

FROM PLAN DATED: SEPT 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE HOME

MODEL: KINMOUNT 6A

ELEVATION: 3

LOT: 74

CITY: CALEDON

SALESMAN: MD

DESIGNER: PL

REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.

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

LOADING:

DESIGN LOADS: L/480,000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

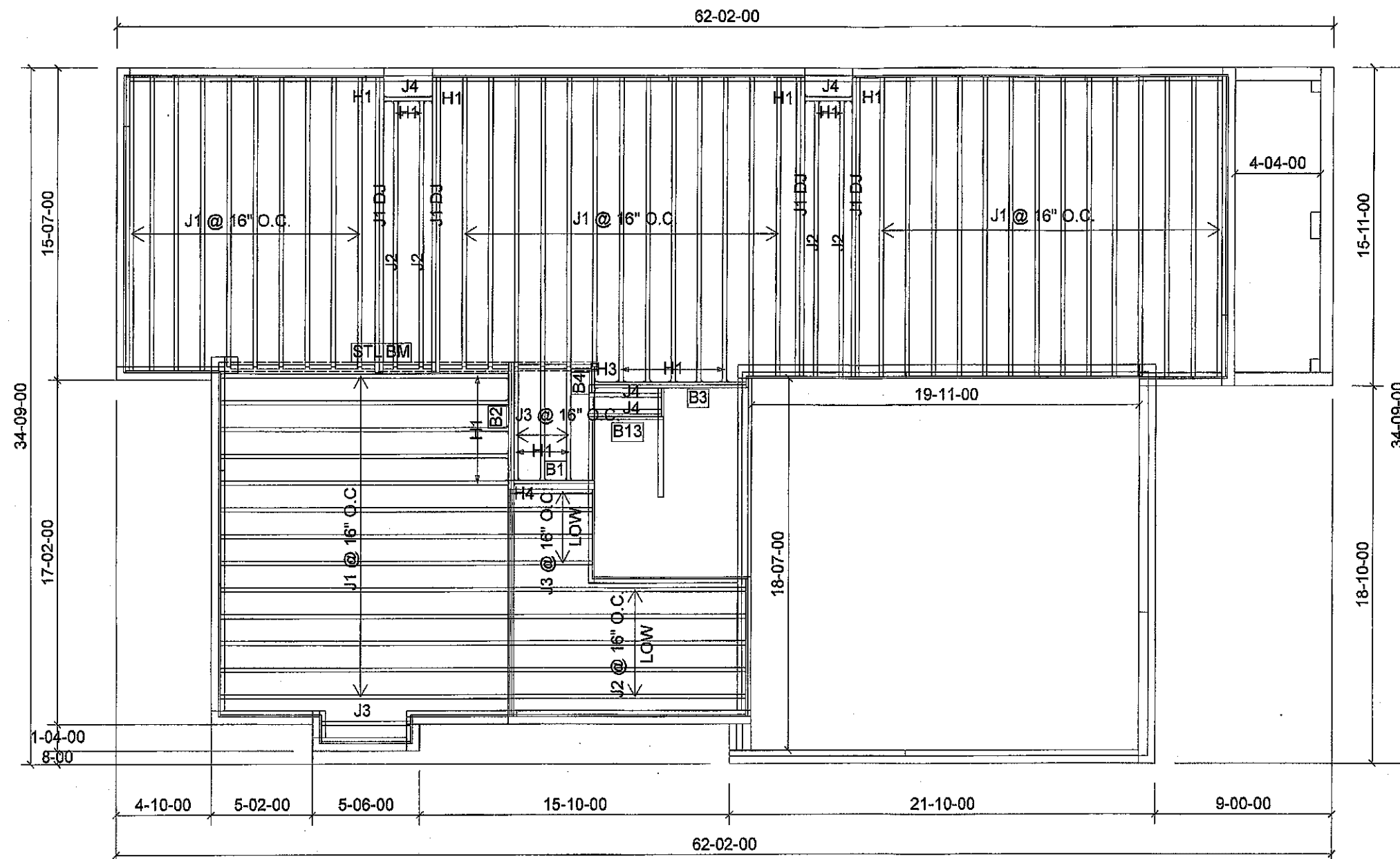
TILED AREAS: 20 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-08-29

1st FLOOR

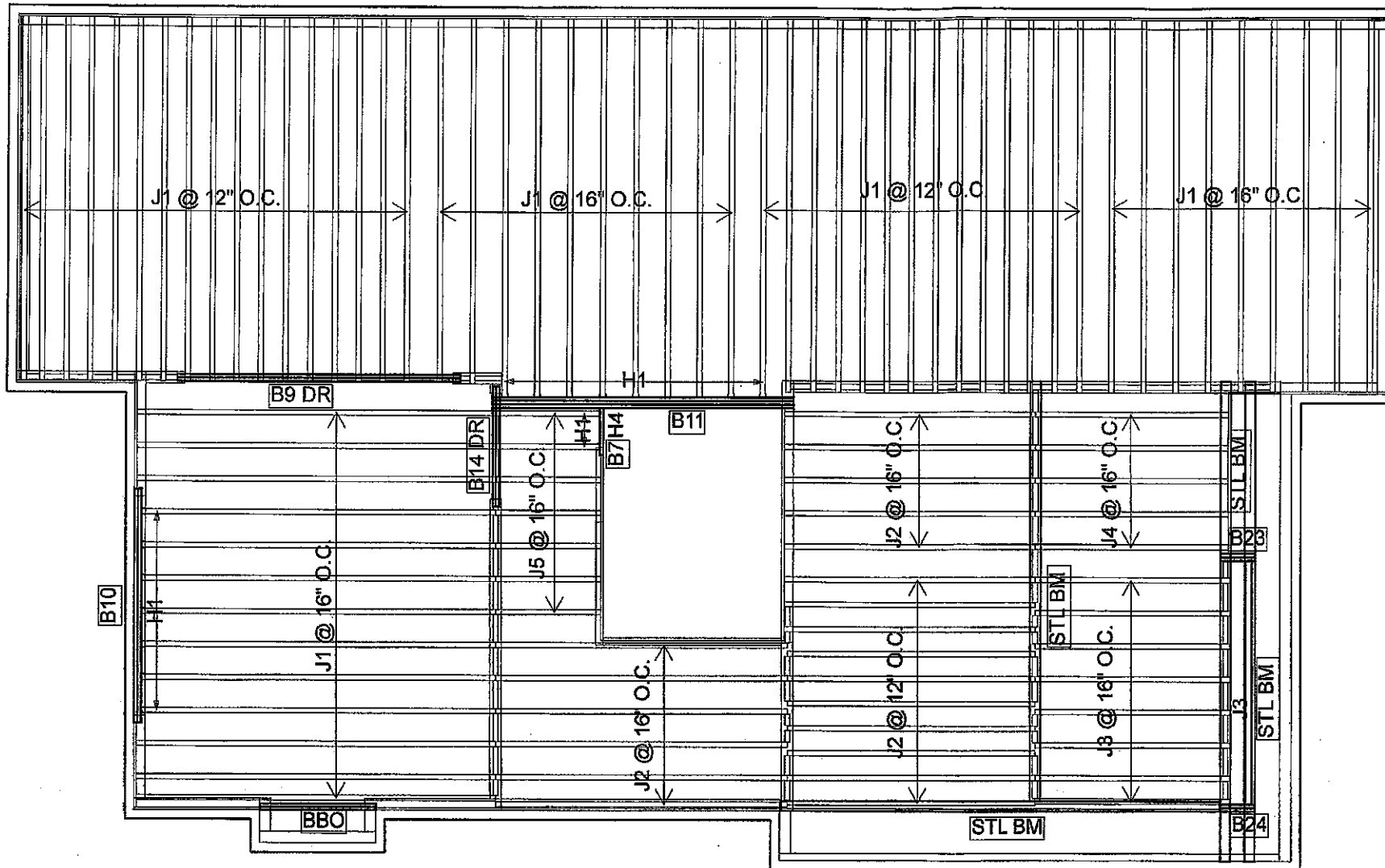
OPTIONAL WALK OUT



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	50
J1 DJ	16-00-00	9 1/2" NI-40x	2	8
J2	14-00-00	9 1/2" NI-40x	1	9
J3	6-00-00	9 1/2" NI-40x	1	8
J4	4-00-00	9 1/2" NI-40x	1	4
B2	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
10	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
1	H3	HGUS410
1	H4	HUS1.81/10

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE



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

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

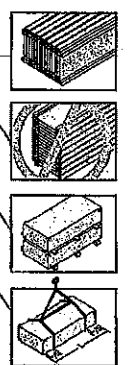
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK REQ. 1-JOIST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

2nd FLOOR

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STORAGE AND HANDLING GUIDELINES

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



1. Minimum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include live consideration for floor deflection and live load deflection limit of L/489. 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-nail oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joint spacing of 19.2 inches and 3/4 inch for joint spacing of 24 inches. The effective span is the requirement in ACES 71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when L-joints are used with the spans and spacing limits in this table, except as required for hangars.
5. This span chart is based on uniform loads. For applications with non-uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on United States Design per CAN/CSA C084-09 Standard, and NBC 2310.
7. SI units conversion:
 1 inch = 25.4 mm
 1 foot = 0.305 m

