

B39 E 10-00-00 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2 2	PlotID J1 J2 J3 J4 J5 J6 B13 DR B16 DR B14H B39 E	4-00-00 2-00-00 20-00-00 10-00-00 8-00-00 20-00-00	Products Product 11 7/8" NI-40x 11 7/8" NI-80 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	Plies 1 1 1 1 1 1 2 2	Net Qty 15 10 24 5 7 77 2 2 2	PlotID B40 E B37 E B38 E B15H	Length 10-00-00 8-00-00 8-00-00 4-00-00	Products Product 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	Net Qty 2 2 2 1	Qty 2 2 1 3	Connecto Manuf H2 N/A H3 H4C	Product IUS2.56/11.88 H2.5A HUS1.81/10 HUC410
--	---	---	--	-----------------------	-------------------------------	---	---	--	---	-----------------	-------------	---	---

DATE: 2021-11-09

2ND FLOOR



FROM PLAN DATED: FEB 9, 2021

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS MODEL: GRANDVILLE 3

ELEVATION: 3 LOT: 593

CITY: HAMILTON

SALESMAN: RICK DICIANO

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

NOTES:

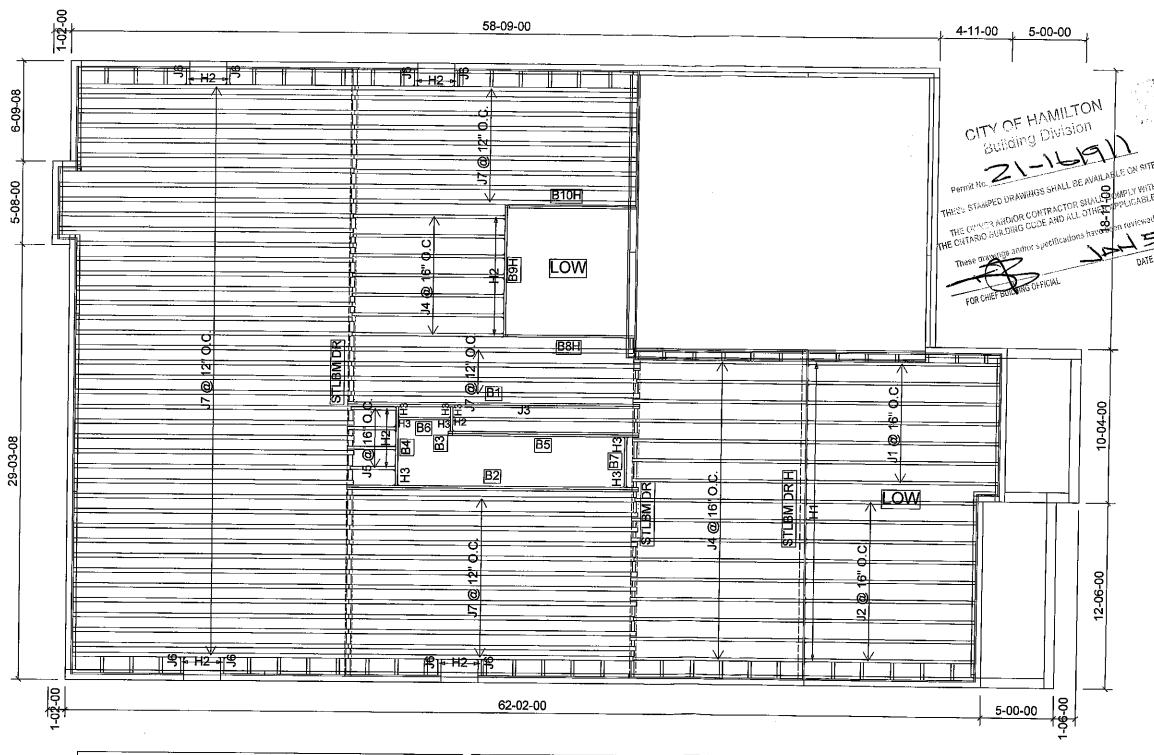
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.

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

LOADING:

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

SUBFLOOR: 5/8" GLUED AND NAILED



		Products	-	•
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	7
J2	12-00-00	9 1/2" NI-40x	1	9
J3	14-00-00	11 7/8" NI-40x	1	1
J4	12-00-00	11 7/8" NI-40x	1	23
J5	4-00-00	11 7/8" NI-40x	1	4
J6	2-00-00	11 7/8" NI-40x	1	8
J7	20-00-00	11 7/8" NI-80	1	65
B1	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

		Products		
PlotID	Length	Product	Plies	Net Qtv
B10H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2,0 3100 SP	1	1
B6	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

	Connecto	r Summary
Qty	Manuf	Product
16	H1	IUS2.56/9.5
12	H2	IUS2.56/11.88
8	H2	IUS2.56/11.88
2	H3	HUS1.81/10
_6	H3	HUS1.81/10

DATE: 2021-08-10

1st FLOOR

WALK OUT CONDITION

TAMARACK
LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: FEB 9, 2021

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS MODEL: GRANDVILLE 3

ELEVATION: 1,3

LOT:

CITY: HAMILTON

SALESMAN: RICK DICIANO

DESIGNER: L.D. REVISION: Ibv

NOTES:

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

INSTALLATION.

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

LOADING:

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

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



Distributed by:

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SAFETY AND CONSTRUCTION PRECAUTIONS





Never stock building

t-joists are not sloble until completely installed, and will not carry ony lood until fully braced and shepitud.

Avoid Acadents by Following these Important Guidelines: Brace and neil each I-joist as it is installed, using hanges, blacking panels, rim board, and/or cross-indiging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planted at that location, blocking will be required at the interior support.

When the building is completed, the floor sheeking will provide lateral support for the top flooges of the 1-jeties, Until this sheothing is applied, temperary bearing, often colled struts, or temperary bearing, often colled struts, or temperary bearing must be opplied to prevent 1-joist rallower or buckling.

E Temporory bracing or struts must be 1x4 inch minimum, at least 8 feet long and specad no more than 8 feet on cartra, and must be secured with a minimum of two 2-1/2" noted is castemed to the lops surface of soch i-joist. Not the bracing to a loteral restraint at the end of each boy, lop ends of adjoining bracing over all least two 1-joists.

Or, sheathing (temporary or permanent) can be sailed to the top florige of the first 4 feet of I-joists at the end of the boy.

For confilevered I-joists, brace top and bottom flanges, and brace ends with dosure panels, nin 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 answ. 5. Never install a damaged I-jaist.

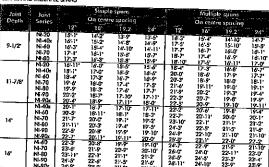
Improper decrage or installation, failure to follow applicable bailding codes, failure to failow span ratings for Nordic Ljobis, failure to failow alla hole sizes and locations, or failure to use web stiffeners when required can result in sections cacledns. Follow these installation guidelines carefully.

MAXIMUM FLOOR SPANS

- 1. Maximum clear spans applicable to simple span or multiple-span residentif floor construction with a design like load of 40 pst and doed load of 15 pst, 14n elitimate limit actes are based on the factored loads of 1.50. 4 1.290. This survisability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- or more at the adjacent span.

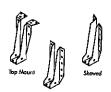
 2. Span are based on a composite floor with glacel-neilled oriented strand board (OSB) sheething with a minimum trickness of 58 lach for 10 lais spaning of 19 2 interper or less, at 3/4 inch for jeld spacing of 24 inches, Adhasive shall meet the requirements given in CGBS-7/1.26
 Sandard. No concruel topping or bridging element was assumed. Increased spans may be achieved with the used of gratum and/or a row of blacking at mid-span.
- 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 an uniform loads. Far applications with other than uniform foods, an engineering analysis may be required hased on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA
 OB6-09 Standard, and NBC 2010.
- 7. St units conversion: 1 Inch = 25.4 mm 1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC 1-JOISTS SIMPLE AND MULTIPLE SPANS



I-JOIST HANGERS

- Hongers shown illustrate the three most commonly used metal hongers
- 2. All nothing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, florge width and load capacity based on the maximum spans.
- 4. Web stiffeners are required when the sides of the hungars do not laterally brace the top flange of the I-joist.



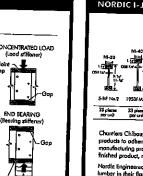
Face Mount

STORAGE AND HANDLING GUIDELINES

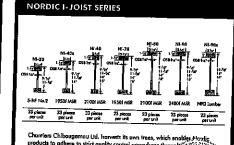
- . Bundle wrop can be slippery when wet. Avoid wolking on wropped
- 2. Store, stock, and handle t-joists vertically and level only. --3. Always stock and handle I-joists in the upright position only.
- 4. Do not store I-joists in direct contact with the ground and/or flatwise.
- 5. Protect 1-joists from weather, and use spacers to suparate bundles. —
- 6. Bundled units should be kept intact until time of installation.
- 7. When handling Lights with a crone on the job site, take a few simple precurious to prevent damage to the I-joists and injury to your work crew.
- # Pick 1-joints 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 5% points, using a spreader bar if necessary. 8. Do not handle I-joists in a harizontal orientation.
- 9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.

WEB STIFFENERS

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the light properties able found of the light Construction Guide (C101). The gap between the stiffener and the flongs is of the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the honger do not extend up to, on support, the top flange. The gap between it stiffener and flange is at the top.
- A load stiffener is required at location where a factored consensional bod greater than 2,370 lbs is applied to the top flarge between supports, or in the case of a conflewer, crywhere between the confilerer ip ond the support. These values are for standard turn load duration, and may be adjurted for either load durations as permitte, by the code. The gup between the siffener and the flange is at the bottom.
- Si units conversion: 1 inch = 25.4 mm



CCMC EVALUATION REPORT 13032-8

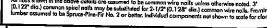


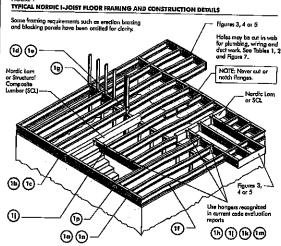
Charriers Chibougemou Ltd. harvests its own trees, which enables Martig products to others to strict quality control procedures through the first products from the strict process. Every phase of the operation, from the strict in finished product, relieds our commitment to quality.

Nordic Engineered Wood Lipits use only finger-jointed Each sequential bands in their flanges, arouning consistent quality, supplier strategy, supplied to the strategy of the strat

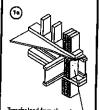
INSTALLING NORDIC I-JOISTS

- Before laying out floor system components, verify that I-joist flongs widths match hanger widths. If not, contribution
- 2. Except for cutting to length, I-joist Ranges should never be cut, drifted, or notched.
- 3. Instal) I-jaists so that top and bottom flanges are within 7/2 inch of true vertical alignment. Injoints must be anchored securely to supports before floor sheathing is attached, and support be level.
- 77/7/FIZ R 100 / 687 17 multiple spendante 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings
- When using hangers, sent f-joists firmly in hanger bottoms to minimize settlement.
- 7. Leave a 1/16-inch gap between the I-jaist end and a header. 8. Concentrated foods greater than those that can normally be expected in residential construction should only be applied to the top surface of the top florings. Normal concentrated foods include track lighting fishures, audia regizinest and occurrily canners. Nover a superior unusual or heavy floods from the Light's before flangs. Whenever possible, superior concentrated foods from the Light's before flangs. Whenever possible, superior concentrated floods from the Light's before flangs. Whenever possible, superior concentrated floods from the top of the Light. Or, offech the load to blacking that has been securely fostened to the light in the light of the
- Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or mosonry.
- 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 death blocking panels, rim board, or squash blocks (cripple members) to transfer growty loads through the floor system to the wall or toundation below.
- 12. Due to shinkoge, common froming fumber set on edge may sweet be used as blocking or nim boards, I-joist blocking ponds or other engineered wood products such as rim boards must be cut to fit between the I-joists, and on I-joist representations of the product of the 13. Provide permanent lateral support of the bottom florage of all Ljoints of interior supports of multiple-span joints. Similarly, support the bottom florage of all centilevered Ljoints of the and support used to the centilever extension. In the completed structure, the grysum wollboard ceiting provides this lateral support. Until the final finished ceiting is applied, temporery bracing or struts must be used.
- 15. Noil spacing: Space mails installed to the flonge's top face in accordance with the applicable building code requirements approved building plans.

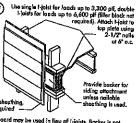




All noils shown in the above details are assumed to be common wire noils unit [0.122* dia.] common spiral noils may be substituted for 2-1/2* [0.128* dia.] (lumber assumed to be Spruce-Pine-Fir No. 2 or better, Individual components



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



WEB STIFFENER INSTALLATION DETAILS

Approx. 2" I 1/8'-1/4" Gop

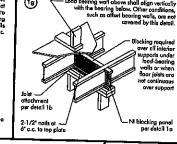
(4) 2-1/2" noils, 3" noils required for I-joisty with 3-1/2" flange width

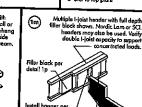
See table below for web sliffener size require

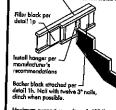
| Flonge Width | Web Stiffener Size Each Side of Web | 2-1/2" | 1" x 2-5/16" minimum width | 3-1/2" | 1-1/2" x 2-5/16" minimum width |

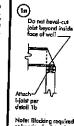
STIFFENER SIZE REQUIREMENT

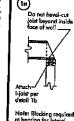
Rim board may be used in lieu of 1-joists. Bocker is not required when rim board is used. Bracing per code shall be corried to the foundation.

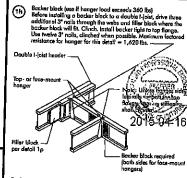








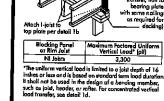


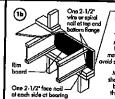


BACKER BLOCKS (Blocks must be long enough to parmit required

Flonge Width	Material Thickness Required*	Minimum Depth**
2-1/2	1"	5-1/2*
3.1/2	1-1/2"	7-1/4*

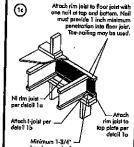
- Detter for solid sown tomber and wood structural panels conforming to CAN/CSA-0325 or CAN/CSA-0345 floated panels conforming to CAN/CSA-0345 or CAN/CSA-0347 Standard. For frice-mount thangers use nel joist depth mitrus 3-1/4* for joists with 1-1/2* thick floages. For 2* thick flanges use net depth mitrus 4-1/4*.

