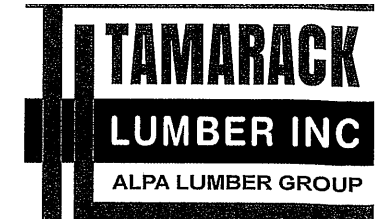


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	8
J2	8-00-00	9 1/2" NI-40x	1	7
J3	6-00-00	9 1/2" NI-40x	1	8
J4	4-00-00	9 1/2" NI-40x	1	12
J5	2-00-00	9 1/2" NI-40x	1	2
B14 ✓	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10 ✓	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B9 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4 DR ✓	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3 DR ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
1	H3	HGUS410
1	H3	HGUS410
1	H3	HGUS410
1	H5	HUC410
18	H9	IUS2.56/9.5
2	H9	IUS2.56/9.5

**NOTES:**  
REFER TO THE **NORDIC**  
**INSTALLATION** GUIDE FOR PROPER  
STORAGE AND INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2  
S.P.F. REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
**MULTIPLE SQUASH BLOCKS** REQ'D  
UNDER CONCENTRATED LOADS SEE  
FIGURE 1. **CANTILEVERED JOISTS**  
INCLUDING **CANT' OVER BRICK** REQ.  
I-JOIST BLOCKING ALONG BEARING  
AND RIMBOARD CLOSURE AT ENDS.  
SEE FIGURE 4 & 5 FOR  
REINFORCEMENT REQUIREMENTS.  
FOR **HOLES** INCLUDING DUCT CHASE  
AND **FIELD CUT OPENINGS** SEE  
FIGURE 7 TABLES 1 & 2 OF THE  
INSTALLATION GUIDE. **CERAMIC TILE**  
APPLICATION AS PER O.B.C. 9.30.6.  
**LOADING:**  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 20.0 lb/ft<sup>2</sup>  
TILED AREAS: 20 lb/ft<sup>2</sup>  
**SUBFLOOR:** 5/8" GLUE AND NAIL



**FROM PLAN DATED:**  
APRIL 2018  
**BUILDER:**  
ROYAL PINE HOMES  
**SITE:**  
FOREST SIDE  
**MODEL:** UNIT 1803  
**ELEVATION:** A&A1  
**LOT:**  
**CITY:** BRAMPTON  
**SALESMAN:** M D  
**DESIGNER:** AJ  
**REVISION:**  
**DATE:** 11/2/2018  
**1st FLOOR**  
STANDARD

DATE 11/2/18

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, LENGTHS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

DWG# TAM 843918H THROUGH DWG# TAM 843918H, INCLUSIVE DATED 11/2/18

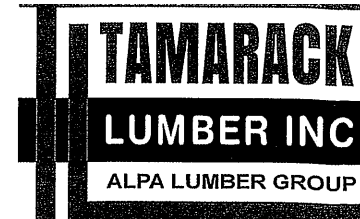
SEALED STRUCTURAL COMPONENTS ONLY:  
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS REF PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER 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 JOIST 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  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL  
COMPONENTS ONLY

310767B



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

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

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

**FROM PLAN DATED:**  
APRIL 2018

**BUILDER:**  
ROYAL PINE HOMES

**SITE:**  
FOREST SIDE

**MODEL:** UNIT 1803

**ELEVATION:** A&A1

**LOT:**

**CITY:** BRAMPTON

**SALESMAN:** M D

**DESIGNER:** AJ

**REVISION:**

**DATE:** 11/2/2018

**2nd FLOOR**

**DATE** 11/2/18

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, LENGTHS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

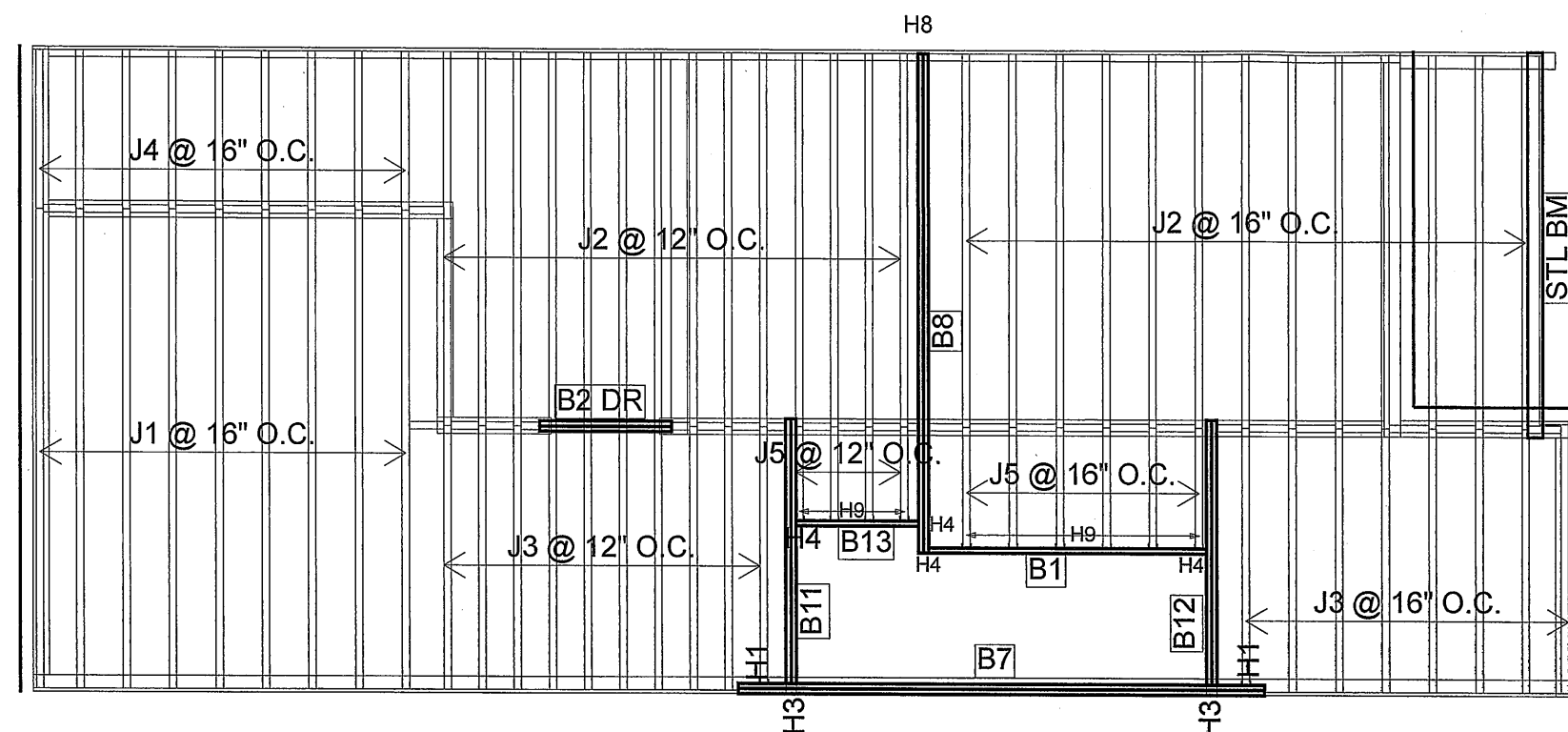
DWG# TAM 8446704 THROUGH DWG# TAM 8446704 INCLUSIVE DATED 11/2/18

SEALED STRUCTURAL COMPONENTS ONLY:  
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-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 JOIST DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.

I REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF A FIRM REGISTERED UNDER SUBSECTION 32.5 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND THE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES.

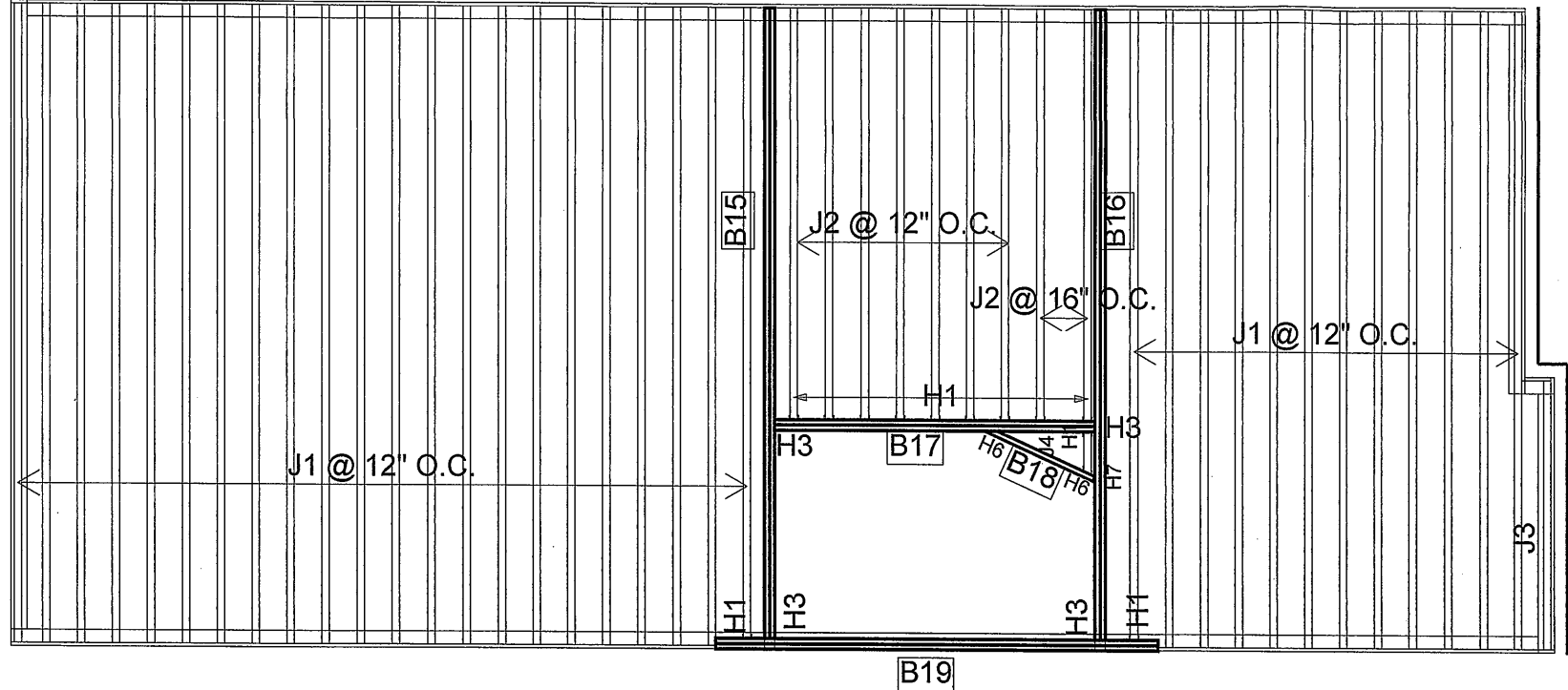
REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

