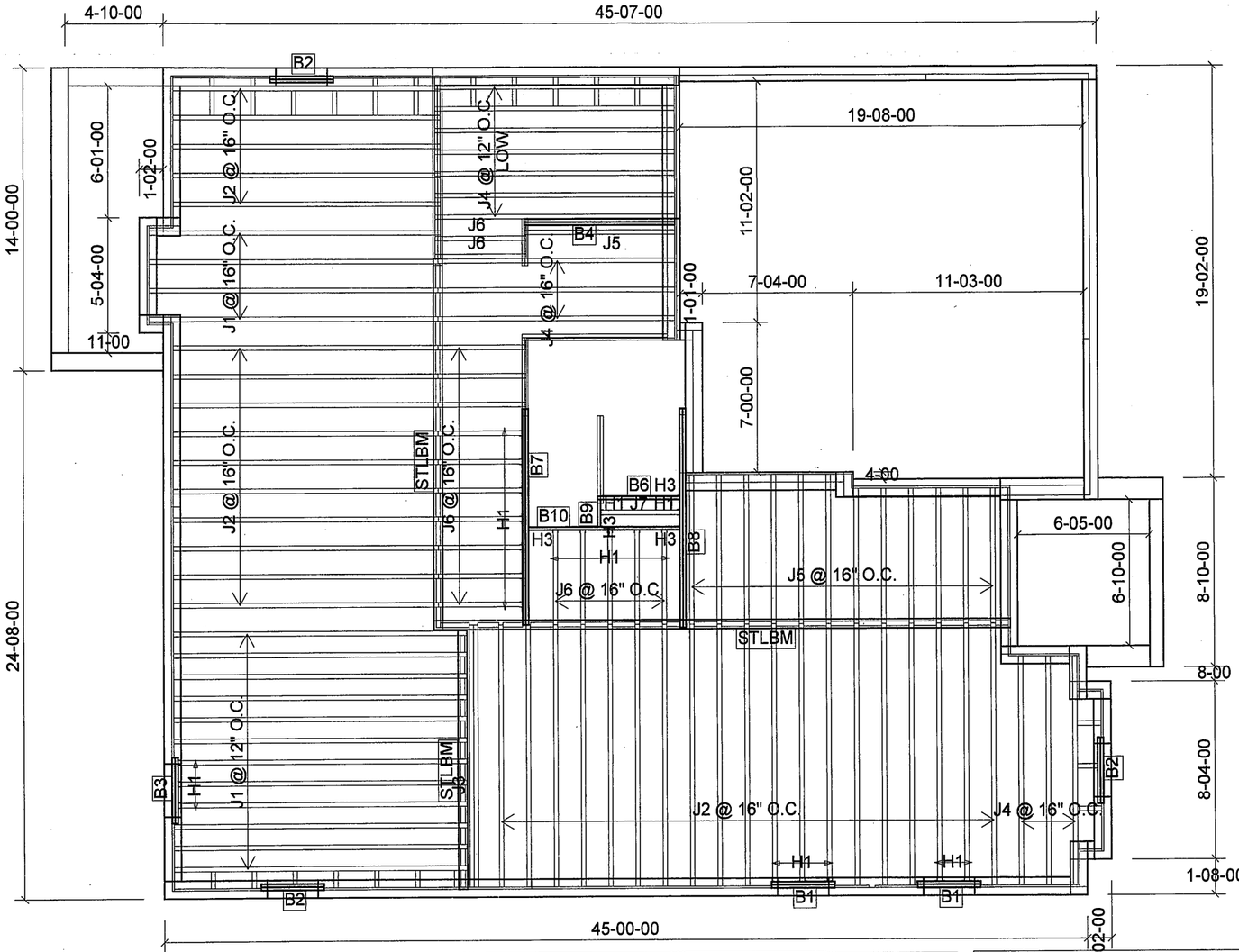


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	16
J2	14-00-00	9 1/2" NI-40x	1	34
J3	14-00-00	9 1/2" NI-40x	2	2
J4	12-00-00	9 1/2" NI-40x	1	13
J5	8-00-00	9 1/2" NI-40x	1	13
J6	6-00-00	9 1/2" NI-40x	1	17
J7	4-00-00	9 1/2" NI-40x	1	1
B7	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	4
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	6
B3	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/9.5
16	H1	IUS2.56/9.5
1	H3	HUS1.81/10
3	H3	HUS1.81/10

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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂

SUBFLOOR: 5/8" GLUED AND NAILED

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: 2017
BUILDER: GREENYORK HOMES
SITE: OSTEINSE
MODEL: AUBURN 3
ELEVATION: 1
LOT:
CITY: BRAMPTON
SALESMAN: R D
DESIGNER: LBV
REVISION:
DATE: 2017-06-07

1st FLOOR

DATE 6/15/17

BCIN: 26064; FIRM: 29991

ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS □AS PER PLAN WORK□ DO NOT REPRESENT A PART OF THE SCOPE OF WORK WITHIN THE BOUNDARIES OF THE SEAL. THIS WORK IS DELEGATED TO A QUALIFIED BUILDING DESIGNER HAVING RESPONSIBILITY FOR THIS PROJECT. ALL BEAMS NOT ADDRESSED IN THIS DESCRIPTION AND LABELLED ON THIS LAYOUT ARE BEAMS SPECIFIED BY BUILDING DESIGNER AND/OR PROJECT ENGINEER AND ARE TO BE REVIEWED AND CONFIRMED BY THE SAME DESIGNER(S) PRIOR TO FABRICATION TO ENSURE ADEQUATE LOAD CAPACITY WITH RESPECT TO THE FLOOR SYSTEM COMPONENTS REVIEWED IN THIS SUBMISSION.
MUNICIPALITY HAVING JURISDICTION TO OBTAIN LOT SPECIFIC SCHEDULE 1 FORM FROM THIS OFFICE PRIOR TO BUILDING PERMIT APPROVAL.
INSTALLERS OF THIS FLOOR SYSTEM AND THEIR COMPANIES HAVE THE RESPONSIBILITY OF ENSURING THEY HAVE A COPY OF THE NORDIC INSTALLATION GUIDE AND ANY OTHER MANUFACTURER'S PRODUCT LITERATURE WHICH WILL AID IN THE OVERALL PROPER INSTALLATION OF THIS FLOOR SYSTEM. INSTALLERS ARE TO READ ALL PRODUCT LITERATURE AND INSTALLATION GUIDELINES BEFORE PROCEEDING. THE SUPPLIER AND SEALING ENGINEER OF THIS FLOOR SYSTEM ARE NOT RESPONSIBLE FOR SURPLUS OR DEFICIT OF PRODUCTS AT PROJECT'S END. THIS LAYOUT IS A GUIDE ONLY. CONFIRMATION OF ALL QUANTITIES, LENGHTS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

DWG# TAM 3081912 THROUGH DWG# TAM 3082712 INCLUSIVE DATED 6/15/17

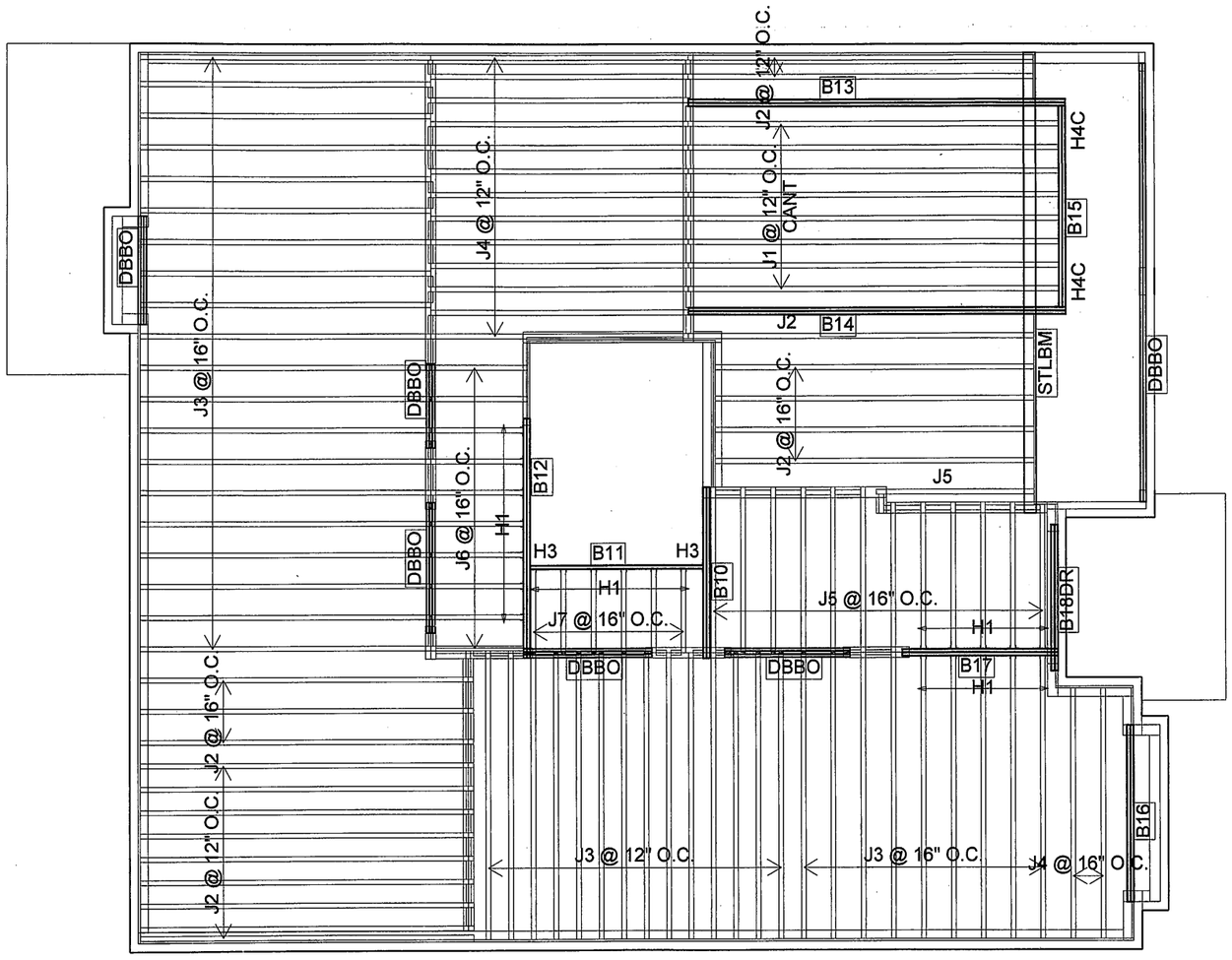
SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.
A COMPLETE FRAMING PLAN REQUIRES THE NORDIC PUBLISHED LITERATURE, WHICH INCLUDES INSTALLATION REQUIREMENTS, HANDLING AND STORAGE GUIDELINES, AND FORMS AN INTEGRAL PART OF THIS SEALED DOCUMENT. INSTALL SQUASH BLOCKS FOR TRANSFERRING POINT LOADS FROM GIRDER TRUSSES, HEADERS, AND BEAMS DOWN TO FOUNDATION COMPONENTS. FOR PROPER INSTALLATION, SEE NORDIC LITERATURE. PROVIDE 2 X 4 OR 2 X 6 STUD GRADE OR BETTER SQUASH BLOCKS, MATCHING SUPPORTED WALL WIDTH ABOVE BLOCKS. INSTALL SQUASH BLOCKS ON EACH SIDE OF JOIST. BLOCKING TO BE 1/16□ DEEPER THAN JOIS DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.

