

		Products		
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	38
J1 DJ	18-00-00	11 7/8" NI-40x	2	10⋅
J2	16-00-00	11 7/8" NI-40x	1	3
J3	12-00-00	11 7/8" NI-40x	1	2
J4	6-00-00	11 7/8" NI-40x	1.	6
J5	4-00-00	11 7/8" NI-40x	1	2
J6	2-00-00	11 7/8" NI-40x	1	4
B8	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1 H	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

	Connector Summary									
Qty	Manuf	Product								
6	H1	IUS2.56/11.88								
6	H1	IUS2.56/11.88								
7	H1	IUS2.56/11.88								
3	H1	IUS2.56/11.88								
5	H1	IUS2.56/1188								
1	H3	HUS1.81/10								
1	H4C	HUC410								
3	H5	HU312-2								



FROM PLAN DATED: MAY 13, 2020

BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4500

ELEVATION: A,B,C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** L.D.

NOTES:

REFER TO THE NORDIC INSTALLATION
GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK R 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 1 APPLICATION AS PER O.B.C 9.30.6.

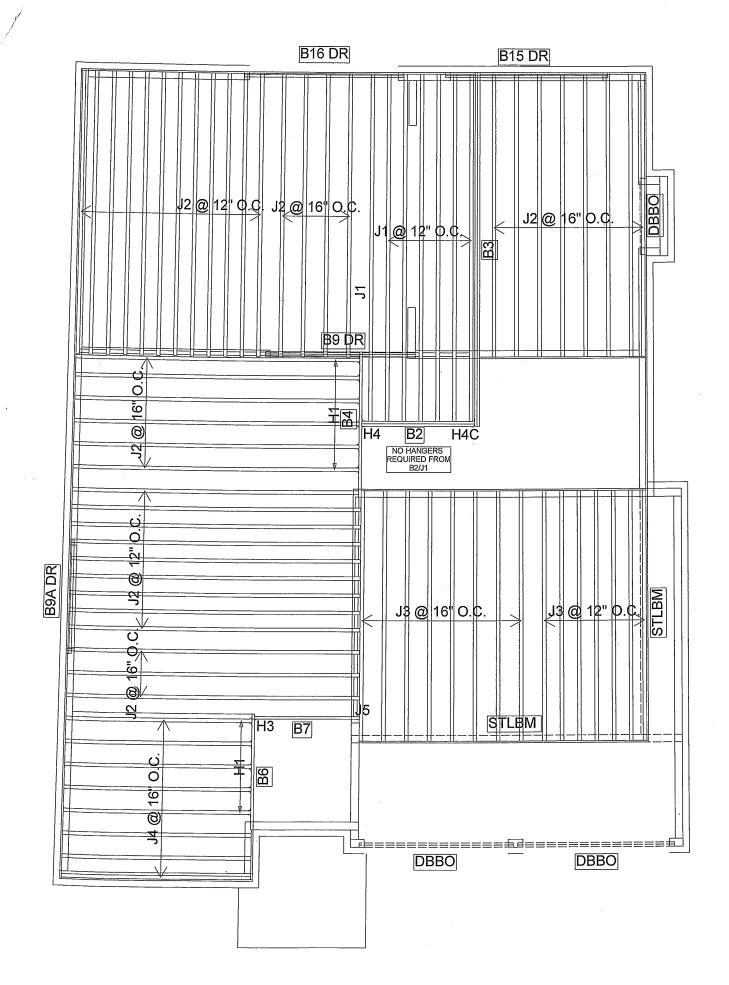
LOADING:

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

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-09-02

1st FLOOR



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	22-00-00	11 7/8" NI-40x	1	7
J2	18-00-00	11 7/8" NI-40x	1	42
J3	16-00-00	11 7/8" NI-40x	1	15
J4	12-00-00	11 7/8" NI-40x	1	8
J5	2-00-00	11 7/8" NI-40x	1	1
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9A DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2 ·	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

	Connecto	r Summary
Qty	Manuf	Product
11	H1	IUS2.56/11.88
1	H3	HUS1.81/10
1	H4C	HUC410
1	H4	HGUS410



FROM PLAN DATED: MAY 13, 2020

BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4500

ELEVATION: A,B

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** L.D.

NOTES:

REFER TO THE NORDIC INSTALLATIO **GUIDE** FOR PROPER STORAGE AND INSTALLATION. SQUASH BLOCKS OF 2 2x6. 2x8 #2 S.P.F. REQ'D UNDER INTEF UNIFORM LOAD BEARING WALLS. MUL **SQUASH BLOCKS REQ'D UNDER** CONCENTRATED LOADS. SEE FIGURE CANTILEVERED JOISTS INCLUDING CA OVER BRICK REQ. I-JOIST BLOCKING BEARING AND RIMBOARD CLOSURE A ENDS. SEE FIGURE 7 TABLES 4 & 5 F(REINFORCEMENT REQUIREMENTS. FC HOLES INCLUDING DUCT CHASE AND **CUT OPENINGS** SEE FIGURE 7 TABLES OF THE INSTALLATION GUIDE. CERAM APPLICATION AS PER O.B.C. 9.30.6

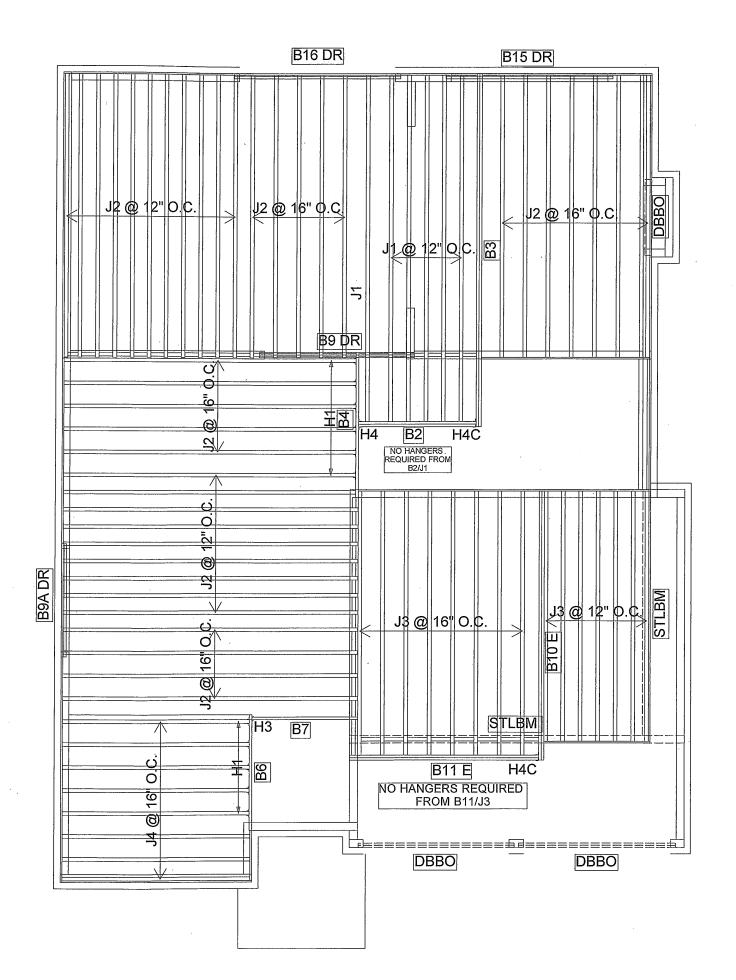
LOADING:

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

SUBFLOOR: 5/8" GLUED AND NAILED

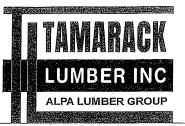
DATE: 2020-09-02

2nd FLOOR



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	22-00-00	11 7/8" NI-40x	1	6
J2	18-00-00	11 7/8" NI-40x	1	42
J3	16-00-00	11 7/8" NI-40x	1	15
J4	12-00-00	11 7/8" NI-40x	1	8
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9A DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10 E	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11 E	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

	Connector Summary										
Qty	Qty Manuf Product										
11	H1	IUS2.56/11.88									
1	H3	HUS1.81/10									
2	H4C	HUC410									
1	H4	HGUS410									



FROM PLAN DATED: JULY 13, 2020

BUILDER: ROYAL PINE HOMES

SITE: CENTERFIELD - WEST GORMLEY

MODEL: 4500

ELEVATION: C

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. **REVISION:** L.D.

NOTES:

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

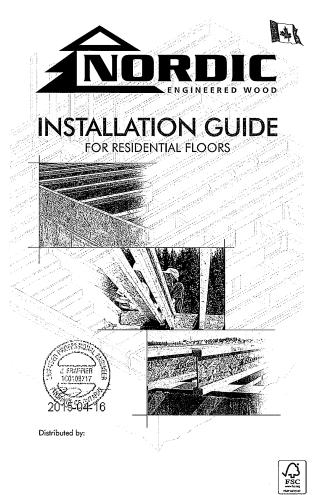
LOADING:

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

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-09-02

2nd FLOOR



SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious inju-



Never stack building materials over unsheathed 1-joists. Once sheathed, do no over-stress I-joist with concentrated loads from building materials.

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

braced and sheathed. Avoid Accidents by Following these Important Guidelines:

 Brace and noil each I-joist as it is instelled, using hangers, blocking ponels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support. 2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.

- Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" noils fastened to the top surface of each i-joist. Noil the bracing to a lateral restraint at the end of each boy. Lap ends of adjoining bracing over at least two I-joists.
- Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of 1-joists at the end of the bay.
- 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with dosure panels, rim board, or cross-bridging.
- Install and fully noil permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only. 5. Never install a damaged 1-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-jaists, 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.

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or
- 2. Spans are bosed on a composite floor with glued-nailed oriented strand board (CSB) sheathing with a minimum thickness of S/B inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-7.12.6 Standard. No concrete topping or bridging element was assumed. Increased spans may be ochieved with the used of gypsum and/or a row of blocking at mid-span.
- 3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- 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 uniform loads, an engineering analysis may
 be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm 1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist	Joist	公司的特殊的	Carried Control	Section and the section and th	20%在10%的发展	STATE OF STREET	COR CONCENSION OF THE	a Print of the Address of the	450 FEBRUARY 1		
Depth	Series		On centro	spacing		On centre spacing					
		112	16	192	24	122	116	192	244		
100	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3'	15'-4"	14'-10'	14'-7'		
	NI-40x	16'-1"	15'-2"	14'-8'	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"		
9-1/2	NI-60	16'-3"	15'-4"	14'-10"	14'-11'	17-7	16'-7"	16'-0'	16'-1"		
1900 1	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7'	17'-4"	16'-9"	16'-10'		
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11'	17'-0"		
15 191	NI-20	16'-11'	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7'		
	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20'-0'	18'-6"	17'-9'	17'-7'		
	NI-60	18'-4"	17'-3"	16'-7"	16'-9'	20'-3"	18'-9"	18'-0"	18'-1"		
11-7/8	NI-70	19'-6"	18'-0"	17'-4'	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"		
	NI-80	19'-9'	18'-3"	17'-6"	17'-7"	21'-9'	20'-2"	19'-3"	19'-4"		
	NI-90	20'-2"	18'-7*	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19-9		
0.5	NI-90x	20'-4"	18'-9"	17-11	18'-0"	22'-5"	20'-9"	19'-10"	19-11		
4.00	NI-40x	20'-1'	18'-7"	17'-10"	17'-11'	22'-2"	20'-6"	19'-8"	19'-4"		
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20-11	20'-0"	20'-1"		
14"	NI-70	21'-7'	20'-0'	19'-1"	19'-2'	23'-10"	22'-1"	21'-1"	21'-2"		
14	NI-80	21'-11"	20'-3'	19'-4"	19'-5'	24'-3"	22'-5"	21'-5"	21'-6"		
	NI-90	22'-5"	20'-8'	19'-9"	19'-10'	24'-9"	22'-10"	21'-10"	21'-10'		
4.4	NI-90x	22'-7'	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"		
40, 800	NI-60	22'-3"	20'-8'	19'-9"	19'-10'	24'-7"	22'-9"	21'-9"	21'-10'		
24,700	NI-70	23'-6"	21'-9"	20'-9"	20'-10'	26'-0'	24'-0"	22-11	23'-0"		
16"	NI-80	23'-11"	22'-1"	21'-1"	21'-2'	26'-5"	24'-5"	23'-3"	23'-4"		
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"		
10 10 1	NI-90x	24'-8"	22'-9"	21'-9'	21'-10'	27'-3"	25'-2"	24'-0"	24'-1"		

I-JOIST HANGERS

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



STORAGE AND HANDLING GUIDELINES

- Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 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 -
- Pick I-joists in bundles as shipped by the supplier.
- Orient the bundles so that the webs of the I-joists are vertical.
- Pick the bundles at the 5th points, using a spreader bar if necessary
- 8. Do not handle I-joists in a horizontal orientation.
- 9. NEVER USE OR TRY TO REPAIR A DAMAGED ILIOIST.



