



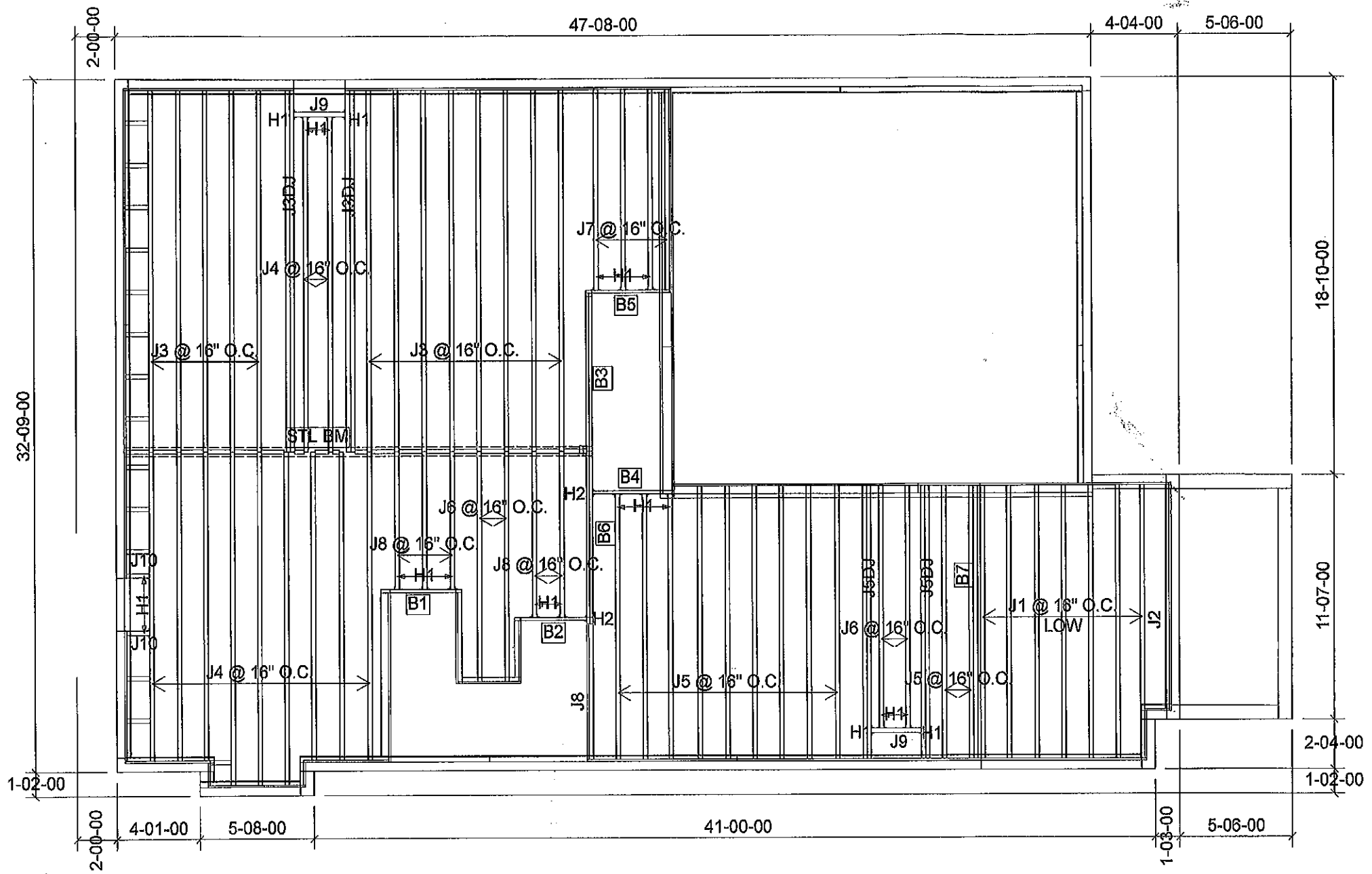
FROM PLAN DATED: JAN 2020
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH 3
MODEL: VALLEYCREEK 4
ELEVATION: 1
LOT ~~300~~ 306
CITY: WATERDOWN
SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION: L.D.

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

DATE: 2020-12-14

1st FLOOR



Products				
PlotID	Length	Product	Piles	Net Qty
J1	14'-00-00	9 1/2" NI-40x	1	7
J2	12'-00-00	9 1/2" NI-40x	1	1
J3	18'-00-00	11 7/8" NI-40x	1	13
J3DJ	18'-00-00	11 7/8" NI-40x	2	4
J4	16'-00-00	11 7/8" NI-40x	1	11
J5	14'-00-00	11 7/8" NI-40x	1	11
J5DJ	14'-00-00	11 7/8" NI-40x	2	4
J6	12'-00-00	11 7/8" NI-40x	1	4
J7	10'-00-00	11 7/8" NI-40x	1	4
J8	8'-00-00	11 7/8" NI-40x	1	6
J9	4'-00-00	11 7/8" NI-40x	1	2
J10	2'-00-00	11 7/8" NI-40x	1	2
B7	14'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	10'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	8'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	6'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	4'-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H2	HUS1.81/10



FROM PLAN DATED: JAN 2020

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SITE: RUSSELL GARDENS PH 3

MODEL: VALLEYCREEK 4

ELEVATION: 1

LOT: 300, 306

CITY: WATERDOWN

SALESMAN: RICK DICIANO

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NOTES:
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LOADING:

DESIGN LOADS: L/480.000

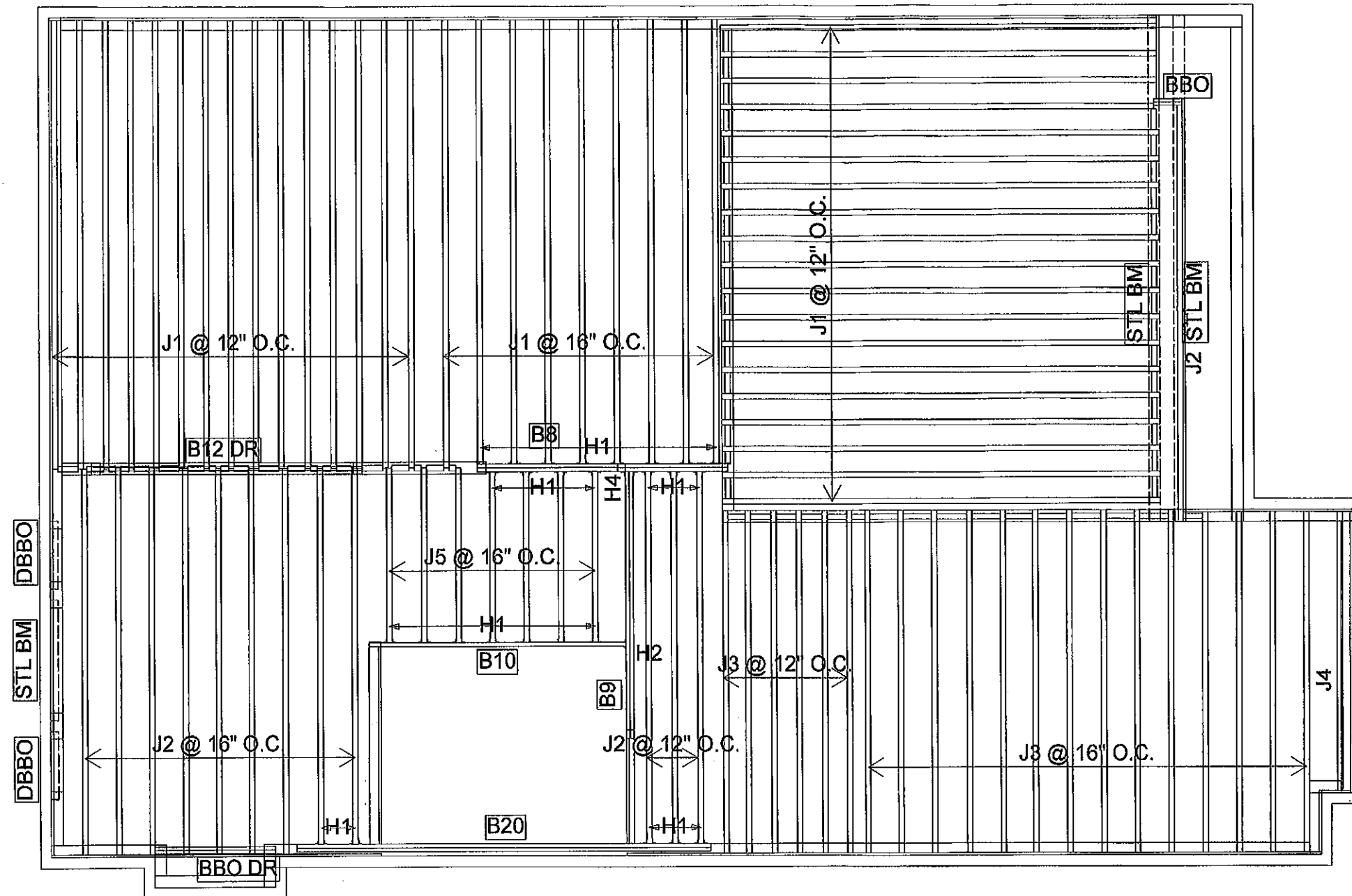
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

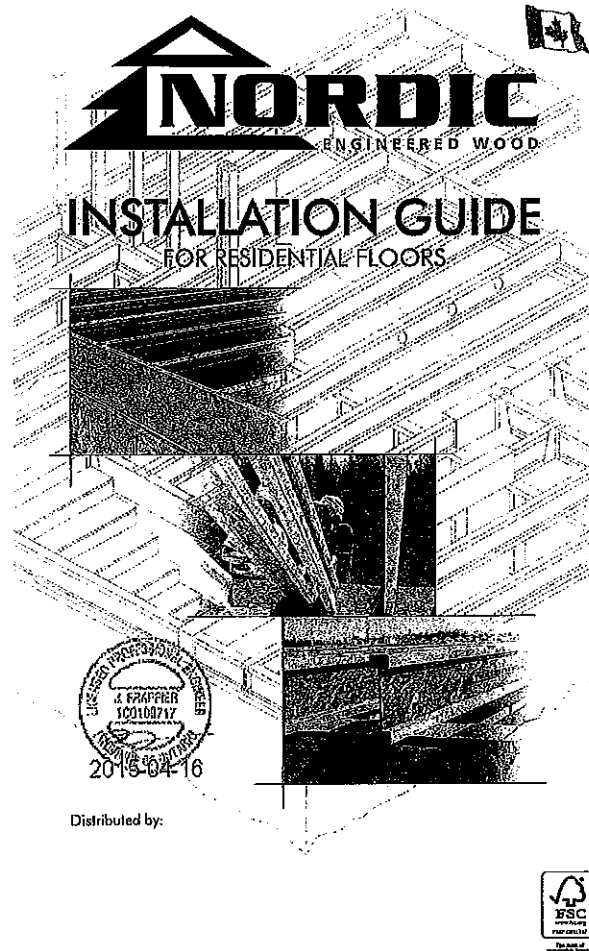
DATE: 2020-12-14

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	43
J2	16-00-00	11 7/8" NI-40x	1	13
J3	14-00-00	11 7/8" NI-40x	1	20
J4	12-00-00	11 7/8" NI-40x	1	1
J5	8-00-00	11 7/8" NI-40x	1	7
B12 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B20	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/11.88
20	H1	IUS2.56/11.88
1	H2	HUS1.81/10
1	H4	HGUS410



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

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or debris.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-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 1.2DL + 1.6LL. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.