Joint Depth	Joint Series	Simple spurs On chine spading					Multiple spurs On earth spading				
		12	14	16	18	20	12	14	16	18	20
1/2" D	N-50	15.1 ^a	14.2 ^a	15.2 ^a	15.5 ^a	16.2 ^a	15.4 ^a	14.2 ^a	14.7 ^a		
	N-40	16.1 ^a	15.2 ^a	14.8 ^a	14.9 ^a	17.5 ^a	16.5 ^a	15.1 ^a	15.5 ^a		
	N-30	16.3 ^a	15.4 ^a	14.1 ^a	14.1 ^a	17.9 ^a	16.7 ^a	15.0 ^a	16.1 ^a		
	N-20	17.1 ^a	16.1 ^a	15.6 ^a	15.6 ^a	18.1 ^a	17.4 ^a	16.1 ^a	16.1 ^a		
	N-10	17.3 ^a	16.3 ^a	15.8 ^a	15.8 ^a	18.1 ^a	17.2 ^a	16.1 ^a	17.9 ^a		
1 1/8" D	N-50	15.1 ^a	16.0 ^a	15.5 ^a	15.5 ^a	18.4 ^a	17.3 ^a	16.8 ^a	18.2 ^a		
	N-40	18.1 ^a	17.9 ^a	16.5 ^a	16.4 ^a	20.0 ^a	18.5 ^a	17.9 ^a	17.9 ^a		
	N-30	18.4 ^a	17.3 ^a	16.7 ^a	16.7 ^a	20.3 ^a	18.9 ^a	18.0 ^a	18.1 ^a		
	N-20	19.6 ^a	18.0 ^a	17.4 ^a	17.5 ^a	21.6 ^a	19.1 ^a	19.0 ^a	19.1 ^a		
	N-10	19.7 ^a	18.5 ^a	17.9 ^a	17.9 ^a	21.6 ^a	20.0 ^a	19.1 ^a	19.1 ^a		
1 1/2" D	N-50	20.2 ^a	18.7 ^a	17.1 ^a	17.1 ^a	22.3 ^a	20.7 ^a	19.8 ^a	19.9 ^a		
	N-40	20.4 ^a	18.9 ^a	17.1 ^a	18.0 ^a	22.5 ^a	20.9 ^a	19.1 ^a	19.1 ^a		
	N-30	20.1 ^a	18.7 ^a	17.1 ^a	17.1 ^a	22.5 ^a	20.9 ^a	19.5 ^a	19.5 ^a		
	N-20	21.7 ^a	20.0 ^a	19.1 ^a	19.2 ^a	23.0 ^a	22.1 ^a	21.1 ^a	21.2 ^a		
	N-10	21.1 ^a	20.3 ^a	19.4 ^a	19.5 ^a	24.3 ^a	22.5 ^a	21.5 ^a	21.6 ^a		
1 3/4" D	N-50	22.0 ^a	20.2 ^a	19.5 ^a	19.5 ^a	24.0 ^a	22.0 ^a	21.0 ^a	21.0 ^a		
	N-40	22.7 ^a	20.1 ^a	19.1 ^a	20.0 ^a	25.0 ^a	23.1 ^a	22.0 ^a	22.2 ^a		
	N-30	22.5 ^a	20.5 ^a	19.9 ^a	19.9 ^a	24.7 ^a	22.9 ^a	21.9 ^a	21.1 ^a		
	N-20	23.8 ^a	21.9 ^a	20.9 ^a	21.0 ^a	26.0 ^a	24.5 ^a	23.5 ^a	23.5 ^a		
	N-10	23.1 ^a	22.1 ^a	21.1 ^a	21.2 ^a	26.5 ^a	24.5 ^a	23.5 ^a	23.4 ^a		
1 7/8" D	N-50	24.5 ^a	22.5 ^a	21.5 ^a	21.6 ^a	26.1 ^a	24.1 ^a	23.0 ^a	23.9 ^a		
	N-40	24.8 ^a	22.9 ^a	21.9 ^a	21.1 ^a	27.3 ^a	25.5 ^a	24.0 ^a	24.1 ^a		

1. Hangers shown illustrate the three most commonly used metal hangers to support I-joints.

2. All rolling must meet the hanger manufacturer's recommendations.

3. Hangers should be selected based on the joint depth, flange width and load capacity based on the maximum spans.

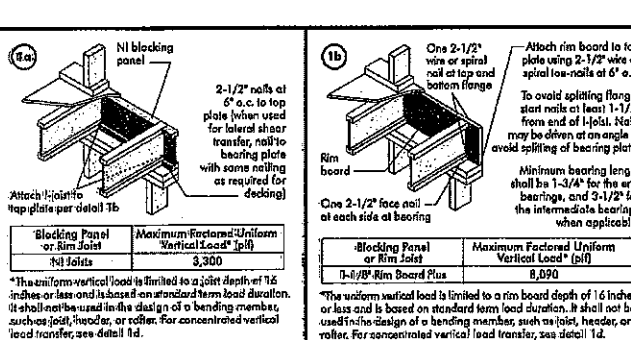
4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joint.

Top Mount

Face Mount

Slotted

1. Before laying out floor system components, verify that I-Joist flange widths match hanger widths. If not, replace.
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 joists must be at least 4" below the level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-Joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-Joist and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-Joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-Joist. Or, attach the load to blocking that has been securely fastened to the I-Joist webs.
9. Never install I-Joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rafter. Use rim board, rim joists or I-Joist blocking panels.
11. For I-Joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-Joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-Joists, and an I-Joist-compliant fastener shall be installed.
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 installed, 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.



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

Figures 3, 4 or 5

Holes may be cut in wire for plumbing, wiring or duct work. See Tables and Figure 7.

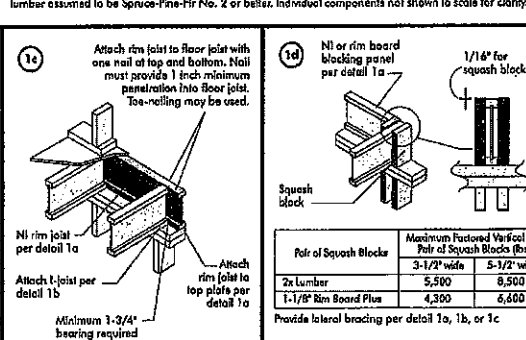
NOTE: Never cut or notch hangers.

Nordic Lom or Structural Composite Lumber (SCL)

Figures 3, 4 or 5

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" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing



(1) Transfer load from above to bearing below. Install gusset blocks per detail 1d. Match bearing area of blocks left to past above.

(2) Wall sheathing, as required

(3) Rim board may be used in lieu of Joist. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

(4) Required. Attach Joist to top plate using 2-1/2" nails at 6' o.c.

(5) Provide backer for siding attachment unless nailable sheathing is used.

(6) Nordic Lam or SCL

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

(1m) Filler block detail 1p

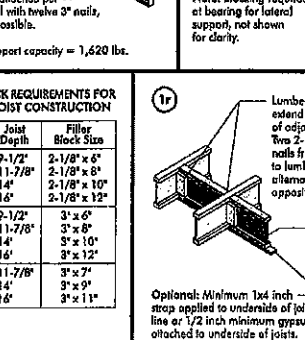
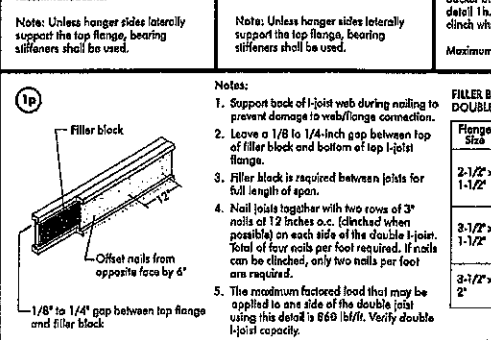
Top- or face-mount hanger: installed per manufacturer's recommendations

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

Top-mount hanger installed per manufacturer's recommendations

Install hanger manufacturer's recommendations

Backer block



Double I-joint header

Top- or face-mount hanger

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

Filler block per detail 1p

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

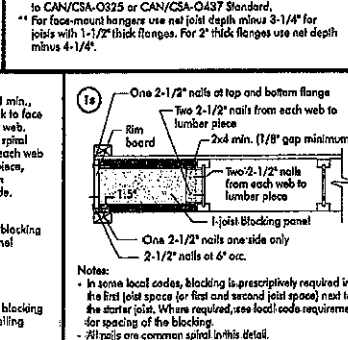
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For hanger capacity see hanger manufacturer's recommendations. Verify double I-joint capacity to support concentrated loads.

