

CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

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

FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 12

ELEVATION: 2

LOT: 256

CITY: WATERDOWN

SALESMAN: MARIO DICIANO
DESIGNER: AJ
REVISION:

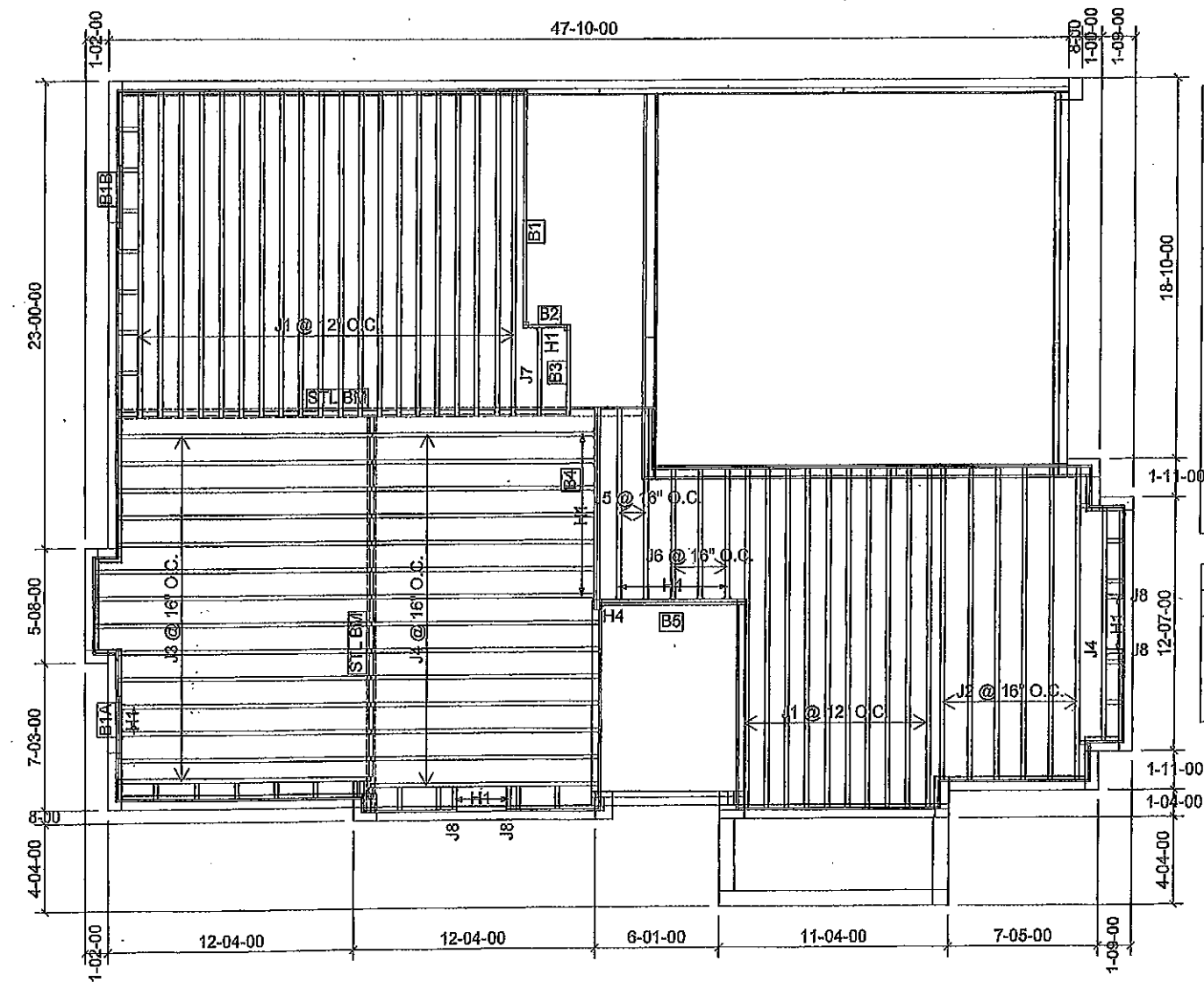
NOTES:
REFER TO THE NORDIC INSTALLATION
GUIDE FOR PROPER STORAGE AND
INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F
REQ'D UNDER INTERIOR UNIFORM LOAD
BEARING WALLS. MULTIPLE SQUASH
BLOCKS REQ'D UNDER CONCENTRATED
LOADS. SEE FIGURE 1. CANTILEVERED
JOISTS INCLUDING CANT' OVER BRICK RE-
I-JOIST BLOCKING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

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

DATE: 2020-04-16

1st FLOOR

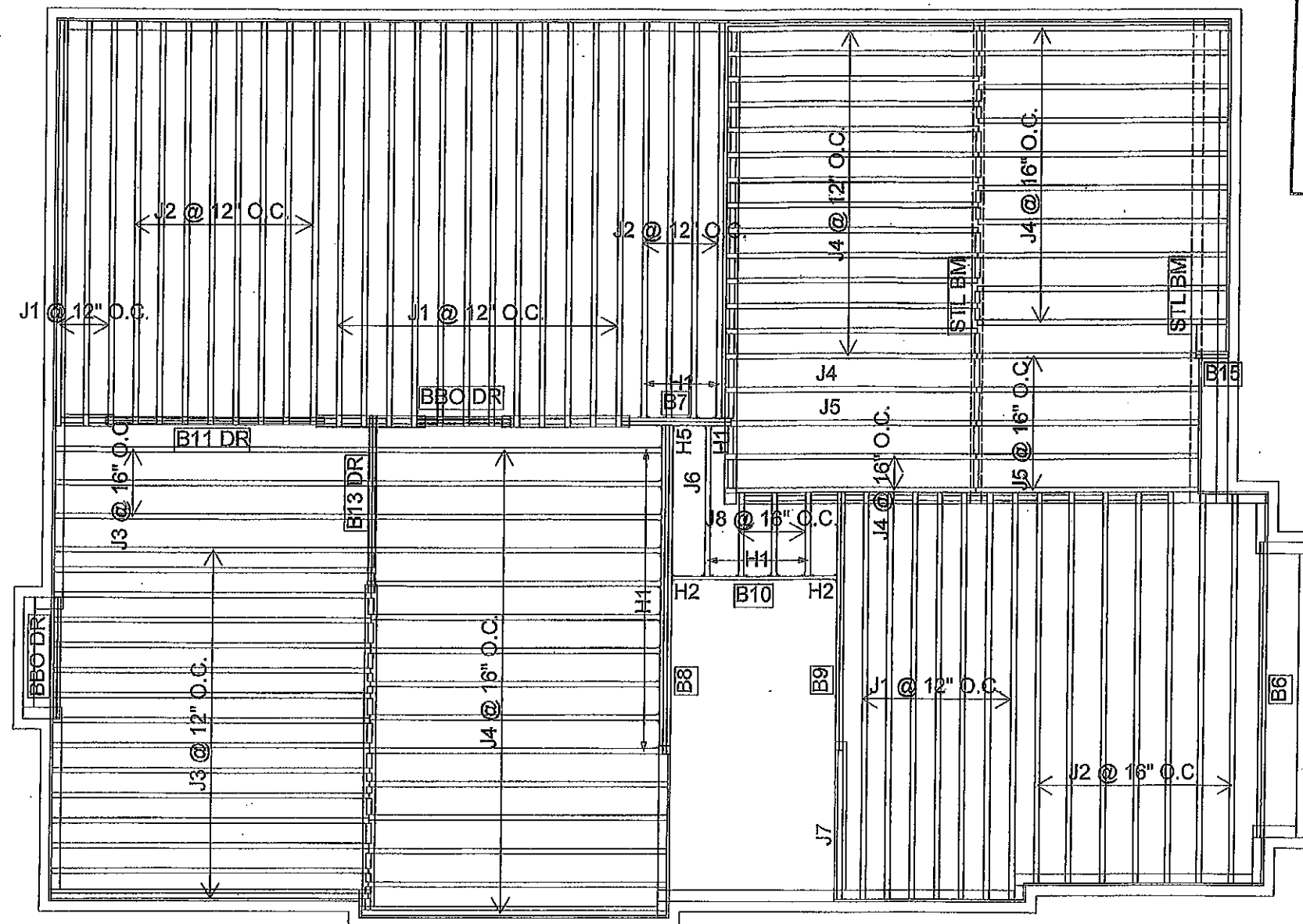
DECK CONDITION



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	9 1/2" NI-40x	1	30	MFD
J2	16-00-00	9 1/2" NI-40x	1	6	MFD
J3	14-00-00	9 1/2" NI-40x	1	14	MFD
J4	12-00-00	9 1/2" NI-40x	1	15	MFD
J5	10-00-00	9 1/2" NI-40x	1	2	MFD
J6	8-00-00	9 1/2" NI-40x	1	3	MFD
J7	6-00-00	9 1/2" NI-40x	1	1	MFD
J8	2-00-00	9 1/2" NI-40x	1	4	MFD
B1	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1	MFD
B4	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B3	6-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1	MFD
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1	MFD
B1A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B1B	4-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/9.5
14	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
1	H4	HGUS410

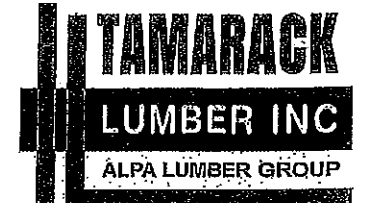
CITY OF HAMILTON
Building Division
Permit No. 21-105990
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW
These drawings and/or specifications have been reviewed by
JDC
FOR CHIEF BUILDING OFFICIAL
FEB 26 2021
DATE



CITY OF HAMILTON
BUILDING DIVISION
Planning & Development Department

FEB 04 2021

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



FROM PLAN DATED: SEP 25, 2020

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 12

ELEVATION: 1'

LOT: 256

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION: L.D.

NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE 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

Products				
PlotID	Length	Product	Piles	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	22
J2	16-00-00	9 1/2" NI-40x	1	19
J3	14-00-00	9 1/2" NI-40x	1	18
J4	12-00-00	9 1/2" NI-40x	1	42
J5	10-00-00	9 1/2" NI-40x	1	6
J6	8-00-00	9 1/2" NI-40x	1	1
J7	6-00-00	9 1/2" NI-40x	1	1
J8	4-00-00	9 1/2" NI-40x	1	3
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B6	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13 DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/9.5
5	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
1	H2	HUS1.81/10
1	H2	HUS1.81/10
1	H5	HGUS5.5/10

CITY OF HAMILTON
Building Division

Permit No. **21-105990**

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 *JDC* **FEB 26 2021**

FOR CHIEF BUILDING OFFICIAL _____ DATE _____

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

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-12-08

2nd FLOOR



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 1/8 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"	NL-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-6"	---	---	---	---	---	---
	NL-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NL-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NL-70	2-0"	3-4"	4-8"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NL-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---
11-7/8"	NL-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-60	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-70	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	8-0"	10-0"	11-2"	---	---	---
	NL-80	1-6"	2-10"	4-2"	5-6"	7-2"	7-5"	8-0"	10-0"	11-2"	---	---	---
14"	NL-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-60	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-70	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-80	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
16"	NL-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-60	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-70	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-80	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---

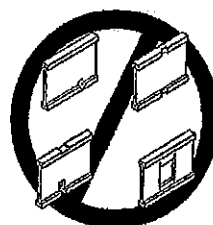
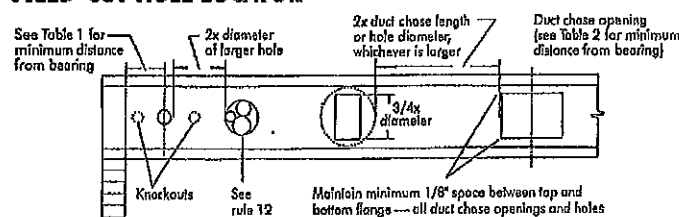
- Above table may be used for I-joist spacing of 24 inches on center or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans. 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"	NL-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	---	---	---
	NL-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	8-0"	8-3"	8-6"	---	---	---
	NL-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-6"	---	---	---
	NL-70	5-1"	5-6"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	8-4"	---	---	---
	NL-80	5-1"	5-6"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	---	---	---
11-7/8"	NL-20	5-9"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"	---	---	---
	NL-40x	6-8"	7-2"	7-6"	8-1"	8-6"	9-1"	9-6"	10-1"	10-9"	---	---	---
	NL-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"	---	---	---
	NL-70	7-4"	7-9"	8-3"	8-8"	9-3"	9-6"	10-1"	10-4"	10-8"	---	---	---
	NL-80	7-2"	7-7"	8-0"	8-5"	8-10"	9-3"	9-9"	10-2"	10-8"	---	---	---
14"	NL-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-7"	10-11"	---	---	---
	NL-40x	7-7"	8-1"	8-5"	9-0"	9-4"	9-8"	10-2"	10-8"	11-2"	---	---	---
	NL-60	8-1"	8-7"	9-0"	9-6"	10-1"	10-7"	11-2"	11-8"	12-3"	---	---	---
	NL-70	8-9"	9-3"	9-8"	10-1"	10-6"	11-1"	11-6"	12-1"	12-6"	---	---	---
	NL-80	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-2"	---	---	---
16"	NL-20	9-0"	9-5"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	---	---	---
	NL-40x	9-2"	9-8"	10-0"	10-6"	11-1"	11-5"	12-0"	12-4"	12-11"	---	---	---
	NL-60	9-4"	9-9"	10-2"	10-7"	11-2"	11-7"	12-2"	12-7"	13-2"	---	---	---
	NL-70	10-3"	10-8"	11-2"	11-7"	12-1"	12-6"	13-0"	13-5"	14-0"	---	---	---
	NL-80	10-1"	10-6"	11-0"	11-4"	11-9"	12-3"	12-8"	13-3"	13-8"	---	---	---

- Above table may be used for I-joist spacing of 24 inches on center 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 I-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 pre-scored 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 center 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 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

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 unfastened I-joists. Once sheathed, do not over-stress 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 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 resistant 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.
- 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

Chambers Engineering warrants that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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

1a NI blocking panel

Attach I-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 same nailing as required for decking)

Blocking Panel or Rim Joist	Maximum Factored 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.

1b Rim board

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

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

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

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

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

1c Pair of Squash Blocks

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

1d Transfer load from above to bearing below

Install squash blocks per detail 1c. Match bearing area of blocks below to post above.

1e Joist attachment per detail 1b

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

Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, 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

NI blocking panel per detail 1a

1f Nordic Laminated 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.

1g 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 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-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-Q325 or CAN/CSA-Q437 Standards.
** 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".

1h 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

1i Multiple I-joist header with full depth filler block shown. Nordic Laminated 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.

1j Do not bevel-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.

1k Lumber 2x4 min., extend block to face of adjacent web. Run 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.

1l 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, alternate on opposite side

One 2-1/2" nail one side only

NOTE: In some local codes, blocking is prescriptively required in the first joist space (for 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.

1m 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 webs during nailing to prevent damage to web/flange connection.
- Leave a 1/8" to 1/4" 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 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.

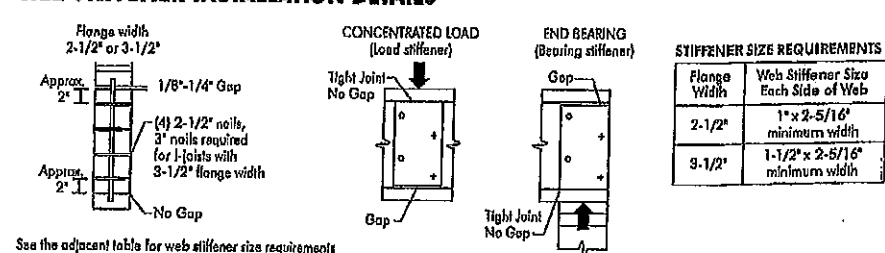
Flange Size	Nail Depth	Filler Block Size
2-1/2" x 11-7/8"	1-7/8"	2-1/8" x 6"
1-1/2" x 16"	16"	2-1/8" x 10"
3-1/2" x 11-7/8"	11-7/8"	3" x 6"
1-1/2" x 16"	16"	3" x 8"
3-1/2" x 11-7/8"	11-7/8"	3" x 10"
1-1/2" x 16"	16"	3" x 12"

WEB STIFFENERS

RECOMMENDATIONS:

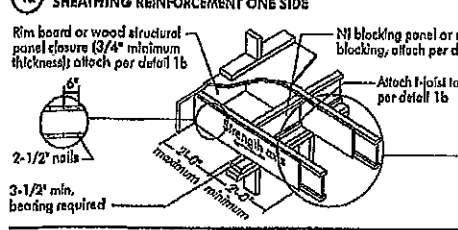
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C10). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is 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 fixed 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

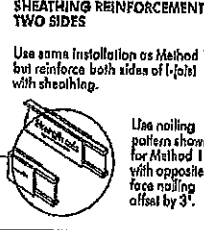


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



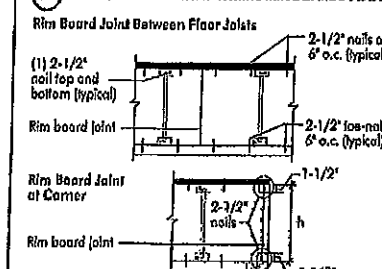
Method 2 — SHEATHING REINFORCEMENT TWO SIDES



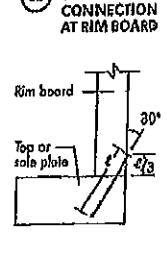
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

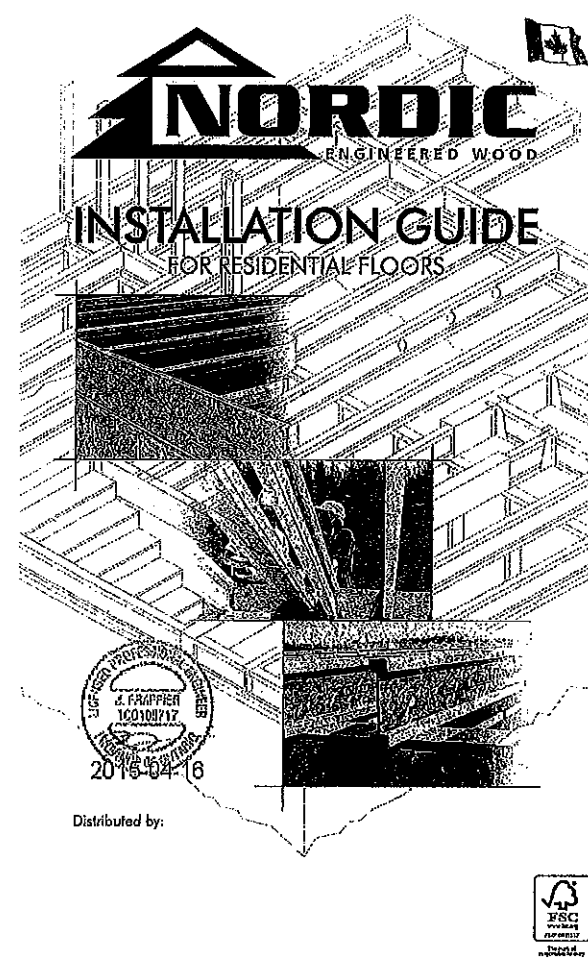
RIM BOARD INSTALLATION DETAILS

ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



TOE-NAIL CONNECTION AT RIM BOARD





SAFETY AND CONSTRUCTION PRECAUTIONS

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

Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flammable.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
8. 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 spans are based on the forward loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.

2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for 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 or other non-combustible materials.

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

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 Unit Stress Design per CAN/CSA C08-09 Standard, and NBC 2010.

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	12"	16"	19.2"	On centre spacing	12"	16"	19.2"
9-1/2"	NF-20	15'-1"	14'-2"	13'-9"	13'-5"	12'-3"	11'-4"	10'-10"	9'-10"
11-7/8"	NF-24	16'-1"	15'-1"	14'-9"	14'-5"	13'-5"	12'-4"	11'-10"	10'-10"
13-1/2"	NF-28	17'-1"	16'-1"	15'-9"	15'-5"	14'-5"	13'-4"	12'-10"	11'-10"
15-1/2"	NF-32	18'-1"	17'-1"	16'-9"	16'-5"	15'-5"	14'-4"	13'-10"	12'-10"
17-1/2"	NF-36	19'-1"	18'-1"	17'-9"	17'-5"	16'-5"	15'-4"	14'-10"	13'-10"
19-1/2"	NF-40	20'-1"	19'-1"	18'-9"	18'-5"	17'-5"	16'-4"	15'-10"	14'-10"
21-1/2"	NF-44	21'-1"	20'-1"	19'-9"	19'-5"	18'-5"	17'-4"	16'-10"	15'-10"
23-1/2"	NF-48	22'-1"	21'-1"	20'-9"	20'-5"	19'-5"	18'-4"	17'-10"	16'-10"
25-1/2"	NF-52	23'-1"	22'-1"	21'-9"	21'-5"	20'-5"	19'-4"	18'-10"	17'-10"
27-1/2"	NF-56	24'-1"	23'-1"	22'-9"	22'-5"	21'-5"	20'-4"	19'-10"	18'-10"

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 recommended nailing.
3. Hangers should be selected based on the joist depth, flange width, and load capacity based on the maximum spans.
4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.

