 1/2" NI-40x	1	27
J3	14-00-00	9 1/2" NI-40x	1	14
J4	12-00-00	9 1/2" NI-40x	1	9
J5	10-00-00	9 1/2" NI-40x	1	25
J6	4-00-00	9 1/2" NI-40x	1	7
B20	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15A	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11A DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/9.5
13	H1	IUS2.56/9.5
2	H2	HUS1.81/10
1	H4	HGUS410

CITY OF HAMILTON
Building Division

Permit No. 21-163000

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE.

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE

These drawings and/or specifications have been reviewed
APR 08 2022

For JDL

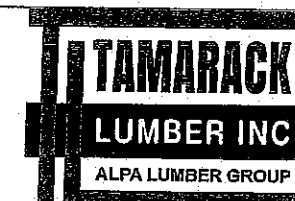
DATE: 8/16/21

2ND FLOOR FRAMING

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

NOV 29 2021

REC BY _____ DATE _____
REF'D TO _____ DATE _____



FROM PLAN DATED: JAN 2021

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH. 4

MODEL: VALLEYCREEK 5A

ELEVATION: 2

LOT: 553

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION: CH

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

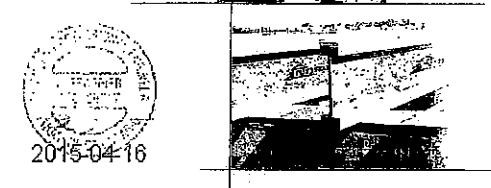
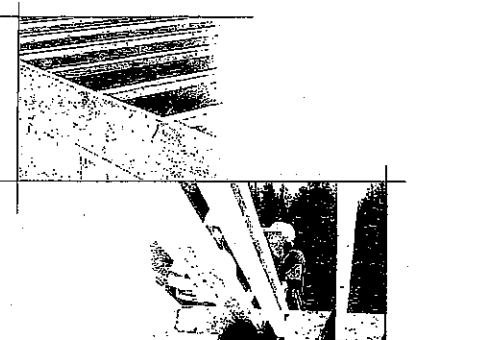
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS

- WARNING**
- I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- Avoid Accidents by Following these Important Guidelines:**
1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 3. Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on center, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 4. Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
 5. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
 6. 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.
 7. Never install a damaged I-joist.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

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

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for 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 CDS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Umi Joists Design per CAN/CSA C88-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

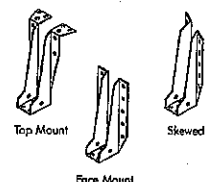
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Span	Joist	Simple Span				Multiple Span			
		19.2"	24"	30"	36"	19.2"	24"	30"	36"
9'-1/2"	NL-20	15'-1"	14'-2"	13'-3"	12'-4"	15'-3"	14'-4"	13'-5"	12'-5"
	NL-40	14'-1"	13'-2"	12'-3"	11'-4"	14'-2"	13'-3"	12'-4"	11'-5"
	NL-60	13'-3"	12'-4"	11'-5"	10'-6"	13'-4"	12'-5"	11'-6"	10'-7"
	NL-70	12'-1"	11'-2"	10'-3"	9'-4"	12'-2"	11'-3"	10'-4"	9'-5"
11'-7/8"	NL-20	17'-3"	16'-4"	15'-5"	14'-6"	17'-4"	16'-5"	15'-6"	14'-7"
	NL-40	16'-1"	15'-2"	14'-3"	13'-4"	16'-2"	15'-3"	14'-4"	13'-5"
	NL-60	15'-3"	14'-4"	13'-5"	12'-6"	15'-4"	14'-5"	13'-6"	12'-7"
	NL-70	14'-1"	13'-2"	12'-3"	11'-4"	14'-2"	13'-3"	12'-4"	11'-5"
14'	NL-20	20'-5"	19'-6"	18'-7"	17'-8"	20'-6"	19'-7"	18'-8"	17'-9"
	NL-40	19'-3"	18'-4"	17'-5"	16'-6"	19'-4"	18'-5"	17'-6"	16'-7"
	NL-60	18'-5"	17'-6"	16'-7"	15'-8"	18'-6"	17'-7"	16'-8"	15'-9"
	NL-70	17'-3"	16'-4"	15'-5"	14'-6"	17'-4"	16'-5"	15'-6"	14'-7"
16'	NL-20	22'-5"	21'-6"	20'-7"	19'-8"	22'-6"	21'-7"	20'-8"	19'-9"
	NL-40	21'-3"	20'-4"	19'-5"	18'-6"	21'-4"	20'-5"	19'-6"	18'-7"
	NL-60	20'-5"	19'-6"	18'-7"	17'-8"	20'-6"	19'-7"	18'-8"	17'-9"
	NL-70	19'-3"	18'-4"	17'-5"	16'-6"	19'-4"	18'-5"	17'-6"	16'-7"

CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

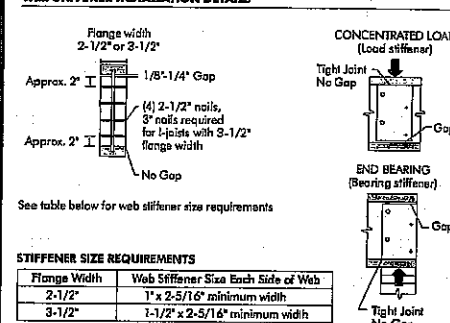
1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
2. All nailing must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
4. Web stiffeners are required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



WEB STIFFENERS

- RECOMMENDATIONS:**
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
 - A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and the flange is at the top.
 - A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.
- SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



NORDIC I-JOIST SERIES

Series	Depth	Flange Width	Flange Thickness	Web Thickness	Min. Depth
NL-20	20"	2-1/2"	1/2"	1/8"	5-1/2"
NL-40	40"	2-1/2"	1/2"	1/8"	5-1/2"
NL-60	60"	3-1/2"	1/2"	1/8"	7-1/4"
NL-70	70"	3-1/2"	1/2"	1/8"	7-1/4"