2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-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 loadings given in this table, except as required for hangers.

5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.

6. Tables are based on Limit States Design per CAN/CSA C084-09 Standard, and NRC 2010.

7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On center spacing				On center spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	N1-20	15'-1"	14'-2"	13'-5"	13'-5"	15'-1"	14'-2"	13'-5"	13'-5"
	N1-20S	16'-1"	15'-2"	14'-5"	14'-5"	17'-5"	16'-5"	15'-10"	15'-5"
	N1-20L	18'-0"	17'-1"	16'-4"	16'-4"	17'-7"	16'-7"	16'-0"	16'-1"
	N1-20H	18'-0"	17'-1"	16'-4"	16'-4"	18'-7"	17'-4"	16'-9"	16'-10"
	N1-20V	18'-0"	17'-1"	16'-4"	16'-4"	18'-7"	17'-4"	16'-9"	16'-10"
11-3/8"	N1-24	16'-11"	16'-0"	15'-3"	15'-3"	18'-4"	17'-3"	16'-8"	16'-7"
	N1-24S	18'-1"	17'-0"	16'-5"	16'-5"	20'-0"	18'-4"	17'-9"	17'-2"
	N1-24L	18'-4"	17'-5"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"
	N1-24H	18'-4"	17'-5"	16'-7"	16'-9"	21'-6"	19'-11"	19'-0"	19'-1"
	N1-24V	18'-4"	17'-5"	16'-7"	16'-9"	21'-6"	19'-11"	19'-0"	19'-1"
13"	N1-28	19'-5"	18'-3"	17'-8"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
	N1-28S	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-9"	19'-8"	19'-9"
	N1-28L	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
	N1-28H	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
	N1-28V	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
15"	N1-32	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	N1-32S	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"
	N1-32L	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-5"	21'-2"
	N1-32H	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-9"	21'-6"
	N1-32V	22'-5"	20'-8"	19'-9"	19'-10"	24'-9"	22'-10"	21'-10"	21'-10"
16"	N1-36	22'-7"	20'-11"	19'-11"	19'-11"	23'-9"	21'-11"	21'-9"	21'-9"
	N1-36S	23'-4"	21'-9"	20'-9"	20'-10"	24'-6"	24'-0"	23'-11"	23'-0"
	N1-36L	23'-11"	22'-1"	21'-1"	21'-2"	25'-3"	24'-5"	23'-8"	23'-4"
	N1-36H	24'-5"	22'-5"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
	N1-36V	24'-5"	22'-5"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"

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 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

STIFFENER SIZE REQUIREMENTS

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

NORDIC I-JOIST SERIES

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

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

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

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

FIGURE 10a 2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

FIGURE 10b One 2-1/2" face nail at each side of bearing

FIGURE 10c Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

FIGURE 10d 1/16" for squash blocks

FIGURE 10e Attach rim joist to top plate per detail 1a

FIGURE 10f Attach I-joist per detail 1b

FIGURE 10g Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

FIGURE 10h Backer block (use if hanger load exceeds 360 lbs) Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and into the backer block where the backer block will fit. Clinch, install backer right to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

FIGURE 10i Double I-joist header

FIGURE 10j Top- or face-mount hanger

FIGURE 10k Top-mount hanger installed per manufacturer's recommendations

FIGURE 10l Top-mount hanger installed per manufacturer's recommendations

FIGURE 10m Multiple I-joist header with full depth filler block shown. Nordic LAM or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

FIGURE 10n Do not bevel-cut joist beyond inside face of wall

FIGURE 10o Attach I-joist per detail 1b

FIGURE 10p Filler block

FIGURE 10q One 2-1/2" nails at top and bottom flange

FIGURE 10r One 2-1/2" nails from each web to lumber plate

FIGURE 10s One 2-1/2" nails from each web to lumber plate

FIGURE 10t One 2-1/2" nails one side only

FIGURE 10u One 2-1/2" nails at 6" o.c.

FIGURE 10v One 2-1/2" nails at 6" o.c.

FIGURE 10w One 2-1/2" nails at 6" o.c.

FIGURE 10x One 2-1/2" nails at 6" o.c.

FIGURE 10y One 2-1/2" nails at 6" o.c.

FIGURE 10z One 2-1/2" nails at 6" o.c.

FIGURE 10aa One 2-1/2" nails at 6" o.c.

FIGURE 10ab One 2-1/2" nails at 6" o.c.

FIGURE 10ac One 2-1/2" nails at 6" o.c.

FIGURE 10ad One 2-1/2" nails at 6" o.c.

FIGURE 10ae One 2-1/2" nails at 6" o.c.

FIGURE 10af One 2-1/2" nails at 6" o.c.

FIGURE 10ag One 2-1/2" nails at 6" o.c.

FIGURE 10ah One 2-1/2" nails at 6" o.c.

FIGURE 10ai One 2-1/2" nails at 6" o.c.

FIGURE 10aj One 2-1/2" nails at 6" o.c.

FIGURE 10ak One 2-1/2" nails at 6" o.c.

FIGURE 10al One 2-1/2" nails at 6" o.c.

FIGURE 10am One 2-1/2" nails at 6" o.c.

FIGURE 10an One 2-1/2" nails at 6" o.c.

FIGURE 10ao One 2-1/2" nails at 6" o.c.

FIGURE 10ap One 2-1/2" nails at 6" o.c.

FIGURE 10aq One 2-1/2" nails at 6" o.c.

FIGURE 10ar One 2-1/2" nails at 6" o.c.

FIGURE 10as One 2-1/2" nails at 6" o.c.

FIGURE 10at One 2-1/2" nails at 6" o.c.

FIGURE 10au One 2-1/2" nails at 6" o.c.

FIGURE 10av One 2-1/2" nails at 6" o.c.

FIGURE 10aw One 2-1/2" nails at 6" o.c.

FIGURE 10ax One 2-1/2" nails at 6" o.c.

FIGURE 10ay One 2-1/2" nails at 6" o.c.

FIGURE 10az One 2-1/2" nails at 6" o.c.

FIGURE 10ba One 2-1/2" nails at 6" o.c.

FIGURE 10bb One 2-1/2" nails at 6" o.c.

FIGURE 10bc One 2-1/2" nails at 6" o.c.

FIGURE 10bd One 2-1/2" nails at 6" o.c.

FIGURE 10be One 2-1/2" nails at 6" o.c.

FIGURE 10bf One 2-1/2" nails at 6" o.c.

FIGURE 10bg One 2-1/2" nails at 6" o.c.

FIGURE 10bh One 2-1/2" nails at 6" o.c.

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FIGURE 10bj One 2-1/2" nails at 6" o.c.

FIGURE 10bk One 2-1/2" nails at 6" o.c.

FIGURE 10bl One 2-1/2" nails at 6" o.c.

FIGURE 10bm One 2-1/2" nails at 6" o.c.

FIGURE 10bn One 2-1/2" nails at 6" o.c.

FIGURE 10bo One 2-1/2" nails at 6" o.c.

FIGURE 10bp One 2-1/2" nails at 6" o.c.

FIGURE 10bq One 2-1/2" nails at 6" o.c.

FIGURE 10br One 2-1/2" nails at 6" o.c.

FIGURE 10bs One 2-1/2" nails at 6" o.c.

FIGURE 10bt One 2-1/2" nails at 6" o.c.

FIGURE 10bu One 2-1/2" nails at 6" o.c.

FIGURE 10bv One 2-1/2" nails at 6" o.c.

FIGURE 10bw One 2-1/2" nails at 6" o.c.

FIGURE 10bx One 2-1/2" nails at 6" o.c.

FIGURE 10by One 2-1/2" nails at 6" o.c.

FIGURE 10bz One 2-1/2" nails at 6" o.c.

FIGURE 10ca One 2-1/2" nails at 6" o.c.

FIGURE 10cb One 2-1/2" nails at 6" o.c.

FIGURE 10cc One 2-1/2" nails at 6" o.c.

FIGURE 10cd One 2-1/2" nails at 6" o.c.

FIGURE 10ce One 2-1/2" nails at 6" o.c.

FIGURE 10cf One 2-1/2" nails at 6" o.c.

FIGURE 10cg One 2-1/2" nails at 6" o.c.

FIGURE 10ch One 2-1/2" nails at 6" o.c.

FIGURE 10ci One 2-1/2" nails at 6" o.c.

FIGURE 10cj One 2-1/2" nails at 6" o.c.

FIGURE 10ck One 2-1/2" nails at 6" o.c.

FIGURE 10cl One 2-1/2" nails at 6" o.c.

FIGURE 10cm One 2-1/2" nails at 6" o.c.

FIGURE 10cn One 2-1/2" nails at 6" o.c.

FIGURE 10co One 2-1/2" nails at 6" o.c.

FIGURE 10cp One 2-1/2" nails at 6" o.c.

FIGURE 10cq One 2-1/2" nails at 6" o.c.

FIGURE 10cr One 2-1/2" nails at 6" o.c.

FIGURE 10cs One 2-1/2" nails at 6" o.c.

FIGURE 10ct One 2-1/2" nails at 6" o.c.

FIGURE 10cu One 2-1/2" nails at 6" o.c.

FIGURE 10cv One 2-1/2" nails at 6" o.c.

FIGURE 10cw One 2-1/2" nails at 6" o.c.

FIGURE 10cx One 2-1/2" nails at 6" o.c.

FIGURE 10cy One 2-1/2" nails at 6" o.c.

FIGURE 10cz One 2-1/2" nails at 6" o.c.

FIGURE 10da One 2-1/2" nails at 6" o.c.

FIGURE 10db One 2-1/2" nails at 6" o.c.

FIGURE 10dc One 2-1/2" nails at 6" o.c.

FIGURE 10dd One 2-1/2" nails at 6" o.c.

