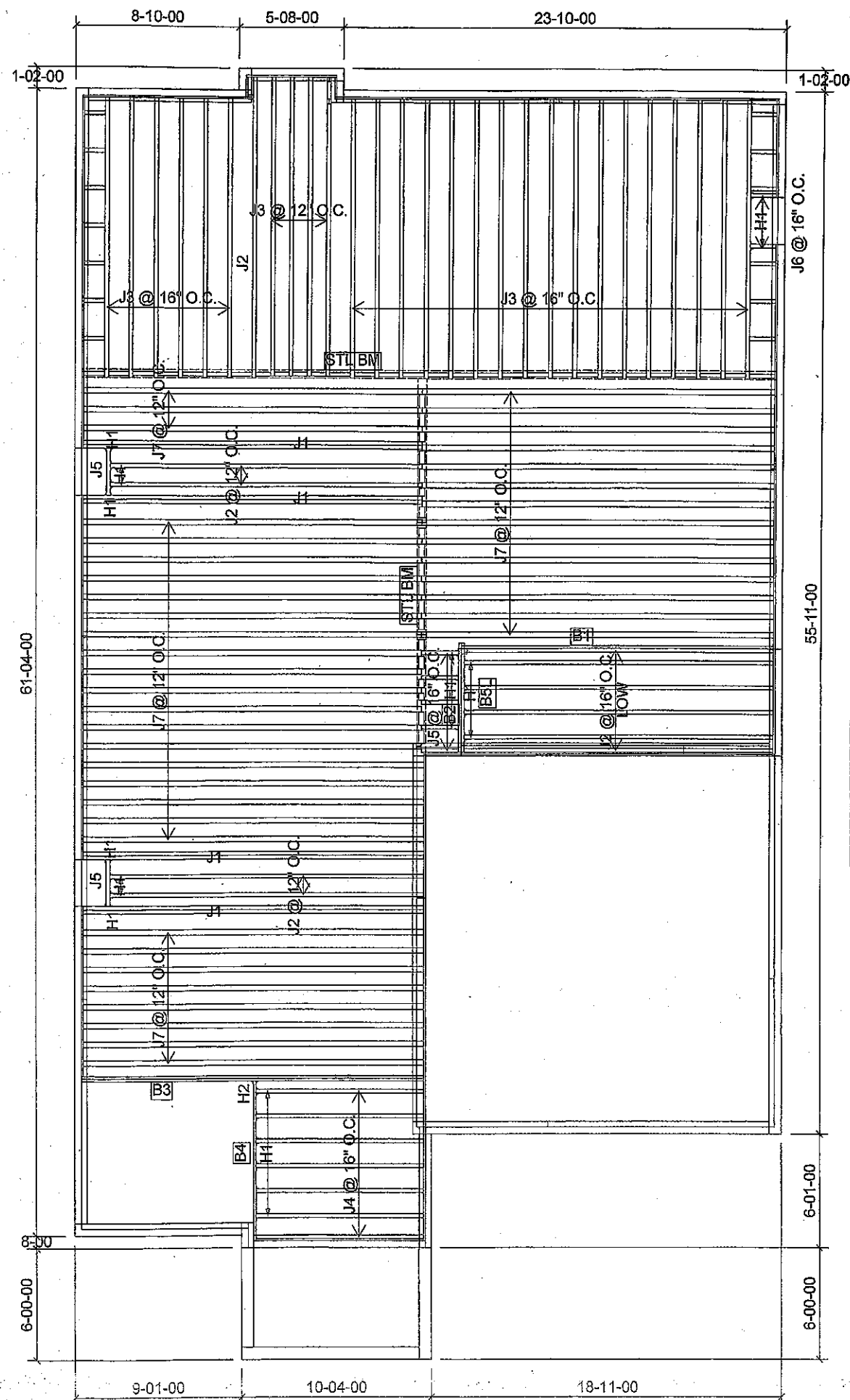
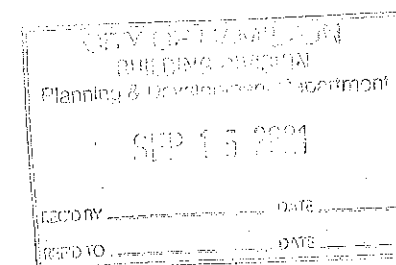




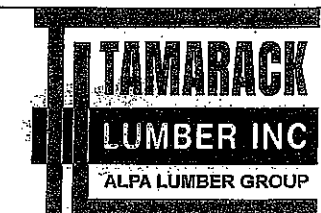
Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	2	8
J2	18-00-00	11 7/8" NI-40x	1	11
J3	16-00-00	11 7/8" NI-40x	1	27
J4	10-00-00	11 7/8" NI-40x	1	7
J5	4-00-00	11 7/8" NI-40x	1	7
J6	2-00-00	11 7/8" NI-40x	1	2
J7	20-00-00	11 7/8" NI-80	1	43
B3	20-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B1	18-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B5L	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1

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



DATE: 2021-03-20

1st FLOOR

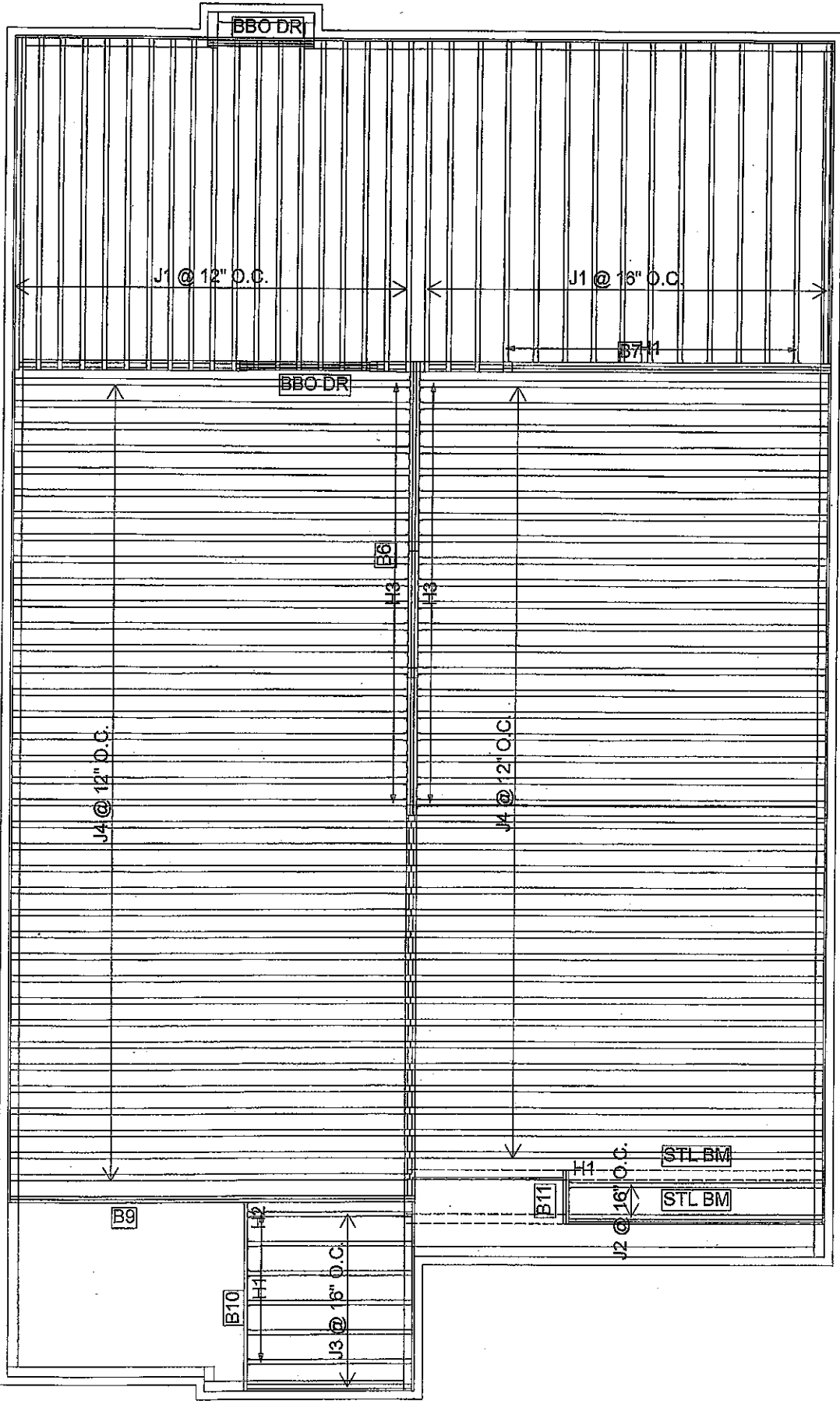


FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 4
 ELEVATION: 1,2,3
 LOT:
 CITY: HAMILTON
 SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

NOTES:
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK RE 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 TIL** APPLICATION AS PER O.B.C 9.30.6.

