

FROM PLAN DATED: JAN 2020

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLEYCREEK 11

ELEVATION: 3

LOT: 087

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

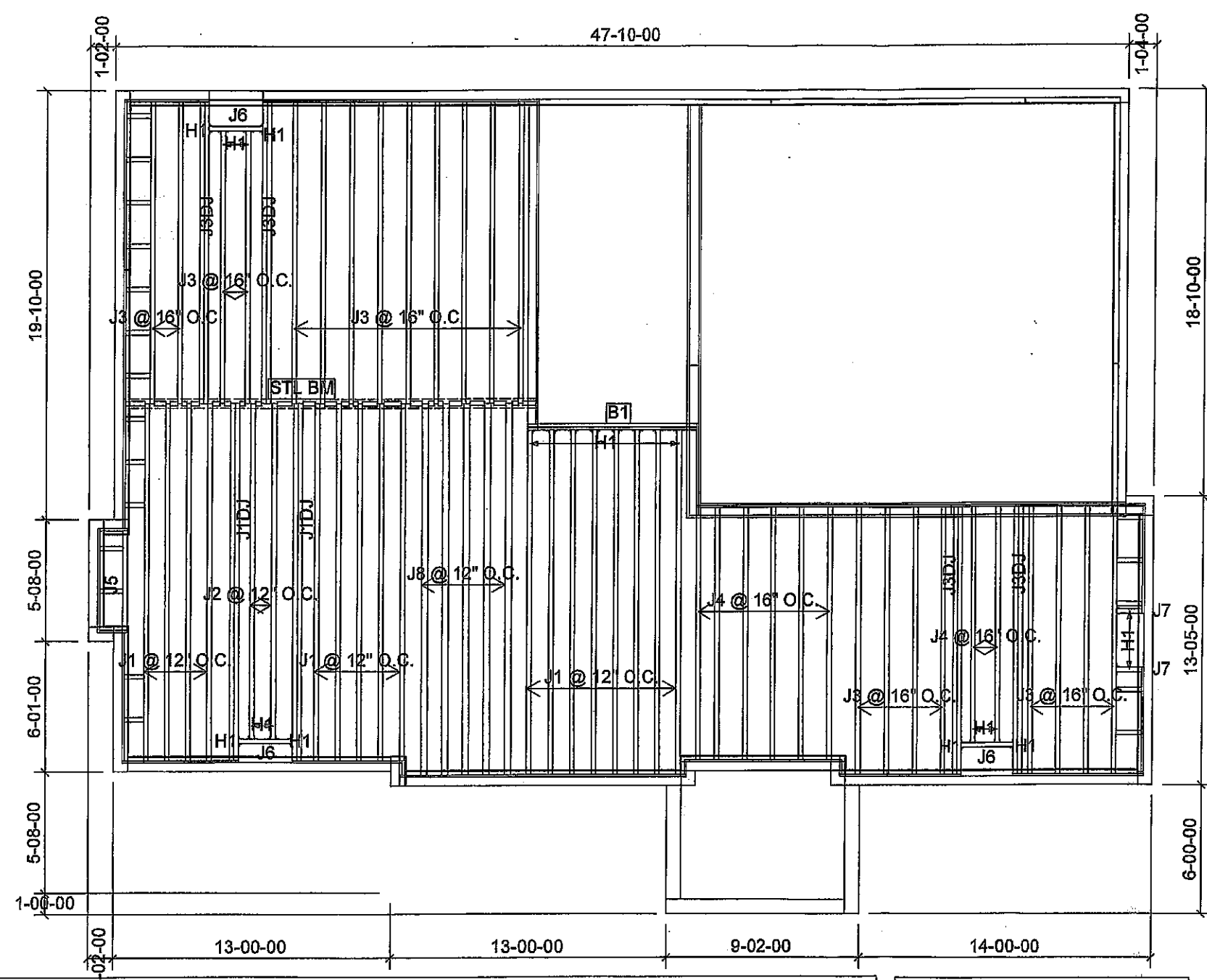
REVISION:

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 REQ. JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC TILE** APPLICATION AS PER O.B.C 9.30.6.

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-02-20

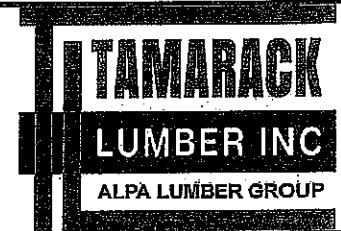
1st FLOOR



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	9 1/2" NI-40x	1	17	MFD
J1DJ	18-00-00	9 1/2" NI-40x	2	4	MFD
J2	16-00-00	9 1/2" NI-40x	1	2	MFD
J3	14-00-00	9 1/2" NI-40x	1	21	MFD
J3DJ	14-00-00	9 1/2" NI-40x	2	8	MFD
J4	12-00-00	9 1/2" NI-40x	1	8	MFD
J5	6-00-00	9 1/2" NI-40x	1	1	MFD
J6	4-00-00	9 1/2" NI-40x	1	3	MFD
J7	2-00-00	9 1/2" NI-40x	1	2	MFD
J8	18-00-00	9 1/2" NI-80	1	5	MFD
B1	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD

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

CITY OF HAMILTON
Building Division
Permit No. 20-199041
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
FOR CHIEF BUILDING OFFICIAL
DATE JAN 15 2021



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

LOADING:

DESIGN LOADS: L/480.000

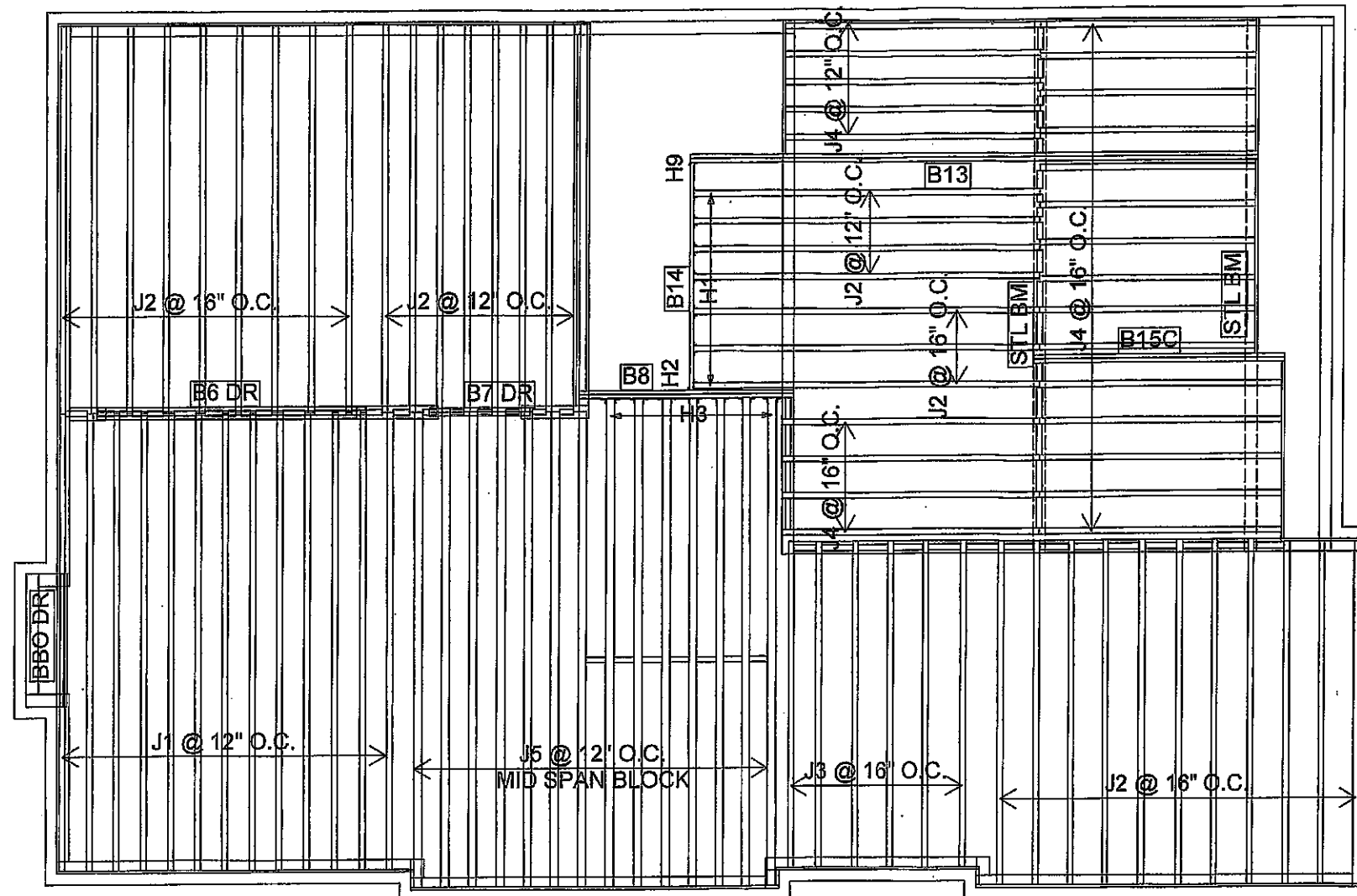
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

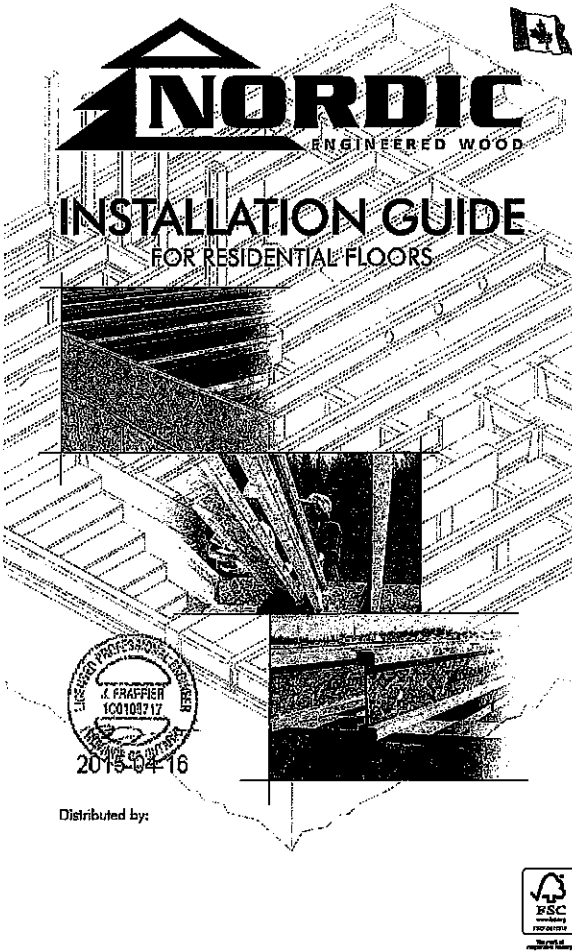
DATE: 2020-02-15

2nd FLOOR



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	9 1/2" NI-40x	1	13	MFD
J2	14-00-00	9 1/2" NI-40x	1	35	MFD
J3	12-00-00	9 1/2" NI-40x	1	6	MFD
J4	10-00-00	9 1/2" NI-40x	1	24	MFD
J5	18-00-00	9 1/2" NI-80	1	14	MFD
B13	22-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B14	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B15C	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3	MFD
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B7 DR	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/9.5
1	H2	HUS1.81/10
7	H3	IUS3.56/9.5
1	H9	LS90



SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING

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

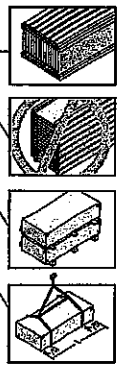
Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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



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 concrete floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking or mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA C86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

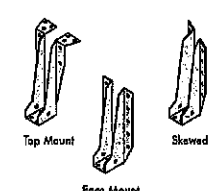
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