FIGURE 10de One 2-1/2" nails at 6" o.c.

FIGURE 10df One 2-1/2" nails at 6" o.c.

FIGURE 10dg One 2-1/2" nails at 6" o.c.

FIGURE 10dh One 2-1/2" nails at 6" o.c.

FIGURE 10di One 2-1/2" nails at 6" o.c.

FIGURE 10dj One 2-1/2" nails at 6" o.c.

FIGURE 10dk One 2-1/2" nails at 6" o.c.

FIGURE 10dl One 2-1/2" nails at 6" o.c.

FIGURE 10dm One 2-1/2" nails at 6" o.c.

FIGURE 10dn One 2-1/2" nails at 6" o.c.

FIGURE 10do One 2-1/2" nails at 6" o.c.

FIGURE 10dp One 2-1/2" nails at 6" o.c.

FIGURE 10dq One 2-1/2" nails at 6" o.c.

FIGURE 10dr One 2-1/2" nails at 6" o.c.

FIGURE 10ds One 2-1/2" nails at 6" o.c.

FIGURE 10dt One 2-1/2" nails at 6" o.c.

FIGURE 10du One 2-1/2" nails at 6" o.c.

FIGURE 10dv One 2-1/2" nails at 6" o.c.

FIGURE 10dw One 2-1/2" nails at 6" o.c.

FIGURE 10dx One 2-1/2" nails at 6" o.c.

FIGURE 10dy One 2-1/2" nails at 6" o.c.

FIGURE 10dz One 2-1/2" nails at 6" o.c.

FIGURE 10ea One 2-1/2" nails at 6" o.c.

FIGURE 10eb One 2-1/2" nails at 6" o.c.

FIGURE 10ec One 2-1/2" nails at 6" o.c.

FIGURE 10ed One 2-1/2" nails at 6" o.c.

FIGURE 10ee One 2-1/2" nails at 6" o.c.

FIGURE 10ef One 2-1/2" nails at 6" o.c.

FIGURE 10eg One 2-1/2" nails at 6" o.c.

FIGURE 10eh One 2-1/2" nails at 6" o.c.

FIGURE 10ei One 2-1/2" nails at 6" o.c.

FIGURE 10ej One 2-1/2" nails at 6" o.c.

FIGURE 10ek One 2-1/2" nails at 6" o.c.

FIGURE 10el One 2-1/2" nails at 6" o.c.

FIGURE 10em One 2-1/2" nails at 6" o.c.

FIGURE 10en One 2-1/2" nails at 6" o.c.

FIGURE 10eo One 2-1/2" nails at 6" o.c.

FIGURE 10ep One 2-1/2" nails at 6" o.c.

FIGURE 10eq One 2-1/2" nails at 6" o.c.

FIGURE 10er One 2-1/2" nails at 6" o.c.

FIGURE 10es One 2-1/2" nails at 6" o.c.

FIGURE 10et One 2-1/2" nails at 6" o.c.

FIGURE 10eu One 2-1/2" nails at 6" o.c.

FIGURE 10ev One 2-1/2" nails at 6" o.c.

FIGURE 10ew One 2-1/2" nails at 6" o.c.

FIGURE 10ex One 2-1/2" nails at 6" o.c.

FIGURE 10ey One 2-1/2" nails at 6" o.c.

FIGURE 10ez One 2-1/2" nails at 6" o.c.

FIGURE 10fa One 2-1/2" nails at 6" o.c.

FIGURE 10fb One 2-1/2" nails at 6" o.c.

FIGURE 10fc One 2-1/2" nails at 6" o.c.

FIGURE 10fd One 2-1/2" nails at 6" o.c.

FIGURE 10fe One 2-1/2" nails at 6" o.c.

FIGURE 10ff One 2-1/2" nails at 6" o.c.

FIGURE 10fg One 2-1/2" nails at 6" o.c.

FIGURE 10fh One 2-1/2" nails at 6" o.c.

FIGURE 10fi One 2-1/2" nails at 6" o.c.

FIGURE 10fj One 2-1/2" nails at 6" o.c.

FIGURE 10fk One 2-1/2" nails at 6" o.c.

FIGURE 10fl One 2-1/2" nails at 6" o.c.

FIGURE 10fm One 2-1/2" nails at 6" o.c.

FIGURE 10fn One 2-1/2" nails at 6" o.c.

FIGURE 10fo One 2-1/2" nails at 6" o.c.

FIGURE 10fp One 2-1/2" nails at 6" o.c.

FIGURE 10fq One 2-1/2" nails at 6" o.c.

FIGURE 10fr One 2-1/2" nails at 6" o.c.

FIGURE 10fs One 2-1/2" nails at 6" o.c.

FIGURE 10ft One 2-1/2" nails at 6" o.c.

FIGURE 10fu One 2-1/2" nails at 6" o.c.

FIGURE 10fv One 2-1/2" nails at 6" o.c.

FIGURE 10fw One 2-1/2" nails at 6" o.c.

FIGURE 10fx One 2-1/2" nails at 6" o.c.

FIGURE 10fy One 2-1/2" nails at 6" o.c.

FIGURE 10fz One 2-1/2" nails at 6" o.c.

FIGURE 10ga One 2-1/2" nails at 6" o.c.

FIGURE 10gb One 2-1/2" nails at 6" o.c.

FIGURE 10gc One 2-1/2" nails at 6" o.c.

FIGURE 10gd One 2-1/2" nails at 6" o.c.

FIGURE 10ge One 2-1/2" nails at 6" o.c.

FIGURE 10gf One 2-1/2" nails at 6" o.c.

FIGURE 10gg One 2-1/2" nails at 6" o.c.

FIGURE 10gh One 2-1/2" nails at 6" o.c.

FIGURE 10gi One 2-1/2" nails at 6" o.c.

FIGURE 10gj One 2-1/2" nails at 6" o.c.

FIGURE 10gk One 2-1/2" nails at 6" o.c.

FIGURE 10gl One 2-1/2" nails at 6" o.c.

FIGURE 10gm One 2-1/2" nails at 6" o.c.

FIGURE 10gn One 2-1/2" nails at 6" o.c.

FIGURE 10go One 2-1/2" nails at 6" o.c.

FIGURE 10gp One 2-1/2" nails at 6" o.c.

FIGURE 10gq One 2-1/2" nails at 6" o.c.

FIGURE 10gr One 2-1/2" nails at 6" o.c.

FIGURE 10gs One 2-1/2" nails at 6" o.c.

FIGURE 10gt One 2-1/2" nails at 6" o.c.

FIGURE 10gu One 2-1/2" nails at 6" o.c.

FIGURE 10gv One 2-1/2" nails at 6" o.c.

FIGURE 10gw One 2-1/2" nails at 6" o.c.

FIGURE 10gx One 2-1/2" nails at 6" o.c.

FIGURE 10gy One 2-1/2" nails at 6" o.c.

FIGURE 10gz One 2-1/2" nails at 6" o.c.

FIGURE 10ha One 2-1/2" nails at 6" o.c.

FIGURE 10hb One 2-1/2" nails at 6" o.c.

FIGURE 10hc One 2-1/2" nails at 6" o.c.

FIGURE 10hd One 2-1/2" nails at 6" o.c.

FIGURE 10he One 2-1/2" nails at 6" o.c.

FIGURE 10hf One 2-1/2" nails at 6" o.c.

FIGURE 10hg One 2-1/2" nails at 6" o.c.

FIGURE 10hh One 2-1/2" nails at 6" o.c.

FIGURE 10hi One 2-1/2" nails at 6" o.c.

FIGURE 10hj One 2-1/2" nails at 6" o.c.

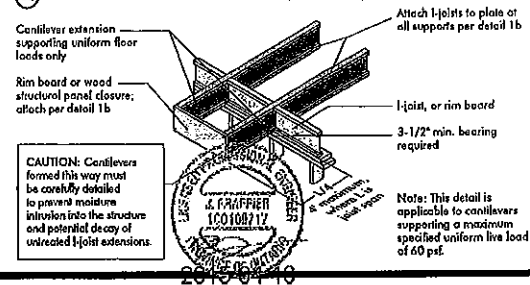
FIGURE 10hk One 2-1/2" nails at 6" o.c.

FIGURE 10hl One 2-1/2" nails at 6" o.c.

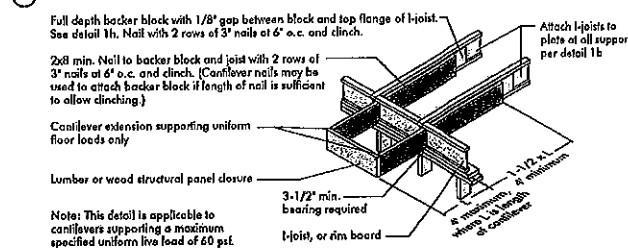
FIGURE 10hm One 2-

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

3a) 1-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

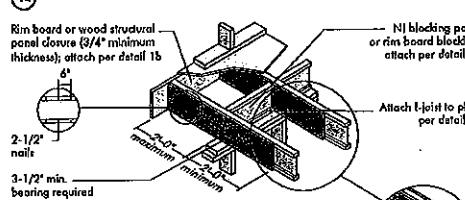


3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

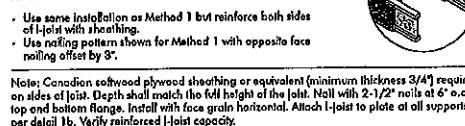


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



Alternate Method 2 — DOUBLE 1-JOIST

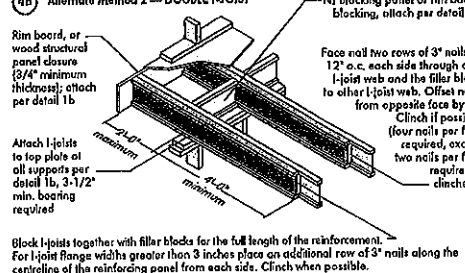
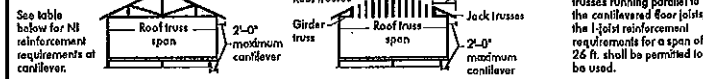


FIGURE 4 (continued)