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



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	12-00-00	9 1/2" NI-40x	1	27
J3	8-00-00	9 1/2" NI-40x	1	18
J4	6-00-00	9 1/2" NI-40x	1	9
J5	4-00-00	9 1/2" NI-40x	1	10
B7	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2 DR	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

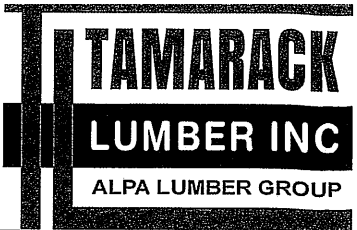
Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
2	H3	HGUS410
4	H4	HUS1.81/10
10	H9	IUS2.56/9.5
1	H8	H2.5A*



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	34
J2	12-00-00	11 7/8" NI-40x	1	9
J3	8-00-00	11 7/8" NI-40x	1	1
J4	2-00-00	11 7/8" NI-40x	1	1
B15✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B16✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17✓	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/11.88
4	H3	HGUS410
1	H6	LSSUI25
1	H6	LSSUI25
1	H7	LSSUH310

NOTES:  
REFER TO THE **NORDIC**  
**INSTALLATION GUIDE** FOR PROPER  
STORAGE AND INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2  
S.P.F. REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
**MULTIPLE SQUASH BLOCKS** REQ'D  
UNDER CONCENTRATED LOADS SEE  
FIGURE 1. **CANTILEVERED JOISTS**  
INCLUDING **CANT' OVER BRICK** REQ.  
I-JOIST BLOCKING ALONG BEARING  
AND RIMBOARD CLOSURE AT ENDS.  
SEE FIGURE 4 & 5 FOR  
REINFORCEMENT REQUIREMENTS.  
FOR **HOLES** INCLUDING **DUCT CHASE**  
AND **FIELD CUT OPENINGS** SEE  
FIGURE 7 TABLES 1 & 2 OF THE  
INSTALLATION GUIDE. **CERAMIC TILE**  
APPLICATION AS PER O.B.C. 9.30.6.  
**LOADING:**  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 20.0 lb/ft<sup>2</sup>  
TILED AREAS: 20 lb/ft<sub>2</sub>  
**SUBFLOOR:** 5/8" GLUE AND NAIL



FROM PLAN DATED:  
APRIL 2018

BUILDER:  
ROYAL PINE HOMES

SITE:  
FOREST SIDE

MODEL: UNIT 1803

ELEVATION: A&A1

LOT:

CITY: BRAMPTON

SALESMAN: M D  
DESIGNER: AJ  
REVISION:

DATE: 11/2/2018

3rd FLOOR

DATE 11/2/18

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, LENGTHS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.

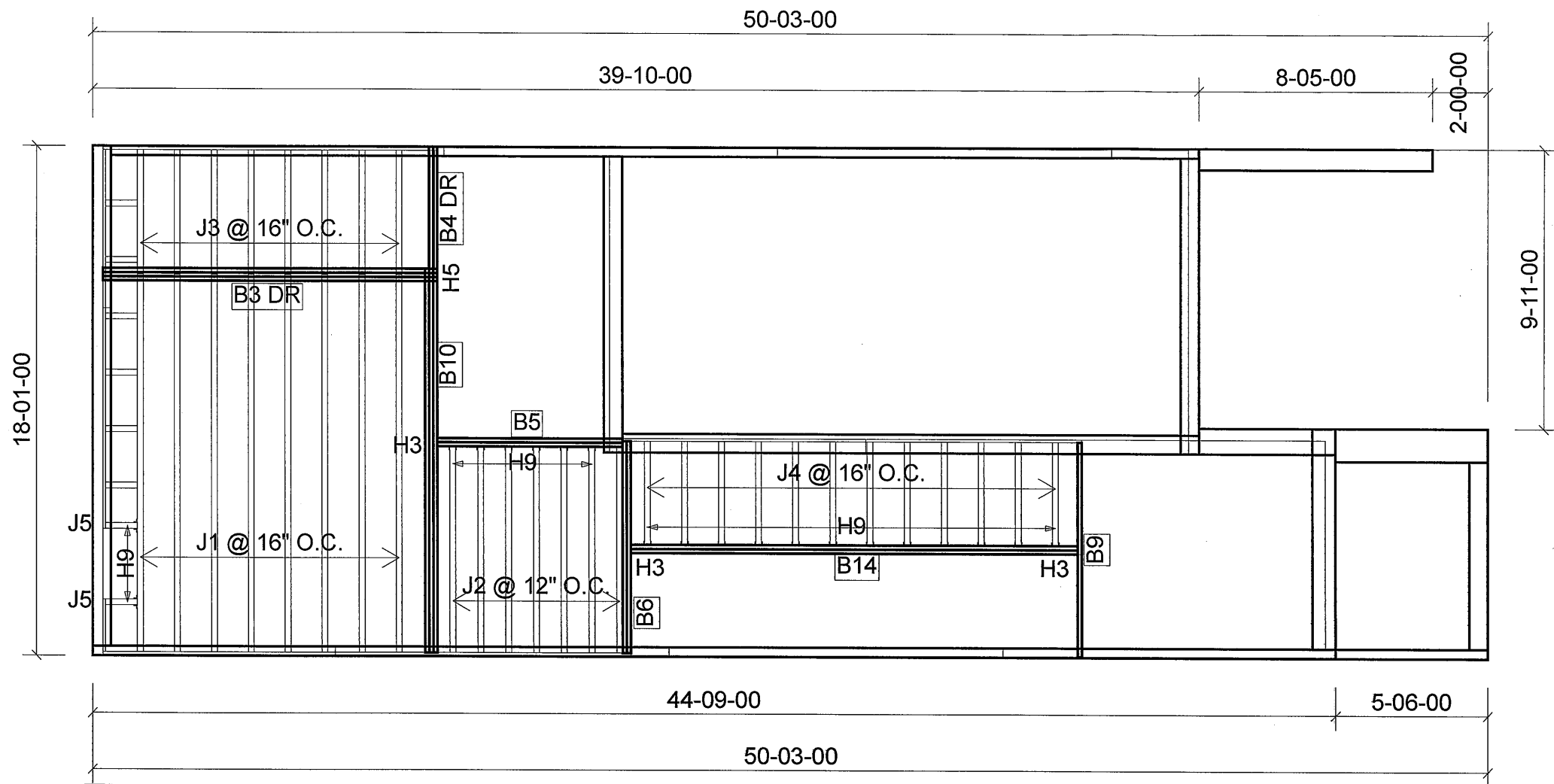
DWG# TAM B44718H THROUGH DWG# TAM B45178H INCLUSIVE DATED 11/2/18

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 JOIST 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 THE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES.

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

DWG # TAM 3107B-78  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL  
COMPONENTS ONLY

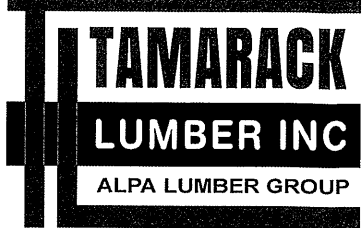


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	8
J2	8-00-00	9 1/2" NI-40x	1	7
J3	6-00-00	9 1/2" NI-40x	1	8
J4	4-00-00	9 1/2" NI-40x	1	12
J5	2-00-00	9 1/2" NI-40x	1	2
B14	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B9	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
1	H3	HGUS410
1	H3	HGUS410
1	H3	HGUS410
1	H5	HUC410
18	H9	IUS2.56/9.5
2	H9	IUS2.56/9.5

**NOTES:**  
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.  
**MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6.  
**LOADING:**  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 20.0 lb/ft<sup>2</sup>  
TILED AREAS: 20 lb/ft<sub>2</sub>

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



**FROM PLAN DATED:**  
APRIL 2018

**BUILDER:**  
ROYAL PINE HOMES

**SITE:**  
FOREST SIDE

**MODEL:** UNIT 1803

**ELEVATION:** B

**LOT:**

**CITY:** BRAMPTON

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

**DATE:** 11/2/2018

**1st FLOOR**

DATE \_\_\_\_\_

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.