Joist Depth	Joist Series	Single spans				Multiple spans			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NL-20	13'1"	14'2"	13'9"	13'5"	16'4"	15'4"	14'10"	14'7"
	NL-20S	14'1"	15'2"	14'8"	14'4"	17'5"	16'5"	15'10"	15'6"
	NL-20L	14'1"	15'2"	14'8"	14'4"	17'5"	16'5"	15'10"	15'6"
	NL-20H	14'1"	15'2"	14'8"	14'4"	17'5"	16'5"	15'10"	15'6"
11-7/8"	NL-25	17'3"	18'3"	17'9"	17'5"	18'10"	17'8"	16'11"	17'0"
	NL-25S	18'1"	19'2"	18'7"	18'3"	19'4"	18'4"	17'9"	17'5"
	NL-25L	18'1"	19'2"	18'7"	18'3"	19'4"	18'4"	17'9"	17'5"
	NL-25H	18'1"	19'2"	18'7"	18'3"	19'4"	18'4"	17'9"	17'5"
14"	NL-30	19'6"	20'6"	19'11"	18'7"	21'6"	19'11"	18'6"	18'1"
	NL-30S	19'6"	20'6"	19'11"	18'7"	21'6"	19'11"	18'6"	18'1"
	NL-30L	19'6"	20'6"	19'11"	18'7"	21'6"	19'11"	18'6"	18'1"
	NL-30H	19'6"	20'6"	19'11"	18'7"	21'6"	19'11"	18'6"	18'1"
16"	NL-35	20'9"	21'9"	20'4"	19'0"	22'9"	20'9"	19'4"	18'9"
	NL-35S	20'9"	21'9"	20'4"	19'0"	22'9"	20'9"	19'4"	18'9"
	NL-35L	20'9"	21'9"	20'4"	19'0"	22'9"	20'9"	19'4"	18'9"
	NL-35H	20'9"	21'9"	20'4"	19'0"	22'9"	20'9"	19'4"	18'9"
18"	NL-40	22'3"	23'3"	22'8"	21'4"	24'3"	22'3"	21'8"	21'4"
	NL-40S	22'3"	23'3"	22'8"	21'4"	24'3"	22'3"	21'8"	21'4"
	NL-40L	22'3"	23'3"	22'8"	21'4"	24'3"	22'3"	21'8"	21'4"
	NL-40H	22'3"	23'3"	22'8"	21'4"	24'3"	22'3"	21'8"	21'4"
20"	NL-45	23'9"	24'9"	23'4"	22'0"	25'9"	23'9"	23'4"	23'0"
	NL-45S	23'9"	24'9"	23'4"	22'0"	25'9"	23'9"	23'4"	23'0"
	NL-45L	23'9"	24'9"	23'4"	22'0"	25'9"	23'9"	23'4"	23'0"
	NL-45H	23'9"	24'9"	23'4"	22'0"	25'9"	23'9"	23'4"	23'0"

CSCE EVALUATION REPORT 13032-R

I-JOIST HANGERS

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



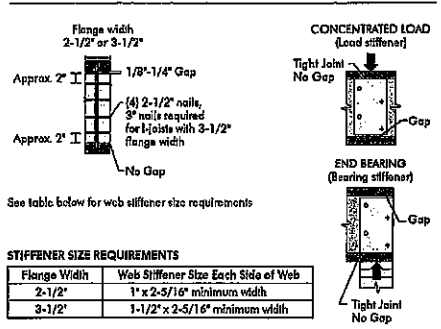
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



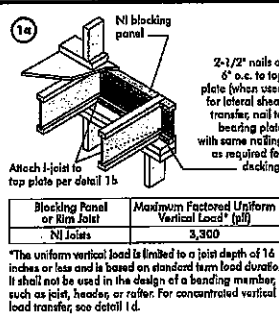
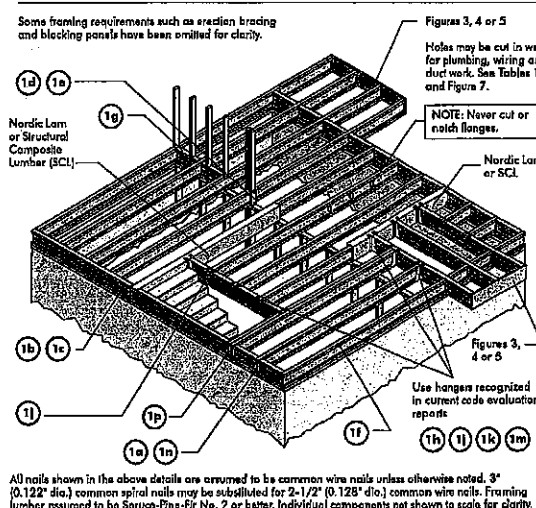
STIFFENER SIZE REQUIREMENTS

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

INSTALLING NORDIC I-JOISTS

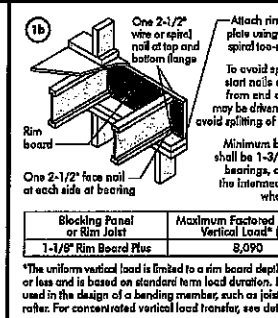
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and end 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 block (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-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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



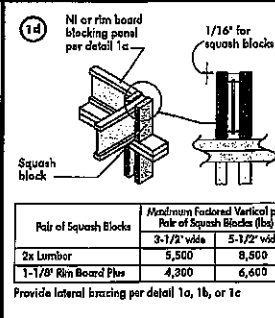
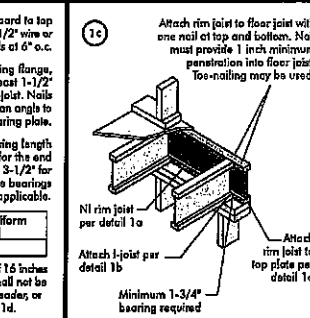
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (kN)
NI Joists	3,300

*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.

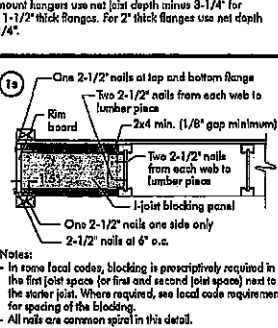
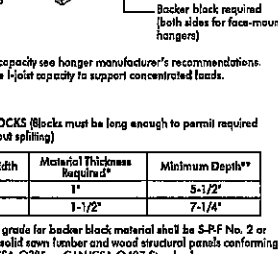
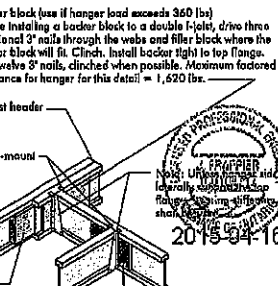
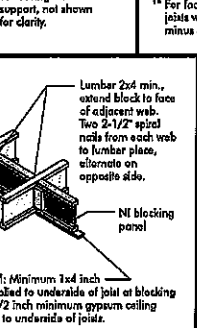
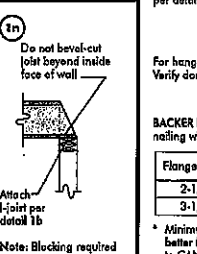
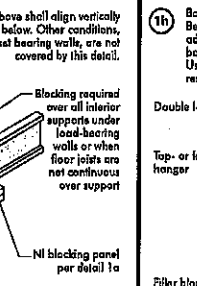
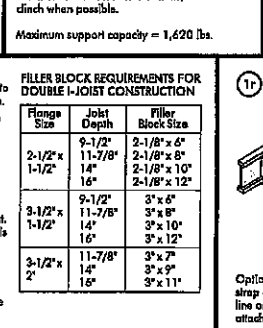
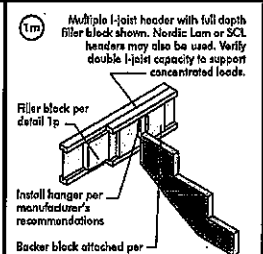
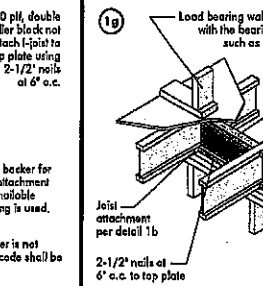
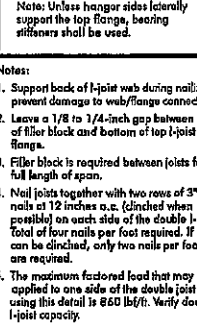
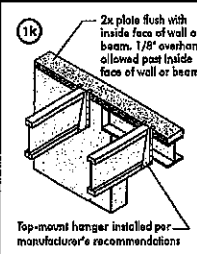
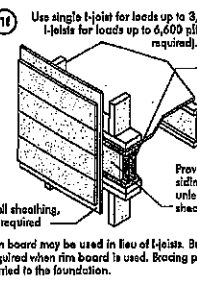
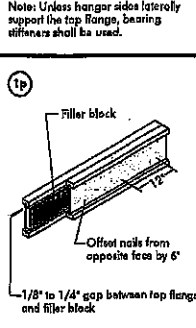
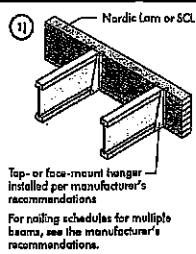
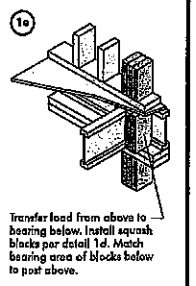


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (kN)
1-1/2" Rim Board Plus	8,000

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.

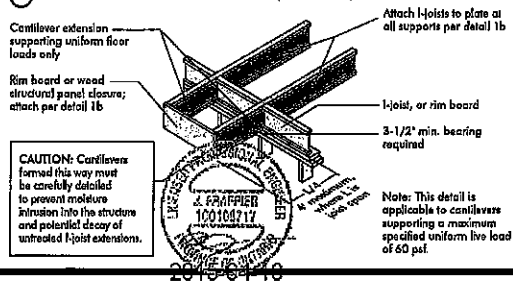


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (kN)
3-1/2" wide	5,500
5-1/2" wide	8,500
1-1/2" Rim Board Plus	4,300
	6,500

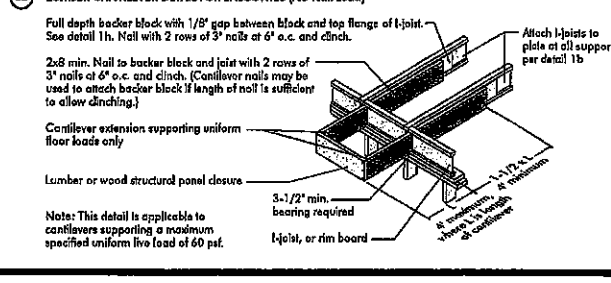


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

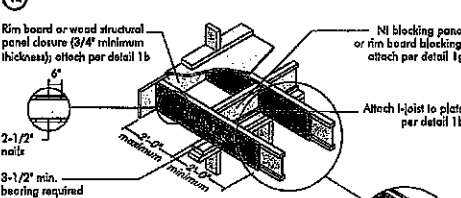


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

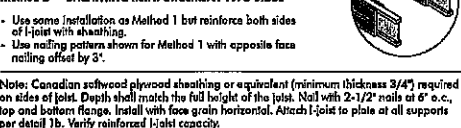


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



4b Alternate Method 2 — DOUBLE I-JOIST

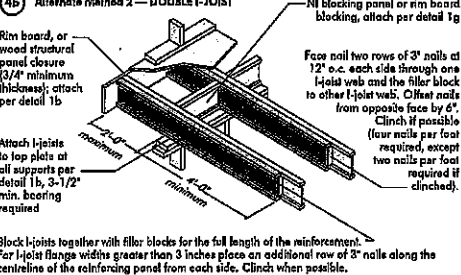


FIGURE 4 (continued)



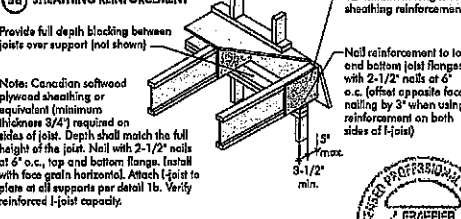
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)	ROOF TRUSS SPAN (ft.)				GLIDER TRUSS SPAN (ft.)				JACK TRUSS SPAN (ft.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	24"	N	N	N	N	N	N	N	N	N	N	N	N
11-7/8"	24"	N	N	N	N	N	N	N	N	N	N	N	N
14"	24"	N	N	N	N	N	N	N	N	N	N	N	N
16"	24"	N	N	N	N	N	N	N	N	N	N	N	N

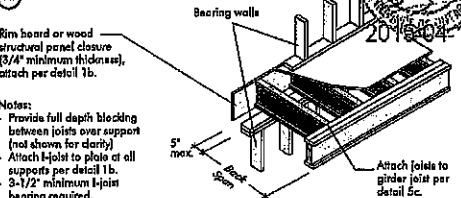
1. N = No reinforcement required.
- 1 = NI reinforced with 3/4" wood structural panel on one side only.
- 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = 1/2" deeper joist or closer spacing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

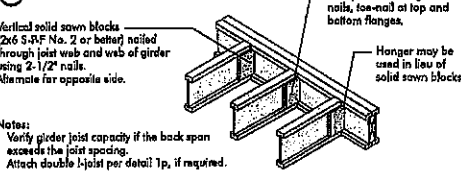


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)	ROOF TRUSS SPAN (ft.)				GLIDER TRUSS SPAN (ft.)				JACK TRUSS SPAN (ft.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	24"	N	N	N	N	N	N	N	N	N	N	N	N
11-7/8"	24"	N	N	N	N	N	N	N	N	N	N	N	N
14"	24"	N	N	N	N	N	N	N	N	N	N	N	N
16"	24"	N	N	N	N	N	N	N	N	N	N	N	N

1. N = No reinforcement required.
- 1 = NI reinforced with 3/4" wood structural panel on one side only.
- 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = 1/2" deeper joist or closer spacing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

Table of Minimum Span for Joist Loads up to 10 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.) (Round hole diameter in.)												Span Adjustment Factor
		2	4	6	8	10	12	14	16	18	20	22	24	
9 1/2"	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	
	N400	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N600	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N800	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N1000	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
11 7/8"	N250	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	
	N450	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N650	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N850	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N1050	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
14"	N300	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	
	N500	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N700	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N900	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N1100	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
16"	N350	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	
	N550	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N750	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N950	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
	N1150	0.7	1.2	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	

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

OPTIONAL:

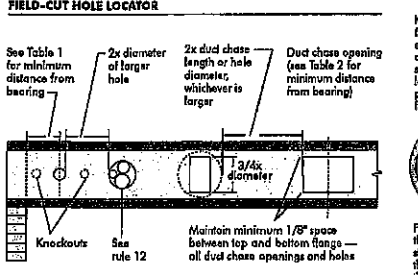
The above table is based on the I-joist used of their maximum span. If the I-joists are placed at less than their full maximum span (see Manufacturer's Span Table), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

Reduced = $\frac{L_{actual}}{L_{max}} \times D$

Where:

- Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application.
- L_{actual} = The actual measured span distance between the inside faces of supports (ft.).
- SAP = Span Adjustment Factor given in this table.
- D = The minimum distance from the inside face of any support to centre of hole from this table.