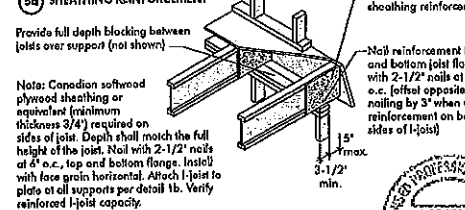
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)							
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24
2-1/2"	28	N	N	1	2	N	1	2	X
	30	N	1	1	X	N	1	2	X
	32	N	1	2	X	N	2	X	X
	34	N	1	2	X	N	2	X	X
	36	N	1	2	X	N	2	X	X
	38	N	1	2	X	N	2	X	X
	40	N	1	2	X	N	2	X	X
11-7/8"	28	N	N	1	2	N	1	2	X
	30	N	N	1	2	N	1	2	X
	32	N	N	1	2	N	1	2	X
	34	N	N	1	2	N	1	2	X
	36	N	N	1	2	N	1	2	X
	38	N	N	1	2	N	1	2	X
	40	N	N	1	2	N	1	2	X
14"	28	N	N	1	2	N	1	2	X
	30	N	N	1	2	N	1	2	X
	32	N	N	1	2	N	1	2	X
	34	N	N	1	2	N	1	2	X
	36	N	N	1	2	N	1	2	X
	38	N	N	1	2	N	1	2	X
	40	N	N	1	2	N	1	2	X
16"	28	N	N	1	2	N	1	2	X
	30	N	N	1	2	N	1	2	X
	32	N	N	1	2	N	1	2	X
	34	N	N	1	2	N	1	2	X
	36	N	N	1	2	N	1	2	X
	38	N	N	1	2	N	1	2	X
	40	N	N	1	2	N	1	2	X

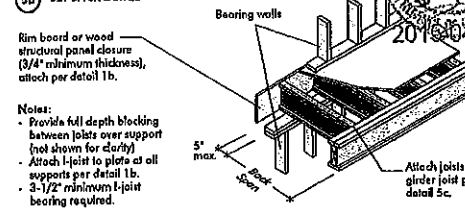
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. X = NI reinforced with 3/4" wood structural panel on both sides, or double 1-joist.
4. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. 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.
6. Confirmed joists supporting glider 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

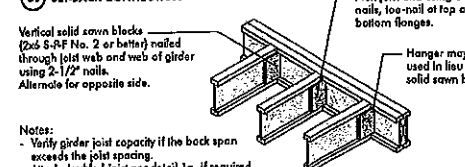
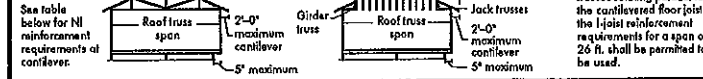


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)							
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24
2-1/2"	28	1	X	X	X	2	X	X	X
	30	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X
	36	2	X	X	X	2	X	X	X
	38	2	X	X	X	2	X	X	X
	40	2	X	X	X	2	X	X	X
11-7/8"	28	N	2	X	X	2	X	X	X
	30	N	2	X	X	2	X	X	X
	32	N	2	X	X	2	X	X	X
	34	N	2	X	X	2	X	X	X
	36	N	2	X	X	2	X	X	X
	38	N	2	X	X	2	X	X	X
	40	N	2	X	X	2	X	X	X
14"	28	N	1	2	X	N	1	2	X
	30	N	1	2	X	N	1	2	X
	32	N	2	X	X	N	2	X	X
	34	N	2	X	X	N	2	X	X
	36	N	2	X	X	N	2	X	X
	38	N	2	X	X	N	2	X	X
	40	N	2	X	X	N	2	X	X
16"	28	N	1	2	X	N	1	2	X
	30	N	1	2	X	N	1	2	X
	32	N	1	2	X	N	1	2	X
	34	N	2	X	X	N	2	X	X
	36	N	2	X	X	N	2	X	X
	38	N	2	X	X	N	2	X	X
	40	N	2	X	X	N	2	X	X

1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. X = NI reinforced with 3/4" wood structural panel on both sides, or double 1-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. 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.
6. Confirmed joists supporting glider 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. 1-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, full-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into a 1-joist web shall equal the clear distance between the flanges of the 1-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 flanges.
5. The sides of square holes or largest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

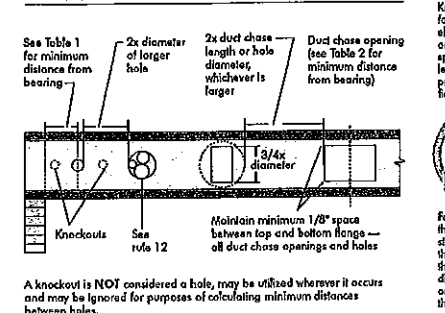
TABLE 1 LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (in.)												Span adjustment factor
		2	3	4	5	6	7	8	9	10	11	12	13	
2-1/2"	28	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	36	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	38	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	40	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
11-7/8"	28	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	36	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	38	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	40	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
14"	28	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	36	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	38	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	40	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
16"	28	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	36	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	38	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0
	40	12	16	19.2	24	28	32	36	40	44	48	52	56	1.0

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

OPTIONAL:
The above table is based on the joists used at their maximum span. If the joists are placed at less than their full maximum span (see Manufacturer's literature for details), the minimum distance from the centreline of the hole to the face of any support (S) as given above may be reduced as follows:
Reduced = $\frac{S}{L} \times D$
Where:
Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application.
S = Distance from the inside face of any support to centre of hole.
L = The actual measured span distance between the inside faces of supports (ft).
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 L is greater than 1, use 1 in the above calculation for L.
SAF

FIGURE 7 FIELD-CUT HOLE LOCATOR



Knockouts are pre-cut holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the 1-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.
Never drill, cut or notch the flange, or overcut the web.
Holes in webs should be cut with a sharp saw.
For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the 1-joist.

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

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only													
Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft.)											
		Duct chase length (ft.)											
		8	10	12	14	16	18	20	22	24	26	28	30
2-1/2"	28	4.1'	4.8'	5.1'	5.4'	5.8'	6.1'	6.4'	7.1'	7.4'	7.8'	8.1'	8.4'
	30	5.3'	6.0'	6.4'	6.8'	7.1'	7.4'	7.8'	8.4'	8.8'	9.1'	9.4'	9.8'
	32	6.5'	7.2'	7.6'	8.0'	8.4'	8.8'	9.1'	9.8'	10.1'	10.4'	10.8'	11.1'
	34	7.7'	8.4'	8.8'	9.2'	9.6'	9.9'	10.4'	11.1'	11.4'	11.8'	12.1'	12.4'
	36	8.9'	9.6'	10.0'	10.4'	10.8'	11.1'	11.8'	12.4'	12.8'	13.1'	13.4'	13.8'
	38	10.1'	10.8'	11.2'	11.6'	12.0'	12.4'	12.8'	13.4'	13.8'	14.1'	14.4'	14.8'
11-7/8"	28	4.1'	4.8'	5.1'	5.4'	5.8'	6.1'	6.4'	7.1'	7.4'	7.8'	8.1'	8.4'
	30	5.3'	6.0'	6.4'	6.8'	7.1'	7.4'	7.8'	8.4'	8.8'	9.1'	9.4'	9.8'
	32	6.5'	7.2'	7.6'	8.0'	8.4'	8.8'	9.1'	9.8'	10.1'	10.4'	10.8'	11.1'
	34	7.7'	8.4'	8.8'	9.2'	9.6'	9.9'	10.4'	11.1'	11.4'	11.8'	12.1'	12.4'
	36	8.9'	9.6'	10.0'	10.4'	10.8'	11.1'	11.8'	12.4'	12.8'	13.1'	13.4'	13.8'
	38	10.1'	10.8'	11.2'	11.6'	12.0'	12.4'	12.8'	13.4'	13.8'	14.1'	14.4'	14.8'
14"	28	4.1'	4.8'	5.1'	5.4'	5.8'	6.1'	6.4'	7.1'	7.4'	7.8'	8.1'	8.4'
	30	5.3'	6.0'	6.4'	6.8'	7.1'	7.4'	7.8'	8.4'	8.8'	9.1'	9.4'	9.8'
	32	6.5'	7.2'	7.6'	8.0'	8.4'	8.8'	9.1'	9.8'	10.1'	10.4'	10.8'	11.1'
	34	7.7'	8.4'	8.8'	9.2'	9.6'	9.9'	10.4'	11.1'	11.4'	11.8'	12.1'	12.4'
	36	8.9'	9.6'	10.0'	10.4'	10.8'	11.1'	11.8'	12.4'	12.8'	13.1'	13.4'	13.8'
	38	10.1'	10.8'	11.2'	11.6'	12.0'	12.4'	12.8'	13.4'	13.8'	14.1'	14.4'	14.8'
16"	28	4.1'	4.8'	5.1'	5.4'	5.8'	6.1'	6.4'	7.1'	7.4'	7.8'	8.1'	8.4'
	30	5.3'	6.0'	6.4'	6.8'	7.1'	7.4'	7.8'	8.4'	8.8'	9.1'	9.4'	9.8'
	32	6.5'	7.2'	7.6'	8.0'	8.4'	8.8'	9.1'	9.8'	10.1'	10.4'	10.8'	11.1'
	34	7.7'	8.4'	8.8'	9.2'	9.6'	9.9'	10.4'	11.1'	11.4'	11.8'	12.1'	12.4'
	36	8.9'	9.6'	10.0'	10.4'	10.8'	11.1'	11.8'	12.4'	12.8'	13.1'	13.4'	13.8'
	38	10.1'	10.8'	11.2'	11.6'	12.0'	12.4'	12.8'	13.4'	13.8'	14.1'	14.4'	14.8'



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 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.
- 1-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joint web shall equal the clear distance between the flanges of the I-joint 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-joint flange.

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

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

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

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

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

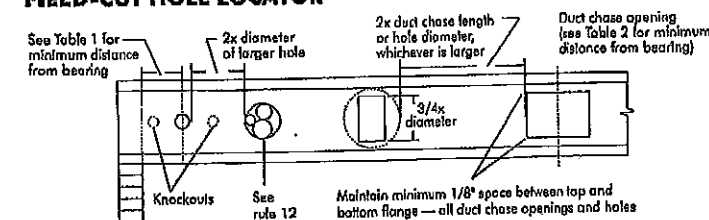
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

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

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unshathed I-joints. Once shathed, do not over-stress I-joints with concentrated loads from building materials.

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-briding at joint ends. When I-joints are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joints. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joint rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joint. Nail the bracing to a lateral restraint at the end of each bay. Top ends of adjoining bracing over at least two I-joints.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joints at the end of the bay.
- For cantilevered I-joints, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
- Install one fully nail permanent sheathing to each I-joint before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joint.