(le)

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

bearing area of blocks below to post above.

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

for nailing schedules for multiple seams, see the manufacturer's

Note: Unless hanger sides laterally

support the top flange, bearing stiffeners shall be used.

Nordic Lam or SCL

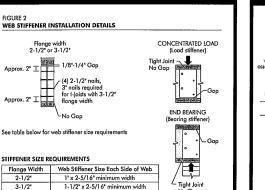
(lk)

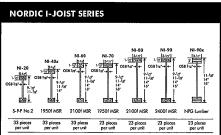
11)

WEB STIFFENERS RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the 1-joist properties table found of the 1-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the tiffener and flange is at the top
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantillever, anywhere between the cantillever fip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permit by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm





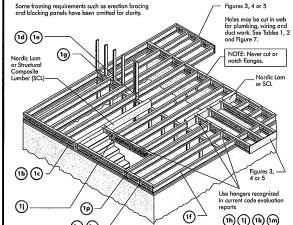
Chantiers Chibougamau Ltd. harvests its own trees, which enables Nortice products to adhere to strict quality control procedures through \$100 pt 100 pt 100

manufacturing process. Every phase or time operation.
finished product, reflects our commitment to quality.
Nordic Engineered Wood Lipists use only finger-jointed plack and profile finished phase anxieting consistent quality, superior states and profile finished phases. lumber in their flanges, ensuring consistent quality, superior longer span carrying capacity. (MZ) 2015-04-16

INSTALLING NORDIC I-JOISTS

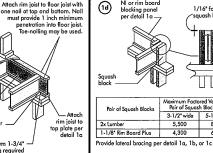
- 1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, continued to
- 2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched. 3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- I-joists must be anchored securely to supports before floor sheathing is attached, and supports to be level.
- 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings 20 15-04-16 6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
- 7. Leave a 1/16-inch gap between the I-joist end and a header. 8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend off concentrated loads from the top of the I-joist. Or, ottach the load to blocking that has been securely fastened to the
- 9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
- 11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer growity 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 ponels or other engineered wood products such as rim board must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
- 13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all contilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gyssum wallboard selling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- 14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeeks. 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 approved building slage.

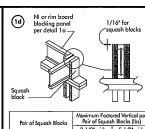
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAIL

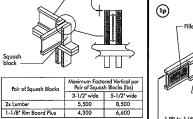


(1h) (1j) (1k) (1m) (10 (1n)

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3° (0.122° dia.) common spiral nails may be substituted for 2-1/2° (0.128° dia.) common wire nails. Framing lumber assumed to be Spruze-Tine-Fir No. 2 or better. Individual components not shown to scale for clarity







nstall hanger per nanufadurer's Top-mount hanger installed per Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible. Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used. Maximum support capacity = 1 620 lbs

Use single 1-joist for loads up to 3,300 plf, double 1-joists for loads up to 6,600 plf (filler block not

Rim board may be used in lieu of I-joists. Backer is not

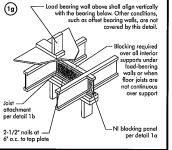
equired when rim board is used. Bracing per code shall be arried to the foundation.

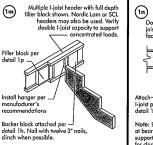
- 2x plate flush with inside face of wall o beam. 1/8" overhan allowed past inside face of wall or beam

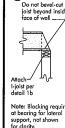
siding attachment



5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

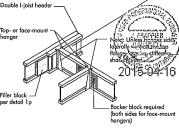






Note: Blocking required at bearing for lateral support, not shown for clarity.



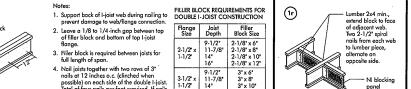


for hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

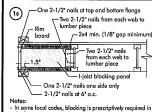
BACKER BLOCKS (Blocks must be long enough to permit required

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

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



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



Notes:

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



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

Blocking Panel or Rim Joist Maximum Factored Uniform Vertical Load* (plf)

NI Joists 3,300 "The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duratio it shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

1b

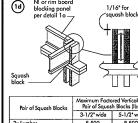
To avoid splitting flange, start nails at least 1-1/2' from end of I-joist. Nails ay be driven at an angle to id splitting of bearing plate Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

Z PRAPPIER

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

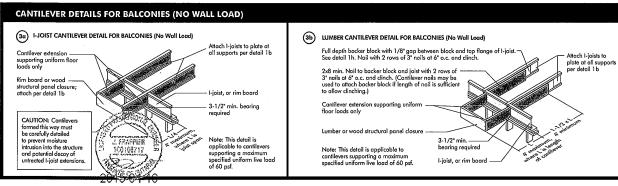
1-1/8" Rim Board Plus *The uniform vertical lood is limited to a rim board depth of 16 inches or less and is based on standard term lood duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical lood transfer, see detail 1d.

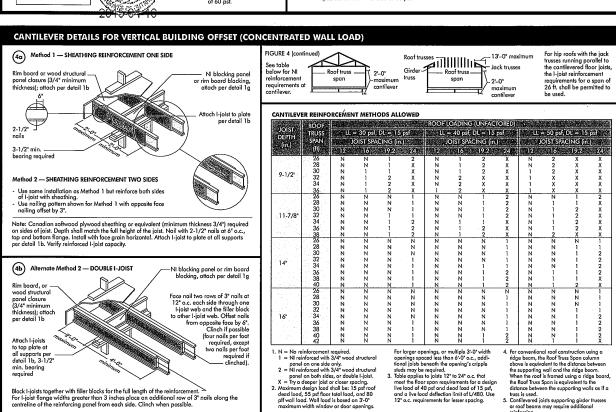
(10) one nail at top and bottom. Nail NI rim joist per detail 1a Minimum 1-3/4" -bearing required



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

3-1/2" x 11-7/8" 2" 14" 16"





BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) Roof trusses Girder Roof truss | 13'-0" maximum Jack trusses truss | 2'-0" maximum For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the !-joist reinforcement GURE 5 (continued) Provide full depth blocking between joists over support (not shown) __ Roof truss ___ requirements for a span of 26 ft. shall be permitted to —Nail reinforcement to top and bottom joist flanges with 2-1/2" nails at 6" o.c. (offset opposite face nailing by 3" when using reinforcement on both Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4)* required on sides of joist. Depth shall match the full height of the joist. Note with 1/2" nalls of 6 o.c., top and bottom flenge, install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist copacity. Note: Canadian softwood ROOF TRUSS sides of I-joist) SPAN (ft) JOIST SPACING (in.) 9-1/2" 100109717 (5b) SET-BACK DETAIL 352> 2015-04 Rim board or wood structural panel closure (3/4" minimum thickness), attach per detail 1b. 11.7/8" Provide full depth blocking Provide full depth DIOCKING between joists over support (not shown for clarity) Attach I-joist to plate at all supports per detail 1b. 3-1/2* minimum I-joist bearing required. (5c) SET-BACK CONNECTION ... Nail joist end using 3" nails, toe-nail at top and bottom flanges. Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails. Alternate for opposite side. Hanger may be used in lieu of solid sawn block For larger opanings, or multiple 3-0" vidils openings spaced less than 6-0" o.c., additional joints between the opening's cripple additional joints between the opening's cripple and large per space. 3. Table applies to joint 12" to 24" oc. that meet he foor span registerents for a design live load of 40 ppt and dead load of 15 ppt, and a live load deficial min at 10" (1480. Use 12" o.c. requirements for lesser spacing. N = No reinforcement required. 1 = NI reinforced with 3/4" wood structural panel on one side only. 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist. X = now to both sides, or double I-joist. X = now to both sides, or double I-joist. X = now to both sides, or double I-joist. X = now to both sides in the side of the I-joint sides of the I-joint - Verify airder joist capacity if the back span exceeds the joist spacing. Attach double I-joist per detail 1p, if required.

Block I-joists together with filler blocks for the full length of the reinforcement.

For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

WEB HOLES

distance from

reen the supporting walls as if a

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that car be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A mir num of 1/8 inch should always be it between the top or bottom of the hole or opening and the adjacent I-joist flange
- . The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 3/4 or the allaheer or the minumour round not perminene or that location. Where more than one hale is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round halo or twice the size of the largest square hale (or twice the largest of the largest side of the largest rectangular hale or duct chose opening) and each hale 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 chose openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to
- 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 chose 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
- 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.

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

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span the minimum distance from the centreline of the hole to the face of any support [D] as given above may be reduced as follows: D_{reduced} = Loctual x D

LACLE 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

Distonce from the inside face of any support to centre of hole, reduced for less-than-maximum spa distance shall not be less than 6 inches from the face of the support to dags of the hole.

Lactual |
SAF | Span Adjustment Factor given in this table.

D | The minimum distance from the inside force of any support to centre of hole from this table.

If bactual is greater than 1, use 1 in the above calculation for bacturing.

SAF | SAF |
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| Joist | Joist | Joist | Minimum distance from Inside foce of any support to centre of hole (It in.) | Jodgement | Depth | Series | 2 3 4 5 6 6.1/4 7 8 8.5/8 9 10 10 10 3/4 11 12 12344 | Foote | Tender of the following state of

6'.6' 7'.9' 7'.0' 8'.4' 8'.10' 10'.0' 10'.0' 11'.2' 10'.3' 11'.4' 8'.9' 10'.2'

ins (f) FRAFFIER

2015-04-16

FIELD-CUT HOLE LOCATOR DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only Knockouts are prescored holes provided for the contractor's convenience to insta electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are 2x duct chase -length or hole diameter, whichever is larger Duct chase opening (see Table 2 for minimum distance from bearing) 9-1/2* 5:3' 5:9' 6:9' 7:3' 7:2' 7:6' 7:7' 8:1' 8:7' 8:7' 9:0' 9:4' 10:3' 10:4' 10:9' 11:1' 9-1 9-5 8-6 8-6 9-0 8-6 9-0 9-0 8-5 8-7 8-5 8-10 8-9 9-2 8-10 9-4 10-1 10-4 10-1 10-4 10-1 10-4 10-1 10-1 10-4 11-10 11-4 12-4 12-4 12-4 12-4 12-4 Never drill, cut or notch the flange, or over-cut the web. 3/4x diameter (8) 11-1 10-8 11-1 11-5 11-7 For rectangular holes, avoid over-cutting the corners, as this can cause unnecessor stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the 1-joist. Maintain minimum 1/8" space between top and bottom flange — all duct chase openings and holes rule 12 1. Above table may be used for I-joist spocing of 24 inches on center or less. 2. Dust chose opening location distance is measured from inside face of supports to centre of opening. 3. The above table is bused on simple tops no joist only, for other applications, contact your facel distributor. 4. Distances are based on uniformly loaded floor joist that meet the spon requirements for a design live load of 40 put and dead food of 18 ps, and as leve load of 18 ps, and as leve load defended mile af U498. For other applications, contact you local distributor. 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.