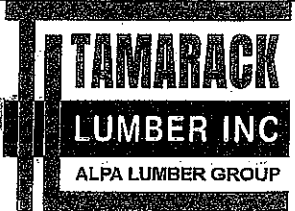
LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



Products				
ProdID	Length	Product	Plies	Net Qty
J1	16-00-00	11 7/8" NI-40x	1	34
J2	12-00-00	11 7/8" NI-40x	1	2
J3	8-00-00	11 7/8" NI-40x	1	7
J4	20-00-00	11 7/8" NI-80	1	73
B6	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B9	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
1	H2	HUS1.81/10
40	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 4
ELEVATION: 1
LOT:
CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

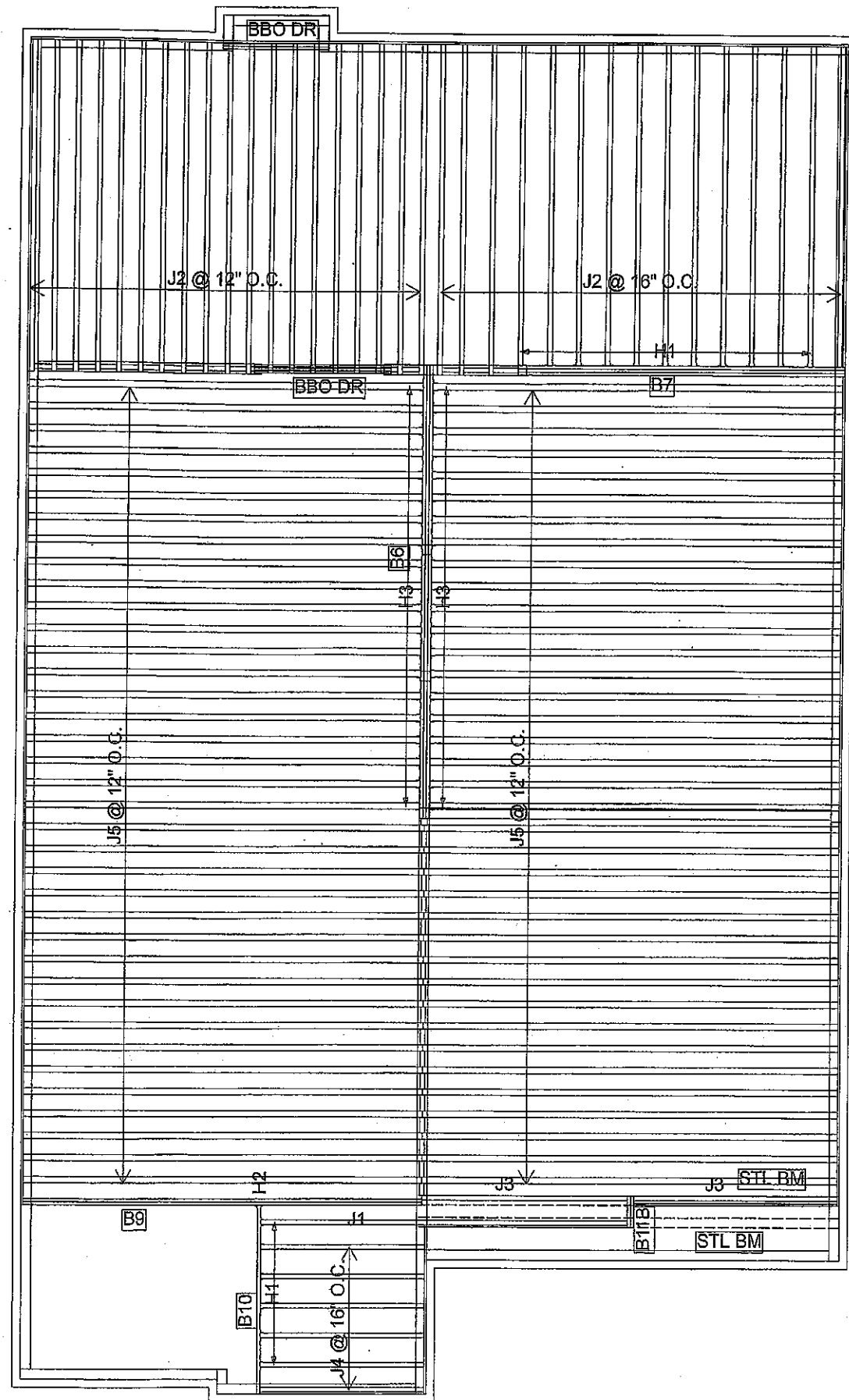
NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RE I-JOIST BLOCKING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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

DATE: 2021-03-20

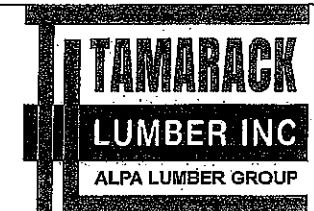
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	1
J2	16-00-00	11 7/8" NI-40x	1	34
J3	10-00-00	11 7/8" NI-40x	1	2
J4	8-00-00	11 7/8" NI-40x	1	6
J5	20-00-00	11 7/8" NI-80	1	74
B6	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B9	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11B	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
1	H2	HUS1.81/10
40	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2
BUILDER: GREENPARK HOMES
SITE: RUSSELL GARDENS PH4
MODEL: SPRINGFIELD 4
ELEVATION: 2
LOT:
CITY: HAMILTON

SALESMAN: RICK DICIANO
DESIGNER: AJ
REVISION:

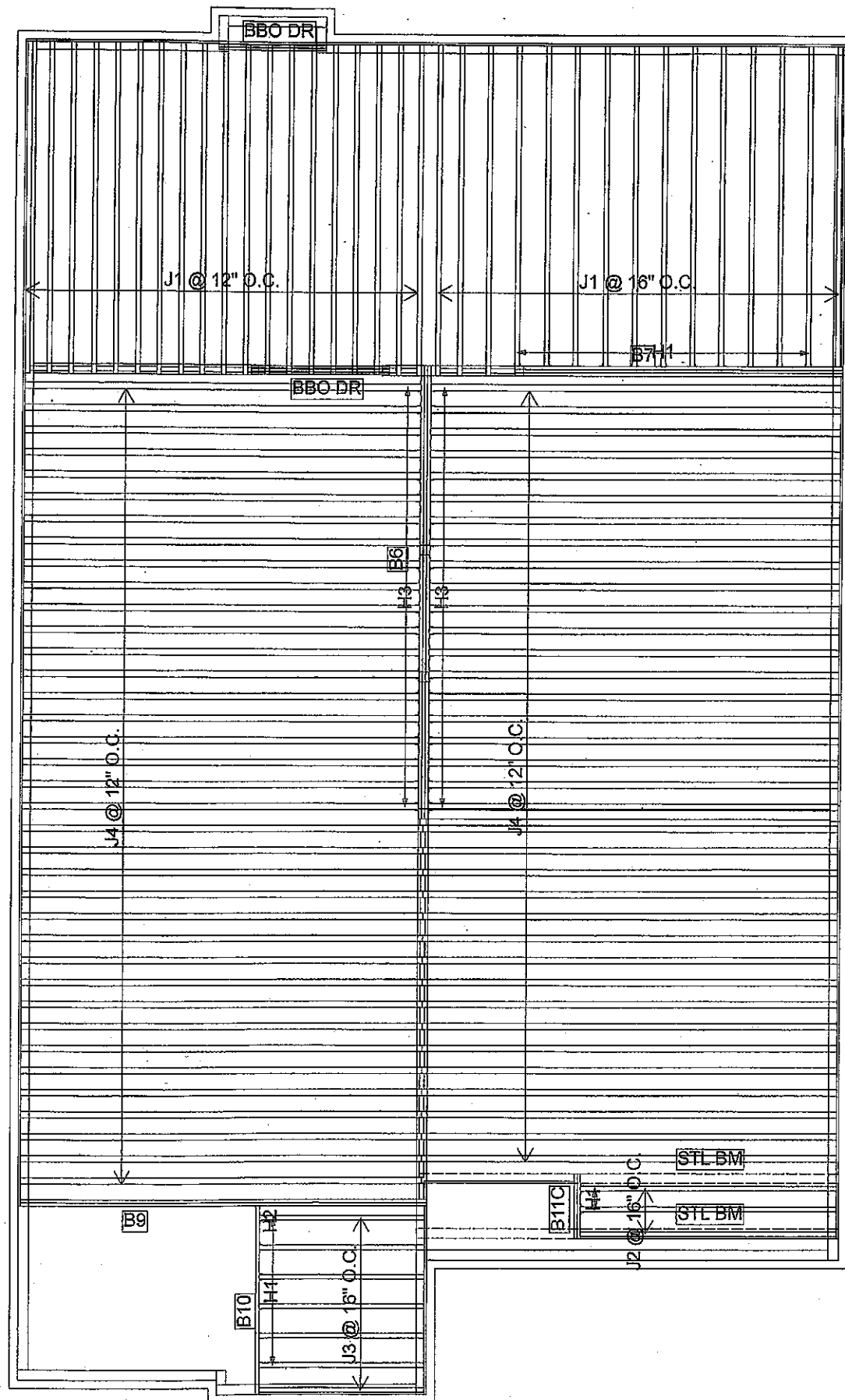
NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK RI I-JOIST BLOCKING 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 T APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILE LOAD: 20.0 lb/ft²

DATE: 2021-03-20

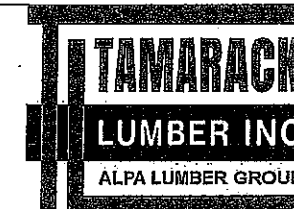
2ND FLOOR

SUBFLOOR: 5/8" GLUED AND NAILED



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	11 7/8" NI-40x	1	34
J2	12-00-00	11 7/8" NI-40x	1	3
J3	8-00-00	11 7/8" NI-40x	1	7
J4	20-00-00	11 7/8" NI-80	1	73
B6	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B9	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B11C	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
11	H1	IUS2.56/11.88
1	H2	HUS1.81/10
40	H3	IUS3.56/11.88



FROM PLAN DATED: 2021/2
 BUILDER: GREENPARK HOMES
 SITE: RUSSELL GARDENS PH4
 MODEL: SPRINGFIELD 4
 ELEVATION: 3
 LOT:
 CITY: HAMILTON

SALESMAN: RICK DICIANO
 DESIGNER: AJ
 REVISION:

NOTES:
 REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
 SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P. 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 RE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

LOADING:
 DESIGN LOADS: L/480.000
 LIVE LOAD: 40.0 lb/ft²
 DEAD LOAD: 15.0 lb/ft²
 TILE LOAD: 20.0 lb/ft²

DATE: 2021-03-20

2ND FLOOR

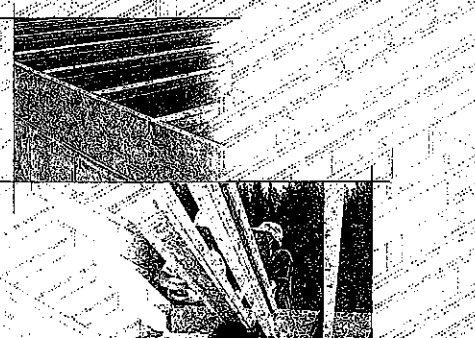
SUBFLOOR: 5/8" GLUED AND NAILED

NORDIC

ENGINEERED WOOD

INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



Distributed by:

SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING

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

Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.

2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for 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 CG98-7.1.2.6 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.