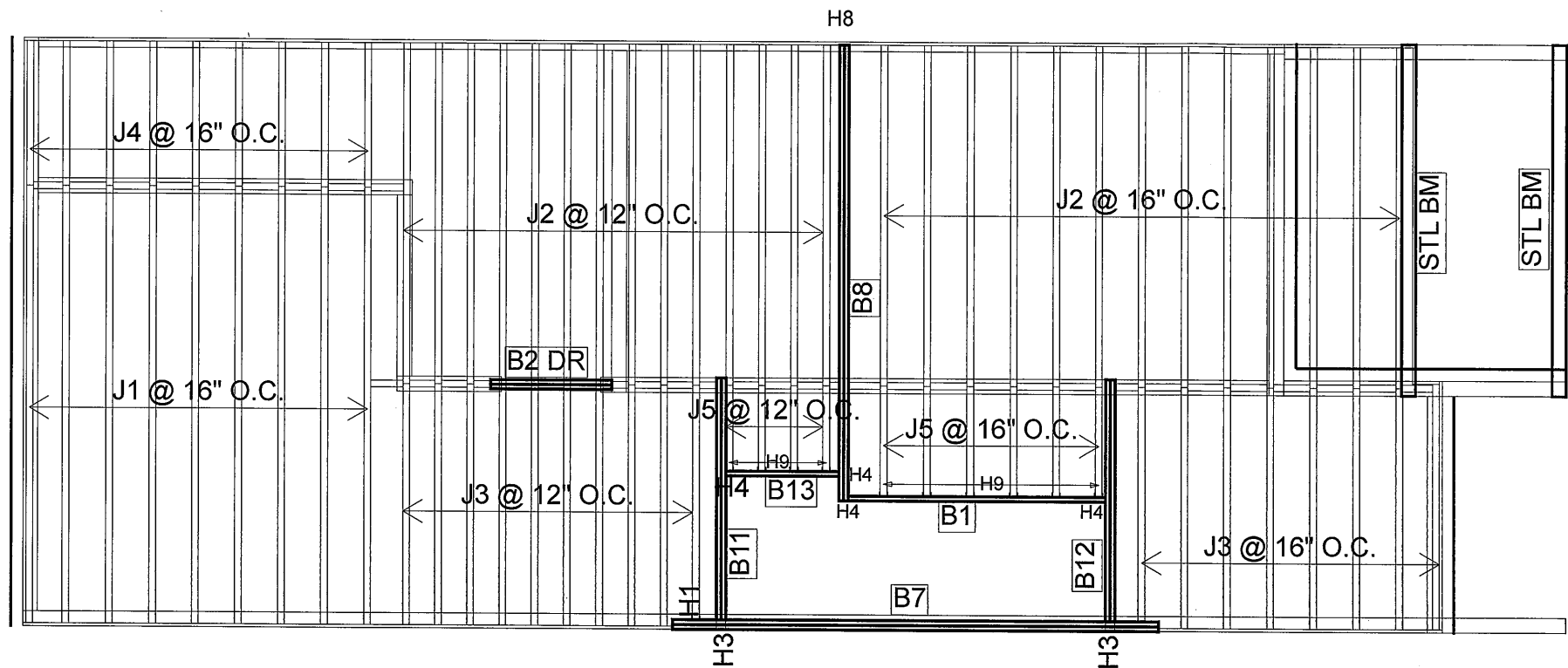
DWG# TAM \_\_\_\_\_ THROUGH DWG# TAM \_\_\_\_\_, INCLUSIVE DATED \_\_\_\_\_.

**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 \_\_\_\_\_  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL  
COMPONENTS ONLY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	12-00-00	9 1/2" NI-40x	1	27
J3	8-00-00	9 1/2" NI-40x	1	18
J4	6-00-00	9 1/2" NI-40x	1	9
J5	4-00-00	9 1/2" NI-40x	1	10
B7	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2 DR	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
1	H1	IUS2.56/9.5
2	H3	HGUS410
4	H4	HUS1.81/10
10	H9	IUS2.56/9.5
1	H8	H2.5A*

**NOTES:**  
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.  
**SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.  
**MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6.  
**LOADING:**  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 20.0 lb/ft<sup>2</sup>  
TILED AREAS: 20 lb/ft<sub>2</sub>

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



**FROM PLAN DATED:**  
APRIL 2018

**BUILDER:**  
ROYAL PINE HOMES

**SITE:**  
FOREST SIDE

**MODEL:** UNIT 1803

**ELEVATION:** B

**LOT:**

**CITY:** BRAMPTON

**SALESMAN:** M D

**DESIGNER:** AJ

**REVISION:**

**DATE:** 11/2/2018

**2nd FLOOR**

DATE \_\_\_\_\_

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.

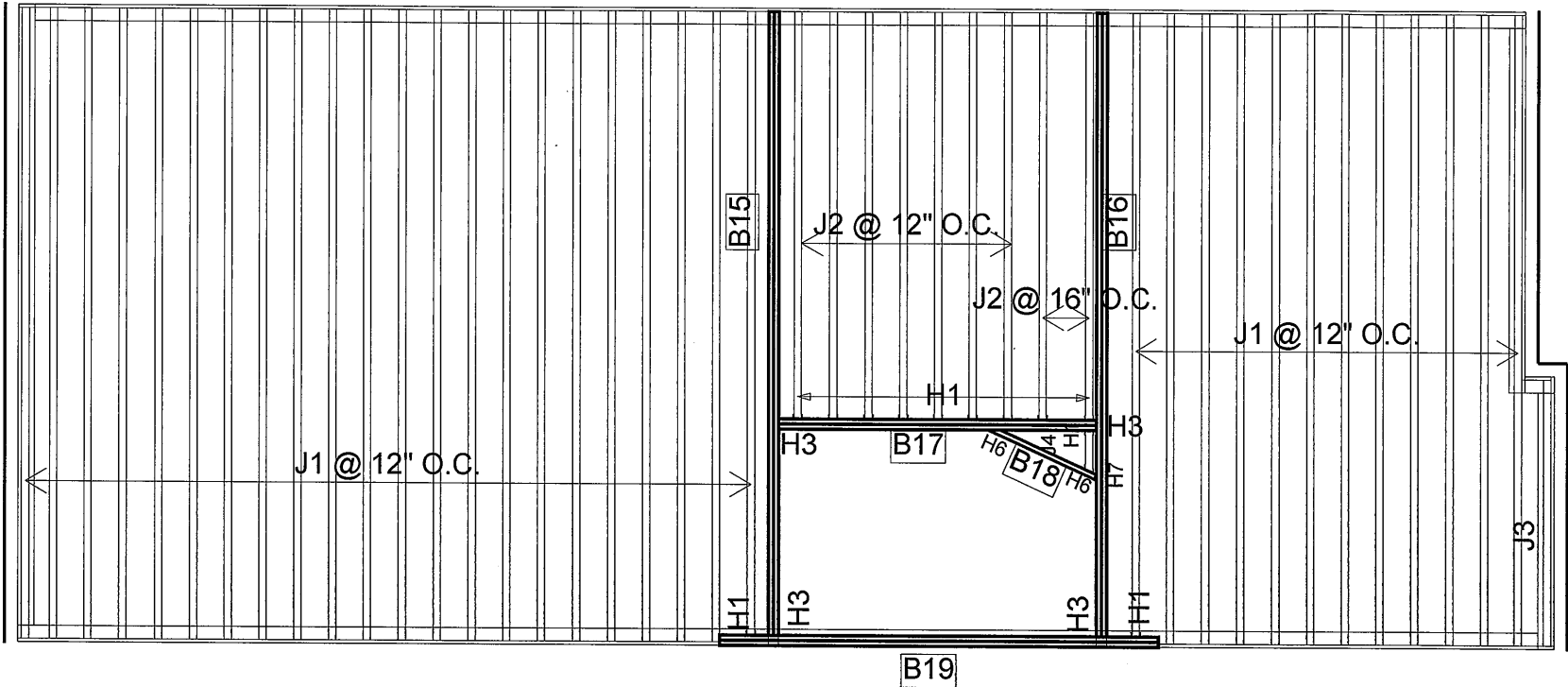
DWG# TAM \_\_\_\_\_ THROUGH DWG# TAM \_\_\_\_\_, INCLUSIVE DATED \_\_\_\_\_.

**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 \_\_\_\_\_  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL  
COMPONENTS ONLY

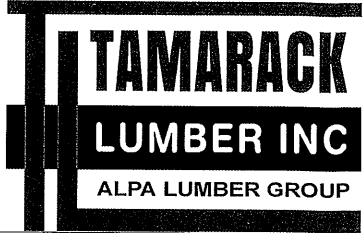


Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	34
J2	12-00-00	11 7/8" NI-40x	1	9
J3	8-00-00	11 7/8" NI-40x	1	1
J4	2-00-00	11 7/8" NI-40x	1	1
B15	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B16	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/11.88
4	H3	HGUS410
1	H6	LSSUI25
1	H6	LSSUI25
1	H7	LSSUH310

**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" GLUE AND NAIL



**FROM PLAN DATED:**  
APRIL 2018

**BUILDER:**  
ROYAL PINE HOMES

**SITE:**  
FOREST SIDE

**MODEL:** UNIT 1803

**ELEVATION:** B

**LOT:**

**CITY:** BRAMPTON

**SALESMAN:** M D

**DESIGNER:** AJ

**REVISION:**

**DATE:** 11/2/2018

**3rd FLOOR**

**DATE** \_\_\_\_\_

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** \_\_\_\_\_ **THROUGH DWG# TAM** \_\_\_\_\_, **INCLUSIVE DATED** \_\_\_\_\_.

**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** \_\_\_\_\_  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL  
COMPONENTS ONLY





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

## WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1  
LOCATION OF CIRCULAR HOLES IN JOIST WEBS  
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

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

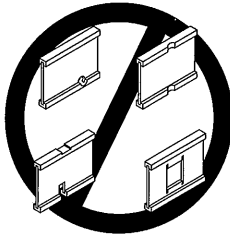
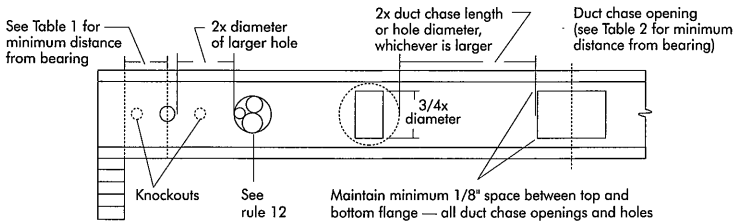
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans.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

TABLE 2  
DUCT CHASE OPENING SIZES AND LOCATIONS  
Simple Span Only

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

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

FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

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

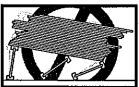
Holes in webs should be cut with a sharp saw.

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

## SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
  - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
  - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stock building materials over beams or walls only.
- Never install a damaged I-joist.