INSTALLING THE GLUED FLOOR SYSTEM

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

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

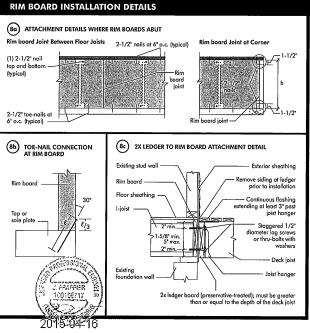
Maximum Joist	Minimum Panel	Commons	Ring Thread		of Fasteners			
Spacing (in.)	Thickness (in.)	Wire or Spiral Nails	Nails or Screws	Staples	Edges	Interm. Supports		
16	5/8	2'	1-3/4*	2'	6'	12'		
20	5/8	2*	1-3/4*	2*	6*	12"		
24	3/4	2'	1-3/4"	2*	6*	12*		

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

Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

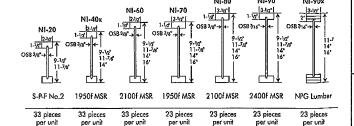
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with







FSC



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:

- 1. The distance between the inside edge of the support and the centreline of any hale 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 centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chose opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the Ligist 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.
- 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.
- Where more than one hole is necessary, the distonce between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest round hole or twice the largest round hole or twice the size of the largest round hole or twice the largest round hole square hole for twice the length of the longest side of the longest rectangular hole of duct chose opening) and each hole and duct chose opening shall be sized and localed 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 hales and/or duct chase openings
- 8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Hales 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
- 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 hale circumscribed around them.

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

			М	inimun	n Distar	ice fro	m Insid	e Face	of Any	Support	to Cer	ntre of	Hole (ft	- in.}		
Joist Depth	Joist Series		Round Hole Diameter (in.)													
Debin	261167	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
	NI-20	0'-7"	146"	2'-10"	4'-3"	5'-8"	6'-0"									
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"								•••	
9-1/2"	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	***							***	
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8-4	***								
L	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"									
	NI-20	0'-7"	0,-8,	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"						
i	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	ブ -0"	8'-4"						
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"					***	
11-7/8*	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4'	10'-0°	11'-2"						
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"			***			
	NI-90	0'-7"	08.	1'-5"	3'-2"	4-10"		6'-9"	8'-9"	10'-2"						
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4-4"	4'-9"	6'-3"	***	***		***	***			***
	NI-40x	0'-7"	08.	0'-8"	1.0.	2'-4"	2'-9"	3'-9"	5'-2°	6-0	6'-6"	8r-3a	10'-2"			
	NI-60	0'-7"	0.8.	1.8	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8,-0,	8'-8"	10'-4"	11'-9"			
14"	NI-70	0'-8"	1' 10'	3'-0"	4'-5"	5'-10"		7'-3'	8'-9"	9,-6,	10'-4"		13'-5"			
	NJ-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"		13'-9"			
	NI-90	0'-7"	0,-8,	0'-10"	2'-5"	4'-0"	4'-5"	5'-9'	7'-5"	8'-8"	9'-4"	11'-4°	12'-11"			
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0*	3'-9"	4'-2'	5'-5"	7'-3"	8'-5"	9'-2"					
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"		4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10-2		13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10'		6'-3"	7'-8"	8'-6"	9-2	10'-8"	12'-0"		14'-0"	15'-6"
16"	NI-80	0'-7"	1'-3"	2-6"	3'-10"	5-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"		14'-5"	16'-0"
ì	NI-90	0-7°	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3'		13'-9"	15'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6'	72'-0"		

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

DUCT CHASE OPENING SIZES AND LOCATIONS

1.1.4	1	Minimum distance from inside face of supports to centre of opening (ft -								ft - in.)
Joist Depth	Joist Series				Duct Ch	ase Leng	th (in.)			
	**********	8	10	12	14	16	18	20	22	24
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8'	6'-1"	6'-6"	7'-1"	7'-5°
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
	NI-70	5'-1"	5'-5"	5'-10'	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3'	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6'
	NI-20	5-9	6'-2"	6'-6"	7-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6-8	7'·2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10:-1"	10'-9"
- 1	NI-60	7'-3"	7'-8"	8'-0"	B'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
11-7/8"	N1-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1°	9'-6"	10'-1"	10'-4"
1	NI-80	7'-2"	71.71	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
}	NI-90	7'-6"	7'-11'	8'-4"	8'-9"	9'-2"	9-70	10'-1"	10'-7"	10'-11
	NJ-90x	7'-7*	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11-21
1	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10:-1°	10'-7"	111-2"	12'-0"	12'-8"
1	NI-60	8'-9'	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
14*	NI-70	8'-7"	91-11	9'-5"	9'-10"	10:-4*	10'-8"	11'-2"	11-7*	1243*
14	NI-80	9'-0'	91-31	9-9	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12-6
i	NI-90	9'-2"	9'-8"	10'-0'	10-6		11'-5"	11'-9"	12'-4"	12'-11
	NI-90x	9'-4"	9'-9"	10:3"	10-7	11'-1"	11-7	12'-1"	12'-7"	13-2
	N1-60	10'-3"	10,-8,	1142"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14-10
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10'		12'-8"	13'-3"	14'-0"
16"	NI-80	10-4	10'-9"	11:-3:	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	N(-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	73'-6°	14-2	14'-10
- 1	NI-90x	1141	11'-5"	114-10	12'-4"	12'-10'	13'-2"	13'-9"	14-4	15'-2"

- Above table may be used for 1-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 pst and dead load of 15 pst, and a live load deflection limit of L/480.
 The above table is based on the 1-joist being used of their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

Simple Span Only

Joist	1-7-4	Joist Minimum distance from inside face of supp											
Depth	Series		Duct Chase Length (in.)										
rop	40,100	8	10	12	14	16	18	20	22	24			
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8'	6'-1"	6'-6"	7'-1"	7'-5°			
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"			
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9'			
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8-4			
	NI-80	5'-3'	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6'			
	NI-20	5-9	6'-2"	6'-6"	7-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"			
	NI-40x	6'-8"	7'·2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"			
	NI-60	7'-3"	7'-8"	8'-0"	B'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"			
11-7/8"	NI-70	7'-1*	7'-4"	7'-9"	8'-3"	8'-7"	9'-1°	9-6"	10'-1"	10'-4"			
	NI-80	7'-2'	71.71	8'-0"	8'-5"	8'-10"	9-3	9'-8"	10'-2"	10'-8"			
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7°	10'-1"	10-7	10-11			
	NI-90x	7'-7*	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11421			
	NI-40x	8'-1"	81-7"	5'-0"	9'-6"	10:-1°	10'-7"	111-2"	12'-0"	12'-8"			
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"			
14*	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10:-4*	10'-8"	11'-2"	11-7*	1243*			
14	NI-80	9'-0'	91-3×	9-9	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"			
	NI-90	9'-2"	9'-8"	10'-0"	10-6	10-11		11'-9"	12-4*	12'-11"			
	NI-90x	9'-4"	9'-9"	10'-3"	10-7	1141"	11'-7"	12'-1"	12'-7"	13-2			
	NI-60	10'-3"	10'-8"	11'-2"	11-6	12'-1"	12-6	13'-2"	14'-1"	14-10			
	N-70	10'-1"	10'-5"	11'-0"	11-4	11'-10'		12'-8"	13'-3"	14'-0"			
16"	NI-80	10-4	10'-9"	11:-3:	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14-4			
	N(-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6°	14-2	14'-10"			
	NI-90x	1751	111-5"	11'-10'	12'-4"	12'-10'	' 13'-2"	13'-9"	14-4°	15'-2"			

- 2x plate flush with inside face of wall

past inside face of wall or beam.

NOTE: Unless hange

sides laterally suppor

the top flange, bearing

installed per manufacturer

- Support back of I-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 black
- clinched, only two nails per foot are required.

 5. The maximum factored load that may be applied to one
- side of the double joist using this detail is 860 lbf/ft. Verify double (-joist capacity.

(1b) One 2-1/2* face nail at each side at bearing

Vertical Load* (plf) 1-1/8" Rim Board Plus 8,090 *The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending me header, or rafter. For concentrated vertical load transfer, see detail 1d.

Maximum Factored Uniform

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

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

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

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

NOTE: Unless hanger

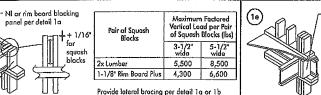
sides laterally support

- Backer block required

(both sides for facemount hangers)

the top flange, bearing

Blocking Panel or Rim Joist



Vertical Load* (plf)

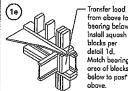
3.300

The uniform vertical load is limited to a joist depth of 16

It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load

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

inches or less and is based on standard term load duration



Top- or face-mount

Filler block -

Flange Size

2-1/2":

1-1/2"

3-1/2°x

1-1/2"

3-1/2° x

oad bearing wall above shall align vertically with the bearing below. Other conditions, such 2-1/2° nails

at 6° α.c. to top plate Double I-joist header

as offset bearing walls, are not covered by Blocking required over all interior supports under load-bearing walls or when floor joists are not

-NI blocking panel per detail 1a

(1h) Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3° nails through the webs and filler block where the backer block will fit, Clinch, Install backer tight to top flange. Use twelve 3" nails, clinched

or Rim Joist

NI Joists

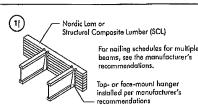
transfer, see detail 1d.

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

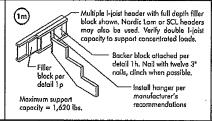
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2*	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4*

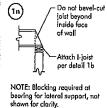
Minimum grade for backer black material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard. * For face-mount hangers use net joist depth minus 3-1/4* for joists with 1-1/2" thick flanges
For 2* thick flanges use net depth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

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



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





Filier Block Size

2-1/8" x 6"

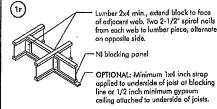
2-1/8" x 8"

3' x 6' 3' x 8' 3' x 10' 3' x 12'

11-7/8" 3" x 7"

14" 3' x 9' 16" 3' x 11"

2-1/8" x 10" 2-1/8" x 12"

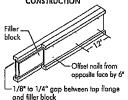


from each web to lumber piece, alternate OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

FILLER BLOCK REQUIREMENTS FOR DOUBLE 1-JOIST CONSTRUCTION

NI blocking

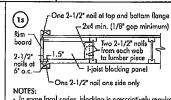
l-joist to top plate per detail 1b



and bottom of top I-joist flange.

3. Filler block is required between joists for full length

 Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be



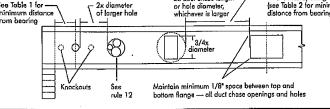
n some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist, Where required, see local code requirements for spacing of the blocking.

All nails are common spiral in this detail.

the above detail are assumed to be common wire nails noted. 3" (0.122" dia.) common spiral nails may be substituted fo 2-1/2" (0.128" dia.) raming lumes.
assumed to be or hetter. Individual

FIGURE 7

FIELD-CUT HOLE LOCATOR





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

ever drill, cut or notch the flange, or over-cut the web

Holes in webs should be cut with a sharp saw

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

WEB STIFFENERS

RECOMMENDATIONS:

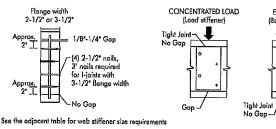
- A hearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at
- A bearing stiffener is required when the I-joist is supported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

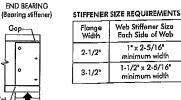
WEB STIFFENER INSTALLATION DETAILS

Net Depth

11-7/8

9.1/2"





SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or



Never stock building material over unsheathed I-joists. Once sheathed, do not over-stress WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed. AYOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.
 When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- we required a me interior support.