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

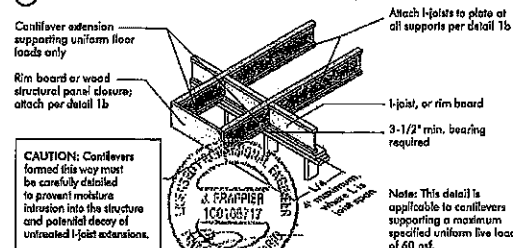
Hanger Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum gage for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to

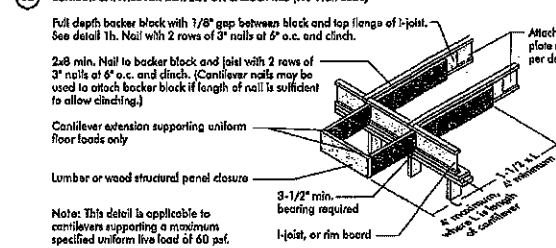


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

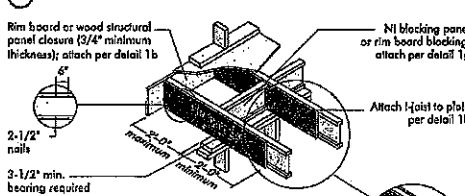


3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

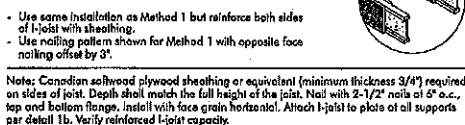


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



4b) Alternate Method 2 — DOUBLE I-JOIST

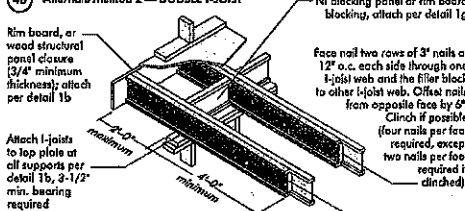
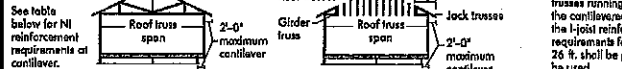


FIGURE 4 (continued)



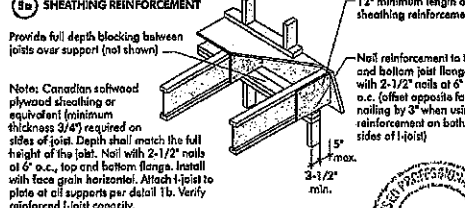
CANTILEVER REINFORCEMENT METHODS ALLOWED

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

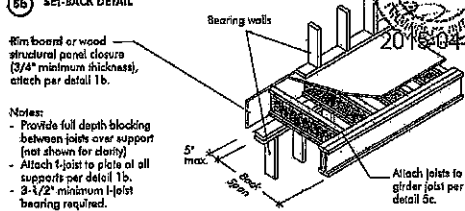
1. N = No reinforcement required.
2. = NI reinforced with 3/4" wood structural panel on one side only.
3. = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
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BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a) SHEATHING REINFORCEMENT



5b) SET-BACK DETAIL



5c) SET-BACK CONNECTION

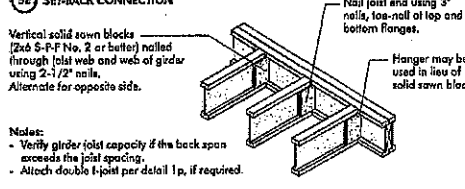
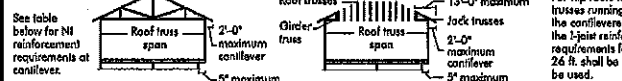


FIGURE 5 (continued)



CANTILEVER REINFORCEMENT METHODS ALLOWED

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

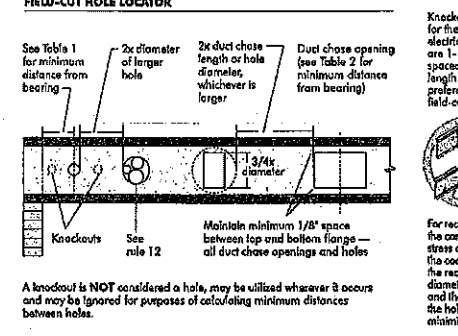
1. N = No reinforcement required.
2. = NI reinforced with 3/4" wood structural panel on one side only.
3. = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. = Try a deeper joist or closer spacing.
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WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

TABLE 1 LOCATION OF CIRCULAR HOLES IN JOIST WEBS

LOCATION OF CIRCULAR HOLES IN JOIST WEBS														
Simple or Multiple Span for Dead Loads up to 1 psf and Live Loads up to 40 psf														
Joist Depth (in.)	Joist Series	Minimum distance from inside face of any support to centre of hole (in.)												Span Equivalent Factor
		2	4	6	8	10	12	14	16	18	20	22	24	
9-1/2"	N100	2.0	1.0	2.10	4.3	6.5	8.6	10.7	12.8	14.9	17.0	19.1	21.2	
	N150	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N200	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N250	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N300	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
11-7/8"	N100	2.0	1.0	2.10	4.3	6.5	8.6	10.7	12.8	14.9	17.0	19.1	21.2	
	N150	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N200	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N250	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N300	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
16"	N100	2.0	1.0	2.10	4.3	6.5	8.6	10.7	12.8	14.9	17.0	19.1	21.2	
	N150	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N200	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N250	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N300	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
18"	N100	2.0	1.0	2.10	4.3	6.5	8.6	10.7	12.8	14.9	17.0	19.1	21.2	
	N150	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N200	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N250	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	
	N300	2.0	1.0	2.10	4.4	6.6	8.7	10.8	12.9	15.0	17.1	19.2	21.3	



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.
- 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 a joist web shall equal the clear distance between the longer of the joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent 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 largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

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

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (H - 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"	N1-20	0-7"	1-0"	1-3"	1-6"	1-9"	2-2"	2-5"	2-8"	3-1"	3-4"	3-7"	4-0"
	N1-40x	0-7"	1-0"	1-3"	1-6"	1-9"	2-2"	2-5"	2-8"	3-1"	3-4"	3-7"	4-0"
	N1-60	0-7"	1-0"	1-3"	1-6"	1-9"	2-2"	2-5"	2-8"	3-1"	3-4"	3-7"	4-0"
	N1-70	0-7"	1-0"	1-3"	1-6"	1-9"	2-2"	2-5"	2-8"	3-1"	3-4"	3-7"	4-0"
	N1-80	0-7"	1-0"	1-3"	1-6"	1-9"	2-2"	2-5"	2-8"	3-1"	3-4"	3-7"	4-0"
11-7/8"	N1-20	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-40x	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-60	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-70	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-80	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
14"	N1-20	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-40x	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-60	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-70	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-80	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
16"	N1-20	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-40x	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-60	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-70	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"
	N1-80	0-7"	0-8"	1-0"	1-2"	1-4"	1-6"	1-8"	2-0"	2-2"	2-4"	2-6"	2-8"

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

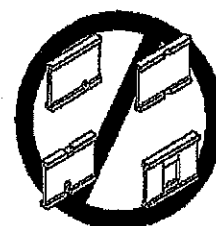
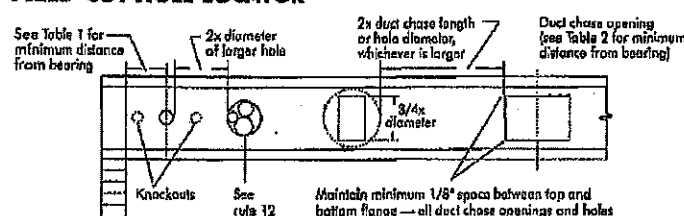
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (H - in.)											
		Duct Chase Length (in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	N1-20	4-1"	4-5"	4-9"	5-3"	5-7"	6-1"	6-5"	6-9"	7-3"	7-7"	8-1"	8-5"
	N1-40x	4-1"	4-5"	4-9"	5-3"	5-7"	6-1"	6-5"	6-9"	7-3"	7-7"	8-1"	8-5"
	N1-60	4-1"	4-5"	4-9"	5-3"	5-7"	6-1"	6-5"	6-9"	7-3"	7-7"	8-1"	8-5"
	N1-70	4-1"	4-5"	4-9"	5-3"	5-7"	6-1"	6-5"	6-9"	7-3"	7-7"	8-1"	8-5"
	N1-80	4-1"	4-5"	4-9"	5-3"	5-7"	6-1"	6-5"	6-9"	7-3"	7-7"	8-1"	8-5"
11-7/8"	N1-20	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-40x	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-60	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-70	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-80	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
14"	N1-20	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-40x	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-60	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-70	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-80	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
16"	N1-20	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-40x	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-60	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-70	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"
	N1-80	3-5"	3-9"	4-3"	4-7"	5-1"	5-5"	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are predrilled holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the 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 hole between the holes is another good method to minimize damage to the joist.

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING: 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:

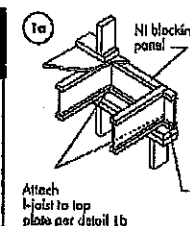
- Brace and nail each joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the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

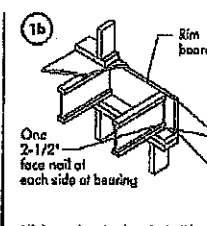
Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chantiers Chibougamau 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.



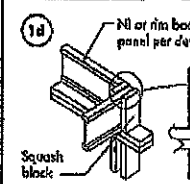
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
N1 Joists	3,360

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



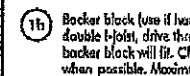
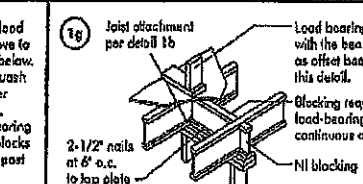
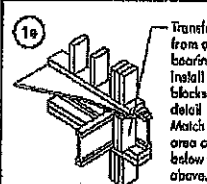
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
1-1/8" Rim Board Plus	8,090

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

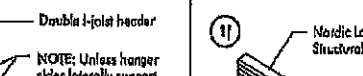
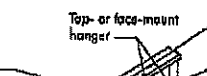


Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	6,695

Provide lateral bracing per detail 1a or 1b.