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



## PRODUCT WARRANTY

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

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

1a

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

\*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

1d

Pair of Squash Blocks	Maximum Factored Vertical Load Pair of Squash Blocks (lbs)	
2x Lumber	3-1/2" wide	5,500
1-1/8" Rim Board Plus	5-1/2" wide	8,500

Provide lateral bracing per detail 1a or 1b

1/16" for squash blocks

1h

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

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

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

1k

1m

1p

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

- NOTES:
- Support back of I-joist web during nailing to prevent damage to web/flange connection.
  - Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
  - Filler block is required between joists for full length of span.
  - Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
  - The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

1b

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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

One 2-1/2" face nail at each side at bearing

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

1e

1g

1i

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

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

1n

1r

1s

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

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

## WEB STIFFENERS

RECOMMENDATIONS:

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

FIGURE 2  
WEB STIFFENER INSTALLATION DETAILS

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

## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

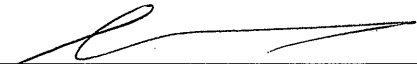
4a

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

## Schedule 1: Designer Information

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

<b>A. Project Information</b>			<b>Application number:</b>	
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name <b>SAM KATSOULAKOS</b>		Firm <b>MICRO CITY ENGINEERING SERVICES INC.</b>		
Street address <b>R.R #1, PO BOX 61</b>			Unit no.	Lot/con.
Municipality <b>GLENCOE</b>	Postal code <b>N0L 1M0</b>	Province <b>ONTARIO</b>	E-mail	
Telephone number <b>(519) 287-2242 Business</b>	Fax number <b>(519) 287-5750</b>	Cell number		
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]</b>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings </div> <div style="width: 30%;"> <input type="checkbox"/> HVAC – House  <input type="checkbox"/> Building Services  <input type="checkbox"/> Detection, Lighting and Power  <input type="checkbox"/> Fire Protection </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> Building Structural  <input type="checkbox"/> Plumbing – House  <input type="checkbox"/> Plumbing – All Buildings  <input type="checkbox"/> On-site Sewage Systems </div> </div>				
Description of designer's work <b>ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1803 - ELEV. A OR A1</b> <b>1ST FLOOR – STANDARD (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC)</b> REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31076-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
<b>D. Declaration of Designer</b>				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> 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: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> 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: _____				
<input type="checkbox"/> 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		11/22/18 Signature of Designer 		

**NOTE:**

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

DWG #TAM 31076-18S  
 DWG #TAM 31079-18S

11/22/18



## Schedule 1: Designer Information

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

<b>A. Project Information</b>			<b>Application number:</b>	
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name <b>SAM KATSOULAKOS</b>		Firm <b>MICRO CITY ENGINEERING SERVICES INC.</b>		
Street address <b>R.R #1, PO BOX 61</b>			Unit no.	Lot/con.
Municipality <b>GLENCOE</b>	Postal code <b>N0L 1M0</b>	Province <b>ONTARIO</b>	E-mail	
Telephone number <b>(519) 287-2242 Business</b>		Fax number <b>(519) 287-5750</b>	Cell number	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]</b>				
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings                 </div> <div> <input type="checkbox"/> HVAC – House  <input type="checkbox"/> Building Services  <input type="checkbox"/> Detection, Lighting and Power  <input type="checkbox"/> Fire Protection                 </div> <div> <input checked="" type="checkbox"/> Building Structural  <input type="checkbox"/> Plumbing – House  <input type="checkbox"/> Plumbing – All Buildings  <input type="checkbox"/> On-site Sewage Systems                 </div> </div>				
Description of designer's work <b>ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1803 - ELEV. A OR A1</b> <b>2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC)</b> REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31077-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
<b>D. Declaration of Designer</b>				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> 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: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> 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: _____				
<input type="checkbox"/> 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		<u>11/21/18</u> Signature of Designer		

**NOTE:**

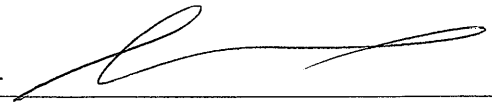
- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d. of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by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

DWG #TAM 31077-18  
 DWG #TAM 31080-18

11/21/18

## Schedule 1: Designer Information

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

<b>A. Project Information</b>			<b>Application number:</b>	
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name <b>SAM KATSOULAKOS</b>		Firm <b>MICRO CITY ENGINEERING SERVICES INC.</b>		
Street address <b>R.R #1, PO BOX 61</b>			Unit no.	Lot/con.
Municipality <b>GLENCOE</b>	Postal code <b>N0L 1M0</b>	Province <b>ONTARIO</b>	E-mail	
Telephone number <b>(519) 287-2242 Business</b>	Fax number <b>(519) 287-5750</b>	Cell number		
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]</b>				
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings                 </div> <div> <input type="checkbox"/> HVAC – House  <input type="checkbox"/> Building Services  <input type="checkbox"/> Detection, Lighting and Power  <input type="checkbox"/> Fire Protection                 </div> <div> <input checked="" type="checkbox"/> Building Structural  <input type="checkbox"/> Plumbing – House  <input type="checkbox"/> Plumbing – All Buildings  <input type="checkbox"/> On-site Sewage Systems                 </div> </div>				
Description of designer's work <b>ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1803 - ELEV. A OR A1</b> <b>3RD FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC)</b> REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31078-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
<b>D. Declaration of Designer</b>				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> 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: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> 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: _____				
<input type="checkbox"/> 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		<u>11/21/18</u> Signature of Designer 		

**NOTE:**

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

DWG #TAM 31078-18S  
 DWG #TAM 31081-18S

# NORDIC STRUCTURES

**COMPANY**  
J9 1ST FLOOR  
July 5, 2018 08:26

**PROJECT**  
J1 3RD FLOOR  
J1 3RD FLOOR

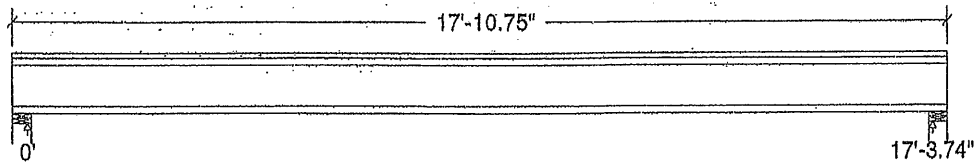
## Design Check Calculation Sheet

Nordic Sizer - Canada 7.1

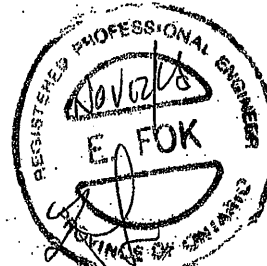
### Loads:

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) :



Unfactored:			
Dead	173		173
Live	346		346
Factored:			
Total	736		736
Bearing:			
Resistance			
Joist	2336		2336
Support	7744		7744
Des ratio			
Joist	0.31		0.31
Support	0.10		0.10
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.15		1.15



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

### Nordic 11-7/8" NI-40x Floor Joist @ 12" o.c.

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

Total length: 17'-10.75"; Clear span: 17'-1.99"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 736	Vr = 2336	lbs	Vf/Vr = 0.31
Moment (+)	Mf = 3184	Mr = 6255	lbs-ft	Mf/Mr = 0.51
Perm. Defl'n	0.11 = < L/999	0.58 = L/360	in	0.18
Live Defl'n	0.21 = L/989	0.43 = L/480	in	0.49
Total Defl'n	0.32 = L/659	0.87 = L/240	in	0.36
Bare Defl'n	0.24 = L/861	0.58 = L/360	in	0.42
Vibration	Lmax = 17'-3.8	Lv = 18'-11.1	ft	0.91
Defl'n	= 0.028	= 0.036	in	0.78

DWG NO. YAMBA-32-10H p612  
STRUCTURAL  
COMPONENT ONLY

T-181411

**Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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
All Load Combinations (LCs) are listed in the Analysis output