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

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

DWG # TAM 3083712
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL COMPONENTS ONLY

LICENSED PROFESSIONAL ENGINEER
6/15/17
S. KATSOULAKOS
PROVINCE OF ONTARIO



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	8
J2	16-00-00	9 1/2" NI-40x	1	19
J3	14-00-00	9 1/2" NI-40x	1	43
J4	12-00-00	9 1/2" NI-40x	1	15
J5	8-00-00	9 1/2" NI-40x	1	13
J6	6-00-00	9 1/2" NI-40x	1	10
J7	4-00-00	9 1/2" NI-40x	1	6
B13	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18DR	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/9.5
17	H1	IUS2.56/9.5
2	H3	HUS1.81/10
2	H4C	HUC410

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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂

SUBFLOOR: 5/8" GLUED AND NAILED

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: 2017

BUILDER: GREENYORK HOMES

SITE: OSTEINSE

MODEL: AUBURN 3

ELEVATION: 1

LOT:

CITY: BRAMPTON

SALESMAN: R D
DESIGNER: LBV
REVISION:

DATE: 2017-06-07

2nd FLOOR

DATE 6/15/17

BCIN: 26064; FIRM: 29991

ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS □AS PER PLAN WORK□ DO NOT REPRESENT A PART OF THE SCOPE OF WORK WITHIN THE BOUNDARIES OF THE SEAL. THIS WORK IS DELEGATED TO A QUALIFIED BUILDING DESIGNER HAVING RESPONSIBILITY FOR THIS PROJECT. ALL BEAMS NOT ADDRESSED IN THIS DESCRIPTION AND LABELLED ON THIS LAYOUT ARE BEAMS SPECIFIED BY BUILDING DESIGNER AND/OR PROJECT ENGINEER AND ARE TO BE REVIEWED AND CONFIRMED BY THE SAME DESIGNER(S) PRIOR TO FABRICATION TO ENSURE ADEQUATE LOAD CAPACITY WITH RESPECT TO THE FLOOR SYSTEM COMPONENTS REVIEWED IN THIS SUBMISSION.
MUNICIPALITY HAVING JURISDICTION TO OBTAIN LOT SPECIFIC SCHEDULE 1 FORM FROM THIS OFFICE PRIOR TO BUILDING PERMIT APPROVAL.
INSTALLERS OF THIS FLOOR SYSTEM AND THEIR COMPANIES HAVE THE RESPONSIBILITY OF ENSURING THEY HAVE A COPY OF THE NORDIC INSTALLATION GUIDE AND ANY OTHER MANUFACTURER'S PRODUCT LITERATURE WHICH WILL AID IN THE OVERALL PROPER INSTALLATION OF THIS FLOOR SYSTEM. INSTALLERS ARE TO READ ALL PRODUCT LITERATURE AND INSTALLATION GUIDELINES BEFORE PROCEEDING. THE SUPPLIER AND SEALING ENGINEER OF THIS FLOOR SYSTEM ARE NOT RESPONSIBLE FOR SURPLUS OR DEFICIT OF PRODUCTS AT PROJECT'S END. THIS LAYOUT IS A GUIDE ONLY. CONFIRMATION OF ALL QUANTITIES, LENGHTS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

DWG# TAM 308287 THROUGH DWG# TAM 308367, INCLUSIVE DATED 6/15/17

SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.
A COMPLETE FRAMING PLAN REQUIRES THE NORDIC PUBLISHED LITERATURE, WHICH INCLUDES INSTALLATION REQUIREMENTS, HANDLING AND STORAGE GUIDELINES, AND FORMS AN INTEGRAL PART OF THIS SEALED DOCUMENT. INSTALL SQUASH BLOCKS FOR TRANSFERRING POINT LOADS FROM GIRDER TRUSSES, HEADERS, AND BEAMS DOWN TO FOUNDATION COMPONENTS. FOR PROPER INSTALLATION, SEE NORDIC LITERATURE. PROVIDE 2 X 4 OR 2 X 6 STUD GRADE OR BETTER SQUASH BLOCKS, MATCHING SUPPORTED WALL WIDTH ABOVE BLOCKS. INSTALL SQUASH BLOCKS ON EACH SIDE OF JOIST. BLOCKING TO BE 1/16□ DEEPER THAN JOIS DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.

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

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

DWG # TAM 308367
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL COMPONENTS ONLY

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
6/15/17
PROVINCE OF ONTARIO

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			Application number:
Building number, street name			Unit no. / Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description	

B. Individual who reviews and takes responsibility for design activities			
Name **SAM KATSOULAKOS, P. ENG.**		Firm **MICRO CITY ENGINEERING SERVICES INC.**	
Street address **R.R #1, PO BOX 61**			Unit no. / Lot/con.
Municipality **GLENCOE**	Postal code **N0L 1M0**	Province **ONTARIO**	E-mail
Telephone number **(519) 287-2242 Business**	Fax number **(519) 287-5750**		Cell number

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

☐ House	☐ HVAC – House	☒ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems

Description of designer's work **GREENYORK HOMES – OSTIENSE – MODEL: AUBURN 3 – ELEV. 1**
1ST FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC)
REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM30837-17 DATED 6-15-17).
SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFED BY QUALIFIED BUILDING DESIGNER.

D. Declaration of Designer

I, SAM KATSOULAKOS, P. ENG declare that (choose one as appropriate):
(print name)

☒ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: 26064

Firm BCIN: 29991

☐ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.
Individual BCIN: _____

Basis for exemption from registration: _____

☐ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date 6/15/17 Signature of Designer

NOTE:

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

DWG#TAM30837-17-S 6/15/17
DWG#TAM30839-17-S

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			Application number:
Building number, street name			Unit no. / Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description	

B. Individual who reviews and takes responsibility for design activities			
Name: **SAM KATSOULAKOS, P. ENG.**		Firm: **MICRO CITY ENGINEERING SERVICES INC.**	
Street address: **R.R #1, PO BOX 61**			Unit no. / Lot/con.
Municipality: **GLENCOE**	Postal code: **N0L 1M0**	Province: **ONTARIO**	E-mail
Telephone number: **(519) 287-2242 Business**	Fax number: **(519) 287-5750**		Cell number

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]

☐ House	☐ HVAC – House	☒ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems

Description of designer's work **GREENYORK HOMES – OSTIENSE – MODEL: AUBURN 3 – ELEV. 1**
2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC)
REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM30838-17 DATED 6-15-17).
SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFED BY QUALIFIED BUILDING DESIGNER.

D. Declaration of Designer

I, SAM KATSOULAKOS, P. ENG declare that (choose one as appropriate):
(print name)

☒ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: 26064

Firm BCIN: 29991

☐ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5.of Division C, of the Building Code.
Individual BCIN: _____

Basis for exemption from registration: _____

☐ The design work is exempt from the registration and qualification requirements of the Building Code.
Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have submitted this application with the knowledge and consent of the firm.