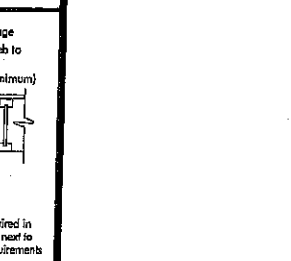
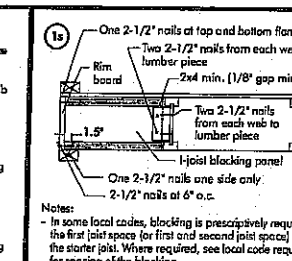
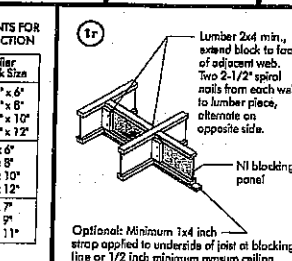
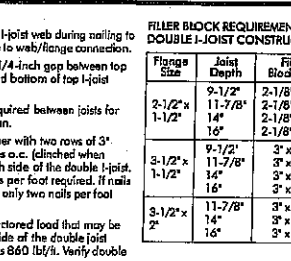
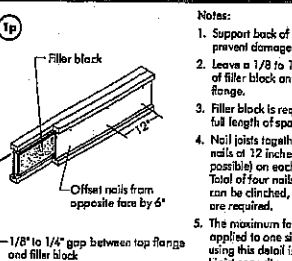
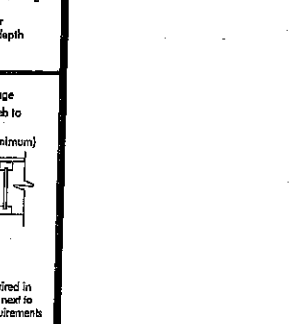
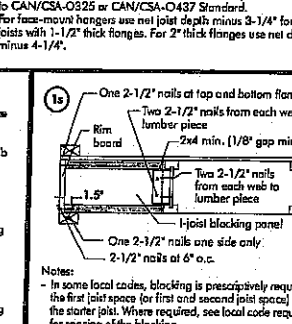
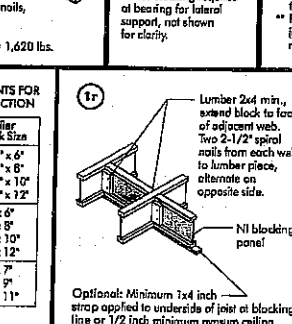
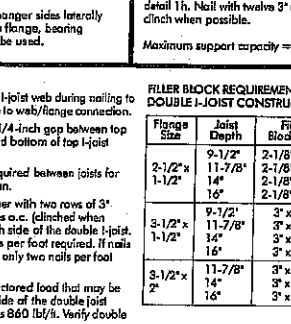
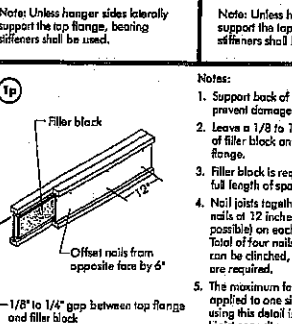
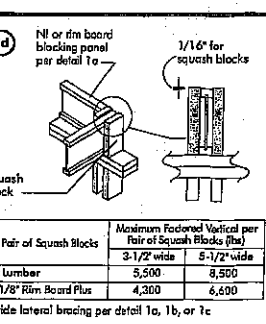
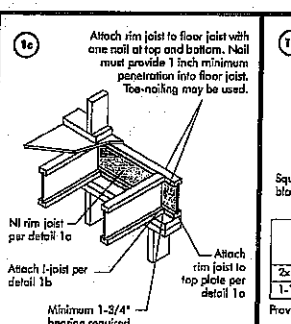
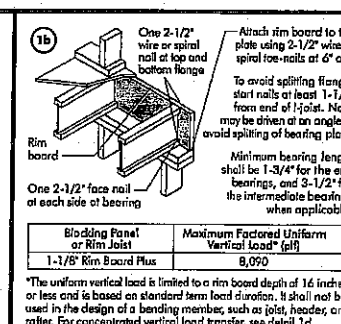
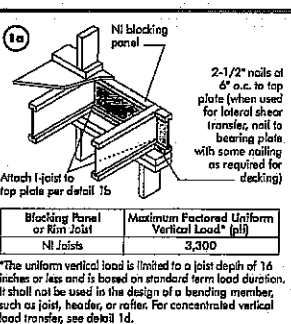
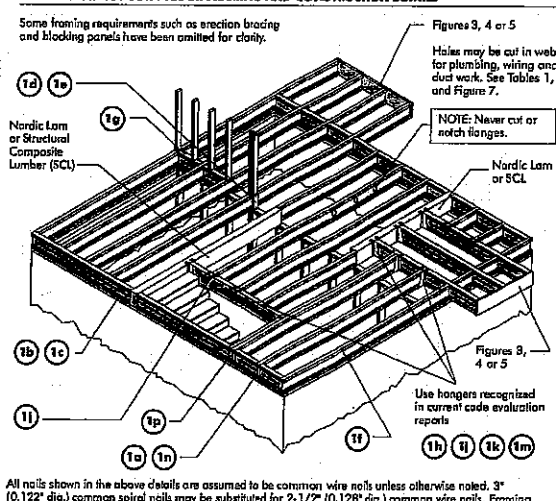
Chambers Chibaogun Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

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

INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and end or header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (triple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products—such as rim board—must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Spacing nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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



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

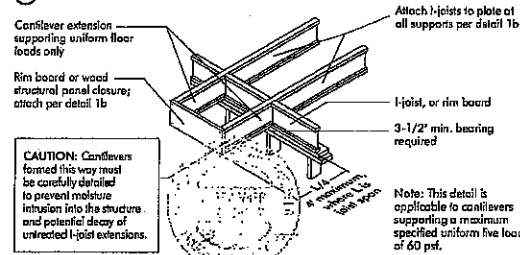
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

*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.

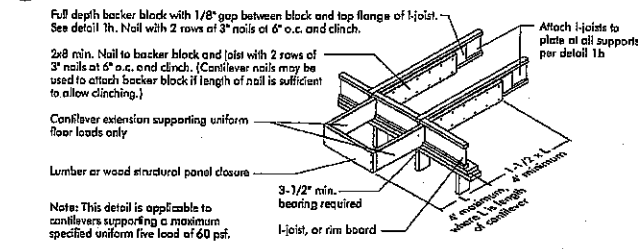
**For face-mount hangers use nail joist depth minus 3-1/4\"/>

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

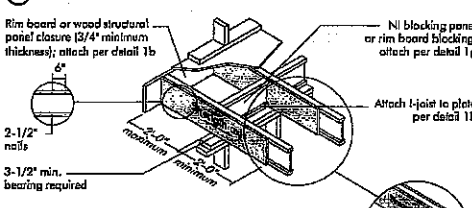


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

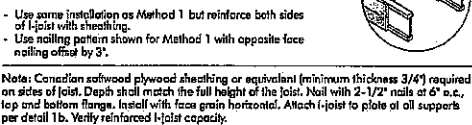


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



4b Alternate Method 2 — DOUBLE I-JOIST

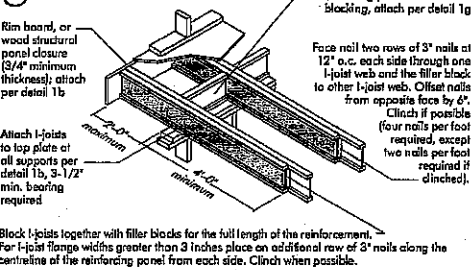


FIGURE 4 (continued)



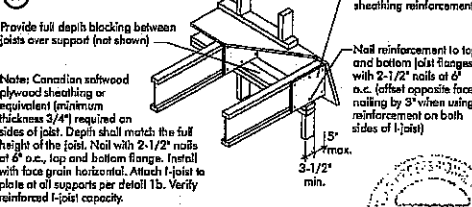
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	L = 30 psf, DL = 15 psf				L = 40 psf, DL = 15 psf				L = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	1	1	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	2	X	X	1	2	X	X
	32	N	1	2	X	N	2	X	X	1	2	X	X
11-7/8"	26	N	1	2	X	N	1	2	X	1	2	X	X
	28	N	1	2	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X
14"	26	N	1	2	X	N	1	2	X	1	2	X	X
	28	N	1	2	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X
16"	26	N	1	2	X	N	1	2	X	1	2	X	X
	28	N	1	2	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X

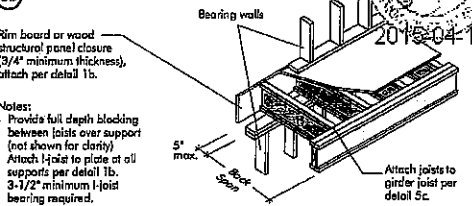
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3-0" wide openings spaced less than 6-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. T = Try a deeper joist or closer spacing.
6. Maximum design load shall be: 15 psf roof dead load, 35 psf floor live load, and 80 psf wall load. Wall load is based on 3-0" maximum width window or door openings.
7. 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.
8. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

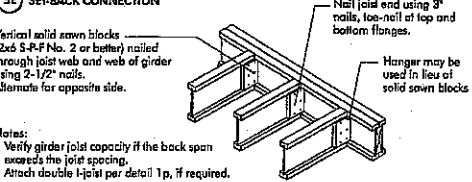


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	L = 30 psf, DL = 15 psf				L = 40 psf, DL = 15 psf				L = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	1	1	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	2	X	X	1	2	X	X
	32	N	1	2	X	N	2	X	X	1	2	X	X
11-7/8"	26	N	1	2	X	N	1	2	X	1	2	X	X
	28	N	1	2	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X
14"	26	N	1	2	X	N	1	2	X	1	2	X	X
	28	N	1	2	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X
16"	26	N	1	2	X	N	1	2	X	1	2	X	X
	28	N	1	2	X	N	1	2	X	1	2	X	X
	30	N	1	2	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	1	2	X	1	2	X	X