WEB STIFFENERS

RECOMMENDATIONS:

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

■ A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and the flange is at the top.

■ A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

STIFFENER SIZE REQUIREMENTS

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

NORDIC I-JOIST SERIES

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

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

INSTALLING NORDIC I-JOISTS

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

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

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

Figures 3, 4 or 5

Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

NOTE: Never cut or notch flanges.

Nordic Laminated Composite Lumber (SCL)

Nordic Laminated Composite Lumber (SCL)

Use hangers recognized in current code evaluation reports.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (76.2 mm) common spiral nails may be substituted for 2-1/2" (63.5 mm) common wire nails. Framing Lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

1a Attach I-joist to top plate per detail 1b.

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

1c Attach rim board to top plate using 2-1/2" wire or spiral nail at top and bottom. Nail may be driven at an angle to avoid splitting of bearing plate.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2a Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2b Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2c Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2d Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2e Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2f Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2g Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2h Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2i Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2j Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2k Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2l Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2m Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2n Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2o Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2p Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2q Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2r Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2s Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2t Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2u Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2v Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2w Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2x Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2y Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

2z Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3a Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3b Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3c Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3d Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3e Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3f Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3g Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3h Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3i Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3j Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3k Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3l Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3m Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3n Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3o Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3p Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3q Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3r Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3s Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3t Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3u Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3v Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3w Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3x Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3y Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

3z Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4a Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4b Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4c Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4d Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4e Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4f Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4g Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4h Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4i Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4j Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4k Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4l Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4m Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4n Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4o Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4p Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4q Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4r Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4s Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4t Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4u Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4v Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4w Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4x Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4y Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

4z Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5a Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5b Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5c Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5d Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5e Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5f Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5g Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5h Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5i Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5j Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5k Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5l Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5m Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5n Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5o Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5p Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5q Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5r Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5s Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5t Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5u Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5v Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5w Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5x Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5y Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

5z Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6a Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6b Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6c Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6d Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6e Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6f Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6g Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6h Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6i Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6j Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6k Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6l Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6m Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6n Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6o Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6p Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6q Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6r Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6s Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6t Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6u Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6v Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6w Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6x Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6y Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

6z Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

7a Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

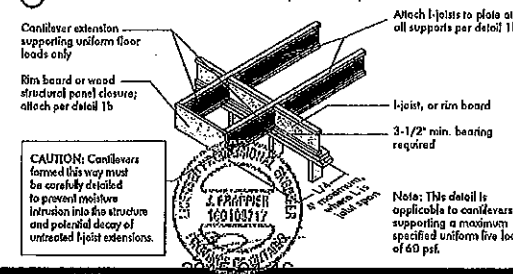
7b Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

7c Attach I-joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

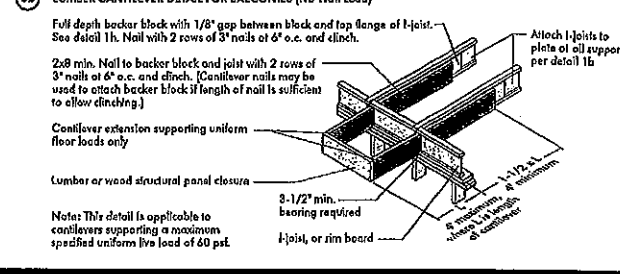
7d Attach I-joist to floor joist with one nail at top and bottom. Nail must

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

2a) I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

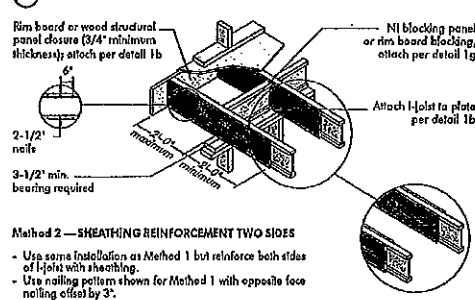


2b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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".

4b) Alternate Method 2 — DOUBLE I-JOIST

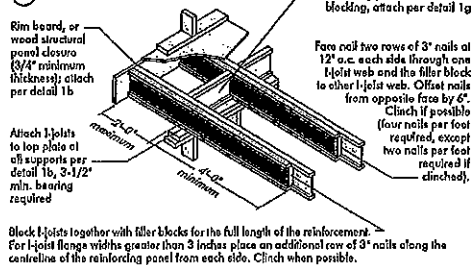


FIGURE 4 (continued)



CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)														
		$W = 30 \text{ psf}, D_L = 15 \text{ psf}$						$W = 40 \text{ psf}, D_L = 15 \text{ psf}$								
		JOIST SPACING (in.)						JOIST SPACING (in.)								
		12	16	19.2	24		12	16	19.2	24		12	16	19.2	24	
9-1/2"	26	N	N	N	1	2	N	1	2	X	X	N	2	X	X	X
	28	N	N	N	1	1	N	1	2	X	X	N	2	X	X	X
	30	N	N	N	1	1	N	N	2	2	X	X	N	1	X	X
	32	N	N	N	1	2	N	N	2	X	X	N	1	X	X	X
	34	N	N	N	1	2	X	N	2	X	X	N	1	X	X	X
11-7/8"	26	N	N	N	1	2	N	1	2	X	X	N	X	X	X	X
	28	N	N	N	N	1	N	N	1	2	N	N	N	1	2	X
	30	N	N	N	N	N	1	N	N	1	2	N	N	1	2	X
	32	N	N	N	N	1	N	N	N	1	1	X	N	1	2	X
	34	N	N	N	N	1	2	N	1	2	X	N	N	1	2	X
14"	26	N	N	N	N	1	2	N	1	2	X	N	2	X	X	X
	28	N	N	N	N	N	N	N	N	1	1	N	N	1	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	1	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	2	2
	34	N	N	N	N	N	1	N	N	1	2	N	N	1	1	X
16-1/2"	26	N	N	N	N	1	N	N	N	1	2	N	1	1	2	X
	28	N	N	N	N	N	N	N	N	1	1	N	N	N	N	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
18-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
20-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
22-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
24-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
26-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
28-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
30-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
32-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
34-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
36-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
38-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
40-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
42-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
44-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
46-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
48-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
50-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
52-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
54-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
56-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
58-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
60-1/2"	26	N	N	N	N	N	N	N	N	1	N	N	N	1	2	X
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	1	2
	32	N	N	N	N	N	N	N	N	1	1	N	N	1	1	2
	34	N	N	N	N	N	1	N	N	N	1	N	N	1	1	2
62-1/2"	26	N	N	N	N	N	N	N	N							

NORDIC STRUCTURES

COMPANY
Apr. 9, 2020 12:19

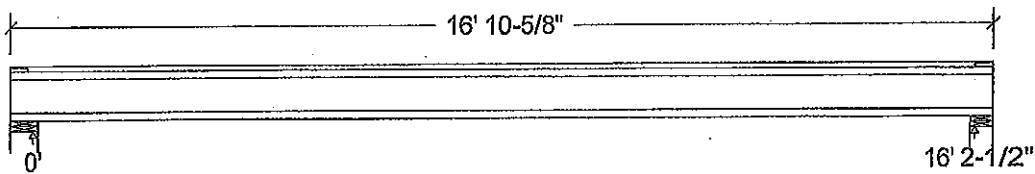
PROJECT
J8 2ND FLOOR EL 2.wwwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored:			
Dead	162		162
Live	324		324
Factored:			
Total	689		689
Bearing:			
Capacity			
Joist	1893		1893
Support	13614		10841
Des ratio			
Joist	0.36		0.36
Support	0.05		0.06
Load case	#2		#2
Length	5-1/2		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

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

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

Total length: 16' 10-5/8"; Clear span: 16' 3/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

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



PO 12
JWB NO. YAW6019-20
STRUCTURAL
COM. ONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 689	Vr = 1895	lbs	Vf/Vr = 0.36
Moment(+)	Mf = 2791	Mr = 8958	lbs-ft	Mf/Mr = 0.31
Perm. Defl'n	0.10 = < L/999	0.54 = L/360	in	0.18
Live Defl'n	0.19 = < L/999	0.41 = L/480	in	0.48
Total Defl'n	0.29 = L/666	0.81 = L/240	in	0.36
Bare Defl'n	0.22 = L/895	0.54 = L/360	in	0.40
Vibration	Lmax = 16'-2.5	Lv = 17'-9.5	ft	0.91
Defl'n	= 0.030	= 0.040	in	0.75

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

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

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

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

Load Patterns: s=S/2 L=L+Ls _no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

EI_{eff} = 367.27 lb-in² K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

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



HWG NO. YAM 6019 #20
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Apr. 9, 2020 12:19

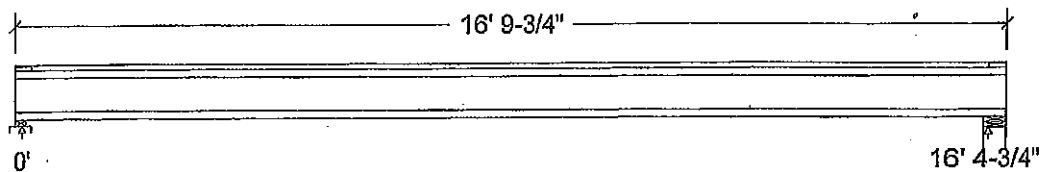
PROJECT
J1 1ST FLOOR EL 2.wwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored:			
Dead	164		164
Live	328		328
Factored:			
Total	697		697
Bearing:			
Capacity			
Joist	1865		1893
Support	3981		7744
Des ratio			
Joist	0.37		0.37
Support	0.18		0.09
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		769
Kzcp sup	1.09		-

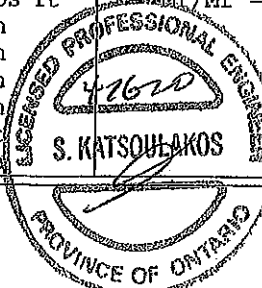
Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

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

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Lumber Wall, No.1/No.2;
Total length: 16' 9-3/4"; Clear span: 16' 3"; 3/4" nailed and glued OSB sheathing
This section **PASSES** the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 697	Vr = 1895	lbs	Vf/Vr = 0.37
Moment(+)	Mf = 2856	Mr = 4824	lbs-ft	Mf/Mr = 0.59
Perm. Defl'n	0.14 = < L/999	0.55 = L/360	in	0.25
Live Defl'n	0.27 = L/725	0.41 = L/480	in	0.66
Total Defl'n	0.41 = L/483	0.82 = L/240	in	0.50
Bare Defl'n	0.32 = L/606	0.55 = L/360	in	0.59
Vibration	Lmax = 16'-4.8	Lv = 17'-1.8	ft	0.96
Defl'n	= 0.034	= 0.039	in	0.87