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

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

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

6. Tables are based on Limit States Design per CAN/CSA C09-09 Standard, and NBC 2010.

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

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

SINGLE AND MULTIPLE SPANS

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

CCMC EVALUATION REPORT 13002-2

I-JOIST HANGERS

1. Hangers shown illustrate the five 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 Construction Guide (C011). 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 2-5/8" minimum width
3-1/2"	1-1/2" x 2-5/8" minimum width

NORDIC I-JOIST SERIES

Charlton's 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 logging the finished product, reflects our commitment to quality.

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

INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span applications must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and 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 squish blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products - such as rim board - must be cut to fit between the I-joists, and on I-joist-competible 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 1a: Top or face-mount hanger installed per manufacturer's recommendations.

FIGURE 1b: Top-mount hanger installed per manufacturer's recommendations.

FIGURE 1c: 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 1d: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1e: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1f: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1g: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1h: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1i: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1j: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1k: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1l: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1m: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1n: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1o: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1p: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1q: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1r: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1s: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1t: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1u: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1v: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

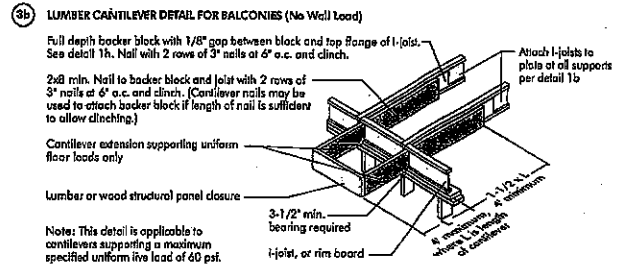
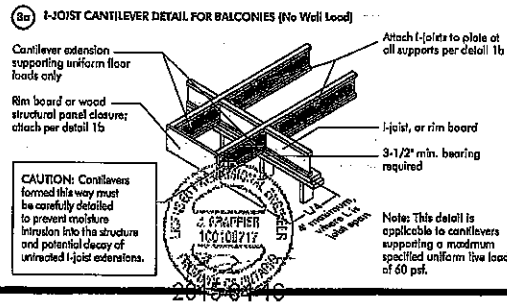
FIGURE 1w: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1x: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

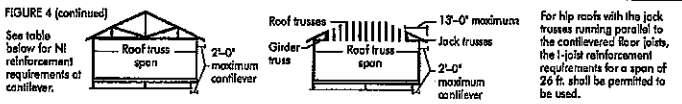
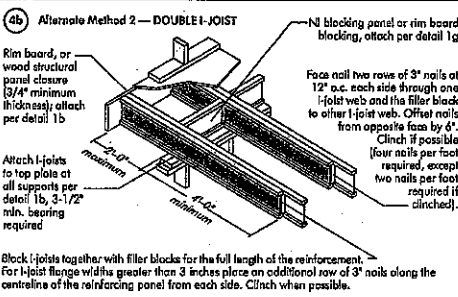
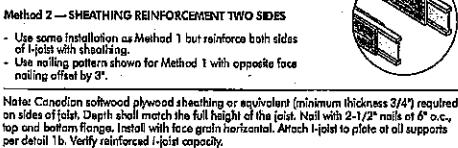
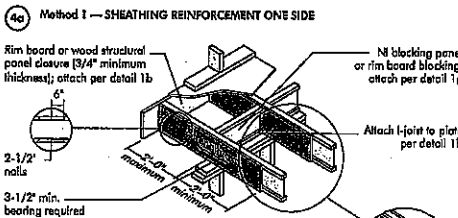
FIGURE 1y: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

FIGURE 1z: Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b. Backer block attached per detail 1b.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

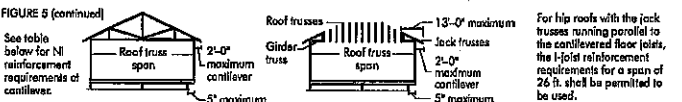
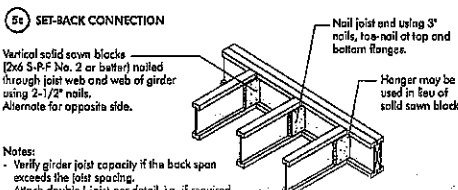
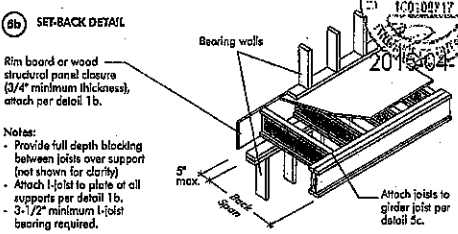
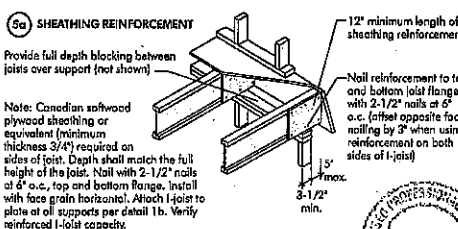


CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	20	24	12	16	20	24	12	16	20	24
9-1/2"	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
	34	N	N	1	2	N	1	2	X	N	2	X	X
11-7/8"	28	N	N	1	2	N	1	2	X	N	1	2	X
	30	N	N	1	2	N	1	2	X	N	1	2	X
	32	N	N	1	2	N	1	2	X	N	1	2	X
	34	N	N	1	2	N	1	2	X	N	1	2	X
14"	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
	34	N	N	1	2	N	1	2	X	N	2	X	X
16"	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
	34	N	N	1	2	N	1	2	X	N	2	X	X

- N = No reinforcement required.
- N = N reinforced with 3/4" wood structural panel on one side only.
- N = N reinforced with 3/4" wood structural panel on both sides, or double I-joint.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 65 psf total load, and 80 psf live load. Wall load is based on 2-0" maximum width window or door openings.
- 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.
- Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- 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.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	20	24	12	16	20	24	12	16	20	24
9-1/2"	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
	34	N	N	1	2	N	1	2	X	N	2	X	X
11-7/8"	28	N	N	1	2	N	1	2	X	N	1	2	X
	30	N	N	1	2	N	1	2	X	N	1	2	X
	32	N	N	1	2	N	1	2	X	N	1	2	X
	34	N	N	1	2	N	1	2	X	N	1	2	X
14"	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
	34	N	N	1	2	N	1	2	X	N	2	X	X
16"	28	N	N	1	2	N	1	2	X	N	2	X	X
	30	N	N	1	2	N	1	2	X	N	2	X	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
	34	N	N	1	2	N	1	2	X	N	2	X	X

- N = No reinforcement required.
- N = N reinforced with 3/4" wood structural panel on one side only.
- N = N reinforced with 3/4" wood structural panel on both sides, or double I-joint.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 65 psf total load, and 80 psf live load. Wall load is based on 2-0" maximum width window or door openings.
- 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.
- Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- 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.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- Joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Wherever 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.
- When more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a 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 at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

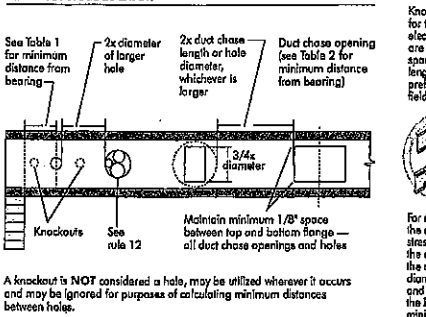
**TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS**
Single or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (D in.)												Span Adjustment Factor			
		1	2	3	4	5	6	6-1/2	7	8	8-5/8	9	10		10-5/8	11	12
9-1/2"	N-28	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-30	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-32	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-34	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
11-7/8"	N-28	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-30	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-32	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-34	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
14"	N-28	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-30	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-32	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-34	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
16"	N-28	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-30	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-32	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5
	N-34	0.7	1.4	2.10	4.3	8.9	13.5	18.1	22.7	27.3	31.9	36.5	41.1	45.7	50.3	54.9	59.5

- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Hole location distance is measured from the centreline of the hole to the face of any support (S) as given above may be reduced or follow:
- Distance in this chart are based on uniformly loaded joists.

OPTIONAL:
The above table is based on the I-joints used at their maximum span. If the I-joints are placed at less than their full maximum span (see Manufacturer's Span Table), the minimum distance from the centreline of the hole to the face of any support (S) as given above may be reduced or follow:
Reduced = $\frac{\text{Actual Span}}{\text{Maximum Span}} \times \text{Table Value}$
Where:
Reduced = Distance from the inside face of any support to centre of hole, reduced for less than maximum span applications.
Actual Span = Actual span distance between the inside faces of supports (S).
Maximum Span = Span Adjustment Factor given in this table.
S = The minimum distance from the inside face of any support to centre of hole from this table.
If $\frac{\text{Actual Span}}{\text{Maximum Span}}$ is greater than 1, use 1 in the above calculation for Actual Span.

FIGURE 7 FIELD-CUT HOLE LOCATOR



Knockouts are predrilled 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.

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (D in.)												Span (ft.)
		Data source length (in.)												
		8	10	12	14	16	18	20	22	24	26	28	30	
9-1/2"	N-28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-30	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-32	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-34	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
11-7/8"	N-28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-30	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-32	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-34	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
14"	N-28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-30	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-32	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-34	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
16"	N-28	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-30	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-32	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2
	N-34	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1.2

- Above table may be used for I-joint spacing of 24 inches on centre or less.
- The above table is based on simple span only. For other applications, contact your local distributor.
- Use the table for joists based on uniformly loaded floor joists for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from I-joint flanges before gluing.
- Snap a chalk line across the I-joints four feet from the wall for panel edge alignment and as a boundary for spreading glue.
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joint. Apply glue in a winding pattern on wide areas, such as with double I-joints.
- Apply two lines of glue on I-joints where panel ends but to ensure proper gluing of each end.
- After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joint flanges.
- Tap the second row of panels into place, using a block to protect groove edges.
- Stagger and joints in each succeeding row of panels. A 1/8-inch space between all joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or a 2-1/2" common nail to assure accurate and consistent spacing.)
- Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 24-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The



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 web 1/4 inch. A minimum of 1/8 inch shall 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 shall 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 largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- 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 (ft - in.)											
		Round Hole Diameter (in.)											
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-8"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-6"	---	---	---	---	---	---
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"	2-5"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---
14"	NI-20	0-7"	0-8"	1-8"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-5"	6-3"	8-5"	---	---	---	---
	NI-60	0-7"	0-8"	1-0"	2-4"	3-9"	4-0"	5-2"	6-0"	7-2"	---	---	---
	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	---	---	---
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-4"	7-6"	9-0"	10-0"	10-8"	12-4"	13-9"
16"	NI-20	0-7"	0-8"	0-10"	2-8"	4-0"	4-5"	5-9"	7-3"	8-8"	9-4"	11-4"	12-11"
	NI-40x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	6-9"	8-5"	9-2"	---	---
	NI-60	0-7"	0-8"	1-0"	2-4"	3-9"	4-0"	5-2"	6-0"	7-2"	---	---	---
	NI-70	0-7"	1-0"	2-3"	3-0"	4-10"	5-3"	6-3"	7-8"	8-6"	9-2"	10-8"	12-0"
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	5-6"	6-6"	8-0"	9-0"	9-8"	11-0"	12-3"

- 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.