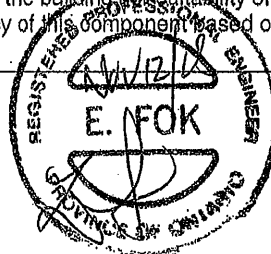
```

CALCULATIONS:

Deflection:  $E I_{eff} = 433e06 \text{ lb-in}^2$   $K = 6.18e06 \text{ lbs}$   
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

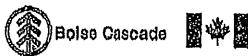
### Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.
- CONFIRMS TO NBC 2012



DWANG.TAM B432-187  
STRUCTURAL  
COMPONENT ONLY

T-1844.11(2)



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

PASSED

## 2ND FLOOR FRAMING\Flush Beams\B1(i547)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

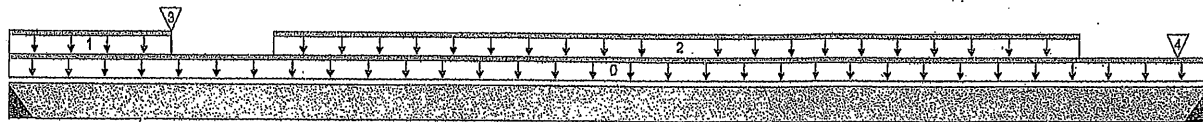
File name: UNIT 1803.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B1(i547)

Specifier:

Designer: AJ

Company:



B1

07-11-08

B2

Total Horizontal Product Length = 07-11-08

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	262 / 0	150 / 0		
B2, 2"	278 / 0	159 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-11-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-01-00	Top	30	15			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-09-00	07-01-00	Top	70	35			n/a
3	J5(i752)	Conc. Pt. (lbs)	L	01-01-00	01-01-00	Top	73	36			n/a
4	J5(i775)	Conc. Pt. (lbs)	L	07-09-00	07-09-00	Top	59	30			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,173 ft-lbs	11,610 ft-lbs	10.1%	1	03-09-00
End Shear	513 lbs	5,785 lbs	8.9%	1	00-11-08
Total Load Deflection	L/999 (0.035")	n/a	n/a	4	04-00-00
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	04-00-00
Max Defl.	0.035"	n/a	n/a	4	04-00-00
Span / Depth	9.8				

### Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	580 lbs	n/a	13.6%	Hanger
B2	Hanger 2" x 1-3/4"	616 lbs	n/a	14.4%	Hanger

### Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

### Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

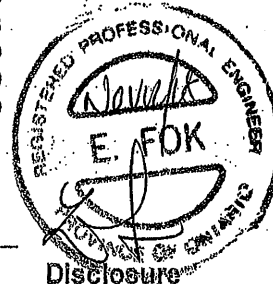
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



### Disclosure

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

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

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

DWG NO. TAM 8441-18 H  
STRUCTURAL  
COMPONENT ONLY

T. Ulfpro





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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Dropped Beams\B2 DR(i620)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Build 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Dropped Beams\B2 DR(i620)

City, Province, Postal Code: BRA...ON

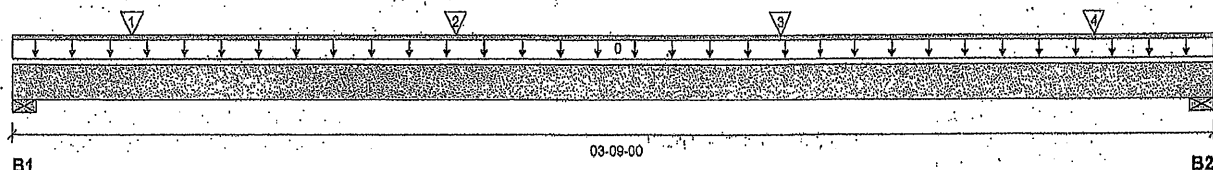
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-09-00

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	702 / 0	368 / 0		
B2, 4"	702 / 0	368 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	-	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	351	175			n/a
2	-	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top	351	175			n/a
3	-	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	351	175			n/a
4	-	Conc. Pt. (lbs)	L	03-04-08	03-04-08	Top	351	175			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	917 ft-lbs	23,220 ft-lbs	4.0%	1	01-10-08
End Shear	793 lbs	11,571 lbs	6.9%	1	01-01-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-10-08
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-10-08
Max Defl.	0.002"	n/a	n/a	4	01-10-08
Span / Depth	4.1				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1,513 lbs	13.3%	8.9%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	1,513 lbs	13.3%	8.9%	Unspecified

## Notes

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

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

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

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 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

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.



DWG NO. TAMB44210 H  
STRUCTURAL  
COMPONENT ONLY  
P6 2

T-181419



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

PASSED

BC CALC® Member Report  
Build 6475

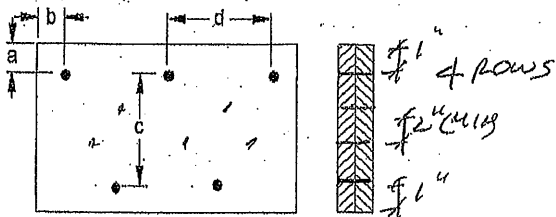
Dry | 1 span | No cant.

July 5, 2018 15:01:56

Job name:  
Address:  
City, Province, Postal Code: BRA...ON  
Customer:  
Code reports: CCMC 12472-R

File name: UNIT 1803.mmdl  
Description: 2ND FLOOR FRAMING\Dropped Beams\B2 DR(I520)  
Specifier:  
Designer: AJ  
Company:

## Connection Diagram: Full Length of Member

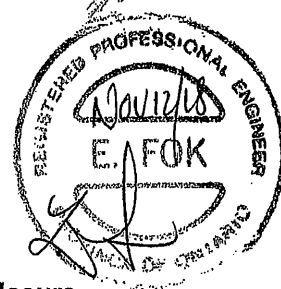


a minimum = 1"  
b minimum = 3"  
c = 2-1/2"  
d = 6"

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

3-1/2" ARDOX SPIRAL

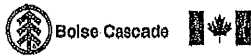


## Disclosure

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

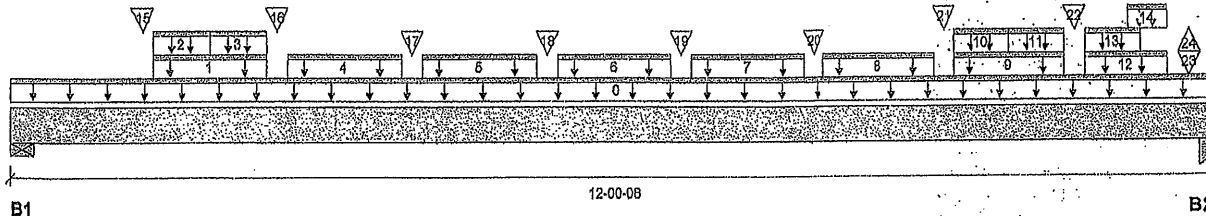
DWG NO. TAM 044018H  
STRUCTURAL  
COMPONENT ONLY  
BC CALC®, BC FRAMER®, AJS™,  
ALLJOIST®, BC RIM BOARD™, BCI®,  
BOISE GLULAM™, BC FloorValue®,  
VERSA-LAM®, VERSA-RIM PLUS®

T-18114196

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED**BC CALC® Member Report  
Build 6475

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Job name:  
Address:  
City, Province, Postal Code: BRA...ON  
Customer:  
Code reports: CCMC 12472-RFile name: UNIT 1803.mmdl  
Description: 1ST FLOOR FRAMING\Flush Beams\B3 DR\I538  
Specifier:  
Designer: AJ  
Company:

Total Horizontal Product Length = 12-00-08

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	3,742 / 0	2,420 / 0		
B2, 5-1/4"	5,540 / 4	3,977 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-08	Top		18			00-00-00
1	Bk1(I839)	Unf. Lin. (lb/ft)	L	01-05-04	02-06-12	Top		81			n/a
2	Bk1(I839)	Unf. Lin. (lb/ft)	L	01-05-04	02-00-00	Top	328	163			n/a
3	Bk1(I839)	Unf. Lin. (lb/ft)	L	02-00-00	02-06-12	Top	354	177			n/a
4	Bk1(I840)	Unf. Lin. (lb/ft)	L	02-09-04	03-10-12	Top	354	258			n/a
5	Bk1(I841)	Unf. Lin. (lb/ft)	L	04-01-04	05-02-12	Top	354	258			n/a
6	Bk1(I842)	Unf. Lin. (lb/ft)	L	05-05-04	06-06-12	Top	354	258			n/a
7	Bk1(I843)	Unf. Lin. (lb/ft)	L	06-09-04	07-10-12	Top	354	258			n/a
8	Bk1(I844)	Unf. Lin. (lb/ft)	L	08-01-04	09-02-12	Top	354	258			n/a
9	Bk1(I845)	Unf. Lin. (lb/ft)	L	09-05-04	10-06-12	Top		81			n/a
10	Bk1(I845)	Unf. Lin. (lb/ft)	L	09-05-04	10-00-00	Top	354	177			n/a
11	Bk1(I845)	Unf. Lin. (lb/ft)	L	10-00-00	10-06-12	Top	338	169			n/a
12	Bk1(I846)	Unf. Lin. (lb/ft)	L	10-09-04	11-07-04	Top		85			n/a
13	Bk1(I846)	Unf. Lin. (lb/ft)	L	10-09-04	11-04-00	Top	338	169			n/a
14	Bk1(I846)	Unf. Lin. (lb/ft)	L	11-02-08	11-07-04	Top	241				n/a
15	-	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	744	397			n/a
16	-	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	553	177			n/a
17	-	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	553	99			n/a
18	-	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	550	133			n/a
19	-	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	553	194			n/a
20	-	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	553	294			n/a
21	-	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	553	294			n/a
22	-	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	542	288			n/a
23	B10(I540)	Conc. Pt. (lbs)	L	11-09-14	11-09-14	Top	1,562	1,395			n/a
24	B10(I540)	Conc. Pt. (lbs)	L	11-09-14	11-09-14	Top	-4				n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	26,752 ft-lbs	55,212 ft-lbs	48.5%	1	06-00-00
End Shear	8,939 lbs	21,686 lbs	41.2%	1	10-07-06
Total Load Deflection	L/447 (0.307")	n/a	53.7%	6	06-00-00
Live Load Deflection	L/733 (0.187")	n/a	49.1%	8	06-00-00
Max Defl.	0.307"	n/a	n/a	6	06-00-00
Span / Depth	11.6				

DWG NO. TAM 0436-1814  
STRUCTURAL  
COMPONENT ONLY