Date 6/15/17 Signature of Designer

NOTE:

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

DWG#TAM 30838 17-S 6/15/17
DWG#TAM 30840 17-S

NORDIC STRUCTURES

COMPANY	PROJECT
TAMARACK LUMBER BURLINGTON June 7, 2017 10:30	J1 GARAGE

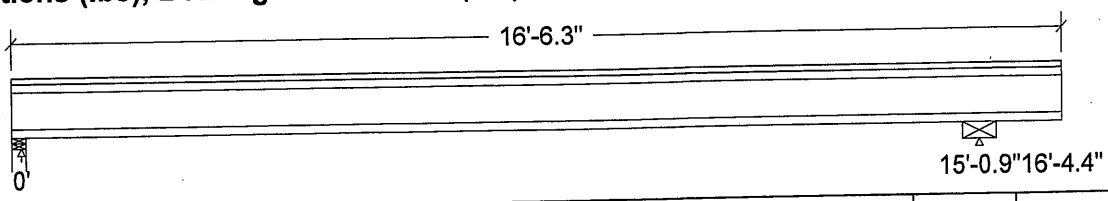
Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

Loads:

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

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



Unfactored:				
Dead	153		178	
Live	308		355	
Factored:				
Total	652		755	
Bearing:				
Resistance			4150	
Joist	1871		-	
Support	4756			
Des ratio			0.18	
Joist	0.35		-	
Support	0.14		#2	
Load case	#4		6-1/2	
Length	2-3/4		3-1/2	
Min req'd	1-3/4		No	
Stiffener	No		1.00	
Kd	1.00		-	
KB support	1.00		-	
fcp sup	769		-	
Kzcp sup	1.13			

*Minimum bearing length for joists is 2" for exterior supports
Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to Kd factor. See Analysis results for reaction from critical load combination.
Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;
Total length: 16'-6.3"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

LICENSED PROFESSIONAL ENGINEER
61527
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3081617
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 645	Vr = 1895	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 2404	Mr = 4824	lbs-ft	Mf/Mr = 0.50
Moment(-)	Mf = 71	Mr = 4824	lbs-ft	Mf/Mr = 0.01
Deflection:				
Interior Perm	0.10 = <L/999	0.50 = L/360	in	0.20
Live	0.20 = L/895	0.38 = L/480	in	0.54
Total	0.30 = L/600	0.75 = L/240	in	0.40
Cantil. Perm	-0.02 = L/648	0.09 = L/180	in	0.28
Live	-0.05 = L/314	0.06 = L/240	in	0.76
Total	-0.07 = L/211	0.13 = L/120	in	0.57
Bare Defl'n	-0.06 = L/265	0.09 = L/180	in	0.68
Vibration	Lmax = 15'-1	Lv = 16'-9	ft	
Defl'n	= 0.031	= 0.043	in	0.72

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#4
Mr-	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million		-	-	-	-	-	-	#4

CRITICAL LOAD COMBINATIONS:

```
Shear      : LC #2  = 1.25D + 1.5L
Moment(+)  : LC #4  = 1.25D + 1.5L (pattern: L_)
Moment(-)  : LC #2  = 1.25D + 1.5L
Deflection: LC #1  = 1.0D  (permanent)
            LC #4  = 1.0D + 1.0L (pattern: L_)  (live)
            LC #4  = 1.0D + 1.0L (pattern: L_)  (total)
            LC #4  = 1.0D + 1.0L (pattern: L_)  (bare joist)
Bearing    : Support 1 - LC #2 = 1.25D + 1.5L
             Support 2 - LC #0 = 1.4D
Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
            L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
Load Patterns: s=S/2  L=L+Ls  _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
```

CALCULATIONS:

```
Deflection:  EIeff =    258e06 lb-in2  K=  4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
```

Design Notes:

CONFORMS TO OBC 2012

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (May 2014 edition).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this 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.

DWG NO. TAM30816-17
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY	PROJECT
TAMARACK LUMBER BURLINGTON June 7, 2017 10:30	J2 1ST FLR

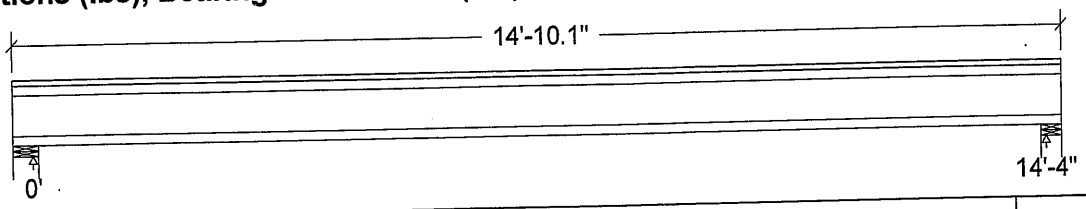
Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

Loads:

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

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



Unfactored:			
Dead	199		197
Live	398		394
Factored:			
Total	845		837
Bearing:			
Resistance			1884
Joist	1893		6188
Support	7735		
Des ratio			0.44
Joist	0.45		0.14
Support	0.11		#2
Load case	#2		3-1/2
Length	4-3/8		1-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
Kd	1.00		1.00
KB support	1.00		769
fcp sup	769		1.15
Kzcp sup	1.15		

*Minimum bearing length for joists is 2" for exterior supports

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

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

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

Total length: 14'-10.1"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 812	Vr = 1895	lbs	Vf/Vr = 0.43
Moment(+)	Mf = 2911	Mr = 4824	lbs-ft	Mf/Mr = 0.60
Perm. Defl'n	0.11 = <L/999	0.48 = L/360	in	0.23
Live Defl'n	0.22 = L/796	0.36 = L/480	in	0.60
Total Defl'n	0.32 = L/531	0.72 = L/240	in	0.45
Bare Defl'n	0.26 = L/664	0.48 = L/360	in	0.54
Vibration	Lmax = 14'-4	Lv = 15'-9	ft	
Defl'n	= 0.034	= 0.046	in	0.74

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

pgl

DWG NO. TAM30617-17
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million		-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

```
Shear      : LC #2  = 1.25D + 1.5L
Moment(+)  : LC #2  = 1.25D + 1.5L
Deflection: LC #1  = 1.0D  (permanent)
            LC #2  = 1.0D + 1.0L  (live)
            LC #2  = 1.0D + 1.0L  (total)
            LC #2  = 1.0D + 1.0L  (bare joist)
Bearing    : Support 1 - LC #2 = 1.25D + 1.5L
             Support 2 - LC #2 = 1.25D + 1.5L
Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
            L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
Load Patterns: s=S/2  L=L+Ls  _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
```

CALCULATIONS:

```
Deflection:  EIeff =    268e06 lb-in2  K=  4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
```

Design Notes:

CONFORMS TO OBC 2012

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (May 2014 edition).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this 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.

DWG NO. TAM 308171 7
STRUCTURAL
COMPONENT ONLY

NORDIC
STRUCTURES

COMPANY	PROJECT
TAMARACK LUMBER BURLINGTON June 7, 2017 10:34	J1 GRD FLR

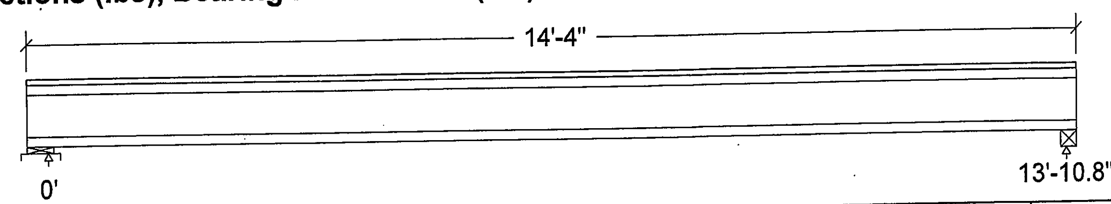
Design Check Calculation Sheet

Nordic Sizer – Canada 6.4

Loads:

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

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



	0'		13'-10.8"
Unfactored:			
Dead	193		189
Live	386		378
Factored:			
Total	820		804
Bearing:			
Resistance			
Joist	1893		1869
Support	6726		-
Des ratio			
Joist	0.43		0.43
Support	0.12		-
Load case	#2		#2
Length	4-3/8		2-5/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.00		-

*Minimum bearing length for joists is 2" for exterior supports

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;
Total length: 14'-4.0"; 5/8" 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 = 788	Vr = 1895	lbs	Vf/Vr = 0.42
Moment(+)	Mf = 2736	Mr = 4824	lbs-ft	Mf/Mr = 0.57
Perm. Defl'n	0.10 = <L/999	0.46 = L/360	in	0.21
Live Defl'n	0.19 = L/867	0.35 = L/480	in	0.55
Total Defl'n	0.29 = L/578	0.69 = L/240	in	0.41
Bare Defl'n	0.23 = L/724	0.46 = L/360	in	0.50
Vibration	Lmax = 13'-11	Lv = 15'-4	ft	
Defl'n	= 0.035	= 0.048	in	0.72

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30818.17
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 million		-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

```
Shear      : LC #2  = 1.25D + 1.5L
Moment(+)  : LC #2  = 1.25D + 1.5L
Deflection: LC #1  = 1.0D  (permanent)
            LC #2  = 1.0D + 1.0L  (live)
            LC #2  = 1.0D + 1.0L  (total)
            LC #2  = 1.0D + 1.0L  (bare joist)
Bearing    : Support 1 - LC #2 = 1.25D + 1.5L
             Support 2 - LC #2 = 1.25D + 1.5L
Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
            L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
Load Patterns: s=S/2  L=L+Ls  _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output
```

CALCULATIONS:

```
Deflection:  EIeff =    268e06 lb-in2  K=  4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
```

Design Notes:

CONFORMS TO OBC 2012

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (May 2014 edition).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this 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.