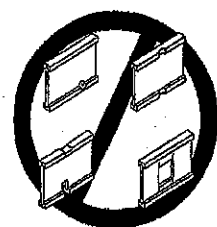
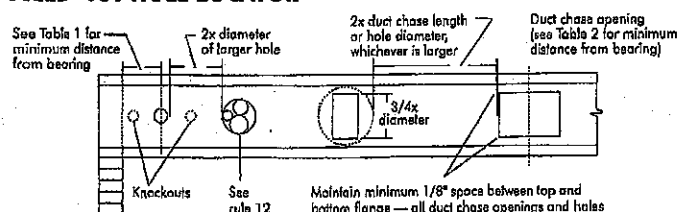
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

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

- 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 predrilled 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. Storing 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 unshored I-joints. Once shored, 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-bridging at joint ends. When I-joints are applied continuously 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 the lateral restraint at the end of each bay. Lap 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-bridging.
- Install and fully nail permanent sheathing to each I-joint before placing loads on the floor system. Then, stock building materials over beams or walls only.
- Never install a damaged I-joint.

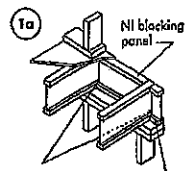
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joints, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



PRODUCT WARRANTY

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

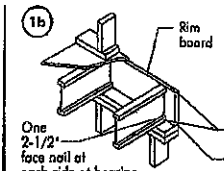
Furthermore, Charters Chibogamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.



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

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

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



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

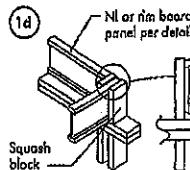
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

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

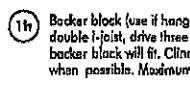
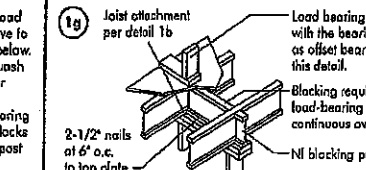
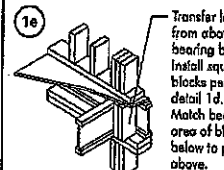
To avoid splitting flange, start nails at least 1-1/2" from end of I-joint. Nails may be driven at an angle to avoid splitting of bearing plate.

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



Pair of Square Blocks	Maximum Factored Vertical Load per Pair of Square Blocks (lb)
3-1/2" x 7-1/2" x 1-1/8"	5,500
3-1/2" x 7-1/2" x 1-1/4"	8,500
1-1/8" Rim Board Plus	4,300
	5,600

Provide lateral bracing per detail 1a or 1b

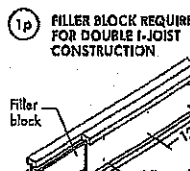
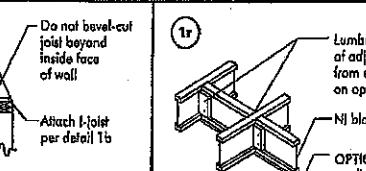
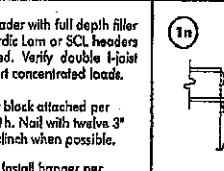
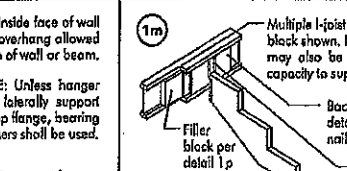
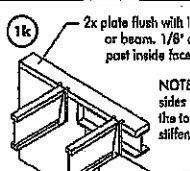
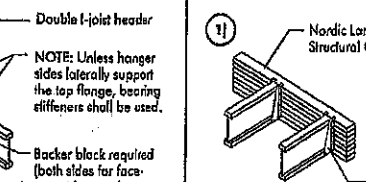
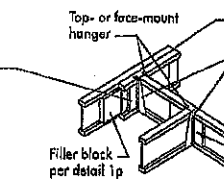


Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch, install backer right to top flange. Use twelve 3" nails, clinched when possible. Maximum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

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

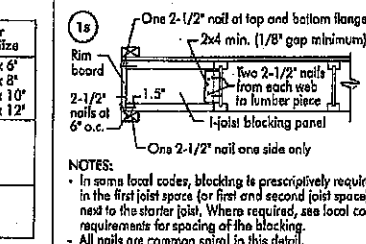
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

- * Minimum grade for backer block material shall be S-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 nail joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".



- NOTES:**
- Support back of I-joint web 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 are 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 I-joint using this detail is 860 lb/ft. Verify double I-joint capacity.

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



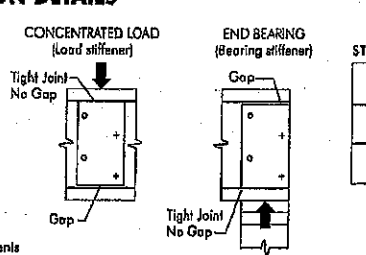
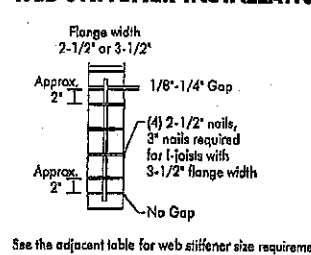
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.131" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

WEB STIFFENERS

RECOMMENDATIONS:

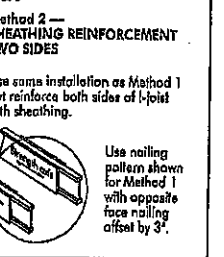
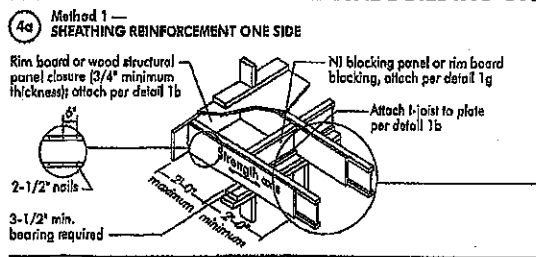
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joint properties table found in the I-joint Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joint is 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.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



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

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



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

NORDIC STRUCTURES

COMPANY
Mar. 20, 2021 09:07

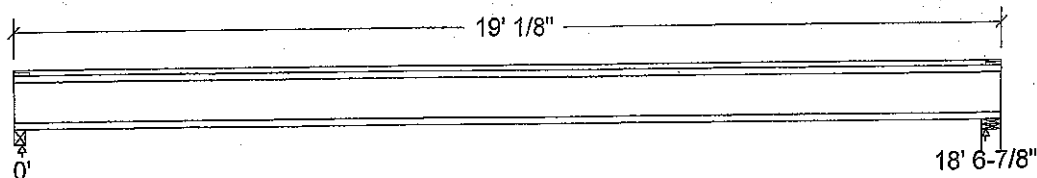
PROJECT
J7 1ST FLOOR.wwb

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	186		186
Live	371		371
Factored:			
Total	789		789
Bearing:			
Capacity			
Joist	2211		2336
Support	-		10841
Des ratio			
Joist	0.36		0.34
Support	-		0.07
Load case	#2		#2
Length	2-5/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	-		769
Kzcp sup	-		-

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

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

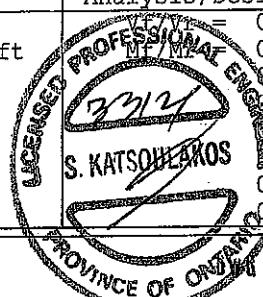
Supports: 1 - Steel Beam, W; 2 - Lumber Wall, No.1/No.2;

Total length: 19' 1/8"; Clear span: 18' 5-1/8"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 789	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 3665	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.46 = L/480	in	0.43
Total Defl'n	0.30 = L/750	0.93 = L/240	in	0.32
Bare Defl'n	0.22 = < L/999	0.62 = L/360	in	0.36
Vibration	Lmax = 18'-6.9	Lv = 21'-2.7	ft	0.87
Defl'n	= 0.024	= 0.034	in	0.72



NO. TAM7978-21
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
 Moment(+) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #2 = 1.0D + 1.0L (live)
 LC #2 = 1.0D + 1.0L (total)
 LC #2 = 1.0D + 1.0L (bare joist)

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

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

Load Patterns: s=S/2 L=L+Ls =no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

EI_{eff} = 625.37 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 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



OWC NO. TAM 797B-21
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Mar. 20, 2021 09:06

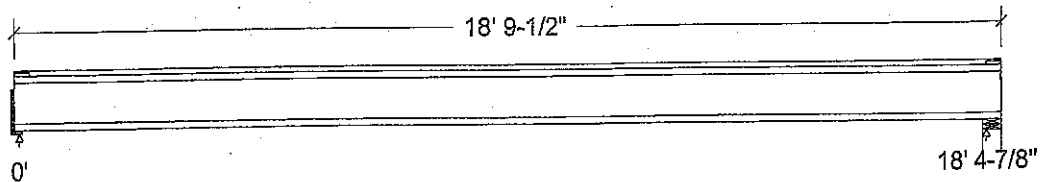
PROJECT
J4 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	184		184
Live	368		368
Factored:			
Total	782		782
Bearing:			
Capacity			
Joist	2154		2336
Support	-		10841
Des ratio			
Joist	0.36		0.33
Support	-		0.07
Load case	#2		#2
Length	2		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	-		769
Kzcp sup	-		-

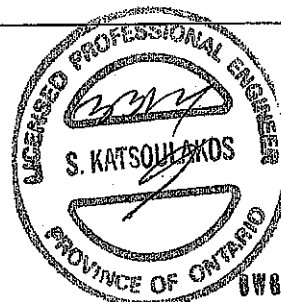
Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

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

Total length: 18' 9-1/2"; Clear span: 18' 3-1/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

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



P6 4/2
DWG NO. TAM 7929 -21
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 782$	$V_r = 2336$	lbs	$V_f/V_r = 0.33$
Moment (+)	$M_f = 3600$	$M_r = 11609$	lbs-ft	$M_f/M_r = 0.31$
Perm. Defl'n	$0.10 = < L/999$	$0.61 = L/360$	in	0.16
Live Defl'n	$0.19 = < L/999$	$0.46 = L/480$	in	0.42
Total Defl'n	$0.29 = L/756$	$0.92 = L/240$	in	0.32
Bare Defl'n	$0.22 = < L/999$	$0.61 = L/360$	in	0.35
Vibration	$L_{max} = 18'-4.9$	$L_v = 20'-5.8$	ft	0.90
Defl'n	$= 0.026$	$= 0.034$	in	0.77

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment (+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

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

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

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

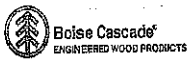
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS: $EI_{eff} = 613.27 \text{ lb-in}^2$ $K = 6.18e06 \text{ lbs}$ "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 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM 2979-21
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B1(1653) (Flush Beam)
Dry | 1 span | No cant.