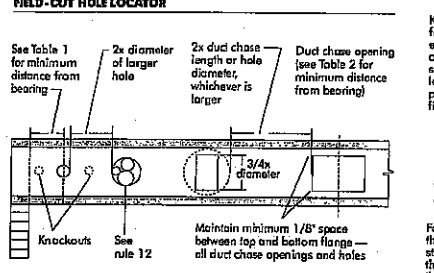
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3-0" wide openings spaced less than 6-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. T = Try a deeper joist or closer spacing.
6. Maximum design load shall be: 15 psf roof dead load, 35 psf floor live load, and 80 psf wall load. Wall load is based on 3-0" maximum width window or door openings.
7. 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.
8. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes must be centred on the middle of the web.
4. The minimum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or larger sized 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 holes shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Single or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

JOIST DEPTH (in.)	SPAN (ft.)	Minimum distance from inside face of support to centre of hole (in.)											
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	28	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	30	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	32	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
11-7/8"	26	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	28	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	30	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	32	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
14"	26	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	28	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	30	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	32	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
16"	26	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	28	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	30	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
	32	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24

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

OPTIONAL:
The above table is based on the I-joist used at its maximum span. If the I-joist is placed at less than its full maximum span (see Manufacturer's Span Table), the minimum distance from the inside face of the support to the centre of the hole (D) as given above may be reduced as follows:
Reduced = Original x D
Where: Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application. The reduced distance shall not be less than 15 inches from the face of the support to edge of the hole.
Original = The actual measured span distance between the inside faces of supports (S).
D = Span Adjustment Factor given in this table.
The minimum distance from the inside face of any support to centre of hole from this table.
If Reduced is greater than 1, use 1 in this above calculation for Reduced.

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

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only														
JOIST DEPTH (in.)	JOIST SPACING (in.)	Minimum distance from inside face of support to center of opening (in.)												
		9-1/2"				11-7/8"				14"				16"
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24	12
9-1/2"	N-20	4-1/2	4-5/8	4-1/2	5-1/4	4-5/8	5-1/4	5-1/4	5-5/8	7-1/4	7-1/4	7-1/4	7-5/8	7-5/8
	N-24	4-1/2	4-5/8	4-1/2	5-1/4	4-5/8	5-1/4	5-1/4	5-5/8	7-1/4	7-1/4	7-1/4	7-5/8	7-5/8
	N-30	4-1/2	4-5/8	4-1/2	5-1/4	4-5/8	5-1/4	5-1/4	5-5/8	7-1/4	7-1/4	7-1/4	7-5/8	7-5/8
	N-36	4-1/2	4-5/8	4-1/2	5-1/4	4-5/8	5-1/4	5-1/4	5-5/8	7-1/4	7-1/4	7-1/4	7-5/8	7-5/8
11-7/8"	N-20	5-1/8	5-5/8	5-1/8	6-1/4	5-5/8	6-1/4	6-1/4	6-5/8	8-1/4	8-1/4	8-1/4	8-5/8	8-5/8
	N-24	5-1/8	5-5/8	5-1/8	6-1/4	5-5/8	6-1/4	6-1/4	6-5/8	8-1/4	8-1/4	8-1/4	8-5/8	8-5/8
	N-30	5-1/8	5-5/8	5-1/8	6-1/4	5-5/8	6-1/4	6-1/4	6-5/8	8-1/4	8-1/4	8-1/4	8-5/8	8-5/8
	N-36	5-1/8	5-5/8	5-1/8	6-1/4	5-5/8	6-1/4	6-1/4	6-5/8	8-1/4	8-1/4	8-1/4	8-5/8	8-5/8
14"	N-20	6-1/8	6-5/8	6-1/8	7-1/4	6-5/8	7-1/4	7-1/4	7-5/8	9-1/4	9-1/4	9-1/4	9-5/8	9-5/8
	N-24	6-1/8	6-5/8	6-1/8	7-1/4	6-5/8	7-1/4	7-1/4	7-5/8	9-1/4	9-1/4	9-1/4	9-5/8	9-5/8
	N-30	6-1/8	6-5/8	6-1/8	7-1/4	6-5/8	7-1/4	7-1/4	7-5/8	9-1/4	9-1/4	9-1/4	9-5/8	9-5/8
	N-36	6-1/8	6-5/8	6-1/8	7-1/4	6-5/8	7-1/4	7-1/4	7-5/8	9-1/4	9-1/4	9-1/4	9-5/8	9-5/8
16"	N-20	7-1/8	7-5/8	7-1/8	8-1/4	7-5/8	8-1/4	8-1/4	8-5/8	10-1/4	10-1/4	10-1/4	10-5/8	10-5/8
	N-24	7-1/8	7-5/8	7-1/8	8-1/4	7-5/8	8-1/4	8-1/4	8-5/8	10-1/4	10-1/4	10-1/4	10-5/8	10-5/8
	N-30	7-1/8	7-5/8	7-1/8	8-1/4	7-5/8	8-1/4	8-1/4	8-5/8	10-1/4	10-1/4	10-1/4	10-5/8	10-5/8
	N-36	7-1/8	7-5/8	7-1/8	8-1/4	7-5/8	8-1/4	8-1/4	8-5/8	10-1/4	10-1/4	10-1/4	10-5/8	10-5/8

NORDIC STRUCTURES

COMPANY
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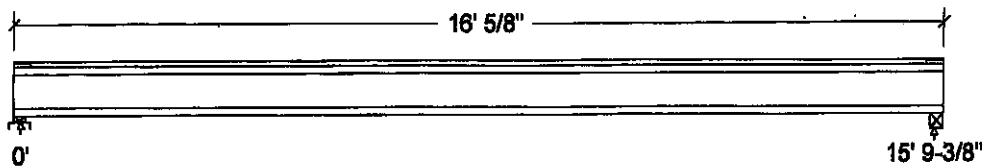
PROJECT
J1 1ST FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored:			
Dead	158		158
Live	316		316
Factored:			
Total	671		671
Bearing:			
Capacity			
Joist	1865		1869
Support	3981		-
Des ratio			
Joist	0.36		0.36
Support	0.17		-
Load case	#2		#2
Length	2-3/8		2-5/8
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-40x Floor joist @ 12" o.c.

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

Total length: 16' 5/8"; Clear span: 15' 7-5/8"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 671	Vr = 1895	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 2646	Mr = 4824	lbs-ft	Mf/Mr = 0.55
Perm. Defl'n	0.12 = < L/999	0.53 = L/360	in	0.22
Live Defl'n	0.23 = L/807	0.39 = L/480	in	0.59
Total Defl'n	0.35 = L/538	0.79 = L/240	in	0.45
Bare Defl'n	0.28 = L/676	0.53 = L/360	in	0.53
Vibration	Lmax = 15'-9.4	Lv = 17'-1.8	ft	0.92
Defl'n	= 0.031	= 0.041	in	0.77



NO. 5459 -20
STRUCTURAL
COMPONENT ONLY

Additional Data:

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

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)
 Bearing : Support 1 - LC #2 = 1.25D + 1.5L
 Support 2 - LC #2 = 1.25D + 1.5L
 Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
 L=live (use, occupancy) Ls=live (storage, equipment) f=fire
 Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

EI_{eff} = 265.29 lb-in² K = 4.94e06 lbs
 "Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
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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 SWG NO. TAN5459-20
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

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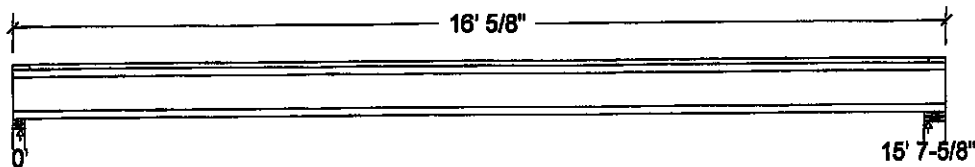
PROJECT
J1 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	156		156
Live	313		313
Factored:			
Total	664		664
Bearing:			
Capacity			
Joist	1865		1893
Support	3981		7744
Des ratio			
Joist	0.36		0.35
Support	0.17		0.09
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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.