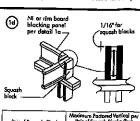


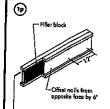


Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" a.c. To avoid splitting flange, start noils at least 1-1/2' from end of I-joist, Nails

Blocking Panel or Rim Joist I-1/6" Rim Boord Plus 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 bening member, such as joids, leaded, or rafter. For concentrated vertical load transfar, see detail to

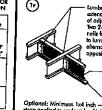




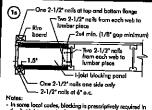




FILLER BLOCK REQUIREMENTS FOR DOUBLE 1- JOIST CONSTRUCTION Florige Joist Filler
Size Depth Block Size 2-1/8' x 6' 2-1/8' x 8' 2-1/8' x 10' 2-1/8' x 12' 2-1/2 x 1-1/2 3-1/2 x 1-1/2



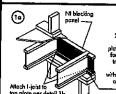


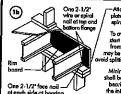


Notes:

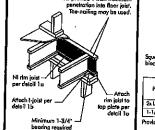
In some local codes, blacking is prescriptively required in ins first joint appear (or first and second joint space) must to the status joint. Where required, see food code requirement for appearing of the Blacking.

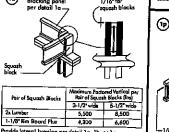
All nails are common spiral in this detail.

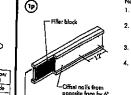




Ç FSC FSC







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

For nothing schedules for beams, see the monutac recommendations.

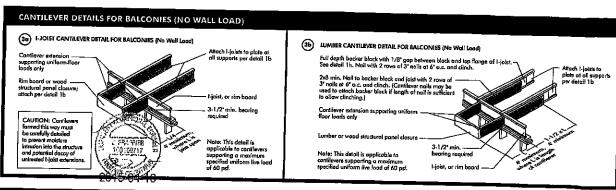
full length of spon.

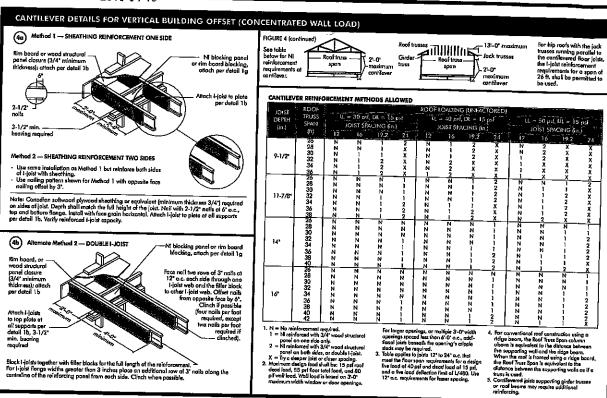
A hall joist fagether with two rows of 3' noils of 12 Inches o.c. (climched when possible) on each side of the double I-joist. Intel of four noils per foot required. If noils can be disched, only two noils per foot or equired.

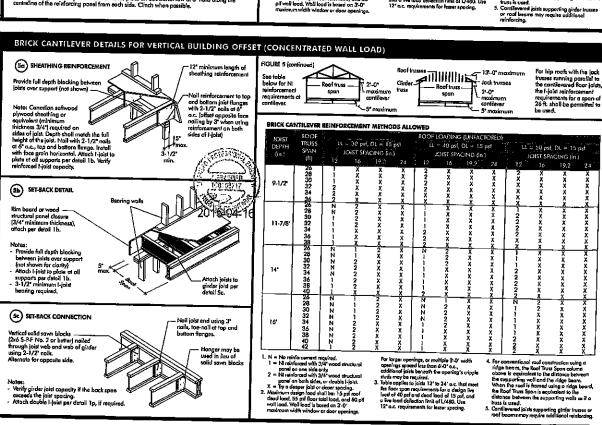
The maximum factored bod that may be applied to one side of the double jois using this deall is 860 lbt/ft. Verriy double I-joist cepacity. -1/8" to 1/4" gap between top Bange and filler block

Top-mount hanger installed per ______ manufacturer's recommendations

Note: Unless honger sides laterally support the top flange, bearing stiffeners shall be used.







WEB HOLES

FIELD-CUT HOLE LOCATOR

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centraline of any hale or duct chose opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 2. I joist top and bettom flonges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web. The modified in the position, inserted notes about a be centred on the modified if the web.

 The modified is the position of the modified depth of a duct chase opening that can be cut into an Lipid web shall equal the deer distance between the flanges of the Lipids minus 1/4 inch. A minimum of 1/5 inch should always be maintained between the top or bottom of the hole or opening and the adjacent Lipids flongs.

 The idea of square holes or longest sides of reclargular holes should not succeed 3/4 of the diameter of the maximum round hole permitted at that location.
- 3/4 or me ottomater of the mostimum round hole parmitted at their location.

 Where mouse then one hole is measurer, the distance between adjacent hole adges shall exceed whice the diameter of the largest cound hole or twice the street of the terpest squeet hole for twice the length of the largest side of the largest rectangular hall be in all or street chase opening and each hole and duct chase opening and large hole and duct host opening and large their office of the largest rectangular hall be in the street of the compliance with the requirements of Tables 1 and 2, respectively.

 A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring ?-1/2 inches or smaller shall be permitted anywhere in a conflictened section of a joist. Holes of greater size may be permitted subject to self-tened.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- 10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- 11. Limit three maximum size holes per spon, 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.

3/4x diameter



Never drill, cut or notch the flonge, or over-cut the web,

Holes in webs should be cut with a shorp saw. For rectangular holes, avoid over-cutting

ror recongular hotes, moid over-culting he corners, as his can cause unnecessar stress concentrations. Slightly roundles the corners is recommended. Starting the recongular hole by drilling a 1-inch cliented hole in each of the four corners and then moding the cuts between the holes is mailtre good melhod to minimize domoge to the 1-joist.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Deed Loads up to 15 per and Live Loads up to 40 per
Minimum distunct from inside face of any support to c

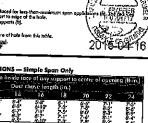
Juist .	Joist		· · **	nitintio	ui dizi	nuce t	an ju	side fo	ice of c	ny su	iport t	o cent	re of h	ole (fi	in:)		i Spar
Douth	5 ories	2	3	100		··	÷ Ro	und li	ole dia	meler	(in.)						udjustn
	NI-20	7.7	1:6	2-10	13		پيد		В.	<u>8:5/L</u>	9.	. T <u>a</u>	_10-3//		12	12-3/4	: Focto
9-1/2"	N-40x	0.7	11-61	3.0	4.4	5-8	6'-0"		***								13:7
7-1/2	NI-60 NI-70	1.3*	2-6	4.0	5.4	7-0	2.5								***		14'5
	NI-80	2.0	3-4	4.9	6.3,	8.0	8'-4"			***	-	•••		***	_	***	14%
	NI-20	 6.5	3.6	5.0	6.6	8-2	8.8	**							-		154
	NI 40.	1 0.5	0.8	1.3	2.4	3-8	4.0	2-0.	6.6	7-9							15.4
	NI-60	0.7	1.8	3-0-	2-0	4.0	4.4	5.5	7.0	8-4	-						1 2.3
1-7/8"	N1-70	1131	2.4	4.0	413	5.9	2.2	2-3	8-10-	10.0		***	***				16.4
	NI-80	11.6	Z-10*	4.2	5.6	2.0	7.5	8-4°	10.0	11.2					_		179
	NI-90	0.7	0.8	1'-5'	3/2	4.10	54	6/9	B-9"	10.2		_			***		17-3
	N1-90s	0.2	0.8	0.2	7.5	44	1.9	9.3	0-7	10.5.	_		-				17:7
- 1	NI-10x NI-60	0.7	08,	0.8	6.	2-1	2.9	3.9	3:2	6.0	6.6	8.3	10:2*			***	1850
.	HI-70	0.8	0-8°	1.8	3.0	4.3	4.8	5-8	7-2*	80	a a	10.4	11:5				170
4"	NI-80	o io	2.0	3.4	4.5	5-10	6.2	7:3*	8-9	9.9	70.4	12.0	13-5		***		1842
	NI-90	0.7	č-s	0.10	4.9	6.2	6-5	7.6	ò-0,	10:0	10.8	12-4	3.9			=	197.2
	NI-904	0.7	ă.B		70	3.0	4.2	5.9	7-5	8.5	9.4	11.4	12-11	***	-		1949
Т	NI-60	0.7	0.8.	0.8	13-	2:10	3.7	1:2"	5.5	8.5	7-2			***		[20-0
6'	NI-70	0.7	1.0.	2-3	36	4-10	5.3			6.4°	7-0	8-5	7.8	10-2	12.2	13-9	9-1
•	VI-80	0.7*	1.3	2-4*	3.10	5-3	5.4	8.3.	7-8* 8-0*	20	9-2 9-5	10.8	12:0	12'4"	14:0	15141	2011
	NI-90 NI-90x	0.7	0.8.	0.8	1:9	3.3	3.8,	1.9	6.5	75	8.01	7.10°	12'-3'	12:0	14-5	16:0	21:2
	noy be used		0.8	0.9	2.0	3.6	4'-0'	P.Or	6.9	7.0	8.4	10.2	1102	11:9*	13:9	15'-4'	2146

Hole location distance is measured from Inside face of supports to
 Distances in this chart are based on uniformly loaded joints.

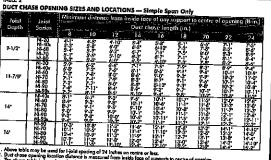
OPTIONAL:

The above to this is lossed on the I-joint used at their maximum spon. If the I-joint are placed at less than their full maximum is minimum distance from the centraline of the fole to the face of any support [0] as given obove may be reduced as follows: D_{reduced} = Lectuci x D

Distance from the inside foce of any support to centre of bole, reduced for less than maximum distance shall not be less than 6 incluse from the foce of the support to edge of the hole. The actual reasoned pour distance between the inside foces of support to judge of the hole. Sport Adjustment Focks given in this toble. The principle of the foce of support to the principle of the foce of the support to the principle of the foce of the foce of any support to centre of hole from this soble. If backgal is greater than 1, use 1 in the above colladation for backgal.



mirker spine



Above table may be used for i-joint specing of 24 inches an receive or less.

Above table may be used for i-joint specing of 24 inches an receive or less of the property of t

INSTALLING THE GLUED FLOOR SYSTEM

. Wipe any mud, dirt, water, or ice from I-joist flanges before glying.

A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of colculating minimum distances heteren better.

- Snap a chelk line across the I-fairst four feet in from the wall for pariel edge alignment and as a boundary for spreading give.
- Spread only enough give to lay one or two panels at a time, or follow specific reco
 the give manufacturer.
- ting give manneaure.

 Lught first gands with longue side to the wall, and noil in place. This protects the tangue of the next
 panel from damage when tapped into place with a block and stedgehammer.
- 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. Apply two lines of glue on I-joists where panel ends but to assure proper gluing of each end.
- 7. After the first row of ponds is in place, speed give in the groove of one or two ponds at a lime show bying the near ow. Give line may be continuous or spaced, but avoid squeeze-out by applying a thinset fine 17/5 inct) than used on 1-joist flanges.
- 8. Top the second row of panels into place, using a black to protect groove edges.
- Stogger and joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all adges, including T&C edges, is recommended. [Use a spacer fool or an 2-1/2" common not to ussure accurate and consistent spacing.)
- 10. Complete an extension of consistent specing.)
 10. Complete oil mailting of each prants learning glue sets. Check the manufacturer's recommendating for one time. (Worm weather accelerates glue setting.) Use 2º ring- or screw-shank nails for penels 3/4-inch thick or less, and 2-1/2º ring- or screw-shank nails for thicker ponels. Space and per the toble below. Closer and spacing may be required by some codes, or for clipfaringm construction. It faithed dark can be walked on right away and will carry construction loads without damage to the

FASTEMERS FOR SHEATHING AND SUBFLOORING(1)

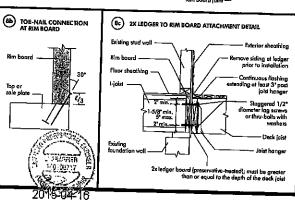
Panel	Continon Wire or	Ring Thread	Stoples	of Fas	n Specing Jentrs Intern Supports
5/8	2*	1-3/4"	2'		12'
5/8	2"	1-3/4"	21	- :-	
3/4	2.				12'
	Thickness (in.) 5/8 5/8	Panel Continon Wire or	Ranel	Panel Common Ran Tirreal Tindeness Wire or Nuils Steples	

- 1. Fasteners of sheathing and subflooring shall conform to the above table.
- Stoples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- 3. Fiboring screws shall not be less than 1/8-inch in diameter.
- 4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess
- 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 panel manufacturer.

Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23,3.5.

IMPORTANT NOTE: the Ostavet NOUS. Floor sheathing must be field glued to the t-joist flanges in order to achieve the maximum spains shown in the document. If abeathing is noticed only, I-joist spans must be verified with your local distribution.

RIM BOARD INSTALLATION DETAILS (8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT tim board Joint Between Floor Joists 2-1/2* noils at 6* o.c. (typical) Rim board Joint of Carner (1) 2-1/2° noil 2-1/2" toe-nails at 6" o.c. (typical)









FSC NAVISAGE BY COST. STY

5-P-F No.2 1950FM\$R 2100f MSR 1950f MSR 2100f MSR 2400f MSR NPG Lumber 23 pieces per unii 23 pieces per unit

Refer to the Installation Guide for Residential Floors for additional information. CCMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.

 I joint top and bothorn flanges must NEVER be out, noticed, or otherwise modified.

 Whenever possible, field-out holes should be centred on the middle of the web.

 The maximum size hole or the maximum death of a duct chase acceptant that
- 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 Lipid web shall equal the dear distorce between the flanges of the Lipid 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 Lipid flange.
- 5. The sides of equare holes or longest sides of restangular holes should not exceed 3/4 of the diameter of the moximum round hole permitted at that location.

 6. Where more than one hale is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole for twice the length of the longest side of the largest rectangular hole or dust chose opening) and each hale and dust chose openings 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 dust chose openings.

 8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantillevered section of a joist. Hales of greater size may be permitted subject to verification.

- 9. A 1-1/2 inch hole or amailer can be placed onywhere in the web provided that it meets the requirements of rule number 6 above.
 10. All holes and dud chase openings shall be cut in a workman-like monner 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 chose opening.