PASSED

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

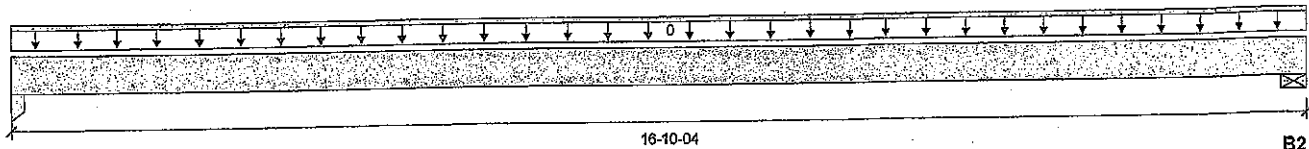
File name: SPRINGFIELD 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(1653)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 16-10-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"		51 / 0		
B2, 2-3/8"		51 / 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	16-10-04	Top	1.00	0.65	1.00	1.15	00-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	291 ft-lbs	11502 ft-lbs	2.5%	0	08-04-13
End Shear	61 lbs	4701 lbs	1.3%	0	01-01-10
Total Load Deflection	L/999 (0.021")	n/a	n/a	1	08-04-13
Max Defl.	0.021"	n/a	n/a	1	08-04-13
Span / Depth	16.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	71 lbs	4.4%	2.9%	Unspecified
B2	Wall/Plate 2-3/8" x 1-3/4"	71 lbs	4.3%	2.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Calculations assume unbraced length of Top: 00-00-00, Bottom: 16-07-14.

CONFORMS TO CBC 2012
AMENDED 2020



DWG NO. TAM 2280-21
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®,



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

1ST FLR FRAMING\Flush Beams\B2(11743) (Flush Beam)

Dry | 1 span | No cant.

PASSED

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

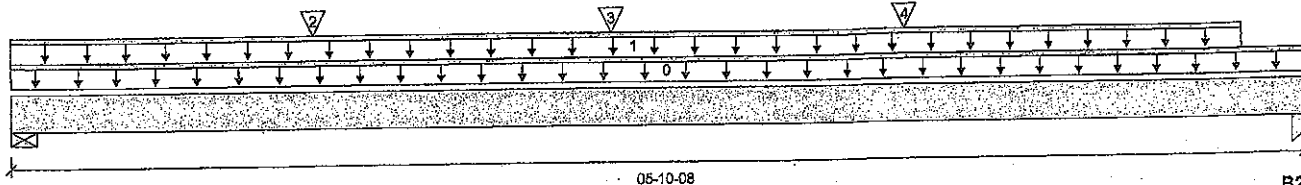
File name: SPRINGFIELD 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(11743)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 05-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-3/8"	87 / 0	61 / 0		
B2, 3-1/2"	62 / 0	48 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-10-08	Top		6			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	05-07-00	Top	3	2			n/a
2	J5(1827)	Conc. Pt. (lbs)	L	01-04-04	01-04-04	Top	52	26			n/a
3	J5(1826)	Conc. Pt. (lbs)	L	02-08-04	02-08-04	Top	54	27			n/a
4	J5(1828)	Conc. Pt. (lbs)	L	04-00-04	04-00-04	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	315 ft-lbs	17696 ft-lbs	1.8%	1	02-08-04
End Shear	190 lbs	7232 lbs	2.6%	1	01-03-04
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-10-04
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-10-04
Max Defl.	0.002"	n/a	n/a	4	02-10-04
Span / Depth	5.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-3/8" x 1-3/4"	207 lbs	5.7%	2.9%	Spruce-Pine-Fir
B2	Column 3-1/2" x 1-3/4"	154 lbs	3.1%	2.1%	Unspecified

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO UBC 2012

AMENDED 2020

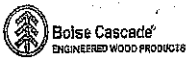
BWG NO. TAM 7981-21

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\B3(i1716) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

March 20, 2021 08:42:46

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3(i1716)

City, Province, Postal Code: HAMILTON

Specifier:

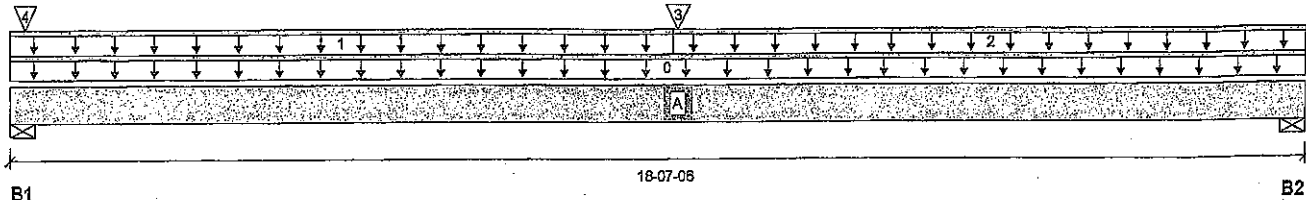
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1260 / 0	1024 / 0		
B2, 4-3/8"	1140 / 0	697 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-07-06	Top		12			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	09-04-08	Top	20	10			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	09-04-08	18-07-06	Top	31	15			n/a
3	B4(i1641)	Conc. Pt. (lbs)	L	09-05-06	09-05-06	Top	1720	889			n/a
4	E28(i1268)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	208	372			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	19500 ft-lbs	35392 ft-lbs	55.1%	1	09-05-06
End Shear	2472 lbs	14464 lbs	17.1%	1	17-03-02
Total Load Deflection	L/314 (0.691")	n/a	76.5%	4	09-04-08
Live Load Deflection	L/497 (0.437")	n/a	72.5%	5	09-04-08
Max Defl.	0.691"	n/a	n/a	4	09-04-08
Span / Depth	18.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3171 lbs	42.1%	21.2%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 3-1/2"	2581 lbs	27.4%	13.8%	Spruce-Pine-Fir

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 09-01-00.

CONFORMS TO OBC 2012**AMENDED 2020****ENG NO. TAM 7982-21
STRUCTURAL
COMPONENT ONLY**



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

PASSED

1ST FLR FRAMING\Flush Beams\B3(i1716) (Flush Beam)

Dry | 1 span | No cant.

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 4 EL 1.mmdl

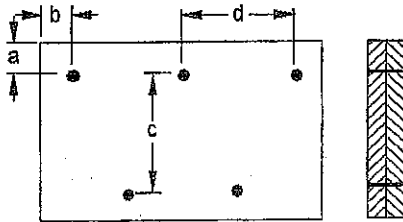
Description: 1ST FLR FRAMING\Flush Beams\B3(i1716)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

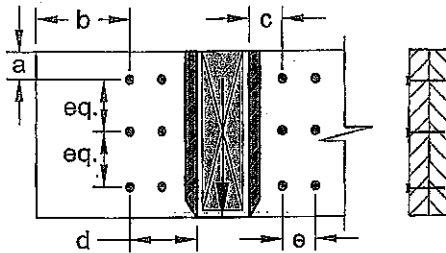
d = 8"

Connectors are: 3-1/2" ARDOX SPIRAL Nails

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 4



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



UWB NO. FAW7982-21
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\B4(1641) (Flush Beam)

Dry | 1 span | No cant.

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(1641)

City, Province, Postal Code: HAMILTON

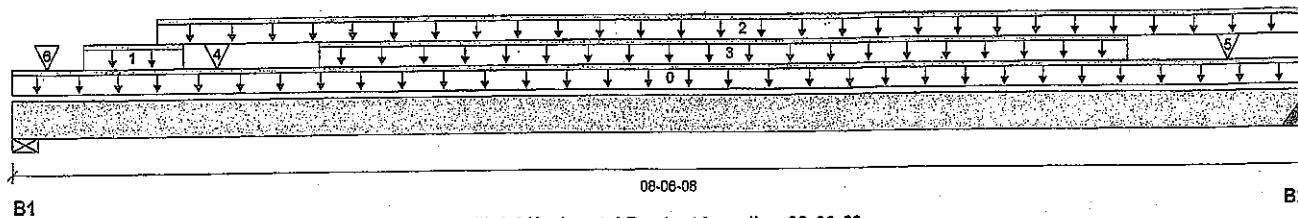
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 08-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1479 / 0	947 / 0		
B2, 2"	1738 / 0	902 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-06-08	Top		6			00-00-00
1	E11(1613)	Unf. Lin. (lb/ft)	L	00-05-08	01-01-08	Top		172			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-11-08	08-06-08	Top	240	120			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	07-04-00	Top		184			n/a
4	J4(185)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	229	114			n/a
5	J4(1694)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	184	92			n/a
6	E10(1620)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		75			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7600 ft-lbs	17696 ft-lbs	42.9%	1	04-01-04
End Shear	3299 lbs	7232 lbs	45.6%	1	01-03-06
Total Load Deflection	L/740 (0.133")	n/a	32.4%	4	04-03-11
Live Load Deflection	L/999 (0.087")	n/a	n/a	5	04-03-11
Max Defl.	0.133"	n/a	n/a	4	04-03-11
Span / Depth	8.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	3402 lbs	90.3%	45.5%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	3735 lbs	n/a	87.5%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

OK



QWS NO. TAM 2983-21
STRUCTURAL
COMPONENT ONLY



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

1ST FLR FRAMING\Flush Beams\B4(i1641) (Flush Beam)

Dry | 1 span | No cant.

