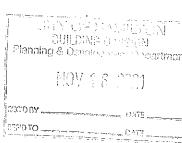


		Products		<u> </u>
PlotID	Length	Product	Plies	Net Qty
J10	16-00-00	9 1/2" NI-40x	1	6
J1	20-00-00	11 7/8" NI-40x	2	4
J2	18-00-00	11 7/8" NI-40x	· 1	10
J3	14-00-00	11 7/8" NI-40x	1	2 .
J4	4-00-00	11 7/8" NI-40x	1	1
J5	22-00-00	11 7/8" NI-80	1	4
J6	20-00-00	11 7/8" NI-80	1	49
B31 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B32	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	,	9
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1 ·	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary								
Qty	Manuf	Product						
2	H1	IUS2.56/11.88						
10	H1	IUS2.56/11.88						
2 .	H1	IUS2.56/11.88						
2	H1	IUS2.56/11.88						
1	H2	HUS1.81/10						
1	_H2	HUS1.81/10						
9	H3	IUS3.56/11.88						
1	H4	HGUS412						





FROM PLAN DATED: FEB. 2021

**BUILDER: GREENPARK HOMES** 

SITE: RUSSELL GARDENS PH. 4

MODEL: SPRINGFIELD 2

**ELEVATION: 1** 

LOT: 562

CITY: WATERDOWN

SALESMAN: RICK DICIANO

DESIGNER: AJ REVISION: CH

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND

INSTALLATION.

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

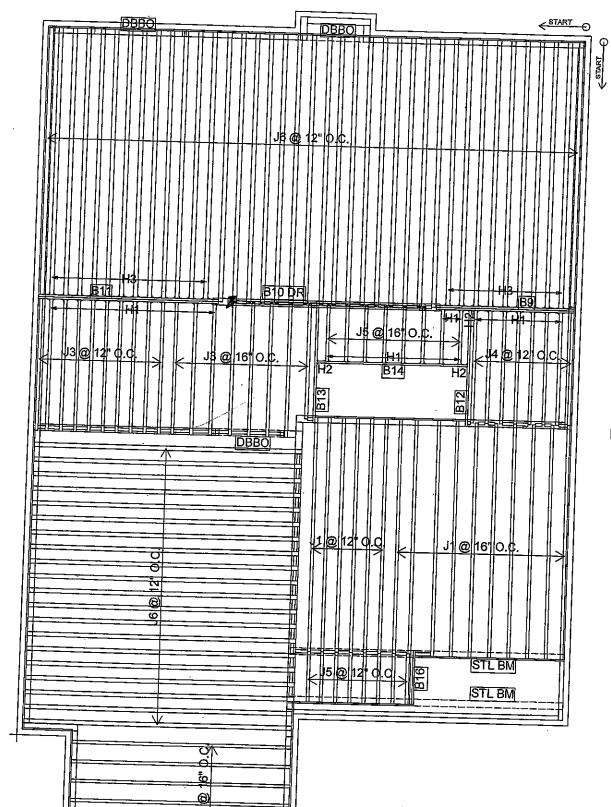
#### LOADING:

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

SUBFLOOR: 3/4" GLUED AND NAILED

**DATE: 8/16/21** 

1st FLOOR FRAMING



		Products		
PlotID	Length	Product	Plies	Not Ot .
J1	18-00-00	11 7/8" NI-40x	- Tiles	Net Qty
J2	16-00-00	11 7/8" NI-40x	Ţ	16
J3	10-00-00	11 7/8" NI-40x	1	5
J4	8-00-00	11 7/8" NI-40x	1	18
J5	4-00-00	11 7/8" NI-40x	1	8
J6	20-00-00		1	16
B11		11 7/8" NI-80	1	59
	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2.	2
B10 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	4-00-00	1-3/4" v 11 7/9" / CDOA LANG CO 3100 SP	2	2
		1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

	Connector Summary							
Qty	Manuf	Product						
8	H1	IUS2.56/11.88						
21	H1	IUS2.56/11.88						
2	H2	HUS1.81/10						
1	H2	HUS1.81/10						
21	H3	IUS3.56/11.88						



FROM PLAN DATED: FEB. 2021

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH. 4

MODEL: SPRINGFIELD 2

**ELEVATION: 1** 

LOT: 562

CITY: WATERDOWN

SALESMAN: RICK DICIANO

**DESIGNER:** AJ REVISION: CH

#### NOTES:

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND

INSTALLATION.

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

#### LOADING:

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

SUBFLOOR: 5/8" GLUED AND NAILED

**DATE:** 8/16/21

2ND FLOOR FRAMING

# NORDIC

INSTALLATION GUIDE NORDIC JOIST NS-GI33 **I**◆I

**Engineered Wood Products** 

**BASIC INSTALLATION GUIDE FOR** RESIDENTIAL **FLOORS** 

JOIST

NORDIC

NAIL SPACING

nordic.ca

I-1/2 x 2-5/16 Minimum width

- Except for cutting to length, Holst flanges should never be cut, drilled on
- Install Holsts so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- Concentrated loads should only be applied to the top surface of the top flance. Concentrated loads bottom flange with the exception of light loads, such as ceiling fans or light fixtures.
- Hoists must not be used in applications where they will be permanently exposed to weather, or will reach a moisture content of
- Ends of floor joists shall be restrained to prevent rollover. Use rim board or Hoist blocking panels.
- L-joists installed beneath bearing walls perpendicular to the joists shall have full-depth blocking panels, rim board, or squash blocks (cripple blocks) to transfer gravity loads from above the floor system to the wall or foundation below
- using a single I-joist is 3,300 ptf, and 6,600 ptf if doubte I-joists are used.
- support of the top flange is normally supplied by the floor sheathing. In multiple-span or cantilever applications, bracing of the Hoist's pottom flange is also required at interior supports of multiple-span joists, and at the end support next to the cantilever extension. The ends of all cantilever extensions must be laterally braced as shown in details 3, 4, or 5,
- 2. Nails installed in flange face or edge shall be apaced in accordance
- with the applicable building code requirements or approved building plans, but should not be closer than those specified on page 3,3 of
- 3. Details 1 show only Hoist-specific fastener requirements. For other fastener requirements, see the epplicable building code.
- For proper temporary bracing of wood I-joists and placement of temporary construction loads, see AFA Technical Note: Temporary Construction Loads over I-Joist Roofs and Floors,

All nails shown in the details are assumed to be common nails urless otherwise noted. Nails shall have a dismeter not less than 0.128 into the 2-1/2-hort neils, or 0.144 then for 3-hoch nails, individual components not shown to scale for clarity.



Depths 9-1/2, 11-7/8 and 14 in. 33 pieces per unit





AFETY AND CONSTRUCTION PRECAUTIONS

Avoid Accidents by Following these important Guidelines

of I-joists at the end of the bay.

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

. Brace and neil 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

. When the building is completed, the floor sheathing will provide lateral support for the top

flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling. Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feel on centre, and must be secured with a minimum of two 2-1/2-inch nalls fastened to the top surface of each 1-joist. Nall 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

For cantilevered I-joists, brace top and bottom flanges, and brace ands with closure panels

install and fully nail permanent sheathing to each i-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.

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

0 B-1N

#### Depths 9-1/2 to 16 in. APA Rim Board Plus

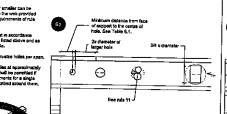
RIM BOARDS

Width Lengt 1-1/8 in. 16 ft

#### WEB HOLES AND OPENINGS

#### WEB HOLES IN I-JOISTS

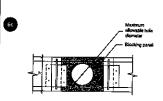
Never stack building materials over unsheathed t-joists. Once sheathed, do no overstreas t-joist with concentrated loads from building materials



#### DUCT CHASE OPENINGS

- The distance between the inside edge of the support and the controlline of a duct cheep opening shall be in compliance with the requirements of Table 6

HOLES IN BLOCKING PANELS

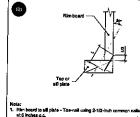


f-joint or rim board blocking depth (in.)	Maximum allowable hole diameter (n.) <sup>(a)</sup>
9-1/2	5-1A
11-7·5	7-3/4
14	9-1/4
16	10-177

# TABLE 6.1 - LOCATION OF WEB HOLES TABLE 8.2 - LOCATION OF OUCT CHASE OPENINGS

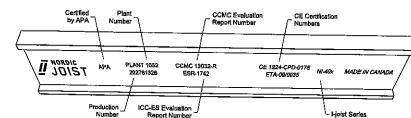
Bit

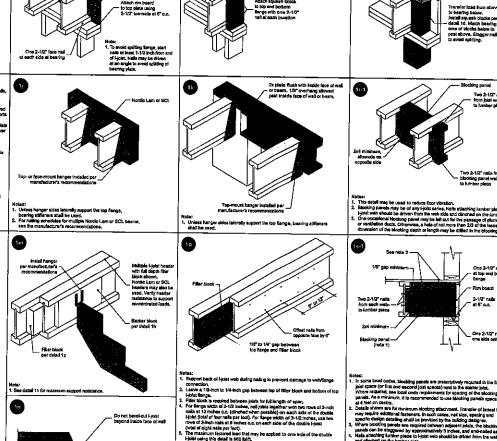


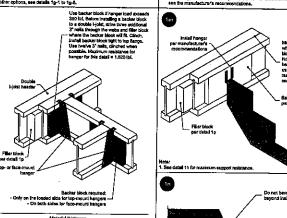












lange width (cr.) Net depth (in.) Filler block size (in.) 2x5 + 5/5" or 84" she 2-18 to 2-14 x 5 2-16 to 2-14 x 8 2x8 + 68" or 34" pho 2-1/6 to 2-1/4 x 10 2x10 + 5/6" or 3/4" sh

FOR ALL

construction details





PASSED

March 17, 2021 09:56:22

#### 2ND FLR FRAMING\Dropped Beams\B10 DR(i629) (Dropped Beam)

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Address: City, Province, Postal Code:

Customer:

Code reports:

Dry | 1 span | No cant.

File name:

SPRINGFIELD 2 EL 2.mmdl

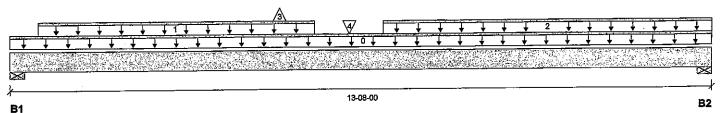
Wind

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i629)

Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 13-08-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 4"	3576 / 0	1932 / 0
B2. 4"	3460 / 0	1874 / 0

CCMC 12472-R

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	•	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-08-00	Тор		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	05-10-08	Тор	603	301			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	07-02-08	13-08-00	Top	481	241			n\a
3	J3(i734)	Conc. Pt. (lbs)	L	05-02-08	05-02-08	Top	0				n\a
4	• • • • • • • • • • • • • • • • • • •	Conc. Pt. (lbs)	L	06-06-11	06-06-11	Тор	714	398			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	24709 ft-lbs	55211 ft-lbs	44.8%	1	06-06-14
End Shear	7062 lbs	21696 lbs	32.5%	1	01 <b>-</b> 03-14
TotalLoad Deflection	L/432_(0.365")	n\a	55.6%	4	06-09-13
Live Load Deflection	L/667 (0.236")	n\a	54.0%	5	06-09-13
Max Defl.	0.365"	n\a	n\a	4	06-09-13
Span / Depth	13.3				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 5-1/4"	7779 lbs	27.8%	30.4%	Spruce-Pine-Fir
B2	Wall/Plate	4" x 5-1/4"	7532 lbs	26.9%	29.4%	Spruce-Pine-Fir

#### **Notes**

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

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

CONFORMS TO OBC 2012

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

AMENDED 2020

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

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

Calculations assume unbraced length of Top: 00-10-04, Bottom: 13-08-00.



STRUCTURAL COMPONENT





# Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B10 DR(i629) (Dropped Beam)

**PASSED** 

March 17, 2021 09:56:22

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

Dry | 1 span | No cant.

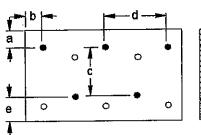
File name: SPRINGFIELD 2 EL 2.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i629)

Specifier: Designer:

Company:

Connection Diagram: Full Length of Member





CCMC 12472-R

4 pows

a minimum = **#**" b minimum = 3" c = **6**-7/8" c/ d = **2** 6 e minimum = **3**".

Nailing applies to both sides of the member Connectors are: , Nail

31/2" ARDO'X SPIRAL

S. KATSOULOKOS

S. KATSOULOKOS

SOUNCE OF ON PERE

STRUCTURAL COMPONENT ONLY

**Disclosure** 

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





#### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12(i1151) (Flush Beam)

PASSED

March 17, 2021 09:56:22

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Address: City, Province, Postal Code:

Customer: Code reports: Dry | 1 span | No cant.