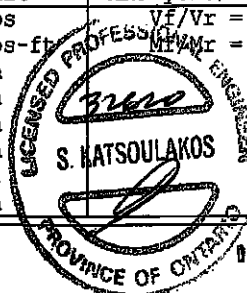
Supports: All - Lumber Wall, No.1/No.2

Total length: 16' 5/8"; Clear span: 15' 5-7/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section **PASSES** the design code check.

Limit States Design using CSA-O85-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 664	Vr = 1895	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 2597	Mr = 4824	lbs-ft	Mf/Mr = 0.54
Perm. Defl'n	0.12 = < L/999	0.52 = L/360	in	0.22
Live Defl'n	0.23 = L/808	0.39 = L/480	in	0.59
Total Defl'n	0.35 = L/539	0.78 = L/240	in	0.45
Bare Defl'n	0.27 = L/694	0.52 = L/360	in	0.52
Vibration	Lmax = 15'-7.6	Lv = 16'-8.5	ft	0.94
Defl'n	= 0.034	= 0.041	in	0.81



DWG NO. YAW 5460-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

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

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)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:E_{ieff} = 258.29 lb-in² K= 4.94e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
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.



OWN NO. YAW 5460-20

STRUCTURAL
COMPONENT ONLY

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1(1675) (Flush Beam)**

Dry | 1 span | No cant.

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(1675)

City, Province, Postal Code: WATERDOWN

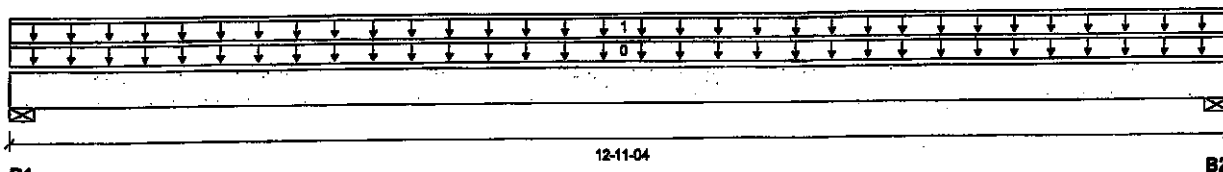
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 12-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-7/8"	175 / 0	118 / 0		
B2, 4-3/8"	181 / 0	122 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-11-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-11-04	Top	28	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1267 ft-lbs	11610 ft-lbs	10.9%	1	06-04-06
End Shear	349 lbs	5785 lbs	6.0%	1	00-11-03
Total Load Deflection	L/999 (0.103")	n/a	n/a	4	06-04-06
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	06-04-06
Max Defl.	0.103"	n/a	n/a	4	06-04-06
Span / Depth	15.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 1-7/8" x 1-3/4"	410 lbs	20.3%	10.2%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 1-3/4"	424 lbs	9.0%	4.5%	Spruce-Pine-Fir

Notes

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

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

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

CONFORMS TO OBC 2012

AMENDED 2020



096 NO. TAM 5461 -20
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.

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B2(1694) (Flush Beam)**

Dry | 1 span | No cant.

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

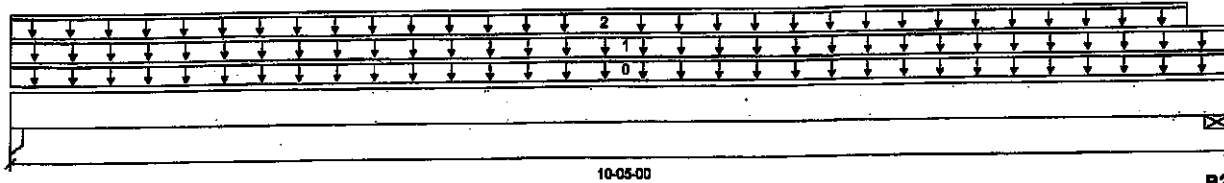
File name: VALLEYCREEK 5 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(1694)

Specifier:

Designer: AJ

Company:



B1

Total Horizontal Product Length = 10-05-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	73 / 0	507 / 0		
B2, 1-7/8"	73 / 0	479 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-05-00	Top	14	7			n/a
2	11(1450)	Unf. Lin. (lb/ft)	L	00-00-00	10-00-10	Top		81			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1787 ft-lbs	15093 ft-lbs	11.8%	0	05-02-07
End Shear	649 lbs	7521 lbs	8.6%	0	09-05-10
Total Load Deflection	L/999 (0.055")	n/a	n/a	4	05-02-07
Live Load Deflection	L/999 (0.007")	n/a	n/a	5	05-02-07
Max Defl.	0.055"	n/a	n/a	4	05-02-07
Span / Depth	12.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	710 lbs	22.0%	14.6%	Unspecified
B2	Wall/Plate 1-7/8" x 3-1/2"	671 lbs	25.6%	12.9%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

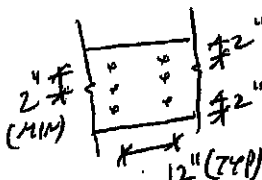
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 2 ROWS OF 3/4" ARDOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



DWG NO. YAM 5464-20
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.

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B3(i1954) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3(i1954)

City, Province, Postal Code: WATERDOWN

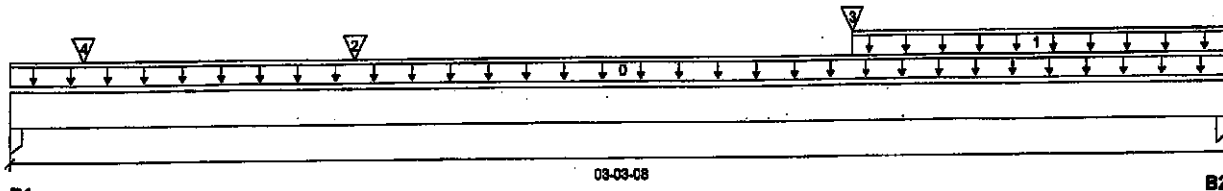
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	141 / 0	81 / 0		
B2, 3-1/2"	147 / 0	81 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-03-08	Top		5			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-03-02	03-03-08	Top	33	17			n/a
2	J7(i1800)	Conc. Pt. (lbs)	L	00-11-02	00-11-02	Top	135	67			n/a
3	J7(i1752)	Conc. Pt. (lbs)	L	02-03-02	02-03-02	Top	116	58			n/a
4	11(i450)	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top		3			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	220 ft-lbs	11610 ft-lbs	1.9%	1	02-03-02
End Shear	279 lbs	5785 lbs	4.8%	1	02-02-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-07-12
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-07-12
Max Defl.	0.001"	n/a	n/a	4	01-07-12
Span / Depth	3.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	312 lbs	6.3%	4.2%	Unspecified
B2	Column 3-1/2" x 1-3/4"	323 lbs	6.5%	4.3%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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



BWG NO. YAH 5465 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJSTM, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B5(1693) (Flush Beam)
Dry | 1 span | No cant.