DWG NO. TAM 30818.17
STRUCTURAL
COMPONENT ONLY

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B10(i357)

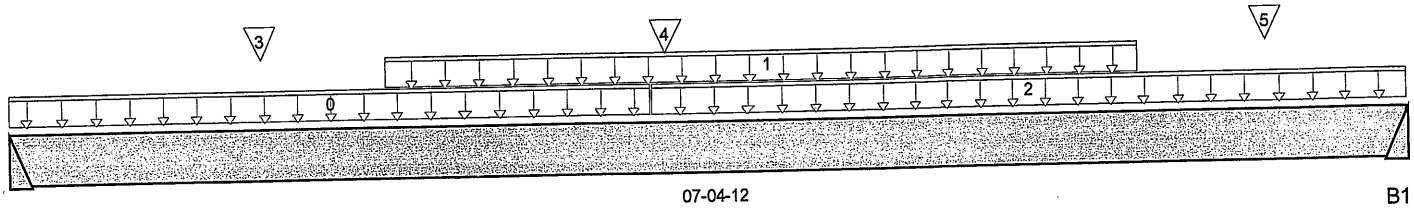
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:38:59

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B10(i357)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 07-04-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	943 / 0	491 / 0		
B1	539 / 0	288 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	0	Unf. Lin. (lb/ft)	L	00-00-00	03-04-08	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-11-12	05-11-12	89	44			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-04-08	07-04-12	15	7			n/a
3	J6(i616)	Conc. Pt. (lbs)	L	01-03-12	01-03-12	128	64			n/a
4	B9(i439)	Conc. Pt. (lbs)	L	03-05-06	03-05-06	28	17			n/a
5	J6(i640)	Conc. Pt. (lbs)	L	06-07-12	06-07-12	99	49			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,008 ft-lbs	12,704 ft-lbs	23.7%	1	02-11-01
End Shear	1,534 lbs	5,785 lbs	26.5%	1	00-11-08
Total Load Defl.	L/999 (0.076")	n/a	n/a	4	03-07-00
Live Load Defl.	L/999 (0.05")	n/a	n/a	5	03-07-00
Max Defl.	0.076"	n/a	n/a	4	03-07-00
Span / Depth	9.1	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	2,029 lbs	n/a	47.5%	HUS1.81/10
B1	Hanger	2" x 1-3/4"	1,170 lbs	n/a	27.4%	HUS1.81/10

Notes

DWG NO. TAM30819-17
STRUCTURAL
COMPONENT ONLY

Boise Cascade Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B10(i357)

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

June 7, 2017 10:38:59

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B10(i35
Specifier:
Designer:
Company:
Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
6252
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3081-17
STRUCTURAL
COMPONENT ONLY

Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B7(i3312)

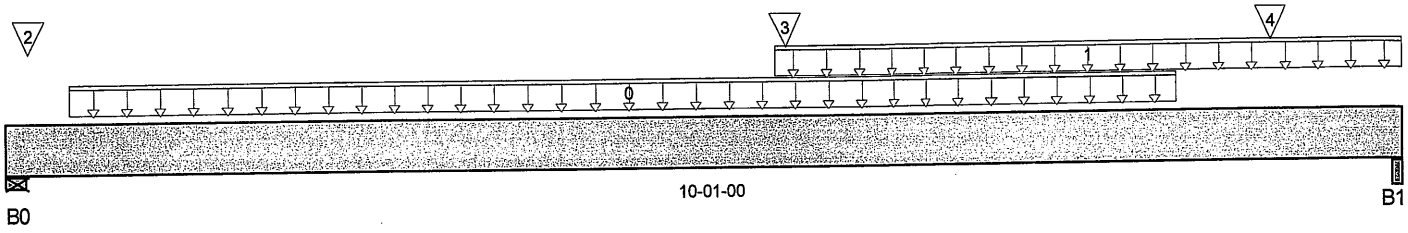
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:01

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B7(i3312)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 10-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	1,162 / 0	687 / 0		
B1, 2-5/8"	1,012 / 0	566 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-08	08-05-08	88	44			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	05-06-02	10-01-00	29	15			n/a
2	12(i1043)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	297	195			n/a
3	B10(i357)	Conc. Pt. (lbs)	L	05-07-00	05-07-00	938	488			n/a
4	J6(i598)	Conc. Pt. (lbs)	L	09-01-08	09-01-08	98	49			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,442 ft-lbs	25,408 ft-lbs	29.3%	1	05-07-00
End Shear	2,138 lbs	11,571 lbs	18.5%	1	09-00-14
Total Load Defl.	L/752 (0.154")	0.483"	31.9%	4	05-02-11
Live Load Defl.	L/999 (0.099")	n/a	n/a	5	05-02-11
Max Defl.	0.154"	n/a	n/a	4	05-02-11
Span / Depth	12.2	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	4" x 3-1/2"	2,602 lbs	34.8%	15.2%	Unspecified
B1	Beam	2-5/8" x 3-1/2"	2,226 lbs	45.4%	19.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
CONFORMS TO OBC 2012
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30822-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B7(i3312)

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

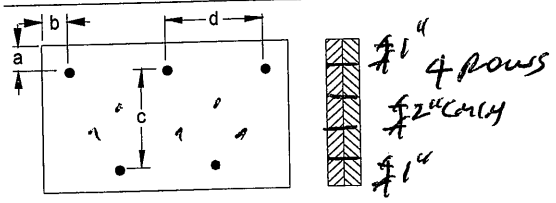
June 7, 2017 10:39:01

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B7(i331
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 1" c = 1-1/2"
b minimum = 3" d = 4"

Calculated Side Load = 200.0 lb/ft

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

Connectors are: Nails

3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30829-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B2(i3103)

Boise Cascade

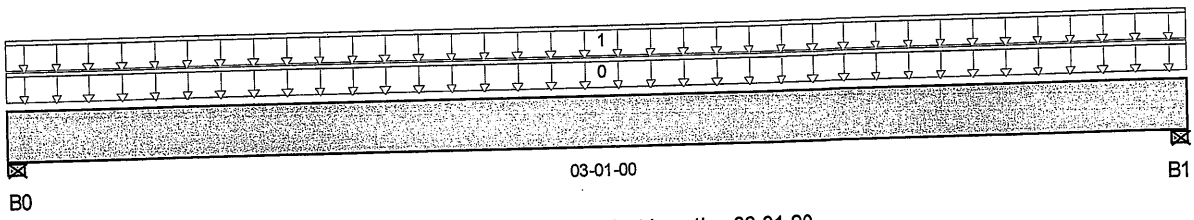
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:03

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B2(i3103)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	65 / 0	180 / 0		
B1, 3-1/2"	65 / 0	180 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E4(i856)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	31	101			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	12	6			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	141 ft-lbs	16,515 ft-lbs	0.9%	0	01-06-08
End Shear	75 lbs	7,521 lbs	1%	0	01-01-00
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-06-08
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-06-08
Max Defl.	0"	n/a	n/a	4	01-06-08
Span / Depth	3.3	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	252 lbs	5.9%	2.6%	Unspecified
B1	Wall/Plate	3-1/2" x 3-1/2"	252 lbs	5.9%	2.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
6522
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 30211 17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B2(i3103)

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

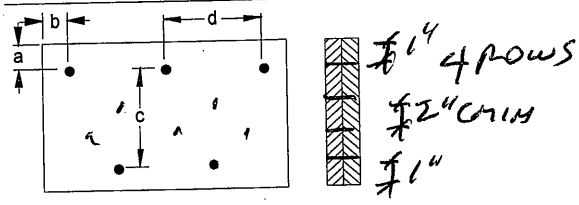
June 7, 2017 10:39:03

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B2(i310
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 3" c = 3-1/2"
b minimum = 3" d = 4"

Member has no side loads.
Connectors are: 16d Sinker Nails
3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
6217
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30821-17
STRUCTURAL
COMPONENT ONLY

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B6(i151)

Boise Cascade

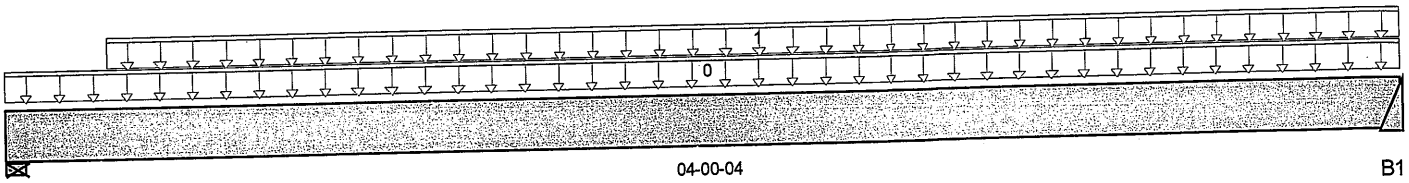
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:05

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B6(i151)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 04-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	459 / 0	240 / 0		
B1	497 / 0	258 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-04	15	8			n/a
1	0	Unf. Lin. (lb/ft)	L	00-03-08	04-00-04	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	932 ft-lbs	12,704 ft-lbs	7.3%	1	02-00-14
End Shear	543 lbs	5,785 lbs	9.4%	1	01-01-00
Total Load Defl.	L/999 (0.006")	n/a	n/a	4	02-00-14
Live Load Defl.	L/999 (0.004")	n/a	n/a	5	02-00-14
Max Defl.	0.006"	n/a	n/a	4	02-00-14
Span / Depth	4.7	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	988 lbs	30.2%	13.2%	Unspecified
B1	Hanger	2" x 1-3/4"	1,068 lbs	n/a	25%	HUS1.81/10

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
6157
S. KATSOULAKOS
PROVINCE OF ONTARIO

BCIN NO. TAM 30822 - 17
STRUCTURAL COMPONENT ONLY

Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i3282)

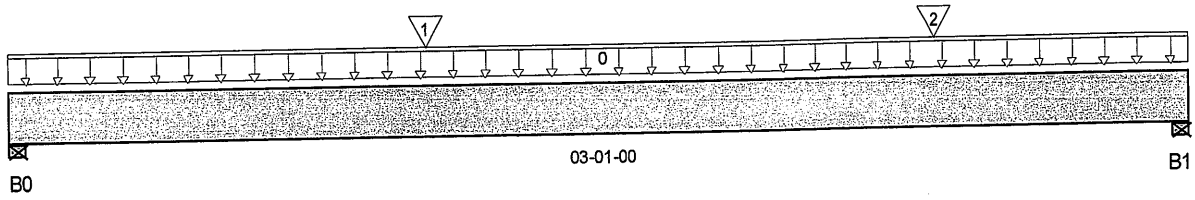
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:07

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B1(i3282)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	669 / 0	474 / 0		
B1, 3-1/2"	775 / 0	527 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E7(i857)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	252	207			n/a
1	J2(i3210)	Conc. Pt. (lbs)	L	01-01-00	01-01-00	334	167			n/a
2	J2(i3371)	Conc. Pt. (lbs)	L	02-05-00	02-05-00	334	167			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,026 ft-lbs	25,408 ft-lbs	4%	1	01-04-07
End Shear	1,398 lbs	11,571 lbs	12.1%	1	01-01-00
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-06-08
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-06-08
Max Defl.	0.002"	n/a	n/a	4	01-06-08
Span / Depth	3.3	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1,596 lbs	24.4%	10.7%	Unspecified
B1	Wall/Plate	3-1/2" x 3-1/2"	1,821 lbs	27.8%	12.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