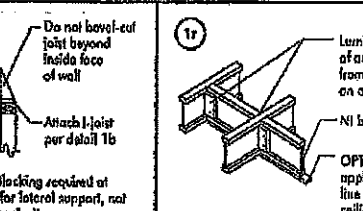
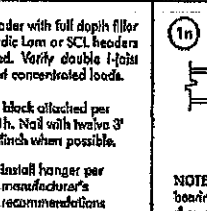
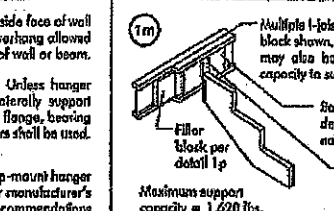
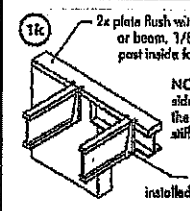
Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double joist, drive three additional 3" nails through the webs and filler block where the backer block will sit. Clinch, install backer block to top flange. Use two 3" nails, clinched when possible. Maximum factored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



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

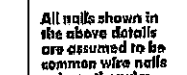
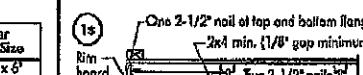
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 2-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



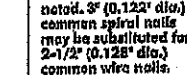
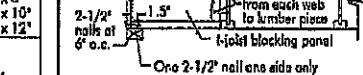
FILLER BLOCK REQUIREMENTS FOR DOUBLE JOIST CONSTRUCTION

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 8"
3-1/2" x 1-1/2"	11-7/8"	2-1/8" x 8"
3-1/2" x 1-1/2"	14"	2-1/8" x 12"
3-1/2" x 1-1/2"	16"	3" x 8"
3-1/2" x 1-1/2"	18"	3" x 8"
3-1/2" x 1-1/2"	20"	3" x 8"
3-1/2" x 1-1/2"	22"	3" x 8"
3-1/2" x 1-1/2"	24"	3" x 8"
3-1/2" x 1-1/2"	26"	3" x 8"
3-1/2" x 1-1/2"	28"	3" x 8"
3-1/2" x 1-1/2"	30"	3" x 8"



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

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 8"
3-1/2" x 1-1/2"	11-7/8"	2-1/8" x 8"
3-1/2" x 1-1/2"	14"	2-1/8" x 12"
3-1/2" x 1-1/2"	16"	3" x 8"
3-1/2" x 1-1/2"	18"	3" x 8"
3-1/2" x 1-1/2"	20"	3" x 8"
3-1/2" x 1-1/2"	22"	3" x 8"
3-1/2" x 1-1/2"	24"	3" x 8"
3-1/2" x 1-1/2"	26"	3" x 8"
3-1/2" x 1-1/2"	28"	3" x 8"
3-1/2" x 1-1/2"	30"	3" x 8"

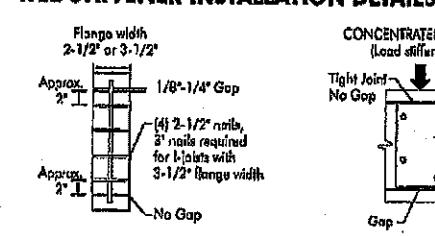


WEB STIFFENERS

RECOMMENDATIONS:

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

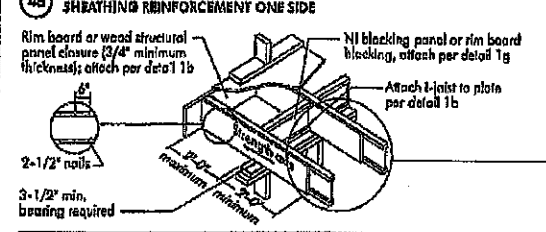
FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



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

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 - SHEATHING REINFORCEMENT ONE SIDE



NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 17, 2018 11:22

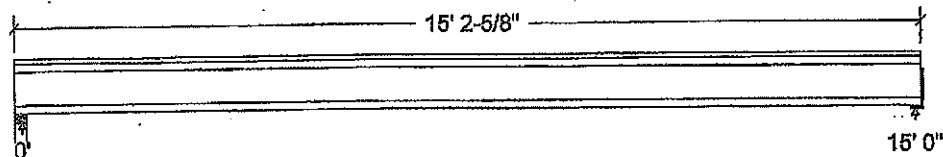
PROJECT
J1 1ST FLOOR @ STAIRS

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

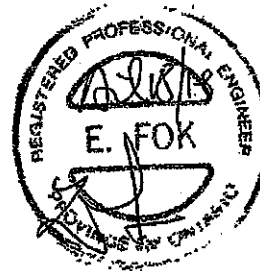
Loads:

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), Bearing Resistances (lbs) and Bearing Lengths (in) :



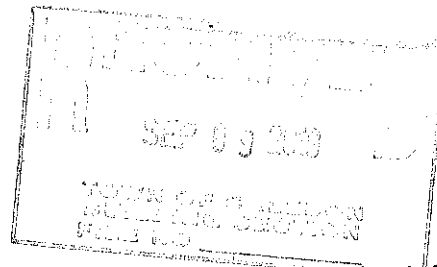
Unfactored:			
Dead	200		200
Live	400		400
Factored:			
Total	850		850
Bearing:			
Resistance			
Joist	1865		1859
Support	3971		-
Des ratio			
Joist	0.46		0.46
Support	0.21		-
Load case	#2		#2
Length	2-3/8		2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.09		-



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

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Hanger;
Total length: 15' 2-5/8"; Clear span: 14' 10-1/4"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE



T-19041419

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 850$	$V_r = 1895$	lbs	$V_f/V_r = 0.45$
Moment (+)	$M_f = 3188$	$M_r = 4824$	lbs-ft	$M_f/M_r = 0.66$
Perm. Defl'n	$0.12 < L/999$	$0.50 = L/360$	in	0.25
Live Defl'n	$0.25 = L/721$	$0.37 = L/480$	in	0.67
Total Defl'n	$0.37 = L/481$	$0.75 = L/240$	in	0.50
Bare Defl'n	$0.31 = L/585$	$0.50 = L/360$	in	0.62
Vibration	$L_{max} = 15'-0$	$L_v = 16'-2.1$	ft	0.93
Defl'n	$= 0.034$	$= 0.044$	in	0.79

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)

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

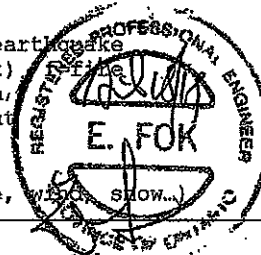
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

Deflection: $E_{eff} = 276e06 \text{ lb-in}^2$ $K = 4.94e06 \text{ lbs}$
 "Live" deflection = Deflection from all non-dead loads (live,

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.



T-1904 (4/19/2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 17, 2018 11:24

PROJECT
J1 2ND FLOOR @ STAIRS

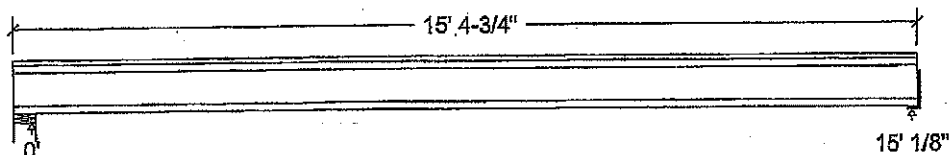
Design Check Calculation Sheet

Nordic Sizer - Canada 7.1

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), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:			
Dead	200		200
Live	400		400
Factored:			
Total	851		851
Bearing:			
Resistance			1859
Joist	1893		-
Support	7744		-
Des ratio			0.46
Joist	0.45		-
Support	0.11		-
Load case	#2		#2
Length	4-3/8		2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.15		-



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

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

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

Total length: 15' 4-3/4"; Clear span: 14' 10-3/8"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 851	Vr = 1895	lbs	Vf/Vr = 0.45
Moment(+)	Mf = 3192	Mr = 4824	lbs-ft	Mf/Mr = 0.66
Perm. Defl'n	0.13 = < L/999	0.50 = L/360	in	0.26
Live Defl'n	0.26 = L/701	0.38 = L/480	in	0.68
Total Defl'n	0.39 = L/467	0.75 = L/240	in	0.51
Bare Defl'n	0.31 = L/583	0.50 = L/360	in	0.62
Vibration	Lmax = 15'-0.1	Lv = 15'-9.3	ft	0.95
Defl'n	= 0.037	= 0.044	in	0.85

T.19041420

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

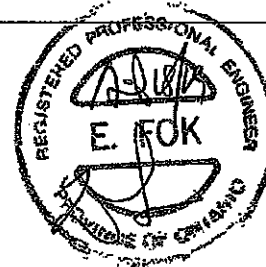
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: E_Ieff = 268e06 lb-in² K= 4.94e06 lbs

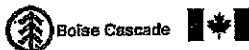
"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

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.



T-19041420(2)

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 17, 2018 11:42:15

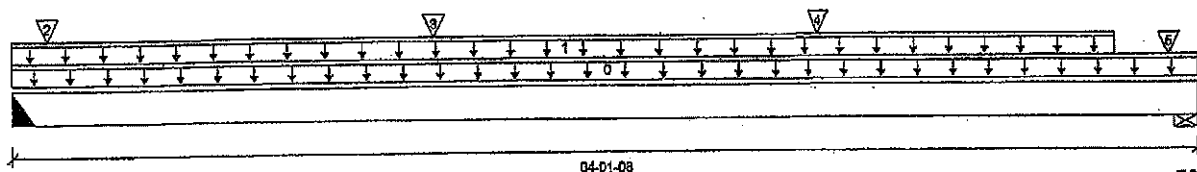
File name: KINMOUNT 6A.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(i5363)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 04-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	484 / 0	253 / 0		
B2, 3-1/2"	390 / 0	215 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-01-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-10-00	Top	120	60			n/a
2	J3(i4949)	Conc. Pt. (lbs)	L	00-01-08	00-01-08	Top	93	47			n/a
3	J3(i4932)	Conc. Pt. (lbs)	L	01-05-08	01-05-08	Top	155	78			n/a
4	J3(i4952)	Conc. Pt. (lbs)	L	02-09-08	02-09-08	Top	150	75			n/a
5	15(i378)	Conc. Pt. (lbs)	L	04-00-04	04-00-04	Top	17	18			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	894 ft-lbs	11,610 ft-lbs	7.2%	1	01-11-08
End Shear	598 lbs	5,785 lbs	10.3%	1	03-00-08
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-00-08
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-00-08
Max Defl.	0.006"	n/a	n/a	4	02-00-08
Span / Depth	4.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	1,043 lbs	n/a	16.3%	HUS1.81/10
B2	Wall/Plate 3-1/2" x 1-3/4"	854 lbs	26.1%	11.4%	Unspecified

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user.

