

		Products		
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	22
J1DJ	14-00-00	11 7/8" NI-40x	2	4
J2	12-00-00	11 7/8" NI-40x	1	36
J2DJ	12-00-00	11 7/8" NI-40x	2	4
J3	10-00-00	11 7/8" NI-40x	1	2
J4	6-00-00	11 7/8" NI-40x	1	4
J5	4-00-00	11 7/8" NI-40x	1	2
J6	2-00-00	11 7/8" NI-40x	1	2
B1 ~	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3 <	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7 /	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4/	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6 <	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5′	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8 <	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1 .
B9 <sup>-</sup>	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary							
Qty	Manuf	Product					
6	H1	IUS2.56/11.88					
6	H1	IUS2.56/11.88					
4	H1	IUS2.56/11.88					
6	H1	IUS2.56/11.88					
2	H2	HUS1.81/10					
2	H2	HUS1.81/10					
1	H4	HGUS410					

### **NOTES:**

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

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 20.0 lb/ft<sup>2</sup> TILED AREAS: 20 lb/ft2

APPLICATION AS PER O.B.C. 9.30.6.

**SUBFLOOR:** 5/8" GLUE AND NAIL



FROM PLAN DATED: FEB-2017

**BUILDER:** 

**ROYAL PINE HOMES** 

SITE:

FORESTSIDE ESTATES

MODEL: UNIT 2203 T3

**ELEVATION: A,B** 

LOT:

**CITY: BRAMPTON** 

SALESMAN: M D **DESIGNER: AJ REVISION:** 

DATE: 4/25/2017

## 1st FLOOR

**STANDARD** 

DATE 11218

BCIN: 26064; FIRM: 29991

ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS DAS PER PLAN WORKD DO NOT REPRESENT A PART OF THE SCOPE OF WORK WITHIN THE BOUNDARIES OF THE SEAL. THIS WORK IS DELEGATED TO A QUALIFIED BUILDING DESIGNER HAVING RESPONSIBILITY FOR THIS PROJECT. ALL BEAMS NOT ADDRESSED IN THIS DESCRIPTION AND LABELLED ON THIS LAYOUT ARE BEAMS SPECIFIED BY BUILDING DESIGNER AND/OR PROJECT ENGINEER AND ARE TO BE REVIEWED AND CONFIRMED BY THE SAME DESIGNER(S) PRIOR TO FABRICATION TO ENSURE ADEQUATE LOAD CAPACITY WITH RESPECT TO THE FLOOR SYSTEM COMPONENTS REVIEWED IN THIS SUBMISSION. MUNICIPALITY HAVING JURISDICTION TO OBTAIN LOT SPECIFIC SCHEDULE 1 FORM FROM THIS OFFICE PRIOR TO BUILDING PERMIT APPROVAL.
INSTALLERS OF THIS FLOOR SYSTEM AND THEIR COMPANIES HAVE THE RESPONSIBILITY OF ENSURING THEY

HAVE A COPY OF THE NORDIC INSTALLATION GUIDE AND ANY OTHER MANUFACTURER'S PRODUCT LITERATURE WHICH WILL AID IN THE OVERALL PROPER INSTALLATION OF THIS FLOOR SYSTEM. INSTALLERS ARE TO READ WHICH WILL AID IN THE OVERALL PROPER INSTALLATION OF THIS FLOOR SYSTEM, INSTALLERS ARE TO READ ALL PRODUCT LITERATURE AND INSTALLATION GUIDELINES BEFORE PROCEEDING. THE SUPPLIER AND SEALING ENGINEER OF THIS FLOOR SYSTEM ARE NOT RESPONSIBLE FOR SURPLUS OR DEFICIT OF PRODUCTS AT PROJECT'S END. THIS LAYOUT IS A GUIDE ONLY. CONFIRMATION OF ALL QUANTITIES, LENGHTS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

DWG# TAM SS819H THROUGH DWG# TAM SS6618H INCLUSIVE DATED 1/72/8

SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY, 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PEP PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.

A COMPLETE FRAMING PLAN REQUIRES THE NORDIC PUBLISHED LITERATURE, WHICH INCLUDES INSTALLATION

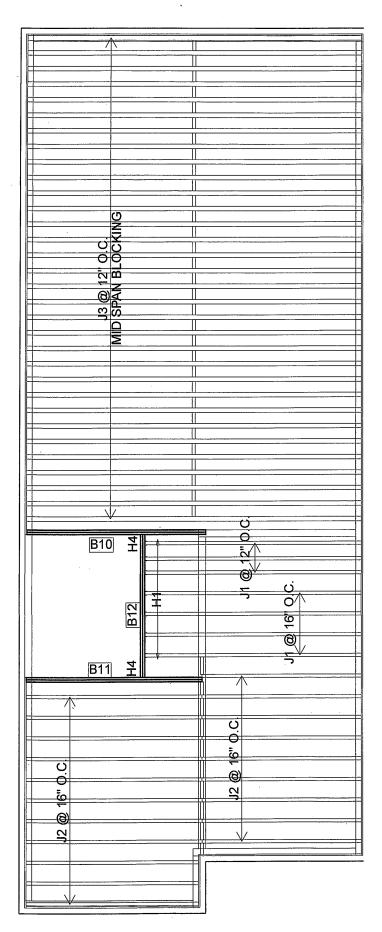
REQUIREMENTS, HANDLING AND STORAGE GUIDELINES, AND FORMS AN INTEGRAL PART OF THIS SEALED DOCUMENT. INSTALL SQUASH BLOCKS FOR TRANSFERRING POINT LOADS FROM GIRDER TRUSSES. HEADERS, AND BEAMS DOWN TO FOUNDATION COMPONENTS. FOR PROPER INSTALLATION, SEE NORDIC LITERATURE. PROVIDE 2 X 4 OR 2 X 6 STUD GRADE OR BETTER SQUASH BLOCKS, MATCHING SUPPORTED WALL WIDTH ABOVE BLOCKS. INSTALL SQUASH BLOCKS ON EACH SIDE OF JOIST. BLOCKING TO BE 1/160 DEEPER THAN JOIS' DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.

I REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF A FIRM REGISTERED UNDER SUBSECTION 3.2.5 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND HE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC

3102608 DWG # TAM BCIN: 26064 FIRM: 29991 SEALED STRUCTURAL

COMPONENTS ONLY



	-	Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	11 7/8" NI-40x	1	7
J2	12-00-00	11 7/8" NI-40x	1	20
J3	24-00-00	11 7/8" NI-80	1	32 ~ 5B
B10	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11 <	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12 (	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary						
Qty Manuf Product						
7	H1	IUS2.56/11.88				
2	H4	HGUS410				

#### **NOTES:**

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

LOADING: DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 20.0 lb/ft<sup>2</sup> TILED AREAS: 20 lb/ft2

**SUBFLOOR: 5/8" GLUE AND NAIL** 

ALPA LUMBER GROUP

FROM PLAN DATED: FEB-2017

**BUILDER:** 

**ROYAL PINE HOMES** 

SITE:

FORESTSIDE ESTATES

MODEL: UNIT 2203 T3

**ELEVATION: A,B** 

LOT:

**CITY: BRAMPTON** 

SALESMAN: M D **DESIGNER: AJ REVISION:** 

DATE: 4/25/2017

2nd FLOOR

1/1218

BCIN: 26064; FIRM: 29991

ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS DAS PER PLAN WORKD DO NOT REPRESENT A PART OF THE SCOPE OF WORK WITHIN THE BOUNDARIES OF THE SEAL. THIS WORK IS DELEGATED TO A QUALIFIED BUILDING DESIGNER HAVING RESPONSIBILITY FOR THIS PROJECT. ALL BEAMS NOT ADDRESSED IN THIS DESCRIPTION AND LABELLED ON THIS LAYOUT ARE BEAMS SPECIFIED BY BUILDING DESIGNER AND/OR PROJECT ENGINEER AND ARE TO BE REVIEWED AND CONFIRMED BY THE SAME DESIGNER(S) PRIOR TO FABRICATION TO ENSURE ADEQUATE LOAD CAPACITY WITH RESPECT TO THE FLOOR SYSTEM COMPONENTS REVIEWED IN THIS SUBMISSION. MUNICIPALITY HAVING JURISDICTION TO OBTAIN LOT SPECIFIC SCHEDULE 1 FORM FROM THIS OFFICE PRIOR TO BUILDING PERMIT APPROVAL.

INSTALLERS OF THIS FLOOR SYSTEM AND THEIR COMPANIES HAVE THE RESPONSIBILITY OF ENSURING THEY HAVE A COPY OF THE NORDIC INSTALLATION GUIDE AND ANY OTHER MANUFACTURER'S PRODUCT LITERATURE WHICH WILL AID IN THE OVERALL PROPER INSTALLATION OF THIS FLOOR SYSTEM. INSTALLERS ARE TO READ ALL PRODUCT LITERATURE AND INSTALLATION GUIDELINES BEFORE PROCEEDING. THE SUPPLIER AND SEALING ENGINEER OF THIS FLOOR SYSTEM ARE NOT RESPONSIBLE FOR SURPLUS OR DEFICIT OF PRODUCTS AT PROJECT'S END. THIS LAYOUT IS A GUIDE ONLY. CONFIRMATION OF ALL QUANTITIES, LENGHTS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

DWG# TAM 856719H THROUGH DWG# TAM 856918H INCLUSIVE DATED IN 116

SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED
LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PE PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.

A COMPLETE FRAMING PLAN REQUIRES THE NORDIC PUBLISHED LITERATURE, WHICH INCLUDES INSTALLATION REQUIREMENTS, HANDLING AND STORAGE GUIDELINES, AND FORMS AN INTEGRAL PART OF THIS SEALED DOCUMENT. INSTALL SQUASH BLOCKS FOR TRANSFERRING POINT LOADS FROM GIRDER TRUSSES, HEADERS, AND BEAMS DOWN TO FOUNDATION COMPONENTS, FOR PROPER INSTALLATION, SEE NORDIC LITERATURE PROVIDE 2 X 4 OR 2 X 6 STUD GRADE OR BETTER SQUASH BLOCKS, MATCHING SUPPORTED WALL WIDTH ABOVE BLOCKS. INSTALL SQUASH BLOCKS ON EACH SIDE OF JOIST. BLOCKING TO BE 1/160 DEEPER THAN JOIS DEPTH, SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.

I REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF A FIRM REGISTERED UNDER SUBSECTION 3.2.5 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND HE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES.

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC

3102778 BCIN: 26064 FIRM: 29991 SEALED STRUCTURAL COMPONENTS ONLY

I-joist to top

2-1/2"

3-1/2"

panel per detail 1a

For 2" thick flanges use net depth minus 4-1/4".

FILLER BLOCK REQUIREMENTS

FOR DOUBLE I-JOIST

- 2x plate flush with inside face of wall

past inside face of wall or beam.

sides laterally suppor

stiffeners shall be used

installed per manufacturer's

the top flange, bearing

(1d)





3-1/2\* 1-1/2\* → ← NI-40x NI-20 OSB 3/ S-P-F No.2 1950f MSR 2100f MSR 1950f MSR 2100f MSR 2400f MSR NPG Lumbe 33 pieces 33 pieces per unit

NI-70

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-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- 3. Whenever possible, field-cut holes should be centred on the middle of the web.4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- 5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- . Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the langest side of the langest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.