NO. 1, YAM 6020-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

CALCULATIONS:E_{eff} = 265.29 lb-in² K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

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



SWG NO. TAN 6020-20
STRUCTURAL
COMPONENT ONLY



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

2ND FLR FRAMING\Flush Beams\B10(I2343) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

December 8, 2020 07:24:32

Build 7493

Job name:

File name: MOUNTAINASH 12 EL 1

Address:

Description: 2ND FLR FRAMING\Flush Beams\B10(I2343)

City, Province, Postal Code: WATERDOWN

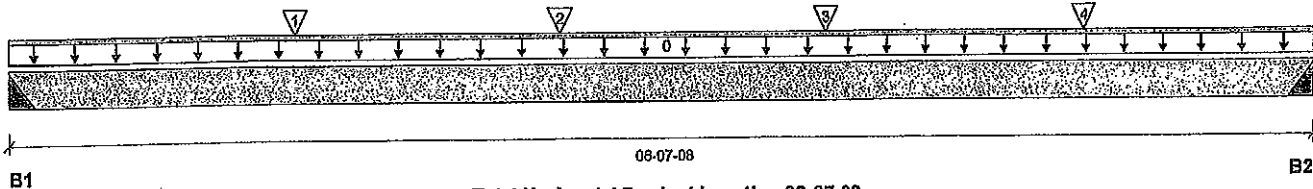
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 06-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	740 / 0	387 / 0		
B2, 3"	411 / 0	221 / 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	06-07-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	J8(I2462)	Conc. Pt. (lbs)	L	01-05-04	01-05-04	Top	620	310			n/a
2	J8(I2475)	Conc. Pt. (lbs)	L	02-09-04	02-09-04	Top	307	154			n/a
3	J8(I2460)	Conc. Pt. (lbs)	L	04-01-04	04-01-04	Top	133	67			n/a
4	J8(I2467)	Conc. Pt. (lbs)	L	05-05-04	05-05-04	Top	91	45			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2337 ft-lbs	11610 ft-lbs	20.1%	1	02-09-04
End Shear	1687 lbs	5785 lbs	27.4%	1	01-00-08
Total Load Deflection	L/999 (0.044")	n/a	n/a	4	03-01-04
Live Load Deflection	L/999 (0.029")	n/a	n/a	5	03-01-04
Max Defl.	0.044"	n/a	n/a	4	03-01-04
Span / Depth	7.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	1594 lbs	n/a	24.9%	HUS1.81/10
B2	Hanger 3" x 1-3/4"	893 lbs	n/a	13.9%	HUS1.81/10

Cautions

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

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. FAM17263-20

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

**Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B8(i2403) (Flush Beam)**

Dry | 1 span | No cant.

December 8, 2020 07:24:32

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

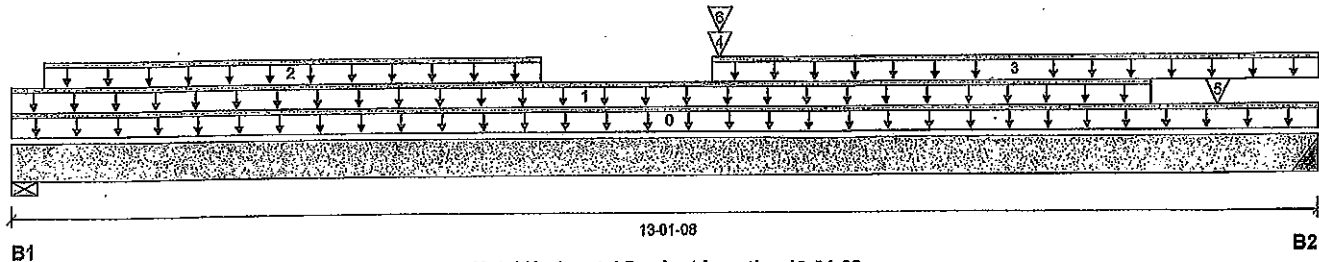
File name: MOUNTAINASH 12 EL 1

Description: 2ND FLR FRAMING\Flush Beams\B8(i2403)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 13-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2192 / 0	1436 / 0		
B2, 2"	2059 / 0	1192 / 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	13-01-08	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	11-05-08	Top	251	126			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-00	05-03-06	Top		60			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-11-10	13-01-08	Top	33	17			n/a
4	B10(i2343)	Conc. Pt. (lbs)	L	07-00-08	07-00-08	Top	731	382			n/a
5	J4(i2630)	Conc. Pt. (lbs)	L	12-01-08	12-01-08	Top	292	146			n/a
6	STAIR	Conc. Pt. (lbs)	L	07-00-08	07-00-08	Top	150	75			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17758 ft-lbs	36222 ft-lbs	49.0%	1	07-00-08
End Shear	4494 lbs	17356 lbs	25.9%	1	12-02-00
Total Load Deflection	L/332 (0.461")	n/a	72.3%	4	06-09-08
Live Load Deflection	L/531 (0.288")	n/a	67.8%	5	06-09-08
Max Defl.	0.461"	n/a	n/a	4	06-09-08
Span / Depth	16.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	5083 lbs	39.3%	19.8%	Spruce-Pine-Fir
B2	Hanger 2" x 5-1/4"	4579 lbs	n/a	35.7%	HGUS5.5/10

Cautions

Header for the hanger HGUS5.5/10 is a Double 1-3/4" x 9-1/2" LVL Beam.

Hanger model HGUS5.5/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM17284-28
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B8(I2403) (Flush Beam)

Dry | 1 span | No cant.

December 8, 2020 07:24:32

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 12 EL 1

Description: 2ND FLR FRAMING\Flush Beams\B8(I2403)

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.

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.

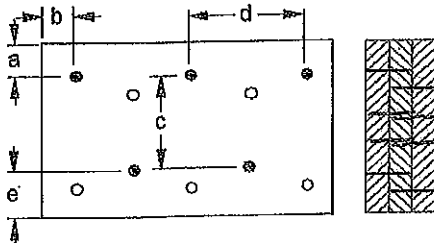
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



4 ROWS

a minimum = 2"

b minimum = 3"

c = 6-1/2"

d = 8"

e minimum = 2"

Calculated Side Load = 787.0 lb/ft

Nailing applies to both sides of the member

Connectors are: 1 n Nails

3-1/2" ARDOX SPIRAL



BOISE CASCADE 17284-20
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****PASSED****2ND FLR FRAMING\Flush Beams\B9(I2349) (Flush Beam)**

Dry | 1 span | No cant.

December 8, 2020 07:24:32

BC CALC® Member Report

Build 7493

Job name:

File name: MOUNTAINASH 12 EL 1

Address:

Description: 2ND FLR FRAMING\Flush Beams\B9(I2349)

City, Province, Postal Code: WATERDOWN

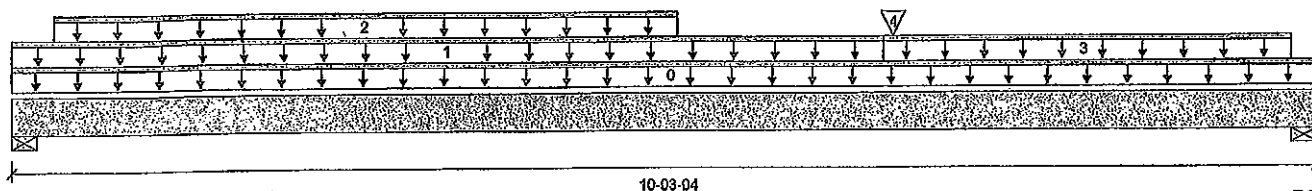
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 10-03-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	266 / 0	403 / 0		
B2, 5-1/4"	474 / 0	373 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-03-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-09-10	Top	24	12			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-00	05-02-02	Top		60			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-09-10	10-00-11	Top	48	24			n/a
4	B10(I2343)	Conc. Pt. (lbs)	L	06-10-08	06-10-08	Top	420	226			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2972 ft-lbs	23220 ft-lbs	12.8%	1	06-10-08
End Shear	1059 lbs	11571 lbs	9.1%	1	09-00-08
Total Load Deflection	L/999 (0.067")	n/a	n/a	4	05-03-05
Live Load Deflection	L/999 (0.034")	n/a	n/a	5	05-04-09
Max Defl.	0.067"	n/a	n/a	4	05-03-05
Span / Depth	12.2				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	903 lbs	10.5%	5.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/4" x 3-1/2"	1177 lbs	10.4%	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.

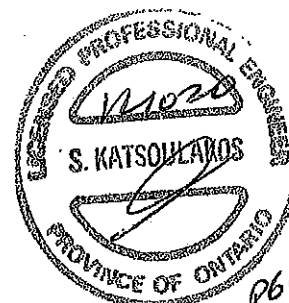
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



ENG NO. TAW 17285-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B9(12349) (Flush Beam)

Dry | 1 span | No cant.