T-181415



Boise Cascade

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3 DR\I538

Specifier:

Designer: AJ

Company:

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	8,638 lbs	33.2%	38.5%	Unspecified
B2	Column 5-1/4" x 5-1/4"	13,282 lbs	59.3%	39.5%	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: 00-11-14, Bottom: 00-11-14.

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

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

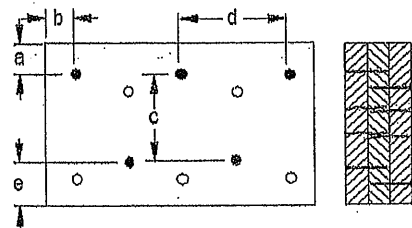
Design based on Dry Service Condition.

**CONFORMS TO OBC 2012**

Importance Factor: Normal Part code: Part 9

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.

Nailing schedule applies to both sides of the member.

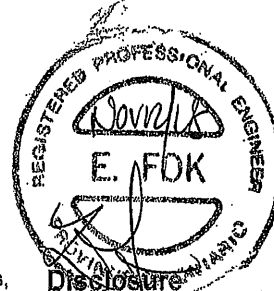
**Connection Diagram: Full Length of Member**a minimum = 1 1/2"  
b minimum = 3"c = 8-7/8"  
d = 6"  
e minimum = 2"

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.

Nailing schedule applies to both sides of the member.

Connectors are:

Nails

**3-1/2" ARDOX SPIRAL**

**Disclosure**

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

DWG NO. TAM 04/36-18H  
STRUCTURAL  
COMPONENT ONLY

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

T-181141561



Boise Cascade

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

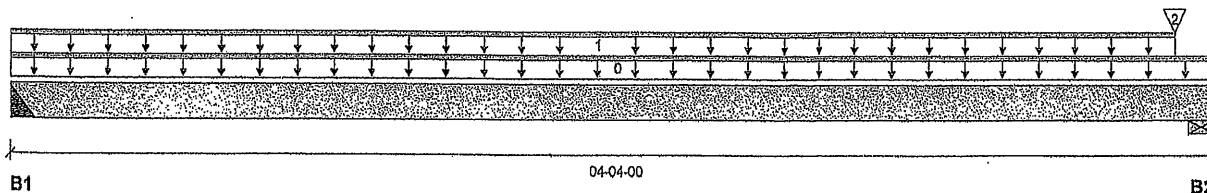
File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Dropped Beams\B4 DR(i498)

Specifier:

Designer: AJ

Company:

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	58 / 0	54 / 0		
B2, 4"	61 / 0	56 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	R1(i827)	Unf. Lin. (lb/ft)	L	00-00-00	04-02-06	Top	28	16			n/a
2	R1(i827)	Conc. Pt. (lbs)	L	04-02-06	04-02-06	Top	3	1			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	141 ft-lbs	23,220 ft-lbs	0.6%	1	02-01-04
End Shear	81 lbs	11,571 lbs	0.7%	1	01-00-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-01-04
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-01-04
Max Defl.	0.001"	n/a	n/a	4	02-01-04
Span / Depth	4.9				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2-1/2" x 3-1/2"	154 lbs	n/a	1.4%	HUC410
B2	Wall/Plate 4" x 3-1/2"	161 lbs	0.8%	0.9%	Unspecified

**Cautions**

Header for the hanger HUC410 at B1 is a Triple 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

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

**Notes**

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

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

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 2015 and CSA O86.

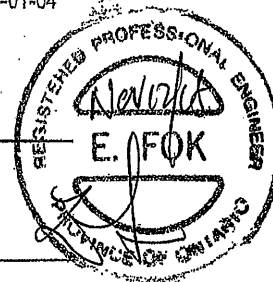
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

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.



DWG NO. TAM B433-181d  
STRUCTURAL  
COMPONENT ONLY

T-8144n





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

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

File name: UNIT 1803.mmdl

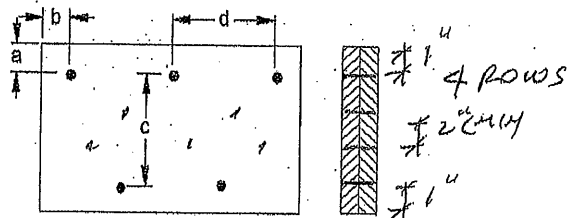
Description: 1ST FLOOR FRAMING\Dropped Beams\B4 DR(I498)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



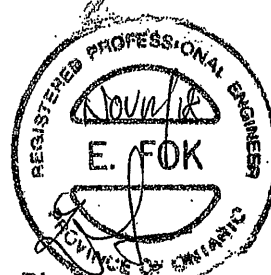
a minimum = 4"  
b minimum = 3"

c = 7-1/2"  
d = 8"

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

3-1/2" ARDOX SPIRAL



### Disclosure

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

DWG NO. TAM 8433-186  
STRUCTURAL  
COMPONENT ONLY P62

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

T-181426(y)



Boise Cascade



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B5(i787)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports:

CCMC 12472-R

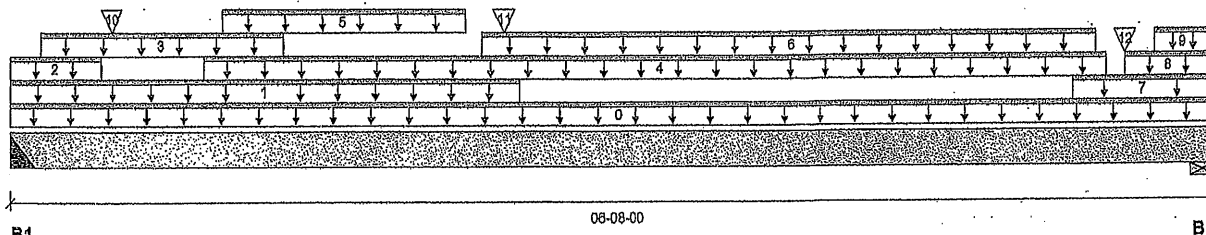
File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5(i787)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 06-08-00

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1,884 / 0	1,164 / 0		
B2, 5-1/2"	2,211 / 0	2,103 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-08-00	Top		10			00-00-00
1	2(i308)	Unf. Lin. (lb/ft)	L	00-00-00	02-09-08	Top		81			n/a
2	2(i308)	Unf. Lin. (lb/ft)	L	00-00-00	00-06-00	Top	238	116			n/a
3	2(i308)	Unf. Lin. (lb/ft)	L	00-02-00	01-06-00	Top	266	133			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-12	06-00-12	Top	156	78			n/a
5	2(i308)	Unf. Lin. (lb/ft)	L	01-02-00	02-06-00	Top	266	133			n/a
6	STAIR	Unf. Lin. (lb/ft)	L	02-07-00	06-00-00	Top	240	120			n/a
7	3(i309)	Unf. Lin. (lb/ft)	L	05-10-08	06-08-00	Top		81			n/a
8	3(i309)	Unf. Lin. (lb/ft)	L	06-02-00	06-08-00	Top	109				n/a
9	3(i309)	Unf. Lin. (lb/ft)	L	06-04-00	06-08-00	Top	209	105			n/a
10	J2(i847)	Conc. Pt. (lbs)	L	00-06-12	00-06-12	Top	139	69			n/a
11	2(i308)	Conc. Pt. (lbs)	L	02-08-08	02-08-08	Top	702	368			n/a
12	-	Conc. Pt. (lbs)	L	06-02-00	06-02-00	Top	702	1,201			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,634 ft-lbs	23,220 ft-lbs	28.6%	1	02-08-08
End Shear	3,492 lbs	11,571 lbs	30.2%	1	05-05-00
Total Load Deflection	L/999 (0.06")	n/a	n/a	4	03-02-02
Live Load Deflection	L/999 (0.038")	n/a	n/a	5	03-02-02
Max Defl.	0.06"	n/a	n/a	4	03-02-02
Span / Depth	7.7				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 3-1/2"	4,281 lbs	n/a	33.4%	HGUS410
B2	Wall/Plate 5-1/2" x 3-1/2"	5,944 lbs	57.8%	25.3%	Unspecified

## Cautions

Header for the hanger HGUS410 at B1 is a Triple 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

DWG NO. TAM B432-18 61  
STRUCTURAL  
COMPONENT ONLY

T-181146



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B5(1787)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5(1787)

Specifier:

Designer: AJ

Company:

### 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.

Hanger Manufacturer: Unassigned.

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

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

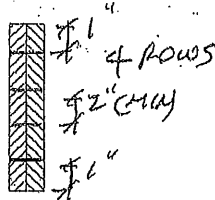
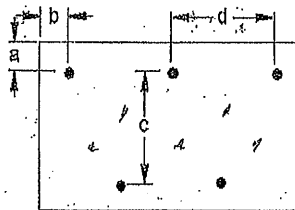
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

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.

### Connection Diagram: Full Length of Member



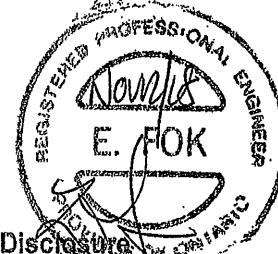
a minimum = 1/2"  
b minimum = 3"

c = 1-1/2"  
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.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



### Disclosure

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

DWGN. YAM 8437-184  
STRUCTURAL  
COMPONENT ONLY

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

T-181466W



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B6(I757)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B6(I757)

City, Province, Postal Code: BRA...ON

Specifier:

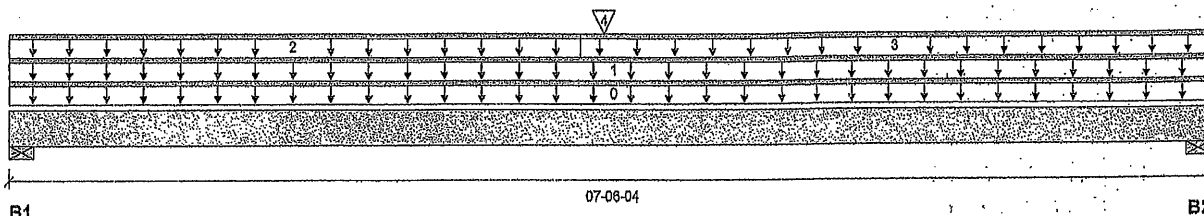
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-06-04

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	399 / 0	275 / 0		
B2, 4-3/8"	424 / 0	289 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-06-04	Top		10			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-06-04	Top	5	2			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-10	Top	6	3			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-06-10	07-06-04	Top	15	8			n/a
4	B14(I524)	Conc. Pt. (lbs)	L	03-08-06	03-08-06	Top	706	433			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,119 ft-lbs	23,220 ft-lbs	13.4%	1	03-08-06
End Shear	935 lbs	11,571 lbs	8.1%	1	06-04-06
Total Load Deflection	L/999 (0.033")	n/a	n/a	4	03-08-06
Live Load Deflection	L/999 (0.02")	n/a	n/a	5	03-08-06
Max Defl.	0.033"	n/a	n/a	4	03-08-06
Span / Depth	8.9				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 2-3/8" x 3-1/2"	943 lbs	21.2%	9.3%	Unspecified