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a shear saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unwanted stress concentrations. Slightly rounding the corners is recommended. Slitting the rectangular hole by drilling a 1/4 inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

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

Joist Depth (in.)	Joist Series	Minimum distance from inside face of any support to centre of opening (ft.)											
		2	4	6	8	10	12	14	16	18	20	22	24
9-1/2"	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
11-7/8"	N250	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
14"	N300	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
16"	N350	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of support to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances in this chart are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

INSTALLING THE GLUED SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when topped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time. Before laying the next row, glue may be continuous or spaced, but avoid scribe-cut by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. Use a spacer tool or a 2-1/2" common nail to assure accurate and consistent spacing.
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type				Maximum Spacing of Fasteners (ft.)
		Common W/ or Sp. Nail	Ring Thread Nail or Screw	Staples	Edges	
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

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

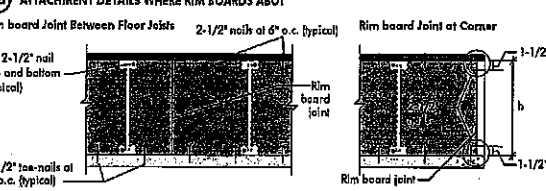
Ref: NRC-CNRC, National Building Code of Canada 2010, Table 9.93.3.5.

IMPORTANT NOTE:

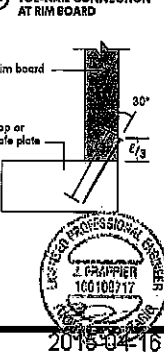
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum span shown in this document. If sheathing is nailed only I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

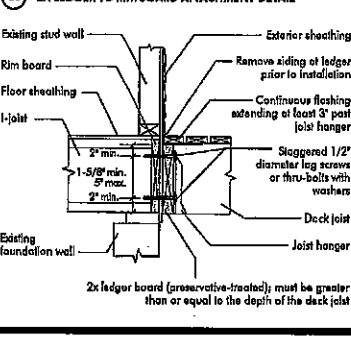
6a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



6b TOE-NAIL CONNECTION AT RIM BOARD



6c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

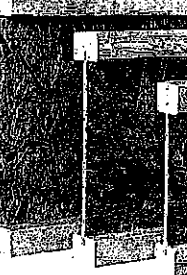


CHIMNEY'S PRODUCT WARRANTY

Chimney's products are warranted to be free from manufacturing defects in materials and workmanship.

Whereas, Chimney's products are used in the construction of a building, the warranty shall extend to the life of the building.

For full details of this warranty, please refer to the Chimney's product literature.





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 centerline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centered on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

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

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

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

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)											
		Round Hole Diameter (in.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
9-1/2"	NI-20	0'-7"	1'-4"	2'-10"	4'-3"	5'-5"	6'-0"	---	---	---	---	---	---
	NI-40x	0'-7"	1'-4"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-8"	7'-5"	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---
	NI-80	1'-4"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-5"	10'-3"	11'-4"	---	---	---
14"	NI-20	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---
	NI-40x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NI-60	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	8'-3"	10'-2"	---	---
	NI-70	0'-7"	1'-0"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	10'-4"	11'-9"	---
	NI-80	0'-7"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	12'-4"	13'-5"	---
16"	NI-20	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---
	NI-40x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NI-60	0'-7"	1'-0"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	10'-4"	11'-9"	---
	NI-70	0'-7"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	12'-4"	13'-5"	---
	NI-80	0'-7"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	12'-4"	13'-5"	---

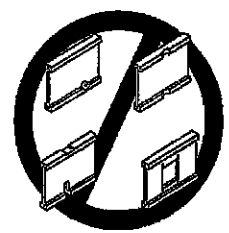
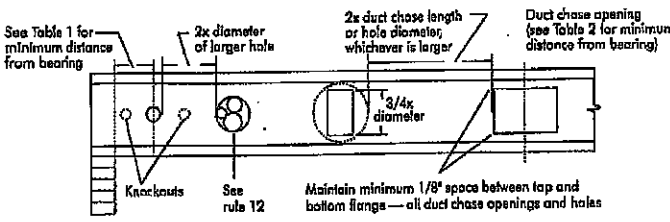
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans.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

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)											
		Duct Chase Length (in.)											
		8	10	12	14	16	18	20	22	24			
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"	---	---	---
	NI-40x	5'-3"	5'-8"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-5"	8'-9"	---	---	---
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-5"	8'-9"	---	---	---
	NI-70	6'-1"	6'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-5"	8'-0"	8'-4"	---	---	---
	NI-80	6'-3"	6'-8"	6'-10"	6'-5"	6'-10"	7'-5"	7'-8"	8'-2"	8'-6"	---	---	---
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	---	---	---
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-5"	8'-9"	9'-3"	9'-7"	10'-1"	---	---	---
	NI-60	7'-3"	7'-8"	8'-0"	8'-5"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"	---	---	---
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"	---	---	---
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"	---	---	---
14"	NI-20	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"	---	---	---
	NI-40x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"	---	---	---
	NI-60	8'-1"	8'-7"	8'-7"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	---	---	---
	NI-70	8'-9"	9'-3"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-1"	---	---	---
	NI-80	9'-0"	9'-3"	9'-5"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	---	---	---
16"	NI-20	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"	---	---	---
	NI-40x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"	---	---	---
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-0"	13'-5"	14'-0"	---	---	---
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	13'-8"	---	---	---
	NI-80	10'-4"	10'-9"	11'-3"	11'-8"	12'-1"	12'-7"	13'-1"	13'-6"	14'-1"	---	---	---

- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of supports to centre of opening.
- The above table is based on simple-span joists only. For 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 1/480.
- The above table is based on the joists 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-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 3-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unbraced I-joists. Once sheathed, do not overstress I-joists with concentrated loads from building materials.

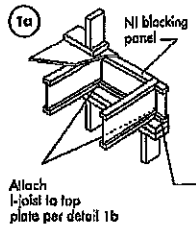
- WARNING:** I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:**
- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 - When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral nailer at the end of each bay. Top ends of bracing must be secured over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
 - For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
 - 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.
 - 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.



PRODUCT WARRANTY

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

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

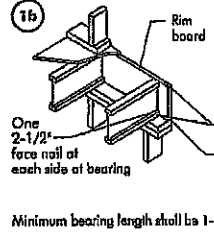


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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

Attach I-joist to top plate per detail 1b

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



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

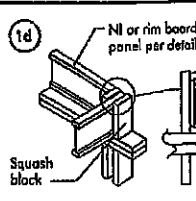
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

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

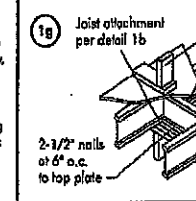
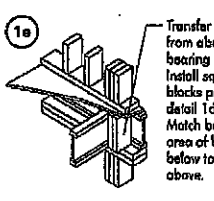
To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

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



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

Provide lateral bracing per detail 1a or 1b



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

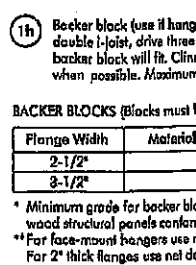
Joint attachment per detail 1b

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

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

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

NI blocking panel per detail 1a



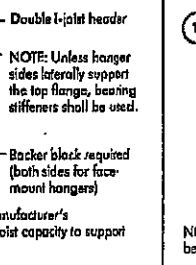
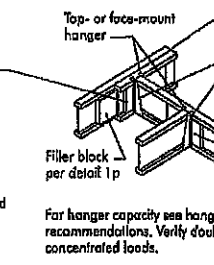
Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer block tight to top flange. Use twelve 3" nails, clinched when possible. Maximum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

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

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

* Minimum grade for backer block material shall be S-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C309 or CAN/CSA-C437 Standard.

** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



Top- or face-mount hanger

Double I-joist header

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

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

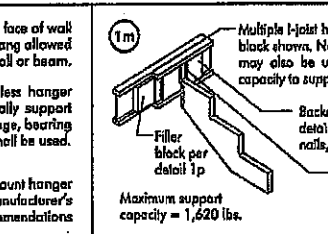
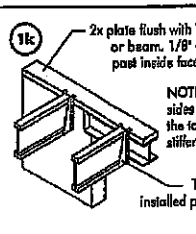
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

Nordic Lam or Structural Composite Lumber (SCL)

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

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

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



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

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

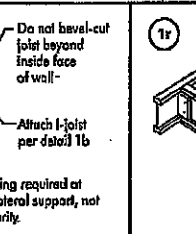
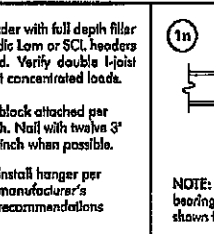
Top-mount hanger installed per manufacturer's recommendations

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.

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

Filler block per detail 1p

Maximum support capacity = 1,620 lbs.



Do not bavel-cut joist beyond inside face of wall.

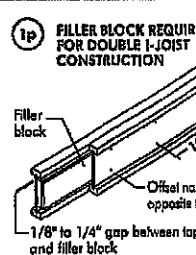
Attach I-joist per detail 1b

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

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

NI blocking panel

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



FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

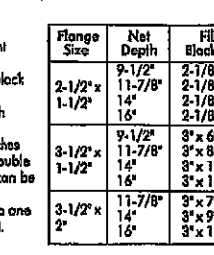
Filler block

Offset nails from opposite face by 6"

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

NOTES:

- Support back of I-joist 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-joist 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. (clinched when possible) on each side of the double I-joist. 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 joist using this detail is 860 lb/ft. Verify double I-joist capacity.



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

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

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

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

I-joist blocking panel

One 2-1/2" nail one side only

NOTES:

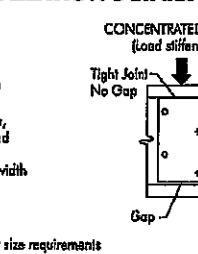
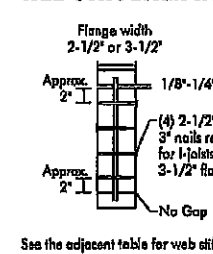
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

All nails shown in this 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" (0.125" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

WEB STIFFENERS

- RECOMMENDATIONS:**
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C10). The gap between the stiffener and the flange is at the top.
 - A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
 - A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



CONCENTRATED LOAD (Load stiffener)

END BEARING (Bearing stiffener)

Flange width 2-1/2" or 3-1/2"

Approx. 2" gap

1/8" - 1/4" Gap

(4) 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

No Gap

Tight Joint No Gap

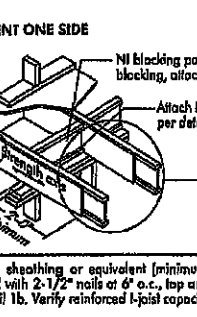
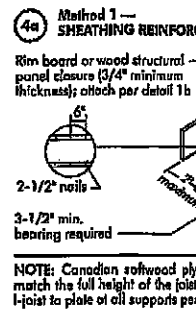
Gap

Tight Joint No Gap

See the adjacent table for web stiffener size requirements

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

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Rim board or wood structural panel closure (3/4" minimum thickness) attach per detail 1b

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joist to plate per detail 1b

2-1/2" nails

3-1/2" min. bearing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

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

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

RIM BOARD INSTALLATION DETAILS



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

PASSED

2ND FLR FRAMING\Dropped Beams\B6 DR(i2117) (Dropped Beam)

February 15, 2020 10:41:38

BC CALC® Member Report

Dry | 1 span | No cant.