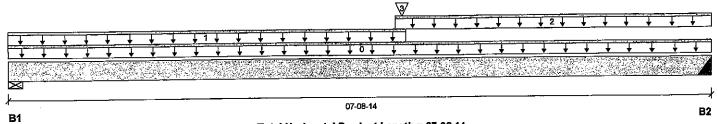
SPRINGFIELD 2 EL 2.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B12(i1151)

Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 07-08-14

Reaction Summary (Down / Uplift) (lbs)

Snow Dead Live Bearing 521/0 B1, 2-3/4" 966 / 0 351/0 B2, 2" 621 / 0

CCMC 12472-R

100	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-08-14	Тор		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-04-02	Тор	240	120			n\a
2	FC3 Floor Decking (Plan	Unf. Lin. (lb/ft)	L	04-02-12	07-08-14	Тор	53	27			n\a
	View Fill)				04.00.40	<b></b>	0.45	004	فاند	A Print Print Police	n\a
3	B14(i633)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	ГОР	345	204		ofess/	المرازي المرازي

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3875 ft-lbs	17696 ft-lbs	21.9%	1	04-00-08
End Shear	1463 lbs	7232 lbs	20.2%	11	01-02-10
Total Load Deflection	L/999 (0.053")	n\a	n\a	4	03-10-04
Live Load Deflection	L/999 (0.034")	n\a	n\a	5	03-10-04
Max Defl.	0.053"	n\a	n\a	4	03-10-04
Span / Depth	7.5				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/4" x 1-3/4"	2100 lbs	70.9%	35.8%	Spruce-Pine-Fir
B2	Hanger	2" x 1-3/4"	1370 lbs	n\a	32.1%	HUS1.81/10

#### **Cautions**

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

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

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for expert to assure its adequacy, prior to adequate capacity.

#### Notes

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

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

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

AMENDED 2020 Resistance Factor phi has been applied to all presented results per CSA 086. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

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

OVINCE OF ON COMPONENT

#### Disclosure

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





PASSED

Tributary

00-00-00

n\a

n\a

March 17, 2021 09:56:22

2ND FLR FRAMING\Flush Beams\B13(i632) (Flush Beam)

**BC CALC® Member Report** 

Build 7773 Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

Dry | 1 span | No cant.

SPRINGFIELD 2 EL 2.mmdi

Wind

File name: Description:

2ND FLR FRAMING\Flush Beams\B13(i632)

Dead

0.65

6 2

27

205

Snow

1.00

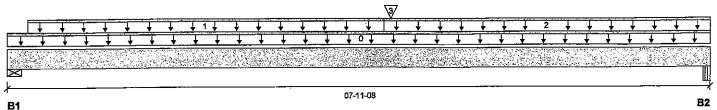
Wind

1.15

Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 07-11-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 2-3/4"	212 / 0	145 / 0
B2, 2-5/8"	345 / 0	214/0

CCMC 12472-R

Loa	d Summary						Live	
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-11-08	Top		
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-12	04-02-12	Тор	3	
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-02-12	07-11-08	Тор	53	:
3	B14(i633)	Conc. Pt. (ibs)	L	04-03-10	04-03-10	Тор	347	:

Controls Summary	Factored Demand	Factored Resistance	Demand <i>i</i> Resistance	Case	Location
Pos. Moment	1942 ft-lbs	17696 ft-lbs	11.0%	1-	04-03-10
End Shear	639 lbs	7232 lbs	8.8%	1	06-09-00
Total Load Deflection	L/999 (0.025")	n\a	n\a	4	04-01-10
Live Load Deflection	L/999 (0.015")	n\a	n\a	5	04-01-10
Max Defl.	0.025"	n\a	n\a	4	04-01-10
Span / Depth	7.7				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/4" x 1-3/4"	499 lbs	16.9%	8.5%	Spruce-Pine-Fir
B2	Beam	2-5/8" x 1-3/4"	785 lbs	14.0%	14.0%	VL 2.0 3100 SP

#### **Notes**

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

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

CONFORMS TO OBC 2012

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

ONINCE OF 0.7km95 COMPONENT ONLY

#### Disclosure

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





PASSED

March 17, 2021 09:56:22

2ND FLR FRAMING\Flush Beams\B14(i633) (Flush Beam)

BC CALC® Member Report

**Build 7773** 

Job name:

Address: City, Province, Postal Code:

Customer: Code reports: Dry | 1 span | No cant.

SPRINGFIELD 2 EL 2.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B14(i633)

Specifier:

Designer:

Company:

		<del>                                      </del>
<u>(militaring Palipabellas (1975 yilitarin 1974 bila Peritabe</u>		
	10-05-04	

Total Horizontal Product Length = 10-05-04

Reaction Summary (Down / Uplift) (lbs)

11cachon ou				
Bearing	Live	Dead	Snow	Wind
B1, 2"	347 / 0	205 / 0		
B2. 2"	345 / 0	204 / 0		

CCMC 12472-R

Los	Load Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-04	Top		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-12	09-10-12	Тор	74	37			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2190 ft-lbs	17696 ft-lbs	12.4%	1	05-02-12
End Shear	767 lbs	7232 lbs	10.6%	1	01-01-14
Total Load Deflection	L/999 (0.059")	n\a	n\a	4	05-02-12
Live Load Deflection	L/999 (0.037")	n\a	n\a	5	05-02-12
Max Defl.	0.059"	n\a	n\a	4	05-02-12
Span / Depth	10.3				

Bearing	y Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	<u>Material</u>
B1	Hanger	2" x 1-3/4"	776 ibs	n\a	18.2%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	773 lbs	n\a	18.1%	HUS1.81/10

#### **Cautions**

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

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

#### **Notes**

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

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

CONFORMS TO OBC 2012

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

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

Design based on Dry Service Condition.

Hanger Manufacturer: Unassigned

Importance Factor: Normal Part code: Part 9

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

ONINCE OF COMPONENT ONLY

#### **Disclosure**

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





PASSED

#### 2ND FLR FRAMING\Flush Beams\B16(i639) (Flush Beam)

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

March 17, 2021 09:56:22

**Build 7773** 

Job name:

Address:

Customer: Code reports:

City, Province, Postal Code:

CCMC 12472-R

File name:

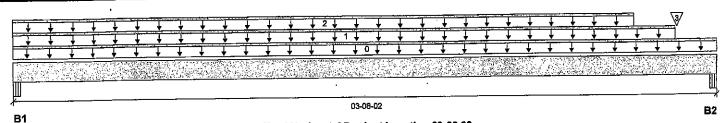
SPRINGFIELD 2 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16(i639)

Wind

Specifier: Designer:

Company:



Total Horizontal Product Length = 03-08-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1. 4-1/8"	32 / 0	233 / 0	82 / 0
B2, 5-1/4"	30 / 0	231 / 0	88 / 0

	ad Cummant						Live	Dead	Snow	Wind	Tributary
LO∂ Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-02	Тор		12			00-00-00
1	FC3 Floor Decking (Plan	Unf. Lin. (lb/ft)	L	00-00-00	03-05-08	Top	18	9			n\a
2	View Fill) E27(i1113)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-14	•		109	46		n\a
3	E28(i1112)	Conc. Pt. (lbs)	L	03-05-10	03-05-10	Тор		3 <del>6</del>	21		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	207 ft-lbs	23005 ft-lbs	0.9%	0	01-09-08
End Shear	83 lbs	9401 lbs	0.9%	0	01-04-00
Total Load Deflection	L/999 (0")	n\a	n\a	35	01-09-08
Live Load Deflection	L/999 (0")	n\a	n\a	51	01-09-08
Max Defi.	0"	n\a	n\a	35	01-09-08
Span / Depth	3.1				

Reari	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	4-1/8" x 3-1/2"	326 lbs	6.5%	2.8%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	324 lbs	5.1%	2.2%	Unspecified

#### Notes

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

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

CONFORMS TO OBC 2012

Resistance Factor phi has been applied to all presented results per CSA 086. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and USA 555. 2020

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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 02-10-12.







**PASSED** 

March 17, 2021 09:56:22

2ND FLR FRAMING\Flush Beams\B16(i639) (Flush Beam)

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Address: City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

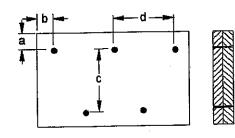
File name: SPRINGFIELD 2 EL 2.mmdl

2ND FLR FRAMING\Flush Beams\B16(i639) Description:

Specifier: Designer:

Company:

**Connection Diagram: Full Length of Member** 



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

Connectors are:

Nails

ARDOX SPIRAL

OVINCE OF ON

OTE NO. TAM 9548-21 COMPONENT ONLY

#### **Disclosure**

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





PASSED

1ST FLR FRAMING\Flush Beams\B1(i1238) (Flush Beam)

Dry | 1 span | No cant.

March 17, 2021 09:56:22

**BC CALC® Member Report Build 7773** 

Job name:

Address:

City, Province, Postal Code:

Code reports:

Customer:

File name:

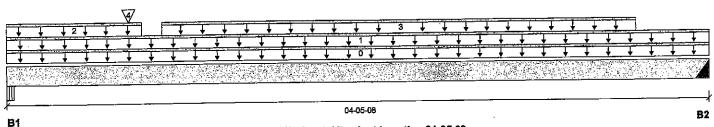
SPRINGFIELD 2 EL 2.mmdl

1ST FLR FRAMING\Flush Beams\B1(i1238) Description:

Wind

Specifier: Designer:

Company:



#### Total Horizontal Product Length = 04-05-08

Snow

Reaction Summary (Down / Uplift) (Ibs)

Dead Bearing Live 2043 / 0 3673 / 0 B1, 10-7/8" 295 / 0 568 / 0 B2, 2"

CCMC 12472-R

1.0	ad Summary						Live	Dead
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Тор		6
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Тор	19	10
2	4(i627)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-04	•		81
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-12	03-11-12	Тор	373	186
4	4(i627)	Conc. Pt. (lbs)	L	00-09-04	00-09-04	Тор	3018	1631

Controls Summar	V Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1368 ft-lbs	17696 ft-lbs	7.7%	11	02-05-12
End Shear	1020 lbs	7232 lbs	14.1%	1	03-03-10
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	02-07-00
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	02-07-00
Max Defi.	0.004"	n\a	n\a	4	02-07-00
Span / Depth	3.5				

Beari	ng Supports	Dîm. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	10-7/8" x 1-3/4"	8064 lbs	79.3%	34.7%	Unspecified
B2	Hanger	2" x 1-3/4"	1221 lbs	n\a	28.6%	HÚS1.81/10

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

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

#### Notes

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

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

CONFORMS TO 080 2012

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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



Wind

1.15

Snow 1.00

**Tributary** 

00-00-00 n\a

COMPONENT

#### **Disclosure**

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**PASSED** 

March 17, 2021 09:56:22

#### 1ST FLR FRAMING\Flush Beams\B2(i1169) (Flush Beam)

**BC CALC® Member Report** 

Build 7773

Job name:

City, Province, Postal Code:

Customer: Code reports:

Address:

CCMC 12472-R

Dry | 2 spans | L cant.

File name:

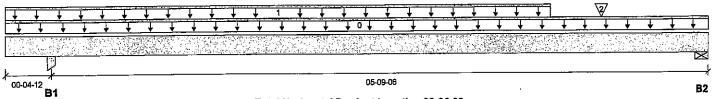
Wind

SPRINGFIELD 2 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i1169)

Specifier: Designer:

Company:



#### Total Horizontal Product Length = 06-02-02

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	1280 / 0	659 / 0
B2 2-3/8"	954 / 0	495 / 0

	ad Summary  Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65_	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-02-02	Тор		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Тор	383	191			n\a
2	J7(i530)	Conc. Pt. (lbs)	L	05-02-12	05-02-12	Тор	379	190			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3232 ft-lbs	17696 ft-lbs	18.3%	1	03-03-04
End Shear	1834 lbs	7232 lbs	25,4%	1	04-11-14
Cont. Shear	1736 lbs	7232 lbs	24.0%	1	01-06-06
Total Load Deflection	L/999 (0.026")	n\a	n\a	8	03-02-08
Live Load Deflection	<b>∟/999 (0.017")</b>	n\a	n\a	11	03-02-08
-Total Neg. Defl.	2xL/1998-(-0.006")-	—n\a	n\a	10	00-00-00
Max Defl.	0.026"	n\a	n\a	8	03-02-08
Snan / Denth	5.7				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	2744 lbs	55.2%	36.7%	Unspecified
B2	Wall/Plate	2-3/8" x 1-3/4"	2050 lbs	80.2%	40.4%	Spruce-Pine-Fir

#### **Notes**

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

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

CONFORMS TO DBC 2012

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

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



COMPONENT ONLY

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CCMC 12472-R

# Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B3(i1232) (Flush Beam)

PASSED

March 17, 2021 09:56:22

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Address: City, Province, Postal Code:

Customer: Code reports: Dry | 1 span | No cant.

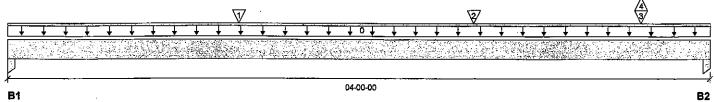
File name: SPRINGFIELD 2 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i1232)

Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

I TOMOLION GEN		r, (,			
Bearing	Live	Dead	Snow	Wind	 
B1, 3-1/2"	431 / 0	228 / 0			
B2, 1-3/4"	844/2	435 / 0			

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	Ĺ	00-00-00	04-00-00	Тор		6			00-00-00
1	J3(i547)	Conc. Pt. (lbs)	L	01-03-10	01-03-10	Top	375	188			n\a
2	J3(i1237)	Conc. Pt. (lbs)	L	02-07-10	02-07-10	Тор	337	168			n\a
3	B1(i1238)	Conc. Pt. (lbs)	L	03-07-04	03-07-04	Тор	561	282			n\a
4	B1(i1238)	Conc. Pt. (lbs)	L	03-07-04	03-07-04	Тор	-2			66/0	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1150 ft-lbs	17696 ft-lbs	6.5%	1	02-07-10
End Shear	921 lbs	7232 lbs	12.7%	1	01-03-06
Total Load Deflection	L/999_(0.004")	n\a	n\a	6	02=01=02
Live Load Deflection	L/999 (0.003")	n\a	n\a	8	02-01-02
Max Defl.	0.004"	n\a	n\a	6	02-01-02
Span / Depth	3.7				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	931 lbs	18.7%	12.5%	Unspecified
B2	Column	1-3/4" x 1-3/4"	1809 lbs	72.7%	48.4%	Unspecified

#### Notes

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

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

COMPORMS TO OBC 2012

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

S. KATSOULAKOS S
STRUCTURAL
COMPONENT ONLY

#### Disclosure

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





PASSED

1ST FLR FRAMING\Flush Beams\B4(i476) (Flush Beam)

**BC CALC® Member Report** 

City, Province, Postal Code:

**Build 7773** Job name: Address:

Dry | 1 span | No cant.