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

PRODUCT WARRANTY

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

Furthermore, Chantrelle Chibogamian warrants that our products, when installed in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

1a NI blocking panel

Attach I-joint to top plate per detail 1b

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

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

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

1d NI or rim board blocking panel per detail 1a

Squash block

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

Provide lateral bracing per detail 1a or 1b

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

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

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

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

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

Top-mount hanger installed per manufacturer's recommendations

1m Multiple I-joint header with full depth filler block shown. Nordic LAM or SCL headers may also be used. Verify double I-joint capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Filler block per detail 1p

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1p Filler block

Offset nails from opposite face by 6"

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

NOTES:

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

1b Rim board

One 2-1/2" face nail at each side at bearing

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

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

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

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

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

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

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

1g Joist attachment per detail 1b

2-1/2" nails at 6" o.c. to top plate

Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls or when floor joists are not continuous over support

NI blocking panel per detail 1a

1i Nordic LAM or Structural Composite Lumber (SCL)

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

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

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

1j Backer block required (both sides for face-mount hangers)

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

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

Attach I-joint per detail 1b

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

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

NI blocking panel

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

1s Rim board

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

2x4 min. (1/8" gap minimum)

Two 2-1/2" nails from each web to lumber piece

1-joint blocking panel

One 2-1/2" nail one side only

NOTES:

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

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

WEB STIFFENERS

RECOMMENDATIONS:

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

NORDIC STRUCTURES

COMPANY
Feb. 19, 2020 10:40

PROJECT
J1 2ND FLOOR ABOVE GARAGE.wwb

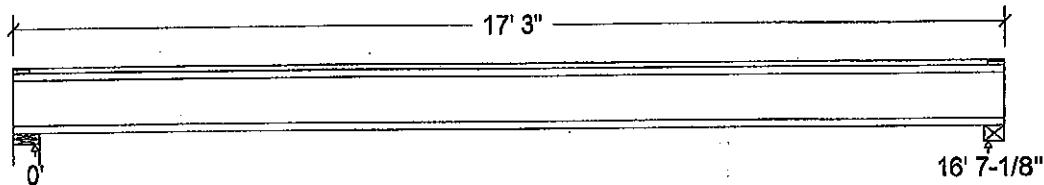
Design Check Calculation Sheet

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	166		166
Live	332		332
Factored:			
Total	705		705
Bearing:			
Capacity			
Joist	2336		2336
Support	9724		-
Des ratio			
Joist	0.30		0.30
Support	0.07		-
Load case	#2		#2
Length	5-1/2		4-1/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		-
Kzcp sup	-		-

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

Nordic Joist 11-7/8" NI-40x Floor joist @ 12" o.c.

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

Total length: 17' 3"; Clear span: 16' 5-3/8"; 5/8" 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 = 705	Vr = 2336	lbs	Vf/Vr = 0.30
Moment (+)	Mf = 2926	Mr = 6255	lbs-ft	Mf/Mr = 0.47
Perm. Defl'n	0.09 = < L/999	0.55 = L/360	in	0.16
Live Defl'n	0.18 = < L/999	0.41 = L/480	in	0.43
Total Defl'n	0.27 = L/741	0.83 = L/240	in	0.32
Bare Defl'n	0.21 = L/970	0.55 = L/360	in	0.37
Vibration	Lmax = 16'-7.1	Lv = 18'-3.6	ft	0.91
Defl'n	= 0.028	= 0.038	in	0.74



NO. 5476-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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 = 432.91 lb-in² K= 6.18e06 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.



DWG NO. TAM5426-20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Feb. 19, 2020 10:27

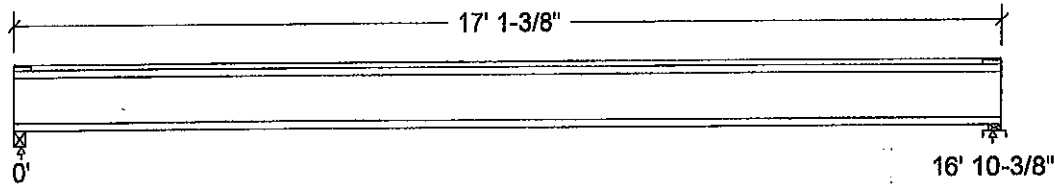
PROJECT
J2 1ST FLOOR.wwb

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	225		225
Live	450		450
Factored:			
Total	956		956
Bearing:			
Capacity			
Joist	2102		2101
Support	-		3971
Des ratio			
Joist	0.45		0.45
Support	-		0.24
Load case	#2		#2
Length	2-3/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcp sup	-		769
Kzcp sup	-		1.09

Nordic Joist 11-7/8" NI-40x Floor joist @ 16" o.c.

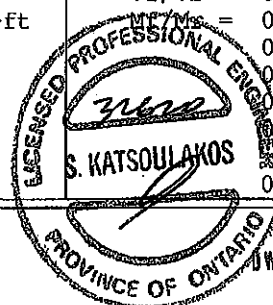
Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2;

Total length: 17' 1-3/8"; Clear span: 16' 8-5/8"; 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	$V_f = 956$	$V_r = 2336$	lbs	$V_f/V_r = 0.41$
Moment(+)	$M_f = 4029$	$M_r = 6255$	lbs-ft	$M_f/M_r = 0.64$
Perm. Defl'n	$0.12 = < L/999$	$0.56 = L/360$	in	0.21
Live Defl'n	$0.24 = L/841$	$0.42 = L/480$	in	0.57
Total Defl'n	$0.36 = L/560$	$0.84 = L/240$	in	0.43
Bare Defl'n	$0.29 = L/695$	$0.56 = L/360$	in	0.52
Vibration	$L_{max} = 16'-10.4$	$L_v = 18'-1.3$	ft	0.93
Defl'n	$= 0.030$	$= 0.038$	in	0.80



10/1/20
DWG NO. TAM5477 -20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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:

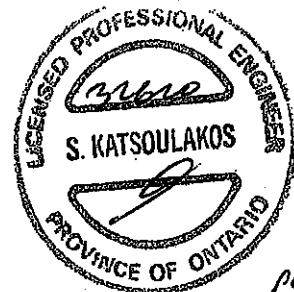
E_{IEff} = 459.76 lb-in² K= 6.18e06 lbs
 "Live" deflection is due to all non-dead loads (live, wind, snow...)

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.



DWG NO. YAW 5477 -20
 STRUCTURAL
 COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B1(i2775) (Flush Beam)

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

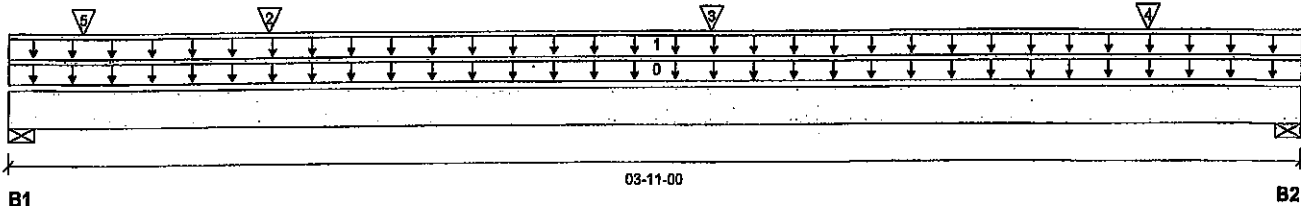
File name: VALLEYCREEK 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i2775)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	688 / 0	374 / 0		
B2, 3-1/2"	507 / 0	264 / 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	03-11-00	Top	120	60			n/a
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-11-00	Top	177	88			n/a
2	J8(i2787)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	Top	179	89			n/a
3	J8(i2785)	Conc. Pt. (lbs)	L	02-01-08	02-01-08	Top	177	88			n/a
4	J8(i2790)	Conc. Pt. (lbs)	L	03-05-08	03-05-08	Top	188	112			n/a
5	12(i854)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	783 ft-lbs	17696 ft-lbs	4.4%	1	02-01-08
End Shear	446 lbs	7232 lbs	6.2%	1	01-05-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-00-08
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-00-08
Max Defl.	0.002"	n/a	n/a	4	02-00-08
Span / Depth	3.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1499 lbs	25.3%	12.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	1090 lbs	28.9%	14.6%	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



090 NO. TAM 5478-20
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™, BCi®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.



Boise Cascade

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****1ST FLR FRAMING\Flush Beams\B2(i2070) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 10:08:06

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2(i2070)

City, Province, Postal Code: WATERDOWN

Specifier:

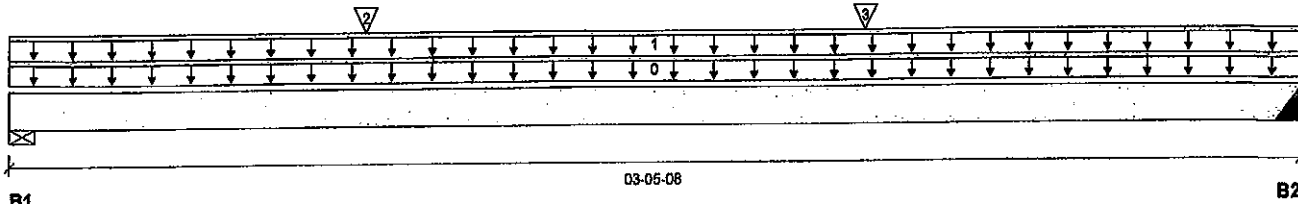
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	451 / 0	237 / 0		
B2, 2"	391 / 0	206 / 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	03-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-05-08	Top	120	60			n/a
2	J8()	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	214	107			n/a
3	J8()	Conc. Pt. (lbs)	L	02-03-08	02-03-08	Top	213	107			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	731 ft-lbs	17696 ft-lbs	4.1%	1	01-11-11
End Shear	539 lbs	7232 lbs	7.5%	1	02-03-10
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-09-07
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-09-07
Max Defl.	0.002"	n/a	n/a	4	01-09-07
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	973 lbs	25.8%	13.0%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	843 lbs	n/a	19.7%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. 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.
 Calculations assume member is fully braced.
 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

CONFORMS TO OBC 2012**AMENDED 2020**

NWG NO. YAM 5479 -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™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****1ST FLR FRAMING\Flush Beams\B3(12318) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 10:08:06

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3(12318)

City, Province, Postal Code: WATERDOWN

Specifier:

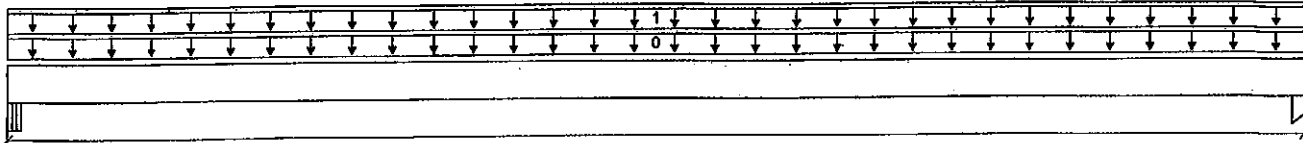
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



07-05-12

B1

B2

Total Horizontal Product Length = 07-05-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	110 / 0	101 / 0		
B2, 1-3/4"	108 / 0	99 / 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	07-05-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-05-12	Top	29	15			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	505 ft-lbs	35392 ft-lbs	1.4%	1	03-09-05
End Shear	198 lbs	14464 lbs	1.4%	1	01-02-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	03-09-05
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	03-09-05
Max Defl.	0.004"	n/a	n/a	4	03-09-05
Span / Depth	7.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-5/8" x 3-1/2"	291 lbs	5.9%	2.6%	Unspecified
B2	Column 1-3/4" x 3-1/2"	285 lbs	5.7%	3.8%	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.