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(i1641)

Specifier:

Designer: AJ

Company:

March 20, 2021 08:42:46

Notes

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

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

Hanger Manufacturer: Unassigned

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

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

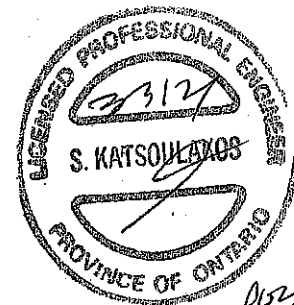
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWB NO. TAN 7903-21
STRUCTURAL
COMPONENT ONLY

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



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

PASSED

1ST FLR FRAMING\Flush Beams\B5L(i1310) (Flush Beam)

Dry | 1 span | No cant.

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

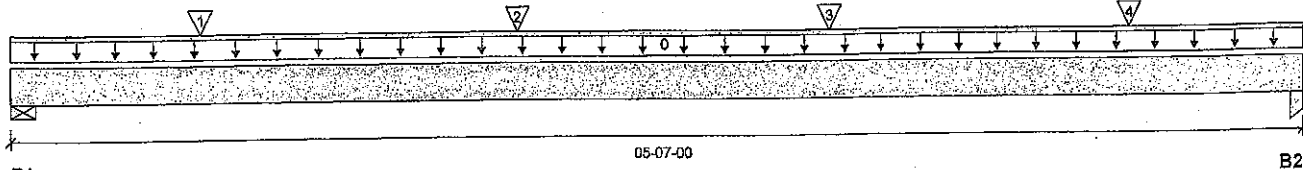
File name: SPRINGFIELD 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5L(i1310)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 05-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	798 / 0	416 / 0		
B2, 3-1/2"	802 / 0	417 / 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	05-07-00	Top	6				00-00-00
1	J2(i1374)	Conc. Pt. (lbs)	L	00-09-14	00-09-14	Top	346	173			n/a
2	J2(i1490)	Conc. Pt. (lbs)	L	02-01-14	02-01-14	Top	450	225			n/a
3	J2(i1416)	Conc. Pt. (lbs)	L	03-05-14	03-05-14	Top	450	225			n/a
4	J2(i1428)	Conc. Pt. (lbs)	L	04-09-14	04-09-14	Top	354	177			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2194 ft-lbs	17696 ft-lbs	12.4%	1	03-05-14
End Shear	1319 lbs	7232 lbs	18.2%	1	04-03-10
Total Load Deflection	L/999 (0.015")	n/a	n/a	4	02-09-14
Live Load Deflection	L/999 (0.01")	n/a	n/a	5	02-09-14
Max Defl.	0.015"	n/a	n/a	4	02-09-14
Span / Depth	5.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	1718 lbs	36.5%	18.4%	Spruce-Pine-Fir
B2	Column 3-1/2" x 1-3/4"	1724 lbs	34.7%	23.1%	Unspecified

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO CBC 2012

AMENDED 2020

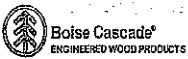
DWG NO. TAN 7904-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJST®, 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
2ND FLR FRAMING\Flush Beams\B10(i685) (Flush Beam)

PASSED

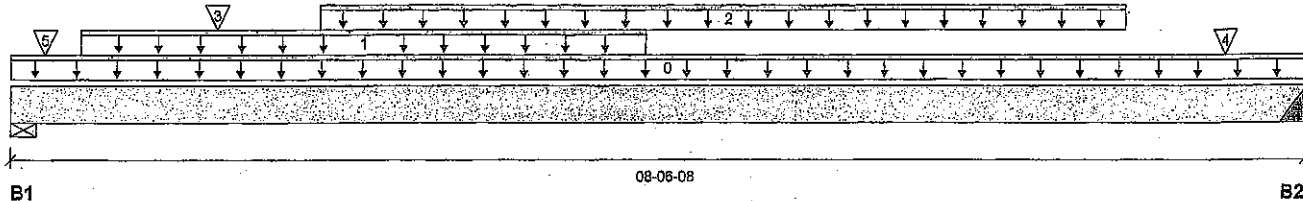
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 20, 2021 08:42:46

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

File name: SPRINGFIELD 4 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B10(i685)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 08-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1222 / 0	651 / 0		
B2, 2"	801 / 0	426 / 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	08-06-08	Top	6				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	04-01-08	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	07-04-00	Top	151	76			n/a
3	J3(i780)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	186	93			n/a
4	J3(i763)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	153	76			n/a
5	E24(i1257)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	12				

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4603 ft-lbs	17696 ft-lbs	26.0%	1	03-11-00
End Shear	2070 lbs	7232 lbs	28.6%	1	01-05-06
Total Load Deflection	L/999 (0.075")	n/a	n/a	4	04-03-05
Live Load Deflection	L/999 (0.049")	n/a	n/a	5	04-03-05
Max Defl.	0.075"	n/a	n/a	4	04-03-05
Span / Depth	8.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	2647 lbs	44.7%	22.5%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	1734 lbs	n/a	40.6%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

CONFORMS TO OBC 2012

AMENDED 2020

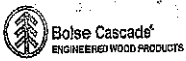


DWG NO. YAM 7985-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B11(i1503) (Flush Beam)

PASSED

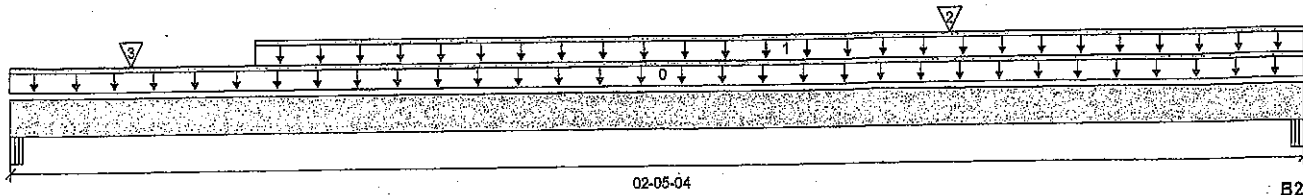
BC CALC® Member Report
Build 7773

Dry | 1 span | No cant.

March 20, 2021 08:42:46

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

File name: SPRINGFIELD 4 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B11(i1503)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 02-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	60 / 0	250 / 0	197 / 0	
B2, 5-1/4"	275 / 0	369 / 0	196 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-05-04	Top		12			00-00-00
1	E18(i1246)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-04	Top		179	161		n/a
2	J2(i1413)	Conc. Pt. (lbs)	L	01-09-02	01-09-02	Top	331	165			n/a
3	E19(i1242)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		69	74		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	269 ft-lbs	35392 ft-lbs	0.8%	1	01-06-06
End Shear	449 lbs	14464 lbs	3.1%	13	01-05-02
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-03-04
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-03-04
Max Defl.	0"	n/a	n/a	35	01-03-04
Span / Depth	1.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	668 lbs	6.8%	3.0%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	1070 lbs	10.9%	4.8%	Unspecified

Notes

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

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

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

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

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

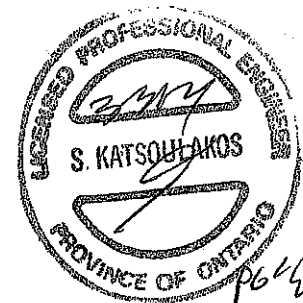
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-10.

CONFORMS TO OBC 2012

AMENDED 2020



NO. 7986-21
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B11(i1503) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 20, 2021 08:42:46

File name: SPRINGFIELD 4 EL 1.mmdl

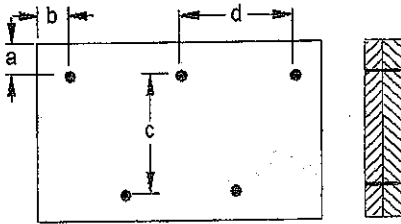
Description: 2ND FLR FRAMING\Flush Beams\B11(i1503)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 8"

Calculated Side Load = 351.4 lb/ft
Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 7906-21
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®,



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

2ND FLR FRAMING\Flush Beams\B6(i1736) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 3 spans | No cant.

March 20, 2021 08:42:46

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B6(i1736)

City, Province, Postal Code: HAMILTON

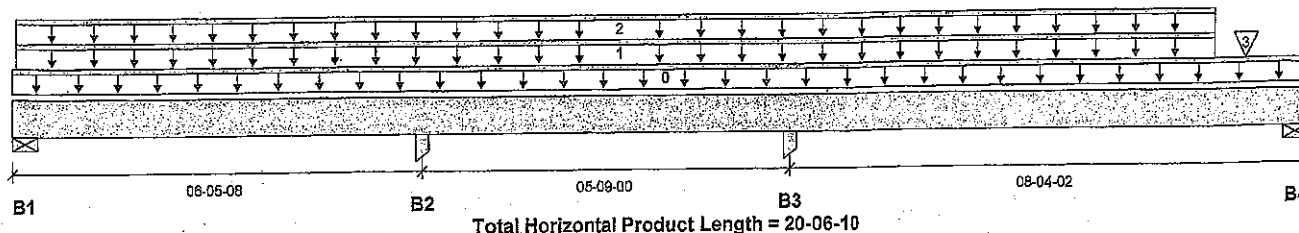
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2373 / 199	1139 / 0		
B2, 5-1/4"	5310 / 0	2297 / 0		
B3, 5-1/4"	6404 / 0	3130 / 0		
B4, 5-1/2"	2404 / 129	1202 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	20-06-10	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-12	19-00-12	Top	379	189			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-12	19-00-12	Top	366	183			n/a
3	-	Conc. Pt. (lbs)	L	19-06-12	19-06-12	Top	644	322			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9230 ft-lbs	55211 ft-lbs	16.7%	2	16-06-12
Neg. Moment	-9726 ft-lbs	-55211 ft-lbs	17.6%	5	12-02-08
End Shear	4429 lbs	21696 lbs	20.4%	2	19-01-04
Cont. Shear	6425 lbs	21696 lbs	29.6%	5	13-05-00
Total Load Deflection	L/999 (0.044")	n/a	n/a	13	16-05-04
Live Load Deflection	L/999 (0.031")	n/a	n/a	18	16-05-04
Total Neg. Defl.	L/999 (-0.012")	n/a	n/a	13	09-08-04
Max Defl.	0.044"	n/a	n/a	13	16-05-04
Span / Depth	8.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 5-1/4"	4982 lbs	28.0%	14.1%	Spruce-Pine-Fir
B2	Column 5-1/4" x 5-1/4"	10837 lbs	48.4%	32.2%	Unspecified
B3	Column 5-1/4" x 5-1/4"	13518 lbs	60.4%	40.2%	Unspecified
B4	Wall/Plate 5-1/2" x 5-1/4"	5108 lbs	28.8%	14.5%	Spruce-Pine-Fir