March 17, 2021 09:56:22

File name:

SPRINGFIELD 2 EL 2.mmdl

Wind

Description: 1ST FLR FRAMING\Flush Beams\B4(i476)

Specifier:

Designer:

Customer: Code reports:

CCMC 12472-R

Company:

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									13	-11-0	4												

#### Total Horizontal Product Length = 13-11-04

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Live **Bearing** 133 / 0 182 / 0 B1, 2" 132 / 0 B2, 1-3/4" 181 / 0

	ad Summary  Description	Load Type	Ref.	Start	End	Loc.	Liv <del>e</del> 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-11-04	Тор		6			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	13-11-04	Тор	26	13			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1486 ft-lbs	17696 ft-lbs	8.4%	1	06-11-12
End Shear	366 lbs	7232 lbs	5.1%	1	01-01-14
Total Load Deflection	L/999 (0.074")	n\a	n\a	4	06-11-12
Live Load Deflection	L/999 (0.043")	n\a	n\a	5	06-11-12
Max Defl.	0.074"	n\a	n\a	4	06-11-12
Span / Depth	13.9				

Bear	ing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	439 lbs	n\a	10.3%	HUS1.81/10
B2	Column	1-3/4" x 1-3/4"	437 lbs	17.6%	11.7%	Unspecified

# POUNCE OF COMPONENT

#### **Cautions**

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

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

#### Notes

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

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

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 13-11-04.

#### **Disclosure**

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PASSED

#### 1ST FLR FRAMING\Flush Beams\B5(i1212) (Flush Beam)

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

CCMC 12472-R

March 17, 2021 09:56:22

**Build 7773** 

Job name: Address:

City, Province, Postal Code:

Customer: Code reports:

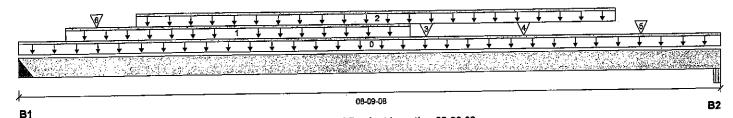
SPRINGFIELD 2 EL 2.mmdl

File name: Description: 1ST FLR FRAMING\Flush Beams\B5(i1212)

Wind

Specifier: Designer:

Company:



Total Horizontal Product Length = 08-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing 2402 / 0 1270 / 0 B1, 4" 1276 / 0 2402 / 0 B2, 3-1/8"

1	ad Commons	·					Live	Dead	Snow	Wind	Tributary
LO: Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
Λ	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-09-08	Тор		12			00-00-00
4	User Load	Unf. Lin. (lb/ft)	L	00-07-00	04-10-08	Top	240	120			n\a
1		Unf. Lin. (lb/ft)	ī	01-05-10	07-05-10	Top	358	179			n\a
2	Smoothed Load		ī	05-00-14	05-00-14	•	181	132			n\a
3	B4(i476)	Conc. Pt. (lbs)	-		06-03-10		371	186			n\a
4	J3(i547)	Conc. Pt. (lbs)	Ŀ	06-03-10		•					n\a
5	_	Conc. Pt. (lbs)	Ĺ	07-09-09	07-09-09	Тор	657	328			
6	12(1542)	Conc. Pt. (lbs)	L	00-11-10	00-11-10	Тор	395	197			n\a

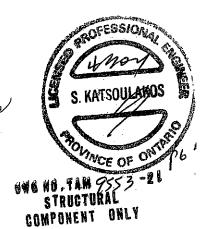
Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	11402_ft-lbs	35392 ft-lbs	32.2%	1	04=05=0:1
End Shear	4870 lbs	14464 lbs	33.7%	1 .	01-03-14
Total Load Deflection	L/999 (0.103")	n\a	n\a	4	04-05-01
Live Load Deflection	L/999 (0.067")	n\a	n\a	5	04-05-01
Max Defl.	0.103"	n\a	n\a	4	04-05-01
Span / Depth	8.4				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	5190 lbs	n\a	30.4%	HGUS412
B2	Beam	3-1/8" x 3-1/2"	5198 lbs	89.0%	39.0%	Unspecified

**Cautions** 

Header for the hanger HGUS412 is a Triple 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.







PASSED

#### 1ST FLR FRAMING\Flush Beams\B5(i1212) (Flush Beam)

Dry | 1 span | No cant.

March 17, 2021 09:56:22

**Build 7773** 

Job name:

Address:

BC CALC® Member Report

Customer: Code reports:

City, Province, Postal Code:

CCMC 12472-R

File name:

SPRINGFIELD 2 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(i1212)

Specifier: Designer:

Company:

**Notes** 

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

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

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

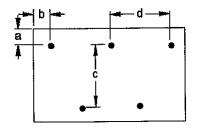
AMENDED 2020

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

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

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

#### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8"  $d = \bigotimes \mathcal{B}_{i,i}$ 

Calculated Side Load = 766.5 lb/ft

Connectors are: 16d

ARDOX SPIRAL

COMPONENT ONLY

#### Disclosure

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





CCMC 12472-R

#### Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B6(i1218) (Flush Beam)

**PASSED** 

March 17, 2021 09:56:22

**BC CALC® Member Report** 

**Build 7773** Job name:

Address:

City, Province, Postal Code: Customer:

Code reports:

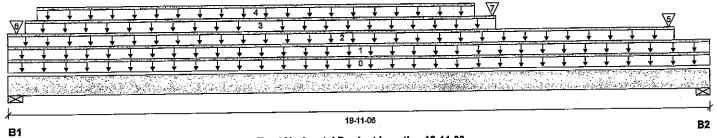
Dry | 1 span | No cant.

File name:

SPRINGFIELD 2 EL 2.mmdl Description: 1ST FLR FRAMING\Flush Beams\B6(i1218)

Specifier:

Designer: Company:



#### Total Horizontal Product Length = 18-11-06

Reaction Summary (Down / Uplift) (lbs)

Wind Snow <u>LÌve</u> 2325 / 0 2073 / 0 B1, 3-1/2" 2542 / 0 3848 / 0 B2, 4-3/8"

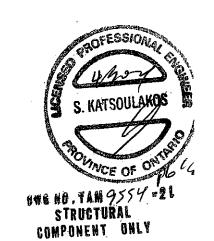
ا م	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Тор		18			00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Тор	19	10			n\a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	17-11-08	Тор	24	12			n\a
3	5(i634)	Unf. Lin. (lb/ft)	L	00-05-08	13-01-08	Top		81			n∖a
4	5(i634)	Unf. Lin. (lb/ft)	Ĺ	00-09-04	12-06-12	Тор	182	91			n\a
5	B5(i1212)	Conc. Pt. (lbs)	Ē	17-09-12	17-09-12	Тор	2331	1233			n\a
6	—E24(i1107)————	—Conc. Pt. (lbs)		00-02-12-	-00-02-12-	-	127	<del>13</del> 6			n\a
—u. 7	5/i634\	Conc. Pt. (lbs)	Ĺ	13-00-08	13-00-08	Тор	60 <del>9</del>	331			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	27876 ft-lbs	55211 ft-lbs	50.5%	1	09-05-04
End Shear	7745 lbs	21696 lbs	35.7%	1	17-07-02
Total Load Deflection	L/263 (0.84")	n\a	91.2%	4	09-05-04
Live Load Deflection	L/481 (0.46")	n\a	74.9%	5	09-05-04
Max Defl.	0.84"	n\a	n\a	4	09-05-04
Span / Depth	18.6				

Bearir	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 5-1/4"	6079 lbs	53.8%	27.1%	Spruce-Pine-Fir
B2	Wall/Plate	4-3/8" x 5-1/4"	8950 lbs	63.3%	31.9%	Spruce-Pine-Fir

#### **Cautions**

Concentrated side load(s) 17 are closer than 18" from end of member. Please consult a technical Ole representative or Professional of Record.







**PASSED** 

1ST FLR FRAMING\Flush Beams\B6(i1218) (Flush Beam)

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

March 17, 2021 09:56:22

**Build 7773** 

Job name: Address:

City, Province, Postal Code:

Customer: Code reports:

CCMC 12472-R

File name:

SPRINGFIELD 2 EL 2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(i1218)

Specifier:

Designer:

Company:

#### **Notes**

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

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

CONFORMS TO OBC 2012

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

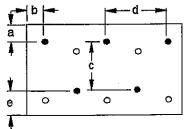
AMENDED 2020

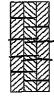
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 17-04-08.

#### Connection Diagram: Full Length of Member





a minimum = &" b minimum = 3"

c =8-7/8" d= 2 8 e minimum = 3".

Nailing applies to both sides of the member ∷⊤Nails

Connectors are: .

ARDOX SPIRAL

ONNOE OF OF COMPONENT ONLY

#### **Disclosure**

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





PASSED

March 17, 2021 09:56:22

#### 1ST FLR FRAMING\Flush Beams\B7(i516) (Flush Beam)

**BC CALC® Member Report** 

**Build 7773** 

Job name: Address:

City, Province, Postal Code:

Customer: Code reports: Dry | 1 span | No cant.

SPRINGFIELD 2 EL 2.mmdl File name:

Description: 1ST FLR FRAMING\Flush Beams\B7(i516)

Specifier:

Designer: Company:

CCMC 12472-R

27																																												
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																						18-11	-06	l																				
1																																												

#### Total Horizontal Product Length = 18-11-06

Posetion Summany / Down / Unlift) /lhe\

Reaction Suit	initaly (Down / C	hiiri (ins)	•		•
Bearing	Live	Dead	Snow	Wind	
B1, 3-1/2"	219/0	191 / 0			<u>-</u>
B2, 2-3/8"	189 / 0	151 / 0			

Loa	ad Summary						Live	Dead	Snow	Wind T	ributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
O	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Тор		6		0	0-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	18-11-06	Тор	20	10			n\a
2	E24(i1107)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	29	38			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2159 ft-lbs	17696 ft-lbs	12.2%	1	09-06-04
End Shear	412 lbs	7232 lbs	5.7%	1	01-03-06
Total Load Deflection	L/1127 (0.198")	n\a	21.3%	4	09-06-04
Live Load Deflection	L/999 (0.11")	n\a_	n\a	5	09-06-04
Max Defl.	0.198"	n\a	n\a	4	09-06-04
Span / Depth	18.8				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	<u>Material</u>
B1	Wall/Plate	3-1/2" x 1-3/4"	567 ibs	15.1%	7.6%	Spruce-Pine-Fir
B2	Wall/Plate	. 2-3/8" x 1-3/4"	472 lbs	18.4%	9.3%	Spruce-Pine-Fir

#### **Notes**

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

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

CONFORMS TO OBC 2012

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

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

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 18-05-08.

TO VINCE OF 046 NO TAMPSS =21 STRUCTURAL COMPONENT ONLY

Disclosure

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





City, Province, Postal Code: HAMILTON

#### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12A(i1491) (Flush Beam)

**PASSED** 

**BC CALC® Member Report** 

**Build 7773** 

Job name: Address:

Dry | 1 span | No cant.

March 17, 2021 10:26:15

File name:

SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl Description: 2ND FLR FRAMING\Flush Beams\B12A(i1491)

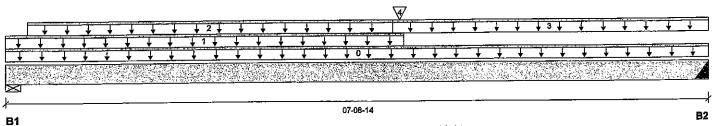
Specifier:

Designer: ΑJ

Customer: Code reports:

CCMC 12472-R

Company:



#### Total Horizontal Product Length = 07-08-14

Reaction Summary (Down / Uplift) (lbs)

Dead Bearing Live 1047 / 0 B1, 2-3/4" 563 / 0 356 / 0 624 / 0 B2, 2"

Los	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-08-14	Тор		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-04-02	Тор	240	120			n\a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-12	04-02-12	Тор	23	11			n\a
3	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	04-02-12	07-08-14	Тор	27	13			n\a
4	B14A(i1457)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Top	444	259			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4244 ft-lbs	17696 ft-lbs	24.0%	1	04-00-08
End Shear	1595 lbs	7232 lbs	22.1%	1	01-02-10
Total Load Deflection	L/999 (0.058")	n\a	n\a	4	03-10-04
Live Load Deflection	L/999 (0.037")	n\a	n\a	5	03-10-04
Max Defi.	0.058"	n/a	n\a	4	03-10-04
Snan / Depth	7.5				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wali/Plate	2-3/4" x 1-3/4"	2274 lbs	76.8%	38.7%	Spruce-Pine-Fir
B2	Hanger	2" x 1-3/4"	1381 lbs	n\a	32.3%	HUS1.81/10

**Cautions** 

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

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



-21 COMPONENT ONLY





#### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12A(i1491) (Flush Beam)

PASSED

March 17, 2021 10:26:15

**BC CALC® Member Report** 

**Build 7773** Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer: CCMC 12472-R Code reports:

Dry | 1 span | No cant.