 12. A group of round holes at approximately the same focation shall be permitted if they meet the requirements for a single round hole 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

Joist	Joist	<u></u>		Minimu	m Dist	unce fr	om Insi	de Fac	e of Any	Sunna	et to C	entre a	f Hole (fi			
Dapih	Series	<u> </u>					Ro	und He	de Dian	eter (ir	1.)	OTHE C	r rote (n	n,j		
	NI-20	2	3	_ 4	5	6	6-1/4		8	8-5/8		10	10-3/4	21	12	10.04
	NI-40x	0'-7"	1.6	2-10 3-0		5'-8"	6'-0"								-12	12-3/4
9-1/2"	NI-60	11.3	2-6	4-0	4'-4" 5'-4"	6'-0" 7'-0"	6'-4"									***
	NI-70	2.0	3'-4"	4-9-	6'-3"	8.0	7'-5" 8'-4"								•••	
	NI-80	2:3	3-6"	5-0	6'-6"	₿-2°	8'-8"						-	•••		
	NI-20 NI-40x	0.7	0-8	1-0-	2'-4"	3-8	4'-0"	5'-0'	6'-6"	7'-9			_=			
	NI-60	0.7	0'-8"	3'-0"	21-81	4'-0"	4-4	5-5	ブ -0*	8-4	**-			*		
1-7/8	NI-70	3	2.6	4-0	4-3° 5' 4"	519" 619"	6'-0" 7'-2"	7'-3'	8'-10"	10.0.						_
	NI-80	1-6	2-10	4-2-	5-6"	7.0	7.5	8-4' 8-6'	10-0°	11'-2'						
	NI-90 NI-90x	0.7	0.8	1'-5"	3-2	4-10	5-4	6.9	8-9	10-2				_	***	_
	Ni-40x	0.7	0-8	0-9*	2.5	4'-4"	4.9*	6'-3'		***				_		
	NI-60	0.7	0.8	0-8	3'-0"	2.4	2-9	3, 9,	5'-2"	6.0	6'-6'	8-3	10.2			
4.	NI-70	0-8	1,10,	3-0	41.5	4'-3" 5'-10"	4-8' 6-2'	5-8 7-3	7-2	8,-0.	8'-8'	10'-4"	17-9			
· 1	NI-BO	0-10	2.0	3-4	4.9	6-2	6-5	7.6	8-9°	91.9*	10'-4"		13'-5"			
i	NJ-90x	0.7	D' 8°	0'-10"	2'-5"	4'-0"	4'-5'	5-9	7.5	8.8	944	12'-4"	13'-9' 12'-11'	_		
	NF60	0.7	0.8	0'-8"	2'0	3'-9'	4-2	5.5	7-3	8-5	9-2		12-11	***		
. 1	NI-70	0.7	1'0	2'-3"	3.6	2'-10" 4'-10"	3-2	4-2	5'-6"	6-4	7-0"	B'-5"	9-8	10-2		31.0
6"	NI-80	0.7	11.3	2-6	3-10	5-3	5.6	6'-6'	7'-8" 8'-0"	8'-6" 9'-0"	9.2	10-8	12-0	12.4	14-0	15'-6'
[NI-90	0'-7"	0'-8"	D-8*	1191	3.3	3.8	4-9	8-0 6-5		9'.5' 8'-0"	11-0	12'-3'	12-9	14.5	16-0"
	NI-90x	0-7	0,-8.	0.9	2'-0'	3'-6"		5'-Ó'	6-9		8-4	9-10-2	11-3° 11-6	11-9 12-0	13.9	15-4"

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

DUCT CHASE OPENING SIZES AND LOCATIONS

Joist	Joist	Minia	<u> ಬಗ್ಗಾ ಚೆಕ್ಕರ</u>	nce from	inside for	e of supp	orts to	rentra o	I anauz	Ø 1.1
Depth	Series	l			Duct C	hase Len	gth (in.)	Opening	(u - nz)
	<u> </u>	B	10	12	14	16	18	20		
	NI-20	4'-1"	4'-5"	4-10*	5-4"	5'-6'	6-1		22	24
~ - 144	NI-40x	5-3	5'-6"	6-0	6'-5"	6-10		6-6"	7'-1"	7'-5'
9-1/2*	NI-6D	5-4	5'-9"	6-2	6-7	7-1-	7-3 7-5	7.8	8.2	8'-6"
	NI-70	5'-7"	5'-5"	5-10	6-3	6-7	7.1	8-0"	8.3	8'-9'
	NI-80	5-3	5'-8"	6'-0"	6-5	6-10		7-6	8-I°	8'-4"
	NI-20	5-9	6-2	6'-6"	7:1"	7-5	7-3	7'-B*	8'-2"	8'-6"
	NI-40s	6-8	Ž:2	71.6	g'	8-6	7.9	8.3	B-9*	9'-4"
	NI-60	7-3	7-8	8'-0"	8'-6	9-0-	9-1	9-6	10-1	1049*
11-7/8"	NI-70	7-1"	7.4	7.9	87.31	8-7	9-3-	9.9	10-3	11'-0"
11-7/8*	NI-80	7.2	7-7	8-0	8'-5"	8-10	9-1-	9-6"	10-1-	10'-4"
	NI-90	7-6	7411	8-4	8.9	9-2	9.3	9-8-	10'-2"	10'-8"
	NI-90x	<u></u>	B'-1"	8'-5"	8-10	9-4	9-7	10-1	10-7	10-11"
	NI-40x T	8-1"	8-7	9'-0"	9-6	10-1	9'.8"	10-2	10'-8'	11/2"
- 1	N-60	8.9	9-3"	9-8	10-11	10-6	10-7	11-2"	12.0	12'-8"
14.	NI-70	8-7	9.7	9.5	9-10	10-4	11-1	11-6	13'-3'	13'-0"
- 1	M1-80	9'-0"	9-3	9-9	70-1	10-7	10-8	11-2	11-7"	121-3*
	NI-90	9.2	9-gr	10-0	10.4	10-7	11-1	11-6	12-14	12'-6"
	N1-90x	9-4	9.9	10-3	10:7	11-14	11-5	11-9	12'-4"	12411
	N-60	10-3	10'-8	11-2	11:6		11.7	12'-1"	12-7	13-2
	NI-70 }	10'-1'	10-5	11-0	11-4	12-1*	12-6	13'-2"	14-1"	14410
6"	NI-80	10-4	10.9	11-3	111.9	17 10	12-3"	12'-9"	13-3	14.0
1	NI-90	10-9	11-2	1746	12-0	12'-1"	12-7	13-1"	13'-8"	14'-4'
!	NI-90a	17-1	1145	11410	12-4		13-0	13'-6"	14-2	14-10
				1,210	14-4	12' 10"	13'.2"	13'-9"	14-4*	15'.2'

- 1. Above table may be used for I-joist spacing of 24 inches on centre or less.
 2. Duck these opering location distance is measured from baide face of supports to centre of opening.
 3. The above table is based an simple-span joists anty. For other applications, contact your local distributor.
 4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 pat and dead load of 10 pat, and a live load deflection limit of L/480.
 5. The above table is based on the I-joists being used at their maximum spans. The minimum distance os given above may be reduced for shorter spans; contact your local distributor.

FILLER BLOCK REQUIREMENTS FOR DOUBLE 1-JOIST CONSTRUCTION

(1d)



Maximum support capacity = 1,620 jbs.

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

Maximum Factored Uniform Vertical Load* (pif)

3,300

Maximum Factors

Vertical Load per Pa of Squash Blocks (IL

3-1/2* 5-1/2* wide wide

"The uniform vertical load is limited to a joist death of 16 inches or less and is based on standard term load duretion, it should not be used in the design of a bonding member, such as joist, header, or rafer. For concentrated vertical load transfer, see detail 1d.

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

 2x Lumber
 5,500
 8,500

 1-1/8" Rim Board Plus
 4,300
 6,600

Provide lateral bracing per detail 1a or 1b

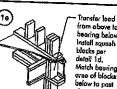
1-1/8" Rim Board Plus

*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 banding member, such as joint, header, or rafter. For concentrated vertical load transfer, see detail 1d.

 One 2-1/2' wire or spirol noil at top and bottom flonge Attach rim board to top plots using 2-1/2" wire or spiral toe-nails at 6" o.c.

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

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



Filler block

(19) 2-1/2" nails

and bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail. Blacking required over all interior supports under toad-bearing walls ar when floor joists are not

Ní blacking panel per detail 1a

(ii) Bocker block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double 1-joist, drive lines additional 31 natis through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 31 nails, clinched when possible. Mozimum factored resistance for hanger for this detail = 1,620 lbs.

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

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

NOTE: Unless

sides laterally support the top flange, bearing

+ 1/16

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

Minimum grade for backer black material shall be S-P-F No. 2 or better for solid sawn lumber and wared structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
 For face-mount hangers use nel 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*.

(Im)



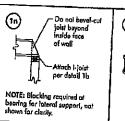
Bocker block required both sides for form.

For hanger copacity see hanger manufacturer's recommendations. Verity double 1-juist capacity to support concentrated loads.



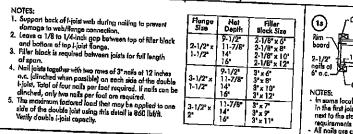
For nailing schedules for multiple beams, see the manufacturer'

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



Lumber 2x4 min., extend block to face of adjacent web, two 2-1/2' spiral nails from each web to lumber piece, alternale NI blacking panel

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



3-1/2°x

Multiple I-joist header with full depth filler block shown, Nordic Lam or SCL headers may also be used. Verify double I-joist

ity to support concentrated loads.

Sacker block attached per detail 1h. Noil with twelve 3* nails, clinch when possil

- install hanger per

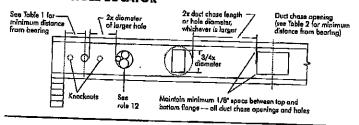
One 2-1/2' nail at top and battom flange ~2x4 min. (1/8" gap minimum) Two 2-1/2" nails from such web to lumber piece - I-joist blacking panel One 2-1/2" noil one side only NOTES:

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

All noils are comman spiral in this detail.

All nails shown in the above details are assumed to be common wire nails uniess otherwise noted. 3° (9.122° dig.) noted. 3" (0.122" dia.), common spiral nells may be substituted for 2-1/2" (0.128" dia.), common wire nells. Franting lumber assumed to be Sprace-Pine-Fir No. 2 or better: Individual components not she to scale for darlty.

FIELD-CUT HOLE LOCATOR





Knockouts are prescured 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 hales.

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

Holes in webs should be out with a sharp saw.

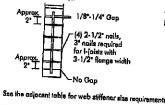
For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary sitess concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another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

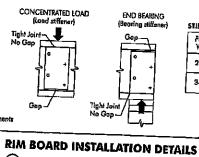
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the tro.
- A beating stiffener is required when the I-joist is supported in a honger and the sides of the honger do not extend up to, and support, the top tlange. The gup 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 libs is applied to the top flonge between supports, or in the case of a cardilever, anywhere between the condiever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permittled by the code. The gap between the stiffener and the flonge is at the bottom.

WEB STIFFENER INSTALLATION DETAILS Flange width 2-1/2" or 3-1/2" 1/8°-1/4° Gap (4) 2-1/2" nails





(80) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stock building molerials over unshrathed Finists. Once hed, do not over-sires

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

- AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:
- Brace and nail each I-joist as it is installed, using hangers, blacking penels, rim board, end/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, blacking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flonges of the L-joists. Until this
 sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover
- or outsting.

 Is imporary bracing or strate 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" nais fastened to the lop surface of each light. Nail the bracing to a lateral restraint at the end of each box, top ends of adjoining bracing over of least two lights. Nail the bracing to a 2 Or, sheathing (temporary or permanent) can be noticed to the top flange of the first 4 feet of t-joints at the end of the box.

 So For conflicted Fjoists, brace top and bottom flanges, and brace ends with closure panels, into board, or cross-bridging, materials over beams as walls only another than the confliction of the box.

 Never install a democrate Limite.
- Never install a domaged k-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic Holats, failure to follow allowable hale sizes and locations, or failure to use web stiffeners when required can result in serious acadents. Follow these installation guidelines corofully.



PRODUCT WARRANTY

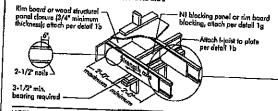
Chantlers Chibongaman guarantees than, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chantiers Chihangunau warranss that our products,

Mathod 1 — SHEATHING REINFORCEMENT ONE SIDE

en 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 Method 2 — SHEATHING REINFORCEMENT



Rim board Iran 6° a.c. (lypical) Rim Board Joins at Corner

8b TOE-NAIL CONNECTION AT RIM BOARD



NOTE: Canadian softwood phywood sheathing or equivalent (minimum thickness 3/4") required on sides of jaint. Depth shall match the full height of the jaint. Nail with 2-1/2" nails at 6" a.c., top and bottom flange, Install with face grain horizontal. Atlant l-joint to plate at all supports per detail 1b. Verify reinforced i-jaint copacity.

NORDIC STRUCTURES

COMPANY

Mar. 19, 2021 16:23

PROJECT
J7 - 1ST FLOOR

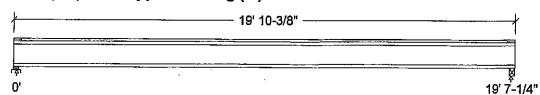
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

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

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



	7		
Unfactored:		·	1
Dead	196		196
Live	392	•	392
Factored:	ļ.—		032
Total	833		833
Bearing:			
Capacity	!		
Joist	2188		2199
Support	5573		1 - 1
Des ratio			
Joist	0.38		0.38
Support	0.15		-
Load case	#2		#2
Length	2-3/8		2-1/2
Min req'd	1-3/4		1-3/4
Stiffener	No	•	No
KD	1.00		1.00
KB support	1.00		[-]
fcp sup	769		_
Kzcp sup	1.09		-

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

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W; Total length: 19' 10-3/8"; Clear span: 19' 5-1/2"; 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 = 833	Vr = 2336	1bs	Vf/Vr = 0.36
Moment(+)	Mf = 4083	Mr = 11609	lbs-ft 🎻	SESME/Mr = 0.35
Perm. Defl'n	0.12 = < L/999	0.65 = L/360	in 🧷 🤻	0.19
Live Defl'n	0.24 = L/970	0.49 = L/480	in /6/2	0.49
Total Defl'n	0.36 = L/646	0.98 = L/240	in // 🛴	0.37
Bare Defl'n	0.27 = L/862	0.65 = L/360	in 🖟 🗍	MATSOULANDS 90.37
Vibration	Lmax = 19'-7.3	Lv = 21'-2.7	ft 🕍 S	MATSULLA MAT
Defl'n	= 0.027	= 0.033	in 🐧 🚙	0.82

STRUCTURAL COMPONENT ONLY

WoodWorks® Sizer

for NORDIC STRUCTURES

J7 - 1ST FLOOR

Nordic Sizer - Canada 7.2

Page 2

Addi	itional Data:							t		rage
FACTO Vr Mr+ EI CRITIO	ORS: f/E 2336 11609 547.1 m CAL LOAD COMB	1.00 illion INATIONS	•	-	KL - 1.000	KT - -	KS 	KN - -	LC# #2 #2 #2	
Mome	ection: LC #2 LC #2 LC #2 LC #2	= 1.25 = 1.0D = 1.0D = 1.0D	(perma + 1.0L + 1.0T	nent) (live)						
Bear Load	ing : Suppor Suppor Types: D=deac	= 1.0D ct 1 - Lo ct 2 - Lo d W=wind	+ 1.0L C #2 = 1 C #2 = 1 d S=snow	(bare .25D + .25D + W H=ea	joist) 1.5L 1.5L rth,groun	dwater	E≕eart	hquake		
All I	Patterns: s=S Load Combinati LATIONS:	5/2 L=L+ ons (LCs	Ls =no) are li	patte isted in	· c (scorag	e, equit	omenti	f=fire		
	= 625.37 lb- " deflection	in^2 K= is due t	6.18e0 o all no	06 lbs on-dead	loads (1	ive, wi	nd, snow	√…) GQN	FDRMS YO	OBC 2012

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.