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

**Disclosure**

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

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

T.19041421



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B13(5528)

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

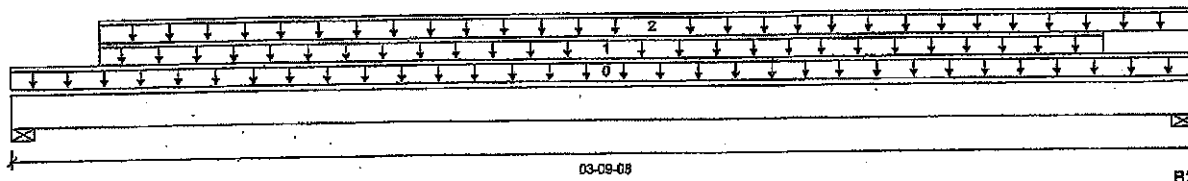
File name: KINMOUNT 6A.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B13(5528)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	402 / 0	210 / 0		
B2, 3-1/2"	405 / 0	212 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-03-08	03-06-00	Top	240	120			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	03-09-08	Top	10	5			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	747 ft-lbs	11,610 ft-lbs	6.4%	1	01-10-12
End Shear	456 lbs	5,785 lbs	7.9%	1	02-08-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-10-12
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-10-12
Max Defl.	0.004"	n/a	n/a	4	01-10-12
Span / Depth	4.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	865 lbs	26.5%	11.6%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	873 lbs	26.7%	11.7%	Unspecified

Notes

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

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

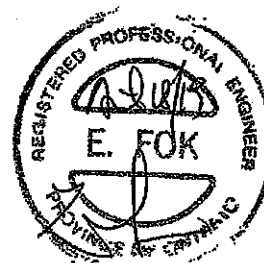
Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O88.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O88.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



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®,

T.19041422



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

PASSED

1ST FLOOR FRAMING Flush Beams B2 (5357)

Dry | 1 span | No cant.

November 17, 2018 11:42:16

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CGMC 12472-R

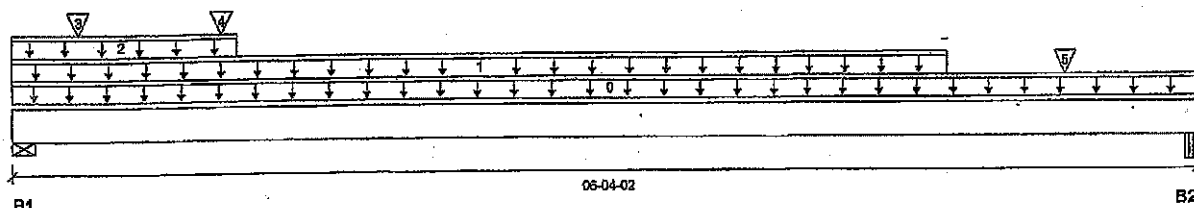
File name: KINMOUNT 6A.mmdl

Description: 1ST FLOOR FRAMING Flush Beams B2 (5357)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	2,970 / 0	1,655 / 0		
B2, 5-1/2"	3,740 / 0	2,060 / 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	06-04-02	Top	10				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-11-14	Top	317	159			n/a
2	14 (1346)	Unf. Lin. (lb/ft)	L	00-00-00	01-02-06	Top	380	271			n/a
3	B1 (15363)	Conc. Pt. (lbs)	L	00-04-06	00-04-06	Top	487	244			n/a
4	14 (1346)	Conc. Pt. (lbs)	L	01-01-06	01-01-06	Top	985	525			n/a
5	-	Conc. Pt. (lbs)	L	05-07-10	05-07-10	Top	3,185	1,726			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,474 ft-lbs	23,220 ft-lbs	19.3%	1	02-11-14
End Shear	3,953 lbs	11,571 lbs	34.2%	1	01-02-12
Total Load Deflection	L/999 (0.037")	n/a	n/a	4	03-01-14
Live Load Deflection	L/999 (0.024")	n/a	n/a	5	03-01-14
Max Defl.	0.037"	n/a	n/a	4	03-01-14
Span / Depth	7.0				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/4" x 3-1/2"	6,525 lbs	66.5%	29.1%	Unspecified
B2	Beam 5-1/2" x 3-1/2"	8,185 lbs	79.6%	34.9%	Unspecified

Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another with
3 1/2" spiral nails @ 4"
o.c., staggered in 2 rows

T.19041423



Bolt-Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B3\15524**

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

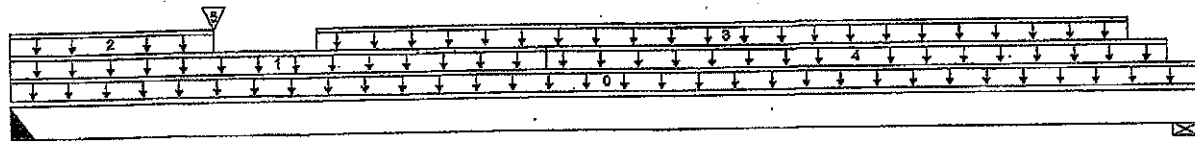
File name: KINMOUNT 6A.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3\15524

Specifier:

Designer: PL

Company:



07-09-06
B1 B2

Total Horizontal Product Length = 07-09-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,356 / 0	715 / 0		
B2, 2-3/8"	1,773 / 0	922 / 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	07-09-06	Top	10	5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	10	5			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-04-00	Top	37	18			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	07-04-00	Top	306	154			n/a
4	STAIRS	Unf. Lin. (lb/ft)	L	03-06-00	07-07-00	Top	240	120			n/a
6	J1(15531)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	387	193			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,892 ft-lbs	23,220 ft-lbs	29.7%	1	04-00-00
End Shear	3,356 lbs	11,571 lbs	29.0%	1	08-09-08
Total Load Deflection	L/999 (0.093")	n/a	n/a	4	04-00-00
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	04-00-00
Max Defl.	0.093"	n/a	n/a	4	04-00-00
Span / Depth	9.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	2,928 lbs	n/a	17.1%	HGUS410
B2	Wall/Plate 2-3/8" x 3-1/2"	3,812 lbs	85.9%	37.6%	Unspecified

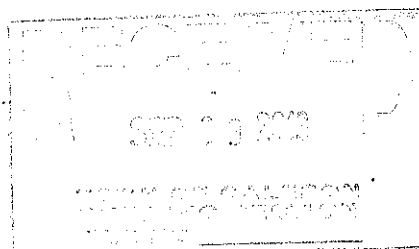
Cautions

Header for the hanger HGUS410 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Hanger model HGUS410 and seat length were input by the user. Nail one ply to another with

3 1/2" spiral nails @ 8"

o.c. staggered in 2 rows



T.19041424



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4\15622

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

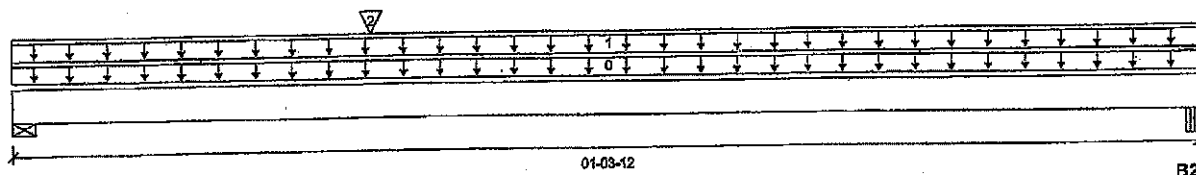
File name: KINMOUNT 6A.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B4\15622

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/4"	1,233 / 0	653 / 0		
B2, 2-3/4"	115 / 0	63 / 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	01-03-12	Top	5				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-03-12	Top	25	13			n/a
2	B3(15624)	Conc. Pt (lbs)	L	00-04-12	00-04-12	Top	1,315	693			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	165 ft-lbs	11,810 ft-lbs	1.4%	1	00-04-12
End Shear	197 lbs	5,785 lbs	3.4%	1	00-04-12
Span / Depth	1.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/4" x 1-3/4"	2,665 lbs	60.0%	26.3%	Unspecified
B2	Beam 2-3/4" x 1-3/4"	252 lbs	9.8%	4.3%	Unspecified

Notes

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Nail one ply to another with

3 1/2" spiral nails @ 4"

o.c. staggered in 2 rows

Disclosure

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

T. 19041425



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

PASSED

2ND FLOOR FRAMING Dropped Beams B14 DR (i5478)

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALC® Member Report

Build 6475

Job name:

File name: KINMOUNT 6A.mxd

Address:

Description: 2ND FLOOR FRAMING Dropped Beams B14 DR (i5478)