File name:

SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl Description: 2ND FLR FRAMING\Flush Beams\B12A(i1491)

Specifier:

Designer:

Company:

**Notes** 

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

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

CONFORMS TO DBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

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

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



846 NO. TAM *9556* =21 STRUCTURAL COMPONENT ONLY

Disclosure

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#### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B13A(i1534) (Flush Beam)

PASSED

March 17, 2021 10:26:15

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Customer: Code reports:

**B1** 

Load Summary

Self-Weight

Live Load Deflection

FC3 Floor Decking (Plan

Tag Description

Address: City, Province, Postal Code: HAMILTON

CCMC 12472-R

Load Type

Unf. Lin. (lb/ft)

Unf. Lin. (lb/ft)

Dry | 1 span | No cant.

File name: Description:

SPRINGFIELD 2 EL 2 HIGH CEILING.mmdi 2ND FLR FRAMING\Flush Beams\B13A(i1534)

Specifier:

Designer: ΑJ

Wind

Loc.

Top

CONFORMS TO OBC 2012

Live

1.00

3

04-01-10

Dead

0.65

6

2

Company:

End

07-11-08

04-02-12 Top

07-11-08 B2

Total Horizontal Product Length = 07-11-08

Start

00-00-00

00-02-12

n\a

n\a

Reaction Summary (Down / Uplift) (lbs)

Live 161 / 0 240/0 B1, 2-3/4" 233 / 0 378 / 0 B2, 2-5/8"

View Fill) 2 FC3 Floor Decking (Plan Unf. Lin. (lb/ft) L 04-02-12 07-11-08 Top		53					
3	View Fill) B14A(i1457)	Conc. Pt. (lbs)	L	04-03-10	04-03-10	Тор	407
Co	ontrols Summary	Factored Demand	Factored Resistance	Dema Resis	and/ stance	Case	Location_
	s. Moment	2195 ft-lbs	17696 ft-lbs	12.4	%	1	04-03-10
	d Shear	711 lbs	7232 lbs	9.8%	·	1	06-09-00
	al Load Deflection	L/999 (0.028")	n\a	n\a		4	04-01-10
	al Load Deflection	1 (000 (0.017")	n\a	n\a		5	04-01-10

n\a

n\a

Ref.

Rogring	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
	Wall/Plate	2-3/4" x 1-3/4"	560 lbs	18.9%	9.5%	Spruce-Pine-Fir
B2	Beam	2-5/8" x 1-3/4"	857 lbs	15.3%	15.3%	VL 2.0 3100 SP

#### **Notes**

Max Defl.

Span / Depth

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

L/999 (0.017")

0.028"

7.7

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

Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

n\a 27 240 POVINCE OF

Wind

1.15

Snow

1.00

**Tributary** 

00-00-00

n\a

COMPONENT ONLY

#### Disclosure

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City, Province, Postal Code: HAMILTON

#### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B14A(i1457) (Flush Beam) Dry | 1 span | No cant.

PASSED

March 17, 2021 10:26:15

**BC CALC® Member Report** 

**Build 7773** 

Job name: Address:

File name:

SPRINGFIELD 2 EL 2 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14A(i1457)

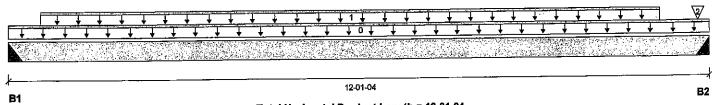
Specifier:

Designer:

Customer: Code reports:

CCMC 12472-R

Company:



#### Total Horizontal Product Length = 12-01-04

Peaction Summary (Down / Unlift) (lbs)

IZEAUUUII QU	iiiiilaiy (Domii) o	britty (180)		
Bearing	Live	Dead	Snow	Wind
B1, 2"	408 / 0	240 / 0		
B2. 2"	443 / 0	259 / 0		

1.0	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-01-04	Тор		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-12	11-02-12	Тор	74	37			n\a
2	J6(i1595)	Conc. Pt. (lbs)	L	11-10-12	11-10-12	Тор	59	30			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2918 ft-lbs	17696 ft-lbs	16.5%	1	06-06-12
End Shear	903 lbs	7232 lbs	12.5%	1	01-01-14
Total Load Deflection	L/999 (0.108")	n\a	n\a	4	06-00-12
Live Load Deflection	L/999 (0.068")	n\a	n\a	5	06-00-12
Max Defl.	0.108"	n\a	n\a	4	06-00-12
Snan / Denth-	12.0		·		

Bearing :	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
	Hanger	2" x 1-3/4"	912 lbs	n\a	21.4%	HUS1.81/10
	Hanger	2" x 1-3/4"	988 lbs	n\a	23.1%	HUS1.81/10

# OVINCE OF

COMPONENT ONLY

#### **Cautions**

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

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

#### Notes

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

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

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

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

CONFORMS TO OBC 2012

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





# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B24C(i1159) (Dropped Beam)

PASSED

**BC CALC® Member Report** 

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer: Code reports: Dry | 1 span | No cant.

March 17, 2021 11:00:36

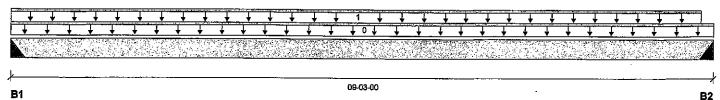
File name: SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

2ND FLR FRAMING\Dropped Beams\B24C(i1159)

Description: Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 09-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	• •	156 / 0	213 / 0	
B2, 2"		152 / 0	205 / 0	

CCMC 12472-R

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L _	00-00-00	09-03-00	Тор		10			00-00-00
1	LOW ROOF	Unf, Lin, (lb/ft)	L	00-00-00	09-01-00	Тор		24	46		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1135 ft-lbs	17202 ft-lbs	6.6%	1	04-07-08
End Shear	407 lbs	11571 lbs	3.5%	1	00-11-08
Total Load Deflection	L/999 (0.024")	n\a	n\a	12	04-07-08
Live Load Deflection	L/999 (0.014")	n\a	n\a	17	04-07-08
Max Defl.	0.024"	n\a	n\a	12	04-07-08
Span / Depth	11.4				

Bearing	Supports	Dim, (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 3-1/2"	514 lbs	n\a	6.0%	HUC412
B2	Hanger	2" x 3-1/2"	497 lbs	n\a	5.8%	HUC412

#### **Cautions**

Header for the hanger HUC412 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for for adequate capacity.

Header for the hanger HUC412 is a Double 1-3/4" x 9-1/2" LVL Beam.

#### **Notes**

F. 165 . . .

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

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

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

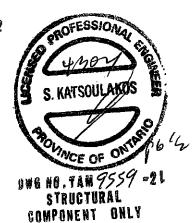
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 09-03-00, Bottom: 09-03-00.







PASSED

#### 2ND FLR FRAMING\Dropped Beams\B24C(i1159) (Dropped Beam)

Dry | 1 span | No cant.

March 17, 2021 11:00:36

BC CALC® Member Report

Build 7773 Job name:

Address: City, Province, Postal Code:

Customer:

Code reports:

File name: Description SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B24C(i1159)

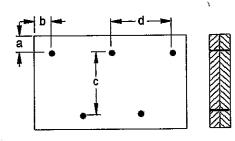
Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member

CCMC 12472-R



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

Connectors are:

∵ Nails

312" ARDOX SPIRAL



STRUCTURAL COMPONENT ONLY

#### **Disclosure**

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





**PASSED** 

2ND FLR FRAMING\Flush Beams\B16C(i639) (Flush Beam)

Dry | 3 spans | L cant.

March 17, 2021 11:00:36

**BC CALC® Member Report Build 7773** 

Job name: Address:

Customer: Code reports:

City, Province, Postal Code:

CCMC 12472-R

File name:

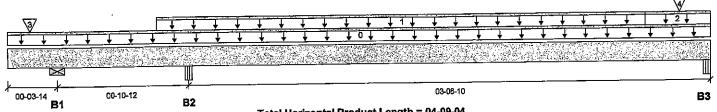
SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Fiush Beams\B16C(i639)

Wind

Specifier: Designer:

Company:



Total Horizontal Product Length = 04-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow		
B1. 3-1/2"	0/9	366 / 0	509 / 0		
B2, 5-1/4"	25 / 0	0 / 16	0/95		
B3, 5-1/4"	12/0	52 / 0	3/0		

l o	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Тор		12			00-00-00
1	FC3 Floor Decking (Plan	Unf. Lin. (lb/ft)	L	01-00-00	04-04-00	Тор	8	4			n\a
2	View Fill) FC3 Floor Decking (Plan	Unf. Lin. (lb/ft)	L	04-04-00	04-09-04	Тор	5				n\a
3 4	View Fill)  E28(i1112)	Conc. Pt. (lbs) Conc. Pt. (lbs)	L L	00-01-12 04-06-12	00-01-12 04-06-12	•		306 24	417		n\a n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	22 ft-lbs	23005 ft-lbs	n\a	0	03-00-00
Neg. Moment	-181 ft-ibs	-33987 ft-lbs	0.5%	37	00-03-14
End Shear	8 lbs	9401 lbs	n\a	0	03-04-02
Cont. Shear	1011 lbs	14464 lbs	7.0%	37	00-02-02
Total Load Deflection	L/999 (0")	n\a	n\a	83	02-10-10
Max Defl.	0"	n\a	n\a	83	02-10-10
Span / Depth	3.2				

Beari	ng Supports	Dim. (LXW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	1222 lbs 24 lbs	16.2% 0.2%	8.2% 0.1%	Spruce-Pine-Fir Unspecified
B2 B2	Beam Uplift	5-1/4" x 3-1/2"	162 lbs	0.270	0,170	Shopsomou
В3	Beam	5-1/4" x 3-1/2"	72 lbs	1.1%	0.5%	Unspecified

**Cautions** 

(SIMPSON 2-4254@0. BZ) Uplift of 162 lbs found at bearing B2.



COMPONENT





PASSED

2ND FLR FRAMING\Flush Beams\B16C(i639) (Flush Beam)

Dry | 3 spans | L cant. **BC CALC® Member Report** 

March 17, 2021 11:00:36

**Build 7773** 

Job name: Address:

City, Province, Postal Code:

Customer:

Notes

Code reports:

File name:

SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16C(i639)

Specifier: Designer: Company:

CCMC 12472-R

CONFORMS TO OBC 2012

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

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

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

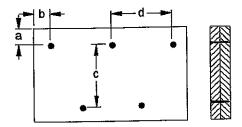
Unbalanced snow loads determined from building geometry were used in selected product's verification.

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

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

Calculations assume unbraced length of Top: 00-08-08, Bottom: 02-10-12.

#### Connection Diagram: Full Length of Member



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

Calculated Side Load = 253.0 lb/ft

Connectors are: .

Nails ARDOX SPIRAL



848 NO. TAN 9560 = 2 STRUCTURAL COMPONENT ONLY

#### Disclosure

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





PASSED

2ND FLR FRAMING\Flush Beams\B22C(i1155) (Flush Beam)

**BC CALC® Member Report** 

Dry | 1 span | No cant.

March 17, 2021 11:00:36

**Build 7773** 

Job name: Address:

City, Province, Postal Code:

Code reports:

Customer:

CCMC 12472-R

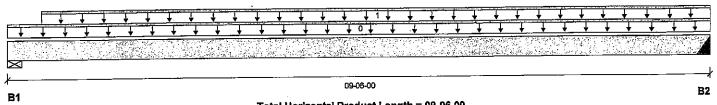
File name:

SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl Description: 2ND FLR FRAMING\Flush Beams\B22C(i1155)

Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 09-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"		154 / 0	204 / 0	
B2, 2"		155 / 0	212 / 0	

l o	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-00	Тор		10			00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-05-08	09-06-00	Тор		24	46		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1124 ft-lbs	17470 ft-lbs	6.4%	1	04-10-12
End Shear	405 lbs	11571 lbs	3.5%	1	01-03-00
Total Load Deflection	L/999 (0.024")	n\a	n\a	12	04-10-12
Live Load Deflection	L/999 (0.014")	n\a	n\a	17	04-10-12
Max Defl.	0.024"	n\a	n\a	12	04-10-12
Span / Depth	11.4				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	498 lbs	4.2%	2.1%	Spruce-Pine-Fir
B2	Hanger	2" x 3-1/2"	511 lbs	n\a	6.0%	HUC412

#### **Cautions**

Header for the hanger HUC412 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

#### Notes

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

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

Hanger Manufacturer: Unassigned

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

AMENDED 2020

CONFORMS TO OBG 2012

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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







**PASSED** 

2ND FLR FRAMING\Flush Beams\B22C(i1155) (Flush Beam)

BC CALC® Member Report **Build 7773** 

Job name: Address:

City, Province, Postal Code:

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

March 17, 2021 11:00:36

File name:

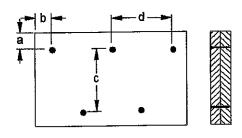
SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl Description: 2ND FLR FRAMING\Flush Beams\B22C(i1155)

Specifier:

Designer:

Company:

#### **Connection Diagram: Full Length of Member**



a minimum = 2" b minimum = 3"

c = 5-1/2" d = 🗪 8 "

Connectors are:

, Nails

ARDOX SPIRAL

OFESSION COMPONENT ONLY

#### Disclosure

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PASSED

March 17, 2021 11:00:36

2ND FLR FRAMING\Flush Beams\B23C(i1157) (Flush Beam)

**BC CALC® Member Report** 

**Build 7773** 

Address:

City, Province, Postal Code: Customer: Code reports:

Job name:

CCMC 12472-R

Dry | 1 span | L cant.