PASSED

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

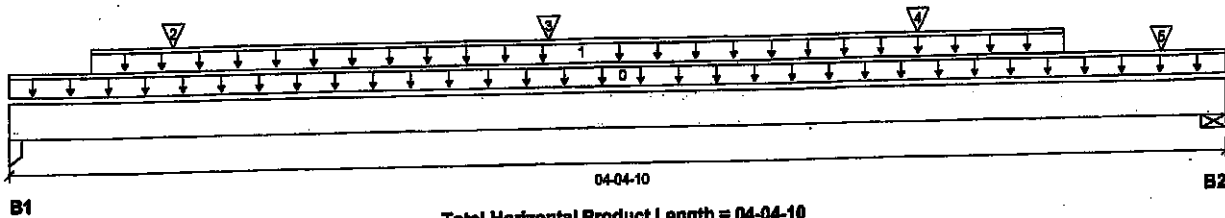
File name: VALLEYCREEK 5 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(1693)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	410 / 0	215 / 0		
B2, 5-1/2"	502 / 0	1155 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-10	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-03-08	03-09-10	Top	120	60			n/a
2	J7(11525)	Conc. Pt. (lbs)	L	00-07-02	00-07-02	Top	118	59			n/a
3	J7(11525)	Conc. Pt. (lbs)	L	01-11-02	01-11-02	Top	118	59			n/a
4	J7(11534)	Conc. Pt. (lbs)	L	03-03-02	03-03-02	Top	108	54			n/a
5	7(1399)	Conc. Pt. (lbs)	L	04-01-14	04-01-14	Top	147	966			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	814 ft-lbs	11610 ft-lbs	7.0%	1	01-11-02
End Shear	725 lbs	5785 lbs	12.5%	1	03-01-10
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-01-06
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-01-06
Max Defl.	0.006"	n/a	n/a	4	02-01-06
Span / Depth	4.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	884 lbs	17.8%	11.8%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	1617 lbs	42.0%	21.2%	Spruce-Pine-Fir

Notes

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

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

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

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 5466 -20

STRUCTURAL

COMPONENT ONLY

Disclosure

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



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

1ST FLR FRAMING\Flush Beams\B6(I1676) (Flush Beam)

Dry | 1 span | No cant.

PASSED

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

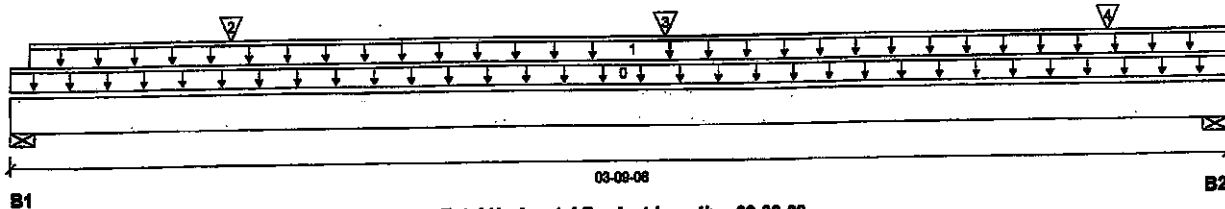
File name: VALLEYCREEK 5 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(I1676)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	340 / 0	179 / 0		
B2, 5-1/2"	808 / 0	470 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-08	Top	100	60	1.00	1.18	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-11	03-09-08	Top	120	60			n/a
2	J7(I1698)	Conc. Pt. (lbs)	L	00-08-04	00-08-04	Top	100	50			n/a
3	J7(I1664)	Conc. Pt. (lbs)	L	02-00-04	02-00-04	Top	125	63			n/a
4	-	Conc. Pt. (lbs)	L	03-05-00	03-05-00	Top	467	289			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	613 ft-lbs	11610 ft-lbs	5.3%	1	02-00-04
End Shear	425 lbs	5785 lbs	7.3%	1	00-11-08
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	01-09-01
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-09-01
Max Defl.	0.003"	n/a	n/a	4	01-09-01
Span / Depth	4.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2" x 1-3/4"	734 lbs	34.1%	17.2%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	1800 lbs	30.4%	15.3%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

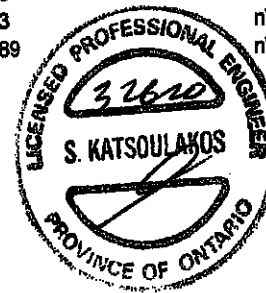
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. YAM 5467-20

STRUCTURAL

COMPONENT ONLY

Disclosure

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B7(i1667) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(i1667)

City, Province, Postal Code: WATERDOWN

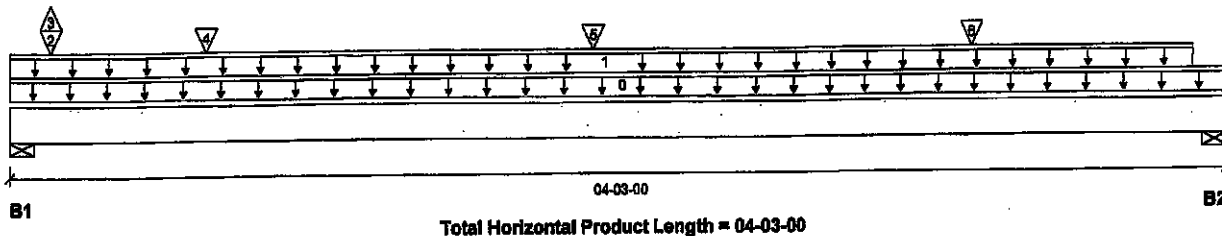
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	533 / 3	277 / 0		
B2, 3-1/2"	409 / 0	215 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-01-10	Top	120	60			n/a
2	J5(i1703)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	70	34			n/a
3	J5(i1703)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	-3				n/a
4	J7(i1707)	Conc. Pt. (lbs)	L	00-08-04	00-08-04	Top	101	51			n/a
5	J7(i1661)	Conc. Pt. (lbs)	L	02-00-04	02-00-04	Top	145	73			n/a
6	J7(i1670)	Conc. Pt. (lbs)	L	03-04-04	03-04-04	Top	126	63			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	816 ft-lbs	11610 ft-lbs	7.0%	1	02-00-04
End Shear	565 lbs	5785 lbs	9.8%	1	03-02-00
Total Load Deflection	L/999 (0.005")	n/a	n/a	6	02-02-06
Live Load Deflection	L/999 (0.003")	n/a	n/a	8	02-02-06
Max Defl.	0.005"	n/a	n/a	8	02-02-06
Span / Depth	4.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1145 lbs	19.3%	9.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	883 lbs	23.4%	11.8%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



996 NO. YAM 5468 -20

STRUCTURAL

COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCi®, BOISE GLULAM™, BC Floor/raue®, VERSA-LAM®, VERSA-RIM PLUS®.

**Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Dropped Beams\B11 DR(1959) (Dropped Beam)**

Dry | 1 span | No cant

February 13, 2020 14:51:27

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

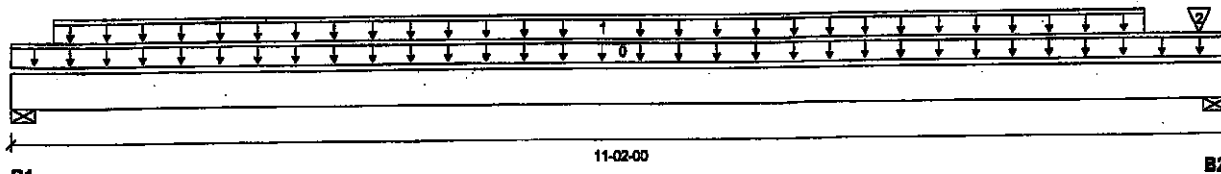
File name: VALLEYCREEK 5 EL 2.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B11 DR(1959)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 11-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	3250 / 0	1703 / 0		
B2, 4"	3690 / 0	1923 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-14	10-04-14	Top	629	314			n/a
2	-	Conc. Pt. (lbs)	L	10-10-14	10-10-14	Top	650	325			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	19114 ft-lbs	36222 ft-lbs	52.8%	1	05-10-14
End Shear	6614 lbs	17356 lbs	38.1%	1	01-01-08
Total Load Deflection	L/349 (0.365")	n/a	68.7%	4	05-06-06
Live Load Deflection	L/531 (0.24")	n/a	67.7%	5	05-06-06
Max Defl.	0.365"	n/a	n/a	4	05-06-06
Span / Depth	13.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	7004 lbs	25.0%	27.3%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	7939 lbs	28.3%	31.0%	Spruce-Pine-Fir

Notes

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

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

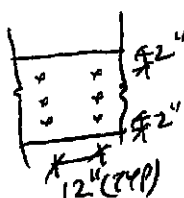
Calculations assume unbraced length of Top: 00-03-02, Bottom: 00-03-02.