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

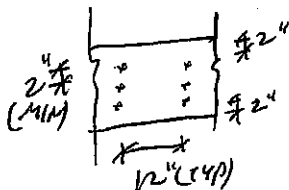
CONFORMS TO CBC 2012

AMENDED 2020

Disclosure

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



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 5480-20
STRUCTURAL
COMPONENT ONLY

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B4(12757) (Flush Beam)**

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

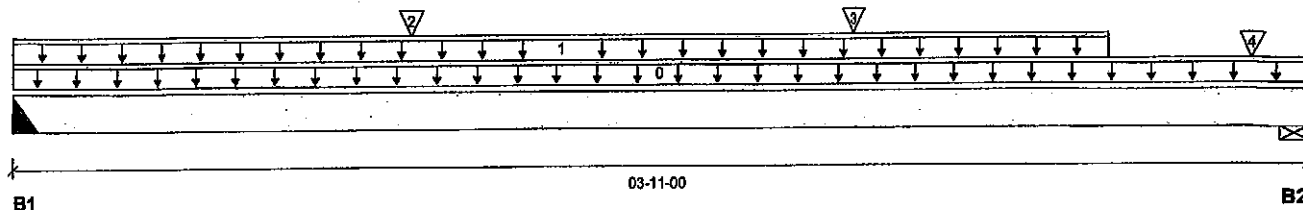
File name: VALLEYCREEK 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(12757)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	549 / 0	286 / 0		
B2, 5-1/2"	1077 / 0	589 / 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	03-11-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	Top	120	60			n/a
2	J5(12769)	Conc. Pt. (lbs)	L	01-02-08	01-02-08	Top	350	175			n/a
3	J5(12755)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	Top	333	167			n/a
4	-	Conc. Pt. (lbs)	L	03-09-02	03-09-02	Top	543	309			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1142 ft-lbs	17696 ft-lbs	6.5%	1	01-08-03
End Shear	1088 lbs	7232 lbs	15.0%	1	02-05-10
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-09-09
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-09-09
Max Defl.	0.004"	n/a	n/a	4	01-09-09
Span / Depth	3.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1181 lbs	n/a	27.6%	HUS1.81/10
B2	Wall/Plate 5-1/2" x 1-3/4"	2352 lbs	39.7%	20.0%	Spruce-Pine-Fir

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. 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.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

HWG NO. TAM 5481 -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 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B5(i2778) (Flush Beam)**

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B5(i2778)

City, Province, Postal Code: WATERDOWN

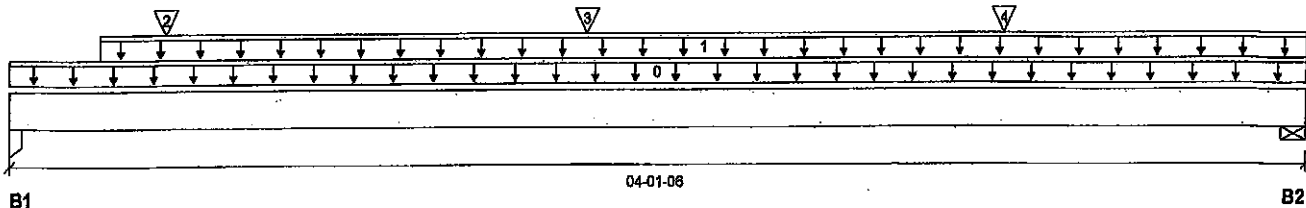
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-01-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	451 / 0	237 / 0		
B2, 4-3/8"	313 / 0	169 / 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	04-01-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	04-01-06	Top	3	1			n/a
2	J7(i2880)	Conc. Pt. (lbs)	L	00-06-00	00-06-00	Top	287	143			n/a
3	J7(i2828)	Conc. Pt. (lbs)	L	01-10-00	01-10-00	Top	255	128			n/a
4	J7(i2834)	Conc. Pt. (lbs)	L	03-02-00	03-02-00	Top	208	104			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	722 ft-lbs	17696 ft-lbs	4.1%	1	01-10-00
End Shear	480 lbs	7232 lbs	6.6%	1	02-09-02
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-00-01
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-00-01
Max Defl.	0.002"	n/a	n/a	4	02-00-01
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"	973 lbs	19.6%	13.0%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	680 lbs	14.4%	7.3%	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.

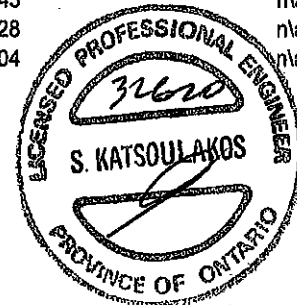
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

DWG NO. YAM5482-20
**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®,

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B6(I2804) (Flush Beam)**

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(I2804)

City, Province, Postal Code: WATERDOWN

Specifier:

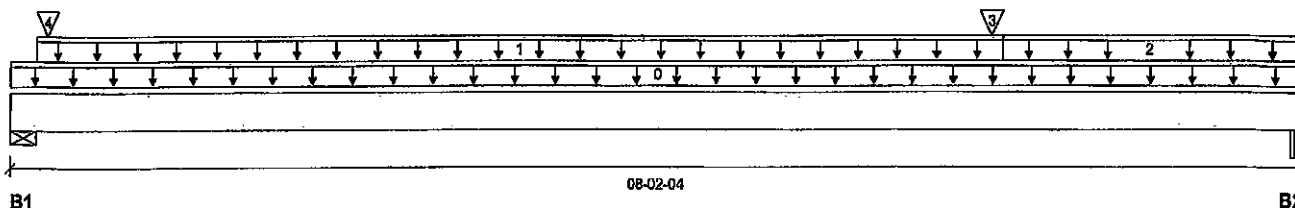
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-3/4"	712 / 0	418 / 0		
B2, 2-5/8"	584 / 0	348 / 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	08-02-04	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-00	06-03-08	Top	53	27			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-03-08	08-02-04	Top	29	15			n/a
3	B4(I2757)	Conc. Pt. (lbs)	L	06-02-10	06-02-10	Top	534	277			n/a
4	B2(I2070)	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top	380	200			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2231 ft-lbs	35392 ft-lbs	6.3%	1	06-02-10
End Shear	1219 lbs	14464 lbs	8.4%	1	06-11-12
Total Load Deflection	L/999 (0.017")	n/a	n/a	4	04-04-08
Live Load Deflection	L/999 (0.01")	n/a	n/a	5	04-04-08
Max Defl.	0.017"	n/a	n/a	4	04-04-08
Span / Depth	7.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-3/4" x 3-1/2"	1590 lbs	19.7%	9.9%	Spruce-Pine-Fir
B2	Beam 2-5/8" x 3-1/2"	1312 lbs	28.7%	11.7%	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.

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

Design based on Dry Service Condition.

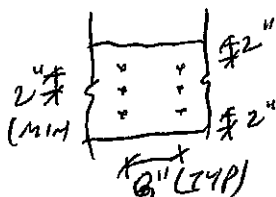
Importance Factor : Normal Part code : Part 9

UWB NO. TAM 5483-20

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.

CONFIRMS TO OBC 2012
AMENDED 2020
PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



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



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

PASSED

1ST FLR FRAMING\Flush Beams\B7(I2754) (Flush Beam)

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(I2754)

City, Province, Postal Code: WATERDOWN

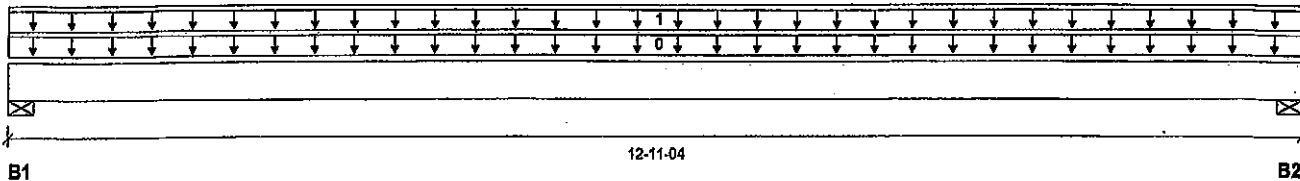
Specifier:

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"	58 / 0	67 / 0		
B2, 4-3/8"	60 / 0	70 / 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	9	5			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	531 ft-lbs	17696 ft-lbs	3.0%	1	06-04-06
End Shear	141 lbs	7232 lbs	1.9%	1	01-01-12
Total Load Deflection	L/999 (0.023")	n/a	n/a	4	06-04-06
Live Load Deflection	L/999 (0.01")	n/a	n/a	5	06-04-06
Max Defl.	0.023"	n/a	n/a	4	06-04-06
Span / Depth	12.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 1-7/8" x 1-3/4"	172 lbs	8.5%	4.3%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 1-3/4"	177 lbs	3.8%	1.9%	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

Disclosure

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

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



DWG NO. YAM 5484-20
STRUCTURAL
COMPONENT ONLY



Boise Cascade

**Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Dropped Beams\B12 DR(12764) (Dropped Beam)**

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmd\

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B12 DR(12764)

City, Province, Postal Code: WATERDOWN

Specifier:

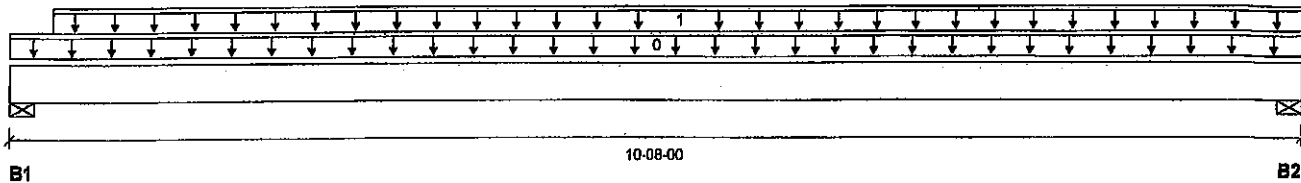
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	3214 / 0	1685 / 0		
B2, 4"	3596 / 0	1876 / 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	10-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	10-08-00	Top	662	331			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17365 ft-lbs	36222 ft-lbs	47.9%	1	05-00-08
End Shear	6320 lbs	17356 lbs	36.4%	1	01-01-08
Total Load Deflection	L/403 (0.302")	n/a	59.6%	4	05-03-11
Live Load Deflection	L/613 (0.198")	n/a	58.7%	5	05-03-11
Max Defl.	0.302"	n/a	n/a	4	05-03-11
Span / Depth	12.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	6928 lbs	24.7%	27.0%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	7738 lbs	27.6%	30.2%	Spruce-Pine-Fir

Notes

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

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

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.