File name:

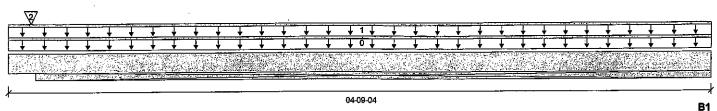
SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B23C(i1157)

Specifier:

Designer:

Company:



#### Total Horizontal Product Length = 04-09-04

Reaction Summary (Down / Uplift) (lbs)

LÌve Dead Snow 314/0 428 / 0 B1, 55-1/8"

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Тор		10			00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	04-09-04	Top		24	46		n\a
2	B24C(i1159)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		154	209		n∖a

Controls Summary	Factored Demand	Factored Resistance	Resistance	Case	Location
End Shear	20 lbs	11571 lbs	0.2%	1	00-02-02
Span / Depth	0.2				
Dist. Load (B1)	99 lb/ft	57645.1 lb/ft	0.2%		

				Demand/ Resistance	Demand/ _Resistance_	
Bearing	Supports	Dim. (LxW)	Demand	Support	Member	Material
B1	Wall/Plate	55-1/8" x 3-1/2"	1036 lbs	1.0%	0.4%	Unspecified

#### **Notes**

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86. CONFORMS TO OBC 2012

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

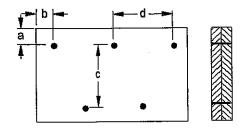
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Calculations assume unbraced length of Top: 04-00-08, Bottom: 02-10-12.

#### Connection Diagram: Full Length of Member



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



AMENDED 2020





#### Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B23C(i1157) (Flush Beam)

**PASSED** 

**BC CALC® Member Report** 

**Build 7773** 

Job name: Address:

City, Province, Postal Code:

Customer:

Code reports:

Dry | 1 span | L cant.

March 17, 2021 11:00:36

File name:

SPRINGFIELD 2 EL 3 HIGH CEILING.mmdl Description: 2ND FLR FRAMING\Flush Beams\B23C(i1157)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member

Calculated Side Load = 253.0 lb/ft

Connectors are: 5 19

Gan Nails

CCMC 12472-R

ARDOX SPIRAL

ONINCE OF

046 HO. TAM 9562=21 STRUCTURAL COMPONENT ONLY

#### **Disclosure**

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PASSED

**B2** 

# 2ND FLR FRAMING\Flush Beams\B11(i1289) (Flush Beam)

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

April 29, 2021 08:46:48

**Build 7773** 

Job name:

Address:

City, Province, Postal Code: HAMILTON

File name:

SPRINGFIELD 2 EL 1.mmdl

Description:

2ND FLR FRAMING\Flush Beams\B11(i1289)

Specifier:

Designer:

ΑJ

Wind

Customer: Code reports:

CCMC 12472-R

Company:

**B**1

12-06-06 Total Horizontal Product Length = 12-06-06

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Live Bearing 1675 / 0 3200/0 B1, 4-3/8" 1790 / 0 3431 / 0 B2, 4"

							Live	Dead	Snow	Wind	Tributary
	d Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
Tag	Description	Unf. Lin. (lb/ft)	1	00-00-00	12-06-06	Top		12			00-00-00
0	Self-Weight	• •	-		12-04-14		373	186			n\a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14		p					n\a
'n	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	12-04-14	Тор	178	89			
2	Silloofiled road	Conc. Pt. (lbs)	1	01-00-09	01-00-09	Top	565	283			n\a
2		6010, Pt. (IDS)	L	0.0000	J. J. J.						

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
	21403 ft-lbs	35392 ft-lbs	60.5%	1	06-06-14
Pos. Moment	6494 lbs	14464 lbs	44.9%	1	01-04-04
End Shear	• .•	n\a	66.7%	4	06-02-14
Total Load Deflection	L/360 (0.399")	n\a	65.8%	5	06-02-14
Live Load Deflection  Max Defl.	L/547 (0.262") 0.399"	n\a	n\a	4	06-02-14
Span / Depth	12.1				

Boaring	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1		4-3/8" x 3-1/2" 4" x 3-1/2"	6893 lbs 7384 lbs	73.2% 85.7%	36.9% 43.2%	Spruce-Pine-Fir Spruce-Pine-Fir

**Notes** 

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

COMPORMS TO OBG 2012

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

AMENDED 2020

Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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



COMPONENT





# 2ND FLR FRAMING\Flush Beams\B11(i1289) (Flush Beam)

Dry | 1 span | No cant.

April 29, 2021 08:46:48

PASSED

**BC CALC® Member Report** 

**Build 7773** 

Job name:

Code reports:

Address: City, Province, Postal Code: HAMILTON

Customer:

CCMC 12472-R

File name:

SPRINGFIELD 2 EL 1.mmdl

2ND FLR FRAMING\Flush Beams\B11(i1289) Description:

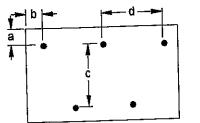
ΑJ

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member





a minimum = 2" b minimum = 3"

c = 7-7/8" d = 68 cl

Calculated Side Load = 796.9 lb/ft Connectors are: 16d 💚 🔥 🗅 Nails

314" ARDOX SPIRAL



848 NO. TAM 9563 = 21 STRUCTURAL COMPONENT ONLY

Disclosure

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BC CALC® Member Report



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

PASSED

**B2** 

#### 2ND FLR FRAMING\Flush Beams\B9(i1303) (Flush Beam)

Dry | 1 span | No cant.

April 29, 2021 08:46:48

**Build 7773** 

Job name:

Customer:

Address: City, Province, Postal Code: HAMILTON

**CCMC 12472-R** 

SPRINGFIELD 2 EL 1.mmdl File name:

Wind

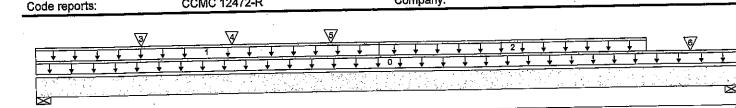
Description: 2ND FLR FRAMING\Flush Beams\B9(i1303)

Specifier:

Company:

AJ

Designer:



09-11-04 Total Horizontal Product Length = 09-11-04

Snow

Reaction Summary (Down / Uplift) (Ibs)

483 / 0
299 / 0

_							Live	Dead	Snow	Wind	Tributary
	ad Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
Tag		Unf. Lin. (lb/ft)		00-00-00	09-11-04	Тор		12			00-00-00
U	Self-Weight	Unf. Lin. (lb/ft)	Ĺ	00-00-00	04-09-12	Top	395	198			n\a
1	Smoothed Load	•	ī	04-09-12	08-07-12	•	573	286			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	-	01-05-12		•	98	49			n\a
3	J5(i1283)	Conc. Pt. (lbs)	L		02-09-02	•	343	211			n\a
4	B12(i1327)	Conc. Pt. (lbs)	L	02-09-02		•	245	123			n\a
5	J4(i1291)	′ Conc. Pt. (lbs)	L	04-01-12	04-01-12	•	-				n\a
	( )	Conc. Pt. (lbs)	L	09-03-01	09-03-01	Тор	463	231			ING

Controls Summary	Factored Demand	Factored Resistance	Demand <i>i</i> Resistance	Case	Location
Pos. Moment	12765 ft-lbs	35392 ft-lbs	36.1%	1	05-01-12
,	4790 lbs	14464 lbs	33.1%	1	01-05-02
End Shear		n\a	30.8%	4	05-00-04
Total Load Deflection	L/778 (0.143") L/999 (0.094")	n\a	n/a	5	05-00-04
Live Load Deflection Max Defl.	0.143"	n\a	n\a	4	05-00-04
Span / Depth	9.4				

Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
		5-1/4" x 3-1/2"	6034 lbs	53.4%	26.9%	Spruce-Pine-Fir
	Wall/Plate	4" x 3-1/2"	5312 lbs	61.7%	31.1%	Spruce-Pine-Fir

**Notes** 

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

EQNYORMS TO OBC 2012

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

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

AMENDED 2020

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

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

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







PASSED

2ND FLR FRAMING\Flush Beams\B9(i1303) (Flush Beam)

**BC CALC® Member Report** 

**Build 7773** Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer: Code reports:

**CCMC 12472-R** 

Dry | 1 span | No cant.

SPRINGFIELD 2 EL 1.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B9(i1303)

Specifier:

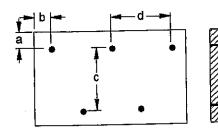
Designer:

Company:

April 29, 2021 08:46:48

AJ

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8" d = 🕶 8 "

Calculated Side Load = 796.9 lb/ft Connectors are: 16d / / Nails

ARDOX SPIRAL



#### **Disclosure**

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

# NORDIC **STRUCTURES**

COMPANY Mar. 18, 2021 15:14

**PROJECT** J6 2ND FLOOR.wwb

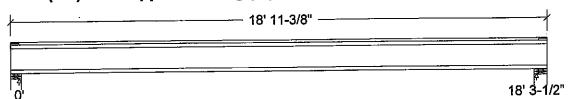
#### **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

#### Loads:

П	Load	Туре	Distribution	Pat-	Location	[ft]	Magnitud	le	Unit
	HORG	-11-		tern	Start	End	Start	End	
	Loadl	Dead	Full Area				20.00		psf
	Load2	Live	Full Area				40.00		psf

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



Unfactored: Dead Live	183 366	183 366
Factored:	777	777
Total		
Bearing:		
Capacity		2336
Joist	2336	12995
Support	10841	12333
Des ratio		0.33
Joist	0.33	0.06
Support	0.07	#2
Load case	#2	5-1/4
Length	4-3/8	1-3/4
Min req'd	1-3/4	
Stiffener	No	No
KD	1.00	1.00
KB support	-	7.60
fcp sup	769	769
Kzcp sup		

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

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

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

Total length: 18' 11-3/8"; Clear span: 18' 1-3/4"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design	Value	Unit	Analysis/Design
Shear	$\nabla f = 777$	Vr =	2336	lbs	Vf/Vr = 0.33
Moment (+)	Mf = 3555	Mr =	11609	lbs-ft	Mr = 0.31
Perm. Defl'n	0.10 = < L/999	0.61 =	L/360	in 🚜 🙀	0.16
Live Defl'n	0.19 = < L/999	0.46 =	L/480	in 💋	4301 0.42 0.31
Total Defl'n	0.29 = L/769	0.91 =	L/240	in 💅	4307 0.31
Bare Defl'n	0.21 = < L/999	0.61 =	L/360	in 🔊	VATCOUVANDS 10.34
Vibration	Lmax = 18'-3.5	Lv =	19'-11	ft   4 S	KATSOUKAKOS \$5.92
	= 0.028		0.034	in	0.81
Defl'n	- 0.020			<u> </u>	

### WoodWorks® Sizer

### for NORDIC STRUCTURES

### J6 2ND FLOOR.wwb

#### Nordic Sizer - Canada 7.2

Page 2

			****							
Additiona	l Data:									
FACTORS:	£/E	KD	KH	KZ	KL	KT	KS	KN	LC#	
Vr	2336	1.00	1.00	-	-	-	-	_	#2	
Mr+	11609	1.00	1.00	_	1.000	-	_	-	#2	
EI	547.1 m	illion	_	-	-	-		-	#2	
CRITICAL L	OAD COMB	INATIONS	<b>;</b>			,				
	: LC #2		5D + 1.5	Ŀ						
Moment (+	): LC #2	= 1.25	5D + 1.51	L						
	on: LC #1		) (perma	anent)						
			+ 1.0L							
			+ 1.0L							
			) + 1.0L							
Bearing			C #2 = 3			,				
_	Suppo	rt 2 - I	C #2 = 3	1.25D +	1.5L					
Load Typ	es: D=dea	d W=wir	nd S=sno	ом Н=е	arth,grou	ındwater	E=ear	thquake		
					ive(stora			f=fire		
Load Pat	terns: s=	S/2 L=I	∐+Ls _=1	no patt	ern load	in this	s span			
All Load	Combinat	ions (LO	cs) are .	listed	in the An	alysis	output			
CALCULATI										
Eleff =	613.27 lb	-in^2 F	<= 6.18€	e06 lbs						0040
"Live" d	eflection	is due	to all 1	non-dea	d loads (	live, v	wind, sn	.ow) <b>GQ</b> }	AFORMS TO	OBU 2012
Decien N		····							AMENDED	

### **Design Notes:**

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



**COMPANY** Mar. 18, 2021 15:15 PROJECT. J6 1ST FLOOR.wwb

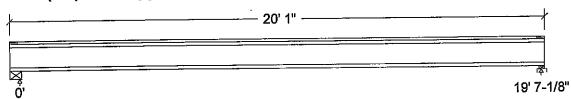
### **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

### Loads:

Load	Туре	Distribution	Pat-	Location	[ft]	Magnitud	de	Unit
Loud	1,150	1	tern		End	Start	End	
Load1	Dead	Full Area			-	20.00	-	psf
Load2	Live	Full Area		·		40.00		psf

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



Unfactored: Dead Live	196 392	196 392
Factored: Total	833	833
	000	
Bearing: Capacity Joist Support	2336	2188 5573
Des ratio Joist Support	0.36	0.38 0.15
Load case Length	#2 5-1/4	#2 2-3/8
Min reg'd	1-3/4	1-3/4
Stiffener	No	No
KD	1.00	1.00
KB support	_	1.00
fcp sup	_	769
Kzcp sup	-	1.09