 2. When the building it completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist ralloves. shecking, is applied, temporary bracing, over lottled strus, or temporary stratining must be applied to prevent relative to 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* noils fastened to the top surface of each li-joist. Notif the bracing to a lateral restraint at the end of each bay. Lop ends of adjoining bracing over at least two li-joists.

 ■ Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of li-joists at the end of the boy.

 3. For contilevered li-joists, brace top and bottom flanges, and brace ends with closure panels, risk board, or cross-bridging.
- Install and fully noting permanent sheathing to each injoist before placing loads on the floor system. Then, stack building materials over beams or walls only. 5. Never install a damaged I-joist.

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

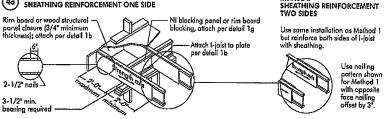


PRODUCT WARRANTY

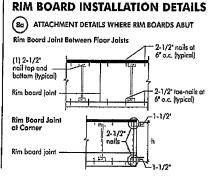
Chantiers Chibongaman guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

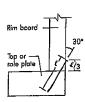
Furthermore, Chantiers Chibougaman warrants that our products, hen utilized in accordance with our handling and installation instruction will meet or exceed our specifications for the lifetime of the structure

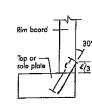
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



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







8b) TOE-NAIL

AT RIM BOARD

NORDIC STRUCTURES

COMPANY Aug. 7, 2020 16:50

PROJECT
J1 - 1ST FLOOR.wwb

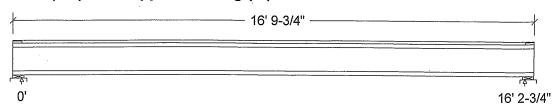
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored: Dead Live Factored:	216 433	216 433
Total	920	920
Bearing:		·
Capacity		1 1
Joist	2336	2336
Support	7744	7744
Des ratio		ĺ [
Joist	0.39	0.39
Support	0.12	0.12
Load case	#2	#2
Length	4-3/8	4-3/8
Min req'd	1-3/4	1-3/4
Stiffener	No	No
KD	1.00	1.00
KB support	1.00	1.00
fcp sup	769	769
Kzcp sup	1.15	1.15

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

Supports: All - Lumber Sill plate, No.1/No.2

Total length: 16' 9-3/4"; Clear span: 16' 1"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 920	Vr = 2336	lbs	Vf/Vr = 0.39
Moment(+)	Mf = 3731	Mr = 6255	lbs-ft	$O(10^{\circ})$
Perm. Defl'n	0.10 = < L/999	0.54 = L/360	in 🖋	0.19
Live Defl'n	0.21 = L/934	0.41 = L/480	in 🥒	0.19
Total Defl'n	0.31 = L/623	0.81 = L/240	in ///	0.39
Bare Defl'n	0.25 = L/774	0.54 = L/360	in S in ft	KATSOULAKOS 0 47
Vibration	Lmax = 16'-2.8	Lv = 18'-1.3	ft 🛅 🤅	0.90
Defl'n	= 0.028	= 0.039	in	0.71

DWW NO. TAM8695-21 STRUCTURAL COMPONENT ONLY

WoodWorks® Sizer

for NORDIC STRUCTURES

J1 - 1ST FLOOR.wwb

Nordic Sizer - Canada 7.2

Page 2

Additional	l Data:				,					
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#	
Vr	2336	1.00	1.00	_	-		-	_	#2	
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2	
EI	371.1 m	illion	-	-	_	-		-	#2	
CRITICAL LO			: :							
	: LC #2		5D + 1.5I	J						
Moment (+)) : LC #2	= 1.25	5D + 1.5I							
Deflection	on: LC #1	= 1.01) (perma	inent)						
	LC #2	= 1.01	+ 1.0L	(live) .					
	LC #2	= 1.01	+ 1.0L	(tota	1)					
			+ 1.0L							
Bearing	: Suppo	rt 1 - I	$_{1}C #2 = 3$	1.25D +	1.5L					
	Suppo	rt 2 - I	$_{1}C #2 = 3$	L.25D +	1.5L					
Load Type	es: D=dea	d W=wir	nd S=sno	оw Н=е	arth,grou	ndwater	E=ear	thquake		
	L=liv	e(use,oo	cupancy	Ls=l	ive(stora	ge, equi	.pment)	f=fire		
Load Pat	terns: s=	S/2 L=I	L+Ls _=r	no patt	ern load	in this	s span			
All Load	Combinat	ions (LO	cs) are .	Listed	in the An	alysis	output			
CALCULATI										
FToff =	459.76 lb	-in^2 F	<= 6.18e	e06 lbs						
"Live" d	eflection	is due	to all r	non-dea	d loads (live, w	ind, sn	ow) [[NFORMS TO	086 5015
	· · · · · · · · · · · · · · · · · · ·								AMENDED	

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.

ONINCE OF OR UNG NO. TAM 18695 STRUCTURAL COMPONENT ONLY



COMPANY Sep. 2, 2020 14:28

PROJECT
J1 - 2ND FLOOR CANT

Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitude		Unit
			tern	Start	End	Start	End	
Load1	Dead	Full Area	No			20.00		psf
Load2	Live	Full Area	Yes			40.00		psf

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

<u> </u>	 20' 1/2"		
ο'		15' 10-1/2"	19'

Unfactored: Dead Live	199 423		328 655		
Factored: Total	884		1392		
Bearing:					
Capacity Joist Support	2336 7744		4734 6188		
Des ratio	//	•	00	·	
Joist	0.38		0.29		
Support	0.11		0.23		
Load case	#4	•	#2		
Length	4-3/8		3-1/2		
Min req'd	1-3/4		3-1/2		
Stiffener	No		No		
KD	1.00		1.00		
KB support	-		-		
fcp sup	769		769		
Kzcp sup	-		-		

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

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

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

Total length: 20' 1/2"; Clear span: 15' 7-7/8", 3' 8-3/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

S. KATSOULAKOS

S. KATSOULAKOS

P6 9

STRUCTURAL

COMPONENT ONLY

J1 - 2ND FLOOR CANT

Nordic Sizer - Canada 7.2

Page 2

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 953	Vr = 2336	lbs	Vf/Vr = 0.41
Moment(+)	Mf = 3446	Mr = 6255	lbs-ft	Mf/Mr = 0.55
Moment(-)	Mf = 851	Mr = 6255	lbs-ft	Mf/Mr = 0.14
Deflection:				
Interior Perm	0.08 = < L/999	0.53 = L/360	in	0.16
Live	0.20 = L/970	0.40 = L/480	in	0.49
Total	0.28 = L/679	0.79 = L/240	in	0.35
Cantil. Perm	-0.05 = L/973	0.26 = L/180	in	0.18
Live	-0.13 = L/349	0.19 = L/240	in	0.69
Total	-0.18 = L/257	0.39 = L/120	in	0.47
Bare Defl'n	-0.16 = L/289	0.26 = L/180	in	0.62
Vibration	Lmax = 15'-10.5	Lv = 17'-8.1	ft	0.90
Defl'n	= 0.029	= 0.041	in	0.71

Additional Data:

	FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
١	Vr	2336	1.00	1.00	_		_	_	-	#2
l	Mr+	6255	1.00	1.00	-	1.000	-	-	-	#4
l	Mr-	6255	1.00	1.00	-	1.000	-	_	_	#2
l	EI	371.1 r	million	_	_	_	-	_	_	#4

CRITICAL LOAD COMBINATIONS:

```
: LC \#2 = 1.25D + 1.5L
Shear
```

LC #4 = 1.0D + 1.0L (pattern: L)(live) LC #4 = 1.0D + 1.0L (pattern: L_) (total) LC #4 = 1.0D + 1.0L (pattern: L) (bare joist)

: Support 1 - LC #4 = 1.25D + 1.5L (pattern: L) Bearing

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:

Eleff = 447.63 lb-in^2 K= 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...) CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

- 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.

S. KATSOULAKOS POLYNCE OF ONE STRUCTURAL COMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B10 E(i6608) (Flush Beam)

PASSED

В2

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 2 spans | L cant.

September 2, 2020 15:16:08

CCMC 12472-R

File name: Description: 2ND FLR FRAMING\Flush Beams\B10 E(i6608)

4500 - EL C - 2ND FLOOR.mmdl

City, Province, Postal Code: RICHMOND HILL

Specifier:

Customer: Code reports:

01-02-10

В1

Designer: Company:

L.D.

Wind

14-05-06

Total Horizontal Product Length = 15-08-00

Reaction Summary (Down / Uplift) (lbs)

Live Snow Dead B1, 5-1/4" 312/0 1169 / 0 666 / 0 B2, 4-3/8" 200/8 127 / 0 0/43

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	15-08-00	Тор		12			00-00-00
1	E50(i5833)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-08	Top		81			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	Top	6				n\a
3	E50(i5833)	Unf. Lin. (lb/ft)	L	00-02-12	01-05-04	Тор		45	75		n\a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	15-08-00	Тор	5	3			n\a
5	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-02-10	15-08-00	Top	22	11			n\a
6	-	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	105	735	533		n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	1308 ft-lbs	35392 ft-lbs	3.7%	45	09-03-09
Neg. Moment	-2130 ft-lbs	-35392 ft-lbs	6.0%	49	01-02-10
End Shear	359 lbs	14464 lbs	2.5%	45	14-03-12
Cont. Shear	1701 lbs	14464 lbs	11.8%	49	00-00-02
Total Load Deflection	L/999 (0.029")	n\a	n\a	108	08-11-02
Live Load Deflection	L/999 (0.025")	n\a	n\a	160	08-04-07
Total Neg. Defl.	L/999 (-0.015")	n\a	n\a	122	05-07-00
Max Defl.	0.029"	n\a	n\a	108	08-11-02
Span / Depth	14.3				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	_Material_
B1	Beam	5-1/4" x 3-1/2"	2772 lbs	28.3%	12.4%	Unspecified
B2	Wall/Plate	4-3/8" x 3 - 1/2"	458 lbs	4.9%	2.5%	Spruce-Pine-Fir

Cautions

Concentrated side load(s) 3 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



COMPONENT ONLY



BC CALC® Member Report



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

2ND FLR FRAMING\Flush Beams\B10 E(i6608) (Flush Beam)

Dry | 2 spans | L cant.

September 2, 2020 15:16:08

PASSED

Build 7493

Job name:

File name:

4500 - EL C - 2ND FLOOR.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Description: 2ND FLR FRAMING\Flush Beams\B10 E(i6608)

Customer:

Specifier:

Designer:

L.D.

Code reports:

CCMC 12472-R

Company:

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

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

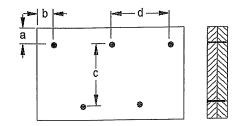
verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d= 28 8

Calculated Side Load = 381.8 lb/ft Connectors are: 16d Car

312" ARDOX SPIKAL



COMPONENT ONLY

Disclosure

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





City, Province, Postal Code: RICHMOND HILL

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

PASSED

2ND FLR FRAMING\Flush Beams\B11 E(i6606) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 1 span | No cant.

September 2, 2020 15:16:08

File name:

4500 - EL C - 2ND FLOOR.mmdl

Description:

2ND FLR FRAMING\Flush Beams\B11 E(i6606)

Specifier: Designer:

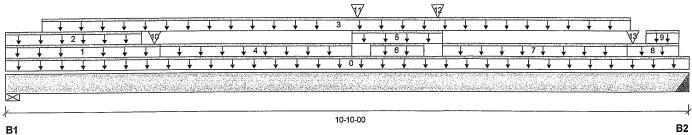
L.D.