B2	Wall/Plate 4-3/8" x 3-1/2"	999 lbs	12.2%	5.3%	Unspecified

### Notes

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

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

Calculations assume 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 2015 and CSA O86.

Design based on Dry Service Condition.

CONFORMS TO QBC2012

Importance Factor: Normal Part code: Part 9

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.



DWG NO. YAW 0438.184  
STRUCTURAL  
COMPONENT ONLY  
p6-12

T-1811417



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B6(i757)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1803.mmdl

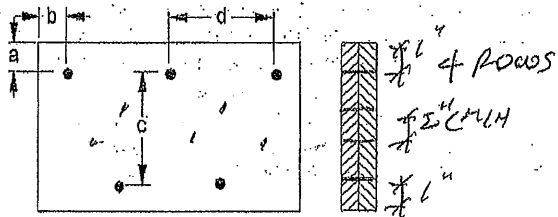
Description: 1ST FLOOR FRAMING\Flush Beams\B6(i757)

Specifier:

Designer: AJ

Company:

### Connection Diagram: Full Length of Member



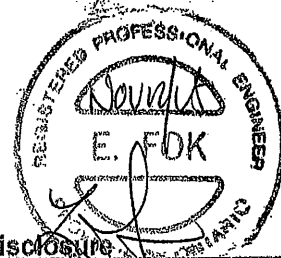
a minimum = 1"  
b minimum = 3"

c = 1-1/2"  
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.

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



### Disclosure

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

DWG NO. TAM 8438-185 BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®, STRUCTURAL COMPONENT ONLY

T. (814)761





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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B7(I717)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Build 6476

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B7(I717)

City, Province, Postal Code: BRA...ON

Specifier:

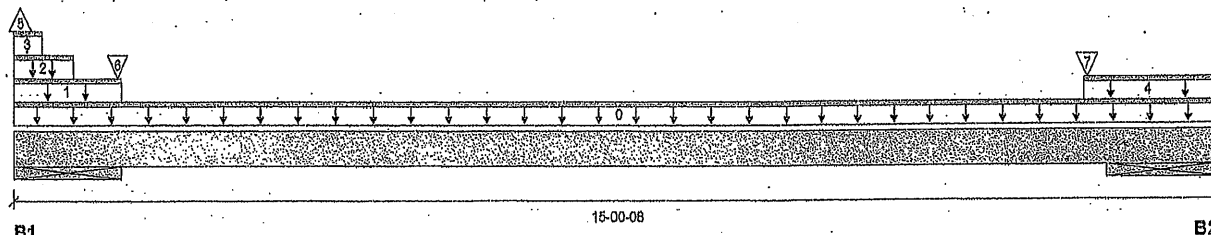
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 15-00-08

## Reaction Summary (Down / Uplift) (lbs)

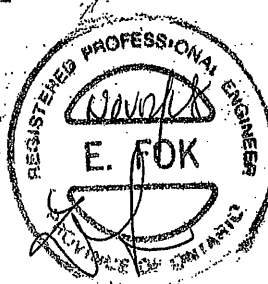
Bearing	Live	Dead	Snow	Wind
B1, 16-1/4"	2,038 / 0	2,468 / 0		
B2, 16-1/4"	3,045 / 0	2,528 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	15-00-08	Top		10			00-00-00
1	E23(I950)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-04	Top		81			n/a
2	E23(I950)	Unf. Lin. (lb/ft)	L	00-00-00	00-09-00	Top	74				n/a
3	E23(I950)	Unf. Lin. (lb/ft)	L	00-00-00	00-04-04	Top	360	180			n/a
4	E20(I855)	Unf. Lin. (lb/ft)	L	13-04-12	15-00-08	Top	382	262			n/a
5	E23(I950)	Conc. Pt. (lbs)	L	00-01-00	00-01-00	Top		-22			n/a
6	-	Conc. Pt. (lbs)	L	01-03-11	01-03-11	Top	1,797	2,204			n/a
7	-	Conc. Pt. (lbs)	L	13-05-04	13-05-04	Top	2,508	2,065			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,998 ft-lbs	13,891 ft-lbs	14.4%	1	13-04-12
End Shear	2,158 lbs	11,571 lbs	18.7%	1	12-10-12
Total Load Deflection	L/999 (0.068")	n/a	n/a	4	08-02-05
Live Load Deflection	L/999 (0.028")	n/a	n/a	5	08-04-05
Max Defl.	0.068"	n/a	n/a	4	08-02-05
Span / Depth	15.7				
Dist. Load (B1)	977.43 lb/ft	57,645.00 lb/ft	1.7%		
Dist. Load (B2)	869.97 lb/ft	57,645.00 lb/ft	1.5%		
Conc. Load (B1)	3,986 lbs	16,813 lbs	23.7%		



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 16-1/4" x 3-1/2"	6,142 lbs	20.2%	8.9%	Unspecified
B2	Wall/Plate 16-1/4" x 3-1/2"	7,728 lbs	25.4%	11.1%	Unspecified

DWG NO. TAMB445-18H  
STRUCTURAL  
COMPONENT ONLY

T-6811424



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B7(I717)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Build 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B7(I717)

City, Province, Postal Code: BRA...ON

Specifier:

Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

**Notes**

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

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

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

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

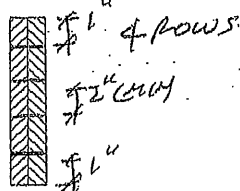
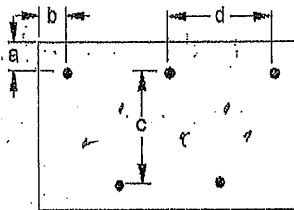
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2016 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

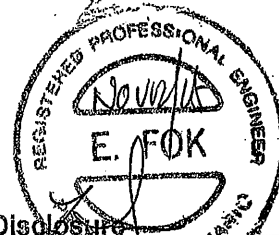
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

**Connection Diagram: Full Length of Member**a minimum = 1/2"  
b minimum = 3"c = 1-1/2"  
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.

Connectors are:

Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

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

DWG NO. TAM 45-18  
STRUCTURAL  
COMPONENT ONLY

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

T. L. Gunder



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

PASSED

## 2ND FLOOR FRAMING\Flush Beams\B8(i746)

BC CALC® Member Report

Dry | 2 spans | L cant.

July 5, 2018 15:01:56

Build 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B8(i746)

City, Province, Postal Code: BRA,,,ON

Specifier:

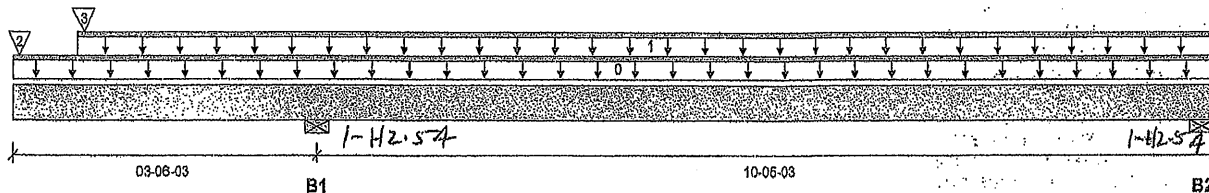
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,295 / 0	772 / 0		
B2, 2-3/8"	187 / 236	12 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-11-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-09-00	13-11-06	Top	35	18			n/a
2	B1(i547)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	Top	269	153			n/a
3	B13(i485)	Conc. Pt. (lbs)	L	00-09-14	00-09-14	Top	509	263			n/a

### Controls Summary

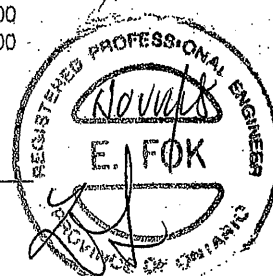
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	508 ft-lbs	23,220 ft-lbs	2.2%	6	10-01-13
Neg. Moment	-5,352 ft-lbs	-23,220 ft-lbs	23.0%	1	03-06-03
End Shear	329 lbs	11,571 lbs	2.8%	5	12-11-08
Cont. Shear	1,848 lbs	11,571 lbs	16.0%	1	02-05-15
Total Load Deflection	2xL/441 (0.191")	n/a	54.4%	9	00-00-00
Live Load Deflection	2xL/637 (0.132")	n/a	56.5%	12	00-00-00
Total Neg. Defl.	L/999 (-0.076")	n/a	n/a	9	07-09-00
Max Defl.	-0.076"	n/a	n/a	9	07-09-00
Span / Depth	13.0				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,907 lbs	28.3%	12.4%	Unspecified
B2	Wall/Plate 2-3/8" x 3-1/2"	296 lbs	6.7%	2.9%	Unspecified
B2	Uplift	344 lbs			

### Cautions

Uplift of 343 lbs found at span 2 - Right. (SIMPSON 1-42-54 @ (7. B2 + B1))



DWG NO. TAM 844610H  
STRUCTURAL  
COMPONENT ONLY

T-1844610H



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B8\I746**

BC CALC® Member Report

Dry | 2 spans | L cant.

July 5, 2018 15:01:56

Build 6476

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B8\I746

City, Province, Postal Code: BRA...ON

Specifier:

Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

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

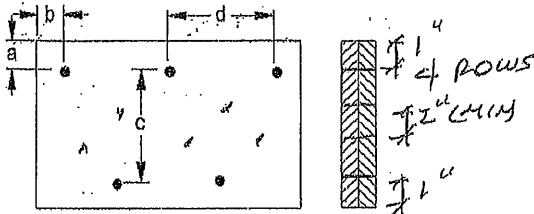
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO QBC 2012**

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

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.

**Connection Diagram: Full Length of Member**

a minimum = 8"

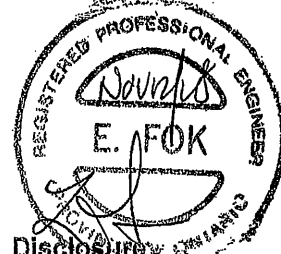
c = 7-1/2"

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.

Connectors are: Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

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

BWQ NO. TAM *04/16/18*  
STRUCTURAL  
COMPONENT ONLY

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

*T-1811456*



Boise Cascade



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B9\I684

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

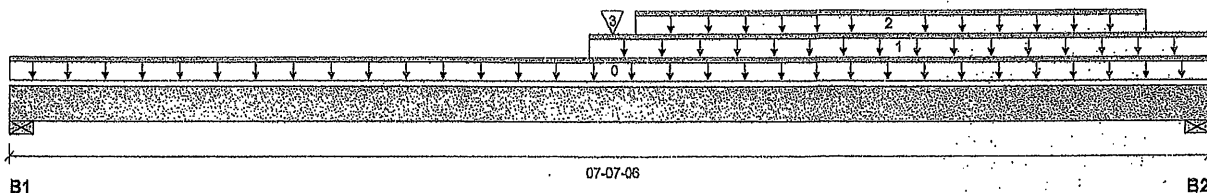
File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B9\I684

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-07-06

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	885 / 0	500 / 0		
B2, 4-3/8"	1,331 / 0	724 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-07-06	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-07-12	07-07-06	Top	19	9			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	03-11-04	07-02-08	Top	240	120			n/a