P&L

DWG NO. TAM30823-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B1(i3282)

Boise Cascade

BC CALC® Design Report

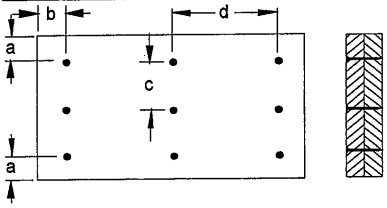
Dry| 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:07

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B1(i328:
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 2" c = 2-3/4"
b minimum = 3" d = 6"

Calculated Side Load = 460.4 lb/ft

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

Connectors are: 16d Nails

3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
6457
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3002317
STRUCTURAL
COMPONENT ONLY

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B9(i439)

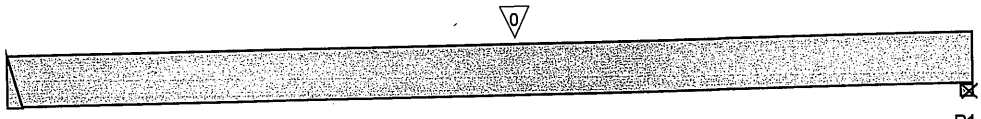
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:09

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B9(i439)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 01-03-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	29 / 0	18 / 0		
B1, 2-1/4"	34 / 0	20 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J7(i848)	Conc. Pt. (lbs)	L	00-08-00	00-08-00	63	31			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	36 ft-lbs	12,704 ft-lbs	0.3%	1	00-08-00
End Shear	11 lbs	5,785 lbs	0.2%	1	00-11-08
Span / Depth	1.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	66 lbs	n/a	1.5%	HUS1.81/10
B1	Wall/Plate	2-1/4" x 1-3/4"	75 lbs	3.6%	1.6%	Unspecified

Notes

Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30824-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B8(i323)

Boise Cascade

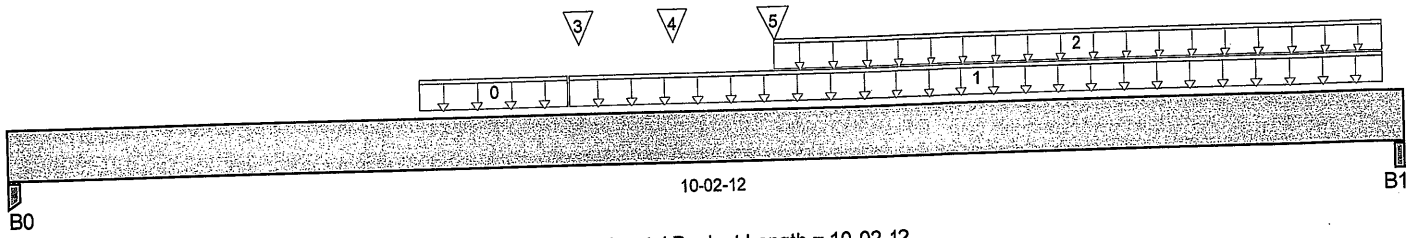
June 7, 2017 10:39:10

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

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B8(i323)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 10-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	603 / 0	364 / 0		
B1, 4-3/8"	630 / 0	378 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-00-00	04-01-00	12	6			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-01-00	10-01-00	9	4			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	05-07-00	10-01-00	18	9			n/a
3	B6(i151)	Conc. Pt. (lbs)	L	04-01-14	04-01-14	476	247			n/a
4	J7(i848)	Conc. Pt. (lbs)	L	04-10-02	04-10-02	60	30			n/a
5	B10(i357)	Conc. Pt. (lbs)	L	05-07-00	05-07-00	547	292			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,456 ft-lbs	24,625 ft-lbs	22.2%	1	05-07-00
End Shear	1,347 lbs	11,571 lbs	11.6%	1	01-01-00
Total Load Defl.	L/999 (0.118")	n/a	n/a	4	05-00-06
Live Load Defl.	L/999 (0.075")	n/a	n/a	5	05-00-06
Max Defl.	0.118"	n/a	n/a	4	05-00-06
Span / Depth	12.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Post	3-1/2" x 3-1/2"	1,360 lbs	13.7%	9.1%	Unspecified
B1	Beam	4-3/8" x 3-1/2"	1,418 lbs	17.3%	7.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 03-00-00, Bottom: 03-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 20825-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B8(i323)

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

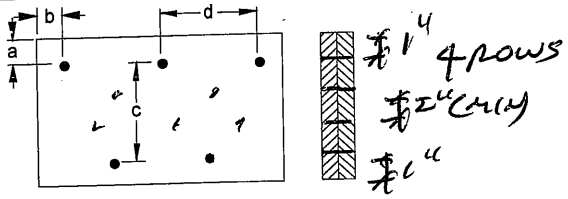
June 7, 2017 10:39:10

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B8(i323
Specifier:
Designer:
Company:
Misc:

Connection Diagram



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

Calculated Side Load = 228.3 lb/ft

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

Connectors are: 3-1/4" [illegible] Gun Nails

3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 3002517
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B4(i3523)

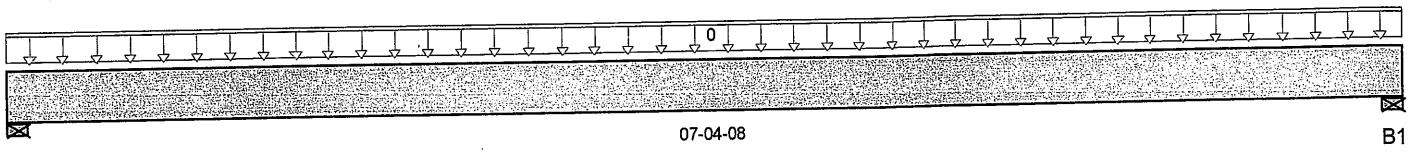
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:12

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B4(i3523)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 07-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	45 / 0	57 / 0		
B1, 4-3/8"	47 / 0	60 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-04-08	12	6			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	232 ft-lbs	25,408 ft-lbs	0.9%	1	03-07-04
End Shear	101 lbs	11,571 lbs	0.9%	1	00-11-14
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	03-07-04
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	03-07-04
Max Defl.	0.003"	n/a	n/a	4	03-07-04
Span / Depth	8.8	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	2-3/8" x 3-1/2"	139 lbs	3.1%	1.4%	Unspecified
B1	Wall/Plate	4-3/8" x 3-1/2"	146 lbs	1.8%	0.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
6757
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30626 17
STRUCTURAL
COMPONENT ONLY

Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B4(i3523)

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

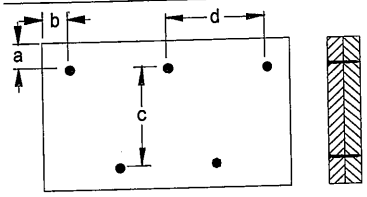
June 7, 2017 10:39:12

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B4(i352
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 2" c = 5-1/2"
b minimum = 3" d = 4"

Member has no side loads.
Connectors are: 16d Sinker Nails
3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3002617
STRUCTURAL
COMPONENT ONLY

Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i3345)

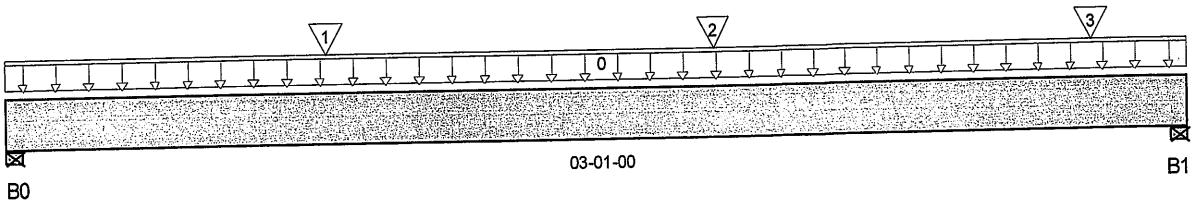
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:15

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B3(i3345)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	804 / 0	541 / 0		
B1, 3-1/2"	997 / 0	638 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E6(i852)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	302	232			n/a
1	J1(i3343)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	290	145			n/a
2	J1(i3347)	Conc. Pt. (lbs)	L	01-10-00	01-10-00	290	145			n/a
3	J1(i3229)	Conc. Pt. (lbs)	L	02-10-00	02-10-00	290	145			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,164 ft-lbs	25,408 ft-lbs	4.6%	1	01-08-00
End Shear	870 lbs	11,571 lbs	7.5%	1	01-01-00
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	01-06-05
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-06-05
Max Defl.	0.002"	n/a	n/a	4	01-06-05
Span / Depth	3.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1,882 lbs	28.8%	12.6%	Unspecified
B1	Wall/Plate	3-1/2" x 3-1/2"	2,294 lbs	35.1%	15.3%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30827-17
STRUCTURAL
COMPONENT ONLY

Boise Cascade Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basment\Flush Beams\B3(i3345)

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

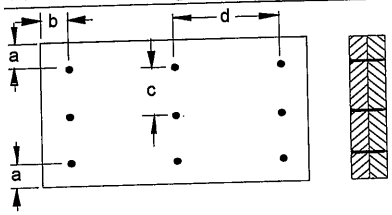
June 7, 2017 10:39:15

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\Basment\Flush Beams\B3(i334
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 2" c = 2-3/4"
b minimum = 3" d = [illegible] 6 c/

Calculated Side Load = 599.6 lb/ft

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

Connectors are: 16d [illegible] Nails
3½" TARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3082217
STRUCTURAL
COMPONENT ONLY

Boise Cascade Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B11(i3354)