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c. Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2; Total length: 20' 1"; Clear span: 19' 5-3/8"; 3/4" nailed and glued OSB sheathing This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 833	Vr = 233.6	lbs	Vf/Vr = 0.36
Moment(+)	Mf = 4079	Mr = 11609	lbs-ft	MEYMIC = 0.35
Perm. Defl'n	0.12 = < L/999	0.65 = L/360	in 🌶	
Live Defl'n	0.24 = L/971	0.49 = L/480	in 🖍	4 Mon 20.49
Total Defl'n	0.36 = L/647	0.98 = L/240	in 🖋	4hoy 0.37
Bare Defl'n	0.27 = L/863	0.65 = L/360	in in	0.42
Vibration	$I_{max} = 19'-7.1$	Lv = 21'-2.7	ft 🧸	S. KATSOULAKOS \$ 92
Defl'n	= 0.027	= 0.033	in 🎜	0182

# WoodWorks® Sizer

### for NORDIC STRUCTURES

### J6 1ST FLOOR.wwb

### Nordic Sizer - Canada 7.2

Page 2

Additiona						7.00	W.C.	T/NT	LC#	
FACTORS:	f/E		KH		$\mathtt{KL}$		KS	KN	#2	
l Vr	2336		1.00		_	-	_	-		
Mr+	11609	1.00	1.00		1.000		-	_	#2	
EI	547.1 m	illion	_	-		-	-	-	#2	
CRITICAL LO										
Shear	: LC #2	= 1.2	5D + 1.5							
Moment (+	): LC #2	= 1.2	5D + 1.5	Ĺ						
Deflecti	on: LC #1	= 1.0	D (perma	anent)						
5052555	LC #2	= 1.0	D + 1.0L	(live	)					
	T.C. #2	= 1.0	D + 1.0L	(tota	1)					
j	TC #2	= 1.0	p + 1.0L	(bare	joist)					
Bearing		rt 1 -	$\bar{L}C #2 = 1$	1.25D +	1.5L					
1	Sunno	rt 2 -	T.C. #2 =	1.25D +	1.5L					
Tood Tro	Ac. D=dea	d W≕wi	nd S=sn	ow H=e	arth, grou	indwate:	r E=ear	thquake		
Load typ	. D-uea T-1:#	a (1186 0	ccupancy	) Ls=l	ive(stora	age, egu:	ipment)	f=fire		
1 , , , , , ,	terns: s=	c/2 T.=	.T.±T.s =	no patt	ern load	in thi	s span			
Load Pat	terns: s-   Combinat	3/2 II-	Ce) 2ro	lietod	in the Ar	alvsis	output			
		TOUR (T	(CS) are	TTPCEO	111 C110 111	idajozo	F			
CALCULATI	IONS:			-06 lb-						
Eleff =	625.37 lb	-in^2	K= 0.18	end TD2	ا مماد	/1-i	wind en	OW 1:	_	
"Live" d	leflection	is due	to all	non-dea	d Toads	(TTAG,	Wattu, St.	CON/	FORMS TO	OBC 2012
									a ME NO EN	

**Design Notes:** 

AMENDED 2020

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
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- 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.
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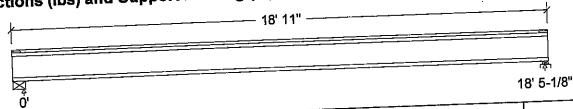
COMPANY Mar. 18, 2021 15:16 PROJECT J7 1ST FLOOR.wwb

# **Design Check Calculation Sheet**

Nordic Sizer – Canada 7.2

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

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



	0'	
Unfactored: Dead Live	184 369	184 369 783
Factored: Total	783	
Bearing: Capacity Joist Support Des ratio	2336	2188 5573 0.36 0.14
Joist Support Load case Length	0.34 - #2 5-1/4 1-3/4	#2 2-3/8 1-3/4 No
Min req'd Stiffener KD KB support	No 1.00	1.00 1.00 769 1.09
fcp sup Kzcp sup		

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

Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2; Total length: 18' 11"; Clear span: 18' 3-3/8"; 3/4" nailed and glued OSB sheathing This section PASSES the design code check.

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

and the Dool	an using CSA 086-14	SUG AIDISTION OFFICERS	· · · · · · · · · · · · · · · · · · ·	
Criterion Shear Moment(+) Perm. Defl'n Live Defl'n Total Defl'n	Analysis Value Vf = 783 Mf = 3608 0.10 = < L/999 0.19 = < L/999 0.29 = L/766 0.22 = < L/999	Design Value  Vr = 2336  Mr = 11609  0.61 = L/360  0.46 = L/480  0.92 = L/240  0.61 = L/360	lbs lbs-ft in in	Analysis/Design  Vf/Vr = 0.34 0.31 0.16 42 31 0.85 KATSOULAKOS
Total Defl'n Bare Defl'n Vibration Defl'n	- 1000	- 1000	111 %	0.11
			*	TOWNINGE OF ON THE NO. TA

# WoodWorks® Sizer

# for NORDIC STRUCTURES

### J7 1ST FLOOR.wwb

### Nordic Sizer - Canada 7.2

Page 2

J7 1ST FLOO	K.WWD							<u> </u>		
Additional FACTORS: Vr Mr+ EI	f/E 2336 11609 547.1 m	KD 1.00 1.00	KH 1.00 1.00	KZ - - -	KL - 1.000	KT - -	KS - - -	KN - -	LC# #2 #2 #2	
CRITICAL L	OAD COME	SINATIONS	S:							
Shear		2 = 1.2	2D + T.2D							
34	A . T.C #2	= 1.2	5D + 1.5L							
Deflecti	~~ TC #1	I = 1.∪	D (perma	nent)						
Derrege	T C # 2	2 = 1.0	D + T•OT	(1110	;)					
1	T C #1	2 <del>-</del> 1 N	D + 1.0L	(tota	11)					
	LC #2	2 = 1.0	D + 1.0L	(pare	1 ET.					
Bearing	: Suppo	ort 1 -	LC #2 = 1	.Z5D 4	- 1.Ju					
_	Suppo		LC #2 = 1			ındwate	r E=ear	thquake	•	
Load Typ	pes: D=de	ad W=wi	LC #2 = 1 .nd S=sno occupancy)	vw .r.⊸e T.e=1	live(store	age, equ	ipment)	<u>f</u> =fire	€	
ļ	L=li	Λe (nze'c	occupancy/	- nati	ern load	in thi	s span			
Load Pat	tterns: s	=5/2 L=	-L+us _=n GCs) are l	isted	in the A	nalysis	output			
All Load	d Combina	fions (1	103/ ATC 2							
CALCULAT	IONS:	h_4n^2	K= 6.186	06 lb:	ŝ					
Eleff =	625.3/ I	n is due	K= 6.186 e to all r	on-de	ad loads	(live,	wind, sr	10W) <b>C</b>	QNFORMS TO	OBC 2012
"TiA6" (	dettectio									2020

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC),

Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).

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

3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.

4. Nordic I-joists are listed in CCMC evaluation report 13032-R.

5. Joists shall be laterally supported at supports and continuously along the compression edge.

6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



STRUCTURAL



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



### 1ST FLR FRAMING\Dropped Beams\B31 DR(i2763) (Dropped Beam)

**BC CALC® Member Report** 

Dry | 1 span | No cant.

August 16, 2021 13:17:30

**Build 7773** 

Job name: Address:

City, Province, Postal Code: WATERDOWN

File name:

LOT 562.mmdl

Description: 1ST FLR FRAMING\Dropped Beams\B31 DR(i2763)

Specifier:

Designer:

ΑJ

Customer: Code reports:

CCMC 12472-R

Company:

I	I I		T	1	T	T	Ţ	T	1	Ţ	Ţ	Ţ	1	J 2	Ţ	Ţ	Ţ	Ţ	J	Ţ	Ţ	<b>T</b>	Ţ	$\overline{\downarrow}$	+	¥	Ţ	Ŧ.	Ų .
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,	<del>   </del>	Ť	+	<del></del>	¥	¥	+	¥	Ţ	Ţ	+	+	<del></del>	10	¥	¥	Ţ	<b>+</b>	Ţ	Ţ.	Ţ	Ţ	Ţ.	Ţ	Ŧ	¥	+	¥ .	
														:	e .		- T-	114	ź		•	1.	. * *					1	
														05-10-		-					_					-			

Total Horizontal Product Length = 05-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1157 / 0	898 / 0		
B2 3"	1123 / 0	881 / 0		

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Тор		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Top	391	195			n\a
.2	R2(i2685)	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Тор		100			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3493 ft-lbs	23219 ft-lbs	15.0%	1	03-02-04
End Shear	2048 lbs	11571 lbs	17.7%	1	04-09-08
Total Load Deflection	L/999 (0.027")	n\a	n\a	4	02-11-04
Live Load Deflection	L/999 (0.015")	n\a	n\a	5	02-11-04
Max Defl.	0.027"	n\a	n\a	4	02-11-04
Span / Depth	6.9				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
•	B1	Wall/Plate	3" x 3-1/2"	2859 lbs	20.4%	22.3%	Spruce-Pine-Fir
	B2	Wall/Plate	3" x 3-1/2"	2785 lbs	19.9%	21.7%	Spruce-Pine-Fir

#### Notes

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

CONVOINS TO OBC 2012

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

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 00-09-10, Bottom: 05-10-00.



196 10. FAN 19503-21 STRUCTURAL COMPONENT DHLY



**BC CALC® Member Report** 



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

PASSED

1ST FLR FRAMING\Dropped Beams\B31 DR(i2763) (Dropped Beam)

Dry | 1 span | No cant.

August 16, 2021 13:17:30

**Build 7773** 

Job name: Address:

Customer:

Code reports:

City, Province, Postal Code: WATERDOWN

CCMC 12472-R

LOT 562.mmdl File name:

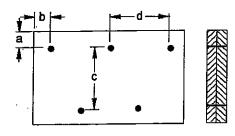
Description: 1ST FLR FRAMING\Dropped Beams\B31 DR(i2763)

Specifier:

Designer: ΑJ

Company:

### Connection Diagram: Full Length of Member



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

Connectors are:

Nails

ARDOX SPIKAL



owa nd . TAM / 9503-2 STRUCTURAL COMPONENT ONLY

### Disclosure

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

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





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

PASSED

1ST FLR FRAMING\Flush Beams\B32(i2624) (Flush Beam)

Dry | 1 span | No cant.

August 16, 2021 13:17:30

**Build 7773** 

Job name:

Customer:

Code reports:

Load Summary

Address: City, Province, Postal Code: WATERDOWN

**BC CALC® Member Report** 

File name: LOT 562.mmdl

1ST FLR FRAMING\Flush Beams\B32(i2624) Description:

Live

Specifier: Designer:

Company:

CCMC 12472-R

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Total Horizontal Product Length = 15-06-06

Position Summary (Down / Unlift) (the)

IZEAULIUII Gui	mnary (Domini o	hinri (ma)		
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	143 / 0	422 / 0	<u>-</u>	<del>.</del> .
B2 2-3/8"	142 / 0	171 / 0		

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Tag	Description	Load Type	Ref.	Start	End_	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	15-06-06	Top		6			00-00-00
1	FC1 Floor Decking (Pla View Fill)	n Unf. Lin. (lb/ft)	L	00-00-00	15-06-06	Тор	18	9			n\a
2	WALL	Unf, Lin. (lb/ft)	L	00-05-08	05-05-08	Top		60			n\a
3	E17(i501)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		57		A COLUMN	n\a .
Co	ntrois Summary	Factored Demand	Factored Resistance	Dem Resi	and/ stance	Case	Location			901	7

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1307 ft-lbs	11502 ft-lbs	11.4%	0	05-02-06
End Shear	483 lbs	4701 lbs	10.3%	0	01-03-06
Total Load Deflection	L/999 (0.12")	n\a	n\a	4	07-06-08
Live Load Deflection	L/999 (0.045")	n\a	n\a	5	07-09-13
Max Defl.	0.12" `	n\a	n\a	4	07-06-08
Span / Depth	15.3				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	590 lbs	24.1%	12.2%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/8" x 1-3/4"	426 lbs	16.7%	8.4%	Spruce-Pine-Fir

#### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

CHAPORMS TO OBE 2012

AMENDED 2020



Wind

Tributary

Snow

046 NO. TAM 19504 STRUCTURAL COMPONENT ONLY

#### **Disclosure**

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

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

### Maximum Floor Spans - S2.1

Design Criteria

Spans: Simple span

Loads:

Live load = 40 psf and dead load = 15 psf

Deflection limits:

L/480 under live load and L/240 under total load

Sheathing:

5/8 in. nailed-glued oriented strand board (OSB) sheathing

R	lax	mu	m	FIC	or	Sp	ans	

			В	are			1/2 in. gyp	sum ceiling	
Joist depth	Joist series		On cent	re spacing			On centr	re spacing	
·		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-1"	14'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
0.4100	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
9-1/2"	NI-60	16'- <b>4</b> "	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	-
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	1 <del>6</del> '-11"	-
11-7/8"	NI-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
	NI-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	_	20'-9"	19'-2"	18'-4"	-
	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
4.49	NI-60	20'-6"	18'-11"	18'-2"	-	21'-2"	19'-8"	18'-9"	-
14"	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	
	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
16"	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	NI-90	24'-5"	22'-6"	21'-6"	_	25'-1"	23'-2"	22'-2"	-