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

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

			Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)													
Joist	Joist Series						Rou	nd Hole	Diame	eter (in.)	)					
Depth	Series	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"									
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"									
9-1/2"	NI-60	1'-3"	2'-6"	4¹-0"	5'-4"	7'-0"	7'-5"									
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"									
1	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"									
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"						
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"						
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"						
11-7/8"	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"							
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"							
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10°		6'-9"	8'-9"	10'-2"						
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"								
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"			
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"			
14"	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10'		7'-3"	8'-9"	9'-9"	10'-4"		13'-5"			
14	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"		13'-9"			
i	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"			
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"					
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10'		4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"		13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10'	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"		14'-0"	15'-6"
16"	NI-80	0'-7"	1'-3"	2-6°	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"		16'-0"
1	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"		' 13'-9"	15'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"	'	

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

FIELD-CUT HOLE LOCATOR

4. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced

2x duct chase lengt

'3/4x diameter

Maintain minimum 1/8" space between top and bottom flange — all duct chase openings and holes

### **DUCT CHASE OPENING SIZES AND LOCATIONS**

Simple Span Only

Joist	Joist	Minimum distance from inside face of supports to centre of opening (ft							ft - in.)		
Depth	Series	Duct Chase Length (in.)									
20,		8	10	12	14	16	18	20	22	24	
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"	
9-1/2"	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"	
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"	
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	
	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"	
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"	
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"	
11-7/8"	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"	
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"	
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11'	
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"	
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"	
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"	
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"	
14"	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11'	' 11'-5"	11'-9"	12'-4"	12'-11'	
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"	
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10'	
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10'		12'-8"	13'-3"	14'-0"	
16"	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"	
,	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10	
	NI-90x	11'-1"	11'-5"	11'-10"	12'-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.

### block Naove rable may be used for 1-joist spacing of 24 inches on centre or less. Duct chase opening location distance is measured from inside face of supports to centre of opening. The above table is based on simple-span joists only. For other applications, contact your local distributor. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. The above table is based on the 1-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor. - Offset nails from opposite face by 6" -1/8" to 1/4" gap between top flange

## **WEB STIFFENERS**

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

#### FIGURE 2

Maximum Factored Uniform

Vertical Load\* (plf)

Maximum Factored

Vertical Load per Pair of Squash Blocks (lbs)

3-1/2" 5-1/2" wide wide

5.500 8.500

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

Provide lateral bracing per detail 1a or 1b

Minimum Depth\*\*

5-1/2"

capacity = 1,620 lbs.

and bottom of top I-joist flange.

Verify double I-joist capacity.

Support back of I-joist web during nailing to prevent damage to web/flange connection.

3. Filler block is required between joists for full length

2. Leave a 1/8 to 1/4-inch gap between top of filler block

4. Nail joists together with two rows of 3" nails at 12 inches

o.c. (clinched when possible) on each side of the double

I-joist. Total of four nails per foot required. If nails can be

clinched, only two nails per foot are required.

5. The maximum factored load that may be applied to one

side of the double joist using this detail is 860 lbf/ft.

One 2-1/2"-

face nail at

each side at bearing

Filler block

Multiple I-joist header with full depth filler

block shown. Nordic Lam or SCL headers may also be used. Verify double I-ioist

detail 1h. Nail with twelve 3"

Install hanger per

2-1/2" v

1-1/2"

3-1/2" x

1-1/2"

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

manufacturer's

concentrated loads.

3,300

\*The uniform vertical load is limited to a joist depth of 16 nches or less and is based on standard term load duration

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

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

2x Lumber

Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double 1-joist, drive three additional 3" nails through the webs and filler block where the

Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and

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

wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

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

Material Thickness Required\*

1-1/2

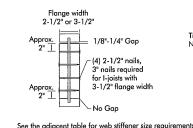
backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

NI Joists

### **WEB STIFFENER INSTALLATION DETAILS**

11-7/8"

9-1/2" 11-7/8"



CONCENTRATED LOAD

.1.5"

STIFFENER SIZE REQUIREMENTS

### FND BEARING

Maximum Factored Uniform

Vertical Load\* (plf) 8,090

\*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based or

header, or rafter. For concentrated vertical load transfer, see detail 1d.

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.

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

(1)

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

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

2-1/2" nails

to top plate

Double 1-joist heade

NOTE: Unless hanger

sides laterally support

the top flange, bearing

stiffeners shall be used

Backer block required

(both sides for face

mount hangers)

- Do not bevel-cut

inside face

per detail 1 b

(1s)

ó" o.c. -

NOTE: Blocking required at

shown for clarity.

Filler Block Size

2-1/8" x 6"

2-1/8" x 8"

2-1/8" x 12"

3" v 12"

3" x 7" 3" x 9" 3" x 11"

bearing for lateral support, not

from above to

Install squasl

blocks per detail 1d.

Match bearing

below to pos

For hanger capacity see hanger manufacturer's

(1n)

recommendations. Verify double 1-joist capacity to support

area of blocks

standard term load duration. It shall not be used in the design of a bending member, such as joist,

Load bearing wall above shall align vertically

as offset bearing walls, are not covered by

Blocking required over all interior supports unde

Structural Composite Lumber (SCL)

For nailing schedules for multiple

beams, see the manufacturer's

installed per manufacturer's

Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails

from each web to lumber piece, alternate

OPTIONAL: Minimum 1x4 inch strap

ceiling attached to underside of ioists

applied to underside of joist at blocking line or 1/2 inch minimum gypsum

All nails shown in

the above details are assumed to be

may be substituted 2-1/2" (0,128" dia.)

assumed to be

non wire nails

on spiral nails

noted. 3" (0.122" dia.)

Spruce-Pine-Fir No. 2

components not sh to scale for clarity.

continuous over support

Nordic Lam or

- NI blocking panel per detail 1a

NOTE: Unless hanger sides laterally support the top flange,

NI blocking panel

bearing stiffeners shall be used.

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

2x4 min. (1/8" gap minimum

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

I-ioist blocking panel

One 2-1/2" nail one side only

In some local codes, blocking is prescriptively require

in the first joist space (or first and second joist space)

next to the starter joist. Where required, see local code requirements for spacing of the blocking.

All nails are common spiral in this detail.

load-bearing walls or when floor joists are not

with the bearing below. Other conditions, such

**Blocking Pane** 

1-1/8" Rim Board Plus

(Load stiffener)	(Bearing stiffer
ht Joint—	Gap—
0	0
\$   •   \$	\$   •
+	+
Gap -	Tight Joint No Gap

Each Side of Web 1" x 2-5/16" 2-1/2" 1-1/2" x 2-5/16" 3-1/2" minimum width

#### **SAFETY AND CONSTRUCTION PRECAUTIONS**



fully fastened and braced, or



Never stack building materials sheathed, do not over-stress

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this shearhing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent L-joist rollover or buckling. ■ Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and

must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.

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

(see Table 2 for minimu

3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging. Install and fully noil permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building
materials over beams or walls only.

5. Never install a damaged 1-joist.

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



Knockouts are prescored holes provided for the contractor's convenience to

install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where

possible, it is preferable to use knockouts instead of field-cut holes.

For rectangular holes, avoid over-cutting the corners, as this can cause

unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole

each of the four corners and then making the cuts between the holes is

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

another good method to minimize damage to the I-joist.

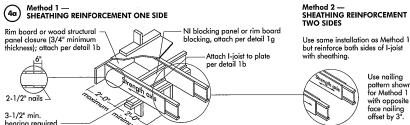
Holes in webs should be cut with a sharp saw.

#### PRODUCT WARRANTY

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

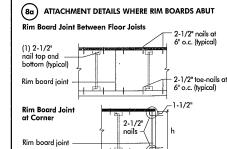
Furthermore, Chantiers Chibougamau warrants that our products, n utilized in accordance with our handling and installation instruction will meet or exceed our specifications for the lifetime of the structure.

### CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

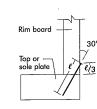


NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach

#### RIM BOARD INSTALLATION DETAILS



# 8b TOE-NAIL



### **Schedule 1: Designer Information**

Use one form for each individual who review  A. Project Information	ws and takes re	sponsibility for design activit Application n		the project.
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other descri	ption	
B. Individual who reviews and takes	s responsibil	ity for design activities		
Name SAM KATSOULAKOS		Firm MICRO CITY ENGI	NEEDING SEDVI	CES INC
Street address		IMIONO OTT LINOT	Unit no.	Lot/con.
R.R #1, PO BOX 61 Municipality	Postal code	Province	E-mail	
GLENCOE	NOL 1MO	ONTARIO		
Telephone number (519) 287-2242 Business	Fax number (519) 287-575	0	Cell number	
G. Design activities undertaken by i Division C]	ndividual ide	ntified in Section B. [B	uilding Code Ta	able 3.5.2.1. of
☐ House	☐ HVAC		■ Building S	
☐ Small Buildings ☐ Large Buildings	☐ Building ☐ Detecti	g Services on, Lighting and Power	☐ Plumbing	– House – All Buildings
☐ Complex Buildings	☐ Fire Pr		☐ On-site Se	ewage Systems
Description of designer's work ROYAL PIN	E HOMES - FO	REST SIDE - MODEL: UN	IT 2203 – T3 - EL	EV. A OR B
1ST FLOOR - STANDARD (SCHEDULE IS REVIEW PRE-ENGINEERED FLOOR SYS	S NOT ISSUED	AS LOT SPECIFIC)		T DI AN CHIDDI IED DV
TAMARACK ROOF TRUSSES INC. (SEE D	)WG #TAM3102	26-18 DATED 11-12-18).	JOT PLACEMEN	I PLAN SUPPLIED BY
SUPPORTING STRUCTURE TO BE REVIE	WED AND VE	RIFED BY QUALIFIED BUIL	DING DESIGNER	
D. Declaration of Designer				100
I, <u>SAM KATSO</u>	<u>ULAKOS</u> de	eclare that (choose one as a	ppropriate):	
(print name				
I review and take responsibilit C, of the Building Code. I am	ty for the design	n work on behalf of a firm reg	jistered under sub	section 3.2.4.of Division
o, of the building code. I am o	quanneu, anu tri	e iiiii is registereu, iii tile ap	ppropriate classes	rcategories.
Individual BCIN: <u>2606</u>	4			
Firm PCIN: 2000	4			
Firm BCIN: <u>2999</u>	1			
☐ I review and take responsibility	y for the design	and am qualified in the appr	opriate category a	as an "other designer"
under subsection 3.2.5.of Divi Individual BCIN:	sion C, of the B	uilding Code.		
ilidividuai bCiiv.		· ·		
Basis for exemption from				
☐ The design work is exempt fro	-	· · · · · · · · · · · · · · · · · · ·		•
· · · · · · · · · · · · · · · · · · ·	registration and	l qualification:		
l certify that:  1. The information contained in this so	chedule is true t	to the heet of my knowledge		
<ol> <li>I have submitted this application wi</li> </ol>		•		
cas uno approduori Wi		y = a consone or the mill.		
Date	11721B	Signature of Designer		