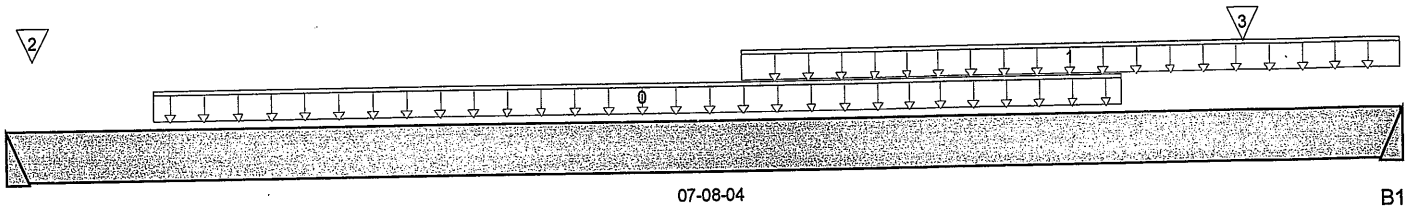
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:17

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i3354)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 07-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	496 / 0	267 / 0		
B1	937 / 0	488 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-12	06-01-12	76	38			n/a
1	0	Unf. Lin. (lb/ft)	L	04-00-04	07-08-04	240	120			n/a
2	J7(i3254)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	62	31			n/a
3	J7(i3357)	Conc. Pt. (lbs)	L	06-09-12	06-09-12	88	44			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,956 ft-lbs	12,704 ft-lbs	23.3%	1	04-06-12
End Shear	1,501 lbs	5,785 lbs	25.9%	1	06-08-12
Total Load Defl.	L/999 (0.08")	n/a	n/a	4	04-00-04
Live Load Defl.	L/999 (0.052")	n/a	n/a	5	04-00-04
Max Defl.	0.08"	n/a	n/a	4	04-00-04
Span / Depth	9.4	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	1,078 lbs	n/a	25.2%	HUS1.81/10
B1	Hanger	2" x 1-3/4"	2,015 lbs	n/a	47.2%	HUS1.81/10

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. YAM30828-17
STRUCTURAL
COMPONENT ONLY

Disclosure

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

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B15(i3530)

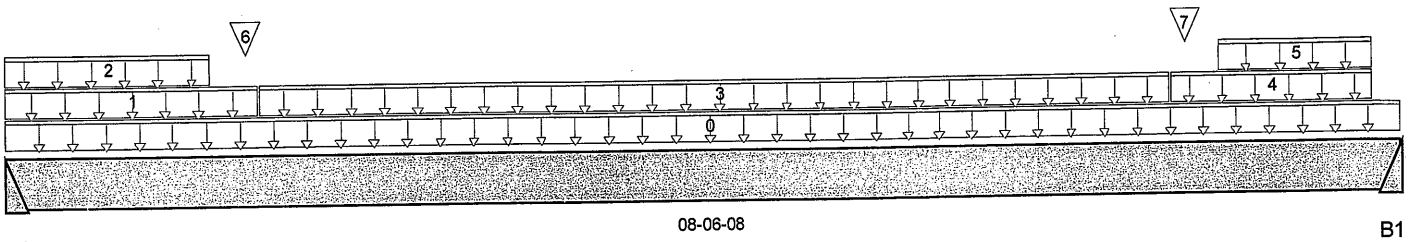
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:19

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B15(i3530)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 08-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	145 / 0	454 / 0	333 / 0	
B1	143 / 0	437 / 0	329 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	J8	Unf. Lin. (lb/ft)	L	00-00-00	08-06-08	23	21	54		n/a
1	E44(i2735)	Unf. Lin. (lb/ft)	L	00-00-00	01-06-08		81			n/a
2	E44(i2735)	Unf. Lin. (lb/ft)	L	00-00-00	01-03-00	11	10	24		n/a
3	E43(i2707)	Unf. Lin. (lb/ft)	L	01-06-08	07-01-08		41			n/a
4	E36(i1178)	Unf. Lin. (lb/ft)	L	07-01-08	08-04-08		81			n/a
5	E36(i1178)	Unf. Lin. (lb/ft)	L	07-05-00	08-04-08	11	10	24		n/a
6	E44(i2735)	Conc. Pt. (lbs)	L	01-05-08	01-05-08	34	77	74		n/a
7	E36(i1178)	Conc. Pt. (lbs)	L	07-02-08	07-02-08	34	77	74		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,948 ft-lbs	25,408 ft-lbs	7.7%	13	04-02-15
End Shear	866 lbs	11,571 lbs	7.5%	13	00-11-08
Total Load Defl.	L/999 (0.038")	n/a	n/a	45	04-02-15
Live Load Defl.	L/999 (0.018")	n/a	n/a	61	04-02-15
Max Defl.	0.038"	n/a	n/a	45	04-02-15
Span / Depth	10.5	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 3-1/2"	1,140 lbs	n/a	13.4%	HUC410
B1	Hanger	2" x 3-1/2"	1,112 lbs	n/a	13%	HUC410

Notes

LICENSED PROFESSIONAL ENGINEER
6/7/17
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30829-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B15(i3530)

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

June 7, 2017 10:39:19

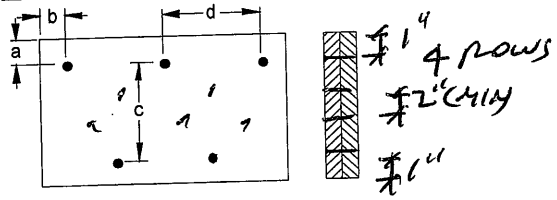
BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B15(i353
Specifier:
Designer:
Company:
Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 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

Connection Diagram



a minimum = 3" c = 3-1/2"
b minimum = 3" d = 12"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.
Connectors are: 16d Sinker Nails
3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30829-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i3390)

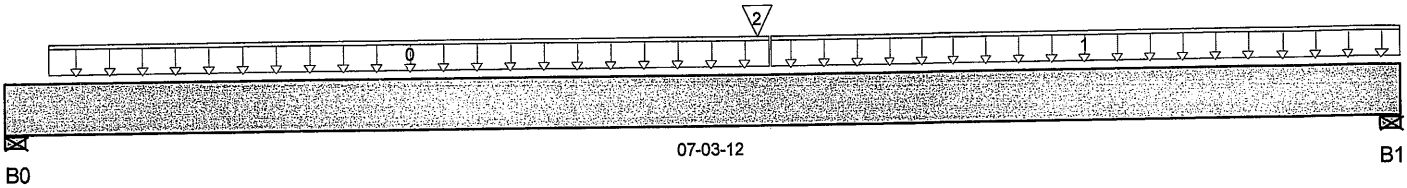
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:21

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i3390)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 07-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	509 / 0	298 / 0		
B1, 5-1/2"	551 / 0	321 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	03-11-12	27	13			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-11-12	07-03-12	9	5			n/a
2	B11(i3354)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	929	483			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,513 ft-lbs	25,408 ft-lbs	13.8%	1	03-10-14
End Shear	1,188 lbs	11,571 lbs	10.3%	1	06-00-12
Total Load Defl.	L/999 (0.031")	n/a	n/a	4	03-08-14
Live Load Defl.	L/999 (0.02")	n/a	n/a	5	03-08-14
Max Defl.	0.031"	n/a	n/a	4	03-08-14
Span / Depth	8.2	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	5-1/2" x 3-1/2"	1,136 lbs	11%	4.8%	Unspecified
B1	Wall/Plate	5-1/2" x 3-1/2"	1,227 lbs	11.9%	5.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
CONFORMS TO OBC 2012
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

P6 1/2

DWG NO. TAM 300370-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B10(i3390)

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

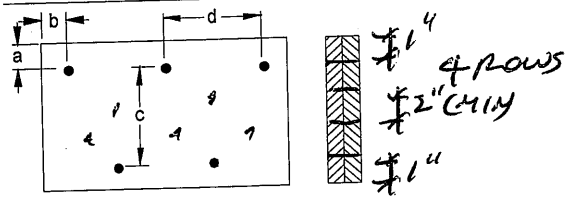
June 7, 2017 10:39:21

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i33
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 1" c = 3-1/2"
b minimum = 3" d = 4"

Calculated Side Load = 273.1 lb/ft

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

Connectors are: 16d 3½" Nails
3½" ARDOX SPIRAL

Disclosure

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LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 3083917
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B14(i3516)

Boise Cascade

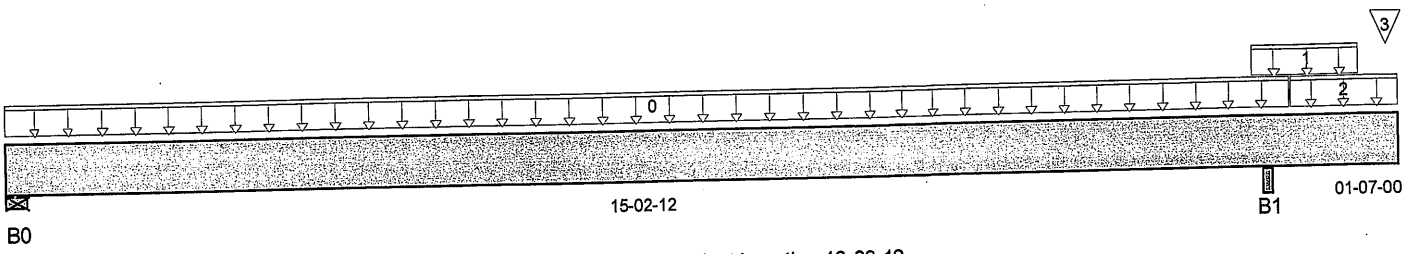
Dry | 2 spans | Right cantilever | 0/12 slope (deg)