Customer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-10-00

.... /Daves / Haliff /lha)

Reaction Sur					
Bearing	Live	Dead	Snow	Wind	
B1, 5-1/2"	121 / 0	808 / 0	555 / 0		
B2, 2-1/2"	106 / 0	727 / 0	511 / 0		

Loa	oad Summary							Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-10-00	Тор		12			00-00-00
1	E51(i6508)	Unf. Lin. (lb/ft)	L	00-00-00	02-05-00	Тор		81			n\a
2	E51(i6508)	Unf. Lin. (lb/ft)	L	00-00-00	02-01-08	Top		52	100		n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-06-12	09-10-08	Тор	24	12			n\a
4	E52(i6509)	Unf. Lin. (lb/ft)	L	02-05-00	05-05-00	Тор		41			n\a
5	E53(i6510)	Unf. Lin. (lb/ft)	L	05-05-00	06-10-00	Тор		81			n\a
6	E53(i6510)	Unf. Lin. (lb/ft)	L	05-08-08	06-06-08	Тор		52	100		n\a
7	E54(i6511)	Unf. Lin. (lb/ft)	L	06-10-00	09-10-00	Тор		41			n\a
8	E48(i5777)	Unf. Lin. (lb/ft)	L.	09-10-00	10-08-00	Тор		81			n\a
9	E48(i5777)	Unf. Lin. (lb/ft)	L	10-01-08	10-08-00	Тор		52	100		n\a
10	E51(i6508)	Conc. Pt. (lbs)	L	02-04-00	02-04-00	Top		122	181		n\a
11	E53(i6510)	Conc. Pt. (lbs)	L	05-06-00	05-06-00	Тор		120	177		n\a
12	E53(i6510)	Conc. Pt. (lbs)	L	06-09-00	06-09-00	Тор		122	181		n\a
13	E48(i5777)	Conc. Pt. (lbs)	L	09-11-00	09-11-00	Top		120	177		n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	4670 ft-lbs	35392 ft-lbs	13.2%	13	05-06-00
End Shear	1632 lbs	14464 lbs	11.3%	13	09-07-10
Total Load Deflection	L/999 (0.067")	n\a	n\a	35	05-06-00
Live Load Deflection	L/999 (0.031")	n\a	n\a	51	05-06-00
Max Defl.	0.067"	n\a	n\a	35	05-06-00
Snan / Denth	10.4				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1964 lbs	16.6%	8.4%	Spruce-Pine-Fir
B2	Hanger	2-1/2" x 3-1/2"	1781 lbs	n\a	16.7%	HUC410

Cautions

1 -- --

Header for the hanger HUC410 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM8698 -21 STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B11 E(i6606) (Flush Beam)

Dry | 1 span | No cant.

September 2, 2020 15:16:08

BC CALC® Member Report Build 7493

Job name: Address:

Address:
City, Province, Postal Code: RICHMOND HILL

File name:

4500 - EL C - 2ND FLOOR.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11 E(i6606)

Specifier:

ecitier:

Designer:

Customer:

Code reports:

CCMC 12472-R

L.D.

Company:

Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

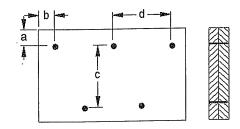
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" d = 22 8

Connectors are:

. Nails

3%" ARDOX SPIKAL

S. KATSOULANOS

S. KATSOULANOS

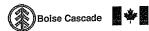
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DWG NO.TAM 696-21 STRUCTURAL COMPONENT ONLY

Disclosure

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



PASSED

B2

1ST FLR FRAMING\Flush Beams\B20(i6637) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

B1

Dry | 1 span | No cant.

September 2, 2020 16:43:11

File name:

4500 - EL A,B,C.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B20(i6637)

Specifier:

Company:

Designer: L.D.

Customer: Code reports:

CCMC 12472-R

09-07-04

Total Horizontal Product Length = 09-07-04

Position Summary (Down / Unlift) (lbs)

City, Province, Postal Code: RICHMOND HILL

Reaction Sur	Illitially (Down / O)	pinty (183)			
Bearing	Live	Dead	Snow	Wind	
B1, 4-1/2"	3046 / 0	2013 / 0	18 / 0		
B2, 3-1/2"	2838 / 0	2089 / 0	324 / 0		

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-07-04	Тор		12			00-00-00
1	4(i320)	Unf. Lin. (lb/ft)	L	00-00-00	09-01-12	Top		81			n\a
2	4(i320)	Unf. Lin. (lb/ft)	L	00-00-04	01-04-04	Тор	289	145			n\a
3	4(i320)	Unf. Lin. (lb/ft)	L	01-04-04	08-00-04	Top	332	166			n\a
4	4(i320)	Unf. Lin. (lb/ft)	L	08-00-04	09-01-12	Top	300	150			n\a
5	B3 H(i6634)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		40			n\a
6	J1 DJ(i6633)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	405	202			n\a
7	J2(i6629)	Conc. Pt. (lbs)	L	02-00-04	02-00-04	Top	344	172			n\a
8	J2(i6632)	Conc. Pt. (lbs)	L	03-04-04	03-04-04	Тор	306	153			n\a
9	J1 DJ(i6647)	Conc. Pt. (lbs)	L	04-00-04	04-00-04	Тор	304	152			n\a
10	J1(i6638)	Conc. Pt. (lbs)	L	05-00-04	05-00-04	Top	385	193			n\a
11	J1(i6631)	Conc. Pt. (lbs)	L	06-04-04	06-04-04	Top	440	220			n\a
12	J1(i6642)	Conc. Pt. (lbs)	L	07-08-04	07-08-04	Тор	368	184			n\a
13	J1 DJ(i6645)	Conc. Pt. (lbs)	L	08-07-00	08-07-00	Top	351	336	205		n\a
14	E7(i125)	Conc. Pt. (lbs)	L	09-04-08	09-04-08	Тор		120	137		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15864 ft-lbs	35392 ft-lbs	44.8%	1	05-00-04
End Shear	6576 lbs	14464 lbs	45.5%	1	08-03-14
Total Load Deflection	L/635 (0.171")	n\a	37.8%	35	04-10-12
Live Load Deflection	L/999 (0.104")	n\a	n\a	51	04-10-12
Max Defl.	0.171"	n\a	n\a	35	04-10-12
Span / Depth	9.2				

Boarin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/2" x 3-1/2"	7102 lbs	84.4%	37.0%	Unspecified
B2	Wall/Plate	3-1/2" x 3-1/2"	7193 lbs	95.4%	48.1%	Spruce-Pine-Fir





BC CALC® Member Report



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

PASSED

1ST FLR FRAMING\Flush Beams\B20(i6637) (Flush Beam)

Build 7493

Job name:

Dry | 1 span | No cant.

September 2, 2020 16:43:11

File name:

4500 - EL A,B,C.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL.

Description: Specifier:

1ST FLR FRAMING\Flush Beams\B20(i6637)

Customer: Code reports:

CCMC 12472-R

Designer:

L.D.

Company:

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

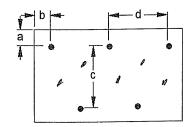
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" d = @184

Calculated Side Load = 1057.5 lb/ft

Connectors are:

ARDOX SPIRAL

POLINCE OF ONE STRUCTURAL

COMPONENT ONLY

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





PASSED

1ST FLR FRAMING\Flush Beams\B3 H(i6634) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

September 2, 2020 16:43:11

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

Description:

1ST FLR FRAMING\Flush Beams\B3 H(i6634)

Customer:

City, Province, Postal Code: RICHMOND HILL

Specifier:

L.D.

Wind

Code reports:

CCMC 12472-R

Designer:

Company:

Total Horizontal Product Length = 04-03-09

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead			
B1, 1-3/4"	29 / 0	40 / 0			
B2. 2-1/2"	30 / 0	41/0			

	ad Summary 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	04-03-09	Тор		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-03-09	Тор	14	7			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	92 ft-lbs	35392 ft-lbs	0.3%	1	02-01-06
End Shear	43 lbs	14464 lbs	0.3%	1	01-01-10
Total Load Deflection	L/999 (0")	n\a	n\a	4	02-01-06
Live Load Deflection	L/999 (0")	n\a	n\a	5	02-01-06
Max Defl.	0"	n\a	n\a	4	02-01-06
Snan / Denth	4.1				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 3-1/2"	94 lbs	1.9%	1.3%	Unspecified
B2	Hanger	2-1/2" x 3-1/2"	96 lbs	n\a	0.9%	HUC410

Header for the hanger HUC410 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

> STRUCTURAL COMPONENT ONLY



BC CALC® Member Report



City, Province, Postal Code: RICHMOND HILL

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

PASSED

1ST FLR FRAMING\Flush Beams\B3 H(i6634) (Flush Beam)

Build 7493

Job name: Address:

Dry | 1 span | No cant.

September 2, 2020 16:43:11

File name:

4500 - EL A,B,C.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B3 H(i6634)

Specifier:

Designer:

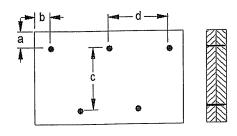
L.D.

Customer: Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" d = 200 B

Connectors are:

. Nails

ARDOX SPIRAL



BYB NO. YAM 8700 STRUCTURAL COMPONENT ONLY

Disclosure

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

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





PASSED

2ND FLR FRAMING\Dropped Beams\B15 DR(i5066) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

4500 - EL A,B,C.mmdl

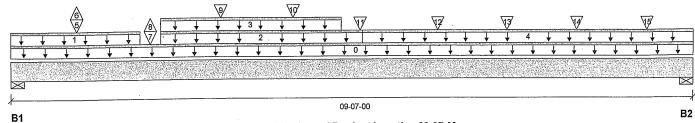
Description: 2ND FLR FRAMING\Dropped Beams\B15 DR(i5066)

Specifier:

L.D.

Wind

Designer: Company:



Total Horizontal Product Length = 09-07-00

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead	Snow		
B1, 3-1/2"	1433 / 127	1424 / 0	667 / 0		
B2 3-1/2"	1508 / 26	1220 / 0	345 / 0		

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-07-00	Тор		10			00-00-00
1	R1(i4137)	Unf. Lin. (lb/ft)	L	00-00-00	01-09-08	Top		136	128		n\a
2	R1(i4198)	Unf. Lin. (lb/ft)	L	02-01-00	04-10-08	Top		81			n\a
3	R1(i4198)	Unf. Lin. (lb/ft)	L	02-01-00	04-07-00	Top		56	128		n\a
4	R1(i4198)	Unf. Lin. (lb/ft)	L	04-10-08	09-07-00	Top		41			n\a
5	J1(i5132)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	333	155			n\a
6	J1(i5132)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	-23				n\a
7	B3(i5106)	Conc. Pt. (lbs)	L	01-11-04	01-11-04	Тор	329	223	37		n\a
8	B3(i5106)	Conc. Pt. (lbs)	L	01-11-04	01-11-04	Top	-130				n\a
9	J2(i4126)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Top	323	161			n\a
10	J2(i4126)	Conc. Pt. (lbs)	L	03-11-00	03-11-00	Top	326	163			. n\a
11	_	Conc. Pt. (lbs)	L	04-10-02	04-10-02	Top	326	396	424		n\a
12	J2(i4126)	Conc. Pt. (lbs)	L	05-11-00	05-11-00	Top	326	163			n\a
13	J2(i4126)	Conc. Pt. (lbs)	L	06-11-00	06-11-00	Top	326	163			n\a
14	J2(i4126)	Conc. Pt. (lbs)	L	07-11-00	07-11-00	Top	326	163			n\a
15	J2(i4126)	Conc. Pt. (lbs)	L	08-11-00	08-11-00	Тор	326	163			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10772 ft-lbs	23220 ft-lbs	46.4%	1	04-09-08
End Shear	4113 lbs	11571 lbs	35.5%	1	01-01-00
Total Load Deflection	L/459 (0.238")	n\a	52.3%	58	04-09-08
Live Load Deflection	L/761 (0.144")	n\a	47.3%	85	04-09-08
Max Defl.	0.238"	n\a	n\a	58	04-09-08
Span / Depth	11.5				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
٠	B1	Wall/Plate	3-1/2" x 3-1/2"	4596 lbs	28.1%	30.7%	Spruce-Pine-Fir
	B2	Wall/Plate	3-1/2" x 3-1/2"	4133 lbs	25.3%	27.7%	Spruce-Pine-Fir







PASSED

2ND FLR FRAMING\Dropped Beams\B15 DR(i5066) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

Description:

4500 - EL A,B,C.mmdl

2ND FLR FRAMING\Dropped Beams\B15 DR(i5066)

Address: City, Province, Postal Code: RICHMOND HILL

Specifier: Designer:

Company:

Customer: Code reports:

CCMC 12472-R

L.D.