#### NOTE:

- 1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the
  Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to
  practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

DWG #TAM 3 102 6185 [1218]
DWG #TAM 3 102 8185

### **Schedule 1: Designer Information**

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project A. Project Information Application number: Building number, street name Unit no. Lot/con. Municipality CITY OF BRAMPTON Postal code Plan number/ other description B. Individual who reviews and takes responsibility for design activities Name Firm SAM KATSOULAKOS MICRO CITY ENGINEERING SERVICES INC. Street address Unit no. Lot/con. R.R #1, PO BOX 61 Municipality Postal code Province E-mail **GLENCOE** NOL 1MO **ONTARIO** Telephone number Fax number Cell number (519) 287-2242 **Business** (519) 287-5750 C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C] House HVAC - House ■ Building Structural Small Buildings ☐ Plumbing - House **Building Services** Large Buildings Detection, Lighting and Power ☐ Plumbing – All Buildings ☐ Complex Buildings ☐ On-site Sewage Systems ☐ Fire Protection Description of designer's work ROYAL PINE HOMES - FOREST SIDE - MODEL: UNIT 2203 - T3 - ELEV. A OR B 2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31027-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFED BY QUALIFIED BUILDING DESIGNER. D. Declaration of Designer I, SAM KATSOULAKOS declare that (choose one as appropriate): (print name) I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: 26064 Firm BCIN: 29991 ☐ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code. Individual BCIN: Basis for exemption from registration: ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: I certify that: 1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm. 10 1218 Signature of Designer Date

#### NOTE:

- 1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
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  Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to
  practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

DWG #TAM3 (02) -185 DWG #TAM 3 (029 -185

### NORDIC STRUCTURES

COMPANY Apr. 25, 2017 16:48 PROJECT J3.2nd FLOOR NORDIC SIZER

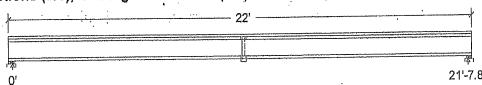
### Design Check Calculation Sheet

Nordic Sizer - Canada 6.4

#### Loads:

Load	Туре	Distribution	Pat- tern	Location Start	[ft] End	Start	de End	Unit
Load1 Load2 Self-weight	Dead Live Dead	Full Area Full Area Full UDL				20.00 40.00 3.4		psf psf plf

### Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (in):



	0'		21'-7.8"
Unfactored: Dead Live;	254 433		254 433
Factored: Total	967		967
Bearing: Resistance Joist Support	2243 7426	The state of the s	2243
Des ratio Joist Support Load case	0.43 0.13 #2	HOFE SEIONAL CHE	0.43 0.13 #2
Length Min req'd Stiffener	3 1-3/4 No	TO TOWN TOWN	3 1-3/4 No 1.00
Kd KB support fcp sup Kzcp sup	1.00 1.00 769 1.15	La State	1:00 769 1,15
L WECH BUP	1		

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

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

Total length: 22'; 5/8" nalled and glued OSB sheathing with 1 row of blocking; strapping at blocking locations and 1/2" gypsum ceiling

This section PASSES the design code check.

### Limit States Design using CSA-O86-09 and Vibration Criterion:

will blind on work and the man or an -	g.,			
Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 967	Vr = -2336	lbs	Vf/Vr = 0.41 Mf/Mr = 0.45
Moment (+)	Mf = 5231	Mr = 11609 $0.72 = L/360$	l.bs-ft in	Mf/Mr = 0.45 0.29
Perm. Defl'n	$0.21 = \langle L/999 \rangle$ 0.36 = L/724	0.72 = L/360 0.54 = L/480	in	0.66
Live Defl'n Total Defl'n	0.50 = L/124 0.57 = L/456	1.08 = L/240	in	0.53
Bare Defl'n	0.40 = L/653	0.72 = L/360	in	0.55
Vibration	Lmax = 21'-8	$Lv = 23^{1}-6$	ft	0.04
Defl'n	= 0.026	= 0.031	in	0.84

STRUCTURAL COMPONENT ONLY

#### NORDIC SIZER

#### Nordic Sizer - Canada 6.4

Page 2

Additiona	l Data:						170	7233	T C #
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
۷r	2336	1.00	1.00	<del></del> .	•••	.59	ined.		#2
Mr+	11609	1.00	.1.00		1.000	<del></del>	-	-	#2
ΕI	2336 11609 547.1 m	illion	∽ .			→.	. =		#2
CRITICAL L	OAD COMB	INATIONS	3:					4	
CRITICAL L Shear	: LC #2	= 1.2	5D + 1.5	L					
14'	1 . TO #2	12	ED T 1 E	Τ.					
Deflecti	on: LC #1	= 1.0	D (perm	anent) -			•		
	LC #2	= 1.0	$D + T \cdot O \Gamma$	(Tive)	,	•			•
4.04	T.C.#2	= 1.0	D.+ 1.0L	(tota)	L.) · .	4			
	T.C #2	= 1.0	$D + 1.0 I_{\rm b}$	(bare	ioist)				
Bearing	: Suppo	ort 1 - 1	LC #2 =	1.25D +	1.5L				
	Suppo	ort 2	LC #2 =	1.250 +	T * 2T	•			
Load Typ	es: D=dea	id W=wi	nd S=sn	ow H=ea	arth, grou	ındwate	r E=ear	thquake	
	L=liv	re(use,o	ccupancy	) Ls=l:	ive(stora	ige, equ	ipment)	r=tire	
All Load	l Combinat	ions (L	Cs) are	listed :	in the An	ıalysis	output		
CALCULAT	IONS:								
Deflecti	on: Elef	f =	613e06 l	b-in2	K = 6.18e	06 lbs			
"Live" d	Reflection	n = Defl	ection f	rom all	non-dead	l loads	(live,	wind, s	now)

### Design Notes:

- 1. WoodWorks analysis and design are in accordance with the 2010 National Bullding Code of Canada (NBC Part 4) and the CSA Q86-09 Engineering Design in Wood standard, which includes Update No.1. **CONFORMS TO OBC 2012**

- 2. Please verify that the default deflection limits are appropriate for your application.

  3. Refer to 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 infinition their responsibility. This analysis does not constitute a record of the structural integrity of the building not still the design assumptions made. Nordic Structures is responsible only for the structural adequacy based on the design criteria and loadings shown.

STRUGTURAL COMPONENT ONLY



## Bolso Coscodo Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i878)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:26

Build 5033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

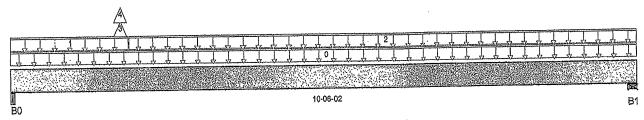
Description: Designs\Flush Beams\Basment\Flush Beams\B1(i878)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 10-06-02

Reaction Summary (Down	/ Uplift) ( lbs )				
Bearing	Live	De ad	Snow	Wind	
B0, 2-5/8"	275/817	0/176			
B1, 2-3/8"	174/160	76 / 0			

				Li	ive . Dea	d Snow Wir	nd Trib.
	oad Summary ig Description	Load Type	Ref. Start	End 1.	00 0.65	1.00 1.1	
7	FC1 Floor Material	Unf. Lin. (lb/ft).	L 00-00-00	10-06-02 23	3 12		n/a
4	FC1 Floor Material	Unf. Lin. (lb/ft)	L 00-00-00	01-11-12 1	7 8	•	n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L 01-11-12	10-06-02 6			n/a
2	B2(1874)	Conc. Pt. (lbs)	L 01-10-00	01-10-00 1	23 -38		n/a
4	B2(1874)	Conc. Pt. (lbs)	L 01-10-00	01-10-00 -9	977	· Ja garaga Para	n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location PROFESSION S
Pos. Moment Neg. Moment End Shear Uplift Total Load Defl. Live Load Defl.	780 ft-lbs -2,488 ft-lbs 1,414 lbs 1,444 lbs L/999 (0.009') L/999 (-0.019'')		2% 6.4% 9.8% n/a n/a	1 2 2 2 6 9	05-10 08 01-11-60 01-02-38 00-00-00 05-08-07 04-08-01
Total Neg. Defl. Max Defl. Span / Depth	L/999 (-0.019") -0.019" 10.3	n/a n/a n/a	n/a n/a n/a	7	04-03-05 00-00-00

	• .			De mand/ Resistance	De man d/ Resistance	
Bearing (	Supports	Dim. (L x VV)	De man d	Support	Member	Material
B0 Be	am all/Plate	2-5/8" x 3-1/2" 2-3/8" x 3-1/2"	1,445 lbs 356 lbs	36.8% 10%	12.9% 3.5%	Un spe dfied Un spe dfied

Uplift of 1,444 lbs found at span 1 - Left (SIMPSON 2 + 5A @ J. BO)

Notes

DWG NO. TAM BSS BIRLY STRUCTURAL PG COMPONENT ONLY



### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i878)

April 25, 2017 16:35:26

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

Build 5033 Job Name:

Address: City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs \Flush Beams \Basment\Flush Beams \B1 (1878)

Specifier:

Designer: AJ Company.

CONFORMS TO OBC 2012

Misc:

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

Design based on Dry Service Condition.

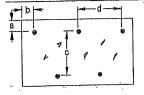
Importance Factor: Normal Part code: Part 9

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of sultability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered w ood products must be in accordance with current installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAMIM, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Bolse Cascade Wood Products L.L.C.

Connection Diagram



a minimum = 2" c = 7-7/8" d = 1884 b minimum = 3"

Calculated Side Load = 168.1 lb/ft

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

Connectors are:

3-1/2" ARDOX SPIRAL



DWGNU. TAN BSSBEAR STRUCTURAL COMPONENT ONLY

T-1211373(V)



## Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B2(i874)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25; 2017 16:35:27

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B2(1874)

Snow Wind

1.00

1,15

n/a n/a

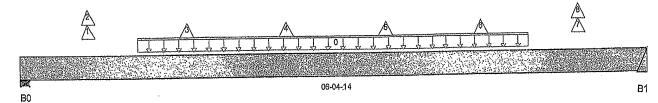
n/a n/a n/a n/a n/a n/a n/a

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 06-04-14

Reaction Summary (Down / Uplift) (Ibs) Wind Snow De ad Bearing 0/384 B0, 4-3/8" 130/979 125/991 0/395 **B**1 Trib.