000 NU. TAN 7368-21 STRUCTURAL GOMPONENT ONLY

NORDIC STRUCTURES

COMPANYMar. 19, 2021 16:28

PROJECTJ6 - 2ND FLOOR

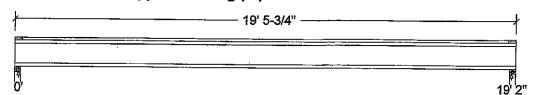
Design Check Calculation Sheet

Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored:		
Dead	192	192
Live	383	383
Factored:		
Total	815	815
Bearing:		
Capacity		1 1
Joist	2221	2221
Support	6659	6659
Des ratio		""
Joist	0.37	0.37
Support	0.12	0.12
Load case	#2	#2
Length	2-3/4	2-3/4
Min req'd	1-3/4	1-3/4
Stiffener	No	No
KD	1.00	1.00
KB support	_	
fcp sup	769	769
Kzcp sup	-	-
D 11		

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

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

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

Total length: 19' 5-3/4"; Clear span: 19' 1/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

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 = 815	Vr = 2336	lbs	% EV.5/Vr. = 0.35
Moment(+)	Mf = 3903	Mr = 11609	lbs-ft 🦨	MEYMr 0.34
Perm. Defl'n	0.11 = < L/999	0.64 = L/360	in 🎊	60.18
Live Defl'n	0.23 = < L/999	0.48 = L/480	in /5%.	9 47
Total Defl'n	0.34 = L/676	0.96 = L/240	in /9	35
Bare Defl'n	0.25 = L/917	0.64 = L/360	in 🖫	S KATSOJILAKOS \$\\\35
Vibration	Lmax = 19'-2	Lv = 20' - 5.8	.c 3	0.94
Defl'n	= 0.028	= 0.033	in 🖔 🕾	\$0.85

STRUCTURAL GONFOHERT ONLY

WoodWorks® Sizer

for NORDIC STRUCTURES

J6 - 2ND FLOOR

Nordic Sizer – Canada 7.2

Page 2

	Additional	Data									. ag
	FACTORS: Vr	f/E 2336 11609 547.1 m	1.00 1.00		Kz - - -	KL - 1.000	KT - - -	KS - - -	KN - -	LC# #2 #2 #2	
L	Snear Moment(+) Deflection Bearing Load Types: Load Patter All Load Co CALCULATIONS Eleff = 613 "Live" defle	: LC #2 : LC #2 : LC #2 LC #2 LC #2 : Suppor Suppor D=dead L=live rns: s=S mbinati S: .27 lb-: ection:	= 1.25I = 1.25I = 1.0D = 1.0D = 1.0D = 1.0D ct 1 - LC ct 2 - LC W=wind (use,occiduse	0 + 1.5I 0 + 1.5I (perma + 1.0L + 1.0L + 1.0L #2 = 1 #2 = 1 S=snor upancy) Ls =no upancy) are li	nent) (live) (total (bare .25D + .25D + W H=ea: Ls=liv) patter) joist) 1.5L 1.5L rth,groun ve(storag n load i n the Ana	e,equip n this lysis o	oment) span output	f=fi.re		ORE 2012
	Design Notes	3:								ORMO 16	

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.







Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B1(i5062) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773 Job name:

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Address:

Code reports:

City, Province, Postal Code: HAMILTON Customer:

CCMC 12472-R

File name:

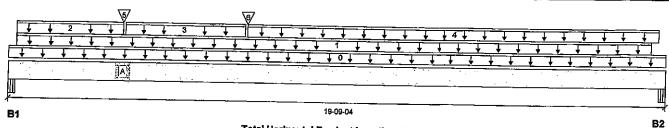
GRANDVILLE 3 - EL1,3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i5062)

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 19-09-04

Snow

Reaction Summary (Down / Uplift) (lbs)

LÌve B1, 5-1/4" 1153 / 0 835/0 B2, 5-1/4" 564 / 0 430 / 0

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65			Houlary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-09-04		1.00	12	1.00	1.15	00.00.00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-10	•	-	. 14	7			00-00 - 00 n\a
2	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-10	03-04-10	Тор	33	16			n\a
3	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	03-05-08	07-00-02	Тор	21	10			n\a
4	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	07-01-00	19-06-10	Тор	19	10			n\a
5	B4(i5061)	Conc. Pt. (lbs)	L	03-04-10	03-04-10	Top	636	470			_
6	B3(i5075)	Conc. Pt. (lbs)	Ē	07-01-00	07-01-00	Тор	394	476			n\a
			_		0, 01-00	ιop	394	207			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10355 ft-lbs	35392 ft-lbs	29.3%	1	07-01-00
End Shear	2633 lbs	14464 lbs	18.2%	4	01-05-02
Total Load Deflection	L/499 (0.457")	n\a	48.1%	4	
Live Load Deflection	L/855 (0.267")	n\a		•	09-02-06
Max Defl.	0.457"		42.1%	5	09-02-06
Span / Depth	19.2	n\a	n\a	4	09-02-06

_		Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
	B1	Beam	5-1/4" x 3-1/2"	2774 lbs	28.3%	12.4%	Unspecified
	B2	Beam	5-1/4" x 3-1/2"	1383 lbs	14.1%	6.2%	Unspecified

Notes

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

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

GONFORMS TO DBG 2012

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

2020

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 12-02-02.



uwd Wr. Tail 2370 -21 STRUCTURAL COMPONENT DALY

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Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B1(i5062) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3.mmdl

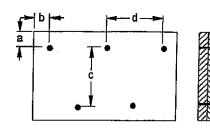
Description: 1ST FLR FRAMING\Flush Beams\B1(i5062)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



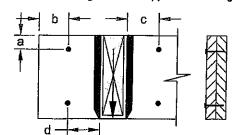
a minimum = 2" b minimum = 3" c = 7-7/8" 4 d = 15" 8

Calculated Side Load = 424.9 lb/ft Connectors are: 16d ^ A .. Nails

81/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A... Applies to load tag(s): 3



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d

. Nails

ARDOX SPIRAL



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 Gulde and applicable building codes. To obtain installation Guide or ask questions, please call (800)232-0788 before installation.

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





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B2(i5015) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Job name:

Address:

City, Province, Postal Code: HAMILTON

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B2(i5015)

Specifier:

Designer:

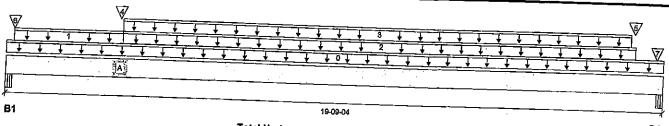
L.D.

Wind

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 19-09-04

Snow

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/4"	916 / 0	1369 / 0
B2, 5-1/4"	834 / 0	1490 / 0

Lo Tag 0	ad Summary Description Self-Weight	Load Type Unf. Lin. (lb/ft)	Ref.	Start 00-00-00	<u>End</u> 19-09-04	Loc.	Live 1.00	Dead 0.65	Snow	Wind 1.15	Tributary
'	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-10	,		40	12 20			00-00-00 n\a
2	FC1 Floor Decking (Plan View Fili)	Unf. Lin. (lb/ft)	L	03-05-08	18-11-02	Тор	17	8			n\a
5 6 7	18(i730) - - 8(i651) 14(i659)	Unf. Lin. (lb/ft) Conc. Pt. (lbs) Conc. Pt. (lbs) Conc. Pt. (lbs) Conc. Pt. (lbs)	L	18-10-12 00-02-12	18-09-08 03-04-09 18-10-12 00-02-12 19-06-12	Top Top Top Top Top	20 372 255 219 191	94 438 298 133 119			n\a n\a n\a n\a n\a

Controls S.		Factored	Dament		
Controls Summary Pos. Moment	Factored Demand 7977 ft-lbs	Resistance 23005 ft-lbs	Demand/ Resistance	Case	Location
End Shear	1673 lbs	23005 π-lbs 9401 lbs	34.7%	0	09-06-01
Total Load Deflection	L/418 (0.546")	n\a	17.8%	0	01-05-02
Live Load Deflection	L/1415 (0.161")	n\a n\a	57.4%	4	09-08-14
Max Defl.	0.546"	n\a n\a	25.4%	5	09-06-01
Span / Depth	19.2	IIIa	n\a	4	09-08-14

Bearin B1	g Supports		Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B2	Beam	5-1/4" x 3-1/2"	3085 lbs	31.4%	13.8%	Unspecified
	Beam	5-1/4" x 3-1/2"	2086 lbs	32.7%	14.3%	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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 15-04-00.



144 NO. THE 7371 STRUCTURAL component only





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B2(i5015) (Flush Beam)

PASSED

March 23, 2021 17:20:52

BC CALC® Member Report

Build 7773 Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B2(i5015)

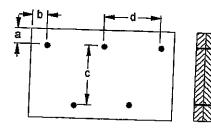
Specifier:

Designer:

L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum ≈ 3"

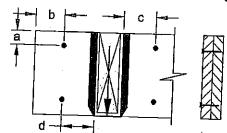
c = 7-7/8" d = 10 8"

Calculated Side Load = 326.4 lb/ft Connectors are: 16d ✓ Nails

31/2" ARDOX SPIRAL

Connection Diagrams: Concentrated Side Loads

Connection Tag: A - Applice to load tag(s): 4



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are:

Nails

ARDOX SPIRAL



DWG NO. TAM 7371-21 STRUCTURAL

Disclosure Ponent Only

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.

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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i5067) (Flush Beam)

BC CALC® Member Report Build 7773

Job name:

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3.mmdl

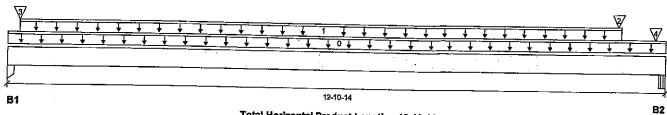
Description: 1ST FLR FRAMING\Flush Beams\B5(i5067)

Wind

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 12-10-14

Reaction Summary (Down / Uplift) (lbs)

	(ibo)					
Bearing	Live	Dead	Sno			
B1, 3-1/2"	606 / 0	397 / 0	0.10			
B2, 5-1/4"	387 / 0	437 / 0				

Tag		Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-10-14	Top		12		11.10	00.00.00
1	FC1 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-10	12-00-12	1-	23	11			00-00-00 n\a
2	B7(i5285)	Conc. Pt. (lbs)	L	12-00-00	12-00-00	Тор	232	264			n\a
3	B3(i5075)	Conc. Pt. (lbs)	L	00-02-10	00-02-10	Top	458	240			
4	14(i659)	Conc. Pt. (lbs)	L	12-08-06	12-08-06	Тор	33	40			n\a n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1374 ft-lbs	35392 ft-lbs	3.9%	1	06-10-05
End Shear	647 lbs	14464 lbs	4.5%	4	11-05-12
Total Load Deflection	L/999 (0.029")	n\a	n\a	, A	· · · · · -
Live Load Deflection	L/999 (0.014")	n\a		4	06-06 - 08
Max Defl.	, ,		n\a	5	06-06-08
. = - • • •	0.029"	n\a	n\a	4	06-06-08
Span / Depth	12.4				

Bearing	g Supports	Dîm. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 3-1/2"	1407 lbs	14.1%	9.4%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	1128 lbs	11.5%	5.0%	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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 11-07-10.

NOT OF ON

BYR NO. TAN 2372-21 STRUCTURAL COMPONENT ONLY



BC CALC® Member Report



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

1ST FLR FRAMING\Flush Beams\B5(i5067) (Flush Beam)

Dry | 1 span | No cant.

March 23, 2021 17:20:52

PASSED

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description:

: 1ST FLR FRAMING\Flush Beams\B5(i5067)

Specifier:

Designer:

L.D.

Company:

Customer: Code reports:

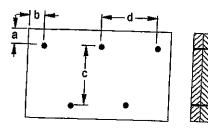
Build 7773

Job name:

Address:

CCMC 12472-R

Connection Diagram: Full Length of Member



City, Province, Postal Code: HAMILTON

a minimum = 2"

c = 7-7/8" d = 4 4

b minimum = 3"

_ HBC (C)

Calculated Side Load = 493.5 lb/ft

Connectors are:

ı Nails

3%" ARDOX SPIRAL

S. MATSONDHOS ST.

DWG NO. TAM 7372-21 STRUGTURAL

Disclostite ONLY

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Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B8H(i5852) (Flush Beam)

PASSED

March 23, 2021 17:20:52

BC CALC® Member Report

Build 7773 Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B8H(i5852)

Specifier:

Designer: L.D.

Company:

+ + + + + + + + + + + + + + + + + + + +	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ 	
B1	08-09-00	
	Total Horizontal Product Longth - on co.co	B2

Total Horizontal Product Length = 08-09-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing Live Dead B1, 1-3/4" 88/0 69/0 B2, 5-1/2" 196 / 0 137 / 0

Lo Tag		Load Type	Ref.	Start	End		Live	Dead	Snow	Wind	Tributary
O	Self-Weight	Unf. Lin. (lb/ft)	1,17,1	00-00-00		Loc.	1.00	0.65	1.00	1.15	
1	FC1 Floor Decking (Plan	, ,		· -	08-09-00	Top		6			00-00-00
-	View Fill)	Unf. Lin. (lb/ft)	Ĺ	00-00-00	08-06-04	Тор	21	10			n\a
2	2(i50)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	Тор	106	65			•
						٠.٠	100	05			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	0	
Pos. Moment	443 ft-lbs	17696 ft-lbs	2.5%	Case_	Location
End Shear	160 lbs	7232 ibs	2.2%	1	04-02-10
Total Load Deflection	L/999 (0.008")	n\a	z.2./₀ n\a	1	01-01-10
Live Load Deflection	L/999 (0.004")	n\a	-	4	04-02-10
Max Defl.	0.008"	n\a	n\a	5	04-02-10
Span / Depth	8.4	ma	n\a	4	04-02-10

	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 B2		1-3/4" x 1-3/4" 5-1/2" x 1-3/4"	219 lbs 465 lbs	8.8% 7.8%	5.8%	Unspecified Spruce-Pine-Fir

Notes

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

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

Resistance Factor phi has been applied to all presented results per CSA 086. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Day Service On United States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 08-03-08.