Notes

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

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

CONFORMS TO OBC 2012

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

AMENDED 2020

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.

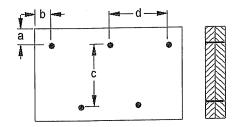
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2"d = 200 6

Connectors are:

Nails

ARDOX SPIRAL

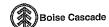
ONTAR POMICE OF

> OWO NO. FAN 8201-2 STRUCTURAL COMPONENT ONLY

Disclosure

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

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





PASSED

2ND FLR FRAMING\Dropped Beams\B16 DR(i5110) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File nar

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

File name:

4500 - EL A,B,C.mmdl

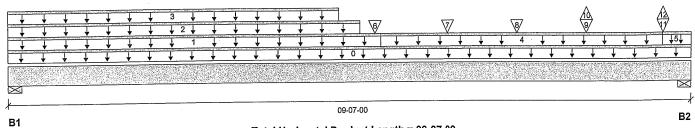
Description: 2ND FLR FRAMING\Dropped Beams\B16 DR(i5110)

Wind

Specifier: Designer:

L.D.

Company:



Total Horizontal Product Length = 09-07-00

Reaction Summary (Down / Uplift) (lbs)

Ileaction Cun	minary (Bomm, ep		_
Bearing	Live	Dead	Snow
B1. 3-1/2"	1700 / 4	1526 / 0	613 / 0
P2 3.1/2"	1590 / 39	1409 / 0	619 / 0

100	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	Ĺ	00-00-00	09-07-00	Тор		10			00-00-00
1	R1(i4137)	Unf. Lin. (lb/ft)	L.	00-00-00	05-02-00	Тор		81			n\a
2	R1(i4137)	Unf. Lin. (lb/ft)	L	00-00-00	04-10-08	Тор		56	128		n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-07-00	Top	359	180			n\a
4	R1(i4137)	Unf. Lin. (lb/ft)	L	05-02-00	09-02-00	Тор		41			n\a
5	R1(i4137)	Unf. Lin. (lb/ft)	L	09-02-00	09-07-00	Тор		81			n\a
6	-	Conc. Pt. (lbs)	L	05-01-00	05-01-00	Top	329	327	296		n\a
7	J2(i4475)	Conc. Pt. (lbs)	L	06-01-00	06-01-00	Тор	329	165		•	n\a
8	J2(i4187)	Conc. Pt. (lbs)	L	07-01-00	07-01-00	Тор	195	98			n\a
9	J1(i5101)	Conc. Pt. (lbs)	L	08-01-00	08-01-00	Top	463	221			n\a
10	J1(i5101)	Conc. Pt. (lbs)	L	08-01-00	08-01-00	Top	-21				n\a
11	-	Conc. Pt. (lbs)	L	09-02-01	09-02-01	Top	329	315	309		n\a
12	-	Conc. Pt. (lbs)	L	09-02-01	09-02-01	Тор	-22				n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10219 ft-lbs	23220 ft-lbs	44.0%	1	05-01-00
End Shear	4035 lbs	11571 lbs	34.9%	1	01-01-00
Total Load Deflection	L/480 (0.228")	n\a	50.0%	58	04-08-02
Live Load Deflection	L/798 (0.137")	n\a	45.1%	85	04-08-02
Max Defl.	0.228"	n\a	n\a	58	04-08-02
Snan / Denth	11.5				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	5071 lbs	31.0%	33.9%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	4765 lbs	29.1%	31.9%	Spruce-Pine-Fir



OWO NO. TAM 8702-2 L STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B16 DR(i5110) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Description:

2ND FLR FRAMING\Dropped Beams\B16 DR(i5110)

Customer:

Specifier: Designer:

L.D.

Code reports:

CCMC 12472-R

Company:

Notes

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

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

CONFORMS TO OBC 2012

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

AMENDED 2020

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 086.

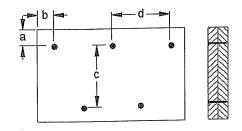
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2'

Connectors are:

. Nails

ARDUX SPIKAL



OWO NO. TAN 8702-2 STRUCTURAL COMPONENT ONLY

Disclosure

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





PASSED

2ND FLR FRAMING\Dropped Beams\B9 DR(i5124) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

File name:

4500 - EL A,B,C.mmdl

2ND FLR FRAMING\Dropped Beams\B9 DR(i5124) Description:

Wind

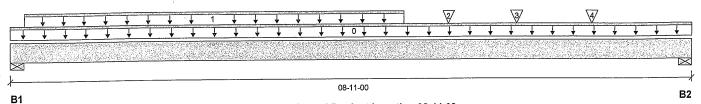
Specifier:

L.D.

Customer:

Designer:

Company: CCMC 12472-R Code reports:



Total Horizontal Product Length = 08-11-00

Snow

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead				
B1, 3-1/2"	1916 / 0	1016 / 0				
B2. 5-1/2"	2424 / 0	1285 / 0				

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-11-00	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-04	05-01-00	Top	329	165			n\a
2	-	Conc. Pt. (lbs)	L	05-08-00	05-08-00	Тор	1558	823			n\a
2	J1(i5101)	Conc. Pt. (lbs)	L	06-07-00	06-07-00	Тор	631	315			n\a
3 4	.11(i5088)	Conc. Pt. (lbs)	L	07-07-00	07-07-00	Тор	509	255			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	11561 ft-lbs	23220 ft-lbs	49.8%	1	05-08-02
End Shear	5227 lbs	11571 lbs	45.2%	1	07-08-00
Total Load Deflection	L/524 (0.19")	n\a	45.8%	4	04-07-00
Live Load Deflection	L/999 (0.124")	n\a	n\a	5	04-07-00
Max Defl.	0.19"	n\a	n\a	4	04-07-00
Span / Depth	10.5 ·				

Rearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	4144 lbs	25.3%	27.7%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	5242 lbs	20.4%	22.3%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

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

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B9 DR(i5124) (Dropped Beam)

Dry | 1 span | No cant. **BC CALC® Member Report Build 7493**

4500 - EL A.B.C.mmdl

L.D.

August 7, 2020 16:52:58

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Description: Specifier:

File name:

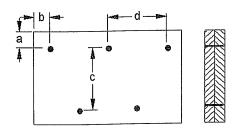
2ND FLR FRAMING\Dropped Beams\B9 DR(i5124)

Customer: Code reports:

Designer: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2"d = 🐠 &

Connectors are:

. Nails ARDOX SPIKAL



DWO NO. TAM 870 STRUCTURAL COMPONENT ONLY

Disclosure

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





PASSED

2ND FLR FRAMING\Dropped Beams\B9A DR(i4269) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Description:

2ND FLR FRAMING\Dropped Beams\B9A DR(i4269)

Customer:

Specifier: Designer:

L.D.

Wind

Code reports:

CCMC 12472-R

Company:

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Total Horizontal Product Length = 06-07-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1. 3-1/2"	1212 / 0	899 / 0
B2, 3-1/2"	1189 / 0	835 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-07-00	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-07-00	Тор	365	182			n\a
2	R1(i4279)	Unf. Lin. (lb/ft)	L	00-00-00	04-07-08	Тор		81			n\a
3	R1(i4279)	Unf. Lin. (lb/ft)	L	03-10-08	04-07-08	Top		25			n\a
4	R1(i4279)	Unf. Lin. (lb/ft)	L	04-07-08	06-07-00	Тор		41			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3908 ft-lbs	23220 ft-lbs	16.8%	1	03-03-00
End Shear	2091 lbs	11571 lbs	18.1%	1	01-01-00
Total Load Deflection	L/999 (0.037")	n\a	n\a	4	03-03-00
Live Load Deflection	L/999 (0.021")	n\a	n\a	5	03-03-00
Max Defl.	0.037"	n\a	n\a	4	03-03-00
Span / Depth	7.7		4		

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	2942 lbs	18.0%	19.7%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	2827 lbs	17.3%	18.9%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBC 2012

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

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

DWB NO. YAM 810

STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Dropped Beams\B9A DR(i4269) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

Description:

2ND FLR FRAMING\Dropped Beams\B9A DR(i4269)

Customer:

City, Province, Postal Code: RICHMOND HILL Designer:

Specifier:

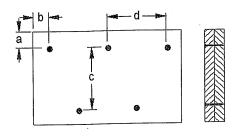
L.D.

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 5-1/2"d = 3 6 0

Connectors are:

⚠ Nails

ARDOX SPIRAL

POLYNOE OF OMITS

846 NO. FAM 870 STRUCTURAL COMPONENT ONLY

Disclosure

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





PASSED

2ND FLR FRAMING\Flush Beams\B2(i5075) (Flush Beam)

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

Address:

File name:

4500 - EL A,B,C.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B2(i5075)

City, Province, Postal Code: RICHMOND HILL

BC CALC® Member Report

Specifier:

L.D.

Customer: Code reports:

CCMC 12472-R

Designer:

Company:

	, , , , , , , , , , , , , , , , , , , ,	+ + + +
		1
		·
P4	06-08-08	B2

Total Horizontal Product Length = 06-08-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Live Bearing 40 / 0 B1, 4" 40 / 0 B2, 4"

Load Summary						Live	Dead	Snow	Wind	Tributary
Tag Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0 Self-Weight	Unf. Lin. (lb/ft)	L	.00-00-00	06-08-08	Тор		12			00-00-00

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	80 ft-lbs	23005 ft-lbs	0.3%	0	03-04-04
End Shear	34 lbs	9401 lbs	0.4%	0	01-03-14
Total Load Deflection	L/999 (0")	n\a	n\a	1	03-04-04
Max Defl.	0"	n\a	n\a	1	03-04-04
Span / Depth	6.2				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	57 lbs	n\a n\a	0.5% 0.5%	HGUS410 HUC410
B2	Hanger	4" x 3-1/2"	57 lbs	n\a	0.076	1100410

Cautions

Header for the hanger HGUS410 is a Single 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUC410 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

CONFORMS TO OBC 2012

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 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

COMPONENT ONLY





PASSED

August 7, 2020 16:52:58

2ND FLR FRAMING\Flush Beams\B2(i5075) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Dry | 1 span | No cant.