		Mi	d-span blocking	with 1x4 inch s	trap	Mid-sp	an blocking an	d 1/2 in. gypsum	ceiling
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	16'-8"	15'-3"	14'-5"	-	16'-8"	15'-3"	14'-5"	-
	NI-40x	17'-11"	17'-0"	16'-1"	-	18'-5"	17'-1"	16'-1"	-
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	-	18'-8"	17'-4"	16' <del>-4</del> "	-
	NI-80	19'-5"	18'-0"	17'-5"	-	<b>19'-</b> 10"	18'-5"	17'-8"	
-	NI-20	19'-7"	18'-2"	17'-3"	-	19'-11"	18'-3"	17'-3"	-
	NI-40x	21'-1"	19'-7"	18'-8"	- ,	21'-8"	20'-2"	19'-2"	-
11-7/8"	NI-60	21'-4"	19'-9"	18'-11"	_	21'-11"	20'-5"	19'-6"	-
	NI-80	22'-9"	21'-1"	20'-2"	-	23'-3"	21'-8"	20'-8"	-
	NI-90	23'-3"	21'-6"	20'-6"	-	23'-9"	22'-0"	21'-0"	-
	NI-40x	23'-8"	21'-11"	20'-11"	-	24'-4"	22'-8"	21'-8"	-
4	NI-60	24'-0"	22'-3"	21'-3"	-	24'-8"	22'-11"	21'-11"	-
14"	NI-80	25'-7"	23'-9"	22'-7"	-	26'-2"	24'- <b>4"</b>	23'-3"	-
	N1-90	26'-1"	24'-2"	23'-0"	-	26'-8"	24'-9"	23'-7"	
	NI-60	26'-5"	24'-6"	23'-5"	-	27'-2"	25'-3"	24'-2"	-
16"	NI-80	28'-2"	26'-1"	24'-10"	-	28'-10"	26'-9"	25'-6"	-
	NI-90	28'-8"	26'-6"	25'-3"	_	29'-3"	27'-2"	25'-11"	-

- 1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

# Maximum Floor Spans - S4.1

Design Criteria

Spans: Simple span

Loads: Live load = 40 psf and dead load = 15 psf

Deflection limits: L/480 under live load and L/240 under total load

Sheathing: 3/4 in. nailed-glued oriented strand board (OSB) sheathing

#### Maximum Floor Spans

			В	lare	· · ·		1/2 in. gyr	osum ceiling	
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
A 160	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	15'-2"
9-1/2"	NI-60	17 <b>'-2</b> "	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-2"
	NI-40x	19'-4"	17'-11"	17'-3"	1 <del>6</del> '-7"	19'-11"	18'-6"	17'-9"	17'-0"
11-7/8"	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-1 <b>1</b> "	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10'
14"	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21' <del>-6</del> "	20'-4"
	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
16"	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

		Mic	d-span blocking	with 1x4 inch	strap	Mid-sp	an blocking an	d 1/2 in. gypsur	n ceiling
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
	•	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10'
	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	N1-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
11-7/8"	NI-60	22'-1"	20'-7"	19'-8"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	N1-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-6"	21'-6"	20'-0"
	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-7"
	NI-40x	24'-5"	22'-9"	21'-9"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
4.45	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'- <del>6</del> "	23'-8"	22'-4"	20'-10'
14"	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"
	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	24'-9"	23'-1"
16"	N1-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"

- 1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

### Maximum Floor Spans - S6.1

Design Criteria

Spans:

Simple span

Loads:

Live load = 40 psf and dead load = 15 psf L/480 under live load and L/240 under total load

Deflection limits: Sheathing:

5/8 in. nailed-glued Canadian softwood plywood

#### Maximum Floor Spans

			В	are			1/2 in. gyj	osum ceiling	
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	14'-11"	14'-1"	13'-7"	-	15'-4"	14'-6"	14'-1"	-
5 4 601	NI-40x	15'-11"	15'-0"	14'-6"	-	16' <del>-4</del> "	15'-5"	14'-11"	-
9-1/2"	NI-60	16'-1"	15'-2"	14'-8"	-	16'-6"	15'-7"	15'-1"	-
	NI-80	17'-1"	16'-1"	15'-6"	-	17'-5"	16'-5"	15'-10"	-
	NI-20	16'-9"	15'-10"	15'-4"	-	17'-4"	16'-4"	15'-10"	-
	NI-40x	17'-10"	16'-10"	16'-3"	-	18'-6"	17' <del>-4</del> "	16'-9"	-
11-7/8"	NI-60	18'-1"	17'-0"	16'-5"	_	18' <del>-9</del> "	17'-6"	16'-11"	-
	NI-80	19'-6"	18'-0"	17'-4"	-	20'-1"	18'-7"	17'-9"	-
	NI-90	19'-11"	18'-4"	17'-8"	_	20'-5"	18'-11"	18'-1"	-
	NI-40x	19'-10"	18'-4"	17'-8"	-	20'-6"	19'-1"	18'-3"	-
4.411	NI-60	20'-2"	18'-8"	17'-11"	-	20'-10"	19'-4"	18'-6"	-
14"	NI-80	21'-8"	20'-0"	19'-1"	-	22'-4"	20'-8"	19'-9"	-
	NI-90	22'-1"	20'-5"	19'-6"	-	22'-9"	21'-0"	20'-1"	
	NI-60	22'-0"	20'-4"	19'-6"		22'-9"	21'-1"	20'-2"	-
16"	NI-80	23'-7"	21'-10"	20'-10"	-	24'-4"	22'-6"	21'-6"	-
	NI-90	24'-1"	22'-2"	21'-2"	-	24'-9"	22'-11"	21'-10"	-

		Mi	d-span blocking	with 1x4 inch s	trap	Mid-sp	an blocking an	d 1/2 in. gypsum	ceiling	
Joist depth	Joist series		On cent	re spacing		On centre spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	16'-6"	15'-1"	14'-3"	-	16'-6"	15'-1"	14'-3"	-	
0.460	NI-40x	17'-9"	16'-10"	15'-11"	-	18'-2"	16'-11"	15'-11"	-	
9-1/2"	NI-60	17'-11"	16'-11"	16'-2"	-	18'-5"	17'-2"	16'-2"	-	
	NI-80	19'-3"	17'-10"	17'-3"	-	19'-8"	18'-3"	17'-7"		
	NI-20	19'-4"	18'-0"	17'-1"	-	19'-9"	18'-1"	17'-1"	-	
	NI-40x	20'-10"	19'-4"	18'-6"	-	21'-5"	19'-11"	19'-0"	-	
11-7/8"	NI-60	21'-1"	19'-7"	18'-8"	-	21'-8"	20'-2"	19'-3"	-	
	NI-80	22'-6"	20'-10"	19'-11"	-	23'-1"	21'-5"	20'-5"	-	
	NI-90	23'-0"	21'-3"	20'-4"	-	23'-6"	21'-10"	20'-10"		
	NI-40x	23'-5"	21'-8"	20'-9"	-	24'-0"	22'-5"	21'-5"	-	
4.411	NI-60	23'-9"	22'-0"	21'-0"	-	24'-5"	22'-8"	21'-8"	-	
14"	NI-80	25'-4"	23'-6"	22'-5"	-	25'-11"	24'-1"	23'-0"	-	
	NI-90	25'-10"	23'-11"	22'-9"	-	26'-5"	24'-6"	23'-4"	_	
	NI-60	26'-2"	24'-3"	23'-2"	-	26'-11"	25'-0"	23'-11"	-	
16"	NI-80	27'-11"	25'-10"	24'-7"	-	28'-7"	26'-6"	25'-3"	-	
	NI-90	28'-5"	26'-3"	25'-0"	-	29'-0"	26'-11"	25'-8"	-	

- 1. The tabulated clear spans are based on CSA 086-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

### Maximum Floor Spans - S7.1

Design Criteria

Spans:

Simple span

Loads: Deflection limits: Sheathing: Live load = 40 psf and dead load = 15 psf L/480 under live load and L/240 under total load 3/4 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

·			B	lare			1/2 in. gyį	osum ceiling	
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
0.4/00	NI-40x	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	15'-1"
9-1/2"	NI-60	17'-1"	16'-1"	15'-6"	14'-10"	17'-6"	16'-6"	15'-11"	15'-3"
	NI-80	18'-1"	17'-0"	16' <del>-4</del> "	15'-8"	18'-7"	17'-4"	16'-8"	16'-0"
	NI-20	17'-10"	16'-10"	16'-2"	15'-7"	18'-5"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-3"	17'-10"	17'-2"	16'-6"	19'-10"	18'-5"	17'-8"	16'-11"
11-7/8"	NI-60	19'-6"	18'-1"	17'-4"	16'-8"	20'-1"	18'-8"	17'-10"	17'-1"
	NI-80	20'-11"	19'-4"	18'-5"	17'-7"	21'-5"	19'-10"	18'-11"	17'-11"
	NI- <del>9</del> 0	21'-4"	19'-9"	18'-9"	17'-10"	21'-10"	20'-3"	19'-3"	18'-3"
	NI-40x	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-5"	19'-6"	18'-6"
4 411	NI-60	21'-8"	20'-1"	19'-2"	18'-2"	22'-4"	20'-9"	19'-9"	18'-9"
14"	NI-80	23'-3"	21'-6"	20'-5"	19' <del>-4</del> "	23'-10"	22'-1"	21'-0"	19'-11"
	NI-90	23'-9"	21'-11"	20'-10"	19'-8"	24'-3"	22'-6"	21'-5"	20'-3"
	N1-60	23'-7"	21'-10"	20'-10"	19'-9"	24'-4"	22'-7"	21'-7"	20'-5"
16"	NI-80	25'-4"	23'-5"	22'-3"	21'-1"	26'-0"	24'-1"	22'-11"	21'-8"
	NI-90	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"

		Mi	d-span blocking	with 1x4 inch	strap	Mid-sp	an blocking an	d 1/2 in. gypsu	m ceiling	
Joist depth	Joist series		On cent	re spacing		On centre spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"	
0.4700	NI-40x	18'-7"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"	
9-1/2"	NI-60	18'-10"	17'-6"	16'-6"	15'-5"	19'-1"	17'-6"	16'- <del>6</del> "	15'-5"	
	N1-80	20'-2"	18'-9"	17'-11"	16'-10"	20'-7"	19'-2"	18'-2"	16'-10"	
	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"	
	NI-40x	21'-9"	20'-3"	19'-4"	17'-8"	22'-4"	20'-5"	19'-4"	17'-8"	
11-7/8"	NI-60	22'-0"	20'-6"	19'-7"	18'-4"	22'-7"	20'-10"	19'-8"	18'-4"	
	NI-80	23'-6"	21'-10"	20'-10"	19'-9"	24'-0"	22'-5"	21'-4"	20'-0"	
	NI-90	24'-0"	22'-4"	21'-3"	20'-1"	24'-6"	22'-10"	21'-9"	20'-7"	
	NI-40x	24'-4"	22'-8"	21'-8"	19'-5"	25'-0"	23'-2"	21'-9"	19'-5"	
4.40	NI-60	24'-9"	23'-0"	22'-0"	20 -9"	25'-5"	23'-8"	22'-4"	20'-10"	
14"	NI-80	26'-5"	24'-6"	23'-4"	22'-1"	27'-0"	25'-2"	24'-0"	22'-8"	
	NI-90	26'-11"	25'-0"	23'-10"	22'-6"	27'-5"	25'-7"	24'-5"	23'-1"	
	N1-60	27'-2"	25'-4"	24'-2"	22'-10"	27'-11"	26'-1"	24'-9"	23'-1"	
16"	NI-80	29'-0"	26'-11"	25'-8"	24'-3"	29'-7"	27'-7"	26'-4"	24'-11"	
	NI-90	29'-6"	27'-5"	26'-1"	24'-8"	30'-1"	28'-1"	26'-9"	25'-4"	

- 1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

# Maximum Floor Spans - M2.1

#### Design Criteria

Spans: Simple span

Loads: Live load = 40 psf and dead load = 20 psf
Deflection limits: L/480 under live load and L/240 under total load

Sheathing: 5/8 in. nailed-glued oriented strand board (OSB) sheathing

#### Maximum Floor Spans

			В	lare			1/2 in. gyį	osum ceiling	
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
•	NI-20	15'-1"	14'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
9-1/2"	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
9-1/2	NI-60	16'-4"	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	_
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	16'-11"	-
11-7/8"	N1-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
_	N1-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	-	20'-9"	19'-2"	18'-4"	-
	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
14"	N1-60	20'-6"	18'-11"	18'-2"	_	21'-2"	19'-8"	18'-9"	-
14	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	-
	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
16"	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	N1-90	24'-5"	22'-6"	21'-6"	=	25'-1"	23'-2"	22'-2"	-

		Mi	d-span blocking	with 1x4 inch st	rap	Mid-s	an blocking an	d 1/2 in. gypsum	ceiling	
Joist depth	Joist series		On cent	re spacing		On centre spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	16'-8"	15'-3"	14'-5"	_	16'-8"	15'-3"	14'-5"	-	
0.4600	N1-40x	17'-11"	17'-0"	16'-1"	-	18'-5"	17'-1"	16'-1"	-	
9-1/2"	NI-60	18'-2"	17'-1"	16'-4"	-	18'-8"	17'-4"	16'-4"	-	
	NI-80	19'-5"	18'-0"	17'-5"	-	19'-10"	18'-5"	17'-8"	-	
	NI-20	19'-7"	18'-2"	17'-3"	-	19'-11"	18'-3"	17'-3"	-	
	NI-40x	21'-1"	19'-7"	18'-8"	_	21'-8"	20'-2"	19'-0"	-	
11-7/8"	NI-60	21'-4"	19'-9"	18'-11"	-	21'-11"	20'-5"	19'-6"	-	
	NI-80	22'-9"	21'-1"	20'-2"	_	23'-3"	21'-8"	20'-8"	-	
	NI-90	23'-3"	21'-6"	20'-6"	-	23'-9"	22'-0"	21'-0"	-	
	NI-40x	23'-8"	21'-11"	20'-11"	-	24'-4"	22'-8"	20'-11"	-	
14"	NI-60	24'-0"	22'-3"	21'-3"	-	24'-8"	22'-11"	21'-11"	•	
14	NI-80	25'-7"	23'-9"	22'-7"	-	26'-2"	24'-4"	23'-3"	-	
	NI-90	26'-1"	24'-2"	23'-0"	-	26'-8"	24'-9"	23'-7"	-	
	NI-60	26'-5"	24'-6"	23'-5"	-	27'-2"	25'-3"	24'-2"	-	
16"	NI-80	28'-2"	2 <del>6</del> '-1"	24'-10"	-	28'-10"	26'-9"	25'-6"	-	
	NI-90	28'-8"	26'-6"	25'-3"	_	29'-3"	27'-2"	25'-11"	_	