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B6 DR(i2117)

City, Province, Postal Code:

Specifier:

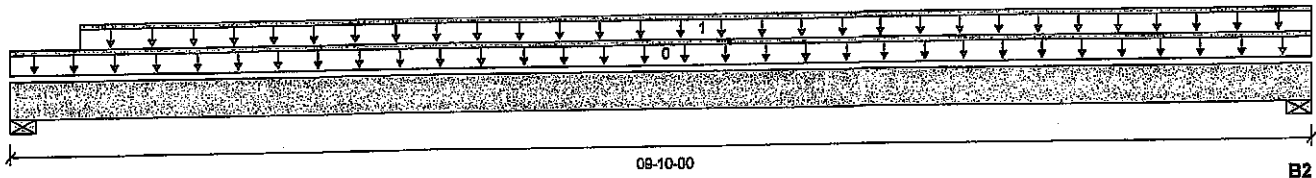
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2744 / 0	1445 / 0		
B2, 4"	3122 / 0	1634 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-10-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	09-10-00	Top	631	316			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	14113 ft-lbs	36222 ft-lbs	39.0%	1	04-08-14
End Shear	5582 lbs	17356 lbs	32.0%	1	01-01-08
Total Load Deflection	L/539 (0.207")	n/a	44.5%	4	04-11-11
Live Load Deflection	L/822 (0.136")	n/a	43.8%	5	04-11-11
Max Defl.	0.207"	n/a	n/a	4	04-11-11
Span / Depth	11.7				

Bearing Supports

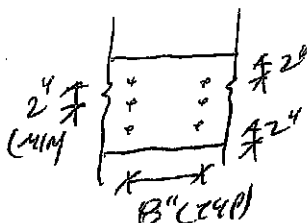
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	5923 lbs	21.1%	23.1%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	6725 lbs	24.0%	26.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-04-04, Bottom: 00-04-04.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. YAM5852 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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



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

2ND FLR FRAMING\Dropped Beams\B7 DR(i2144) (Dropped Beam)

PASSED

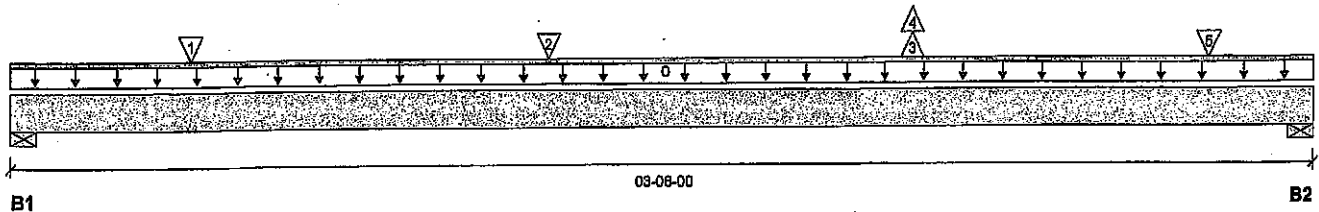
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

February 15, 2020 10:41:38

File name: VALLEYCREEK 11 EL 1.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B7 DR(i2144)
Specifier:
Designer:
Company:

CCMC 12472-R



Total Horizontal Product Length = 03-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1132 / 3	590 / 0	0 / 4	
B2, 4"	1059 / 10	578 / 0	0 / 18	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top		10			00-00-00
1	-	Conc. Pt. (lbs)	L	00-06-01	00-06-01	Top	616	307			n/a
2	-	Conc. Pt. (lbs)	L	01-06-00	01-06-00	Top	587	293			n/a
3	-	Conc. Pt. (lbs)	L	02-06-06	02-06-06	Top	713	396	-22		n/a
4	-	Conc. Pt. (lbs)	L	02-06-06	02-06-06	Top	-13				n/a
5	J2(i2170)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top	275	137			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1610 ft-lbs	23220 ft-lbs	6.9%	21	01-07-06
End Shear	1552 lbs	11571 lbs	13.4%	21	02-06-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	56	01-10-04
Live Load Deflection	L/999 (0.003")	n/a	n/a	83	01-10-04
Max Defl.	0.004"	n/a	n/a	56	01-10-04
Span / Depth	3.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	2435 lbs	13.0%	14.3%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	2312 lbs	12.4%	13.5%	Spruce-Pine-Fir

Notes

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

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

Calculations assume unbraced length of Top: 00-01-12, Bottom: 00-01-12.

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

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

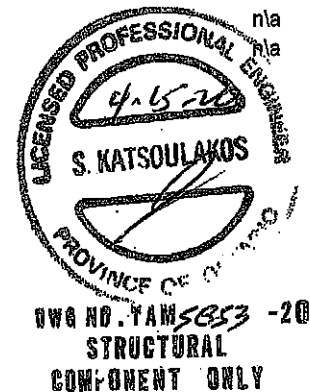
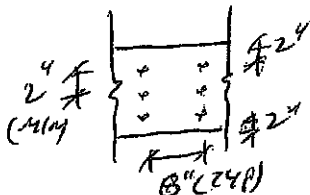
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

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



STRUCTURAL COMPONENT ONLY

Disclosure

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



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

PASSED

2ND FLR FRAMING\Flush Beams\B10(i2111) (Flush Beam)

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B10(i2111)

City, Province, Postal Code:

Specifier:

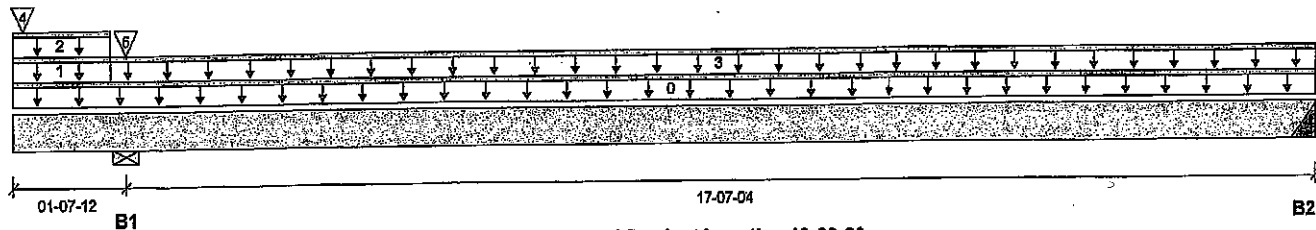
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 19-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	447 / 0	841 / 0	301 / 0	
B2, 4"	268 / 10	181 / 0	0 / 17	

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	19-03-00	Top		10			00-00-00
1	E47(i2278)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	44	121	84		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	15	8			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	19-03-00	Top	30	15			n/a
4	B11(i2247)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	66	332	127		n/a
5	E38(i2060)	Conc. Pt. (lbs)	L	01-07-12	01-07-12	Top	20	55	38		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2435 ft-lbs	23220 ft-lbs	10.5%	33	10-11-08
Neg. Moment	-1486 ft-lbs	-23220 ft-lbs	6.4%	37	01-07-12
End Shear	543 lbs	11571 lbs	4.7%	33	18-01-08
Cont. Shear	586 lbs	7521 lbs	7.8%	0	00-07-08
Total Load Deflection	L/1170 (0.178")	n/a	20.5%	80	10-06-11
Live Load Deflection	L/999 (0.122")	n/a	n/a	118	10-03-09
Total Neg. Defl.	2xL/1998 (-0.043")	n/a	n/a	80	00-00-00
Max Defl.	0.178"	n/a	n/a	80	10-06-11
Span / Depth	21.9				

			Demand/ Resistance Support	Demand/ Resistance Member	Material	
Bearing Supports	Dim. (LxW)	Demand				
B1	Wall/Plate	5-1/2" x 3-1/2"	2024 lbs	17.1%	8.6%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	628 lbs	n/a	3.7%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



OWS NO. TAM 5854 -20
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B10(i2111)

Specifier:

Designer:

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

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

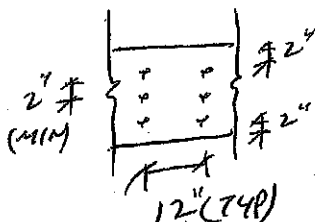
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020



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



OWB NO. TAN 5854-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B11(i2247) (Flush Beam)**

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11(i2247)

City, Province, Postal Code:

Specifier:

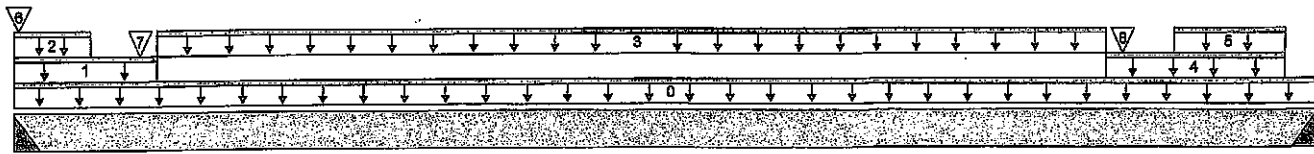
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

06-05-00

B2

Total Horizontal Product Length = 06-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	81 / 0	357 / 0	155 / 0	
B2, 2-1/2"	66 / 0	331 / 0	127 / 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	06-05-00	Top		10			00-00-00
1	E54(i2287)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-08	Top		81			n/a
2	E54(i2287)	Unf. Lin. (lb/ft)	L	00-00-00	00-04-08	Top	22	20	42		n/a
3	E55(i2288)	Unf. Lin. (lb/ft)	L	00-08-08	05-04-08	Top		61			n/a
4	E46(i2283)	Unf. Lin. (lb/ft)	L	05-04-08	06-03-00	Top		81			n/a
5	E46(i2283)	Unf. Lin. (lb/ft)	L	05-08-08	06-03-00	Top	22	20	42		n/a
6	E54(i2287)	Conc. Pt. (lbs)	L	00-00-04	00-00-04	Top	10	9	19		n/a
7	E54(i2287)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	59	94	113		n/a
8	E46(i2283)	Conc. Pt. (lbs)	L	05-05-08	05-05-08	Top	58	93	111		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	558 ft-lbs	15093 ft-lbs	3.7%	0	03-03-14
End Shear	382 lbs	7521 lbs	5.1%	0	01-00-00
Total Load Deflection	L/999 (0.007")	n/a	n/a	35	03-03-01
Live Load Deflection	L/999 (0.002")	n/a	n/a	51	03-03-14
Max Defl.	0.007"	n/a	n/a	35	03-03-01
Span / Depth	7.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2-1/2" x 3-1/2"	500 lbs	n/a	7.2%	HUC410
B2 Hanger	2-1/2" x 3-1/2"	464 lbs	n/a	6.7%	HUC410

Cautions

Header for the hanger HUC410 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUC410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.



ENG NO. 41520 - 20
STRUCTURAL
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B11(i2247) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

February 15, 2020 10:41:38

File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(i2247)

Specifier:

Designer:

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

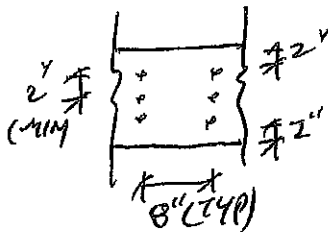
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. YAN 5855-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B12(i2081) (Flush Beam)****PASSED**

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

February 15, 2020 10:41:38

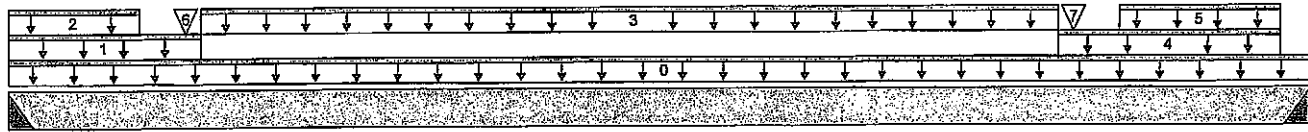
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12(i2081)

Specifier:

Designer:

Company:



B1

Total Horizontal Product Length = 07-01-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	78 / 0	385 / 0	150 / 0	
B2, 2-1/2"	74 / 0	368 / 0	141 / 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	07-01-00	Top		10			00-00-00
1	E56(i2289)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-08	Top		81			n/a
2	E56(i2289)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-08	Top	22	20	42		n/a
3	E57(i2290)	Unf. Lin. (lb/ft)	L	01-00-08	05-08-08	Top		61			n/a
4	E49(i2280)	Unf. Lin. (lb/ft)	L	05-08-08	06-11-00	Top		81			n/a
5	E49(i2280)	Unf. Lin. (lb/ft)	L	06-00-08	06-11-00	Top	22	20	42		n/a
6	E56(i2289)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	59	94	113		n/a
7	E49(i2280)	Conc. Pt. (lbs)	L	05-09-08	05-09-08	Top	58	93	111		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	722 ft-lbs	15093 ft-lbs	4.8%	0	03-08-00
End Shear	629 lbs	11571 lbs	5.4%	13	01-00-00
Total Load Deflection	L/999 (0.012")	n/a	n/a	35	03-06-04
Live Load Deflection	L/999 (0.004")	n/a	n/a	51	03-08-00
Max Defl.	0.012"	n/a	n/a	35	03-06-04
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2-1/2" x 3-1/2"	539 lbs	n/a	7.8%	HUC410
B2	Hanger	2-1/2" x 3-1/2"	516 lbs	n/a	7.4%	HUC410

Cautions

Header for the hanger HUC410 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUC410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.