4500 - EL A,B,C.mmdl

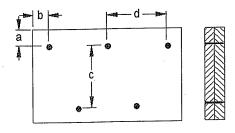
File name: 2ND FLR FRAMING\Flush Beams\B2(i5075) Description:

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



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

Connectors are:

A Nails ARDOX SPIRAL



Disclosure

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PASSED

2ND FLR FRAMING\Flush Beams\B3(i5106) (Flush Beam)

BC CALC® Member Report

Dry | 2 spans | L cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B3(i5106)

City, Province, Postal Code: RICHMOND HILL

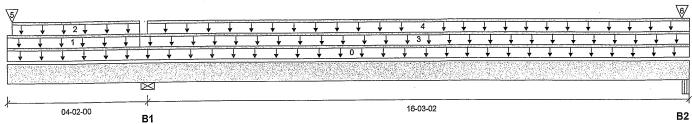
Specifier:

Customer: Code reports:

CCMC 12472-R

Designer: L.D.

Company:



Total Horizontal Product Length = 20-05-02

Reaction Summary (Down / Opint) (ibs)										
Bearing	Live	Dead	Snow	Wind						
B1, 5-1/2"	1461 / 0	933 / 0								
B2 3-1/2"	330 / 133	221/0	37 / 0							

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	20-05-02	Тор		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-11-04	Тор	23	12			n\a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-01-12	03-11-04	Top	240	120			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-11-04	20-05-02	Тор	20	10			n\a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-02-00	20-05-02	Top	20	10			n\a
5	B2(i5075)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Тор		40			n\a
6	E17(i423)	Conc. Pt. (lbs)	L	20-02-06	20-02-06	Тор		40	37		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2434 ft-lbs	35392 ft-lbs	6.9%	3	13-01-08
Neg. Moment	-4872 ft-lbs	-35392 ft-lbs	13.8%	2	04-02-00
End Shear	593 lbs	14464 lbs	4.1%	3	19-01-12
Cont. Shear	1670 lbs	14464 lbs	11.5%	2	02-11-06
Total Load Deflection	2xL/1998 (0.123")	n\a	n\a	79	00-00-00
Live Load Deflection	2xL/1998 (0.1")	n\a	n\a	117	00-00-00
Total Neg. Defl.	L/999 (-0.055")	n\a	n\a	79	09-10-13
Max Defl.	0.072"	n\a	n\a	80	12-08-06
Span / Depth	16.2				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1		5-1/2" x 3-1/2"	3358 lbs	28.4%	14.3%	Spruce-Pine-Fir
B2	Ream	3-1/2" x 3-1/2"	808 lbs	5.4%	5.4%	VL 2.0 3100 SP

STRUCTURAL COMPONENT ONLY



BC CALC® Member Report



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

2ND FLR FRAMING\Flush Beams\B3(i5106) (Flush Beam)

Dry | 2 spans | L cant.

August 7, 2020 16:52:58

PASSED

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

4500 - EL A,B,C.mmdl

2ND FLR FRAMING\Flush Beams\B3(i5106) Description:

Specifier:

Designer:

L.D.

Company:

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

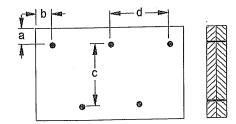
Unbalanced snow loads determined from building geometry were used in selected product's

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

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

Calculated Side Load = 28.0 lb/ft

Connectors are:

, Nails

ARDOX SPIRAL



Disclosure

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2ND FLR FRAMING\Flush Beams\B4(i5077) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

PASSED

Tributary

00-00-00

Build 7493 Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

4500 - EL A,B,C.mmdl

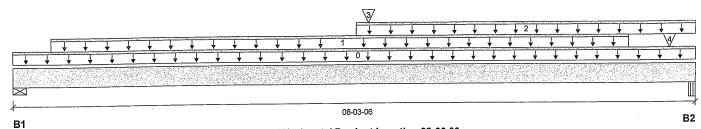
2ND FLR FRAMING\Flush Beams\B4(i5077)

Description: Specifier:

Designer:

L.D. Company:

Wind



Total Horizontal Product Length = 08-03-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/2"	1312 / 0	701 / 0
B2. 1-3/4"	1346 / 0	717 / 0

	oad Summary						Live	Dead	Snow	Wind
L.\ Ta	· · · · · · · · · · · · · · · · · · ·	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-03-06	Тор		6		
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-08	07-05-08	Top	336	168		
, 2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-01-06	08-03-06	Тор	18	9		COFES
3	B2(i5075)	Conc. Pt. (lbs)	L	04-03-02	04-03-02	Top		40		NOFES
4	J2(i4237)	Conc. Pt. (lbs)	L	07-11-08	07-11-08	Тор	221	111	10	
	0 <u>~</u> (0.,	• •							9 33 1	# 1.11

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5756 ft-lbs	17696 ft-lbs	32.5%	1	03-11-08
End Shear	2477 lbs	7232 lbs	34.3%	1	01-05-06
Total Load Deflection	L/999 (0.091")	n\a	n\a	4	04-03-02
Live Load Deflection	L/999 (0.059")	n\a	n\a	5	04-03-02
Max Defl.	0.091"	n\a	n\a	4	04-03-02
Span / Depth	7.9				

Bearing	Supports	Dim. (LxW)	Demand.	Resistance Support	Resistance Member	Material
B1		5-1/2" x 1-3/4"	2844 lbs	48.0%	24.2%	Spruce-Pine-Fir
B2	Beam	1-3/4" x 1-3/4"	2916 lbs	78.1%	78.1%	VL 2.0 3100 SP

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012 AMENDED 2020

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STRUCTURAL COMPONENT ONLY

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Disclosure



BC CALC® Member Report



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

2ND FLR FRAMING\Flush Beams\B6(i4473) (Flush Beam)

Dry | 1 span | No cant.

August 7, 2020 16:52:58

PASSED

Build 7493

Job name:

4500 - EL A,B,C.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Description: Specifier:

2ND FLR FRAMING\Flush Beams\B6(i4473)

Customer:

Designer:

L.D.

Wind

CONFORMS TO OBC 2012

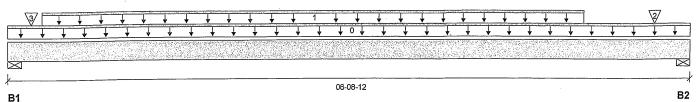
AMENDED 2020

Code reports:

CCMC 12472-R

File name:

Company:



Total Horizontal Product Length = 06-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/2"	670 / 0	394 / 0	
B2 3-1/2"	789 / 0	432 / 0	

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	-	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-08 - 12	Тор		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-00	05-08-00	Тор	217	109			n\a
2	-	Conc. Pt. (lbs)	L	06-04-07	06-04-07	Тор	303	168			n\a
3	E35(i347)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		37			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	2236 ft-lbs	17696 ft-lbs	12.6% ·	1	03-08-00
End Shear	1161 lbs	7232 lbs	16.1%	1	01-05-06
Total Load Deflection	L/999 (0.021")	n\a	n\a	4	03-05-00
Live Load Deflection	L/999 (0.014")	n\a	n\a	5	03-05-00
Max Defl.	0.021"	n\a	n\a	4	03-05-00
Span / Depth	6.2				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
-	B1	Wall/Plate	5-1/2" x 1-3/4"	1497 lbs	25.3%	12.7%	Spruce-Pine-Fir
	B2	Wall/Plate	3-1/2" x 1-3/4"	1724 lbs	45.7%	23.1%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



BUS NO. TAMBOO-21 STRUCTURAL COMPONENT

Disclosure

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2ND FLR FRAMING\Flush Beams\B7(i4259) (Flush Beam)

August 7, 2020 16:52:58

BC CALC® Member Report

Build 7493

Job name:

Dry | 1 span | No cant.

4500 - EL A,B,C.mmdl

L.D.

Wind

Address:

Description: Specifier:

File name:

2ND FLR FRAMING\Flush Beams\B7(i4259)

PASSED

Customer:

City, Province, Postal Code: RICHMOND HILL

Code reports:

CCMC 12472-R

Designer:

Company:

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																		06-0	01-00)																	
31																																					

Total Horizontal Product Length = 06-01-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3"	53 / 0	44 / 0
B2 5-1/2"	49 / 0	44 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-01-00	Тор		6			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-07-08	Top	18	9			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	05-07-08	06-01-00	Top	3				n\a

		Factored	Demand/	_	
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	172 ft-lbs	17696 ft-lbs	1.0%	1	02-11-04
End Shear	77 lbs	7232 lbs	1.1%	1	01-02-14
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	02-11-04
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	02-11-04
Max Defl.	0.001"	n\a	n\a	4	02-11-04
Span / Depth	5.6				

Beari	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Hanger	3" x 1-3/4"	134 lbs	n\a	2.1%	HUS1.81/10	
B2		5-1/2" x 1-3/4"	129 lbs	2.2%	1.1%	Spruce-Pine-Fir	

OF OF

BWO NO. FAM 870 STRUCTURAL COMPONENT ONLY

Cautions

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

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

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

AMENDED 2020

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®,





PASSED

1ST FLR FRAMING\Flush Beams\B1 H(i5121) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

Description:

1ST FLR FRAMING\Flush Beams\B1 H(i5121)

City, Province, Postal Code: RICHMOND HILL

Specifier:

Designer: L.D.

Customer: Code reports:

CCMC 12472-R

Company:

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<u> </u>		<u> </u>		F1 12 15 15 15 15 15 15 15 15 15 15 15 15 15	West Cont.		A-4801633	(AHIAN)		<u> </u>	interior (S)			141177	653594		-34V e			344,75	A-1-1-1-1-1	<u> </u>	2-255	Ser (4), 4	\$ 466.60°	1131.00.	<u>Skirtla v s</u>	<u> Alley (</u>
					V 8 8 7 6 6		N899					07-0	2-04							344.5	N. 34		*****	500 83.0		111.2		diam.

Total Horizontal Product Length = 07-08-04

Reaction Sun	nmary (Down / O	piiit) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1. 3"	348 / 0	196 / 0			
B2 3-1/2"	327 / 0	187 / 0			

l oa	ad Summary						Live	Dead	Snow	vvina	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-08-04	Тор		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-00	06-04-00	Top	93	46			n\a
2	J4(j4463)	Conc. Pt. (lbs)	L	00-04-00	00-04-00	Top	85	42			n\a
3	J4(i5076)	Conc. Pt. (lbs)	L	07-00-00	07-00-00	Тор	94	47	per l	ilitationisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanist Tarabilitationisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanisticanistic	n\a
0	04(10010)	,				•			مَنْ الْمُنْ ا مِنْ الْمُنْ ا	Rofess	" Maj

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1337 ft-lbs	17696 ft-lbs	7.6%	1	04-04-00
End Shear	595 lbs	7232 lbs	8.2%	1	06-04-14
Total Load Deflection	L/999 (0.018")	n\a	n\a	4	03-10-00
Live Load Deflection	L/999 (0.012")	n\a	n\a	5	03-10-00
Max Defl.	0.018"	n\a	n\a	4	03-10-00
Span / Depth	7.3				

Dogwins	. Cunnorte	Disco (LoAA)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing	Supports					
B1	Hanger	3" x 1-3/4"	767 lbs	n∖a	12.0%	HUS1.81/10
B2	Column	3-1/2" x 1-3/4"	724 lbs	14.6%	9.7%	Unspecified

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

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

Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

AMENDED 2020

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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148 NO. FAM 8210-21 STRUCTURAL COMPONENT ONLY

VERSA-LAM®, VERSA-RIM PLUS®,





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B2 H(i5089) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2 H(i5089)

City, Province, Postal Code: RICHMOND HILL

Specifier: Designer:

L.D.