City, Province, Postal Code: CALEDON

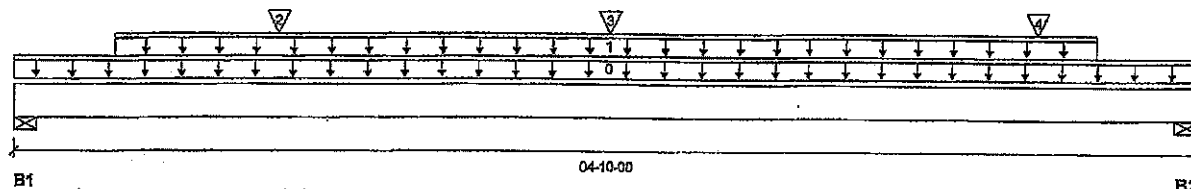
Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	977 / 0	520 / 0		
B2, 3-1/2"	2,927 / 0	1,667 / 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	04-10-00	Top	10	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-00	04-05-00	Top	292	146			n/a
2	J5(i5383)	Conc. Pt. (lbs)	L	01-01-00	01-01-00	Top	113	57			n/a
3	J5(i5379)	Conc. Pt. (lbs)	L	02-05-00	02-05-00	Top	115	57			n/a
4	-	Conc. Pt. (lbs)	L	04-02-01	04-02-01	Top	2,510	1,344			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,177 ft-lbs	23,220 ft-lbs	13.7%	1	02-05-00
End Shear	3,419 lbs	11,571 lbs	29.5%	1	03-09-00
Total Load Deflection	L/999 (0.016")	n/a	n/a	4	02-06-00
Live Load Deflection	L/999 (0.01")	n/a	n/a	5	02-06-00
Max Defl.	0.016"	n/a	n/a	4	02-06-00
Span / Depth	5.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	2,115 lbs	21.3%	14.2%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	6,350 lbs	63.8%	42.5%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-04-00, Bottom: 00-04-00.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Nail one ply to another with

3-1/2" spiral nails @ 4"

O.C. staggered in 2 rows.



T-19041426

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING Dropped Beams B9 DR(5311)**

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

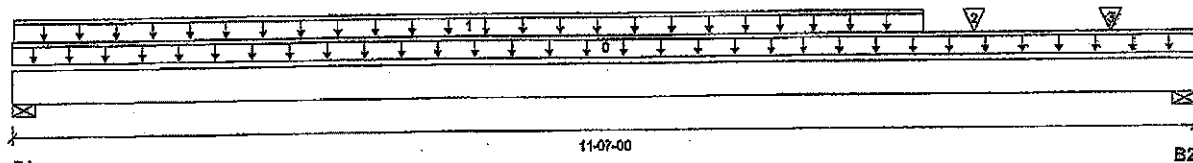
File name: KINMOUNT 6A.mmd

Description: 2ND FLOOR FRAMING Dropped Beams B9 DR(5311)

Specifier:

Designer: PL

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,835 / 0	968 / 0		
B2, 3-1/2"	1,757 / 0	930 / 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	11-07-00	Top	10				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-04	08-11-00	Top	293	146			n/a
2	J1(5298)	Conc. Pt. (lbs)	L	09-05-00	09-05-00	Top	332	166			n/a
3	J1(5284)	Conc. Pt. (lbs)	L	10-09-00	10-09-00	Top	379	190			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10,468 ft-lbs	23,220 ft-lbs	45.1%	1	05-05-00
End Shear	3,451 lbs	11,571 lbs	29.8%	1	10-08-00
Total Load Deflection	L/406 (0.329")	n/a	59.2%	4	05-06-04
Live Load Deflection	L/620 (0.215")	n/a	58.1%	5	05-08-04
Max Defl.	0.329"	n/a	n/a	4	05-08-04
Span / Depth	14.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,962 lbs	39.8%	26.5%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,799 lbs	38.2%	26.4%	Unspecified

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: 00-02-08, Bottom: 00-02-08.

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

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

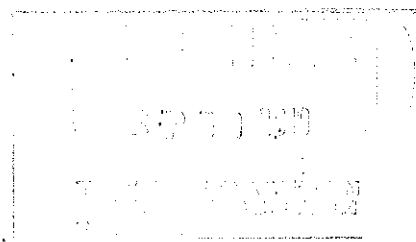
Member has no side loads.

Nail one ply to another with
3 1/2" spiral nails @ 10"

o.c. staggered in 2 rows (Top loaded)



THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE



T. 19041427



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B10\15406

BC-CALC® Member Report

Dry | 1 span | No cant

November 17, 2018 11:42:15

Build 6475

Job name:

File name: KINMOUNT 6A.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B10\15406

City, Province, Postal Code: CALEDON

Specifier:

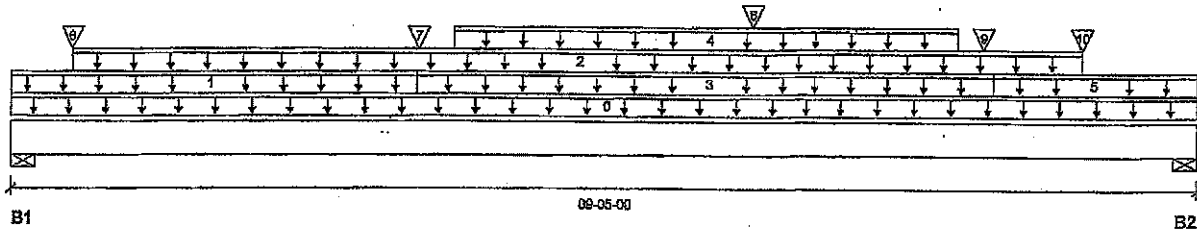
Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-05-00

Reaction Summary (Down / Uplift) (lbs)

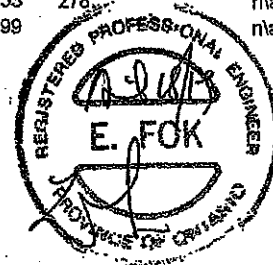
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,562 / 0	1,225 / 0	432 / 0	
B2, 3-1/2"	1,475 / 0	1,272 / 0	620 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-05-00	Top		10			00-00-00
1	E33(14574)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-08	Top		41			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-00	08-06-00	Top	150	75			n/a
3	E32(14573)	Unf. Lin. (lb/ft)	L	03-02-08	07-09-08	Top		81			n/a
4	E32(14573)	Unf. Lin. (lb/ft)	L	03-08-00	07-08-00	Top	29	45	125		n/a
5	E31(14572)	Unf. Lin. (lb/ft)	L	07-09-08	09-05-00	Top		41			n/a
6	J1(15420)	Conc. Pt. (lbs)	L	00-06-00	00-06-00	Top	399	199			n/a
7	-	Conc. Pt. (lbs)	L	03-02-11	03-02-11	Top	463	331	274		n/a
8	J1(15426)	Conc. Pt. (lbs)	L	05-10-00	05-10-00	Top	399	199			n/a
9	E32(14573)	Conc. Pt. (lbs)	L	07-08-08	07-08-08	Top	64	133	278		n/a
10	J1(15402)	Conc. Pt. (lbs)	L	08-06-00	08-06-00	Top	399	199			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10,175 ft-lbs	23,220 ft-lbs	43.8%	1	04-08-00
End Shear	4,176 lbs	11,571 lbs	36.1%	1	08-04-00
Total Load Deflection	L/484 (0.222")	n/a	49.6%	35	04-08-00
Live Load Deflection	L/776 (0.139")	n/a	46.4%	51	04-08-00
Max Defl.	0.222"	n/a	n/a	35	04-08-00
Span / Depth	11.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,306 lbs	65.8%	28.6%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	4,423 lbs	67.6%	29.6%	Unspecified

Nail one ply to another with
3 1/2" spiral nails @ 9"
O.C. staggered in 2 rows

T. 19041428



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(15392)

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

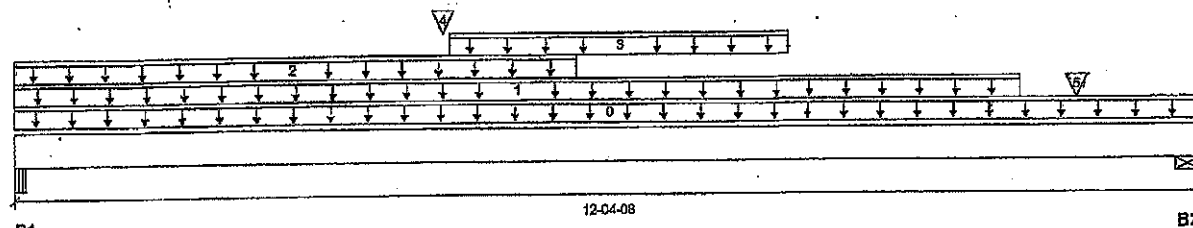
File name: KINMOUNT 6A.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(15392)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2,427 / 0	1,303 / 0		
B2, 5-1/2"	2,206 / 0	1,194 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-04-08	Top	14				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	10-06-00	Top	314	156			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Top	9	4			n/a
3	STAIRS	Unf. Lin. (lb/ft)	L	04-06-08	08-00-08	Top	240	120			n/a
4	B7(15414)	Conc. Pt. (lbs)	L	04-05-10	04-05-10	Top	79	44			n/a
5	J1(15507)	Conc. Pt. (lbs)	L	11-01-04	11-01-04	Top	348	174			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16,749 ft-lbs	36,222 ft-lbs	46.2%	1	05-10-00
End Shear	4,766 lbs	17,356 lbs	27.5%	1	11-01-08
Total Load Deflection	L/370 (0.381")	n/a	64.8%	4	06-02-00
Live Load Deflection	L/568 (0.248")	n/a	63.4%	5	06-02-00
Max Defl.	0.381"	n/a	n/a	4	06-02-00
Span / Depth	14.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 3-1/2" x 5-1/4"	5,269 lbs	26.2%	23.4%	Unspecified
B2	Wall/Plate 5-1/2" x 5-1/4"	4,802 lbs	31.0%	13.6%	Unspecified

Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nailing schedule applies to both sides of the member.