OWN NO. TAM5056-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B12(i2081) (Flush Beam)

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12(i2081)

Specifier:

Designer:

Company:

Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

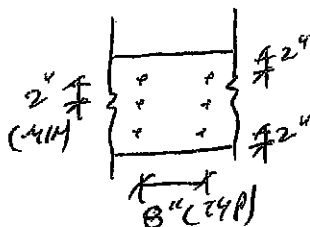
AMENDED 2020

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

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



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



DWG NO. TAM5056-20
STRUCTURAL
COMPONENT ONLY

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**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B13(12502) (Flush Beam)**

Dry | 3 spans | L cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13(12502)

City, Province, Postal Code:

Specifier:

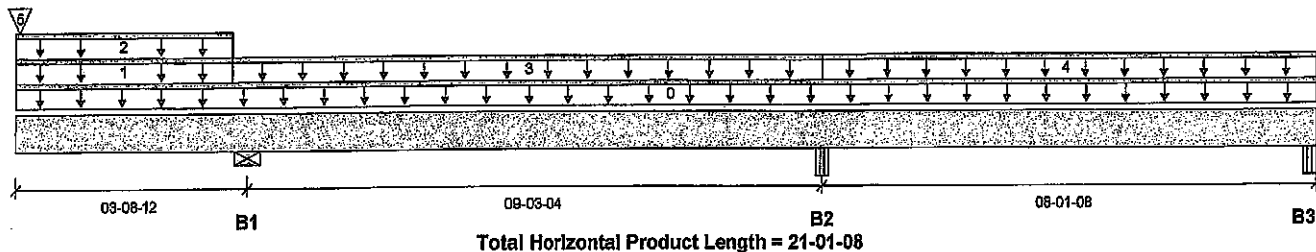
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2245 / 0	1227 / 0		
B2, 5-1/4"	366 / 647	0 / 124		
B3, 5-1/4"	259 / 30	149 / 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	21-01-08	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	120	60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	28	14			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-06-00	13-00-00	Top	40	20			n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	13-00-00	21-01-08	Top	27	13			n/a
5	B14(12507)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	Top	943	491			n/a

Controls Summary

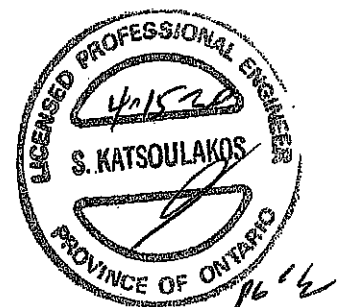
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2186 ft-lbs	23220 ft-lbs	9.4%	2	13-00-00
Neg. Moment	-9684 ft-lbs	-23220 ft-lbs	41.7%	1	03-08-12
End Shear	490 lbs	11571 lbs	4.2%	2	19-10-12
Cont. Shear	2913 lbs	11571 lbs	25.2%	1	02-08-08
Total Load Deflection	2xL/269 (0.332")	n/a	89.1%	13	00-00-00
Live Load Deflection	2xL/402 (0.223")	n/a	89.6%	18	00-00-00
Total Neg. Defl.	L/999 (-0.096")	n/a	n/a	13	07-02-14
Max Defl.	-0.096"	n/a	n/a	13	07-02-14
Span / Depth	11.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4901 lbs	41.4%	20.9%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	437 lbs	5.6%	2.0%	Unspecified
B2	Uplift	1124 lbs			
B3	Beam 5-1/4" x 3-1/2"	574 lbs	7.3%	2.6%	Unspecified

Cautions

Uplift of 1124 lbs found at bearing B2. (SIMPSON 2-42-57 @ ST. B2)



OWB NO. TAM 5857-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B13(i2502) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7239

Dry | 3 spans | L cant.

February 15, 2020 10:41:38

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13(i2502)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

Notes

Design meets User specified (2xL/240) Total load deflection criteria.

Design meets User specified (2xL/360) Live load deflection criteria.

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

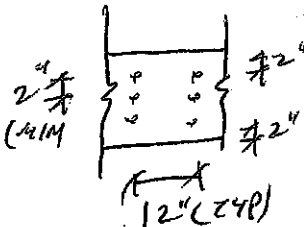
AMENDED 2020

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

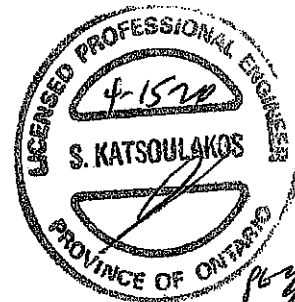
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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



**PROVIDE 3 ROWS OF 3 1/2" ARBOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS**



**OWN NO. YAM 5857-20
STRUCTURAL
COMPONENT ONLY**

Disclosure

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



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

PASSED

2ND FLR FRAMING\Flush Beams\B14(I2507) (Flush Beam)

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(I2507)

City, Province, Postal Code:

Specifier:

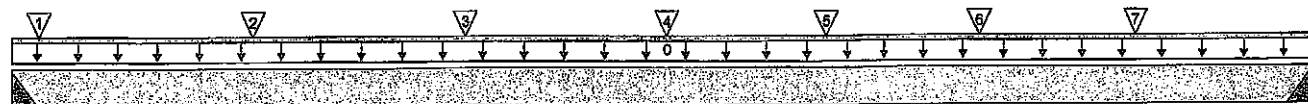
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

08-02-08

B2

Total Horizontal Product Length = 08-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1138 / 0	589 / 0		
B2, 2"	944 / 0	491 / 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	08-02-08	Top		5			00-00-00
1	J2(I2311)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	Top	281	141			n/a
2	J2(I2313)	Conc. Pt. (lbs)	L	01-06-00	01-06-00	Top	347	173			n/a
3	J2(I2318)	Conc. Pt. (lbs)	L	02-10-00	02-10-00	Top	337	169			n/a
4	J2(I2300)	Conc. Pt. (lbs)	L	04-01-02	04-01-02	Top	294	147			n/a
5	J2(I2296)	Conc. Pt. (lbs)	L	05-01-02	05-01-02	Top	260	130			n/a
6	J2(I2296)	Conc. Pt. (lbs)	L	06-01-02	06-01-02	Top	260	130			n/a
7	J2(I2482)	Conc. Pt. (lbs)	L	07-01-02	07-01-02	Top	303	151			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4501 ft-lbs	11610 ft-lbs	38.8%	1	04-01-02
End Shear	2024 lbs	5785 lbs	35.0%	1	07-03-00
Total Load Deflection	L/665 (0.144")	n/a	36.1%	4	04-01-02
Live Load Deflection	L/999 (0.095")	n/a	n/a	5	04-01-02
Max Defl.	0.144"	n/a	n/a	4	04-01-02
Span / Depth	10.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	2444 lbs	n/a	57.2%	HUS1.81/10
B2 Hanger	2" x 1-3/4"	2029 lbs	n/a	47.5%	LS90

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

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

Header for the hanger LS90 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Hanger model LS90 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. YAW 5858-20
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B14\I2507) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Job name:

File name: VALLEYCREEK 11 EL 1.mmdf

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14\I2507)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. YAM5858-20
STRUCTURAL

COMPONENT ONLY

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Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B3(i2228) (Flush Beam)**

Dry | 1 span | No cant.

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: VALLEYCREEK 11 EL 1.mmdl

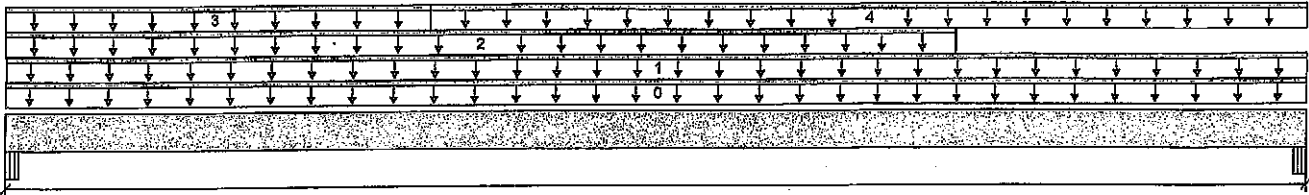
Description: 2ND FLR FRAMING\Flush Beams\B3(i2228)

Specifier:

Designer:

Company:

February 15, 2020 10:41:38



B1

Total Horizontal Product Length = 01-04-02

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	75 / 0	124 / 0	105 / 0	
B2, 4-1/8"	38 / 0	55 / 0	39 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-04-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-04-02	Top	22	11			n/a
2	E22(i2076)	Unf. Lin. (lb/ft)	L	00-00-00	00-11-12	Top	77	151	147		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	5				n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	01-04-02	Top	6	3			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	31 ft-lbs	23220 ft-lbs	0.1%	13	00-08-09
End Shear	150 lbs	11571 lbs	1.3%	13	00-05-04
Span / Depth	0.9				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	388 lbs	4.9%	1.7%	Unspecified
B2 Beam	4-1/8" x 3-1/2"	165 lbs	2.7%	0.9%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

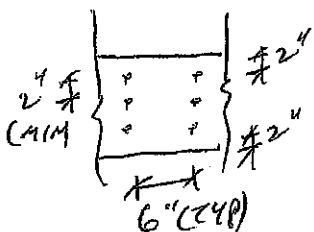
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

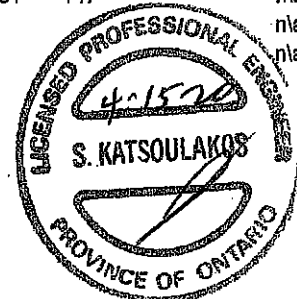
Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



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



DWG NO. TAM 5059-20
STRUCTURAL
COMPONENT ONLY

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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

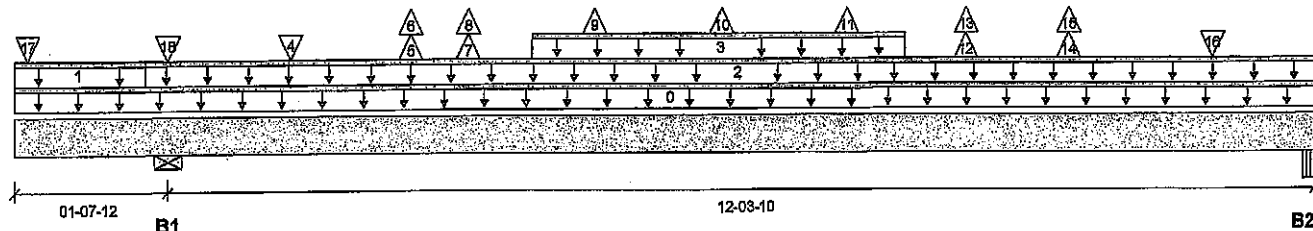
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B4(i2221)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 13-11-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	703 / 113	755 / 0	320 / 97	
B2, 4-3/8"	550 / 132	32 / 0	0 / 100	

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	13-11-06	Top		10			00-00-00
1	E50(i2282)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	44	121	84		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	13-11-06	Top	25	13			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	05-06-00	09-06-00	Top	70				n/a
4	J6(i2277)	Conc. Pt. (lbs)	L	02-11-06	02-11-06	Top	86	43			n/a
5	J6DJ(i2145)	Conc. Pt. (lbs)	L	04-02-10	04-02-10	Top	66	-28	-33		n/a
6	J6DJ(i2145)	Conc. Pt. (lbs)	L	04-02-10	04-02-10	Top	-25				n/a
7	J5(i2209)	Conc. Pt. (lbs)	L	04-10-00	04-10-00	Top	68	-50	-62		n/a
8	J5(i2209)	Conc. Pt. (lbs)	L	04-10-00	04-10-00	Top	-49				n/a
9	J5(i2107)	Conc. Pt. (lbs)	L	06-02-00	06-02-00	Top	-23	-12			n/a
10	J5(i2126)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	-23	-4			n/a
11	J5(i2240)	Conc. Pt. (lbs)	L	08-10-00	08-10-00	Top	-23	-17			n/a
12	J5(i2108)	Conc. Pt. (lbs)	L	10-02-00	10-02-00	Top	85	-47	-62		n/a
13	J5(i2108)	Conc. Pt. (lbs)	L	10-02-00	10-02-00	Top	-53				n/a
14	J6DJ(i2231)	Conc. Pt. (lbs)	L	11-03-06	11-03-06	Top	93	-27	-40		n/a
15	J6DJ(i2231)	Conc. Pt. (lbs)	L	11-03-06	11-03-06	Top	-35				n/a
16	J6(i2267)	Conc. Pt. (lbs)	L	12-10-00	12-10-00	Top	85	42			n/a
17	B12(i2081)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	71	365	136		n/a
18	E30(i2064)	Conc. Pt. (lbs)	L	01-07-12	01-07-12	Top	20	55	39		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2342 ft-lbs	23220 ft-lbs	10.1%	104	07-08-00
Neg. Moment	-1654 ft-lbs	-23220 ft-lbs	7.1%	35	04-10-00
End Shear	779 lbs	11571 lbs	6.7%	100	12-09-08
Cont. Shear	628 lbs	7521 lbs	8.3%	0	00-07-08
Total Load Deflection	L/999 (0.072")	n/a	n/a	229	07-10-00
Live Load Deflection	L/999 (0.088")	n/a	n/a	341	07-08-00
Total Neg. Defl.	L/999 (-0.062")	n/a	n/a	264	07-02-00
Max Defl.	0.072"	n/a	n/a	229	07-10-00
Span / Depth	15.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2319 lbs	19.6%	9.9%	Spruce-Pine-Fir



BWG NO. YAM 5860 -20
STRUCTURAL
COMPONENT ONLY

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B4(i2221) (Flush Beam)**

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

BC CALC® Member Report
Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B4(i2221)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B2 Beam	4-3/8" x 3-1/2"	864 lbs	13.2%	4.6%	Unspecified
B2 Uplift		269 lbs			

Cautions

Uplift of 269 lbs found at bearing B2. (SIMPSON 2-H25A @ 11.32)

Notes

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

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

Calculations assume member is fully braced.