DWG NO. TAM 7324-21 STRUCTURAL COMPONENT ONLY

Disclosure

subject to the terms of the End User License Agreement (EULA). CONFORMS TO OBS 2012Completeness 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

Use of the Boise Cascade Software is

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 Gulde or ask questions, please call (800)232-0788 before installation.

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





Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B10H(i5762) (Flush Beam) Dry | 1 span | No cant.

PASSED

March 23, 2021 17:20:52

BC CALC® Member Report

Build 7773

Code reports:

Job name: Address:

City, Province, Postal Code: HAMILTON Customer:

CCMC 12472-R

File name: GRANDVILLE 3 - EL1,3.mmdl

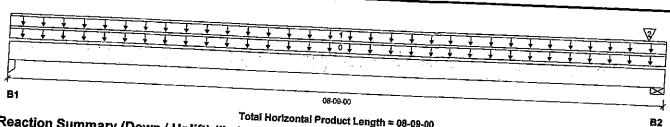
Description:

1ST FLR FRAMING\Flush Beams\B10H(i5762)

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 08-09-00

Snow

Reaction Sun	nmary (Down / U	10tal 70
Bearing	Live	
B1, 1-3/4"	32 / 0	Dead
	32 / U	41/0

41/0 B2, 5-1/2" 134 / 0 106 / 0

Lo	ad Summary									
0 O	Description Self-Weight	Load Type Unf. Lin. (lb/ft)	Ref.	Start 00-00-00	End 08-09-00	Loc.	Live 1.00	Dead 0.65	Snow Wind 1.00 1.15	Tributary
2	FC1 Floor Decking (Plan View Fill) 4(i80)	(IO/IL)	Ĺ	00-00-00	08-09-00	. +/-	8	6 4		00-00-00 n\a
	.(100)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	Тор	100	62	A STATE OF THE PARTY OF THE PAR	

	,	_	00-00-04	00-00-04	qoı	100
Controls Summary Pos. Moment	Factored Demand	Factored Resistance	Dema Resist		Case	Location
End Shear Total Load Deflection Live Load Deflection Max Defl. Span / Depth	72 lbs L/999 (0.004") L/999 (0.002") 0.004"	17696 ft-lbs 7232 fbs n\a n\a n\a	1.1% 1.0% n\a n\a n\a		1 1 4 5 4	04-02-10 01-01-10 04-02-10 04-02-10 04-02-10

Bearing Supports Dim. (LxW) Demand B1 Column 1-3/4" x 1-3/4" 99 lbs B2 Wall/Plate 5-1/2" x 1-3/4" 334 lbs	Demand/ Resistance Support 4.0% 5.6%	Member 2.6%	Material Unspecified Spruce-Pine-Fir
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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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 08-03-08.



OWE NO. YAM 2373 -21 STRUCTURAL COMPONENT ONLY

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Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B9H(i5048) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Job name: Address:

Customer:

Code reports:

City, Province, Postal Code: HAMILTON

CCMC 12472-R

File name:

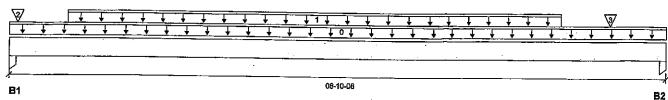
GRANDVILLE 3 - EL1,3.mmdi

Description: 1ST FLR FRAMING\Flush Beams\B9H(i5048)

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 08-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	
B1, 1-3/4"	1002 / 0	528 / 0		
B2. 1-3/4"	861 / 0	458 / n		

Loa	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)	Ĺ	00-00-00	08-10-08	Top		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-04	07-05-04	Top	206	103			n\a
2	J4(i4996)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Тор	236	118			n\a
3	J4(i5017)	Conc. Pt. (ibs)	L	08-01-04	08-01-04	Тор	243	122		neess.	

Controls Summary	Factored Demand	Factored Resistance	Demand <i>i</i> Resistance	Case	Location
Pos. Moment	4236 ft-lbs	17696 ft-lbs	23.9%	1	04-01-04
End Shear	1665 ibs	7232 lbs	23.0%	1	07-08-14
Total Load Deflection	L/999 (0.083")	n\a	n\a	4	04-05-04
Live Load Deflection	L/999 (0.054")	n\a	n\a	5	04-05-04
Max Defl.	0.083"	n\a	n\a	4	04-05-04
Span / Depth	8.8			•	J. 55 64

	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material_
B1	Column	1-3/4" x 1-3/4"	2162 lbs	86.9%	57.9%	Unspecified
B2	Column	1-3/4" x 1-3/4"	1864 lbs	75.0%	49.9%	Unspecified

BWG NO. TAM7 375 -21 STRUCTURAL COMPONENT ONLY

The of or

Notes

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

CONFORMS TO OBC 2012 Design meets Code minimum (L/360) Live load deflection criteria.

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.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

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Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B4(I5061) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Build 7773

Job name: Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

GRANDVILLE 3 - EL1,3.mmdl

File name: 1ST FLR FRAMING\Flush Beams\B4(i5061) Description:

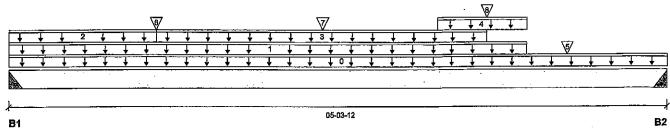
L.D.

Wind

Specifier:

Designer:

Company:



Total Horizontal Product Length = 05-03-12

Reaction Summary (Down / Uplift) (lbs)

1 TOUGHOIT OU		Py (120)		
Bearing	Live	Dead	Snow	
B1, 3"	356 / 0	402 / 0		
B2. 3"	651 / 0	481 / 0		

Loa	d Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	Enđ	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-03-12	Тор		6			00-00-00
1	16(i664)	Unf. Lin. (lb/ft)	Ĺ	00-00-00	04-02-00	Тор		81			n\a
2	16(i664)	Unf, Lin. (lb/ft)	L	00-00-00	01-02-00	Тор	53	26			n\a
3	16(1664)	Unf. Lin. (lb/ft)	L	01-02-00	03-10-00	Top	70	35			n\a
4	16(i664)	Unf. Lin. (lb/ft)	L	03-05-00	04-02-00	Тор	64	39			n\a
5	B6(i5076)	Conc. Pt. (lbs)	L	04-06-00	04-06-00	Тор	463	242		•	n\a
6	J5(i5000)	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	81	40			n\a
7	J5(15046)	Conc. Pt. (lbs)	L	02-06-00	02-06-00	Тор	78	37			n\a
8	J5(i5037)	Conc. Pt. (lbs)	L	03-10-00	03-10-00	Тор	86	41			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1472 ft-lbs	17696 ft-lbs	8.3%	1	02-10-13
End Shear	1138 lbs	7232 lbs	15.7%	1	04-00-14
Total Load Deflection	L/999 (0.01")	n\a	n\a	4	02-08-12
Live Load Deflection	L/999 (0.005")	n\a	n∖a	5	02-08-12
Max Defl.	0,01"	n\a	n\a	4	02-08-12
Span / Depth	5.0				

Bearing	g Supports	Dim. (LxW)	_ Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	1036 lbs	n\a	16.2%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	1579 lbs	n\a	24.6%	HUS1.81/10

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. adequate capacity.



8816 HD. FAN 7376 STREGTERAL CAMPONEAT ONLY





Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B4(I5061) (Flush Beam)

PASSED

March 23, 2021 17:20:52

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B4(i5061)

Specifier:

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

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

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



DWO HO. YAM 7376-21 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®



BC CALC® Member Report



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

1ST FLR FRAMING\Flush Beams\B6(i5076) (Flush Beam)

Dry | 1 span | No cant.

March 23, 2021 17:20:52

PASSED

Build 7773 Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

GRANDVILLE 3 - EL1.3.mmdl

File name: Description: 1ST FLR FRAMING\Flush Beams\B6(i5076)

Wind

Specifier:

Designer:

L.D. Company:

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<u> </u>																								** '.	_					

B1

03-06-10

Snow

B2

Total Horizontal Product Length = 03-06-10

Reaction 5	ummary (Down / Uplin	t) (!bs)
Bearing	Live	Dead

B1, 3" 463 / 0 242 / 0 B2, 3" 463 / 0 242 / 0

Lo	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	03-06-10	Тор	•	6			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-06-10	Top	240	120			n\a
2	FC1 Floor Decking (Plan	Unf. Lin. (lb/ft)	Ĺ	00-00-00	03-06-10	Тор	21	10			n\a
	View Fill)									فتنا والمحدود المامورايان	with the same

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	708 ft-lbs	17696 ft-lbs	4.0%	1	01-09-05
End Shear	301 i bs	7232 lbs	4.2%	. 1	01-02-14
Total Load Deflection	L/999 (0.002")	n\a	n\a	4	01-09-05
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-09-05
Max Defl.	0.002"	n\a	n\a	4	01-09-05
Span / Depth	3.2				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	997 lbs	n\a	15.6%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	997 lbs	n\a	15.6%	HUS1.81/10

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.

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 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 03-06-10.



BUG NO. TAN 2377-21 STRUCTURAL COMPONENT ONLY

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on CONFORMS TO OBE 2012 building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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





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

1ST FLR FRAMING\Flush Beams\B7(I5285) (Flush Beam)

Dry | 1 span | No cant.

March 23, 2021 17:20:52

PASSED

Build 7773 Job name:

Address:

City, Province, Postal Code: HAMILTON

BC CALC® Member Report

Customer: Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3.mmdi

1ST FLR FRAMING\Flush Beams\B7(i5285) Description:

Wind

Specifier:

Designer: L.D.

Company:

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1 1 1 1				+ + + + +	* + + + +
	<u>, , , , , , , , , , , , , , , , , , , </u>	* * * * *	* * * * * * *		
<u> </u>			_		
B1			03-04-08		В2

Total Horizontal Product Length = 03-04-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3"	221 / 0	257 / 0
B2, 3"	232 / 0	264 / 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	03-04-08	Top		6			00-00-00
1	11(i656)	Unf. Lin. (lb/ft)	L	00-00-00	03-04-08	Тор	121	142			n\a
2	11(i656)	Unf. Lin. (lb/ft)	L	00-06-00	03-02-00	Top	15	8			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	448 ft-lbs	17696 ft-lbs	2.5%	1	01-08-03
End Shear	556 lbs	7232 lbs	7.7%	1	01-02-14
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	01-08-03
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-08-03
Max Defl.	0.001"	n\a	n\a	4	01-08-03
Snan / Denth	3.0				

Bearing	Supports	Dim. (LxW)	Demand_	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	653 lbs	n\a	10.2%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	678 lbs	n\a	10.6%	HUS1.81/10

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. 04

Notes

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

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

CONTORMS TO OBG 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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 03-04-08.



146 NO. TAM 2378-21 STRUCTURAL COMPONENT ONLY

Disclosure

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

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





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

PASSED

1ST FLR FRAMING\Flush Beams\B3(i5075) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Build 7773 Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: HAMILTON

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3.mmdi

Description: 1ST FLR FRAMING\Flush Beams\B3(i5075)

Specifier:

Designer: L.D.

Company:

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A					-																									
<u>}</u>								,		_																				
B1														01	I-07 - 12															B2

Total Horizontal Product Length = 01-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	418 / 0	219 / 0		
B2. 3"	433 / 0	227 / 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		01-07-12			6			00-00-00
1	•	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	846	434			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	578 ft-lbs	17696 ft-lbs	3.3%	1	00-10-00
End Shear	147 lbs	7232 lbs	2.0%	1	01-02-14
Total Load Deflection	L/999 (0")	n\a	n\a	4	00-10-00
Live Load Deflection	L/999 (0")	n\a	n\a	5	00-10-00
Max Defl.	0"	n\a	n\a	4	00-10-00
Span / Depth	1.3				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	901 lbs	n\a	14.1%	HUS1,81/10
B2	Hanger	3" x 1-3/4"	933 lbs	n\a	14.6%	HUS1.81/10

Cautions

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

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

Notes

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

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

Hanger Manufacturer: Unassigned

canvorms to obc 2012

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.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-08-12.

CONTROL OF ON

BYG NO. TAN 73 STRUCTURAL

COMPONENT ONLY Disclosure

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

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





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

PASSED

1ST FLR FRAMING\Flush Beams\B18(i7647) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 16:57:42

Build 7773 Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: HAMILTON

BC CALC® Member Report

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3 - DECK COND.mmdl

1ST FLR FRAMING\Flush Beams\B18(i7647) Description:

Specifier:

Designer: L.D.

Company:

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4													ua-	-00-00															

Total Horizontal Product Length = 03-03-08

Reaction Sun	nmary (Down / Uj	pliπ) (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1, 5-3/4"	1727 / 0	1258 / 0	222 / 0		
B2, 3-3/4"	1329 / 0	1021 / 0	201/0		

L.oa	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	03-03-08	Тор		12			00-00-00
1	E5(i42)	Unf. Lin. (lb/ft)	L	00-00-00	03-03-08	Top	381	407	129		n\a
2		Conc. Pt. (lbs)	L	00-01-02	00-01-02	Top	665	332			n\a
3	J7(i7620)	Conc. Pt. (lbs)	L	01-01-12	01-01-12	Top	379	189			n\a
4	J7(i7786)	Conc. Pt. (lbs)	Ĺ	02-01-12	02-01-12	Top	379	189			n\a
5	J7(i7675)	Conc. Pt. (lbs)	Ĺ	03-01-12	03-01-12	•	379	189			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand <i>i</i> Resistance	Case	Location
Pos. Moment	1709 ft-lbs	35392 ft-lbs	4.8%	1	01-09-02
End Shear	945 lbs	14464 lbs	6.5%	1	01-11-14
Total Load Deflection	L/999 (0.002")	n\a	n\a	35	01-08-12
Live Load Deflection	L/999 (0.001")	n\a	n\a	51	01-08-12
Max Defl.	0.002"	n\a	n\a	35	01-08-12
Span / Depth	2.7				

Bearin	ıg Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-3/4" x 3-1/2"	4385 lbs	35.4%	17.9%	Spruce-Pine-Fir
B2	Wall/Plate	3-3/4" x 3-1/2"	3471 lbs	43.0%	21.7%	Spruce-Pine-Fir

Notes

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

CONFORMS TO OBC 2012

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

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

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



126 NU. TAN 738021 STRUCTURAL GUMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B18(i7647) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

March 24, 2021 16:57:42

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3 - DECK COND.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B18(i7647)

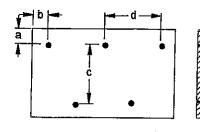
Specifier:

Designer:

L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 🗱 🖁 🗥

Calculated Side Load = 402.4 lb/ft Connectors are: 16d 🚁 , Nails

312" ARDOX SPIRAL



<u>Disclosure</u>

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

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





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B19(i7652) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

March 24, 2021 16:57:42

Build 7773 Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: HAMILTON

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3 - DECK COND.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B19(i7652)

Specifier:

Company:

Designer:

L.D.