					Live	Dead
	ad Summary g Description	Load Type	Ref. Start	En d '	1.00	0.65
ñ	Smoothed Load	Unf. Lin. (lb/ft)	L 01-02-08	3 05-02-08	44	
1	J1(1879)	Conc. Pt. (lbs)	L 00-08-0	3 00-08-08	38	-109
2	J1(1879)	Conc. Pt. (lbs)	L 00-08-0	3 00-08-08	-255	
	r ·	Conc. Pt. (lbs)	L 01-08-0	3 01-08-08	-343	-149
3	J1(1833)	Conc. Pt. (lbs)	1. 02-08-0	8 02-08-08	-343	-149
4.	J1(1847)	Conc. Pt. (lbs)	L 03-08-0			-149
5	J1(1850)	Conc. Pt. (lbs)	L 04-08-0			-149
6	J1(i789)	Cong. Pt. (lbs)	L 05-08-0		41	-15/
8	J1(1829) J1(1829)	Conc. Pt. (lbs)	L 05-08-0			

Controls Summary	Factore d Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Neg. Moment	-3,083 ft-lbs	-38,727 ft-lbs	8%	. 2	03-08-08
End Shear	1.967 lbs	14,464 lbs	13.6%	. 2	05-03-00
Uplift	1,980 lbs	n/a		2	06-04-14
J	L/999 (-0.01")	n/a	n/a	9	03-04-00
Live Load Defl.	L/999 (-0.014")		n/a	7	03-04-00
Total Neg. Defl.	-0.014"	n/a	n/a	7	03-04-00
Max Defl. Span / Depth	6.1	. n/a	n/a	1 1 1 1 1 1	00-00-00

			Demand <i>i</i> Resistance	Demand/ Resistance	
Bearing Supports	Dim.(LxW)	Demand	Support	Member	Material
B0 Wall/Plate B1 Hanger B1 Hanger Uplift	4-3/8" x 3-1/2" 2" x 3-1/2" 2" x 3-1/2"	1,949 lbs 0 lbs . 1,980 lbs	29.8% n/a n/a	10.4% 23.2% 0.19	Unspecified ; Hanger Hanger

Cautions

Uplift of 1,980 lbs found at span 1 - Right. (5117507

Notes

DWG NO. TAM 8559 TO H 14 STRUCTURAL P6 14 COMPONENT ONLY



### Bolso Coscode Double 1-3/4" x 11-7/8" VERSA-LAW® 2.0 3100 SP Basment\Flush Beams\B2(i874)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:27

BC CALC® Design Report

Build 5033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B2(1874

Specifier:

Designer: AJ Company:

Misc:

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

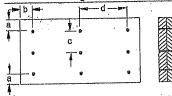
O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 2" b minimum = 3"

c = 3-15/16" d=20 6

Calculated Side Load = 568.6 lb/ft

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

Connectors are:

Nails

3-1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of sultability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALOB, BC FRAMER®, AJSTM, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS® VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Bolse Cascade Wood Products L.L.C.



DWOND. TAN BSS9-18 17 STRUCTURAL COMPONENT ONLY

T-1811374/8/



## (E) Boise Cascade Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i812)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:27

BC CALC® Design Report



Build 5033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

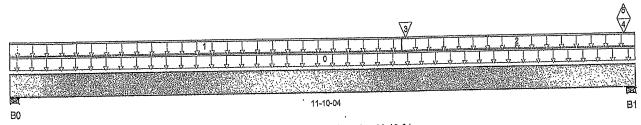
Description: Designs\Fiush Beams\Basment\Fiush Beams\B3(i812)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 11-10-04

Reaction Summary (Dow	/n / Uplift) (lbs) Live	Dead	Snow	Wind		
B0, 2-3/8" B1, 5-3/8"	279/0 980/305	213/0 560/0			•	man

And the state of			U	ive Dead	Snow Wind	Trib
Load Summary Tag Description	Load Type	Ref. Start	End 1.	.00 0.65	1.00 1.16	
0 FC1 Floor Material 1 FC1 Floor Material 2 FC1 Floor Material 3 B8(1894) 4 2(1246) 5 2(1246)	Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Conc. Pt. (lbs) Conc. Pt. (lbs) Conc. Pt. (lbs)	L 00-00-00 L 00-00-00 L 07-04-08 L 07-05-06 L 11-07-09 L 11-07-09	11-10-04 10 07-04-08 6 11-10-04 2 07-05-06 4 11-07-09 5 11-07-09 -3	3 4 12 94 256 00 241	PHOFESS ON SE	n/a n/a n/a n/a n/a n/a

Controls Summary	Factored Demand	Resistance	Demand / Resistance	Load Case	Location	(8)03)	E. FOK
Pos. Moment End Shear Total Load Defl. Live Load Defl. Max Defl. Span / Depth	3,667 ft-lbs 995 lbs L/999 (0.052") L/999 (0.032") 0.052" 11.5	38,727 ft-lbs 14,464 lbs n/a n/a n/a n/a	9.5% 6.9% n/a n/a n/a	1 1 6 8 6	07-05- 10-05- 06-02- 06-02- 06-02- 00-00-	09 09 09 09	

Da aula à Rumante	Dim (L x W)	De mand	De mand/ Resistance Support	De mand/ Resistance Member	Material
Bearing Supports B0 Wall/Plate B1 Wall/Plate	2-3/8" x 3-1/2"	684 lbs	19.3%	6.7%	Unspecified
	5-3/8" x 3-1/2"	2,170 lbs	27%	9.5%	Unspecified

Notes

DWGNO. TAN BSGO. 18 H STRUCTURAL COMPONENT ONLY

T-181375



### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i812)

April 25, 2017 16:35:27

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

Bulld 5033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B3(i812

Specifier:

Designer:

Company.

Misc:

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

Calculations assume member is fully braced.

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

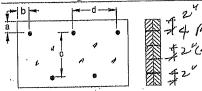
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 2" b minimum = 3"

c=7-7/8" d= 20 :4

Calculated Side Load = 89.5 lb/ft

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

Connectors are:

4 3-1/2" ARDOX SPIRAL

#### Disclosure

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DWG NO . TAN 8560-18H STRUCTURAL COMPONENT ONLY

T-(811375(V)



## Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B4(i900)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:27

**Bulld 5033** 

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B4(i900)

Specifier:

Designer: AJ

Company:

Misc:

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	1
	 =1
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	ál –
\$3000 \$400 \$400 \$400 \$400 \$400 \$400 \$400	~
08-02-00 B	31
BO	
10	

Total Horizontal Product Le	ngth ≈ 08-02-00
-----------------------------	-----------------

		The second later to the second later and the second	CONTRACTOR OF THE OWNER, WHEN PERSON SHAPE		
Reaction Summary (Down a	/ Uplift) (lbs)	De ad	Snow	Wind	
B0, 1-3/4" B1, 4-3/8"	311/0 337/0	184/0 . 198/0			• •

			L	Live	Dead	Snow Wind	Trib.
Load Summary Tag Description	Load Type	Ref. Start		1.00	0.65	1.00 1.15	
0 FC1 Floor Material	Unf. Lin. (lb/ft)	L 00-00-00	03-09-04	9	4		n/a
1 FC1 Floor Material	Unf. Lin. (lb/ft)	L 03-09-04	08-02-00 2		13		n/a n/a
2 B8(1894)	Conc. Pt. (lbs)	L 03-10-02	03-10-02	499	259		; (Ca

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,433 ft-lbs	19,364 ft-lbs	12.6%	1	03-10-02
	668 lbs	7,232 lbs	9.2%	1	01-01-10
End Shear	L/999 (0.032")	n/a	n/a	4	03-11-04
Total Load Defl.		n/a	n/a	5	03-11-04
Live Load Defl.	L/999 (0.02")	n/a	n/a	4	03-11-04
Max Defl.	0.032"		n/a	•	00-00-00
Span / Depth	7.9	n/a	11/21		00 00 00

			De man d/ Resistance.	De man d/ Resistance	
Bearing Supports	Dim. (L x W)	Demand	Support	Member	Material
BO Post	1-3/4" x 1-3/4"	698 lbs	35.1%	18.7%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	754 lbs	23%	8.1%	Unspecified

#### Disclosure

Completeness and accuracy of Input must be verified by anyone who would rely on output as evidence of sultability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered w ood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

BC GÁLC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC/®, BOISE GLUBAMIM, SIMPLE FRAMING RSA-LAM®, VERSA-RIM

> PAND VERSA-STUD® are of Bols (Cascade Wood C.

CONFORMS TO OBC \$013

#### Notes

Design meets Code minimum (L/240) Total load deflection criteria. Design meets Code minimum (L/360) Live load deflection criteria. Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

DWO NO. FAM 8561-18 H STRUGTURAL COMPONENT ONLY

T-1811376



### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B5(i910)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:27

Build 5 033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

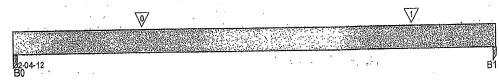
Description: Designs\Flush Beams\Basment\Flush Beams\B5(I910)

Specifier:

Designer: . AJ

Company.

Misc:



Total Horizontal Product Length = 02-04-12

	4 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	normania retiral managarina del compania	Market State Company of the Section		***************************************		
Reaction Summary (I	Down / Uplift) (lbs)	De ad	Snow	Win	d		
B0, 3-1/2" B1, 3-1/2"	139/0 161/0	77 / 0 88 / 0					
				l luo	Dead	Snow Wind	Trib.

				Live	Dead	Show willin	11141
Load Summary Tag Description	Load Type	Ref. Start	End	1.00	0.65	1.00 1,15	
		L 00-07-10	00-07-10	158	79		n/a
0 J5(i908)	Conc. Pt. (lbs)	m			71		n/a
1 J5(1909)	Conc. Pt. (lbs)	L 01-11-10	01-11-10	142	7.1		,

Controls Summary	Factored Demand	Factored Résistance	Demand / Resistance	Load Case	Location
Pos. Moment	123 ft-lbs	19,364 ft-lbs	0.6%	1	00-07-10
End Shear	80 lbs	7,232 lbs	1.1%	1	01-01-06
Total Load Defl	L/999 (0")	n/a	n/a	4	01 <b>-</b> 01-14
	L/999 (0")	n/a	n/a	5	01-01-14
Live Load Defl.	0"	n/a	n/a	4	01-01-14
Max Defl. Span / Depth	2	n/a	n/a		00-00-00

Danving	Cunn arte	Dim , (L x W)	Demand	De mand/ Re sistance Support	De mand/ Resistance Member	Material
B0 P	Supports Post Post	3-1/2" x 1-3/4" 3-1/2" x 1-3/4"	305 lbs 350 lbs	7.7% 8.8%	4.1% 4.7%	Unspecified Unspecified

#### Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

Design based on Dry Service Condition.