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

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

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

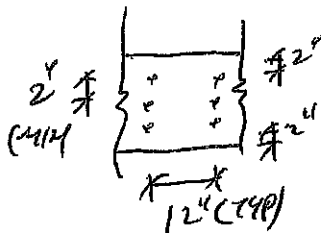
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020



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



ENG. NO. TAM 5860-20
STRUCTURAL
COMPONENT ONLY

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BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

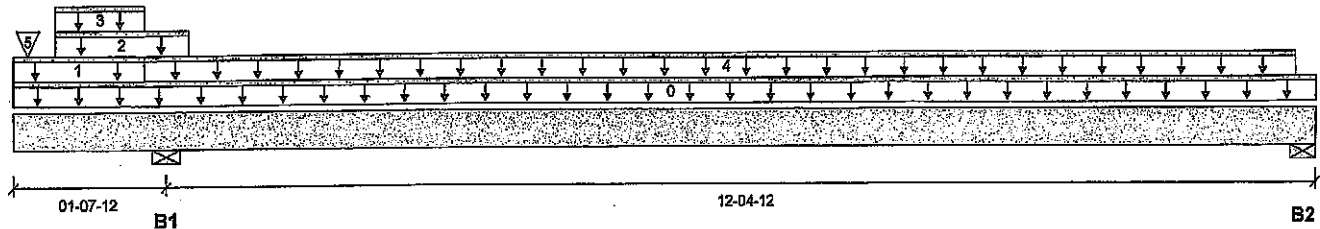
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B5(12245)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 14-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	542 / 0	912 / 0	316 / 0	
B2, 5-1/2"	329 / 19	162 / 0	0 / 30	

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	14-00-08	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	28	14			n/a
2	E48(12281)	Unf. Lin. (lb/ft)	L	00-05-08	01-10-08	Top		81			n/a
3	E48(12281)	Unf. Lin. (lb/ft)	L	00-05-08	01-05-00	Top	44	40	84		n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	13-09-12	Top	53	27			n/a
5	-	Conc. Pt. (lbs)	L	00-01-15	00-01-15	Top	108	436	205		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1803 ft-lbs	23220 ft-lbs	7.8%	33	08-02-07
Neg. Moment	-1728 ft-lbs	-23220 ft-lbs	7.4%	37	01-07-12
End Shear	565 lbs	11571 lbs	4.9%	33	12-09-08
Cont. Shear	1050 lbs	11571 lbs	9.1%	37	00-07-08
Total Load Deflection	L/999 (0.06")	n/a	n/a	80	07-10-10
Live Load Deflection	L/999 (0.05")	n/a	n/a	118	07-06-14
Total Neg. Defl.	2xL/1998 (-0.017")	n/a	n/a	80	00-00-00
Max Defl.	0.06"	n/a	n/a	80	07-10-10
Span / Depth	15.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2268 lbs	19.2%	9.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	696 lbs	5.9%	3.0%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

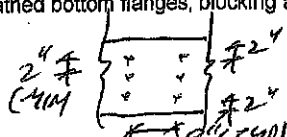
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

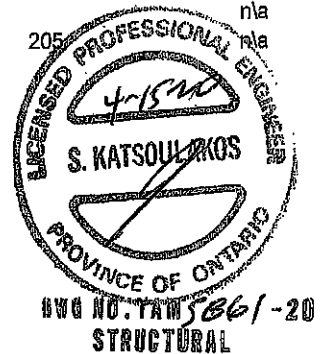
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.



PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END

CONFORMS TO OBC 2012

AMENDED 2020



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**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B8(i2504) (Flush Beam)**

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALCO® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(i2504)

City, Province, Postal Code:

Specifier:

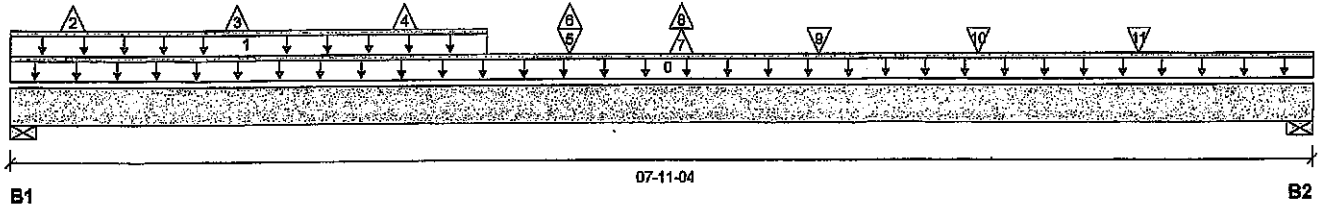
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/4"	2021 / 14	1075 / 0	0 / 8	
B2, 5-1/2"	1878 / 8	1010 / 0	0 / 9	

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	07-11-04	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	02-10-08	Top	376	186			n/a
2	J7(i2204)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	-3				n/a
3	J7(i2199)	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top	-3				n/a
4	J7(i2199)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	-3				n/a
5	J7(i2227)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top	294	146			n/a
6	J7(i2227)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top	-3				n/a
7	-	Conc. Pt. (lbs)	L	04-00-08	04-00-08	Top	1407	769	-17		n/a
8	-	Conc. Pt. (lbs)	L	04-00-08	04-00-08	Top	-10				n/a
9	J8(i2259)	Conc. Pt. (lbs)	L	04-10-08	04-10-08	Top	333	166			n/a
10	J8(i2115)	Conc. Pt. (lbs)	L	05-10-08	05-10-08	Top	355	177			n/a
11	J8(i2255)	Conc. Pt. (lbs)	L	06-10-08	06-10-08	Top	399	200			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9701 ft-lbs	23220 ft-lbs	41.8%	21	04-00-10
End Shear	3849 lbs	11571 lbs	33.3%	21	06-08-04
Total Load Deflection	L/999 (0.117")	n/a	n/a	56	03-11-12
Live Load Deflection	L/999 (0.076")	n/a	n/a	83	03-11-12
Max Defl.	0.117"	n/a	n/a	56	03-11-12
Span / Depth	9.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-1/4" x 3-1/2"	4376 lbs	47.8%	24.1%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	4078 lbs	34.4%	17.4%	Spruce-Pine-Fir



006 NO. TAM 5062-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B8(i2504) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 15, 2020 10:41:38

File name: VALLEYCREEK 11 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B8(i2504)
Specifier:
Designer:
Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

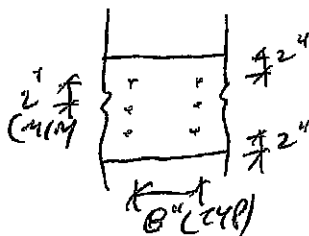
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



**PROVIDE 3 ROWS OF 3 1/2" ARDOX
SPIRAL NAILS @ 8" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS**



UWG NO. TAM 5862-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B9(I2133) (Flush Beam)**

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

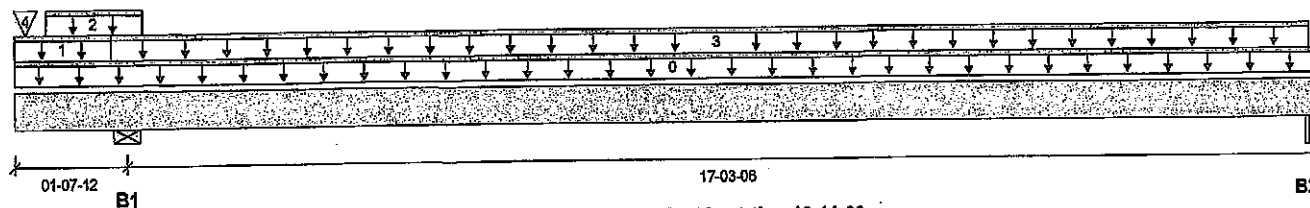
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B9(I2133)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 18-11-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	454 / 0	846 / 0	326 / 0	
B2, 3-1/2"	242 / 12	164 / 0	0 / 20	

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	18-11-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	25	12			n/a
2	E45(I2279)	Unf. Lin. (lb/ft)	L	00-05-08	01-10-08	Top	44	121	84		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	18-09-06	Top	28	14			n/a
4	-	Conc. Pt. (lbs)	L	00-01-14	00-01-14	Top	98	395	187		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2191 ft-lbs	23220 ft-lbs	9.4%	45	10-10-14
Neg. Moment	-1597 ft-lbs	-23220 ft-lbs	6.9%	50	01-07-12
End Shear	500 lbs	11571 lbs	4.3%	45	17-10-02
Cont. Shear	958 lbs	11571 lbs	8.3%	50	00-07-08
Total Load Deflection	L/1334 (0.153")	n/a	18.0%	108	10-06-06
Live Load Deflection	L/999 (0.107")	n/a	n/a	160	10-01-13
Total Neg. Defl.	2xL/1998 (-0.036")	n/a	n/a	108	00-00-00
Max Defl.	0.153"	n/a	n/a	108	10-06-06
Span / Depth	21.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2063 lbs	17.4%	8.8%	Spruce-Pine-Fir
B2	Beam 3-1/2" x 3-1/2"	569 lbs	3.8%	3.8%	VL 2.0 3100 SP

Notes

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

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

Calculations assume member is fully braced.