- 1. The tabulated clear spans are based on CSA 086-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

### Maximum Floor Spans - M4.1

#### Design Criteria

Spans: Simple span

Loads: Live load = 40 psf and dead load = 20 psf
Deflection limits: L/480 under live load and L/240 under total load

Sheathing: 3/4 in. nailed-glued oriented strand board (OSB) sheathing

#### Maximum Floor Spans

			В	are			1/2 in. gy;	sum ceiling	
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
0.4/08	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	14'-11"
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	<b>17'-7"</b>	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
11-7/8"	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
14"	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
14"	N1-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
16"	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

		Mi	d-span blocking	with 1x4 inch	strap	Mid-sp	an blocking an	d 1/2 in. gypsur	m ceiling	
Joist depth	Joist series		On cent	re spacing		On centre spacing				
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"	
0.4402	N1-40x	18'-8"	17'-2"	16'-3"	14'-11"	18'-10"	17'-2"	16'-3"	14'-11"	
9-1/2"	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"	
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10'	
	NI-20	20'-1"	18'-5"	17'-5"	16'-1"	20'-1"	18'-5"	17'-5"	16'-1"	
	NI-40x	21'-10"	20'-4"	19'-0"	17'-0"	22'-5"	20'-6"	19'-0"	17'-0"	
11-7/8"	NI-60	22'-1"	20'-7"	19'-8"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"	
	NI-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-6"	21'-6"	20'-0"	
	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-7"	
	NI-40x	24'-5"	22'-9"	20'-11"	18'-8"	25'-1"	22'-11"	20'-11"	18'-8"	
14"	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10'	
14	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"	
	NI- <del>9</del> 0	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"	
	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	24'-9"	23'-1"	
16"	NI-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"	
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"	

- 1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

### Maximum Floor Spans - M6.1

Design C<u>riteria</u>

Spans:

Simple span

Loads:

Live load = 40 psf and dead load = 20 psf L/480 under live load and L/240 under total load

Deflection limits: Sheathing:

5/8 in. nailed-glued Canadian softwood plywood

Maximum	Floor	Spans
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imum Floor Sp			В	аге			1/2 in. gyp	sum ceiling	
Joist depth	Joist series			e spacing			On centr	e spacing	
Joist deptit	Juliat action	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	14'-11"	14'-1"	13'-7"	_	15'-4"	14'-6"	14'-1"	-
	NI-40x	15'-11"	15'-0"	14' <del>-6</del> "	-	16'-4"	15'-5"	14'-11"	-
9-1/2"	NI-60	16'-1"	15'-2"	14'-8"	-	1 <del>6</del> '-6"	15'-7"	15'-1"	-
	NJ-80	17'-1"	16'-1"	15'-6"	-	17'-5"	16'-5"	15'-10"	
	NI-20	16'-9"	15'-10"	15'-4"	-	17'-4"	16'-4"	15'-10"	-
	NI-40x	17'-10"	16'-10"	16'-3"	-	18'-6"	17'-4"	16'- <del>9</del> "	-
11-7/8"	NI-60	18'-1"	17'-0"	16'-5"	-	18'-9"	17'-6"	16'-11"	-
11-770	NI-80	19'-6"	18'-0"	17'-4"	_	20'-1"	18'-7"	17'~9"	-
	NI-90	19'-11"	18'-4"	17'-8"	-	20'-5"	18'-11"	18'-1"	-
	NI-40x	19'-10"	18'-4"	17'-8"	_	20'-6"	19'-1"	18'-3"	-
	NI-60	20'-2"	18'-8"	17'-11"	-	20'-10"	19' <del>-4</del> "	18'-6"	-
14"	NI-80	21'-8"	20'-0"	19'-1"	_	22'-4"	20'-8"	19'-9"	-
	NI-90	22'-1"	20'-5"	19'-6"	-	22'-9"	21'-0"	20'-1"	
	NI-60	22'-0"	20'-4"	19'-6"		22'-9"	21'-1"	20'-2"	-
16"	NI-80	23'-7"	21'-10"	20'-10"	-	24'-4"	22'-6"	21'-6"	-
10	NI-90	24'-1"	22'-2"	21'-2"	_	24'-9"	22'-11"	21'-10"	

	<u></u>	Mic	l-span blocking	with 1x4 inch st	гар	Mid-sp	an blocking and	1/2 in. gypsum	ceiling
Joist depth	Joist series		-	e spacing			On centr	e spacing	
Joiat debut	00.01.001.00	12"	16"	19.2"	24"	12"	16"	19.2"	24"
<del></del>	NI-20	16'-6"	15'-1"	14'-3"	_	16'-6"	15'-1"	14'-3"	-
	NI-40x	17'-9"	16'-10"	15'-11"	_	18'-2"	16'-11"	15'-11"	-
9-1/2"	NI-60	17'-11"	16'-11"	16'-2"	_	18'-5"	17'-2"	16'-2"	-
	NI-80	19'-3"	17'-10"	17'-3"	-	19'-8"	18'-3"	17'-7"	
	NI-20	19'-4"	18'-0"	17'-1"	-	19'-9"	18'-1"	17'-1"	-
	NI-40x	20'-10"	19'-4"	18'-6"	-	21'-5"	19'-11"	19'-0"	-
11-7/8"	NI-60	21'-1"	19'-7"	18'-8"	_	21'-8"	20'-2"	19'-3"	-
11-770	NI-80	22'-6"	20'-10"	19'-11"	_	23'-1"	21'-5"	20'-5"	-
	NI-90	23'-0"	21'-3"	20'-4"	_	23'-6"	21'-10"	20'-10"	
	NI-40x	23'-5"	21'-8"	20'-9"		24'-0"	22'-5"	20'-11"	-
	N1-60	23'-9"	22'-0"	21'-0"	_	24'-5"	22'-8"	21'-8"	-
14"	NI-80	25'-4"	23'-6"	22'-5"	-	25'-11"	24'-1"	23'-0"	-
	NI-90	25'-10"	23'-11"	22'-9"	-	26'-5"	24'-6"	23'-4"	
<del> </del>	NI-60	26'-2"	24'-3"	23'-2"	-	26'-11"	25'-0"	23'-11"	-
16"	NI-80	27'-11"	25'-10"	24'-7"	_	28'- <b>7</b> "	26'-6"	25'-3"	-
סו	NI-90	28'-5"	26'-3"	25'-0"	-	29'-0"	26'-11"	25'-8"	

- 1. The tabulated clear spans are based on CSA 086-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

### Maximum Floor Spans - M7.1

Design Criteria

Spans:

Simple span

Loads: Deflection limits: Live load = 40 psf and dead load = 20 psf L/480 under live load and L/240 under total load

Sheathing:

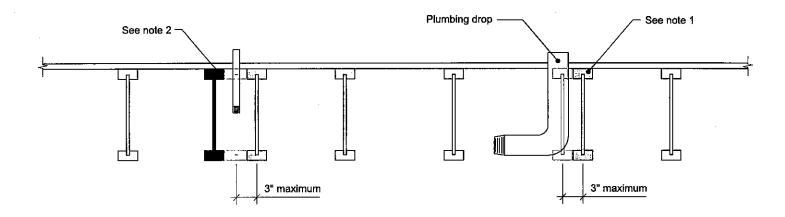
3/4 in. nailed-glued Canadian softwood plywood

Maximum Floor Spans

			В	are			1/2 in. gyr	sum ceiling	
Joist depth	Joist series		On cent	re spacing			On cent	re spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
0.4(0))	NI-40x	16'-11"	15'-11"	15'-4"	14'-9"	17' <b>-4</b> "	16'-4"	15'-9"	14'-11"
9-1/2"	NI-60	17'-1"	16'-1"	15'-6"	14'-10"	17'-6"	16'-6"	15'-11" ·	15'-3"
	NI-80	18'-1"	17'-0"	16'-4"	15'-8"	18'-7"	17'-4"	16'-8"	16'-0"
	NI-20	17'-10"	16'-10"	16'-2"	15'-7"	18'-5"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-3"	17'-10"	17'-2"	16'-6"	19'-10"	18'-5"	17'-8"	16'-11"
11-7/8"	NI-60	19'-6"	18'-1"	17'-4"	16'-8"	20'-1"	18'-8"	17'-10"	17'-1"
	NI-80	20'-11"	19'-4"	18'-5"	17'-7"	21'-5"	19'-10"	18'-11"	17'-11"
	NI-90	21'-4"	19'-9"	18'-9"	17'-10"	21'-10"	20'-3"	19'-3"	18'-3"
	NI-40x	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-5"	19'-6"	18'-6"
4.40	NI-60	21'-8"	20'-1"	19'-2"	18'-2"	22'-4"	20'-9"	19'-9"	18'-9"
14"	NI-80	23'-3"	21'-6"	20'-5"	19'-4"	23'-10"	22'-1"	21'-0"	19'-11"
	NI-90	23'-9"	21'-11"	20'-10"	19'-8"	24'-3"	22'-6"	21'-5"	20'-3"
-	NI-60	23'-7"	21'-10"	20'-10"	19'-9"	24'-4"	22'-7"	21'-7"	20'-5"
16"	NI-80	25'-4"	23'-5"	22'-3"	21'-1"	26'-0"	24'-1"	22'-11"	21'-8"
	N1-90	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"

	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
Joist depth									
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-7"	17'-2"	16'-3"	14'-11"	18'-10"	17'-2"	16'-3"	14'-11"
	NI-60	18'-10"	17'-6"	16'-6"	15'-5"	19'-1"	17'-6"	16'-6"	15'-5"
	NI-80	20'-2"	18'-9"	17'-11"	16'-10"	20'-7"	20'-7" 19'-2"	18'-2"	16'-10"
11-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-1"	20'-1"	18'-5"	17'-5"	16'-1"
	NI-40x	21'-9"	20'-3"	19'-0"	17'-0"	22'-4"	20'-5"	19'-0"	17'-0"
	NI-60	22'-0"	20'-6"	19'-7"	18'-4"	22'-7"	20'-10"	19'-8"	18'-4"
	NI-80	23'-6"	21'-10"	20'-10"	19'- <del>9</del> "	24'-0"	22'-5"	21'-4"	20'-0"
	NI-90	24'-0"	22'-4"	21'-3"	20'-1"	24'-6"	22'-10"	21'-9"	20'-7"
	NI-40x	24'-4"	22'-8"	20'-11"	20'-11" 18'-8" 25'-0" 23	22'-11"	20'-11"	18'-8"	
14"	NI-60	24'-9"	23'-0"	22'-0"	20'-9"	25'-5"	23'-8"	22'-4"	20'-10"
	NI-80	26'-5"	24'-6"	23'-4"	22'-1"	27'-0"	25'-2"	24'-0"	22'-8"
	NI-90	26'-11"	25'-0"	23'-10"	22'-6"	27'-5"	25'-7"	24'-5"	23'-1"
16"	NI-60	27'-2"	25'-4"	24'-2"	22'-10"	27'-11"	26'-1"	24'-9"	23'-1"
	NI-80	29'-0"	26'-11"	25'-8"	24'-3"	29'-7"	27'-7"	26'-4"	24'-11"
	NI-90	29'-6"	27'-5"	26'-1"	24'-8"	30'-1"	28'-1"	26'-9"	25'-4"

- 1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- 2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- 5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.



#### Notes:

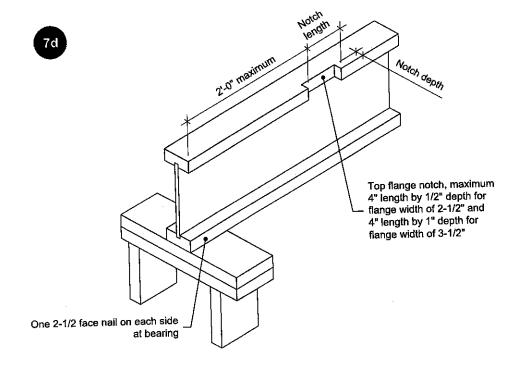
- 1. To prevent interference with plumbing, a joist may be shifted up to 3 inches if the edge of the floor panel is supported and the span rating is not exceeded.
- 2. In all other cases, an additional joist is required.

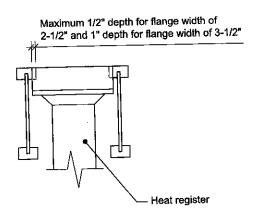
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

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Allowance for Piping		drawing 7c		
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#### Notes:

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

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

NORDIC STRUCTURES

NS-DC3 I+I DETAILS NORDIC JOIST Notch in I-joist for Heat Register

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CATEGORY Openings for Vertical Elements