Importance Factor; Normal Part code: Part 9

CONFORMS TO OBC 2012

#### Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAMM, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA VERSA-ST trademark Products

STRUCTURAL COMPONENT ONLY

T-1811377



## Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B6(i898)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:28

Build 5033

Job Name:

Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

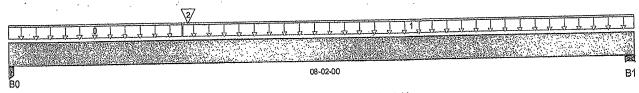
Description: Designs\Flush Beams\Basment\Flush Beams\B6(i898)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal	Product	Length =	08-02-00
------------------	---------	----------	----------

Reaction Summary (Down / L	Jplift) ( lbs ) Live	De ad	Snow	Win	d		
B0, 1-3/4" B1, 4-3/8"	468/0 267/0	265/0 161/0		· .	±1;6.	e termina	
Load Summany	· .			Live	Dead	Snow Wind	Trib.

	the is the			Live	Dead	Snow Wind	(110)
Load Summary Tag Description	Load Type	Ref. Start	En d	1.00	0.65	1.00 1.15	
0 FC1 Floor Material 1 FC1 Floor Material 2 B9(I902)	Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Conc. Pt. (lbs)	, was a second	02-03-04 . 08-02-00 02-04-02		6 13 284	engliste etgalis.	n/a n/a n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,240 ft-lbs	19.364 ft-lbs	11.6%	1	02-04-02
End Shear	994 lbs	7,232 lbs	13.7%	1	01-01-10
	L/999 (0.03")		n/a	4	03-08-01
Total Load Defl.	L/999 (0.019")	n/a	n/a	5	03-08-01
Live Load Defl.	0.03"	n/a	n/a	4	03-08-01
Max Defl. Span / Depth	7.9	n/a	n/a		00-00-00

				De man d/ Re sistance	Resistance		
Rear	ing Supports	Dim . (L x W)	Demand	Support	Member	Material	
BO	Post	1-3/4" x 1-3/4"	1,0331bs	51.9%	27.6%	Unspecified	
B1	Wall/Plate	4-3/8" x 1-3/4"	602 lbs	18.4%	6.4%	Unspecified	

#### Notes

Design meets Code minimum (L/240) Total load deflection criteria. Design meets Code minimum (L/360) Live load deflection criteria. Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

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 2010 and CSA CONFORMS TO OBC 2012 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

#### Disclosure

Completeness and accuracy of Input must be verified by anyone who would rely on output as evidence of sultability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALC®, BC FRAMER® , AJS™, ALLJOIST®, BC RIM BOARDTM, BCKB, BOISE GLULAMTM, SIMPLE FRAMING SYSTEMD, VERSA-LAM FLUS®, VERS# VERSA-STE trademark Products

> STRUCTURAL COMPONENT ONLY

W11378



### (A) Bioleo Cascado Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B7(i775)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:28

BC CALC® Design Report

Build 5 033 Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\Basment\Flush Beams\B7(i775)

Specifier:

Designer: AJ

Company.

Misc;

	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	. •	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	<u> </u>
8			, and
BO.	11-09-04		B1

Total Horizontal Product Length = 11-09-04

				AND DESCRIPTIONS OF THE PROPERTY OF THE PARTY OF THE PART	THE PARTY OF THE PROPERTY OF THE PARTY OF TH	-
Reaction Summary (I	Down / Uplift) (lbs)	De ad	, Snow	Wind		
B0, 2-3/8"	425/0	287/0				
B1, 4-3/8"	512/0	333/0		•		
• .						

Load Summary Tag Description	Load Type	Ref, Start	En d	1.00	De ad 0.65	1.00	Wind 1.15	Trib.
O FC 1 Floor Material FC 1 Floor Material FC 1 Floor Material FC 1 Floor Material B9 (1902)	Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Conc. Pt. (lbs)	L 00-00-00 L 05-10-08	11-09-04 05-10-08 11-09-04 05-11-06	6 28	9 3 14 268			n/a n/a n/a n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4.601 ft-lbs	38.727 ft-lbs	11.9%	1	05-11-06
End Shear	1,029 lbs	14,464 lbs	7.1%	1	10-05-00
Total Load Defl.	L/999 (0.067")	n/a	n/a	4	05-10-08
Live Load Defl.	L/999 (0.041")		n/a	5	. 05-10-08
	0.067"	n/a	n/a	. 4	05-10-08
Max Defl. Span / Depth	11.5	n/a	n/a		00-00-00

	Disc. (1 or 160)	De man d		De mand/ Resistance Member	Material
Be aring Supports BO Wall/Plate B1 Wall/Plate	Dim. (L x W) 2-3/8" x 3-1/2" 4-3/8" x 3-1/2"	996 lbs 1,183 lbs	28% 18.1%	9.8%	Unspecie

Notes

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadlan Limit States Design, as per NBCC 2010 and CSA

086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

DWG NO. TAM BS64 TRH
STRUCTURAL P644
COMPENENT ONLY

T-1811379

## Bolso Cascado Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B7(i775)

April 25, 2017 16:35:28

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

Build 5033 Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

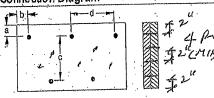
Description: Designs\Flush Beams\Basment\Flush Beams\B7(1775

Specifier:

Designer: AJ Company:

Misc:

Connection Diagram



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

Calculated Side Load = 94.3 lb/ft

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record. 1

Connectors are:

Nalls

3-1/2" ARDOX SPIRAL

Completeness and accuracy of Input must be verified by anyone who would rely on output as evidence of sultability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BCRIM BOARD™, BC/®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAMB, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD®;are trademarks of Bolse Cascade Wood Products L.L.C,

> DWO NO. TAM 856 4. 18 H STRUCTURAL PORE CEMPONERT ONLY

T-181379(1)



### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B8(i894)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:28

Bulld 5033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

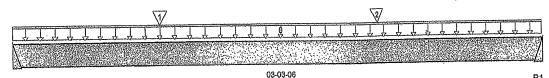
File Name: UNIT 2203 T3,mmdl

Description: Designs \Flush Beams \Basment\Flush Beams \B8(1894)

Specifier:

Designer: AJ Company:

Misc:



В0

6	= 03-03-0	Length	Product	Total Horizontal

Reaction Summary	(Down/	Uplift) (lbs) Live	De ad	Snow	Winc	l		
B0 B1		499/0 494/0	259/0 256/0			N. 18		
Load Summary		· ,			Live	Dead	Snow Wind	Trib.

				•	Live	Dead	Snow	Wind	i Lib'
Load Sum Tag Descrip		Load Type	Ref. Start	En d	1.00	0.65	1.00	1.15	
		Unf. Lin. (lb/ft)	L 00-00-00	03-03-06	240	120	<b>,,</b>		n/a
0 User L		Conc. Pt. (lbs)	1. 00-10-14	00-10-14		49			n/a
1 J6(1905	•	Conc. Pt. (lbs)	L 02-02-14			53			n/a
2 J6(1896	)	Colle, Fr. (ins)	L OM OM 11	, 022 022 11					

CONFORMS TO OBC 2012

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	801 ft-lbs	19,364 ft-lbs	4.1%	1	01-08-01
End Shear	436 lbs	7,232 lbs	6%	1	02-01-08
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-07-11
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-07-11
Max Defl.	0.002"	n/a	n/a	4	01-07-11
Span / Depth	3.1	n/a	n/a		00-00-00

			De mand/ Resistance	Demand <i>i</i> Resistance		
Bearing Supports	Dim.(LxW)	De man d	Support	Member	Material	_
B0 Hanger B1 Hanger	2" x 1-3/4" 2" x 1-3/4"	1,072 lbs 1,061 lbs	n/a n/a	25.1% 24.8%	Hanger Hanger	

#### Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

#### Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Bolse Cascade engineered w ood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

BC CALOB, BC FRAMER®, AJS™, ALLJOIST®,, BCRIM BOARD™, BCI®, SIMPLE FRAMING ALAMB, VERSA-RIM

STUD® are e Wood

> OVENO. TAM 8565-10 H STRUGTURAL CREPONERY ONLY



### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B9(i902)

BC CALC® Design Report

во



Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:28

Bulld 5033

Job Name: Address:

City, Province, Postal Code; BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

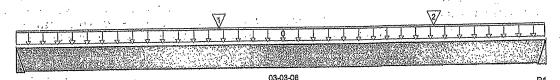
Description: Designs\Flush Beams\Basment\Flush Beams\B9(i902)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 03-03-06

Reaction Summary (	Down / Uplift) (lbs)	De ad	Snow	Win	d·		
B0 B1	516/0 550/0	267/0 284/0			• • •		
Load Summary				Live	Dead	Snow Wind	Trib.

	•			Live	Dead	Snow Wind	ı rıp.
Load Summary Tag Description	Load Type	Ref. Start	En d	1.00	0.65	1.00 1.15	
0 User Load 1 J6(i901) 2 J6(i899)	Unf. Lin. (lb/ft) Conc. Pt. (lbs) Conc. Pt. (lbs)	L 01-03-00	01 00 40	157	120 78 60		n/a n/a n/a

CONFORMS TO OBC 2012

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	883 ft-lbs	19,364 ft-lbs	4.6%	1	01-06-05
End Shear	509 lbs	7,232 lbs	7%	1	01-01-14
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-07-10
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-07-10
Max Defl.	0.002"	n/a	n/a	4	01-07-10
Span / Depth	3.1	n/a	n/a		00-00-00

13o orio	ng Supports	Dim . (L x W)	De mand	De mand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	1,107 lbs	n/a	25.9%	Hanger
B1	Hanger	2" x 1-3/4"	1,180 lbs	n/a	27.6%	Hanger

#### Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of sultability for particular application. Output here based on building code-accepted design properties and analysis methods. installation of Bolse 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 1-800-964-6999 before installation.

BC CALC®, BC FRAMER® , AJS™, ALLJOIST®, FÉ RIM BOARD™, BC® , BOISE GLULAMIN, SIMPLE FRAMING SYSTEMO YESSAL AME, VERSA-RIM PLICO VERSA BIMO

> 00000. PAN 8566-18 H STRUGTURAL COMPONENT ONLY

T-1811381



### Double 1-3/4" x 11-7/8" VERSA-LAN® 2.0 3100 SP 1st Floor\...\B10(i907)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:28

BC CALC® Design Report

Bulld 5033

Job Name: Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i907)

Specifier:

Designer: AJ

Company.