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

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

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

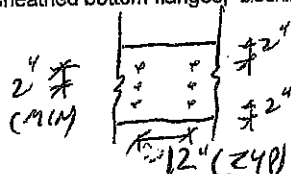
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

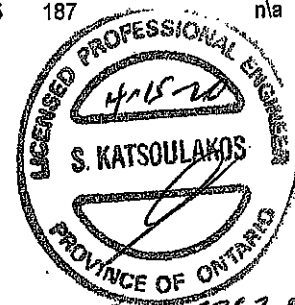
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3x12 ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWC NO. TAM 5863-20

STRUCTURAL

COMPONENT ONLY

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****1ST FLR FRAMING\Flush Beams\B1(i2629) (Flush Beam)****PASSED**

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

February 15, 2020 10:41:38

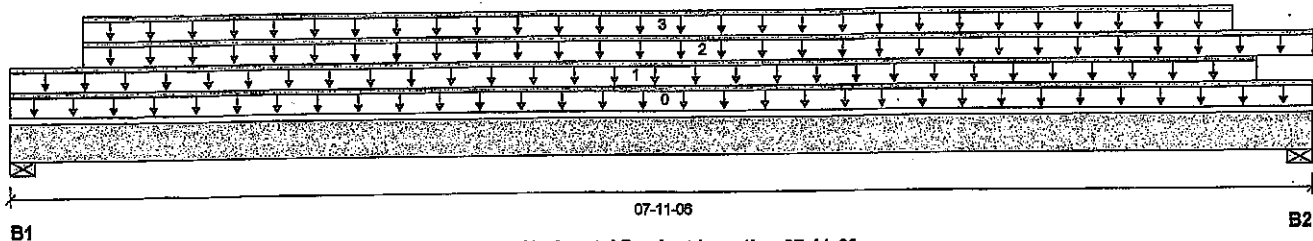
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i2629)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 07-11-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2310 / 0	1191 / 0		
B2, 4-3/8"	2008 / 0	1041 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-11-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	07-07-04	Top	340	170			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-05-08	07-11-06	Top	6	3			n/a
3	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	07-05-08	Top	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8113 ft-lbs	23220 ft-lbs	34.9%	1	04-01-04
End Shear	4016 lbs	11571 lbs	34.7%	1	06-09-08
Total Load Deflection	L/999 (0.108")	n/a	n/a	4	03-11-12
Live Load Deflection	L/999 (0.071")	n/a	n/a	5	03-11-12
Max Defl.	0.108"	n/a	n/a	4	03-11-12
Span / Depth	9.2				



DWC NO. TAM5864-20

STRUCTURAL**COMPONENT ONLY****Disclosure**

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

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4954 lbs	41.8%	21.1%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 3-1/2"	4313 lbs	45.8%	23.1%	Spruce-Pine-Fir

Notes

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

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

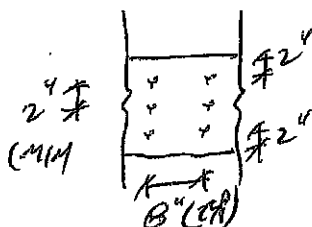
Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012**AMENDED 2020**

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

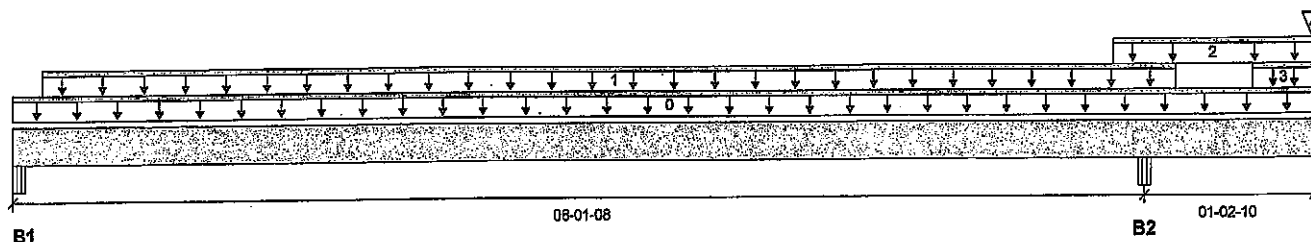
BC CALC® Member Report
 Build 7239

Dry | 2 spans | R cant.

February 15, 2020 11:50:49

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

File name: VALLEYCREEK 11 EL 3.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B15C(i2881)
 Specifier:
 Designer: AJ
 Company:



Total Horizontal Product Length = 09-04-02

Reaction Summary (Down / Uplift) (lbs)

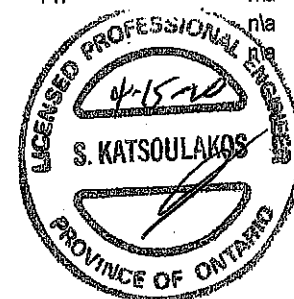
Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	109 / 11	82 / 0	0 / 14	
B2, 5-1/4"	255 / 0	268 / 0	228 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	08-04-02	Top	27	14			n/a
2	E22(i2076)	Unf. Lin. (lb/ft)	L	07-10-10	09-04-02	Top	77	70	147		n/a
3	E22(i2076)	Unf. Lin. (lb/ft)	L	08-10-10	09-04-02	Top		81			n/a
4	FC2 Floor Material	Conc. Pt. (lbs)	L	09-03-14	09-03-14	Top	21	11			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	459 ft-lbs	23220 ft-lbs	2.0%	44	03-11-14
Neg. Moment	-383 ft-lbs	-23220 ft-lbs	1.6%	49	08-01-08
End Shear	193 lbs	11571 lbs	1.7%	44	01-02-12
Cont. Shear	253 lbs	11571 lbs	2.2%	1	07-01-06
Total Load Deflection	L/999 (0.007")	n/a	n/a	107	04-02-01
Live Load Deflection	L/999 (0.004")	n/a	n/a	159	04-03-03
Total Neg. Defl.	2xL/1998 (-0.003")	n/a	n/a	107	09-04-02
Max Defl.	0.007"	n/a	n/a	107	04-02-01
Span / Depth	9.8				



HWB NO. TAM 5865-20
STRUCTURAL COMPONENT ONLY

Disclosure

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

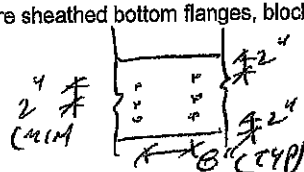
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	266 lbs	2.7%	1.2%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	945 lbs	9.6%	4.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Unbalanced snow loads determined from building geometry were used in selected product's verification.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

CONFORMS TO OBC 2012

AMENDED 2020



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



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

PASSED

2ND FLR FRAMING\Flush Beams\B16C(i3217) (Flush Beam)

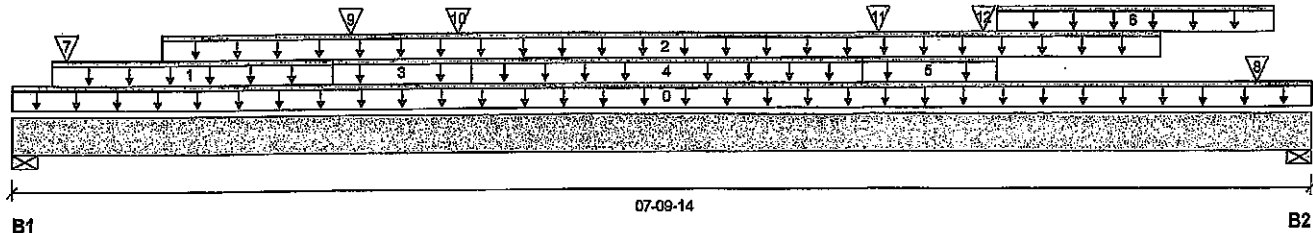
BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

February 18, 2020 08:08:50

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

File name: VALLEYCREEK 11 EL 2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B16C(i3217)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 07-09-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	1550 / 0	1184 / 0	279 / 0	
B2, 6"	1589 / 0	1191 / 0	274 / 0	

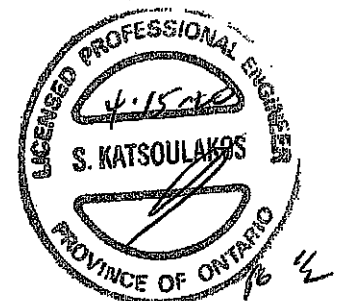
Load Summary

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	07-09-14	Top		10			00-00-00
1	E60(i3166)	Unf. Lin. (lb/ft)	L	00-02-15	01-10-15	Top		61			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-13	06-10-13	Top	356	178			n/a
3	E61(i3167)	Unf. Lin. (lb/ft)	L	01-10-15	02-08-15	Top		81			n/a
4	E62(i3168)	Unf. Lin. (lb/ft)	L	02-08-15	05-00-15	Top		61			n/a
5	E63(i3169)	Unf. Lin. (lb/ft)	L	05-00-15	05-10-15	Top		81			n/a
6	E64(i3170)	Unf. Lin. (lb/ft)	L	05-10-15	07-06-15	Top		61			n/a
7	-	Conc. Pt. (lbs)	L	00-04-00	00-04-00	Top	392	250	84		n/a
8	-	Conc. Pt. (lbs)	L	07-05-11	07-05-11	Top	400	252	77		n/a
9	-	Conc. Pt. (lbs)	L	02-00-03	02-00-03	Top	37	51	89		n/a
10	E61(i3167)	Conc. Pt. (lbs)	L	02-07-15	02-07-15	Top	51	69	106		n/a
11	-	Conc. Pt. (lbs)	L	05-02-02	05-02-02	Top	48	66	113		n/a
12	E63(i3169)	Conc. Pt. (lbs)	L	05-09-15	05-09-15	Top	40	54	84		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6002 ft-lbs	23220 ft-lbs	25.9%	1	04-03-05
End Shear	3028 lbs	11571 lbs	26.2%	1	06-06-05
Total Load Deflection	L/999 (0.078")	n/a	n/a	35	03-10-13
Live Load Deflection	L/999 (0.047")	n/a	n/a	51	03-10-13
Max Defl.	0.078"	n/a	n/a	35	03-10-13
Span / Depth	8.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6" x 3-1/2"	4084 lbs	31.5%	15.9%	Spruce-Pine-Fir
B2	Wall/Plate 6" x 3-1/2"	4116 lbs	31.7%	16.0%	Spruce-Pine-Fir



ENG NO. YAM5866-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B16C(i3217) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:08:50

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16C(i3217)

City, Province, Postal Code: WATERDOWN

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

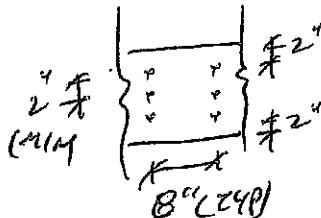
AMENDED 2020

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

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



PROVIDE 3 ROWS OF 3 1/2" ARDOX
SPIRAL NAILS @ 8" O/C FOR
MULTI-PLY NAILING, MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



REG. NO. TAW 5866-20
**STRUCTURAL
COMPONENT ONLY**

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



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

2ND FLR FRAMING\Flush Beams\B17C(I3161) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:08:50

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B17C(I3161)

City, Province, Postal Code: WATERDOWN

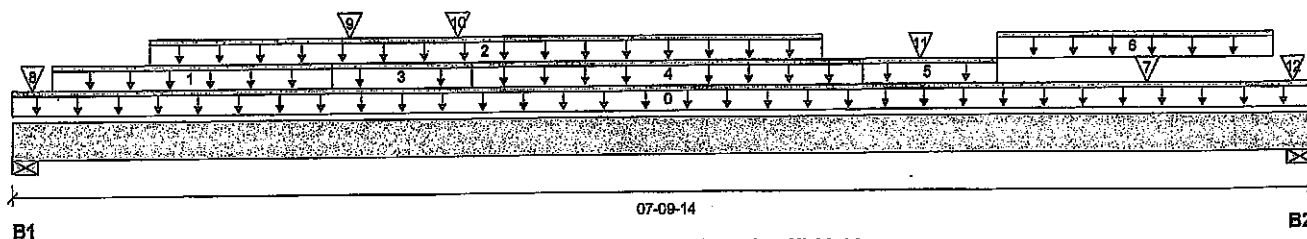
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 07-09-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	983 / 0	927 / 0	416 / 0	
B2, 6"	1202 / 0	1057 / 0	619 / 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	07-09-14	Top		10			00-00-00
1	E70(I3174)	Unf. Lin. (lb/ft)	L	00-02-15	01-10-15	Top		61			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-15	04-09-15	Top	254	127			n/a
3	E69(I3176)	Unf. Lin. (lb/ft)	L	01-10-15	02-08-15	Top		81			n/a
4	E68(I3177)	Unf. Lin. (lb/ft)	L	02-08-15	05-00-15	Top		61			n/a
5	E67(I3180)	Unf. Lin. (lb/ft)	L	05-00-15	05-10-15	Top		81			n/a
6	E66(I3175)	Unf. Lin. (lb/ft)	L	05-10-15	07-06-15	Top		61			n/a
7	J2(I2981)	Conc. Pt. (lbs)	L	06-09-15	06-09-15	Top	338	169			n/a
8	E34(I2053)	Conc. Pt. (lbs)	L	00-01-07	00-01-07	Top	40	74	84		n/a
9	-	Conc. Pt. (lbs)	L	02-00-03	02-00-03	Top	37	51	89		n/a
10	E69(I3176)	Conc. Pt. (lbs)	L	02-07-15	02-07-15	Top	51	68	106		n/a
11	-	Conc. Pt. (lbs)	L	05-05-06	05-05-06	Top	657	499	680		n/a
12	E65(I3182)	Conc. Pt. (lbs)	L	07-08-06	07-08-06	Top	37	51	77		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5995 ft-lbs	23220 ft-lbs	25.8%	1	04-01-15
End Shear	3180 lbs	11571 lbs	27.5%	1	06-06-05
Total Load Deflection	L/999 (0.08")	n/a	n/a	35	03-11-15
Live Load Deflection	L/999 (0.05")	n/a	n/a	51	03-11-15
Max Defl.	0.08"	n/a	n/a	35	03-11-15
Span / Depth	8.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6" x 3-1/2"	3049 lbs	23.5%	11.8%	Spruce-Pine-Fir
B2	Wall/Plate 6" x 3-1/2"	3744 lbs	28.8%	14.5%	Spruce-Pine-Fir



OWG NO. TAW5867-20
STRUCTURAL
COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B17C(i3161) (Flush Beam)****PASSED**

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 18, 2020 08:08:50

File name: VALLEYCREEK 11 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B17C(i3161)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