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

CONFORMS TO CBC 2012**AMENDED 2020**

PROVIDE 3 ROWS OF 3/4" ARBOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS.
STAGGER NAILS 6" BETWEEN PLYS.



OWN NO. TAM 5469 -20
**STRUCTURAL
COMPONENT ONLY**

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12(11747) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B12(11747)

City, Province, Postal Code: WATERDOWN

Specifier:

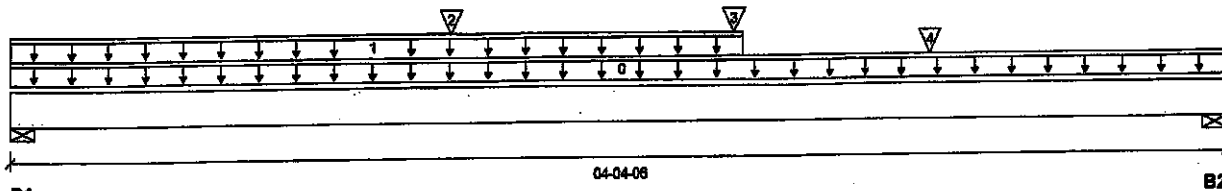
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-04-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-7/8"	1520 / 0	779 / 0		
B2, 5-1/2"	1069 / 0	555 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-06	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	02-07-04	Top	506	253			n/a
2	J2(i1886)	Conc. Pt. (lbs)	L	01-06-14	01-06-14	Top	311	155			n/a
3	J2(i1946)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	311	155			n/a
4	-	Conc. Pt. (lbs)	L	03-03-08	03-03-08	Top	649	325			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2308 ft-lbs	23220 ft-lbs	9.9%	1	02-01-04
End Shear	1963 lbs	11571 lbs	17.0%	1	03-01-06
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	02-01-15
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	02-01-15
Max Defl.	0.008"	n/a	n/a	4	02-01-15
Span / Depth	4.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-7/8" x 3-1/2"	3254 lbs	31.0%	15.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	2297 lbs	19.4%	9.8%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

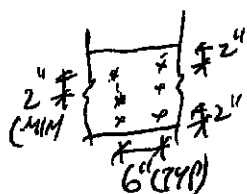
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

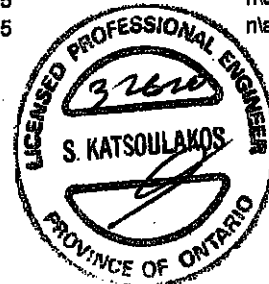
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARBOX SPIRAL NAILS @ 6" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWG NO. TAM 5470 -20

STRUCTURAL

COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B14(1681) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(1681)

City, Province, Postal Code: WATERDOWN

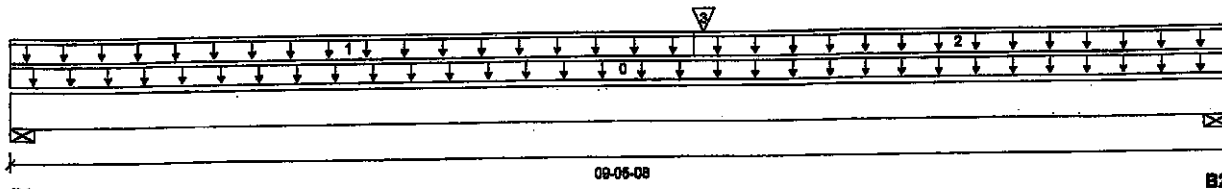
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 09-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	304 / 0	208 / 0		
B2, 5-1/2"	383 / 0	250 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-05-08	Top		10			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-03-02	Top	24	12			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-03-02	09-05-08	Top	27	13			n/a
3	B16(1696)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	451	247			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2729 ft-lbs	23220 ft-lbs	11.8%	1	05-04-00
End Shear	801 lbs	11571 lbs	6.9%	1	08-02-08
Total Load Deflection	L/999 (0.048")	n/a	n/a	4	04-10-07
Live Load Deflection	L/999 (0.028")	n/a	n/a	5	04-10-07
Max Defl.	0.048"	n/a	n/a	4	04-10-07
Span / Depth	11.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	713 lbs	8.3%	4.2%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	887 lbs	7.5%	3.8%	Spruce-Pine-Fir

Notes

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

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

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

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

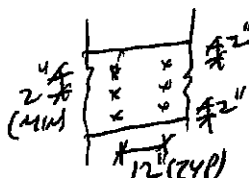
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARDOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



OWB NO. TAM5421 -20

STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B17(1910) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 13, 2020 14:51:27

Build 7239

Job name:

File name: VALLEYCREEK 5 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B17(1910)

City, Province, Postal Code: WATERDOWN

Specifier:

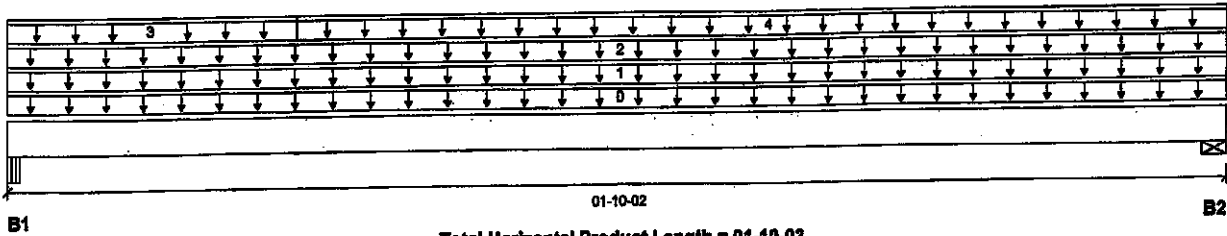
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	56 / 0	122 / 0	57 / 0	
B2, 5-1/2"	56 / 0	124 / 0	59 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top	33	30	63		n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top		80			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	30	15			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	01-10-02	Top	27	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	46 ft-lbs	23220 ft-lbs	0.2%	13	00-10-15
End Shear	102 lbs	11571 lbs	0.9%	1	01-02-12
Span / Depth	1.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	295 lbs	3.0%	1.3%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	300 lbs	2.5%	1.3%	Spruce-Pine-Fir

Notes

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.