Nail one ply to another with
3 1/2" spiral nails @ 31"
o.c. staggered in 2 rows



T.19041429

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B12\{5328}**

Dry | 1 span | No cant.

November 17, 2018 11:42:15

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

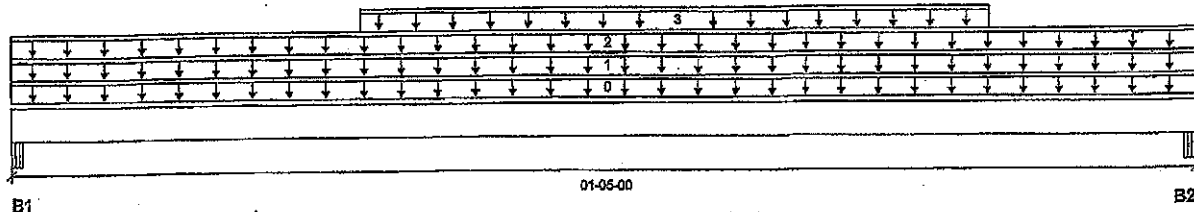
File name: KINMOUNT 6A.mmdf

Description: 2ND FLOOR FRAMING\Flush Beams\B12\{5328}

Specifier:

Designer: PL

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 5"	142 / 0	192 / 0	434 / 0	
B2, 5"	143 / 0	193 / 0	433 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		10			00-00-00
1	E29(4570)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	165	231	510		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-05-00	01-02-00	Top	6				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	92 ft-lbs	23,220 ft-lbs	0.4%	13	00-08-08
End Shear	427 lbs	11,571 lbs	3.7%	13	00-05-00
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam 5" x 3-1/2"	1,033 lbs	11.1%	4.8%	Unspecified
B2	Beam 5" x 3-1/2"	1,034 lbs	11.1%	4.8%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Member has no side loads.

Nail one ply to another with

3 1/2" spiral nails @ 4"

o.c. staggered in 2 rows



T. 19041430



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B7(i5414)

Dry | 1 span | No cant.

November 17, 2018 11:42:15

Build 6475

Job name:

File name: KINMOUNT 6A.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B7(i5414)

City, Province, Postal Code: CALEDON

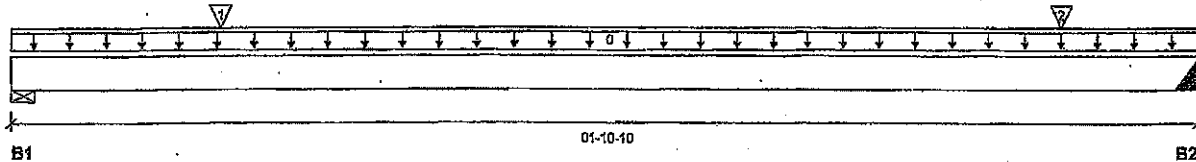
Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 01-10-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	112 / 0	61 / 0		
B2, 3"	86 / 0	48 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-10-10	Top	1.00	0.85	1.00	1.15	00-00-00
1	J5(i5379)	Conc. Pt. (lbs)	L	00-04-00	00-04-00	Top	119	60			n/a
2	J5(i5437)	Conc. Pt. (lbs)	L	01-08-00	01-08-00	Top	79	40			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	25 ft-lbs	11,610 ft-lbs	0.2%	1	00-04-00
End Shear	14 lbs	5,785 lbs	0.2%	1	00-10-02
Span / Depth	1.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	245 lbs	7.5%	3.3%	Unspecified
B2	Hanger 3" x 1-3/4"	189 lbs	n/a	2.9%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 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.

Notes

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

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.

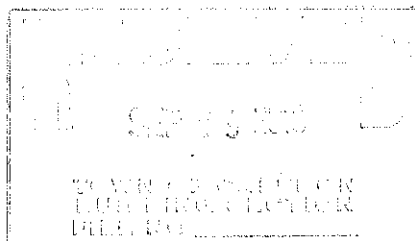
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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®,



T. 19041431



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B20\15638

Dry | 1 span | No cant.

November 19, 2018 07:37:33

BC CALC® Member Report

Build 6475

Job name:

File name: KINMOUNT 6A ELEV 2.mxd

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B20\15638

City, Province, Postal Code: CALEDON

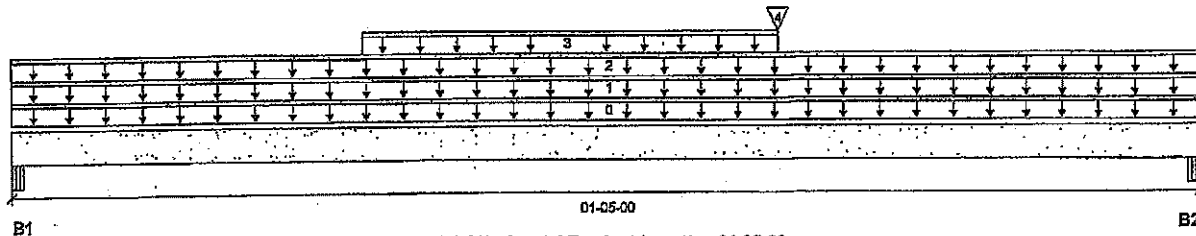
Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	76 / 0	121 / 0	145 / 0	
B2, 5"	144 / 0	155 / 0	144 / 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	01-05-00	Top	1.00	0.65	1.00	1.18	00-00-00
1	E36(16076)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	111	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-05-00	00-10-14	Top	6				n/a
4	J3(16049)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	124	62			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	56 ft-lbs	23,220 ft-lbs	0.2%	1	00-08-14
End Shear	145 lbs	11,571 lbs	1.2%	13	00-02-08
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	444 lbs	4.6%	2.1%	Unspecified
B2 Beam	5" x 3-1/2"	556 lbs	5.9%	2.6%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another, with
3 1/2" spiral nails @ 4"
o.c. staggered in 2 rows



T.19041432



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B21(i6068)

Dry | 1 span | No cant

November 19, 2018 07:37:33

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

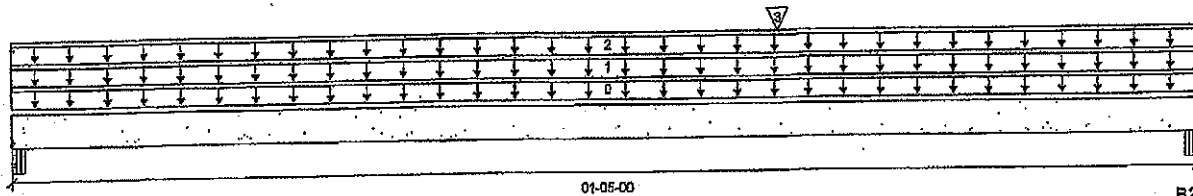
File name: KINMOUNT 6A ELEV 2.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B21(i6068)

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 01-05-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	75 / 0	121 / 0	144 / 0	
B2, 5"	145 / 0	156 / 0	145 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		10			00-00-00
1	E37(i6077)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	111	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a
3	J3(i6049)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	126	63			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	55 ft-lbs	23,220 ft-lbs	0.2%	1	00-09-15
End Shear	142 lbs	11,571 lbs	1.2%	13	00-02-08
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	442 lbs	4.7%	2.1%	Unspecified
B2 Beam	5" x 3-1/2"	556 lbs	6.0%	2.6%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another with
3 1/2" spiral nails @ 4"

O.C. staggered in 2 rows



T:19041433



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B23\5728

Dry | 1 span | No cant.

November 19, 2018 08:01:38

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

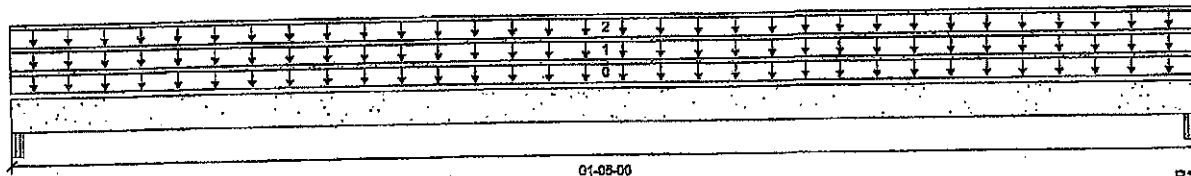
File name: KINMOUNT 6A ELEV 3.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B23\5728

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	47 / 0	107 / 0	144 / 0	
B2, 5"	47 / 0	107 / 0	145 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		10			00-00-00
1	E36(j6192)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	111	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	35 ft-lbs	23,220 ft-lbs	0.2%	13	00-08-08
End Shear	163 lbs	11,571 lbs	1.4%	13	00-05-00
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5" x 3-1/2"	397 lbs	4.2%	1.9%	Unspecified
B2	Beam 5" x 3-1/2"	397 lbs	4.2%	1.9%	Unspecified

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.

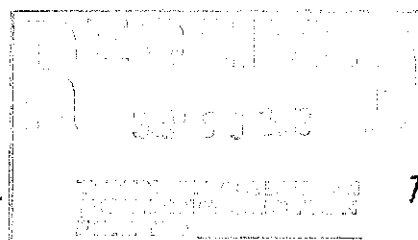
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Member has no side loads.



Nail one ply to another with
3 1/2" spiral nails @ 4"
o.c, staggered in 2 rows



T. 19041434



Boltscascade



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

2ND FLOOR FRAMING\Flush Beams\B24\I6145

Dry | 1 span | No cant.