December 8, 2020 07:24:32

BC CALC® Member Report

Build 7493

Job name:

File name: MOUNTAINASH 12 EL 1

Address:

Description: 2ND FLR FRAMING\Flush Beams\B9(12349)

City, Province, Postal Code: WATERDOWN

Specifier:

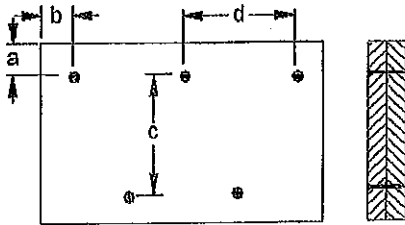
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5-1/2"

b minimum = 3"

d = 6"

Calculated Side Load = 456.3 lb/ft

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



OWG NO. 17285-20
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

PASSED

2ND FLR FRAMING\Dropped Beams\B11 DR(I1811) (Dropped Beam)

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B11 DR(I1811)

City, Province, Postal Code:

Specifier:

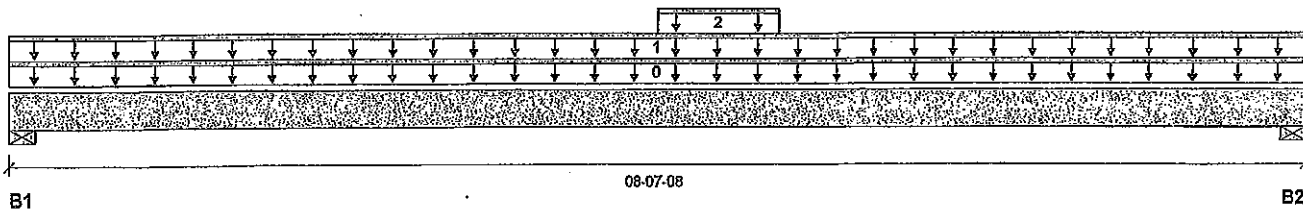
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1480 / 0	784 / 0		
B2, 4"	1435 / 0	761 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-07-08	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	08-07-08	Top	325	163			n/a
2	Bk2(i2199)	Unf. Lin. (lb/ft)	L	04-03-12	05-01-04	Top	116	58			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5918 ft-lbs	23220 ft-lbs	25.5%	1	04-02-08
End Shear	2524 lbs	11571 lbs	21.8%	1	01-01-08
Total Load Deflection	L/999 (0.097")	n/a	n/a	4	04-03-12
Live Load Deflection	L/999 (0.063")	n/a	n/a	5	04-03-12
Max Defl.	0.097"	n/a	n/a	4	04-03-12
Span / Depth	10.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	3199 lbs	17.1%	18.7%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	3105 lbs	16.6%	18.2%	Spruce-Pine-Fir

Notes

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

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

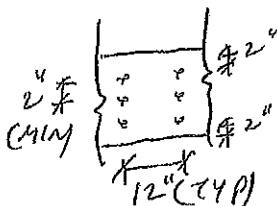
Calculations assume unbraced length of Top: 00-01-06, Bottom: 00-01-06.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



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



ENG NO. TAM 6021-20
**STRUCTURAL
COMPONENT ONLY**

Disclosure

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

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



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

PASSED

2ND FLR FRAMING\Dropped Beams\B13 DR(1851) (Dropped Beam)

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B13 DR(1851)

City, Province, Postal Code:

Specifier:

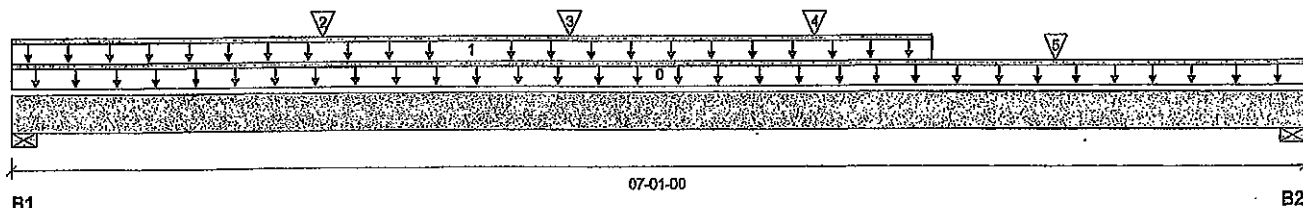
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1640 / 0	854 / 0		
B2, 5-1/2"	1416 / 0	744 / 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	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	05-00-08	Top	286	143			n/a
2	J3(11767)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	264	132			n/a
3	J3(12004)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	Top	330	165			n/a
4	J3(11911)	Conc. Pt. (lbs)	L	04-04-08	04-04-08	Top	330	165			n/a
5	-	Conc. Pt. (lbs)	L	05-08-08	05-08-08	Top	660	330			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5300 ft-lbs	23220 ft-lbs	22.8%	1	03-00-08
End Shear	2984 lbs	11571 lbs	25.8%	1	05-10-00
Total Load Deflection	L/999 (0.055")	n/a	n/a	4	03-05-08
Live Load Deflection	L/999 (0.036")	n/a	n/a	5	03-05-08
Max Defl.	0.055"	n/a	n/a	4	03-05-08
Span / Depth	8.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	3527 lbs	18.9%	20.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	3054 lbs	11.9%	13.0%	Spruce-Pine-Fir

Notes

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

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

Calculations assume unbraced length of Top: 00-02-09, Bottom: 00-02-09.

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

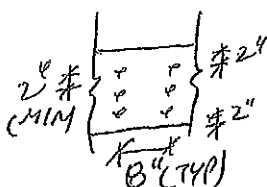
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

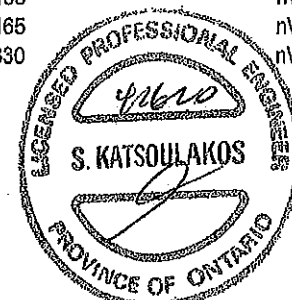
Importance Factor : Normal Part code : Part 9

CONFORMS TO ORC 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



OWN NO. YAM 602-20

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™, BCIO®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B10(i1870) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 6, 2020 15:14:52

Buld 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

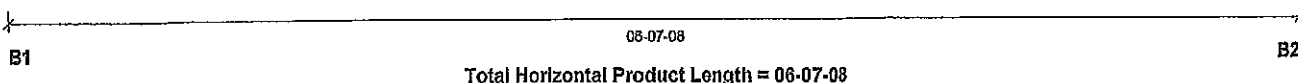
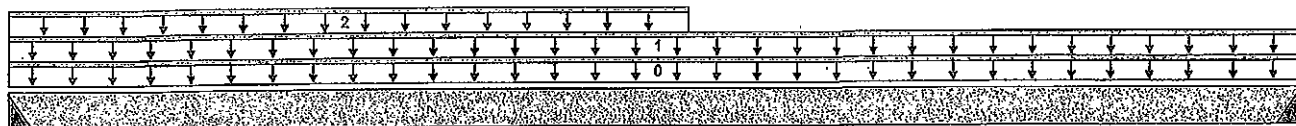
File name: MOUNTAINASH 12 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B10(i1870)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	690 / 0	361 / 0		
B2, 2"	301 / 0	167 / 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	06-07-08	Top	1.00	0.65	1.00	1.16	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-07-08	Top	31	15			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-05-08	Top	228	114			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1837 ft-lbs	11610 ft-lbs	15.8%	1	02-08-02
End Shear	954 lbs	5785 lbs	16.5%	1	00-11-08
Total Load Deflection	L/999 (0.036")	n/a	n/a	4	03-01-12
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	03-01-12
Max Defl.	0.036"	n/a	n/a	4	03-01-12
Span / Depth	8.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1487 lbs	n/a	34.8%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	660 lbs	n/a	15.5%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B1 is a Triple 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 HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

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



HWB NO. TAN 6013-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B15(12244) (Flush Beam)****PASSED**

BC CALCO® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

February 6, 2020 15:14:52

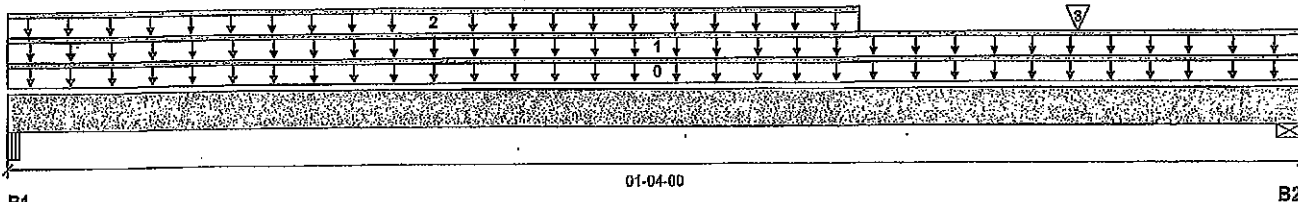
File name: MOUNTAINASH 12 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B15(12244)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 01-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	48 / 0	93 / 0	92 / 0	
B2, 5-1/2"	69 / 0	121 / 0	133 / 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	01-04-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-04-00	Top	22	20	42		n/a
2	E24(i1205)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-08	Top	66	141	126		n/a
3	E23(i1207)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	30	51	58		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	42 ft-lbs	23220 ft-lbs	0.2%	13	00-06-09
End Shear	182 lbs	11571 lbs	1.6%	13	00-10-08
Span / Depth	1.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	2-5/8" x 3-1/2"	301 lbs	6.1%	2.7%	Unspecified
B2 Wall/Plate	5-1/2" x 3-1/2"	419 lbs	3.5%	1.8%	Spruce-Pine-Fir

Notes

Calculations assume member is fully braced.

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

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

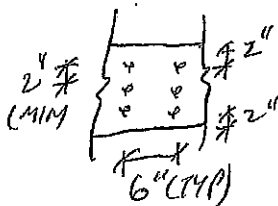
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

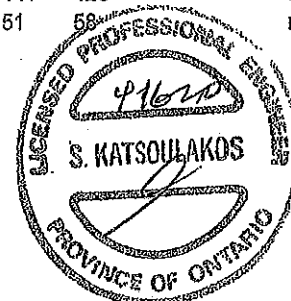
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. YAN 604-20
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 CALCO®, 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\B6(11778) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 6, 2020 15:14:52

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B6(11778)

City, Province, Postal Code:

Specifier:

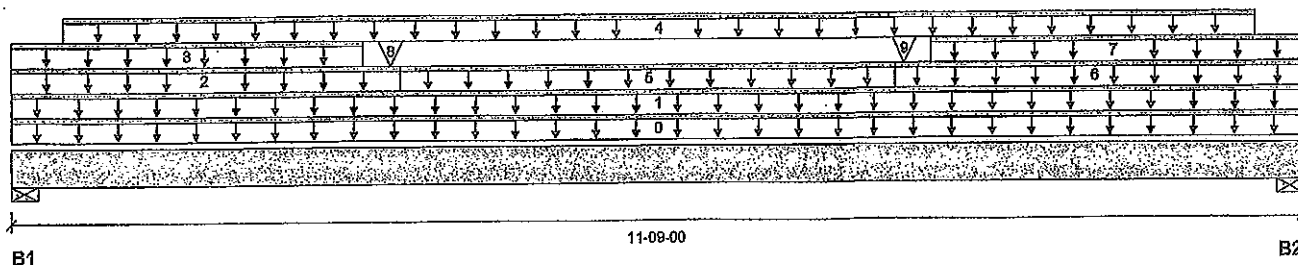
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	470 / 0	889 / 0	598 / 0	
B2, 5-1/2"	470 / 0	889 / 0	597 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-09-00	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-09-00	Top	27	13			n/a
2	E36(1218)	Unf. Lin. (lb/ft)	L	00-00-00	03-06-08	Top		81			n/a
3	E36(1218)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-08	Top	33	30	63		n/a
4	LOW ROOF	Unf. Lin. (lb/ft)	L	00-05-08	11-03-08	Top	22	20	42		n/a
5	E35(1217)	Unf. Lin. (lb/ft)	L	03-06-08	08-00-08	Top		61			n/a
6	E27(1216)	Unf. Lin. (lb/ft)	L	08-00-08	11-09-00	Top		81			n/a
7	E27(1216)	Unf. Lin. (lb/ft)	L	08-04-08	11-09-00	Top	33	30	63		n/a
8	E36(1218)	Conc. Pt. (lbs)	L	03-05-08	03-05-08	Top	86	117	164		n/a
9	E27(1216)	Conc. Pt. (lbs)	L	08-01-08	08-01-08	Top	85	116	162		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5944 ft-lbs	23220 ft-lbs	25.6%	13	05-11-03
End Shear	1990 lbs	11571 lbs	17.2%	13	01-03-00
Total Load Deflection	L/625 (0.21")	n/a	38.4%	35	05-11-03
Live Load Deflection	L/999 (0.115")	n/a	n/a	51	05-11-03
Max Defl.	0.21"	n/a	n/a	35	05-11-03
Span / Depth	13.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2478 lbs	20.9%	10.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	2477 lbs	20.9%	10.5%	Spruce-Pine-Fir



SVG NO. YAM 6025-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B6(11778) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 6, 2020 15:14:52

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.rmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B6(11778)

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.