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B1															03-	01-00																P 2

Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

reaction can	innaiy (Doniii o	onity (iba)		
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1286 / 0	995 / 0	198 / 0	
B2, 3-1/2"	1027 / 0	866 / 0	198 / 0	

Lo	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	03-01-00	Top		12			00-00-00
1	E1(i45)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Тор	381	408	129		n\a
2	J7(i7732)	Conc. Pt. (lbs)	L	00-03-00	00-03-00	Top	379	189			n\a
3	J7(i7690)	Conc. Pt. (lbs)	L	01-03-00	01-03-00	Top	379	189			n\a
4	J7(i7646)	Conc. Pt. (lbs)	L	02-03-00	02-03-00	Тор	379	189			n∖a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1716 ft-lbs	35392 ft-lbs	4.8%	1	01-05-05
End Shear	971 lbs	14464 lbs	6.7%	1	01-03-06
Total Load Deflection	L/999 (0.002")	n\a	n\a	35	01-06-08
Live Load Deflection	L/999 (0.001")	n\a	n\a	51	01-06-08
Max Defl.	0.002"	n\a	n\a	35	01-06-08
Span / Depth	2 .7				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	3371 lbs	44.7%	22.6%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	2821 lbs	37.4%	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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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



COMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B19(i7652) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773 Job name:

Dry | 1 span | No cant.

March 24, 2021 16:57:42

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3 - DECK COND.mmdl

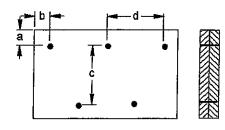
Description: 1ST FLR FRAMING\Flush Beams\B19(i7652)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = **2** 8 d

Calculated Side Load = 402.4 lb/ft Connectors are: 16d · ... Nails

3%" ARDOX SPIRAL



898 NO. TAN 7381 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 Gulde 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®,





City, Province, Postal Code: HAMILTON

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B13 DR(i5334) (Dropped Beam)

PASSED

BC CALC® Member Report

Build 7773

Customer:

Job name: Address:

Dry | 1 span | No cant.

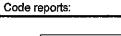
March 23, 2021 17:20:52

File name:

GRANDVILLE 3 - EL1,3.mmdl 2ND FLR FRAMING\Dropped Beams\B13 DR(i5334) Description:

Specifier:

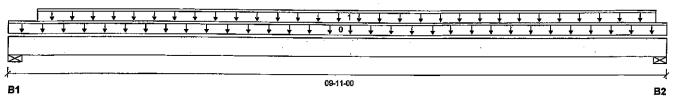
Designer:



CCMC 12472-R

Company:

L.D.



Total Horizontal Product Length = 09-11-00

Reaction Summary (Down / Linlift) (lbs)

I TOROLIVII CAI	······a·y (Domi., of	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Bearing	Live	Dead	Snow	Wind	
B1, 3-1/2"	2972 / 0	1533 / 0	· · · · · · · · · · · · · · · · · · ·		
R2 3_1/2"	2002 / 0	15/13 / 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	09-11-00	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-00	09-09-00	Top	639	319			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	14739 ft-lbs	23219 ft-lbs	63.5%	1	05-01-00
End Shear	5674 lbs	11571 lbs	49.0%	1	01-01-00
Total Load Deflection	L/339 (0.335")	n\a	70.8%	4	04-11-00
Live Load Deflection	L/514 (0.221")	n\a	70.1%	5	04-11-00
Max Defl.	0.335"	n\a	n\a	4	04-11-00
Span / Depth	11.9				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	6374 lbs	39.0%	42.6%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	6416 lbs	39.3%	42.9%	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 OBG 2012

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

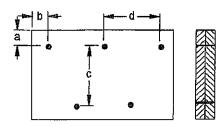
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-09-06, Bottom: 09-11-00.

Connection Diagram: Full Length of Member





STRUCTURAL COMPONENT ONLY





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

PASSED

2ND FLR FRAMING\Dropped Beams\B13 DR(i5334) (Dropped Beam)

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: HAMILTON

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B13 DR(i5334)

Specifier: Designer: L.D.

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

c = 5-1/2"

b minimum = 3"

d = 8 4

Connectors are: 1

- A : Nails

314" ARDOX SPIRAL

EWG NO. TAN 7382 STRUCTURÁL

COMPONENT Disclosure

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

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





Double 1-3/4" x 9-1/2" VERSA-LAM® 2,0 3100 SP

PASSED

2ND FLR FRAMING\Dropped Beams\B16 DR(i5870) (Dropped Beam)

BC CALC® Member Report **Build 7773**

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

File name:

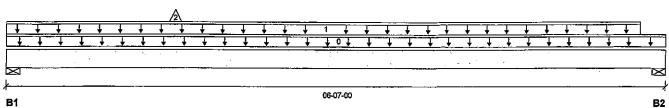
GRANDVILLE 3 - EL1,3.mmdl

2ND FLR FRAMING\Dropped Beams\B16 DR(i5870) Description:

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 06-07-00

Reaction Sur	nmary (Down / Up) (IDS)			
Bearing	Live	Dead	Snow	Wind	
B1, 3-1/2"	1794 / 0	929 / 0			
B2, 3-1/2"	1460 / 0	762 / 0			

Load Summary							Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	<u>End</u>	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-07-00	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-04-00	Top	514	257			n\a
2	J2(i5704)	Conc. Pt. (lbs)	L	01-08-00	01-08-00	Тор	-1				n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4931 ft- i bs	23219 ft-lbs	21.2%	1	03-00-00
End Shear	2838 lbs	11571 lbs	24.5%	1	05-06-00
Total Load Deflection	L/999 (0.046")	n\a	n\a	6	03-04-00
Live Load Deflection	L/999 (0.03")	n\a	n\a	8	03-04-00
Max Defl.	0.046"	n\a	n\a	6	03-04-00
Span / Depth	77				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	3851 lbs	23.6%	25.8%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	3143 lbs	19.2%	21.0%	Spruce-Pine-Fir

Notes

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

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

conforms to obs 2012

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

Resistance ractor prin 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 because The Service Countries.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 01-02-12, Bottom: 06-07-00.



RUMPONENT ONLY





Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B16 DR(i5870) (Dropped Beam)

PASSED

March 23, 2021 17:20:52

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdi

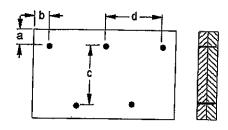
Description: 2ND FLR FRAMING\Dropped Beams\B16 DR(i5870)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 5-1/2"8

Connectors are: "

1001



986 HO. TAM 2369 STRUCTURAL

COMPONENT ONLY

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

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





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B14(i5064) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

March 23, 2021 17:20:52

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

File name:

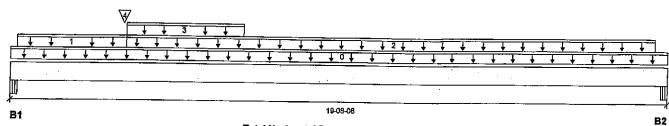
GRANDVILLE 3 - EL1,3.mmdi

Description: 2ND FLR FRAMING\Flush Beams\B14(i5064)

Specifier:

Designer:

L.D. Company:



Total Horizontal Product Length = 19-08-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Live Dead B1, 4-1/2" 787 / 0 515/0 B2, 4-1/2" 283 / 0 261/0

	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)	Ĺ	00-00-00	19-08-08	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-04	03-05-00	Тор	33	17			n\a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	03-05-00	19-04-00	Тор	6	3			n\a
3	STAIRS	Unf. Lin. (lb/ft)	L	03-05-00	06-11-00	Top	240	120			n\a
4	B15(i5736)	Conc. Pt. (lbs)	L	03-04-02	03-04-02	Тор	26	17			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7247 ft-lbs	35392 ft-lbs	20.5%	1	06-03-02
End Shear	1720 lbs	14464 lbs	11.9%	1	01-04-06
Total Load Deflection	L/759 (0.302")	n\a	31.6%	4	09-00-12
Live Load Deflection	L/1298 (0.176")	n\a	27.7%	5	08-10-09
Max Defl.	0.302"	n\a	n\a	4	09-00-12
Span / Depth	19.3			,	77 70 IZ

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/2" x 3-1/2"	1824 lbs	21.7%	9.5%	Unspecified
B2	Beam	4-1/2" x 3-1/2"	750 lbs	8.9%	3.9%	Unspecified

Notes

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

CONFORMS TO OBG 2012

Design meets Code minimum (L/360) Live load deflection criteria. Resistance Factor phi has been applied to all presented results per CSA 086.

AMENDED 2020

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 15-11-00.

COMPONENT BHLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B14(i5064) (Flush Beam)

Passed

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl Description: 2ND FLR FRAMING\Flush Beams\B14(i5064)

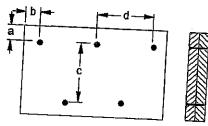
Specifier: Designer:

Company:

March 23, 2021 17:20:52

L.D.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 🕬

Calculated Side Load = 30.1 lb/ft

Connectors are:

ARDOX SPIRAL



<u>Disclosure</u>

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

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

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





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

PASSED

March 23, 2021 17:20:52

BC CALC® Member Report

Build 7773 Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

2ND FLR FRAMING\Flush Beams\B15(i5736) (Flush Beam) Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdi

Description:

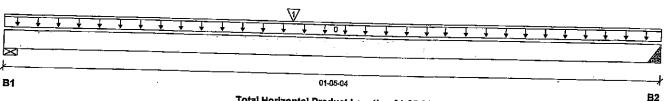
2ND FLR FRAMING\Flush Beams\B15(i5736)

Specifier:

Designer: L.D.

Wind

Company:



Total Horizontal Product Length = 01-05-04

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	45/0	27/0
B2, 3"	29 / 0	10/0

Lo Tag	oad Summary Description	Load Turns					Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Load Type Unf. Lin. (lb/ft)	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	•
1	J4(i5848)	, ,	Ľ.	00-00-00	01-05-04	[-		6			00-00-00
-	+ 1(100 10)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	74	37			nle

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	[===4!=
Pos. Moment	39 ft-lbs	17696 ft-lbs	0.2%	Case	Location
End Shear	99 lbs	7232 lbs		1	00-07-08
Span / Depth	1.0	1202 103	1.4%	7	00-03-08

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	102 lbs			<u> Material</u>
B2				2.7%	1.4%	Spruce-Pine-Fir
62	Hanger	3" x 1-3/4"	66 lbs	n\a	1.0%	HUS1.81/10

Cautions

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

Notes

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBE 2012

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

AMENDED 2020

POLINICE OF

BYE NO. TAM 7385-21 s?nugturál COMPONENT ONLY

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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 Gulde and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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

PASSED

2ND FLR FRAMING\Flush Beams\B99(i11391) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

March 24, 2021 17:09:10

Build 7773 Job name: Address:

City, Province, Postal Code: HAMILTON

File name:

GRANDVILLE 3 - EL 2.mmdl

2ND FLR FRAMING\Flush Beams\B99(i11391) Description:

Specifier:

Designer:

L.D.

Customer: Code reports:

CCMC 12472-R

Company:

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	-														. :								•				•									
																	09-0																			_

Total Horizontal Product Length = 09-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	De <u>ad</u>	Snow
B1, 6-3/4"	928 / 0	1124 / 0	511/0
B2 5-1/2"	986 / 0	1138 / 0	500 / 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	09-02-04	Тор		12			00-00-00
1	E47(i6411)	Unf. Lin. (lb/ft)	L	00-00-00	09-02-04	Top		108	71		n\a
2	J20 F	Unf, Lin, (lb/ft)	L	00-00-00	09-02-04	Тор		23	39		n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-04	08-09-04	Тор	239	119			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6842 ft-lbs	35392 ft-lbs	19.3%	1	04-05-04
End Shear	2783 lbs	14464 lbs	19,2%	1	01-06-10
Total Load Deflection	L/999 (0.067")	n\a	n\a	35	04-08-04
Live Load Deflection	L/999 (0.038")	n\a	n\a	51	04-08-04
Max Defl.	0.067"	n\a	n\a	35	04-08-04
Span / Depth	8.4				

Beari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	6-3/4" x 3-1/2"	3309 lbs	22.8%	11.5%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	3401 lbs	28.7%	14.5%	Spruce-Pine-Fir

Notes

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

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

CONVORMS TO OBG 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.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Ormos or ordi

STRUSTURAL component only





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

PASSED

2ND FLR FRAMING\Flush Beams\B99(i11391) (Flush Beam)

Dry | 1 span | No cant.

March 24, 2021 17:09:10

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

BC CALC® Member Report

Customer:

Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL 2.mmdl

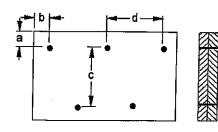
Description: 2ND FLR FRAMING\Flush Beams\B99(i11391)

Specifier:

Designer: Company:

L.D.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum ≈ 3"

c = 7-7/8"d = 48 6

Calculated Side Load = 677.3 lb/ft Connectors are: 16d Nails SK. ARDOX SPIRAL



Disclosure

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PASSED

June 15, 2021 11:09:21

2ND FLR FRAMING\Dropped Beams\B39 E(I6529) (Dropped Beam) Dry | 1 span | No cant.

BC CALC® Member Report

Build 7773

Job name: Address:

Customer:

City, Province, Postal Code: HAMILTON

File name: GRANDVILLE 3 - EL1,3.mmdl

Wind

Description: 2ND FLR FRAMING\Dropped Beams\B39 E(i6529)

Specifier:

Designer: L.D.

Code reports: CCMC 12472-R Company:

*	* * * * * *	- † † † † 		

Total Horizontal Product Length = 09-00-08

Reaction Summary (Down / Uplift) (lbs)

Dead Snow B1, 2-1/2" 122 / 0 285/0 B2, 2-1/2" 122 / 0 285 / 0

Lo	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	09-00-08	Тор		12			00-00-00
1	DRIFT	Unf. Lin. (lb/ft)	L	00-00-00	09-00-08	Тор		15	63		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1228 ft-lbs	22013 ft-lbs	5.6%	1	04-06-04
End Shear	426 lbs	14464 lbs	2.9%	1	01-02-06
Total Load Deflection	L/999 (0.012")	n\a	n\a	12	04-06-04
Live Load Deflection	L/999 (0.009")	n\a	n\a	17	04-06-04
Max Defl.	0.012"	n\a	n\a	12	04-06-04
Span / Depth	8.8				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2-1/2" x 3-1/2"	580 lbs	n\a	5.4%	HUC410
B2	Hanger	2-1/2" x 3-1/2"	580 lbs	n\a	5.4%	HUC410

Cautions

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.