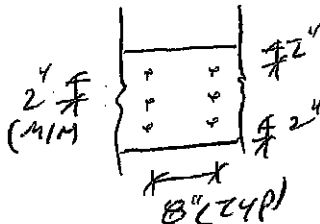
Resistance Factor phi has been applied to all presented results per CSA O86.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012**AMENDED 2020**

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



SWG NO. TAM5867-20
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®,



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B18C(I3165) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:08:50

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B18C(I3165)

City, Province, Postal Code: WATERDOWN

Specifier:

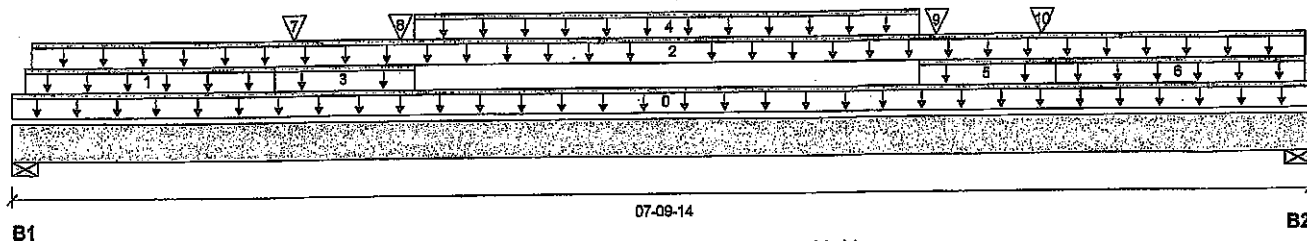
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-09-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	139 / 0	448 / 0	211 / 0	
B2, 6"	142 / 0	451 / 0	217 / 0	

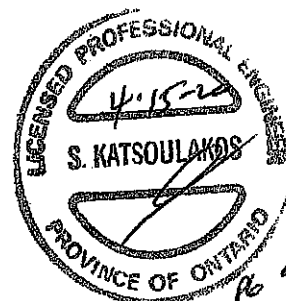
Load Summary

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	07-09-14	Top		10			00-00-00
1	E74(I3186)	Unf. Lin. (lb/ft)	L	00-00-15	01-06-15	Top		61			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-01-07	07-09-07	Top	10	5			n/a
3	E73(I3185)	Unf. Lin. (lb/ft)	L	01-06-15	02-04-15	Top		81			n/a
4	E72(I3184)	Unf. Lin. (lb/ft)	L	02-04-15	05-05-07	Top		61			n/a
5	E71(I3183)	Unf. Lin. (lb/ft)	L	05-05-07	06-03-07	Top		81			n/a
6	E29(I2059)	Unf. Lin. (lb/ft)	L	06-03-07	07-09-07	Top		61			n/a
7	-	Conc. Pt. (lbs)	L	01-08-06	01-08-06	Top	40	47	83		n/a
8	E73(I3185)	Conc. Pt. (lbs)	L	02-03-15	02-03-15	Top	62	84	130		n/a
9	-	Conc. Pt. (lbs)	L	05-06-11	05-06-11	Top	66	83	138		n/a
10	E71(I3183)	Conc. Pt. (lbs)	L	06-02-07	06-02-07	Top	37	50	78		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1622 ft-lbs	23220 ft-lbs	7.0%	13	03-10-01
End Shear	896 lbs	11571 lbs	7.7%	13	06-06-05
Total Load Deflection	L/999 (0.023")	n/a	n/a	35	03-11-03
Live Load Deflection	L/999 (0.011")	n/a	n/a	51	03-11-03
Max Defl.	0.023"	n/a	n/a	35	03-11-03
Span / Depth	8.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6" x 3-1/2"	1016 lbs	7.8%	3.9%	Spruce-Pine-Fir
B2	Wall/Plate 6" x 3-1/2"	1031 lbs	7.9%	4.0%	Spruce-Pine-Fir



DWG NO. TAM5868-20
**STRUCTURAL
COMPONENT ONLY**



Boise Cascade



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

2ND FLR FRAMING\Flush Beams\B18C(I3165) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

February 18, 2020 08:08:50

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

File name: VALLEYCREEK 11 EL 2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B18C(I3165)
Specifier:
Designer: AJ
Company:

Notes

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

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

Calculations assume member is fully braced.

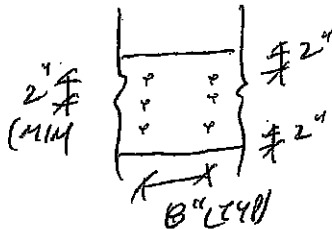
Resistance Factor phi has been applied to all presented results per CSA O86.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012**AMENDED 2020**

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



OWB NO. TAN 5668-20
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®

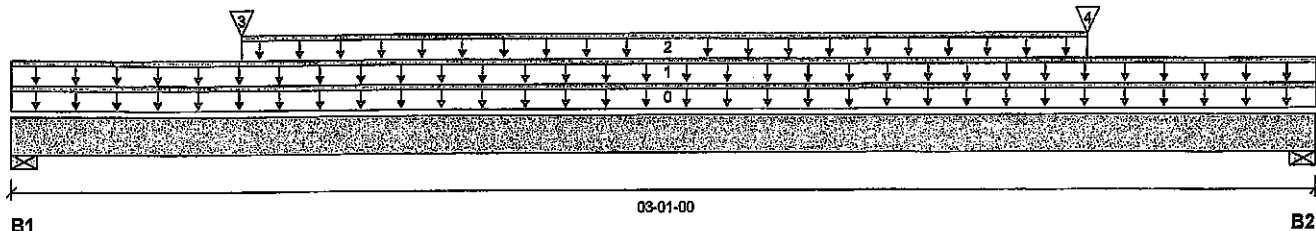
BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

April 14, 2020 15:39:44

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

File name: VALLEYCREEK 11 EL 1 DECK CONDITION.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B2A(I3302)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	90 / 0	317 / 0		
B2, 3"	90 / 0	317 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	E5(i638)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	31	182			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-06-08	02-06-08	Top	27	13			n/a
3	Bk2(I3316)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Top	16	8			n/a
4	Bk2(I3309)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	Top	16	8			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	266 ft-lbs	15093 ft-lbs	1.8%	0	01-06-08
End Shear	157 lbs	7521 lbs	2.1%	0	01-00-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-06-08
Max Defl.	0.001"	n/a	n/a	4	01-06-08
Span / Depth	3.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	444 lbs	10.6%	5.3%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	444 lbs	10.6%	5.3%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

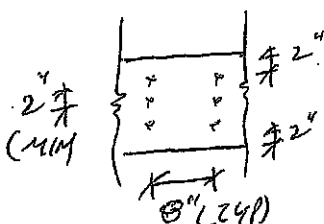
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

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



OWB NO. TAM5869-20

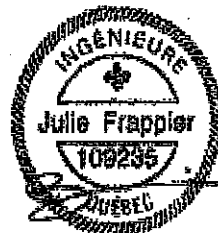
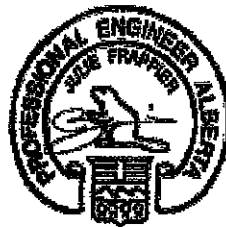
STRUCTURAL

COMPONENT ONLY

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



Maximum Floor Spans

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

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

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



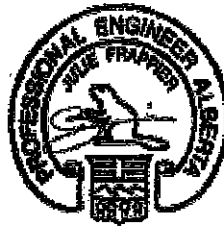
Maximum Floor Spans

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

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



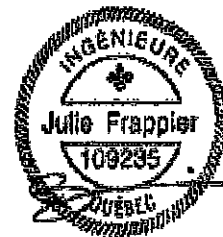
Maximum Floor Spans

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

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

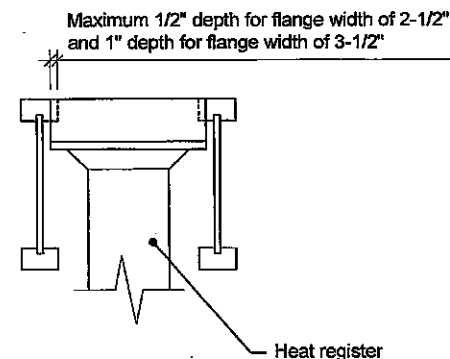
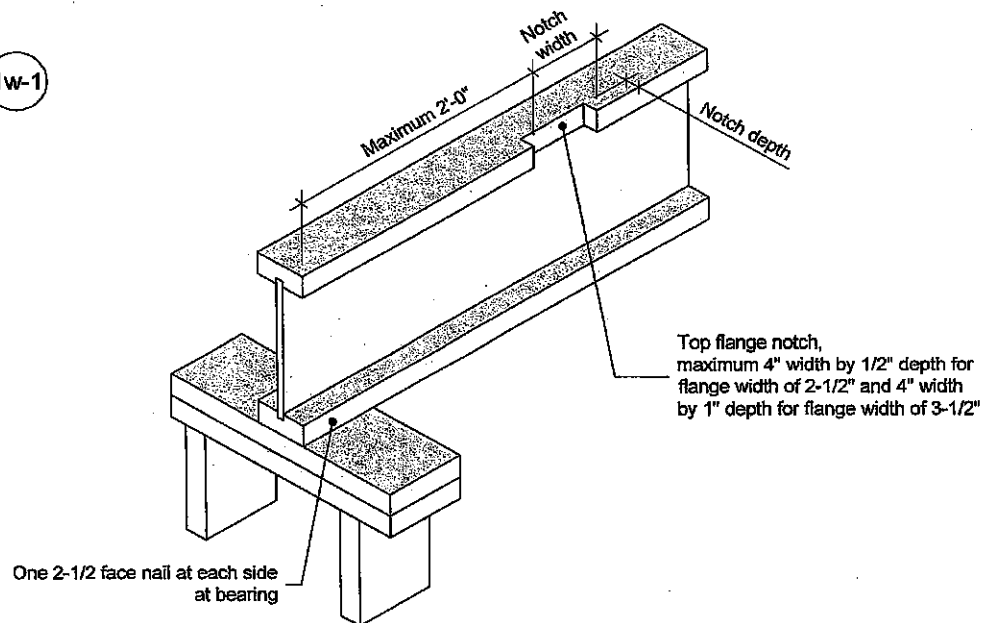
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

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 CMC 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

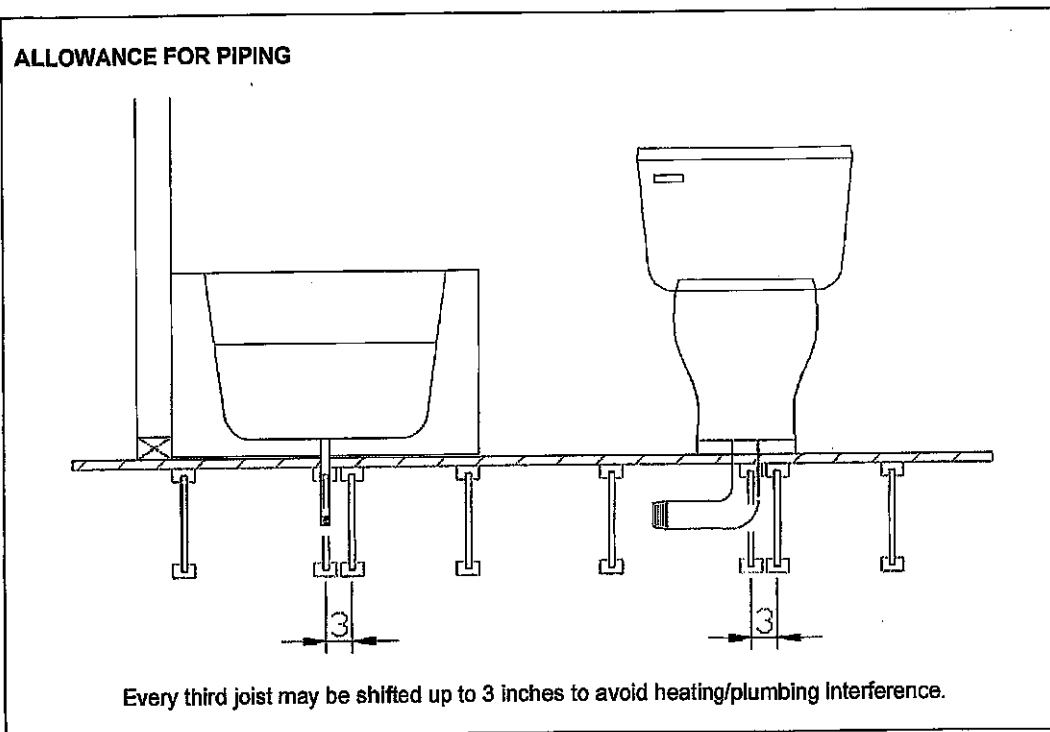
Limit States Design

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