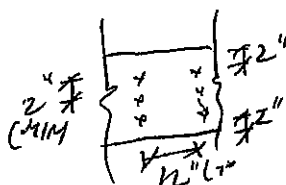
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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" ARDOX
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



DWG NO. TAM 5465-20
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 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B10(i2802) (Flush Beam)**

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

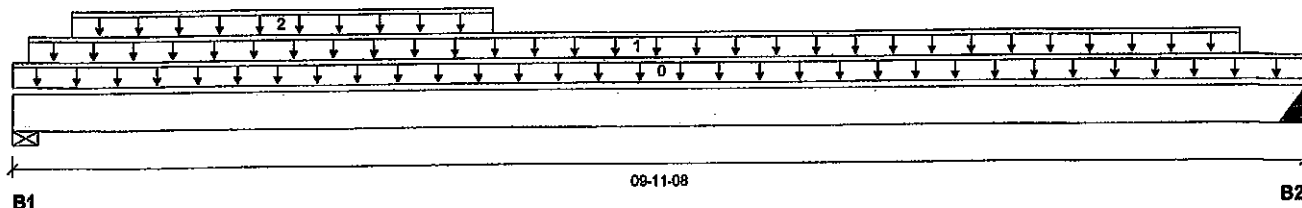
File name: VALLEYCREEK 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B10(i2802)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 09-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	997 / 0	531 / 0		
B2, 2"	656 / 0	358 / 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	09-11-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-08	09-05-08	Top	136	68			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	03-08-03	Top	120	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4082 ft-lbs	17696 ft-lbs	23.1%	1	04-09-08
End Shear	1640 lbs	7232 lbs	22.7%	1	01-05-06
Total Load Deflection	L/999 (0.095")	n/a	n/a	4	04-11-08
Live Load Deflection	L/999 (0.062")	n/a	n/a	5	04-11-08
Max Defl.	0.095"	n/a	n/a	4	04-11-08
Span / Depth	9.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	2158 lbs	36.5%	18.4%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	1433 lbs	n/a	33.6%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. 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.

Calculations assume member is fully braced.

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

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. YAM 5486 -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®,



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

PASSED

2ND FLR FRAMING\Flush Beams\B8(i2812) (Flush Beam)

Dry | 2 spans | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

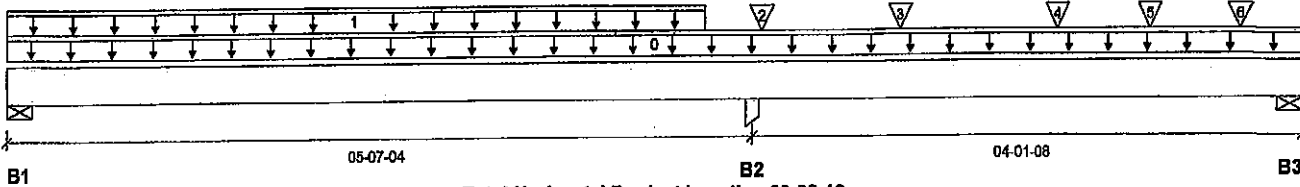
File name: VALLEYCREEK 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B8(i2812)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1411 / 102	682 / 0		
B2, 3-1/2"	3338 / 0	1807 / 0		
B3, 2-3/4"	1097 / 241	448 / 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	09-08-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	05-03-00	Top	482	240			n/a
2	-	Conc. Pt. (lbs)	L	05-08-01	05-08-01	Top	861	500			n/a
3	-	Conc. Pt. (lbs)	L	06-08-11	06-08-11	Top	708	354			n/a
4	-	Conc. Pt. (lbs)	L	07-11-00	07-11-00	Top	714	356			n/a
5	J2(i2855)	Conc. Pt. (lbs)	L	08-07-08	08-07-08	Top	349	174			n/a
6	J1(i2838)	Conc. Pt. (lbs)	L	09-03-06	09-03-06	Top	345	173			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2537 ft-lbs	35392 ft-lbs	7.2%	2	02-09-06
Neg. Moment	-3232 ft-lbs	-35392 ft-lbs	9.1%	1	05-07-04
End Shear	1704 lbs	14464 lbs	11.8%	2	01-03-14
Cont. Shear	2773 lbs	14464 lbs	19.2%	1	06-08-14
Total Load Deflection	L/999 (0.008")	n/a	n/a	9	02-08-01
Live Load Deflection	L/999 (0.006")	n/a	n/a	12	02-09-06
Total Neg. Defl.	L/999 (-0.001")	n/a	n/a	9	06-10-10
Max Defl.	0.008"	n/a	n/a	9	02-08-01
Span / Depth	5.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	2970 lbs	34.5%	17.4%	Spruce-Pine-Fir
B2	Column 3-1/2" x 3-1/2"	7266 lbs	73.0%	48.6%	Unspecified
B3	Wall/Plate 2-3/4" x 3-1/2"	2206 lbs	37.3%	18.8%	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. AMENDED 2020

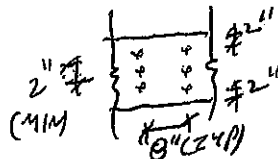
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

PROVIDE 3 ROWS OF 3X" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



OWB NO. TAM 5487-20
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®,

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B9(i2771) (Flush Beam)**

Dry | 1 span | No cant.

February 19, 2020 10:08:06

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B9(i2771)

City, Province, Postal Code: WATERDOWN

Specifier:

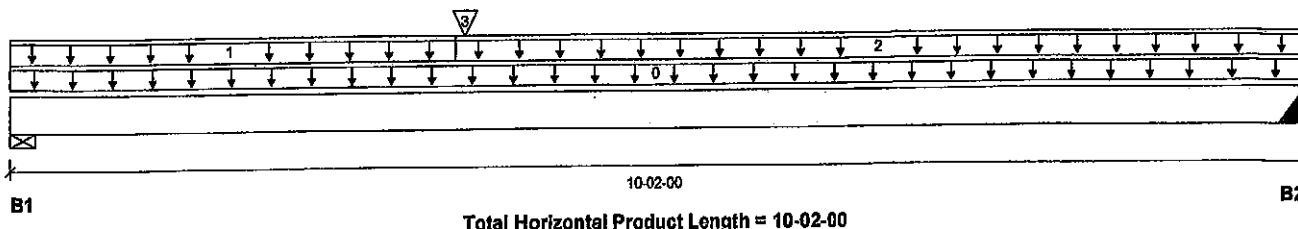
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 4"	563 / 0	363 / 0		
B2, 4"	419 / 0	281 / 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	10-02-00	Top	1.00	0.65	1.00	1.16	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-04	Top	18	9			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	03-06-04	10-02-00	Top	41	20			n/a
3	B10(i2802)	Conc. Pt. (lbs)	L	03-07-02	03-07-02	Top	649	355			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3978 ft-lbs	35392 ft-lbs	11.2%	1	03-07-02
End Shear	1229 lbs	14464 lbs	8.5%	1	01-03-14
Total Load Deflection	L/999 (0.042")	n/a	n/a	4	04-09-14
Live Load Deflection	L/999 (0.026")	n/a	n/a	5	04-09-14
Max Defl.	0.042"	n/a	n/a	4	04-09-14
Span / Depth	9.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1298 lbs	15.1%	7.6%	Spruce-Pine-Fir
B2	Hanger 4" x 3-1/2"	980 lbs	n/a	5.7%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

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

Calculations assume member is fully braced.

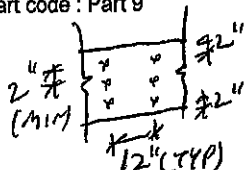
Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

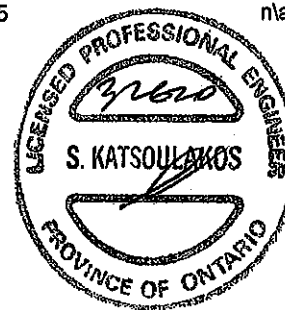
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



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



DWG NO. YAM 5488-20
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®,

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B21(i3058) (Flush Beam)**

Dry | 1 span | No cant.

March 24, 2020 16:05:37

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

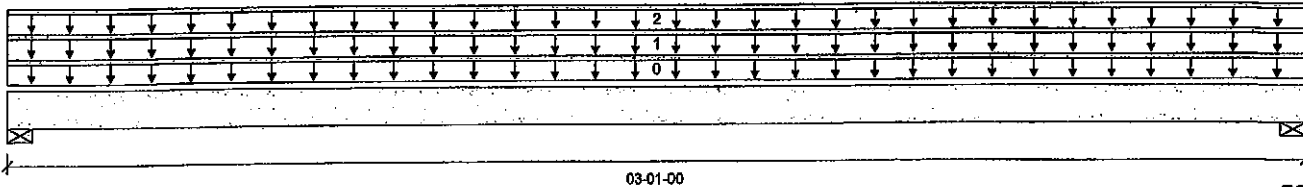
File name: VALLEYCREEK 4 EL 1 DECK CONDITION.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B21(i3058)

Specifier:

Designer: AJ

Company:



B1

03-01-00

B2

Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	21 / 0	154 / 0		
B2, 3"	21 / 0	154 / 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	03-01-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	E3(i753)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		81			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	13	7			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	128 ft-lbs	23005 ft-lbs	0.6%	0	01-06-08
End Shear	42 lbs	9401 lbs	0.4%	0	01-02-14
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-06-08
Max Defl.	0"	n/a	n/a	4	01-06-08
Span / Depth	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	215 lbs	5.1%	2.6%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	215 lbs	5.1%	2.6%	Spruce-Pine-Fir

Notes

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

Calculations assume member is fully braced.

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

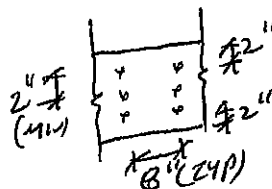
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWG NO. YAM 5489-20
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®,

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B22(13082) (Flush Beam)**

Dry | 1 span | No cant.