June 7, 2017 10:39:24

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i3516)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 16-09-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/4"	308 / 19	175 / 0	0 / 39	
B1, 6-1/2"	585 / 0	958 / 0	544 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	15-06-00	40	20			n/a
1	E37(i1181)	Unf. Lin. (lb/ft)	L	15-00-08	16-04-04	50	126	108		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	15-06-00	16-09-12	22	11			n/a
3	-	Conc. Pt. (lbs)	L	16-07-15	16-07-15	159	482	362		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,279 ft-lbs	25,408 ft-lbs	9%	44	06-11-12
Neg. Moment	-2,020 ft-lbs	-25,408 ft-lbs	8%	49	15-02-12
End Shear	582 lbs	11,571 lbs	5%	44	01-00-04
Cont. Shear	1,268 lbs	11,571 lbs	11%	49	16-03-08
Total Load Defl.	L/999 (0.123")	n/a	n/a	107	07-04-11
Live Load Defl.	L/999 (0.093")	n/a	n/a	159	07-09-09
Total Neg. Defl.	2xL/1,998 (-0.03")	n/a	n/a	107	16-09-12
Max Defl.	0.123"	n/a	n/a	107	07-04-11
Span / Depth	19	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	2-3/4" x 3-1/2"	681 lbs	13.3%	5.8%	Unspecified
B1	Beam	6-1/2" x 3-1/2"	2,347 lbs	19.3%	8.5%	Unspecified

Notes

DWG NO. TAM3-0337-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B14(i3516)

Boise Cascade

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

June 7, 2017 10:39:24

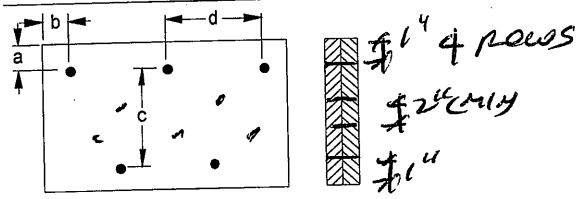
BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B14(i35
Specifier:
Designer:
Company:
Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 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.

Connection Diagram



a minimum = 1" c = 3-1/2"
b minimum = 3" d = 4"

Calculated Side Load = 66.8 lb/ft

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

Connectors are: [illegible] Nails

3½" ARDOX SPIRAL

Disclosure

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LICENSED PROFESSIONAL ENGINEERS
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3003L17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13(i3529)

Boise Cascade

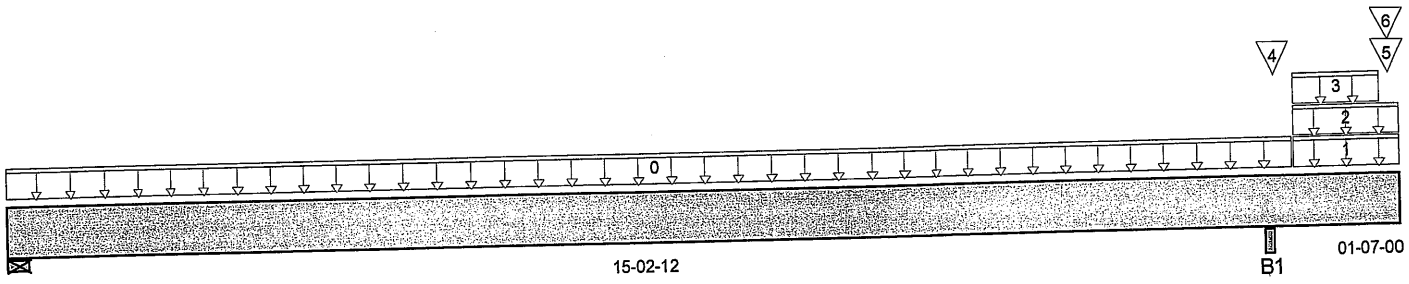
Dry | 2 spans | Right cantilever | 0/12 slope (deg)

June 7, 2017 10:39:26

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i3529)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 16-09-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/4"	308 / 19	174 / 0	0 / 40	
B1, 6-1/2"	589 / 0	980 / 0	557 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	15-06-00	40	20			n/a
1	E35(i1180)	Unf. Lin. (lb/ft)	L	15-06-00	16-09-12		81			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	15-06-00	16-09-12	21	10			n/a
3	E35(i1180)	Unf. Lin. (lb/ft)	L	15-06-00	16-07-00	50	45	108		n/a
4	E34(i1179)	Conc. Pt. (lbs)	L	15-03-04	15-03-04	23	58	49		n/a
5	-	Conc. Pt. (lbs)	L	16-08-00	16-08-00	145	447	343		n/a
6	J8	Conc. Pt. (lbs)	L	16-08-00	16-08-00			8		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,265 ft-lbs	25,408 ft-lbs	8.9%	44	06-11-12
Neg. Moment	-2,064 ft-lbs	-25,408 ft-lbs	8.1%	49	15-02-12
End Shear	580 lbs	11,571 lbs	5%	44	01-00-04
Cont. Shear	1,314 lbs	11,571 lbs	11.4%	49	16-03-08
Total Load Defl.	L/999 (0.121")	n/a	n/a	107	07-04-11
Live Load Defl.	L/999 (0.093")	n/a	n/a	159	07-08-06
Total Neg. Defl.	2xL/1,998 (-0.03")	n/a	n/a	107	16-09-12
Max Defl.	0.121"	n/a	n/a	107	07-04-11
Span / Depth	19	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	2-3/4" x 3-1/2"	679 lbs	13.2%	5.8%	Unspecified
B1	Beam	6-1/2" x 3-1/2"	2,387 lbs	19.6%	8.6%	Unspecified

Notes

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3083211
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B13(i3529)

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

June 7, 2017 10:39:26

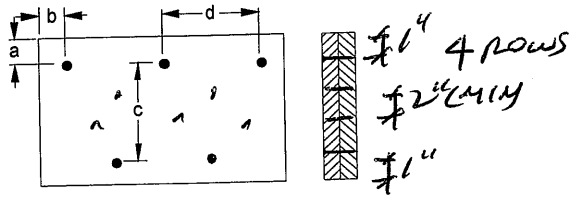
BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i352
Specifier:
Designer:
Company:
Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 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.

Connection Diagram



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

Calculated Side Load = 67.2 lb/ft

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

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
6037
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 3003277
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12(i3273)

Boise Cascade

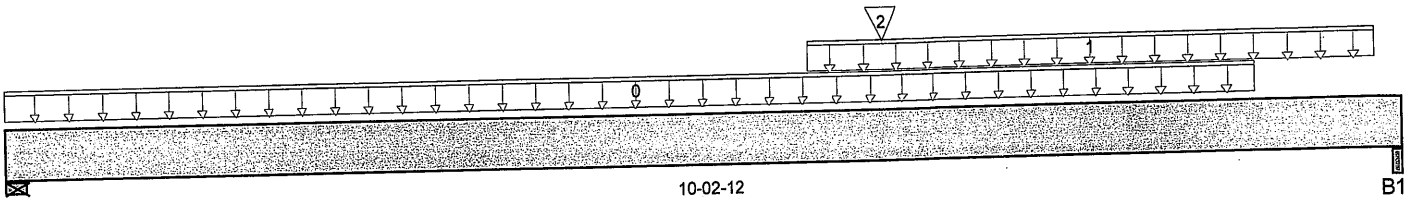
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:26

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i3273)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 10-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	661 / 0	386 / 0		
B1, 4-1/2"	700 / 0	412 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	09-02-00	90	46			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	05-10-00	10-00-08	6	3			n/a
2	B11(i3354)	Conc. Pt. (lbs)	L	06-04-06	06-04-06	504	272			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,674 ft-lbs	25,408 ft-lbs	18.4%	1	06-04-06
End Shear	1,539 lbs	11,571 lbs	13.3%	1	09-00-12
Total Load Defl.	L/999 (0.103")	n/a	n/a	4	05-02-00
Live Load Defl.	L/999 (0.066")	n/a	n/a	5	05-02-00
Max Defl.	0.103"	n/a	n/a	4	05-02-00
Span / Depth	12.2	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1,473 lbs	22.5%	9.9%	Unspecified
B1	Beam	4-1/2" x 3-1/2"	1,565 lbs	18.6%	8.1%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30033-17
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B12(i3273)

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

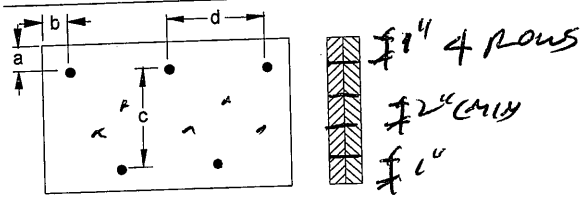
June 7, 2017 10:39:26

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i327
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 1" c = 7-1/2"
b minimum = 3" d = 6"

Calculated Side Load = 172.7 lb/ft

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

Connectors are: Nails
3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
90527
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3083317
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B17(i3265)

Boise Cascade

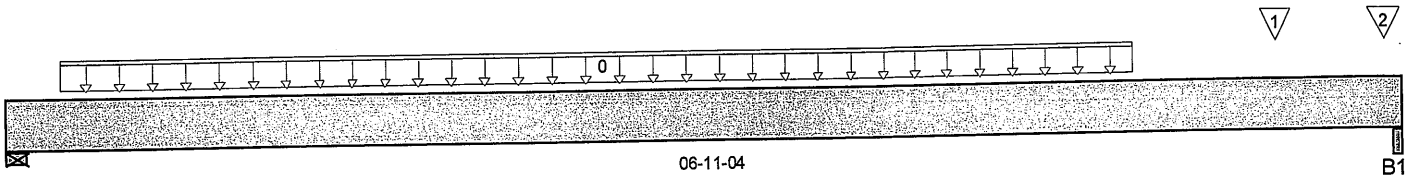
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:26