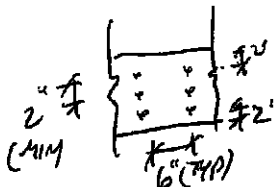
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO UBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3 1/2" ARDOX SPIRAL NAILS @ 6" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



OWN NO. YAM 5479-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



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

2ND FLR FRAMING\Flush Beams\B16(i2566) (Flush Beam)

PASSED

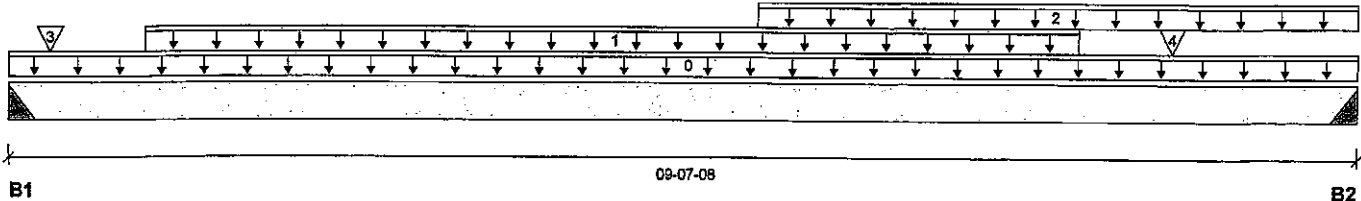
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 23, 2021 09:46:31

Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: VALLEYCREEK 5A EL 2, 3.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B16(i2566)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 09-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	514 / 0	281 / 0		
B2, 2"	753 / 0	400 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-07-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-08	07-07-08	Top	83	41			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	05-03-08	09-07-08	Top	120	60			n/a
3	J6(i2603)	Conc. Pt. (lbs)	L	00-03-08	00-03-08	Top	81	41			n/a
4	J6(i2570)	Conc. Pt. (lbs)	L	08-03-08	08-03-08	Top	116	58			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3292 ft-lbs	11610 ft-lbs	28.4%	1	05-07-08
End Shear	1379 lbs	5785 lbs	23.8%	1	08-08-00
Total Load Deflection	L/785 (0.144")	n/a	30.6%	4	05-00-08
Live Load Deflection	L/999 (0.094")	n/a	n/a	5	05-00-08
Max Defl.	0.144"	n/a	n/a	4	05-00-08
Span / Depth	11.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1122 lbs	n/a	26.3%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	1629 lbs	n/a	38.2%	HUS1.81/10

Cautions

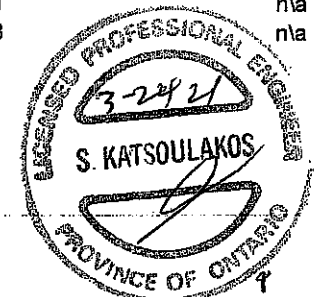
Header for the hanger HUS1.81/10 is a Double 1-3/4" x 9-1/2" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-12.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM2060-21
STRUCTURAL
COMPONENT ONLY

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



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

2ND FLR FRAMING\Flush Beams\B15A(i3255) (Flush Beam)

PASSED

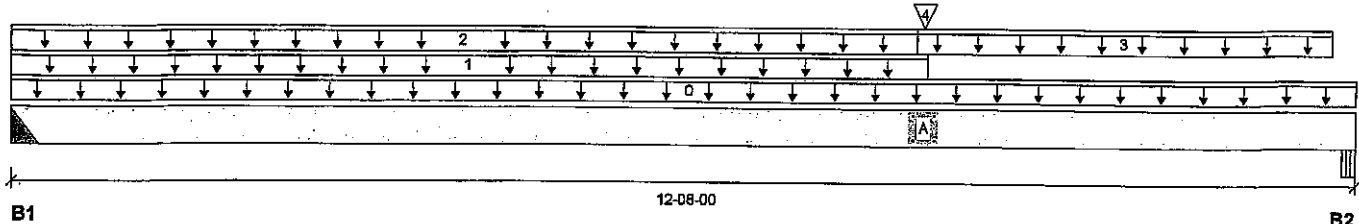
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 23, 2021 08:02:44

Job name:
Address:
City, Province, Postal Code: WATERDOWN
Customer:
Code reports: CCMC 12472-R

File name: VALLEYCREEK 5A EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B15A(i3255)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 12-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	301 / 0	560 / 0		
B2, 5-1/2"	647 / 0	573 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-08-00	Top		10			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-06-14	Top		60			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	08-05-10	Top	9	5			n/a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	08-05-10	12-05-04	Top	33	17			n/a
4	B16(i2869)	Conc. Pt. (lbs)	L	08-06-08	08-06-08	Top	738	392			n/a

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
End Shear	5649 ft-lbs	23219 ft-lbs	24.3%	1	08-06-08
Total Load Deflection	1599 lbs	11571 lbs	13.8%	1	11-05-00
Live Load Deflection	L/765 (0.188")	n/a	31.4%	4	06-07-09
Max Defl.	L/999 (0.089")	n/a	n/a	5	06-10-05
Span / Depth	0.188"	n/a	n/a	4	06-07-09

Bearing Supports

Bearing Supports			Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"		784 lbs	n/a	7.1%	HGUS410
B2	Beam	5-1/2" x 3-1/2"		1686 lbs	16.4%	7.2%	Unspecified

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.



OWB NO. 7061-21
STRUCTURAL
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B15A(I3255) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 23, 2021 08:02:44

Build 7773

Job name:

File name: VALLEYCREEK 5A EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B15A(I3255)

City, Province, Postal Code: WATERDOWN

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

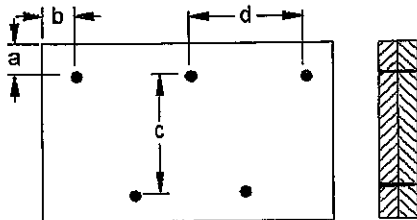
Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 08-05-10.

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

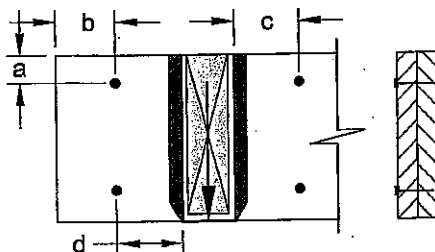
c = 5-1/2"
d = 6"

Connectors are: 1 Nails

3/4" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 4



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"

Connectors are: 16d

Nails

3/4" ARDOX SPIRAL



OWG NO. TAM 7061-21
STRUCTURAL
COMPONENT ONLY

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



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B11A DR(i1939) (Dropped Beam)
 Dry | 1 span | No cant.

PASSED

August 16, 2021 09:45:33

BC CALCO® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

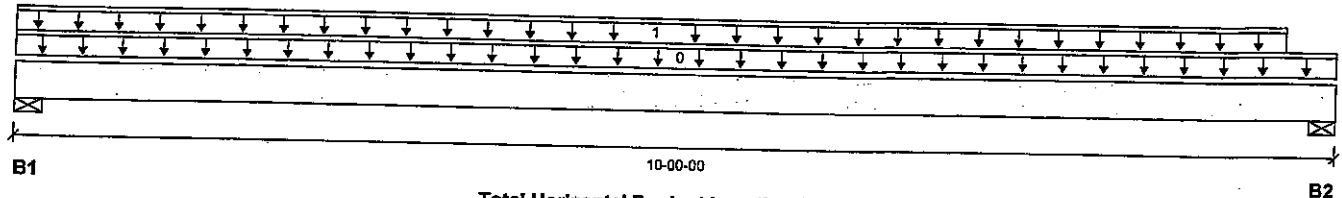
File name: LOT 553.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B11A DR(i1939)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/2"	3395 / 0	1767 / 0		
B2, 4-1/2"	2915 / 0	1527 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-00	Top	1.00	0.65	1.00	1.15	
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	09-07-08	Top	656	327			00-00-00 n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	15046 ft-lbs	36222 ft-lbs	41.5%	1	05-01-08
End Shear	5869 lbs	17356 lbs	33.8%	1	01-02-00
Total Load Deflection	L/505 (0.223")	n/a	47.6%	4	05-00-00
Live Load Deflection	L/768 (0.146")	n/a	46.9%	5	05-00-00
Max Defl.	0.223"	n/a	n/a	4	05-00-00
Span / Depth	11.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-1/2" x 5-1/4"	7301 lbs	23.2%	25.3%	Spruce-Pine-Fir
B2	Wall/Plate 4-1/2" x 5-1/4"	6282 lbs	19.9%	21.8%	Spruce-Pine-Fir

Notes

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

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

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

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

Design based on Dry Service Condition.

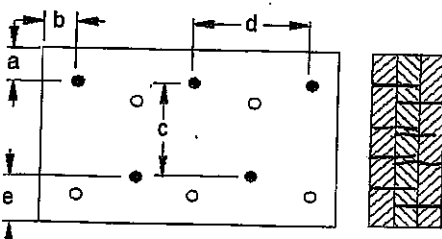
Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-10-12, Bottom: 10-00-00.