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

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

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 09-00-08, Bottom: 09-00-08.

DANCE OF

996 NO. TAN 13/29 -21 STRUCTURAL COMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B39 E(i6529) (Dropped Beam)

PASSED

June 15, 2021 11:09:21

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl

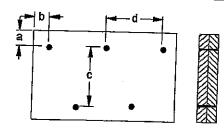
Description: 2ND FLR FRAMING\Dropped Beams\B39 E(i6529)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



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

Connectors are: 7

3½" ARDOX SPIRAL ∴ Nails

OVER OF ON

OWE NO . TAM /3/25-21 STRUCTURAL COMPONENT ONLY

<u>Disclosure</u>

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.

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2ND FLR FRAMING\Flush Beams\B37 E(I6544) (Flush Beam)

Dry | 3 spans | R cant.

June 15, 2021 11:09:21

PASSED

Build 7773 Job name:

Address:

City, Province, Postal Code: HAMILTON

BC CALC® Member Report

File name:

GRANDVILLE 3 - EL1,3.mmdi

Description: 2ND FLR FRAMING\Flush Beams\B37 E(i6544)

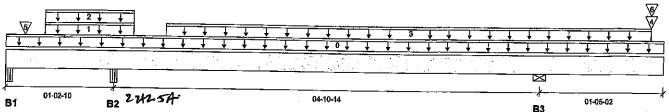
Specifier:

Designer: L.D.

Customer: Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-06-10

2-42.54

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/4"	8/0	160 / 0	323 / 0
B2, 5-1/4"	14 / 0	0 / 59	6 / 486
B3, 5-1/2"	0/0	442 / 0	1038 / 0

Loa	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	07-06-10			12	1100	1.10	00-00-00
1	E17(i52)	Unf. Lin. (lb/ft)	L	00-05-04	01-05-04	Top		81			n\a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-05-04	01-05-04	Тор	20	10			n\a
3	DRIFT	Unf. Lin. (lb/ft)	L	01-09-12	07-04-14	Top		15	63		. n\a
4	-	Conc. Pt. (lbs)	L	07-04-14	07-04-14			248	580		n\a
5	-	Conc. Pt. (lbs)	L	00-02-09	00-02-09	Тор	1	24	000		n\a
6	DRIFT	Conc. Pt. (lbs)	L	07-04-14	07-04-14	p-	•	47	18		n\a n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	507 ft-lbs	29713 ft-lbs	1.7%	96	01-02-10
Neg. Moment	-1665 ft-!bs	-32063 ft-lbs	5.2%	49	06-01-08
End Shear	654 lbs	14464 lbs	4.5%	64	00-05-04
Cont. Shear	1223 lbs	14464 lbs	8.5%	49	07-04-02
Total Load Deflection	2xL/1998 (0.005")	n\a	n\a	125	07-06-10
Live Load Deflection	2xL/1998 (0.003")	n\a	nla	177	07-06-10
Total Neg. Defl.	L/999 (-0.002")	n\a	n\a	125	04-06-04
Max Defi.	-0.002"	n\a	n\a	125	04-06-04
Span / Depth	5.0			.20	O+-00-0 1

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	693 lbs	7.1%	3.1%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	0 lbs	n\a	n\a	Unspecified
B2	Uplift		803 lbs	,		-11ep-0000
B3	Wall/Plate	5-1/2" x 3-1/2"	2110 lbs	17.8%	9.0%	Spruce-Pine-Fir

Uplift of 803 lbs found at bearing B2. (SIM SON 2 H2-54 @05



DWG MO. TAM / 3/30-21 STRUCTURAL COMPONENT ONLY





2ND FLR FRAMING\Flush Beams\B37 E(I6544) (Flush Beam)

Dry | 3 spans | R cant.

June 15, 2021 11:09:21

PASSED

Build 7773

Job name:

Address:

BC CALC® Member Report

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B37 E(i6544)

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.

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

conforms to obs 2012

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

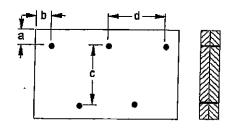
verification.

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.

Calculations assume unbraced length of Top: 05-09-14, Bottom: 04-05-08.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" (1 d = 9 8

Calculated Side Load = 300.0 lb/ft Connectors are: 16d . A Nails

312" ARDOX SPIRAL

S. NAZOSTAKOS

S. NAZ

06/67 AM TAM 19190 STRUGTURAL COMPONENT ONLY

Disclosure

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Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B38 E(I6517) (Flush Beam)

PASSED

June 15, 2021 11:09:21

BC CALC® Member Report

Build 7773

Job name: Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

В1

CCMC 12472-R

Dry | 1 span | R cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B38 E(i6517)

Specifier:

Designer:

L.D.

Company:

Total Horizontal Product Length = 06-06-10

Reaction Summary (Down / Uplift) (lbs)

Bearing Live Dead B1, 64-1/4"

299/0

Snow 698 / 0

Load Summary Live Snow Tributary Dead Wind Tag Description Load Type Ref. Start End 1,00 0,65 0 1.00 1.15 Self-Weight Unf. Lin. (lb/ft) L 00-00-00 06-06-10 Top 12 00-00-00 1 DRIFT Unf. Lin. (lb/ft) L 00-00-00 06-04-14 Top 15 63 2 B39 E(i6529) n∖a Conc. Pt. (lbs) Ĺ 06-04-14 06-04-14 Top 122 285 3 n\a **DRIFT** Conc. Pt. (lbs) L 06-04-14 06-04-14 Top 9 n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	0	1
Pos. Moment	0 ft-lbs	21202 ft-lbs		Case	Location
Neg. Moment	· =		n\a	0	06-06-10
	-702 ft-lbs	-29713 ft-lbs	2.4%	1	05-04-04
End Shear	607 lbs	14464 lbs	4.2%	4	
Total Load Deflection	2xL/1998 (0")				06-04-02
		n\a	n\a	12	06-06-10
Live Load Deflection	2xL/1998 (0")	n\a	n\a	17	06-06-10
Span / Depth	1.2			.,	00-00-10
Dist. Load (B1)	113.25 lb/ft	57645.1 lb/ft	0.2%		

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Mail/Di-t-	04 4 4411 0 4 4011			member	Material
D;	Wall/Plate	64~1/4" x 3-1/2"	1421 lbs	1.2%	0.5%	Unspecified

Notes

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

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

DONFORMS TO OBC 2012

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

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.

Calculations assume unbraced length of Top: 06-03-02, Bottom: 05-09-14.

000 00. TAM 13/3/-21 STRUCTURAL COMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B38 E(i6517) (Flush Beam)

PASSED

June 15, 2021 11:09:21

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | R cant.

File name:

GRANDVILLE 3 - EL1,3.mmdl

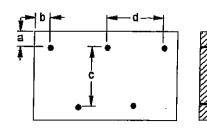
Description: 2ND FLR FRAMING\Flush Beams\B38 E(i6517)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum ≈ 3"

c = 7-7/8" d= 200 6"

Calculated Side Load = 290.0 lb/ft Connectors are: 16d / Nails

312" ARDOX SPIRAL



une no. Tam 13/37 - 21 STRUCTURAL COMPONENT ONLY

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PASSED

June 15, 2021 11:09:21

2ND FLR FRAMING\Flush Beams\B40 E(i6500) (Flush Beam)

BC CALC® Member Report **Build 7773**

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: HAMILTON

CCMC 12472-R

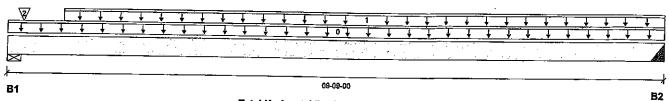
Dry | 1 span | No cant.

GRANDVILLE 3 - EL1,3.mmdl

File name: 2ND FLR FRAMING\Flush Beams\B40 E(i6500)

Description: Specifier:

Designer: L.D. Company:



Total Horizontal Product Length = 09-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing Dead B1, 5-1/2" 147 / 0 263 / 0 B2, 2-1/2" 128 / 0 299 / 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	09-09-00	Top		12			00-00-00
1	DRIFT	Unf. Lin. (lb/ft)	L	00-10-00	09-09-00	Тор		15	63		n\a
2	E19(i60)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		24			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1354 ft-lbs	21421 ft-lbs	6.3%	1	05-00-00
End Shear	527 lbs	14464 lbs	3.6%	1	01-05-06
Total Load Deflection	L/999 (0,015")	n\a	n\a	12	05-00-00
Live Load Deflection	L/999 (0.01")	n\a	n\a	17	05-00-00
Max Defl.	0.015"	n\a	n\a	12	05-00-00
Span / Depth	9.3			12	00-00-00

<u>Beari</u>	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	578 lbs	4.9%	2.5%	Spruce-Pine-Fir
B2	Hanger	2-1/2" x 3-1/2"	608 lbs	n\a	5.7%	HUC410

Cautions

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.

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

verification. Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 09-03-08, Bottom: 09-03-08.

TANFORMS TO OBC 2012



STRUCTURAL COMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B40 E(i6500) (Flush Beam)

PASSED

June 15, 2021 11:09:21

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: GRANDVILLE 3 - EL1,3.mmdi

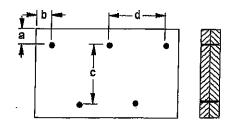
Description: 2ND FLR FRAMING\Flush Beams\B40 E(i6500)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 100 1

Connectors are: .

. . . 🔥 🧺 Nails

ARDOX SPIRAL



BWE NO. FAM 13/32-21 STRUCTURAL COMPONENT ONLY

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2ND FLR FRAMING\Fiush Beams\B17(i7271) (Flush Beam)

Dry | 1 span | No cant.

October 12, 2021 10:24:15

PASSED

Build 7773

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

BC CALC® Member Report

Code reports:

CCMC 12472-R

File name:

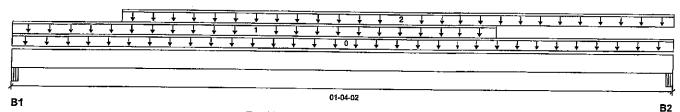
GRANDVILLE 3 EL 4.mmdi

Description: 2ND FLR FRAMING\Flush Beams\B17(i7271) Specifier:

L.D.

Wind

Designer: Company:



Total Horizontal Product Length = 01-04-02

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/4"	6/0	69/0
B2, 4-1/8"	7/0	32/0

Lo: Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	Live 1,00	Dead 0.65	Snow	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (ib/ft)	ı	00-00-00			1.00	12	1.00	1.13	00-00-00
1	E17(i52)	Unf. Lin. (lb/ft)	1			#					00-00-00
,	\ <i>'</i>		L	00-00-00	00-11-12	1 op		81			n\a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-10	01-04-02	Top	11	6			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8 ft-lbs	23005 ft-lbs	n\a	0	00-08-10
End Shear	38 lbs	9401 lbs	0.4%	ō	00-05-04
Span / Depth	0.7			-	45 55 ¢ .

Bear	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	97 lbs	1.5%	0.7%	Unspecified
B2	Beam	4-1/8" x 3-1/2"	45 lbs	0.9%	0.4%	Unspecified

Notes

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086. SQUENTED TO 101 2012

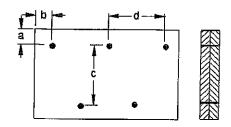
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

AMENDED 2020

Connection Diagram: Full Length of Member



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



1VC 110, 74前225/0291 STRUCTURAL COMPONENT BALY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B17(i7271) (Flush Beam)

Passed

BC CALC® Member Report

Build 7773

Dry | 1 span | No cant.

October 12, 2021 10:24:15

Job name:

Address:

Customer:

Code reports:

City, Province, Postal Code: HAMILTON

CCMC 12472-R

File name:

GRANDVILLE 3 EL 4.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B17(i7271)

Specifier:

Designer:

Company:

L.D.

Connection Diagram: Full Length of Member

Connectors are:

, Nails

31/2" ARDOX SPIRAL



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COMPONENT ONLY

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BC CALC® Member Report



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

PASSED

2ND FLR FRAMING\Flush Beams\B18(i8545) (Flush Beam)

Dry | 1 span | No cant.

November 10, 2021 17:05:25

Build 7773 Job name:

Address:

Code reports:

City, Province, Postal Code: HAMILTON Customer:

CCMC 12472-R

File name:

NEW B17 (1).mmdi

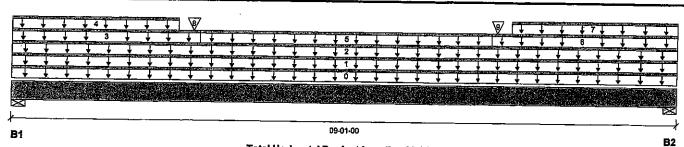
Wind

Description: 2ND FLR FRAMING\Flush Beams\B18(i8545)

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 09-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	
B1, 5-1/2"	190 / 0	1820 / 0	2829 / 0	
B2, 5-1/2"	190 / 0	1816 / 0	2821 / 0	

Lo	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	09-01-00		1100	12	1.00	1.10	00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	09-01-00	P	33	30	63		
2	FC3 Floor Decking (Plan View Fili)	Unf. Lin. (lb/ft)	Ł	00-00-00	09-01-00	(-	9	4	03		n∖a n∖a
3	E53(i8727)	Unf. Lin. (lb/ft)	L	00-00-00	02-06-08	Top		81			nla
4	E53(i8727)	Unf. Lin. (lb/ft)	L	00-00-00				283	559		n\a
5	E52(i8726)	Unf. Lin. (lb/ft)	Ł	02-06-08	06-06-08	- 1-		41	000		n\a
. 6	E51(i8725)	Unf. Lin. (lb/ft)	Ĺ	06-06-08	09-01-00			81			п\а n\a
7	E51(i8725)	Unf. Lin. (lb/ft)	L	06-10-00	09-01-00	Тор		283	559		n\a
8	E53(i8727)	Conc. Pt. (lbs)	L	02-05-08	02-05-08	Top		687	1289		n\a n\a
9	E51(i8725)	Conc. Pt. (lbs)	Ĺ	06-07-08	06-07-08	Тор		679	1273		n\a n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9993 ft-lbs	35392 ft-lbs	28.2%	13	04-06-08
End Shear	4554 lbs	14464 lbs	31.5%	13	01-05-06
Total Load Deflection	L/999 (0.1")	n\a	n\a	35	04-06-08
Live Load Deflection	L/999 (0.062")	n\a	n\a	51	04-06-08
Max Defl.	0.1"	n\a	n\a	35	04-06-08
Span / Depth	84			30	0.00-00

_	Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
E	31 Wall/Plate	5-1/2" x 3-1/2"	6708 lbs	56.6%	28.6%	Spruce-Pine-Fir
E	32 Wall/Plate	5-1/2" x 3-1/2"	6690 lbs	56.5%	28.5%	Spruce-Pine-Fir



STRUCTURAL COMPONENT ONLY





City, Province, Postal Code: HAMILTON

Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B18(i8545) (Flush Beam)

PASSED

BC CALC® Member Report

Job name: Address:

Customer:

Code reports:

Dry | 1 span | No cant. **Build 7773**

File name:

NEW B17 (1).mmdi 2ND FLR FRAMING\Flush Beams\B18(i8545) Description:

CONFORMS TO DBC 2012

AMENDED 2020

Specifier:

Designer: L.D.