Misc:

	2	
		4444
	11-10-00	
80	[1-10-00	B1

Total Horizontal Product Length = 11-10-00

Because the second seco	COLUMN TO SERVICE PROPERTY OF THE PROPERTY OF	named in the sand to be seen as a supplemental to the sand			A STATE OF THE PARTY OF THE PAR
Reaction Summary (	Down / Uplift) (lbs)				
Bearing	Live	De ad	Snow	Wind	
B0, 4"	304/161	161/0	• •		•
B1. 5-1/2"	507/312	206/0			•

Load Summary	Load Type	Ref. Start	En d	Live 1.00	De ad 0.65	Snow Wind 1.00 1.15	Trib.
0 FC2 Floor Material 1 FC2 Floor Material 2 B12(I904) 3 B12(I904)	Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Conc. Pt. (lbs) Conc. Pt. (lbs)	L 07-05-12	07-05-12 11-10-00 07-07-08 07-07-08	31 526	10 16 82		n/a n/a n/a n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos, Moment	3,168 ft-lbs	38,727 ft-lbs	8.2%	1	07-07-08
Neg. Moment	-1.292 ft-lbs	-38.727 ft-lbs	3.3%	4	07-07-08
End Shear	901 lbs	14,464 lbs	6.2%	1	10-04-10
Uplift	282 lbs	n/a	n/a	4	11-10-00 🥒
Total Load Dell.	L/999 (0.044")	n/a	n/a	6	06-01-09
Live Load Defl.	L/999 (0.032")	n/a	n/a	8	06-03-14
Total Neg. Defl.	L/999 (-0.009")		n/a	7	06-08-0 <b>8</b> (7)
Max Defl.	0.044"	n/a	n/a	6	06-01-09 🛣
Span / Depth	11.3	n/a	n/a		00-00-00

Demand/ Demand/

Rearing	Supports	Dim. (L x W)	De man d	Support	Member	Material
	Nall/Plate	4" x 3-1/2"	658 lbs	11%	3.9%	Unspecified
	Na∥/Plate	5-1/2" x 3-1/2"	1,019 lbs	12.4%	4.3%	Unspecified

Cautions

Uplift of 282 lbs found at span 1 - Right (SIMPSON 1-tt-5A @ or . B)

Notes

DWG NO. TAM 8367-18H STRUCTURAL COMPONENT ONLY

T-18113/2



### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i907)

April 25, 2017 16:35:28

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

Build 5033 Job Name:

Address:

City, Province, Postal Code: BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\fst Floor\Flush Beams\B10(190;

Specifier:

Designer: AJ Company.

Msc:

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

Calculations assume member is fully braced.

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

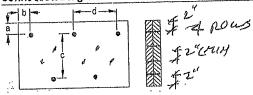
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Connection Diagram



d= 6 a minimum = 2" bminimum = 3"

Calculated Side Load = 15.4 lb/ft

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

Connectors are:

Nalls

3-1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Bolse 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 1-800-964-6999 before installation.

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BWBNO.TAN *B\$64* Strugtural COMPONENT ONLY

T-18113824;



#### 1st Floor\...\B11(i893) Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:29

BC CALC® Design Report

Bulld 5033 Job Name:

Address: City, Province, Postal Code:BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

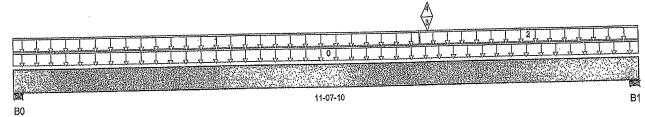
File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i893)

Specifier:

Designer: AJ Company.

Misc:



Total Horizontal Product Length = 11-07-10

			- Janes	(passin bis services)	
CHARLES AND DESCRIPTION OF THE PARTY OF THE	7.1.1:- 11.24\				
Reaction Summary (Dov	wn/Upiitt)(ibs)		_	Wind	***
	Live	Dead	Snow	wina	
Be aring	MIY O				•
DO 10/0!	. 527/131	287/0		•	•
BO, 4-3/8"					
	913/254	435/0			
B1. 2-3/4"	. 0101207	10010			

Load Summary         Load Type         Ref. Start         End         1.00         0.66         1.00         1.15           0 FC2 Floor Material         Unf. Lin. (lb/ft)         L 00-00-00         11-07-10         22         11           1 FC2 Floor Material         Unf. Lin. (lb/ft)         L 00-00-00         07-06-02         6         3           2 FC2 Floor Material         Unf. Lin. (lb/ft)         L 07-06-02         11-07-10         31         16		•		1	Live Dea	id Snow wind
0 FC2 Floor Material Unf. Lin. (lb/ft) L 00-00-00 11-07-10 22 11 1 FC2 Floor Material Unf. Lin. (lb/ft) L 00-00-00 07-06-02 6 3 1 FC2 Floor Material Unf. Lin. (lb/ft) L 07-06-02 11-07-10 31 16		Load Type	Ref. Start	End	1,00 0.68	
2 PC2 P1001 Material  3 B12(1904) Conc. Pt. (lbs) L 07-07-14 07-07-14 -385  4 B12(1904) Conc. Pt. (lbs) L 07-07-14 07-07-14 -385	O FC2 Floor Material FC2 Floor Material FC2 Floor Material B12(1904)	Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Unf. Lin. (lb/ft) Conc. Pt. (lbs)	L 00-00-00 L 00-00-00 L 07-06-02 L 07-07-14	07-06-02 11-07-10 07-07-14	6 3 31 16 1,010 367	MOFESS-ON

Controls Summary	Factore d Demand	Factored Resistance	Demand / Resistance	Load Case	Location	E. FOK
Pos. Moment Neg, Moment End Shear Total Load Defl. Live Load Defl. Max Defl. Span / Depth	6,275 ft-lbs -234 ft-lbs 1,756 lbs L/999 (0.085") L/999 (0.058") 0,085"		16,2% 0.6% 12.1% n/a n/a n/a	1 4 1 6 8	07-07-14 07-07-14 10-05-00 06-04-04 06-04-04 06-04-04	N. E. S. W.

prince and the second s	Dim. (L x.W)	De man d	Demand/ Resistance Support	De mand/ Resistance Member	Material
Bearing Supports BO Wall/Plate  B1 Wall/Plate	4-3/8" x 3-1/2" 2-3/4" x 3-1/2"	1,149 lbs.	17.6% 46.5%	6.2% 16.3%	Unspecified Unspecified

Notes

STRUGTURÁL COMPONENT ONLY

Trib.

n/a n/a n/a · n/a n/a

T-1811383



#### 1st Floor\...\B11(1893) Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:29

BC CALC® Design Report

**Bulld 5033** 

Job Name: Address:

City, Province, Postal Code:BRAMPTON,

Customer:

Code reports:

**CCMC 12472-R** 

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(l89

Specifier:

Designer: Company.

Misc:

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

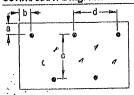
Q86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBE 2012

Connection Diagram



d= 6 a minimum = 2" b minimum = 3"

Calculated Side Load = 120.0 lb/ft

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

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before Installation.

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DVG NO. TAM 856878H STRUCTURAL CCEPONENT ONLY

T-1811383(V)



#### 1st.Floor\...\B12(i904) Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

Dry | 1 span | No cantilevers | 0/12 slope (deg)

April 25, 2017 16:35:29

BC CALC® Design Report



Build 5033 Job Name: Address:

City, Province, Postal Code; BRAMPTON,

Customer:

Code reports:

CCMC 12472-R

File Name: UNIT 2203 T3.mmdl

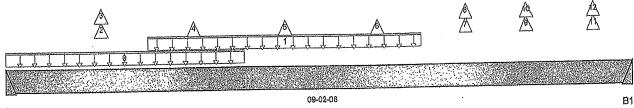
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(1904)

Specifier:

Designer: AJ

Company.

Misc:



Total Horizontal Product Length = 09-02-08

Reaction Summary (Down / Uplift) (lbs) Wind De ad Snow Be aring 1,015/384 370/0 B0 1621/474 79/0 **B**1

				Live	Dead	Snow Wind	Trib.
Load Summary Tag Description	Load Type	Ref. Start	End	1.00	0.65	1.00 1.15	
0 User Load	Unf. Lin. (lb/ft)	L 00-00-00	03-06-00		120		n/a
1 Smoothed Load	Unf. Lin. (lb/ft)	L 02-01-00	06-01-00	83		•	n/a
2 J1(1635)	Conc. Pt. (lbs)	L 01-05-00	01-05-00	120	-6	Augustus	n/a
, ,	Conc. Pt. (lbs)	L 01-05-00	01-05-00	-132		popular and a	n/a
3 J1(1635)	Conc. Pt. (lbs)	L 02-09-00	02-09-00	-132	-11	La maria	n/a
4 J1 (1737)	Cong. Pt. (lbs)	L 04-01-00	04-01-00	-132	-11	ACE 80	n/a
5 J1(1737)	Conc. Pt. (lbs)	L 05-05-00	05-05-00	-132	-11	PROFESS ON	n/a
6 J1(I737)	Conc. Pt. (lbs)	1. 06-09-00	06-09-00	93	-9	C. C.	n/a
7 J1(1683)	Conc. Pt. (lbs)	1. 06-09-00	06-09-00	-111		E. FOK	n/a
8 J1(1683)	Conc. Pt. (lbs)	1. 07-07-12	07-07-12	79	8 8		n/a
9 J1(1680)		L 07-07-12	07-07-12		Į į	E. AFUN 9	n/a
10 J1 (i680)	Conc. Pt. (lbs)	L 08-07-12	08-07-12		-26	province of the same of the sa	n/a
11 J1(i577)	Conc. Pt. (lbs)	L 08-07-12	08-07-12		1 6		. n/a
12 J1(1577)	Conc. Pt. (lbs)	L 00-01-12	00 01 12			20	
	Factored Factored	Demand /	Load	Location			

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,084 ft-lbs	38,727 ft-lbs	8%	1	03-01-08
	-1,192 ft-lbs	-38,727 ft-lbs	3.1%	4	05-05-00
Neg Moment	1,378 lbs	14.464 lbs	9.5%	1	01-01-14
End Shear	640 lbs	n/a	n/a	. 4	09-02-08
Uplift	L/999 (0.03")	n/a	n/a	6	04-04-00
Total Load Defl.		n/a	n/a	8	04-04-00
Live Load Defl.	L/999 (0.024")		n/a	7	04-11-00
Total Neg. Defl.	L/999 (-0.009")	n/a	n/a	6	04-04-00
Max Defl.	0.03"	• • • •	n/a	J	00-00-00
Span / Depth	9.1	n/a	. 11/0		00 00 00

De man d/ De mand/ Resistance Resistance Material Member Support

T-1811384

Bearing Supports

Dim. (LxW)

Demand



#### 1st Floor\...\B12(i904) Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

April 25, 2017 16:35:29

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

Build 5033 Job Name:

Address: City, Province, Postal Code:BRAMPTON,

Customer:

CCMC 12472-R Code reports:

File Name: UNIT 2203 T3.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(1904

Specifier:

Designer: AJ Company:

CONFORMS TO OBC 2012

Misc;

B0 B1	Hanger Hanger Uplift Hanger	2" 2"	x3-1/2" x3-1/2" x3-1/2"	1,985 lbs 243 lbs 880 lbs 640 lbs	:	n/a n/a n/a n/a	23.2% 0.02 10.3% 0.06	Hanger Hanger Hanger Hanger
B1	Hanger Uplift	2"	'x3-1/2"	640 lbs <sub>.</sub>		n/a	0.06	Hanger

### Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before Installation.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAMIM, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Bolse Cascade Wood Products L.L.C.

Cautions

Uplift of 640 lbs found at span 1 - Right.

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

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

Calculations assume member is fully braced.