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



OWN NO. TAM19502-21
 STRUCTURAL
 COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B11A DR(i1939) (Dropped Beam)
Dry | 1 span | No cant.

PASSED

August 16, 2021 09:45:33

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File name: LOT 553.rmdl

Description: 2ND FLR FRAMING\Dropped Beams\B11A DR(i1939)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member

a minimum = 4"

c = 6 1/2"

b minimum = 3"

d = 2' 8"

e minimum = 2"

Nailing applies to both sides of the member

Connectors are: 3 Nails

3 1/2" ARDOX SPIRAL

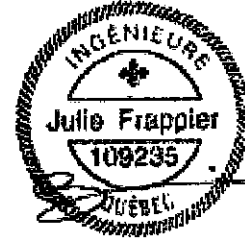
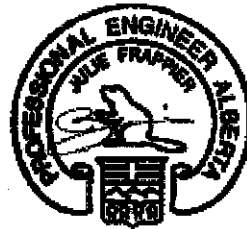


BWG NO. YAM19502-21

STRUCTURAL
COMPONENT ONLY
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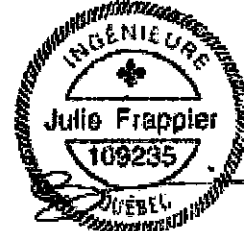
Maximum Floor Spans

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

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

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

- 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.
- 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.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 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.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



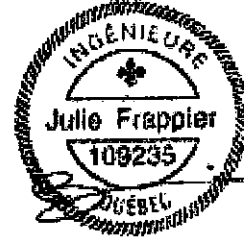
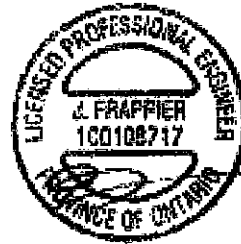
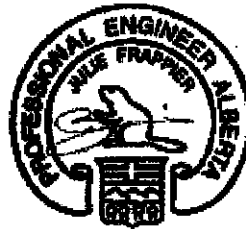
Maximum Floor Spans

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

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

- 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.
- 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.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 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.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



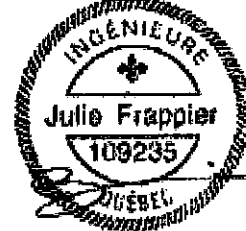
Maximum Floor Spans

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

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

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

- 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.
- 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.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 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.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

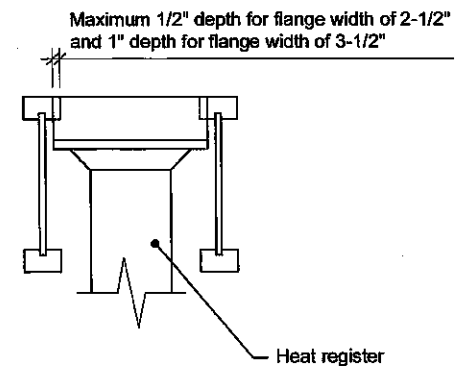
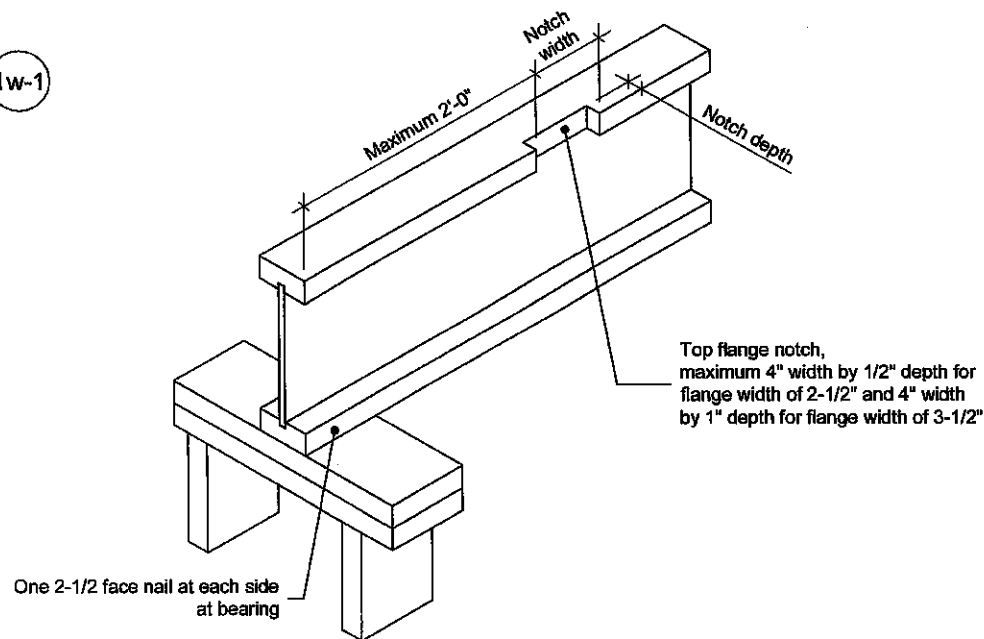
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

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

- 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.
- 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.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 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.
- 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.

1w-1



Notes:

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 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.

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.

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.

**NORDIC
STRUCTURES**

T 514-871-8526
1 866 817-3418
nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1w-1



Construction Detail

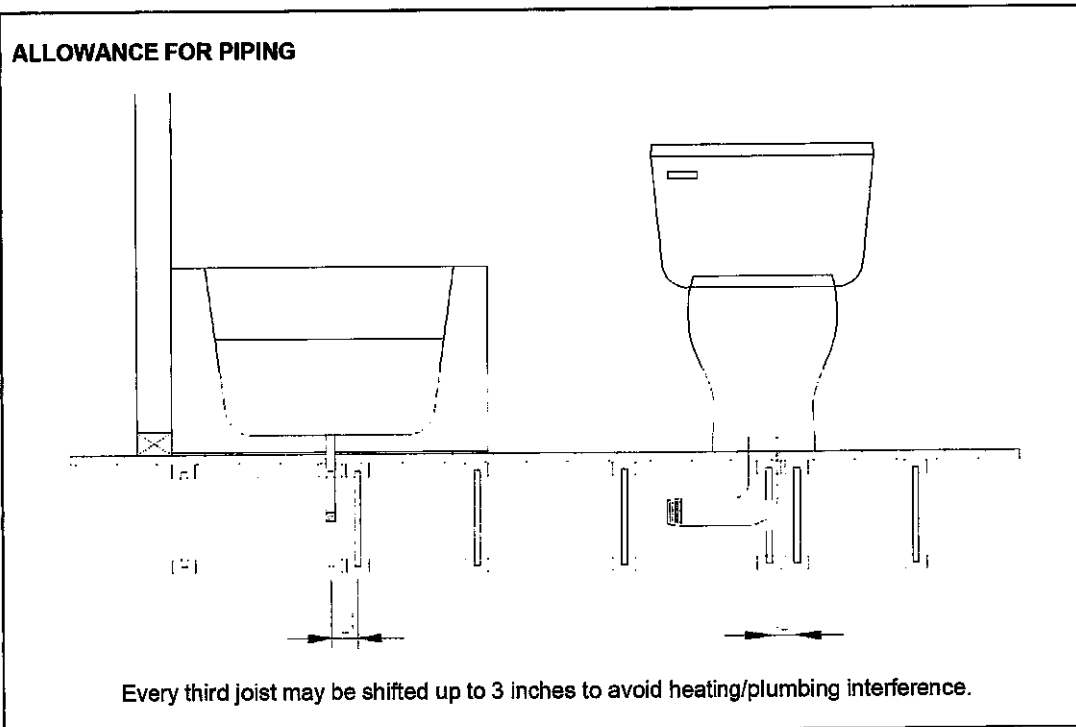
Limit States Design

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.



Revised April 12, 2012