Company:

November 10, 2021 17:05:25

Notes

Design meets Code minimum (L/240) Total load deflection criteria. Design meets Code minimum (L/360) Live load deflection criteria.

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

CCMC 12472-R

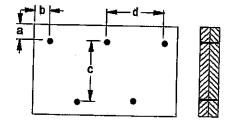
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

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

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

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

Connection Diagram: Full Length of Member



a minimum = 2"

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

Connectors are: (1, 1)

DOX SPIRAL



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 sultability 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®,



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







			B	are		. [1/2" Gyps	sum Ceiling	
Depth	Serles		On Centr	re Spacing			- On Centi	re Spacing	
•		12"	16°	19.2"	24"	12"	16"	19.2"	24"
	N1-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	N1-40x	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
	N1-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	N1-60	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
	N1-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	N1-60	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

		Mid-Span Blocking					Mid-Span Blocking and 1/2" Gypsum Ceiling				
Depth	Series		On Centi	e Spadng			On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	Ní-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A		
	N[-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 ^u	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A		
	NI-80	251-7"	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		
	N)-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A		
16"	N!-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A		
	N!-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" OS8 G&N Sheathing







Onnelle				Bare		1	1/2" 60	osum Ceiling	
Depth	Series			tre Spacing			On Car	tre Spacing	
		12"	16"	19.2"	24"	12"			
	NI-20	15'-10"	15'-O"	14'-5"	13'-5"	16'-4"	16"	19.2"	24"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	15'-5"	14'-6"	13'-5"
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"		16'-5"	15'-10"	15'-2"
	NI-70	18'-0"	16'-11"	16'-3"		17'-6"	16'-7"	15'-11"	15'-3"
	NI-80	18'-3"	17'-1"	16'-5"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-20	17'-10"	16'-10"	16'-2"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"		15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-60	19'-7"	18'-2"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
11-7/8"	NI-70	20'-9"		17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	20 -9 21'-1"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
			19′-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	
	N1-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-0"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"		18'-6"
a =11	Nt-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-7"	18'-7"
14"	Nt-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"		19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	21'-11"	20'-10"	19'-9"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"		22'-3"	21'-2"	20'-0"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NJ-70	25'-1"	23'-2"	22'-0"		24'-6"	22'-9"	21'-8"	20'-6"
LU	NI-80	25'-6"	23'-6"	22'-4"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-90x	26'-4"	24'-3"		21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
		40-4	44 -3	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

							47-14	45 -8	22'-5"	
Depth	~ .			an Blocking	Mid-Span Blocking and 1/2" Gypsum Ceiling					
	Series	On Centre Spacing					- This Span Blocking and 1/2" Gypsum Ceiling			
		12"	16"	19.2"	24"	12"				
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"		16"		24"	
	NI-40x	18'-8"	17'-2"	16'-3"		16'-10"	15'-5"	and 1/2" Gypsum	13'-5"	
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-2"	18'-10"	17'-2"		15'-2"	
	NI-70	20'-0"	18'-7"	17'-9"	15'-5"	19'-2"	17′-6"		15'-5"	
	NI-80	20'-3"	18'-10"	_	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"	
	NI-20	20'-1"		<u> 17'-11"</u>	16'-10"	20'-8"	19'-3"		16'-10"	
	N1-40x		18'-5"	17'-5"	16'-2"	20'-1"	18'-5"		16'-2"	
		21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	_		
11-7/8"	NI-60	22'-1"	20'-7"	19'-7"	18 ¹ -4"	22'-8"	20'-10"	ng and 1/2" Gypsum Lentre Spacing 19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-2" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-8" 26'-5"	17'-8"	
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"		18'-4"	
	N1-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"			19'-9"	
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	1	22'-6"		20'-0"	
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	24'-8"	23'-0"	and 1/2" Gypsum 19:2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-2" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-8" 24'-8" 26'-5"	20'-9"	
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-1"	23'-2"		19'-5"	
L4"	NI-70	26'-1"	24'-3"	23'-2"		25'-6"	23'-8"	22'-4"	20'-10"	
	NI-80	26'-6"	24'-7"		21'-10"	26'-8"	24'-11"	19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-4" 19'-8" 21'-2" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-2" 24'-8" 24'-9" 26'-1" 26'-5"	22'-4"	
	NJ-90x	27'-3"	25'-4"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"	
	NI-60	27'-3"		24'-1"	22'-9"	<u>27</u> '-9"	25'-11"		23'-4"	
	NI-70		25'-5"	24'-2"	22'-10"	28'-0"	26'-2"		23'-1"	
.6"		28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	19.2" 14'-6" 16'-3" 16'-6" 17'-10" 18'-2" 17'-5" 19'-8" 21'-2" 21'-5" 22'-0" 21'-9" 22'-4" 23'-9" 24'-1" 24'-8" 26'-5"		
	NI-80	29'-1"	27'-0"	25'- 9 "	24'-4"	29'-8"	27'-9"		24'-8"	
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	_		25'-0"	
						20-0	28'-5"	27'-2"	<u>25</u> '-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.

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

based on the use of the design properties. Tables are based on Limit States Design per CSA 086-09, NBC 2010, and OBC 2012.

^{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 celling 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.

^{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

^{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







	Series		В	are	1/2" Gypsum Ceiling				
Depth		On Centre Spacing				On Centre 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"	re Spacing 19.2"	N/A
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"		N/A
•	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"		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
	N1-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	re Spacing 19.2" 13'-3" 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'-6" 20'-6" 21'-5" 21'-9"	N/A
** ** ! O!!	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"		N/A
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"		N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"		N/A
	N1-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	N1-40x	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"	re Spacing 19.2" 13-3" 15-1" 15-1" 16-0" 16-0" 16-11" 17-1" 17-9" 17'-11" 18'-5" 18'-6" 18'-9" 20'-6" 20'-6" 21'-5" 21'-9"	N/A
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"		N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"		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"	entre Spacing 19.2" 13'-3" 15'-1" 15'-3" 15'-10" 16'-0" 16'-11" 17'-1" 17'-9" 17'-11" 18'-5" 18'-6" 18'-9" 20'-6" 20'-6" 21'-5" 21'-9"	N/A
4.511	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"		N/A
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"		N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth			Mid-Spar	n Blocking	Mid-Span Blocking and 1/2" Gypsum Ceiling				
	Series	On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	E Spacing 19.2" 13'.3" 15'.4" 16'.9" 17'.1" 16'.0" 17'.9" 18'.5" 20'.0" 20'.5" 21'.2" 19'.6" 21'.0" 22'.9" 23'.2" 23'.4" 25'.2" 25'.6"	24'
	NJ-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	N1-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	e Spacing 19.2" 13'-3" 15'-4" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-0" 20'-5" 21'-2" 19'-6" 21'-0" 22'-9" 23'-2" 23'-2" 23'-2" 23'-4" 25'-2"	N/A
9-1/2"	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"	e Spacing 19.2" 13'-3" 15'-1" 15'-4" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-0" 20'-5" 21'-2" 19'-6" 21'-0" 22'-9" 23'-2" 23'-4" 25'-2" 25'-6"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
	Nf-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"	re Spacing 19.2" 13'-3" 15'-4" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-0" 20'-5" 21'-2" 19'-6" 21'-0" 22'-9" 23'-2" 23'-4" 25'-2" 25'-6"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"		N/A
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"		N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"		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'-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
14 ⁿ	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"	E Spacing 19.2" 13'-3" 15'-1" 15'-4" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-0" 20'-5" 21'-2" 19'-6" 21'-0" 22'-9" 23'-2" 23'-4" 25'-2" 25'-6"	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"	24'-10"	23'-4"	N/A
11	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	tre Spacing 19.2" 13'-3" 15'-4" 16'-9" 17'-1" 16'-0" 17'-2" 18'-5" 20'-0" 20'-5" 21'-2" 19'-6" 21'-0" 22'-9" 23'-2" 23'-4" 25'-6"	N/A
16"	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"		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 celling 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 celling attached to joists.

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







		Bare					1/2" Gypsum Celling				
Depth	Serles			re Spacing		On Centre Spacing					
		12"	15°	19.2"	24"	12"	16 ⁱⁱ	re Spacing 19.2" 13'-4" 15'-5" 16'-7" 16'-9" 16'-0" 17'-9" 17'-11" 18'-10" 19'-6" 19'-6" 19'-6" 19'-11" 20'-10" 21'-2" 21'-9" 22'-9" 23'-1"	24"		
	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"		12'-4"		
	N1-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	19.2" 13'-4" 15'-5" 16'-7" 16'-9" 17'-9" 17'-11" 18'-10" 19'-6" 19'-6" 19'-6" 19'-11" 20'-10" 21'-2" 21'-9" 22'-9"	13'-11"		
9-1/2"	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"		14'-3"		
	N1-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"		15'-6"		
_	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"		15'-10"		
	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	19.2" 13'-4" 15'-5" 16'-7" 16'-9" 17'-9" 17'-11" 18'-10" 19'-6" 19'-6" 19'-6" 19'-11" 20'-10" 21'-2" 21'-9" 22'-9" 22'-9"	14'-10"		
	NI-40x	19'-4"	17 '-1 1"	17'-3"	15'-10"	19'-11"	18'-6"		15'-10"		
11-7/8"	N1-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18!-9"		17'-1"		
11-770	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"		17'-10"		
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"		18'-0"		
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"		18'-6"		
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"		17'-5"		
	N1-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	tre Spacing 19.2" 13'-4" 15'-5" 16'-7" 16'-9" 16'-0" 17'-9" 17'-11" 18'-10" 19'-6" 19'-6" 19'-6" 19'-11" 20'-10" 21'-2" 21'-9" 22'-9" 23'-1"	18'-10"		
14"	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"		19'-9"		
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"		20'-0"		
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"		20'-7"		
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	tre Spacing 19.2" 13'-4" 15'-5" 16'-7" 16'-9" 16'-0" 17'-9" 17'-11" 18'-10" 19'-6" 19'-6" 19'-6" 19'-6" 20'-10" 21'-2" 21'-9" 22'-9" 23'-1"	20'-6"		
16"	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"		21'-6"		
10	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"		21'-10"		
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"		22'-5"		

				n Blocking		Mid-Span Blocking and 1/2" Gypsum Ceiling				
Depth	Series	On Centre Spacing				On Centre Spacing				
		12"	16"	19.2"	24"	12"	16"	19,2"	24"	
	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"	19.2" 13'-4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 25'-10"	13'-11"	
9-1/2"	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"		14'-3"	
	NI-70	19'-10"	17'-11"	16'- 9 "	15'-6"	19'-10"	17'-11"		15'-6"	
	N1-80	20′-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"		15'-10"	
	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	19.2" 13'-4" 15'-1" 15'-5" 16'-9" 17'-4" 16'-0" 17'-9" 18'-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 25'-3"	14'-10"	
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"		15'-10"	
11-7/8"	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"		17'-1"	
11-1/0	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"		18'-6"	
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"		18'-11"	
	N1-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"		19'-7"	
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"		17'-5"	
	NI-60	24'- 9 "	22'-5"	21 -0"	19'-6"	24'-9"	22'-5"	re Spacing 19.2" 13'-4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 25'-5" 25'-10"	19'-6"	
14"	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"		21'-0"	
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"		21'-6"	
	NI-90x	27'-3"	25'-4"	24 -1"	22'-4"	27'-9"	25'-10"		22'-4"	
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"		21'-7"	
16"	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	19.2" 13'.4" 15'-1" 15'-5" 16'-9" 17'-1" 16'-0" 17'-9" 18'-5" 20'-1" 20'-5" 21'-3" 19'-6" 21'-0" 22'-9" 23'-3" 24'-3" 23'-5" 25'-10"	23'-4"	
10	N1-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"		23'-10"	
	Nf-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"		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 086-09, 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-1274C.

Construction Detail



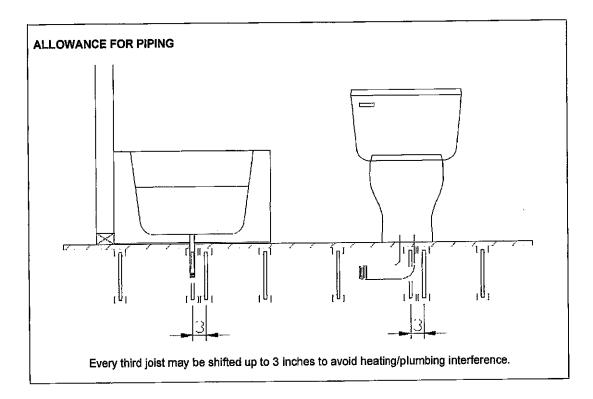
Limit States Design

Allowance for Piping (Installation Notes)

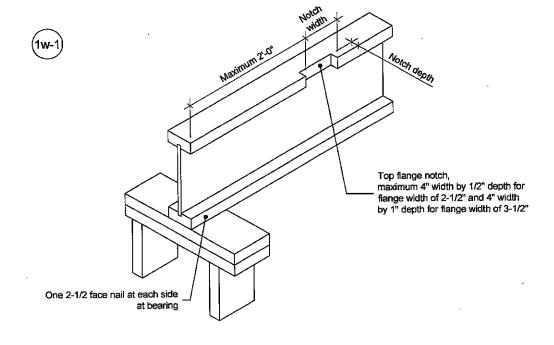
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches.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

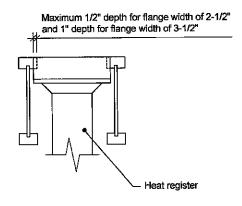
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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



Revised April 12, 2012





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

2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.

This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
 For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures. All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

NORDIC **STRUCTURES**

T 514-871-8526 1 966 817-3419

nordic.ca

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

NUMBER DATE 2018-04-10

1w-1