PASSED

November 19, 2018 08:01:38

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

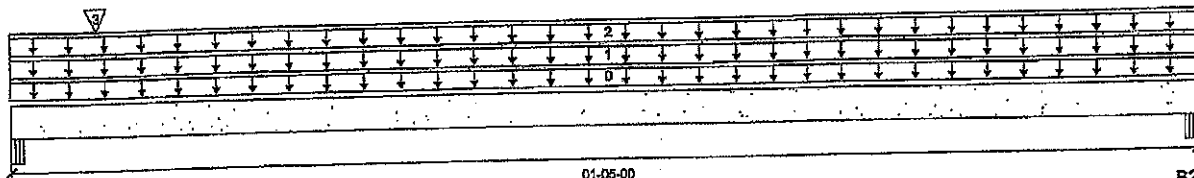
File name: KINMOUNT 6A ELEV 3.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B24\I6145

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	48 / 0	107 / 0	144 / 0	
B2, 5"	47 / 0	107 / 0	145 / 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	01-05-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	E29(I4570)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	111	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a
3	FC3 Floor Material	Conc. Pl. (lbs)	L	00-01-04	00-01-04	Top	2				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	35 ft-lbs	23,220 ft-lbs	0.2%	13	00-08-08
End Shear	163 lbs	11,571 lbs	1.4%	13	00-06-00
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5" x 3-1/2"	399 lbs	4.3%	1.9%	Unspecified
B2	Beam 5" x 3-1/2"	397 lbs	4.2%	1.9%	Unspecified

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

Member has no side loads.

Nail one ply to another with

3 1/2" spiral nails @ 4"

o.c., staggered in 2 rows



THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

T. 19041435



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B15(i6015)

Dry | 1 span | No cant.

April 12, 2019 10:29:12

BC CALC® Member Report

Build 6766

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

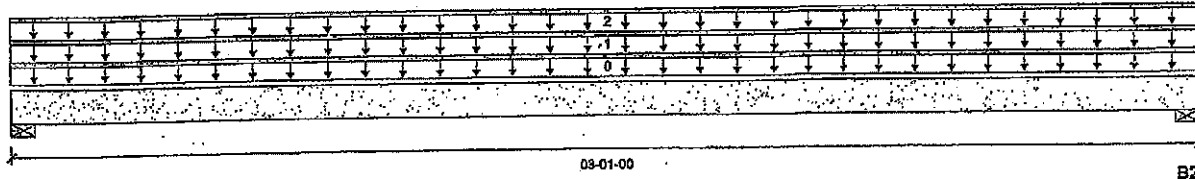
File name: KINMOUNT 6A DECK CONDITION.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B15(i6015)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	80 / 0	187 / 0		
B2, 3-1/2"	80 / 0	187 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		10			00-00-00
1	E14(i241)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	26	98			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	146 ft-lbs	15,093 ft-lbs	1.0%	0	01-06-10
End Shear	78 lbs	7,521 lbs	1.0%	0	01-01-00
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-06-10
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-06-10
Max Defl.	0"	n/a	n/a	4	01-06-10
Span / Depth	3.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	262 lbs	6.2%	2.7%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	262 lbs	6.2%	2.7%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Member has no side loads.

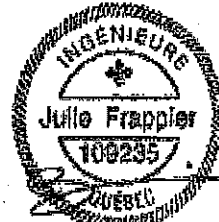
Nail one ply to another with

3 1/2" spiral nails @ 4"

o.c. staggered in 2 rows



T.19041436



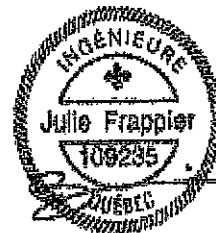
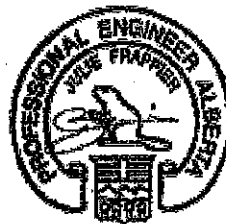
Maximum Floor Spans

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'-8"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

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

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



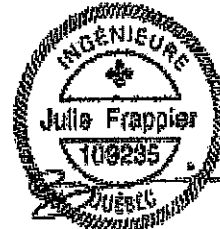
Maximum Floor Spans

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

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

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

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

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

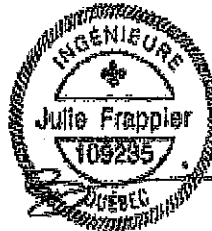
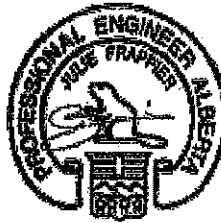
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and CBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

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



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

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

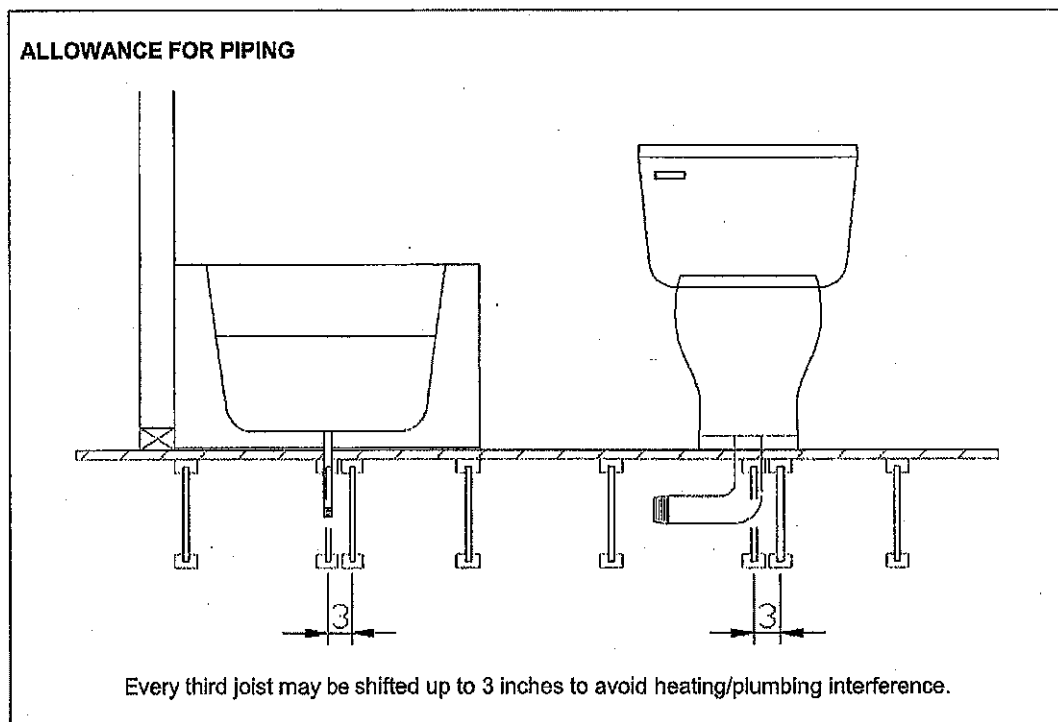
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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

Allowance for Piping (Installation Notes)

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

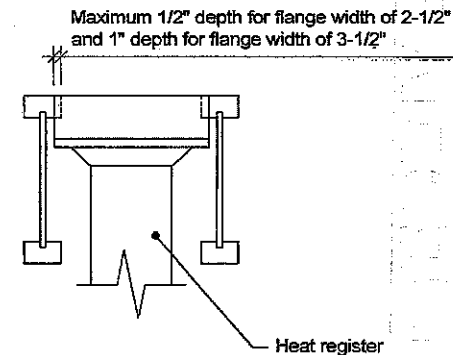
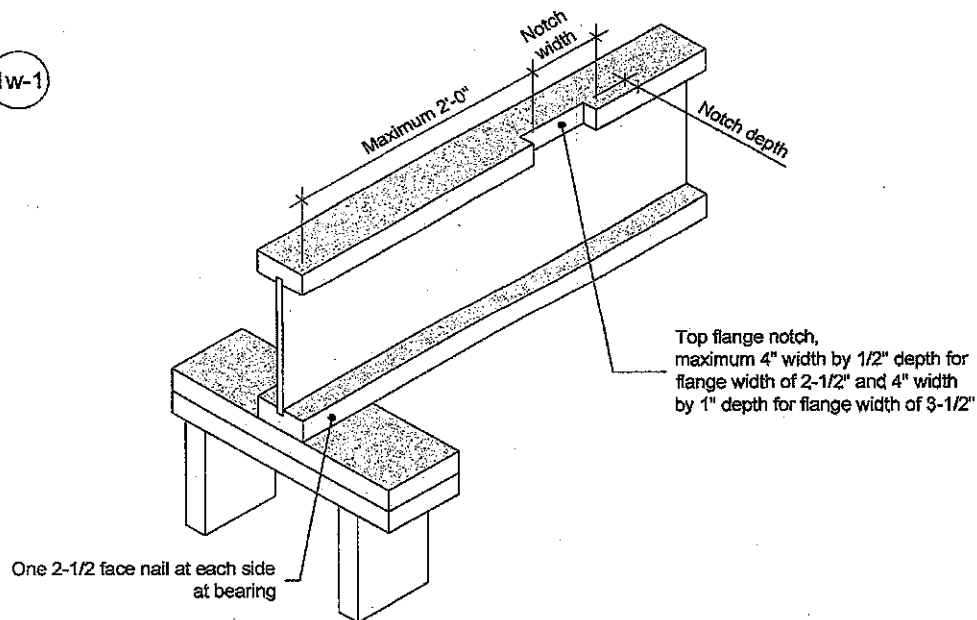
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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



Revised April 12, 2012

1W-1



Notes:

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

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

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

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

DATE

2018-04-10

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