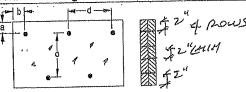
Resistance Factor phi has been applied to all presented results per CSA 086.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram



a minimum = 2"  $c = 7-7/8^{\circ}$ d= 2 /2 " b minimum = 3"

Calculated Side Load = 37.5 lb/ft

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

Connectors are:

3-1/2" ARDOX SPIRAL



BYUNO. TAM 8569-18 H STRUCTURAL CEMPORENT ONLY

T-18113849(1)



# Maximum Floor Spans







			Ва	are			1/2" Gy <sub>l</sub>	osum Ceiling	
	Series		On Centr	e Spacing		On Centre Spacing			
Depth	201102	.12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	151-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16 <sup>1</sup> 1"	15 <b>'-</b> 1"	13'-11"
	NI-40X	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'5"	15'-5"	14'-3"
9-1/2"	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"
	NI-70	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15-10"
	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"
	NI-20 NI-40x	19'-4"	17'-11"	17'-3"	15¹-10"	19'-11"	18'·6"	17'-9"	15'-10"
	NI-40x NI-60	19'-7"	18'-2"	17'-5"	16 <b>'-</b> 9"	20'-2"	18'-9"	17'-11"	17 <sup>1</sup> -1"
11-7/8" NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"	
23-11 -	NI-80	21'-1"	-19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18°-0"
	NI-90x	211-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	195-10"	18 <sup>r</sup> -11 <sup>n</sup>	17'-5"	22 <sup>r</sup> -1 <sup>n</sup>	20°-6"	19'-6"	175-5"
	NI-40X	21'-10"	20'-2"	19*-3"	18'-2"	22'-5"	20°-10"	19 <sup>-</sup> -11 <sup>-</sup>	18-10
•	NI-70	23'-0"	2153"	20'-3"	19"-2"	23'-8"	21-11	20°-10°	19 <sup>r</sup> -9"
14"	NI-80	23'-5"	21°-7"	20"-7"	19'-5"	24"-0"	22-3"	. 21-2"	20°-0"
	NI-90x	241-111	22'-3"	21'-2"	20'-0"	24'-8"	225-10"	21-9"	20*-7"
	NI-50X	23'-9"	22-0"	20'-11"	19'-10"	24-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22°-0"	20*-10*	25-9"	23'-10"	22¹-9"	21'-6"
16"	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24:-2"	23'-1"	21'-10"
	NI-90x	26 <sup>r</sup> -4"	24-3"	23 <sup>r</sup> -1"	21'-10"	26'-11"	24'-11"	23¹-8"	22'-5"
			Mid-Sna	n Blocking		Mid-St	oan Blocking and	f 1/2" Gypsum (	'ailing
	Carios			re Spacing		1		Spacing	-mig

		Min-phan	Minable processe					ming apair processing and 1/2. Gypsom cening				
Carias -		On Centr	e Spacing			On Cent	re Spacing					
36163	12"	16"	19.2"			16 <sup>h</sup>	19.2"	24"				
NI-20	15'-7"	14'-2"			1	14'-2"	13'-4"	12'-4"				
	17'-9'"	16'-1"	15¹-1"		1	16'-1"	15'-1" -	13'-11"				
• -		16'-5"	15'-5"		18'-1"	16'-5"	15'-5"	14'-3"				
		17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"				
		18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"				
NI-20		17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"				
MI-40x		19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"				
		19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"				
		21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"				
		21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"				
		22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"				
		21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"				
		22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"				
		24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21¹-0"				
		24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"				
		251-411	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"				
		24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"				
		26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"				
		27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"				
NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"				
	NI-40x NI-60 NI-70 NI-80 NI-90x NI-40x NI-60 NI-70 NI-80 NI-90x NI-60 NI-70 NI-80 NI-70 NI-80	NI-20 15"-7" NI-40x 17'-9" NI-60 18'-1" NI-70 19'-10" NI-80 20'-2" NI-20 18'-10" NI-40x 21'-3" NI-60 21'-9" NI-70 23'-4" NI-80 23'-7" NI-90x 24'-3" NI-40x 24'-2" NI-60 24'-9" NI-70 26'-1" NI-80 26'-6" NI-90x 27'-3" NI-90x 27'-3" NI-60 27'-3"	Series         On Centre           12"         16"           NI-20         15'-7"         14'-2"           NI-40x         17'-9"         16'-1"           NI-60         18'-1"         16'-5"           NI-70         19'-10"         17'-11"           NI-80         20'-2"         18'-3"           NI-20         18'-10"         17'-1"           NI-60         21'-9"         19'-8"           NI-70         23'-4"         21'-5"           NI-80         23'-7"         21'-10"           NI-90x         24'-3"         22'-6"           NI-90x         24'-9"         22'-5"           NI-60         24'-9"         22'-5"           NI-90x         26'-6"         24'-7"           NI-90x         27'-3"         25'-4"           NI-90x         27'-3"         25'-4"           NI-70         28'-8"         26'-6"           NI-70         28'-8"         26'-6"           NI-80         26'-5"         24'-11"           NI-80         26'-6"         24'-17"           NI-80         26'-6"         24'-11"           NI-80         26'-6"         24'-11"	Series         On Centre Spacing           12"         16"         19.2"           NI-20         15'-7"         14'-2"         13'-4"           NI-40x         17'-9"         16'-1"         15'-1"           NI-60         18'-1"         16'-5"         15'-5"           NI-70         19'-10"         17'-11"         16'-9"           NI-80         20'-2"         18'-3"         17'-1"           NI-80         21'-3"         19'-3"         17'-9"           NI-60         21'-9"         19'-8"         18'-5"           NI-70         23'-4"         21'-5"         20'-1"           NI-80         23'-7"         21'-10"         20'-5"           NI-90x         24'-3"         22'-6"         21'-3"           NI-90x         24'-2"         21'-5"         21'-0"           NI-70         26'-1"         24'-3"         22'-5"         21'-0"           NI-90x         27'-3"         24'-1"         23'-3"           NI-90x         27'-3"         25'-4"         24'-1"           NI-60         27'-3"         24'-11"         23'-5"           NI-90x         27'-3"         25'-4"         24'-1"           NI-	12"   16"   19.2"   24"	Series         On Centre Spacing           12"         16"         19.2"         24"         12"           NI-20         15'-7"         14'-2"         13'-4"         12'-4"         15'-7"           NI-40x         17'-9"         16'-1"         15'-1"         13'-11"         17'-9"           NI-60         18'-1"         16'-5"         15'-5"         14'-3"         18'-1"           NI-70         19'-10"         17'-11"         16'-9"         15'-6"         19'-10"           NI-80         20'-2"         18'-3"         17'-1"         15'-10"         20'-2"           NI-80         21'-3"         19'-3"         17'-9"         15'-10"         21'-3"           NI-60         21'-9"         19'-8"         18'-5"         17'-1"         21'-9"           NI-70         23'-4"         21'-5"         20'-1"         18'-6"         23'-8"           NI-80         23'-7"         21'-10"         20'-5"         18'-11"         24'-1"           NI-80         23'-7"         21'-5"         20'-5"         18'-11"         24'-1"           NI-90x         24'-3"         22'-6"         21'-3"         19'-7"         24'-8"           NI-90x         24	Series	Series				

<sup>1.</sup> Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and deal load of 30 psf. The 1. Maximum clear span applicable to simple spen consideration floor objection floor of the service ability limit states include the consideration for floor vibration, 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.

a live load deflection miles of 4 documents and a second control of the second control o 2. Spans are based on a composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. 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. spacing of 24 incres or less. The composite noon may include a partial paper in composite noon may include a partial paper in the spacing of 24 increasing any or one row of processing at mio-span with str Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists. Strapping snall be minimum and managed by the shall be 1-3/4 inches for the end bearings.

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.

<sup>4.</sup> Bearing stiffeners are not required when reposts and used with other than uniformly distributed loads, an engineering analysis may be required 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 or the design properties. Total and continuously along the compression edge. Refer to technical documentation for installation 6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation 6. Joists snan be race any support to disappose and accommendation for guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.



## Maximum Floor Spans

NI-60

NI-70

NI-80

16"





25°-9"

26'-1"

26'-11"

20-10"

21"-2"

21'-10"

23°-10"

24°-2"

24 11"

22'-9"

23'-1"

21'-6"

21'-10"

225-5"



Christian trans-			Ba	are			1/2" Gyr	sum Ceiling	
		<del> </del>	On Centr	e Spacing				tre Spacing ·	<del></del>
Depth	Series	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	· 16'-4"	15'5"	14'-6"	13'-5"
	NI-20 NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'5"	15'-10"	15'-2"
		17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
9-1/2"	NI-60	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16°-7"	15'-11"
	NI-70	18'-3"	17'-1"	16'-5"	15¹-9"	18'-8"	17'5"	16'-9"	16'-1"
	NI-80 NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-20 NI-40x	191-411	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	•	19'-7"	18'-2"	17'-5"	16 <b>'-</b> 9"	20'-2"	18¹9"	17'-11"	17'-2"
11-7/8"	NI-60	20'-9"	19'-2"	18'-3"	17'-5"	21-4"	19'-9"	18'-10"	17-10"
11-110	NI-70	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	08-1 <i>N</i> x0e-1 <i>N</i>	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19 <sup>t</sup> -7 <sup>n</sup>	18°-7"
•	NI-40x	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20°-10°	19-9"
14"	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24 <sup>r</sup> -0"	22 <del>'</del> -3"	21-2"	20°-0"
	NI-90x	24-1"	22'-3"	21'-2"	20'-0"	24-8"	22:10"	21°-9"	20 <sup>-</sup> -7"
	NI-50X	23°-9"	22'-0"	20°-11"	19-10	24-6"	22'-9"	21"-8"	20'-6"
						f artou	not save		

22'-0"

22'-4"

23'-1"

235-2"

23'-6"

24'-3"

25-1"

25'-6"

	NI-90x	26°-4°	24-3"	23'-1"	21:-10"	Z6-11	74-31"	23'-8"	22'-5"	
	1112011		Mid-Span	Blocking		-Mid-s	Span Blocking ar	nd 1/2" Gyosum	· Ceiling	
				e Spacing		- Mīd-Span Bloding and 1/2" Gypsum Ceiling On Centre Spacing				
Depth	Series	12"	16 <sup>it</sup>	19.2"	24"	12"	16"	19.2"	24 <sup>n</sup>	
		16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"	
	NI-20	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"	
	NI-40x	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"	
9-1/2"	NI-60	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"	
	NI-70 NI-80 NI-20	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"	
		20'-1"	18'-5"	17'-5"	16¹-2¹¹	20'-1"	18'-5"	17 <sup>1</sup> -5"	16'-2"	
	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"		
	NI-40x	22'-1"	20'-7"	19'-7"	18 <sup>r</sup> -4 <sup>n</sup>	22'-8"	20'-10"	19'-8"	18'-4"	
11-7/8"	NI-60	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"	
11-11-	NI-70	23'-7"	21'-11"	20'-11"	19'-9"	24'-1" ·	22'-6"	21'-5"	20'-0"	
	NI-80	24'-3"	22'-6"	21'-6"	201-411	24'-8"	23'-0"	22'-0"	20'-9"	
	NI-90x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"	
	NI-40x	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"	
	NI-60	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"	
14"	NI-70	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"	
	NI-80	. 27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	241-811	23'-4"	
	NI-90x	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"	
	NI-60	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"	
16"	NI-70 '	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27 <b>'-</b> 9"	26'-5"	25'-0"	
10	NI-80	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"	
	NI-90x									

<sup>1.</sup> 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 1. Maximum crear span approach to the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, 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.

a live load denection minico. 4 300 most floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist 2. Spans are based on a composite floor may include 1/3 inch group calling and a composite floor may include 1/3 inch group cal 2. Spans are based on a composite floor may include 1/2 inch gypsum celling and/or one row of blocking at mid-span with strapping. 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. spacing of 24 incres or less. The composite most may inclose a 24 increspond coming almost own or brocking at mid-span with str 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.