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020



ENGINEER NO. 2987-21
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B6(i1736) (Flush Beam)

PASSED

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 4 EL 1.mmd

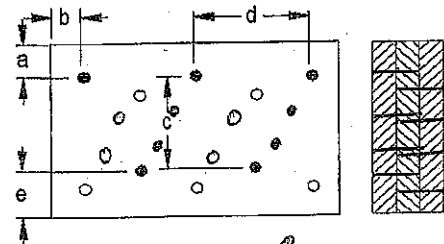
Description: 2ND FLR FRAMING\Flush Beams\B6(i1736)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



4 ROWS

a minimum = 1/2"

b minimum = 3"

c = 7/8"

d = 8"

e minimum = 2"

Calculated Side Load = 804.8 lb/ft

Nailing applies to both sides of the member

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



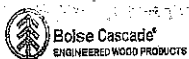
OWN NO. TAM7987-21

**STRUCTURAL
COMPONENT ONLY**

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



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

2ND FLR FRAMING\Flush Beams\B7(i1678) (Flush Beam)

PASSED

BC CALCO® Member Report

Dry | 1 span | No cant.

March 20, 2021 08:42:46

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B7(i1678)

City, Province, Postal Code: HAMILTON

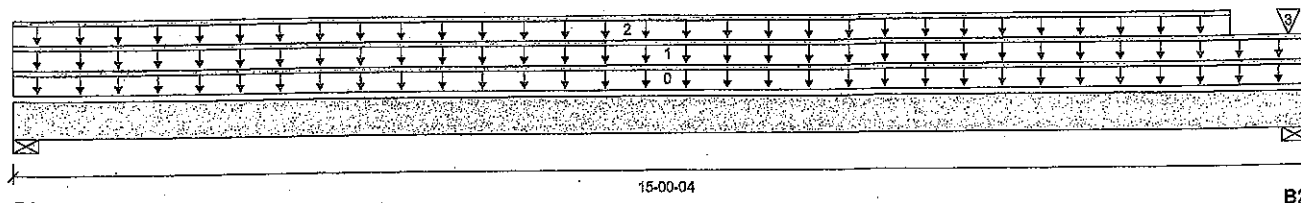
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 15-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/4"	2465 / 0	1368 / 0		
B2, 5-1/2"	2053 / 0	1198 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	15-00-04	Top		18			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	15-00-04	Top	15	8			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	14-01-04	Top	304	152			n/a
3	E20(i1244)	Conc. Pt. (lbs)	L	14-09-08	14-09-08	Top		35			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17204 ft-lbs	55211 ft-lbs	31.2%	1	07-09-04
End Shear	4502 lbs	21696 lbs	20.8%	1	01-04-10
Total Load Deflection	L/559 (0.307")	n/a	42.9%	4	07-05-04
Live Load Deflection	L/872 (0.197")	n/a	41.3%	5	07-05-04
Max Defl.	0.307"	n/a	n/a	4	07-05-04
Span / Depth	14.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/4" x 5-1/4"	5407 lbs	35.2%	17.8%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 5-1/4"	4577 lbs	25.8%	13.0%	Spruce-Pine-Fir

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

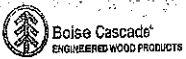
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. YAM7988-21
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B7(i1678) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 20, 2021 08:42:46

File name: SPRINGFIELD 4 EL 1.mmdl

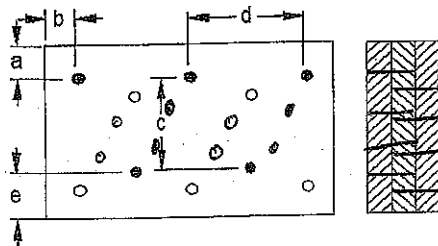
Description: 2ND FLR FRAMING\Flush Beams\B7(i1678)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 8-7/8"
d = 8"
e minimum = 2"

Calculated Side Load = 828.8 lb/ft

Nailing applies to both sides of the member

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



OWG NO. 7447 2908-21
STRUCTURAL
COMPONENT ONLY

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



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

2ND FLR FRAMING\Flush Beams\B9(11729) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 20, 2021 08:42:46

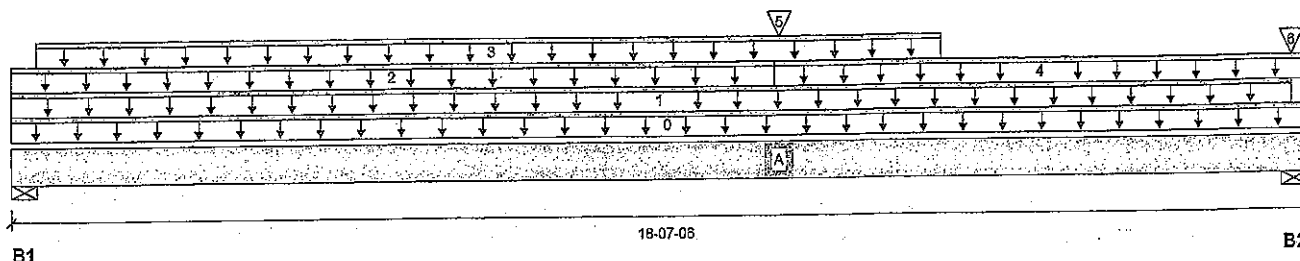
File name: SPRINGFIELD 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B9(11729)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 18-07-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	574 / 0	902 / 0		
B2, 5-1/2"	754 / 0	810 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-07-06	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-04-10	Top	20	10			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	10-09-14	Top	6	3			n/a
3	WALL	Unf. Lin. (lb/ft)	L	00-04-06	13-03-04	Top		60			n/a
4	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	10-09-14	18-07-06	Top	14	7			n/a
5	B10(1685)	Conc. Pt. (lbs)	L	10-10-12	10-10-12	Top	790	420			n/a
6	E23(1256)	Conc. Pt. (lbs)	L	18-04-10	18-04-10	Top		24			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12755 ft-lbs	35392 ft-lbs	36.0%	1	10-10-12
End Shear	1997 lbs	14464 lbs	13.8%	1	17-02-00
Total Load Deflection	L/436 (0.493")	n/a	55.0%	4	09-04-02
Live Load Deflection	L/942 (0.228")	n/a	38.2%	5	09-07-10
Max Defl.	0.493"	n/a	n/a	4	09-04-02
Span / Depth	18.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1986 lbs	21.1%	10.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	2143 lbs	18.1%	9.1%	Spruce-Pine-Fir

Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO CBC 2012

AMENDED 2020



OWN NO. TAN 7909-21
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B9(i1729) (Flush Beam)

Dry | 1 span | No cant.

March 20, 2021 08:42:46

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: SPRINGFIELD 4 EL 1.mmdl

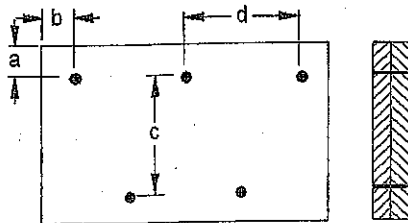
Description: 2ND FLR FRAMING\Flush Beams\B9(i1729)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 22-3/4"

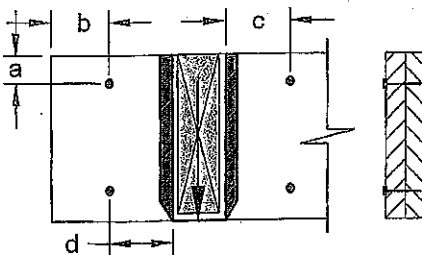
Connectors are: 1" Nails

3-1/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 5



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d 1" Nails

3 1/2" ARDOX SPIRAL



OWN NO. TAM 9989-21
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B11B(i1922) (Flush Beam)**

Dry | 1 span | No cant.

March 20, 2021 08:59:25

BC CALC® Member Report

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11B(i1922)

City, Province, Postal Code: HAMILTON

Specifier:

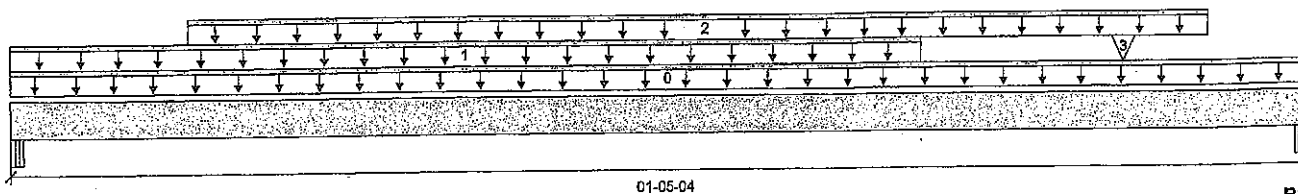
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 01-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	3 / 0	88 / 0	49 / 0	
B2, 5-1/4"	4 / 0	77 / 0	51 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-05-04	Top		12			00-00-00
1	E29(i2264)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	Top		109	69		n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-06	01-03-14	Top	6	3			n/a
3	E19(i1242)	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top		36	32		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10 ft-lbs	23005 ft-lbs	n/a	0	00-08-10
End Shear	48 lbs	9401 lbs	0.5%	0	00-05-04
Span / Depth	0.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	123 lbs	1.9%	0.8%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	177 lbs	1.8%	0.8%	Unspecified

Notes

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

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

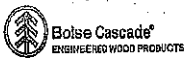
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-06-12.