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.

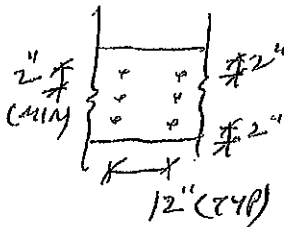
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

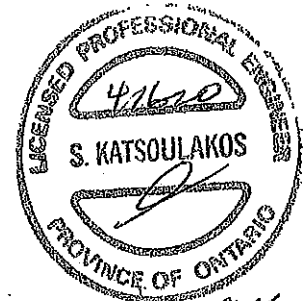
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/8" ARDOR
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING, MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS

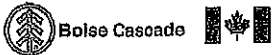


DWG NO. FAW 6025-20
STRUCTURAL
COMPONENT ONLY

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****PASSED****2ND FLR FRAMING\Flush Beams\B7(1814) (Flush Beam)**

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B7(1814)

City, Province, Postal Code:

Specifier:

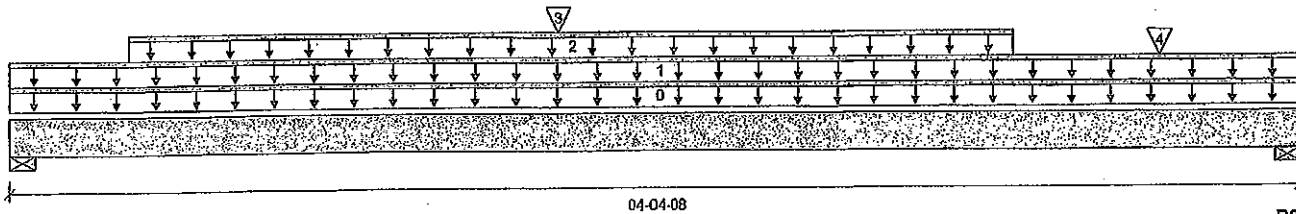
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-04-08

Reaction Summary (Down / Uplift) (lbs)

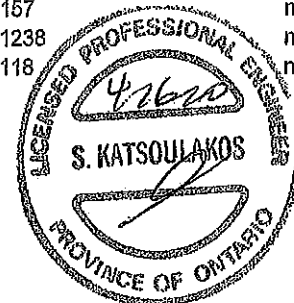
Bearing	Live	Dead	Snow	Wind
B1, 3-3/4"	1909 / 0	1071 / 0		
B2, 2-3/4"	1528 / 0	848 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-08	Top	23	11			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-12	03-04-12	Top	314	157			n/a
3	B8(1822)	Conc. Pt. (lbs)	L	01-10-02	01-10-02	Top	2159	1238			n/a
4	J2(12204)	Conc. Pt. (lbs)	L	03-10-12	03-10-12	Top	236	118			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5966 ft-lbs	23220 ft-lbs	25.7%	1	01-10-02
End Shear	3960 lbs	11571 lbs	34.2%	1	01-01-04
Total Load Deflection	L/999 (0.02")	n/a	n/a	4	02-01-12
Live Load Deflection	L/999 (0.013")	n/a	n/a	5	02-01-12
Max Defl.	0.02"	n/a	n/a	4	02-01-12
Span / Depth	5.0				



DWG NO. YAW 6046-20

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.

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-3/4" x 3-1/2"	4203 lbs	52.0%	26.2%	Spruce-Pine-Fir
B2	Wall/Plate 2-3/4" x 3-1/2"	3352 lbs	56.6%	28.5%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

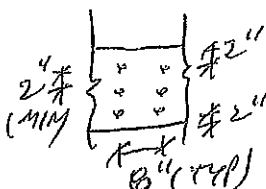
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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

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

BC CALC® Member Report

Dry | 1 span | No cant.

February 6, 2020 15:14:52

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(1822)

City, Province, Postal Code:

Specifier:

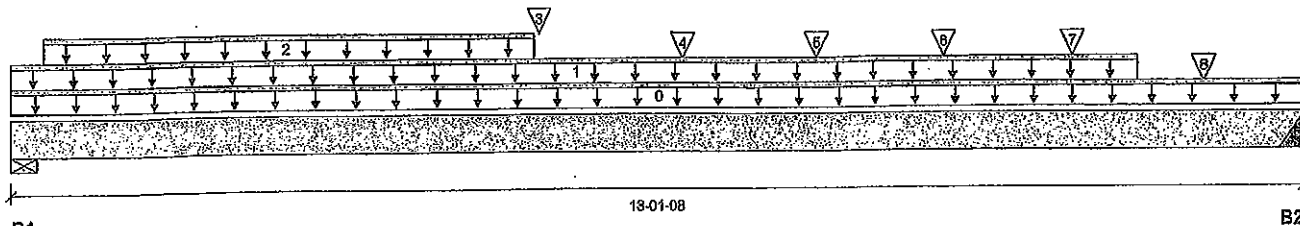
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2393 / 0	1539 / 0		
B2, 2"	2188 / 0	1254 / 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	13-01-08	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	11-05-08	Top	249	124			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-00	05-03-06	Top		60			n/a
3	B10(1870)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	685	358			n/a
4	J6(12106)	Conc. Pt. (lbs)	L	06-09-08	06-09-08	Top	225	112			n/a
5	J6(11903)	Conc. Pt. (lbs)	L	08-01-08	08-01-08	Top	188	94			n/a
6	J6(11985)	Conc. Pt. (lbs)	L	09-05-08	09-05-08	Top	181	90			n/a
7	J8(11860)	Conc. Pt. (lbs)	L	10-09-08	10-09-08	Top	70	35			n/a
8		Conc. Pt. (lbs)	L	12-01-08	12-01-08	Top	360	180			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	18287 ft-lbs	36222 ft-lbs	50.5%	1	06-09-08
End Shear	4832 lbs	17356 lbs	27.8%	1	12-02-00
Total Load Deflection	L/309 (0.495")	n/a	77.6%	4	06-05-08
Live Load Deflection	L/493 (0.311")	n/a	73.1%	5	06-09-08
Max Defl.	0.495"	n/a	n/a	4	06-05-08
Span / Depth	16.1				

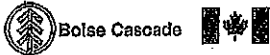
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Wall/Plate	4" x 5-1/4"	5513 lbs	42.7%	21.5%	Spruce-Pine-Fir
B2 Hanger	2" x 5-1/4"	4849 lbs	n/a	37.9%	HGUS5.5/10

Cautions

Header for the hanger HGUS5.5/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS5.5/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DRG NO. TAM 6022-20
STRUCTURAL COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B8(1822) (Flush Beam)

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(1822)

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.

CONFORMS TO OBC 2012

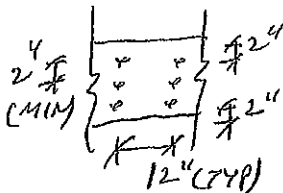
Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



PROVIDE 3 ROWS OF 3 1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS STAGGER NAILS 6" BETWEEN PILES.

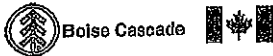


DWG NO. YAM 6027-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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



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

PASSED

2ND FLR FRAMING\Flush Beams\B9(i2057) (Flush Beam)

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

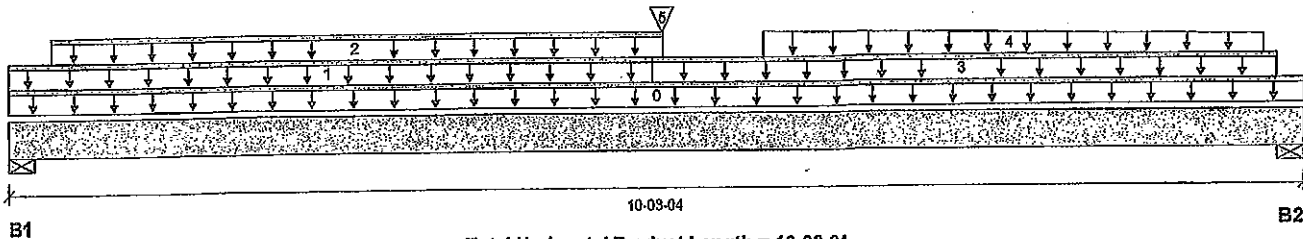
File name: MOUNTAINASH 12 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B9(i2057)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 10-03-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	391 / 0	468 / 0		
B2, 5-1/4"	711 / 0	488 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-03-04	Top	10				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-01-02	Top	24	12			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-00	05-02-02	Top		60			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	05-01-02	10-00-11	Top	21	11			n/a
4	Smoothed Load	Trapezoidal (lb/ft)	L	05-11-08	09-11-08	Top	159	80			n/a
5	B10(i1870)	Conc. Pt. (lbs)	L	05-02-00	05-02-00	Top	120	50			n/a
							307				

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4015 ft-lbs	23220 ft-lbs	17.3%	1	05-02-00
End Shear	1502 lbs	11571 lbs	13.0%	1	09-00-08
Total Load Deflection	L/999 (0.09")	n/a	n/a	4	05-02-00
Live Load Deflection	L/999 (0.049")	n/a	n/a	5	05-03-02
Max Defl.	0.09"	n/a	n/a	4	05-02-00
Span / Depth	12.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1171 lbs	13.6%	6.9%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/4" x 3-1/2"	1676 lbs	14.8%	7.5%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

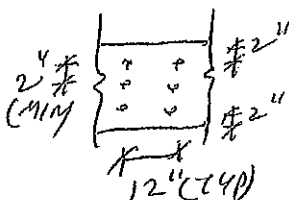
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

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

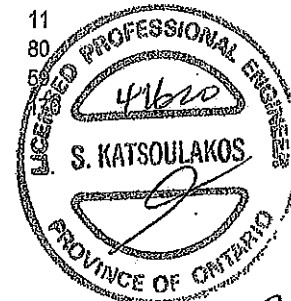
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



PROVIDE 3 ROWS OF 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



SWG NO. TAM 6028.20

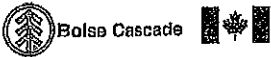
STRUCTURAL

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®.