<sup>3.</sup> Minimum meaning religion anomals and a system leads for manifest and spacings given in this table, except as required for hangers.

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. 4. Bearing summers are not 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.

<sup>5.</sup> This span chart is pasce on amount less. Tables are based on Limit States Design per CSA 086-09, NBC 2010, and OBC 2012, based on the use of the design properties. Tables are based on Limit States Design per CSA 086-09, NBC 2010, and OBC 2012. based on the use of th 6. Joists snan ue later any support to details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C, guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C,











				are	1/2" Gypsum Ceiling				
Danth	Series		On Centr	e Spacing		On Centre Spacing			
Depth	,	12"	16"	19.2"	24"	12"	<b>1</b> 6"	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 <b>'-</b> 8"	N/A	16'-7"	15'-7"	15'-1"	N/A
0 4 /018	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	<b>15'-9</b> "	15'-3"	N/A
9-1/2"	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15 <b>'-</b> 10"	N/A
	NI-80	17 <sup>i</sup> -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-20 NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-50	181-411	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A.
	.NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18°5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18 <sup>E</sup> -6 <sup>th</sup>	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19-7"	18'-9"	N/A
4411	NI-70	21'-7"	20'-0"	19'-1"	N/A	225-312	20 <sup>1</sup> -7"	19°-8°	N/A
14"	NI-80	21'-11"	20'-3"	19. au	N/A	22-7"	201-111	20'-0"	N/A
	• • • •	22'-7"	20'-11"	19'-11"	N/A.	23 <sup>5</sup> -3 <sup>12</sup>	21'-6"	20'-6"	N/A
	NI-90x NI-60 NI-70 16" NI-80	22'-3"	20'-8"	19'-9"	N/A	23'-1" -	21'-5"	20°-6"	N/A
		23'-6"	21-9"	20°-9°	N/A	24'-3"	22-5"	21'-5"	N/A
<b>16</b> "		23'-11"	22:-1"	21-1"	N/A	24*-8"	22'-10"	215-9"	N/A
•	NI-90x	24°-8"	22'-9"	21-9"	N/A	25*-4"	23'-5"	22°-4"	N/A

Series _		On Centre	- Engelor					Ceiling	
30703	The state of the s				On Centre Spacing				
· • • • • • • • • • • • • • • • • • • •	12"	16"	19.2"	24"	12"	16" ·	19.2"	24"	
#NI_20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A	
		16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A	
		16'-4"	15'-4"	N/A	18'-1"	16'-4"		N/A	
		17'-10"	16'-9"	N/A	19'-7"	17'-10"		N/A	
		18'-0"	17'-1"	N/A	19'-10"	18'-3"		N/A	
		1.7'-0"	3.6 <b>'-</b> 0"	N/A	18'-9"	17'-0"		N/A	
		19'-3"	17'-9"	N/A	21'-3"	19'-3"		N/A	
		19'-8"	18'-5"	N/A	21'-8"	19'-8"		N/A	
		20'-10"	19'-11"	N/A	23'-0"	21'-4"	_	N/A	
		21'-1"	20'-1"	N/A	23'-3"	21'-7"		N/A	
		21'-8"	20'-8"	N/A	231.10"	22'-2"	_	N/A	
		21'-5"	19'-6"	N/A	24'-1"	21'-5"		N/A	
•		22'-3"	21'-0"	N/A	24'-8"	22'-5"		N/A	
		23'-4"	22'-3"	N/A	25'-10"	24'-0"		N/A	
•••		23'-8"	22'-7"	N/A	26¹-2"	24'-4"		N/A	
		24¹-4¹¹	23'-3"	N/A	26'-10"	24'-11"		N/A	
		24'-6"	23'-4"	N/A	27'-2"	24'-10"		N/A	
•		25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
16" NI-80		26'-1"	24'-10"	N/A	28'-10"	26'-9"		N/A	
		26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A	
	NI-20 NI-40x NI-60 NI-70 NI-80 NI-20 NI-40x NI-60 NI-70 NI-80 NI-70 NI-80 NI-70 NI-80 NI-90x NI-60 NI-70 NI-80 NI-90x NI-60 NI-70 NI-80 NI-90x NI-60	NI-40x 17'-9" NI-60 18'-1" NI-70 19'-2" NI-80 19'-5" NI-20 18'-9" NI-40x 21'-0" NI-60 21'-4" NI-70 22'-6" NI-80 22'-9" NI-90x 23'-4" NI-40x 23'-7" NI-60 24'-0" NI-70 25'-3" NI-80 25'-7" NI-90x 26'-4" NI-90x 26'-4" NI-70 27'-9" NI-80 28'-2"	NI-20	NI-20	NI-20	NI-20	NI-20	$\begin{array}{llllllllllllllllllllllllllllllllllll$	

<sup>1.</sup> 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 strange and/or one row of blocking at mid-span with strapping. Spans are based on a 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.

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.

<sup>5.</sup> This span chart is based on uniform posses to appear and one than a monthly distincting based on the use of the design properties. Tables are based on Limit States Design per CSA 086-09, NBC 2010, and OBC 2012.

based on the use of the design properties. Health and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic 1-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.



## Maximum Floor Spans ple Spans, 19480 Deflection Lim







		-	Ba	are			1/2" Gy	psum Ceiling			
Dooth	Series			e Spacing			On Centre Spacing				
Depth		12"	16"	19.2"	24"	12"	16"	19.2"	24"		
<u> </u>	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14-8"	14'-2"	N/A		
	NI-40x	16'-1"	15'-2"	14 <b>'-</b> 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		
9-1/2	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 <u>'</u> -0"	N/A		
	NI-20	16'-11"	16'-0"	15'-S"	N/A	17'-6"	16.6"	16'-0"	N/A		
	NI-40x	18'-1"	17'-0"	16 <b>'-</b> 5"	N/A	18'-9"	17:6"	16'-11''	N/A		
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17 <sup>1</sup> -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 <sup>ii</sup>	17'-6"	N/A	20:-4"	18 <b>'-1</b> 0"	17'-11"	N/A		
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'3"	18*-5"	N/A		
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	10, tr	18 <sup>r</sup> -6 <sup>ir</sup>	N/A		
	NI-60	20'-5"	18'-11"	18'-1"	N/A.	21'-2"	19'7"	18 <sup>-</sup> 9"	N/A		
14"	NI-70	21'-7"	20-0"	19*-1"	n/a	225-311	20'-7"	19 <sup>1</sup> -8"	N/A		
14	NI-80	21-11"	20'-3"	19 <b>:-</b> 4"	N/A	22*-7"	20'-11"=	20'-0"	N/A		
	- NI-90x	22'-7"	20'-11"	19 <sup>1</sup> -11 <sup>n</sup>	N/A.	23'-3"	21:6"	20'-6"	n/a		
	NI-60	22'-3"	20-8"	19'-9"	N/A	23-1"	21.5"	20'-6"	N/A		
	NI-70	23'-6"	21:-9"	20'-9"	N/A	24'-3"	22'5"	21'-5"	N/A		
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				
M	Series .		On Centre	e Spacing		On Centre Spacing				
Depth	54,165	12"	16"	19.2"	24 <sup>11</sup>	12"	16"	19.2"	241	
	NI-20	16'-8"	15'-3"	14'-5"	n/a	16'-8"	15'-3"	14'-5"	N/A	
	NI-40x	17'-11"	. 16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A	
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A	
9-1/2	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	
	NJ-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A	
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A	
NI-60	• • • •	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A	
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A	
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A	
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A	
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A	
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A	
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A	
14	NI-80	251-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A	
•	NI-90x	261-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A	
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A	
	NI-70	27'-9"	25'+8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
16"	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A	
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A	

<sup>1.</sup> 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 1. Maximum crear span approach to simple separate to the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, 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 liveload deflection limit of L/480 and a total load deflection limit of L/240.

a live load detrection limit of 17-50 ship and the live load oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist 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 2. Spans are pased on a 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.

<sup>3.</sup> Minimum pearing rengul shall be 2-1/4 motor for the shall be sh 5. This Spanicated Islands and Based on Limit States Design per CSA 086-09, NBC 2010, and OBC 2012.

based on the use of th 6. JOISTS SHAIL DE TREATMY APPLICATION TO BUILDING TO STAND THE RESEARCH OF THE PROJECT OF THE P

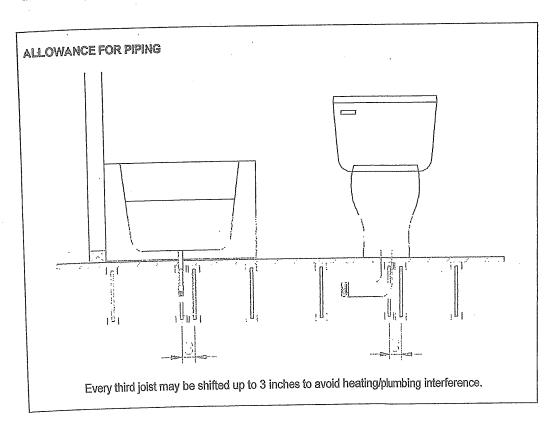


# Allowance for Piping (Installation Notes)

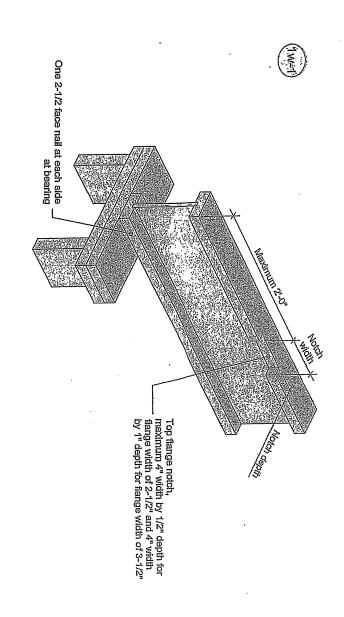
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. 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.

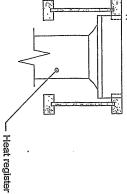
The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.



Revised April 12, 2012



Maximum 1/2" depth for flange width of 2-1/2" and 1" depth for flange width of 3-1/2"



- Blocking required at bearing for lateral support, not shown for clarity.
   The maximum dimensions for a notch on the side of the top fatney e-4/noh width by 1/12-inch depth for ilange width of 2-1/12 inches, and 4-inch width by 1-inch depth for flange width of 3-1/12 inches.
   This detail explices 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 nalls 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 plaifly.

STRUCTURES

T 514-871-8526 1 866 817-3418

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Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

2018-04-10 NUMBER

1 W-1