CONFORMS TO OBC 2012**AMENDED 2020****OWN NO. 7990-21
STRUCTURAL
COMPONENT ONLY**



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

2ND FLR FRAMING\Flush Beams\B11B(11922) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 20, 2021 08:59:25

File name: SPRINGFIELD 4 EL 2.mmdl

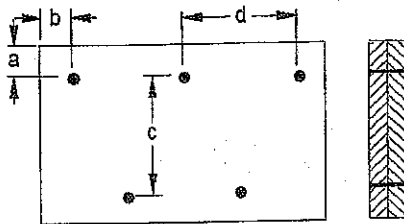
Description: 2ND FLR FRAMING\Flush Beams\B11B(11922)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 20 0"

Connectors are: 3-1/2" ARDOX SPIRAL Nails

3-1/2" ARDOX SPIRAL



OWB NO. FAM7990-21
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 2ND FLR FRAMING\Flush Beams\B11C(i2019) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 20, 2021 09:03:16

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11C(i2019)

City, Province, Postal Code: HAMILTON

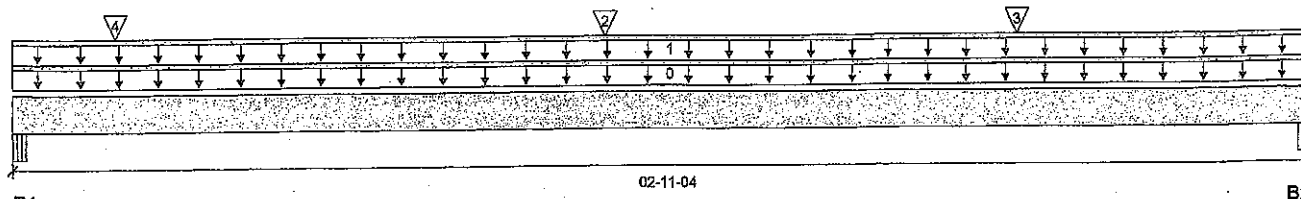
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 02-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	177 / 0	393 / 0	236 / 0	
B2, 5-1/4"	344 / 0	452 / 0	236 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-11-04	Top		12			00-00-00
1	E18(i1246)	Unf. Lin. (lb/ft)	L	00-00-00	02-11-04	Top		179	161		n/a
2	J2(i2020)	Conc. Pt. (lbs)	L	01-03-14	01-03-14	Top	247	124			n/a
3	J2(i1866)	Conc. Pt. (lbs)	L	02-03-02	02-03-02	Top	271	135			n/a
4	E19(i1242)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		24			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	592 ft-lbs	35392 ft-lbs	1.7%	1	01-03-14
End Shear	338 lbs	14464 lbs	2.3%	1	01-05-02
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-05-10
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-05-10
Max Defl.	0"	n/a	n/a	35	01-05-10
Span / Depth	2.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	1024 lbs	10.4%	4.6%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	1318 lbs	13.4%	5.9%	Unspecified

Notes

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

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

Resistance Factor phi has been applied to all presented results per CSA 086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

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

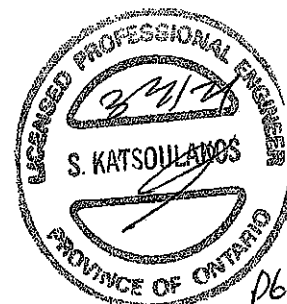
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-09-06.

CONFORMS TO OBC 2012

AMENDED 2020



OWN NO. TAM 2991-21
STRUCTURAL
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B11C(i2019) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 20, 2021 09:03:16

Build 7773

Job name:

File name: SPRINGFIELD 4 EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11C(i2019)

City, Province, Postal Code: HAMILTON

Specifier:

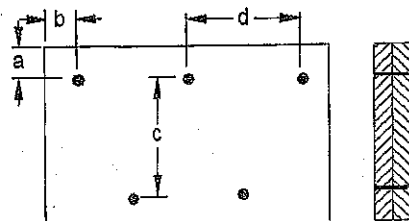
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 20-0"

Calculated Side Load = 287.6 lb/ft

Connectors are: 16d S. & S. Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM-7991-21
STRUCTURAL
COMPONENT ONLY

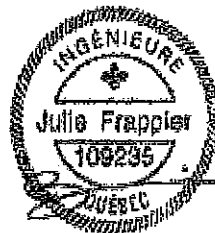
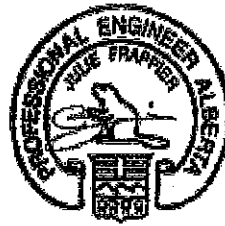
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

Maximum Floor Spans

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

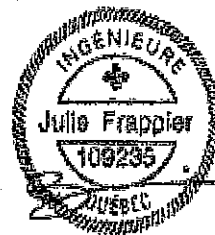


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	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 O86-03, 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



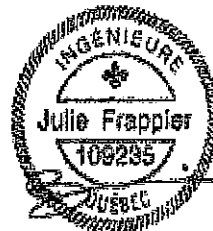
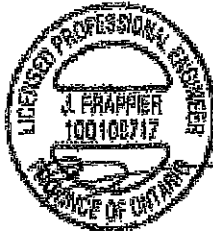
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	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



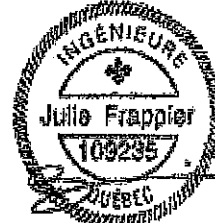
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

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

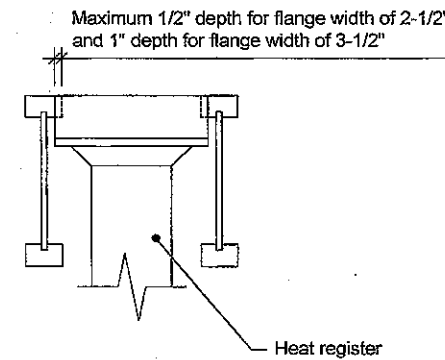
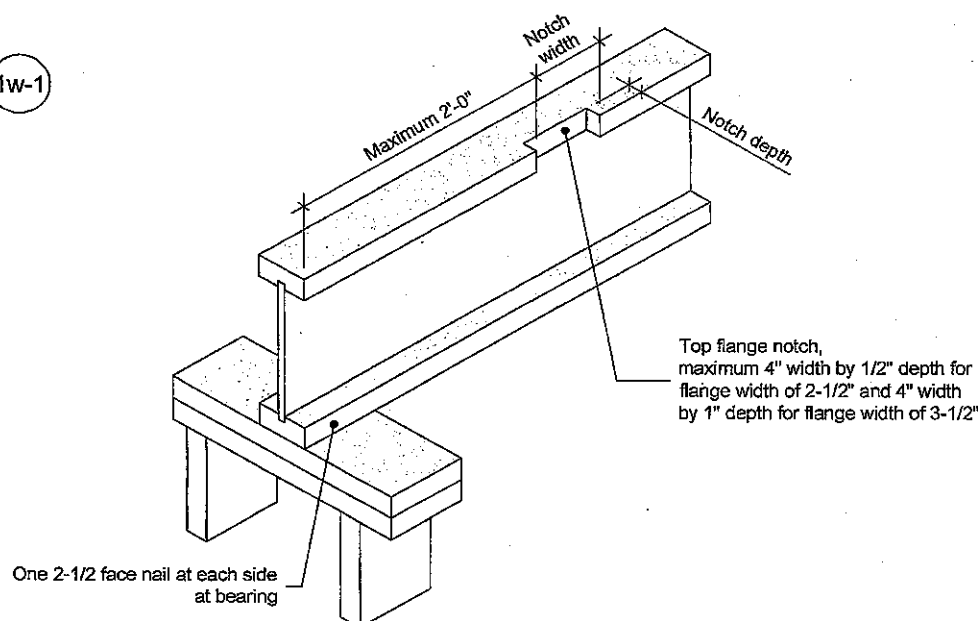


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

1W-1



Notes:

1. Blocking required at bearing for lateral support, not shown for clarity.
2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
4. For other applications, contact Nordic Structures.

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

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

**NORDIC
STRUCTURES**

T 514-871-8526
1 866 817-3418
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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

DATE

2018-04-10

NUMBER

1W-1



Construction Detail

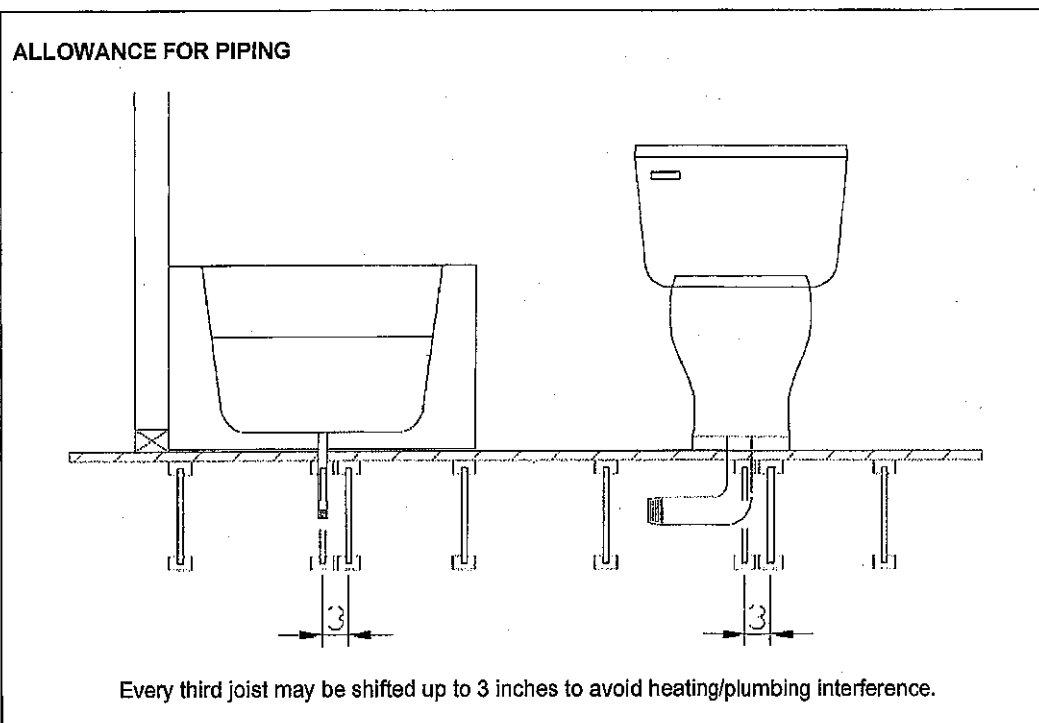
Limit States Design

Allowance for Piping (Installation Notes)

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

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

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



Revised April 12, 2012