March 24, 2020 16:05:37

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 4 EL 1 DECK CONDITION.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B22(13082)

City, Province, Postal Code: WATERDOWN

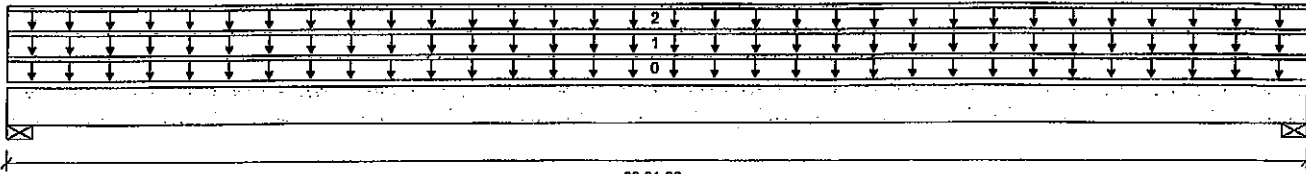
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



B1

03-01-00

B2

Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	84 / 0	194 / 0		
B2, 3"	84 / 0	194 / 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	03-01-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	E5(1757)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	28	101			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	162 ft-lbs	23005 ft-lbs	0.7%	0	01-06-08
End Shear	53 lbs	9401 lbs	0.6%	0	01-02-14
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-06-08
Max Defl.	0"	n/a	n/a	4	01-06-08
Span / Depth	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	272 lbs	6.5%	3.3%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	272 lbs	6.5%	3.3%	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.

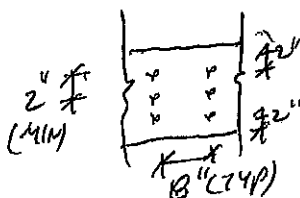
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARDOX
SPIRAL NAILS @ 8" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



DWG NO. YAM5490-20
STRUCTURAL

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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 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B20(i2886) (Flush Beam)**

Dry | 1 span | No cant.

October 27, 2020 17:06:32

BC CALC® Member Report

Build 0

Job name:

File name: VALLEYCREEK 4

Address:

Description: 2ND FLR FRAMING\Flush Beams\B20(i2886)

City, Province, Postal Code: WATERDOWN

Specifier:

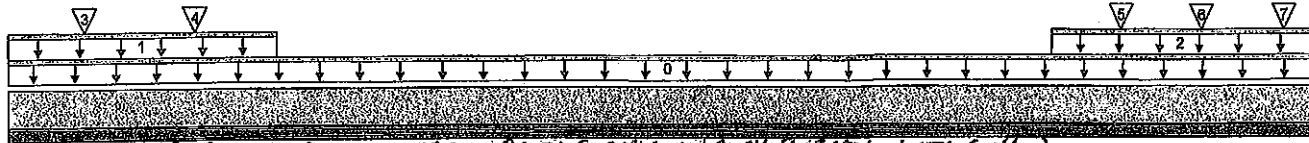
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



FULLY SUPPORTED BOTTOM EDGE ALONG FULL WIDTH & FULL LENGTH).

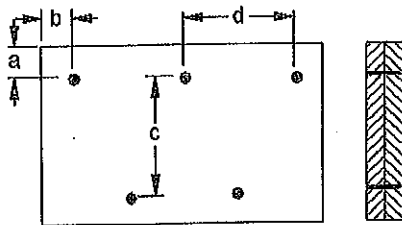
Total Horizontal Product Length = 16-00-00

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-00-00	Top		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-03-00	Top	6	3			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	12-09-00	16-00-00	Top	6	3			n/a
3	J2(i2907)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	386	193			n/a
4	J2(i2776)	Conc. Pt. (lbs)	L	02-03-00	02-03-00	Top	347	174			n/a
5	J2(i2814)	Conc. Pt. (lbs)	L	13-07-08	13-07-08	Top	267	133			n/a
6	J2(i2863)	Conc. Pt. (lbs)	L	14-07-08	14-07-08	Top	289	145			n/a
7	J2(i2855)	Conc. Pt. (lbs)	L	15-07-08	15-07-08	Top	253	127			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Dist. Load	13.28 lb/ft	57645.00 lb/ft	n/a		
Conc. Load	820 lbs	16813 lbs	4.9%		

Connection Diagram: Full Length of Member

a minimum = 2" c = 7-7/8"

b minimum = 3" d = 8"

Calculated Side Load = 410.1 lb/ft

Connectors are: 16d $\times$ 100 Nails

3-1/2" ARDOX SPIRAL

CONFORMS TO OBC 2012

AMENDED 2020

UWG NO. TAM/4824-20

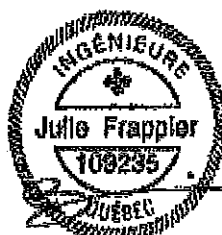
STRUCTURAL

COMPONENT ONLY

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



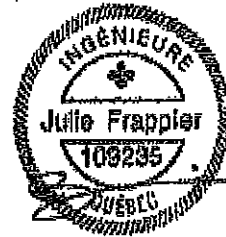
Maximum Floor Spans

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.



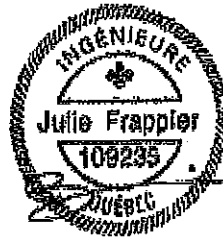
Maximum Floor Spans

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
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	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
14"	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	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
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"	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.



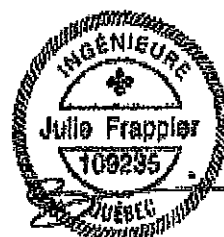
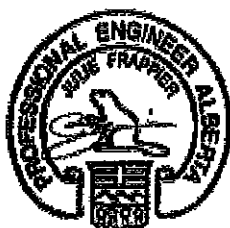
Maximum Floor Spans

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"	17'-6"	16'-6"	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'-5"	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.



Construction Detail

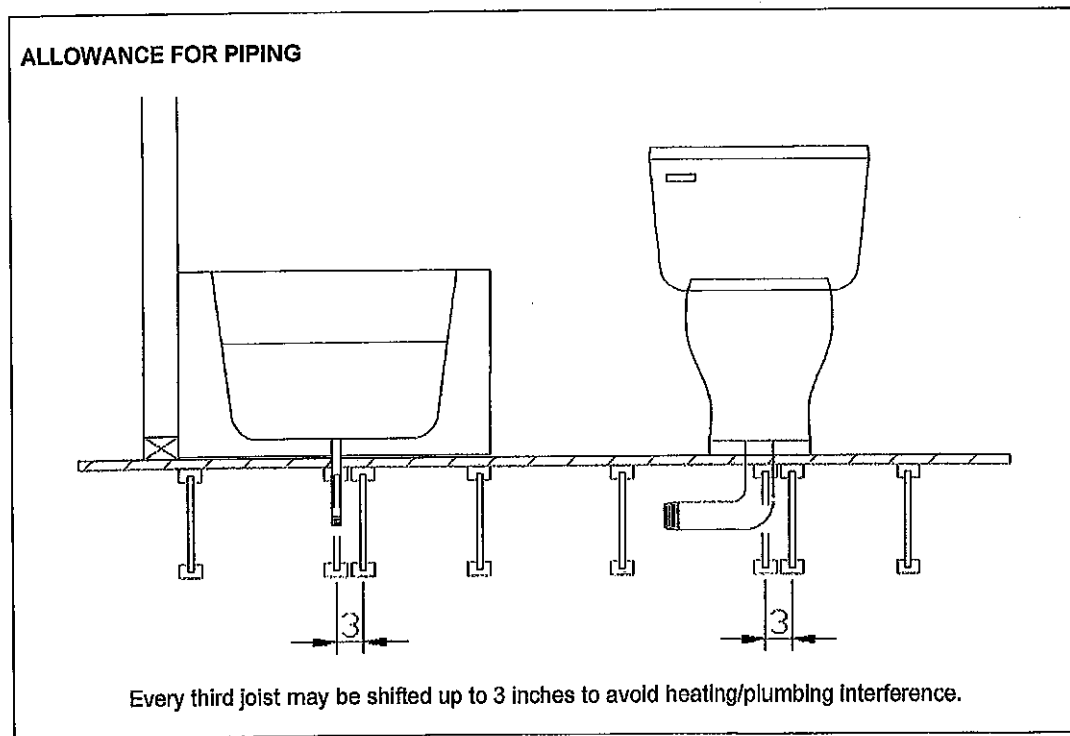
Limit States Design

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.

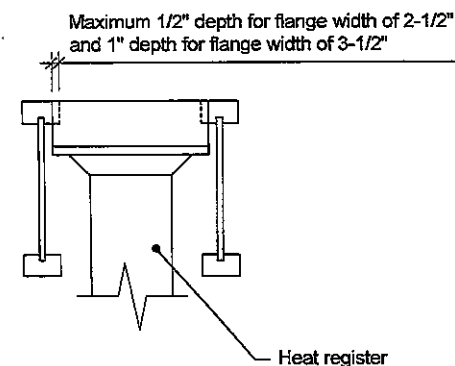
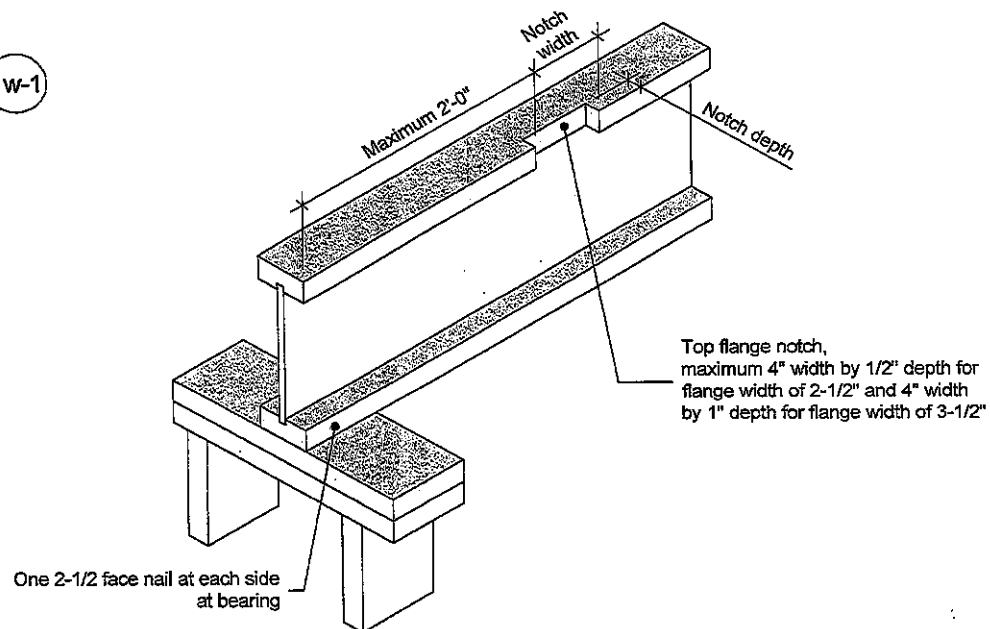
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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.

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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DATE

2018-04-10

NUMBER

1W-1