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B17(i3265)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 06-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-3/4"	1,180 / 0	623 / 0	0 / 0	
B1, 3-1/2"	1,239 / 0	685 / 0	53 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-04	05-07-04	370	184			n/a
1	-	Conc. Pt. (lbs)	L	06-03-11	06-03-11	429	245	25		n/a
2	FLAT ROOF	Conc. Pt. (lbs)	L	06-10-02	06-10-02			28		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,284 ft-lbs	25,408 ft-lbs	16.9%	1	03-07-04
End Shear	2,315 lbs	11,571 lbs	20%	1	01-01-04
Total Load Defl.	L/999 (0.044")	n/a	n/a	35	03-05-04
Live Load Defl.	L/999 (0.029")	n/a	n/a	51	03-05-04
Max Defl.	0.044"	n/a	n/a	35	03-05-04
Span / Depth	8.2	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-3/4" x 3-1/2"	2,549 lbs	36.4%	15.9%	Unspecified
B1	Beam	3-1/2" x 3-1/2"	2,742 lbs	20.5%	18.3%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

P6 / 12

DWG NO. TAM30834-17
STRUCTURAL
COMPONENT ONLY

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B17(i3265)

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

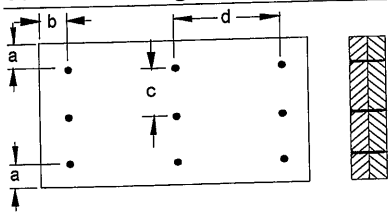
June 7, 2017 10:39:26

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B17(i32
Specifier:
Designer:
Company:
Misc:

Connection Diagram



a minimum = 2" c = 2-3/4"
b minimum = 3" d = [redacted] 4"

Calculated Side Load = 490.5 lb/ft

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

Connectors are: 16d Sinker Nails
3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM30834-17
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B16(i3269)

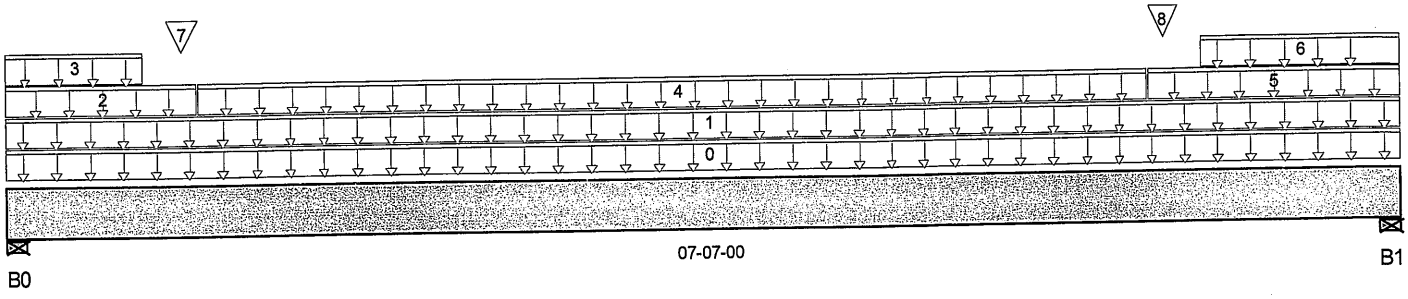
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:27

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i3269)
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 07-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	211 / 0	449 / 0	577 / 0	
B1, 5-1/2"	211 / 0	454 / 0	575 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FLAT ROOF	Unf. Lin. (lb/ft)	L	00-00-00	07-07-00	11	10	72		n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-07-00	27	13			n/a
2	E48(i2801)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-08		81			n/a
3	E48(i2801)	Unf. Lin. (lb/ft)	L	00-00-00	00-09-00	18	21	80		n/a
4	E47(i2793)	Unf. Lin. (lb/ft)	L	01-00-08	06-02-08		41			n/a
5	E42(i1182)	Unf. Lin. (lb/ft)	L	06-02-08	07-07-00		81			n/a
6	E42(i1182)	Unf. Lin. (lb/ft)	L	06-06-00	07-07-00	18	21	80		n/a
7	E48(i2801)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	52	104	231		n/a
8	E42(i1182)	Conc. Pt. (lbs)	L	06-03-08	06-03-08	52	103	229		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,670 ft-lbs	25,408 ft-lbs	6.6%	13	03-10-10
End Shear	1,128 lbs	11,571 lbs	9.7%	13	06-04-00
Total Load Defl.	L/999 (0.021")	n/a	n/a	45	03-09-11
Live Load Defl.	L/999 (0.013")	n/a	n/a	61	03-09-11
Max Defl.	0.021"	n/a	n/a	45	03-09-11
Span / Depth	8.6	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	5-1/2" x 3-1/2"	1,532 lbs	14.9%	6.5%	Unspecified
B1	Wall/Plate	5-1/2" x 3-1/2"	1,536 lbs	14.9%	6.5%	Unspecified

Notes

LICENSED PROFESSIONAL ENGINEER
6277
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3008511
STRUCTURAL
COMPONENT ONLY

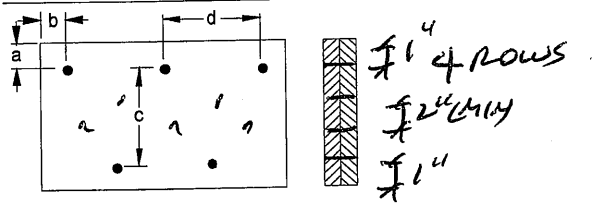
BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B16(i32
Specifier:
Designer:
Company:
Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 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

Connection Diagram



a minimum = 2" c = 4-1/2"
b minimum = 3" d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.
Connectors are: 16d Nails
3½" ARDOX SPIRAL

Disclosure

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LICENSED PROFESSIONAL ENGINEER
6527
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM3083517
STRUCTURAL
COMPONENT ONLY

Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B18DR(i3336)

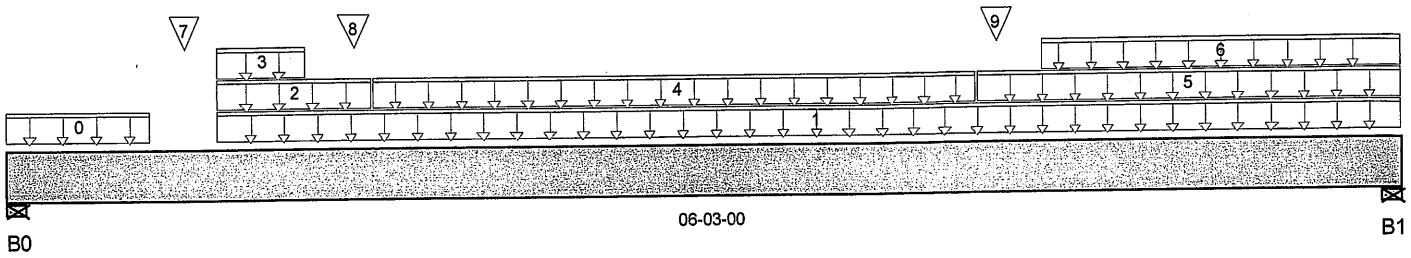
Dry | 1 span | No cantilevers | 0/12 slope (deg)

June 7, 2017 10:39:27

BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B18[
Specifier:
Designer:
Company:
Misc:



Total Horizontal Product Length = 06-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,344 / 0	1,057 / 0	567 / 0	
B1, 3-1/2"	359 / 0	542 / 0	565 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	R1(i3367)	Unf. Lin. (lb/ft)	L	00-00-00	00-07-12	77	153	181		n/a
1	R1(i3378)	Unf. Lin. (lb/ft)	L	00-11-04	06-03-00	57	49	96		n/a
2	R1(i3378)	Unf. Lin. (lb/ft)	L	00-11-04	01-07-08		81			n/a
3	R1(i3378)	Unf. Lin. (lb/ft)	L	00-11-04	01-04-00			85		n/a
4	R1(i3378)	Unf. Lin. (lb/ft)	L	01-07-08	04-04-00		41			n/a
5	R1(i3378)	Unf. Lin. (lb/ft)	L	04-04-00	06-03-00		81			n/a
6	R1(i3378)	Unf. Lin. (lb/ft)	L	04-07-08	06-03-00	20	23	85		n/a
7	B11(i3265)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	1,239	685	53		n/a
8	R1(i3378)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	33	63	142		n/a
9	R1(i3378)	Conc. Pt. (lbs)	L	04-05-00	04-05-00	32	62	138		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,357 ft-lbs	25,408 ft-lbs	9.3%	1	02-02-10
End Shear	2,479 lbs	11,571 lbs	21.4%	1	01-01-00
Total Load Defl.	L/999 (0.023")	n/a	n/a	35	02-11-12
Live Load Defl.	L/999 (0.013")	n/a	n/a	51	02-11-12
Max Defl.	0.023"	n/a	n/a	35	02-11-12
Span / Depth	7.3	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	3,621 lbs	36.4%	24.2%	Unspecified
B1	Wall/Plate	3-1/2" x 3-1/2"	1,704 lbs	17.1%	11.4%	Unspecified

Notes

P6/6

DWG NO. TAM3083617
STRUCTURAL
COMPONENT ONLY

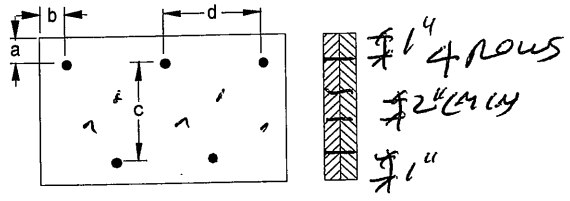
BC CALC® Design Report

Build 5033
Job Name:
Address:
City, Province, Postal Code:,
Customer:
Code reports: CCMC 12472-R

File Name: AUBURN-3 EL 1.mmdl
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B1
Specifier:
Designer:
Company:
Misc:

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-04-04, Bottom: 00-04-04.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
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

Connection Diagram



a minimum = 0" c = 2-1/2"
b minimum = 3" d = 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.
Connectors are: 16d Nails
3½" ARDOX SPIRAL

Disclosure

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

LICENSED PROFESSIONAL ENGINEER
60527
S. KATSOULAKOS
PROVINCE OF ONTARIO

DWG NO. TAM 3083697
STRUCTURAL
COMPONENT ONLY