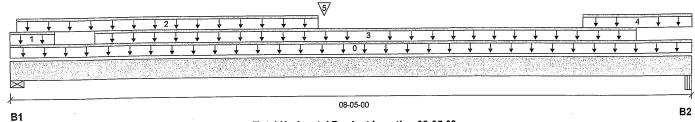
Wind

Customer:

CCMC 12472-R

Company:

Code reports:



Total Horizontal Product Length = 08-05-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1. 6-1/2"	3169 / 0	1727 / 0
B2, 2-5/8"	1500 / 0	808 / 0

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-05-00	Тор		12			00-00-00
1	2(i274)	Unf. Lin. (lb/ft)	L	00-00-00	00-06-08	Тор	2062	1174			n\a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-01-00	03-09-01	Тор	240	120			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-08	07-08-08	Top	335	168			n\a
1	FC1 Floor Material	Unf, Lin. (lb/ft)	L	07-00-08	08-05-00	Top	34				n\a
5	B1 H(i5121)	Conc. Pt. (lbs)	L	03-09-15	03-09-15	Тор	340	192			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8433 ft-lbs	35392 ft-lbs	23.8%	1	03-09-15
End Shear	3680 lbs	14464 lbs	25.4%	1	01-06-06
Total Load Deflection	L/999 (0.065")	n\a	n\a	4	04-02-14
Live Load Deflection	L/999 (0.042")	n\a	n\a	5	04-02-14
Max Defl.	0.065"	n\a	n\a	4	04-02-14
Span / Depth	7.9				

Daguin	- Cupports	Disc. (LadAl)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing	g Supports	Dim. (LxW)	Demand			
B1	Wall/Plate	6-1/2" x 3-1/2"	6912 lbs	49.4%	24.9%	Spruce-Pine-Fir
ום	VVaii/i late			00.40/	00.40/	11
B2	Beam	2-5/8" x 3-1/2"	3259 lbs	66.4%	29.1%	Unspecified

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



COMPONENT ONLY





PASSED

August 7, 2020 16:52:58

1ST FLR FRAMING\Flush Beams\B2 H(i5089) (Flush Beam) Dry | 1 span | No cant.

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address: City, Province, Postal Code: RICHMOND HILL

BC CALC® Member Report

Description: Specifier:

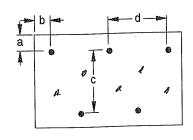
1ST FLR FRAMING\Flush Beams\B2 H(i5089)

Designer: Company: L.D.

Customer: Code reports:

CCMC 12472-R

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" 4 d = & &

Calculated Side Load = 964.0 lb/ft Connectors are:

A Nails ARDOX SPIRAL

CONCE OF ONLY 646 NO. FAM 8711 -21

STRUCTURAL COMPONENT ONLY

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PASSED

B2

1ST FLR FRAMING\Flush Beams\B3 H(i5140) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Wind

Address:

City, Province, Postal Code: RICHMOND HILL

Description:

1ST FLR FRAMING\Flush Beams\B3 H(i5140)

Customer:

Specifier:

Designer: L.D.

Code reports:

CCMC 12472-R

Company:

В1

04-08-13 Total Horizontal Product Length = 04-08-13

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Live Bearing 42/0 31/0 B1, 1-3/4" 117/0 B2, 5-1/4" 126 / 0

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-13	Тор		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-03-09	Top	14	7			n\a
2	4(i320)	Conc. Pt. (lbs)	L	04-05-09	04-05-09	Тор	97	72			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	101 ft-lbs	35392 ft-lbs	0.3%	1	02-02-10
End Shear	48 lbs	14464 lbs	0.3%	1	01-01-10
Total Load Deflection	L/999 (0")	n\a	n\a	4	02-02-10
Live Load Deflection	L/999 (0")	n\a	n\a	5	02-02-10
Max Defl.	0"	n\a	n\a	4	02-02-10
Span / Depth	4.3				

Bearing	y Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 3-1/2"	98 lbs	2.0%	1.3%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	334 lbs	3.4%	1.5%	Unspecified

Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

COMPONENT





PASSED

1ST FLR FRAMING\Flush Beams\B3 H(i5140) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report**

August 7, 2020 16:52:58

Build 7493

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

4500 - EL A,B,C.mmdl File name:

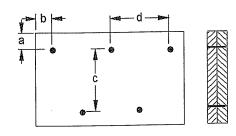
1ST FLR FRAMING\Flush Beams\B3 H(i5140) Description:

Specifier:

L.D. Designer:

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 🔊 8 (1

Connectors are:

Nails

ARDOX SPIKAL



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City, Province, Postal Code: RICHMOND HILL

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

PASSED

August 7, 2020 16:52:58

1ST FLR FRAMING\Flush Beams\B8(i5116) (Flush Beam)

BC CALC® Member Report

Build 7493

Job name: Address:

Dry | 1 span | No cant.

4500 - EL A,B,C.mmdl

File name: Description:

1ST FLR FRAMING\Flush Beams\B8(i5116)

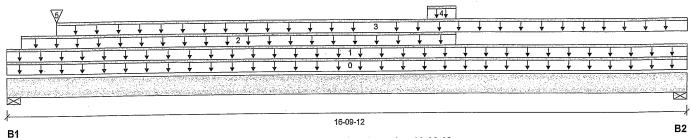
Specifier:

L.D. Designer:

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 16-09-12

Reaction Summary (Down / Uplift) (lbs)

Wind Dead Snow Live Bearing 980 / 0 B1, 2-3/8" 824 / 0 B2, 4-3/8" 829 / 0 771/0

Load Summary Live D	ead Snow	Wind Tributary
Tag Description Load Type Ref. Start End Loc. 1.00 0.	.65 1.00	1.15
0 Self-Weight Unf. Lin. (lb/ft) L 00-00-00 16-09-12 Top 1:	2	00-00-00
1 FC1 Floor Material Unf. Lin. (lb/ft) L 00-00-00 16-09-12 Top 5 2		n\a
2 10(i1683) Unf. Lin. (lb/ft) L 00-04-06 10-11-14 Top 68	5	n\a
3 FC1 Floor Material Unf. Lin. (lb/ft) L 01-02-14 16-09-12 Top 30 15	5	n\a
(a)(4000)	85	n\a
-1 (0(11000)	46	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	11216 ft- i bs	35392 ft-lbs	31.7%	1	10-03-00
End Shear	2415 lbs	14464 lbs	16.7%	1	01-02-04
Total Load Deflection	L/518 (0.379")	n\a	46.3%	4	08-06-11
Live Load Deflection	L/1074 (0.183")	n\a	33.5%	5	08-08-06
Max Defl.	0.379"	n\a	n\a	4	08-06-11
Span / Depth	16.5				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
-	B1	Wall/Plate	2-3/8" x 3-1/2"	2460 lbs	48.1%	24.3%	Spruce-Pine-Fir
	B2	Wall/Plate	4-3/8" x 3-1/2"	2207 lbs	23.4%	11.8%	Spruce-Pine-Fir

Notes

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

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

CONFORMS TO OBG 2012

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

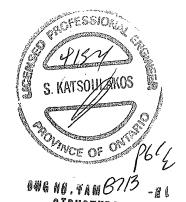
Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



COMPONENT ONLY



BC CALC® Member Report



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

PASSED

1ST FLR FRAMING\Flush Beams\B8(i5116) (Flush Beam)

Dry | 1 span | No cant.

August 7, 2020 16:52:58

Build 7493

Job name:

File name:

4500 - EL A,B,C.mmdl

Address:

City, Province, Postal Code: RICHMOND HILL

Description: Specifier:

1ST FLR FRAMING\Flush Beams\B8(i5116)

Customer:

Designer:

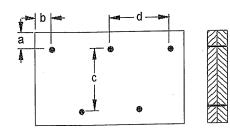
L.D.

Code reports:

CCMC 12472-R

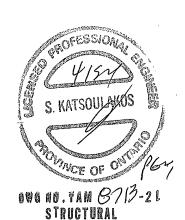
Company:

Connection Diagram: Full Length of Member



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

Calculated Side Load = 310.3 lb/ft Connectors are: 16d A. Nails
3½" ARDOX SPIRAL



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







			Ba	are			1/2" Gyp:	sum Ceiling	
Depth	Series		On Centr	e Spacing			· On Cent	re Spacing	
•		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	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"	14'-2" 15'-1" 15'-3" 15'-10" 16'-0" 16'-0" 16'-11" 17'-1" 17'-9" 17'-11" 18'-5" 18'-6" 18'-9" 19'-8" 20'-0"	N/A
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
11-7/8"	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
11-//8	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'-9"	N/A
	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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.611	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
14"	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

			Mid-Spar	n Blocking		Mid-S	pan Blocking ar	nd 1/2" Gypsum	Ceiling	
Depth	Series		On Centr	e Spacing		On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	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	
9-1/2"	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	
	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	
11-7/8"	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	
	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	
14"	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	
	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	
- =0	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
16"	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A	
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A	

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

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

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

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

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



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







			Ва	are			1/2" Gyps	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Cent	e Spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	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"
	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"
/- 0	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
11-7/8"	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"
	N1-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	N1-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	N1-60	21'-10"	20'-2"	19' - 3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
14"	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"
	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"
16"	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"

			Mid-Spar	n Blocking		Mid-S	pan Blocking ar	nd 1/2" Gypsum	Ceiling		
Depth	Series		On Centre Spacing				On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	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"		
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"		
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"		
	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"		
11-7/8"	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"		
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"		
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"		
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"		
14"	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"		
	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"		
16"	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"		

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

^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 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.

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

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

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



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







			Ва	are		1	1/2" Gyps	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Centi	re Spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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
9-1/2"	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
	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
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A_
	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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.00	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16"	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

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

^{1.} 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.

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

^{3.} Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

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



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







Depth	Series	Bare On Centre Spacing				1/2" Gypsum Ceiling On Centre Spacing				
· · · · · · · · · · · · · · · · · · ·		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"	
9-1/2"	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"	
	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"	
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"	
44 7/0"	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"	
11-7/8"	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"	
	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"	
14"	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"	
	N!-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"	
1.6"	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"	
16"	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 On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling			
						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"
	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"
11-7/8"	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"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
14"	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"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
16"	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"

^{1.} 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.

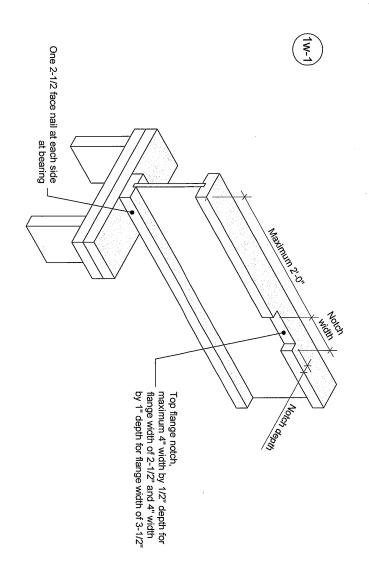
^{2.} Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

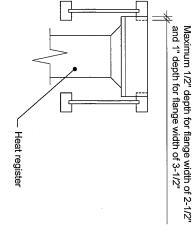
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

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

^{5.} This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.

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





- Notes:

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

 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 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.

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 darity. 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.

NORDIC

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CATEGORY

Notch in I-joist for Heat Register

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

2018-04-10

1w-1 NUMBER

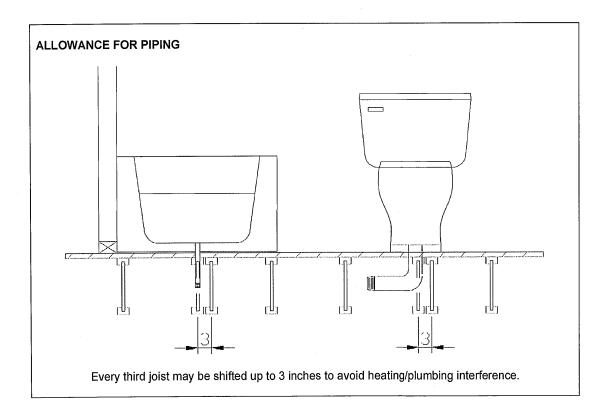


Allowance for Piping (Installation Notes)

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.



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