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1(I2233) (Flush Beam)**

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

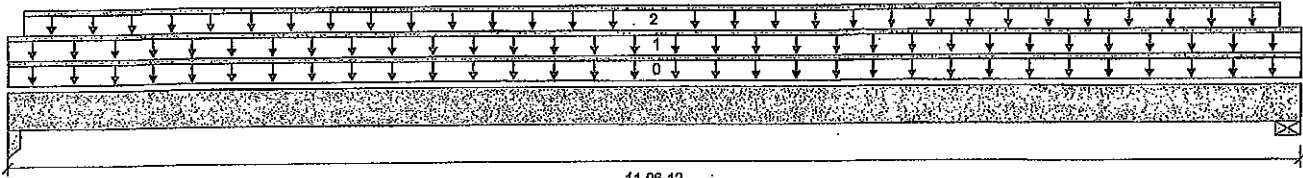
File name: MOUNTAINASH 12 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(I2233)

Specifier:

Designer:

Company:



B1

Total Horizontal Product Length = 11-06-12

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	72 / 0	402 / 0		
B2, 1-7/8"	72 / 0	399 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-06-12	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-06-12	Top	13	6			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-01-12	11-04-06	Top		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1612 ft-lbs	7546 ft-lbs	21.4%	0	05-09-05
End Shear	545 lbs	3761 lbs	14.5%	0	10-07-08
Total Load Deflection	L/1082 (0.126")	n/a	22.2%	4	05-09-05
Live Load Deflection	L/999 (0.019")	n/a	n/a	5	05-09-05
Max Defl.	0.126"	n/a	n/a	4	05-09-05
Span / Depth	14.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	562 lbs	34.8%	23.2%	Unspecified
B2	Wall/Plate 1-7/8" x 1-3/4"	559 lbs	42.6%	21.5%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

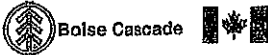
CONFORMS TO OBC 2012**AMENDED 2020**

USE NO. YAW 6019-20
**STRUCTURAL
 COMPONENT ONLY**

Disclosure

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

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

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

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL. 1.mmdl

Address:

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

City, Province, Postal Code:

Specifier:

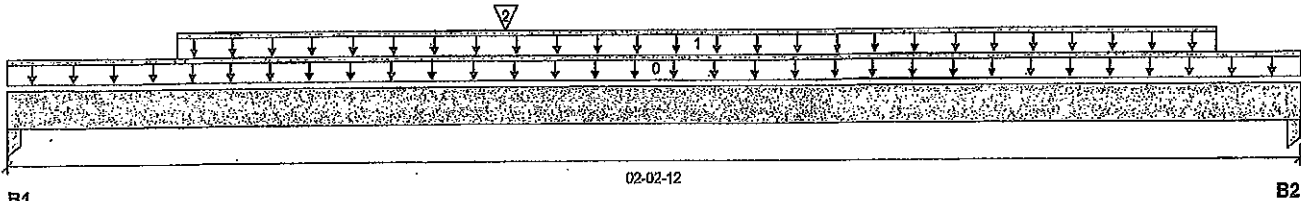
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 02-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	79 / 0	98 / 0		
B2, 1-3/4"	39 / 0	77 / 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	02-02-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-03-08	02-01-00	Top		60			n/a
2	J7(i1887)	Conc. Pt. (lbs)	L	00-10-04	00-10-04	Top	118	57			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	137 ft-lbs	11610 ft-lbs	1.2%	1	00-10-04
End Shear	104 lbs	5785 lbs	1.8%	1	01-01-00
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-01-10
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-01-05
Max Defl.	0"	n/a	n/a	4	01-01-10
Span / Depth	2.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	241 lbs	4.9%	3.2%	Unspecified
B2	Column 1-3/4" x 1-3/4"	108 lbs	6.7%	4.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



BOE NO. YAM 6030-20

STRUCTURAL

COMPONENT ONLY

Disclosure

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

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

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3(i1793)

City, Province, Postal Code:

Specifier:

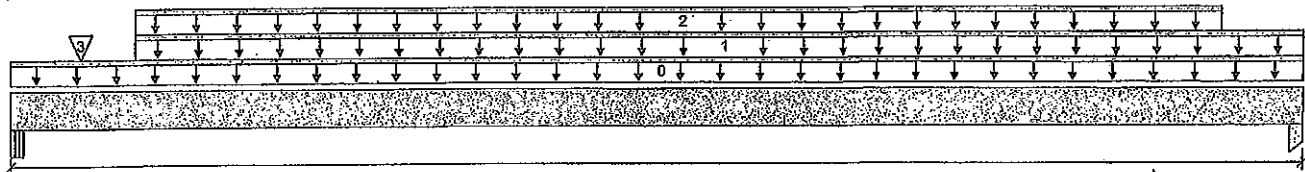
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	71 / 0	163 / 0		
B2, 3-1/2"	67 / 0	158 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-06-04	Top	5				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	04-06-04	Top	30	15			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-05-04	04-02-12	Top		60			n/a
3	7(i578)	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top	12	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	215 ft-lbs	7546 ft-lbs	2.8%	0	02-04-00
End Shear	124 lbs	3761 lbs	3.3%	0	01-02-12
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-04-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-04-00
Max Defl.	0.002"	n/a	n/a	4	02-04-00
Span / Depth	4.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 1-3/4"	229 lbs	7.2%	3.1%	Unspecified
B2	Column 3-1/2" x 1-3/4"	221 lbs	6.8%	4.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

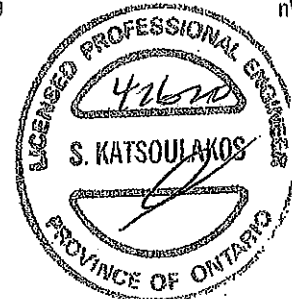
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFIRMS TO OBC 2012

AMENDED 2020


 DWS NO. YAW 6031-20
**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®,

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

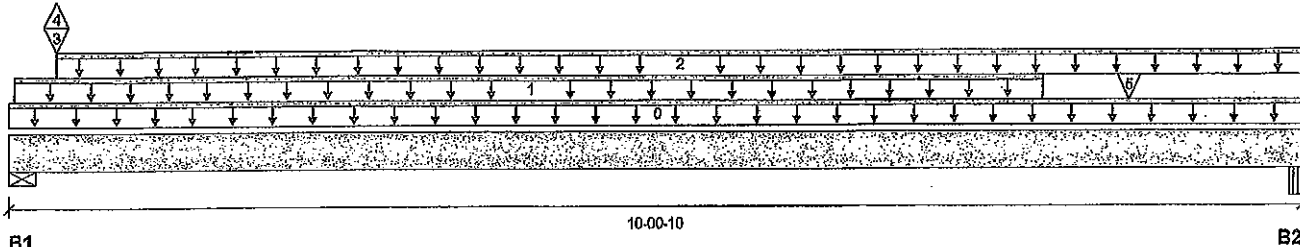
File name: MOUNTAINASH 12 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(I2235)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 10-00-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	2529 / 1	1345 / 0		
B2, 5-1/4"	1078 / 0	587 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-10	Top	1.00	0.85	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-08	08-00-08	Top	230	115			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-04-04	10-00-10	Top	21	11			n/a
3	B5(I2249)	Conc. Pt. (lbs)	L	00-04-04	00-04-04	Top	1278	671			n/a
4	B5(I2249)	Conc. Pt. (lbs)	L	00-04-04	00-04-04	Top	-1				n/a
5	J4(I607)	Conc. Pt. (lbs)	L	08-08-08	08-08-08	Top	286	143			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5840 ft-lbs	23220 ft-lbs	25.2%	1	04-08-08
End Shear	2281 lbs	11571 lbs	19.7%	1	08-09-14
Total Load Deflection	L/879 (0.126")	n/a	27.3%	6	05-00-08
Live Load Deflection	L/999 (0.082")	n/a	n/a	8	05-00-08
Max Defl.	0.126"	n/a	n/a	6	05-00-08
Span / Depth	11.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6" x 3-1/2"	5474 lbs	42.4%	21.4%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	2352 lbs	24.0%	10.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

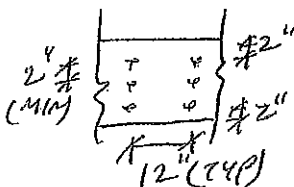
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

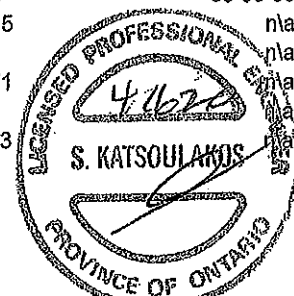
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



SWR NO. YAW 6032-20
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****PASSED****1ST FLR FRAMING\Flush Beams\B5(i2249) (Flush Beam)**

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 12 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B5(i2249)

City, Province, Postal Code:

Specifier:

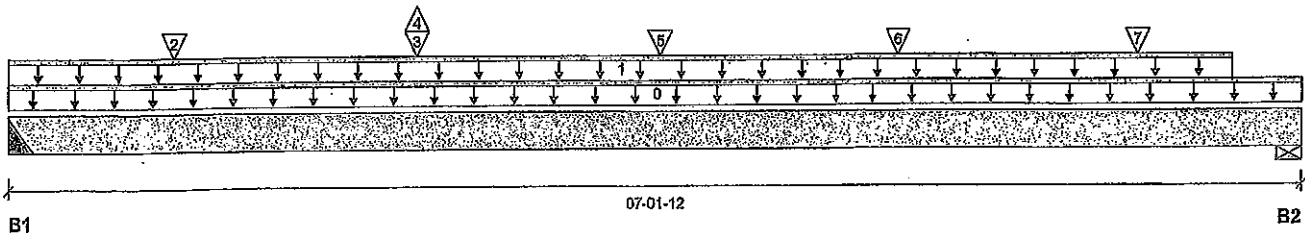
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1325 / 1	696 / 0		
B2, 4-3/4"	1205 / 1	637 / 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	07-01-12	Top	10				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	06-09-00	Top	240	120			n/a
2	J5(i815)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	231	116			n/a
3	J5(i1938)	Conc. Pt. (lbs)	L	02-03-00	02-03-00	Top	154	76			n/a
4	J5(i1938)	Conc. Pt. (lbs)	L	02-03-00	02-03-00	Top	-2				n/a
5	J6(i2256)	Conc. Pt. (lbs)	L	03-07-00	03-07-00	Top	180	90			n/a
6	J6(i2278)	Conc. Pt. (lbs)	L	04-11-00	04-11-00	Top	180	90			n/a
7	J6(i2245)	Conc. Pt. (lbs)	L	06-03-00	06-03-00	Top	154	77			n/a

Controls Summary

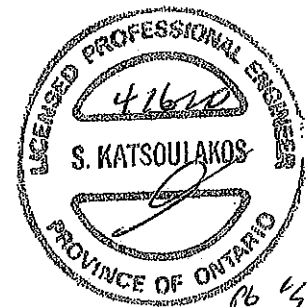
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4355 ft-lbs	23220 ft-lbs	18.8%	1	03-07-00
End Shear	2137 lbs	11571 lbs	18.5%	1	01-01-08
Total Load Deflection	L/999 (0.047")	n/a	n/a	6	03-06-00
Live Load Deflection	L/999 (0.031")	n/a	n/a	8	03-06-00
Max Defl.	0.047"	n/a	n/a	6	03-06-00
Span / Depth	8.3				

Bearing Supports

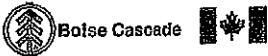
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	2858 lbs	n/a	16.7%	HGUS410
B2	Wall/Plate 4-3/4" x 3-1/2"	2603 lbs	25.4%	12.8%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 at B1 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.



OWN NO. TAN 6033-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i2249) (Flush Beam)

Dry | 1 span | No cant.

February 6, 2020 15:14:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: MOUNTAINASH 12 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(i2249)

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.

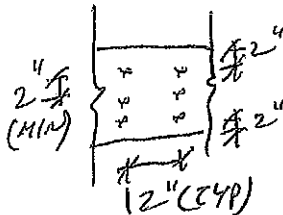
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

ADAPTED 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



DWG NO. YAM 6033-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

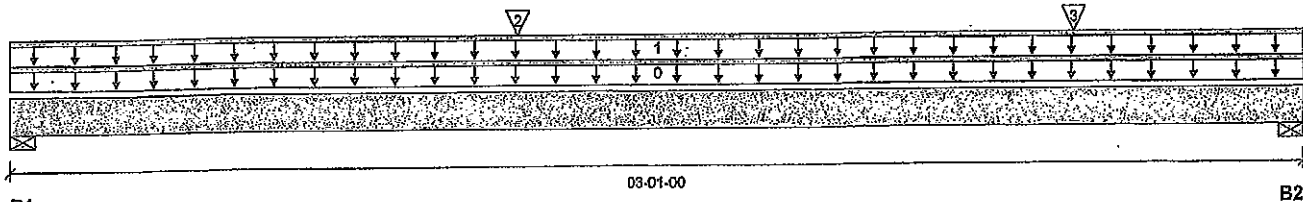
File name: MOUNTAINASH 12 EL 1 DECK CONDITION.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1A(I2770)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	659 / 0	594 / 0		
B2, 3"	829 / 0	679 / 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	100	0.65	1.00	1.15	00-00-00
1	E1(I425)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	259	291			n/a
2	J3(I2457)	Conc. Pt. (lbs)	L	01-02-08	01-02-08	Top	345	173			n/a
3	J3(I2520)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	Top	345	173			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1226 ft-lbs	23220 ft-lbs	5.3%	1	01-03-12
End Shear	935 lbs	11571 lbs	8.1%	1	01-00-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-06-09
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-06-04
Max Defl.	0.002"	n/a	n/a	4	01-06-09
Span / Depth	3.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	1731 lbs	26.8%	13.5%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	2092 lbs	32.4%	16.3%	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.

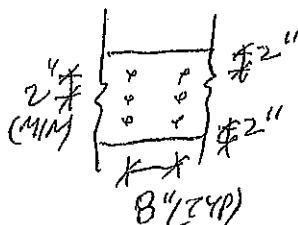
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 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



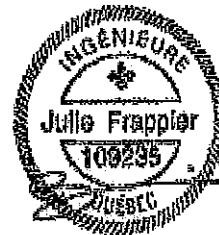
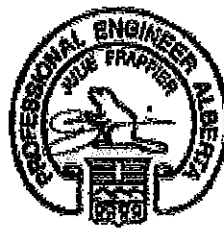
SWG NO. TAM 6034-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

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

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



Maximum Floor Spans

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

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

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

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.

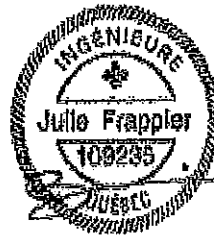
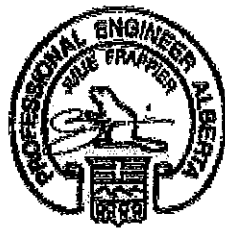
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

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

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

5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-08, NBC 2010, and OBC 2012.

6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

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

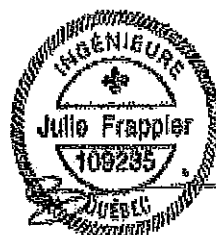
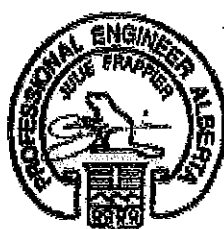
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists. Minimum bearing length shall be 1-3/4 inches for the end bearings.
- 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-1274C.

Maximum Floor Spans

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

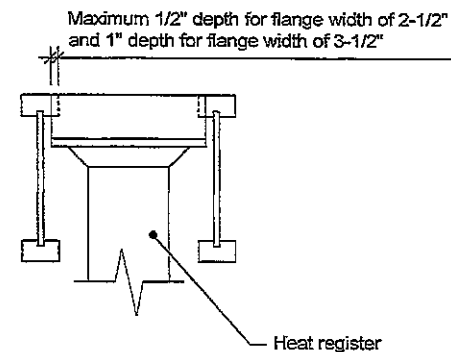
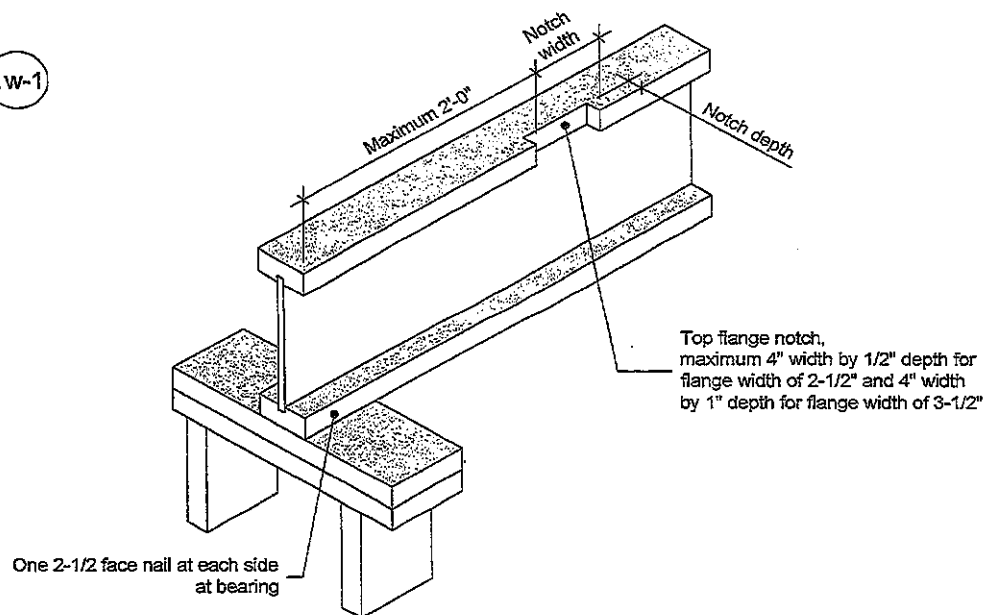


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.

1W-1



Notes:

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

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

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

NORDIC
STRUCTURES

T 514-871-8526
1 866 817-3418

nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1w-1



Construction Detail

Limit States Design

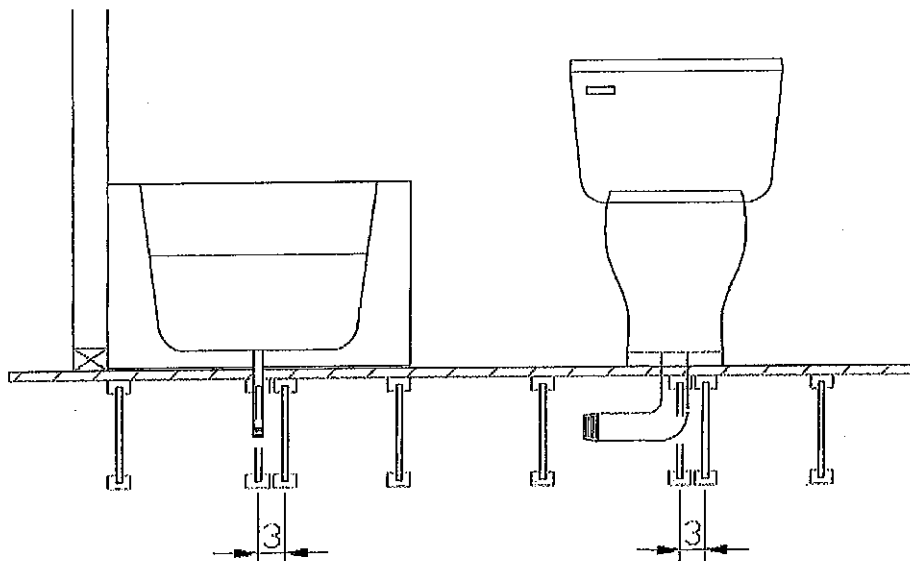
Allowance for Piping (Installation Notes)

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

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

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

ALLOWANCE FOR PIPING



Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference.

Revised April 12, 2012