3	B14(I624)	Conc. Pt. (lbs)	L	03-09-08	03-09-08	Top	1,356	758			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,913 ft-lbs	10,181 ft-lbs	67.9%	1	03-09-08
End Shear	2,848 lbs	5,785 lbs	49.2%	1	06-05-08
Total Load Deflection	L/565 (0.15")	n/a	42.4%	4	03-09-08
Live Load Deflection	L/999 (0.097")	n/a	n/a	5	03-09-08
Max Defl.	0.15"	n/a	n/a	4	03-09-08
Span / Depth	8.9				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	1,952 lbs	59.7%	26.1%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	2,902 lbs	71.0%	31.1%	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: 03-02-04; Bottom: 03-02-04.

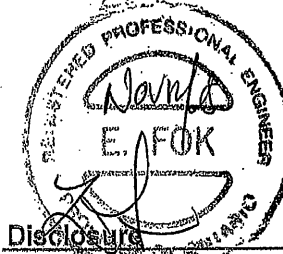
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



## Disclosure

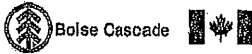
Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability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

DWNO.TAM 0439-10  
STRUCTURAL  
COMPONENT ONLY

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

T-1811418





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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B10(I540)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports:

CCMC 12472-R

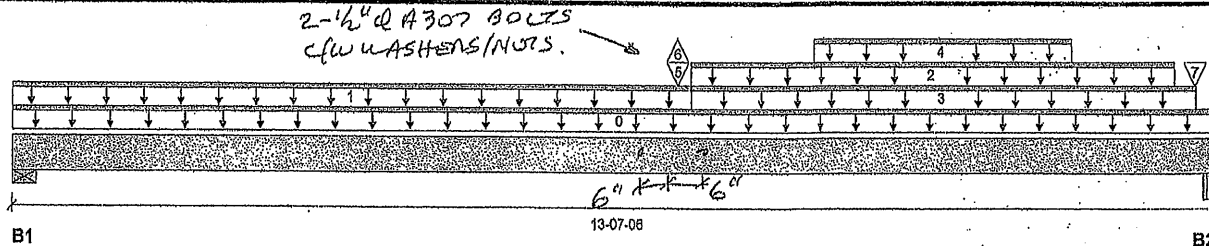
File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B10(I540)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 13-07-06

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	1,146 / 3	875 / 0		
B2, 5-1/4"	1,540 / 4	1,381 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-07-06	Top	14				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-07-06	Top	39	19			n/a
2	5(I311)	Unf. Lin. (lb/ft)	L	07-07-05	13-01-14	Top	81				n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	07-07-06	13-04-12	Top	28	14			n/a
4	5(I311)	Unf. Lin. (lb/ft)	L	09-00-00	11-11-15	Top	53	21			n/a
5	-	Conc. Pt. (lbs)	L	07-05-09	07-05-09	Top	1,967	1,234			n/a
6	-	Conc. Pt. (lbs)	L	07-05-09	07-05-09	Top	-7				n/a
7	4(I310)	Conc. Pt. (lbs)	L	13-04-10	13-04-10	Top	106	85			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,798 ft-lbs	36,222 ft-lbs	49.1%	1	07-05-10
End Shear	3,689 lbs	17,356 lbs	21.3%	1	12-04-10
Total Load Deflection	L/358 (0.44")	n/a	67.1%	6	06-11-12
Live Load Deflection	L/632 (0.249")	n/a	57.0%	8	06-11-12
Max Defl.	0.44"	n/a	n/a	6	06-11-12
Span / Depth	16.6				

### Bearing Supports

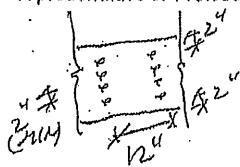
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 5-1/4"	2,812 lbs	42.2%	18.5%	Unspecified
B2	Beam 5-1/4" x 5-1/4"	4,035 lbs	13.4%	12.0%	Unspecified

### 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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection, OR WITH NAILING & BOLTING.



PROVIDE 4 ROWS OF 3-1/2" ARDOX

SPIRAL NAILS @ 12" O/C FOR

MULTI-PLY NAILING. MAINTAIN

A MIN. LUMBER EDGE / END

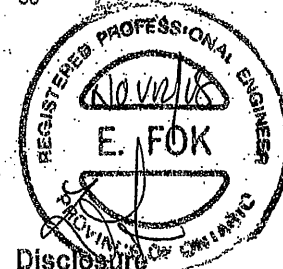
DISTANCE. DO NOT USE AIR NAILS.

STAGGER NAILS 6" BETWEEN PILES.

OR WITH NAILING & BOLTING.

STRUCTURAL

COMPONENT ONLY



### Disclosure

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

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

T-1811413



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

PASSED

BC CALCO® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

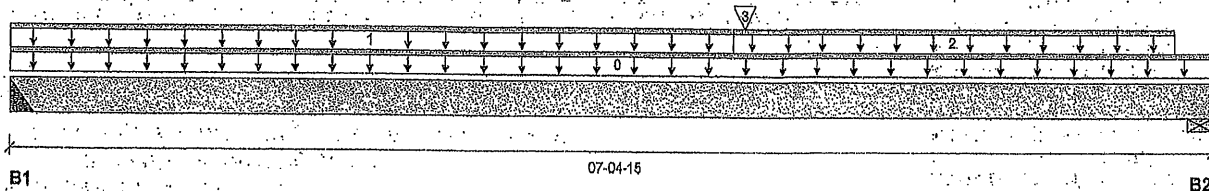
File name: UNIT 1803.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(i701)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-04-15

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	256 / 0	166 / 0		
B2, 5-1/2"	400 / 0	243 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-04-15	Top	10				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-05-00	Top	18	9			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-05-00	07-02-03	Top	20	10			n/a
3	B13(485)	Conc. Pt. (lbs)	L	04-05-14	04-05-14	Top	518	268			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,074 ft-lbs	23,220 ft-lbs	8.9%	1	04-05-14
End Shear	844 lbs	11,571 lbs	7.3%	1	06-01-15
Total Load Deflection	L/999 (0.021")	n/a	n/a	4	03-09-03
Live Load Deflection	L/999 (0.013")	n/a	n/a	5	03-09-03
Max Defl.	0.021"	n/a	n/a	4	03-09-03
Span / Depth	8.7				

Bearing Supports	Dim: (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	590 lbs	n/a	6.9%	Hanger
B2	Wall/Plate 5-1/2" x 3-1/2"	903 lbs	8.8%	3.8%	Unspecified

## Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

## Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

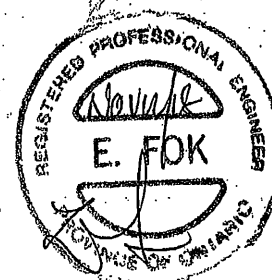
BC CALCO analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

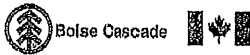
CONFORMS TO OBC 2012

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.



OWUNG TAMBYAKUT  
STRUCTURAL  
COMPONENT ONLY

T-11111



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B11(I701)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Build 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11(I701)

City, Province, Postal Code: BRA...ON

Specifier:

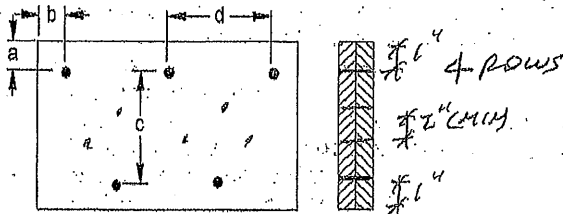
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

## Connection Diagram: Full Length of Member



a minimum = 1/2"  
b minimum = 3"

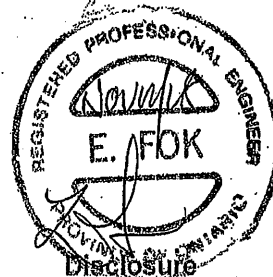
c = 1-1/2"  
d = 6"

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.

Connectors are:

1 Nails

3-1/2" ARDOX SPIRAL



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

DWG NO. TAM 04-1818  
STRUCTURAL  
COMPONENT ONLY

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

T-181142161



Boise Cascade



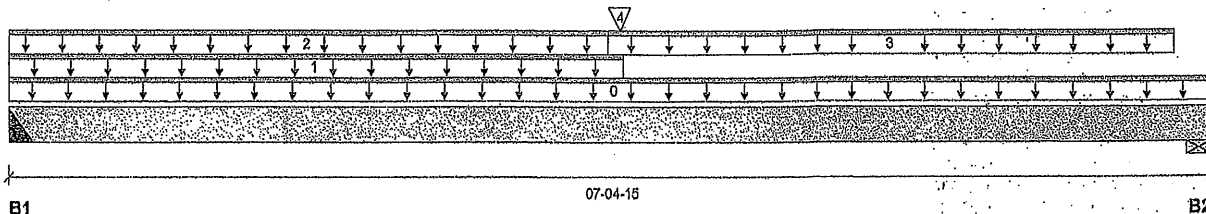
## Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

BC CALC® Member Report  
Build 6475

Dry | 1 span | No cant.

July 5, 2018 15:01:58

Job name:  
Address:  
City, Province, Postal Code: BRA...ON  
Customer:  
Code reports: CCMC 12472-RFile name: UNIT 1803.mmdl  
Description: 2ND FLOOR FRAMING\Flush Beams\B12(I711)  
Specifier:  
Designer: AJ  
Company:

Total Horizontal Product Length = 07-04-15

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	886 / 0	487 / 0		
B2, 5-1/2"	472 / 0	283 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-04-15	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-09-01	Top	240	120			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top	23	11			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-08-00	07-02-04	Top	27	13			n/a
4	B1(I647)	Conc. Pt. (lbs)	L	03-08-14	03-08-14	Top	280	160			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,096 ft-lbs	23,220 ft-lbs	13.3%	1	03-04-15
End Shear	1,392 lbs	11,571 lbs	12.0%	1	00-11-08
Total Load Deflection	L/999 (0.035")	n/a	n/a	4	03-04-15
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	03-04-15
Max Defl.	0.035"	n/a	n/a	4	03-04-15
Span / Depth	8.7				

## Bearing Supports

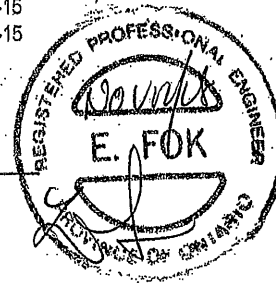
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	1,938 lbs	n/a	22.7%	Hanger
B2	Wall/Plate 5-1/2" x 3-1/2"	1,062 lbs	10.3%	4.5%	Unspecified

## Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Calculations assume member is fully braced.  
 Hanger Manufacturer: Unassigned  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor: Normal Part code: Part 9  
 CONFORMS TO OBC 2012  
 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.

DWG NO. TAM B 443184  
STRUCTURAL  
COMPONENT ONLY

T-18114m



Boise Cascade



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

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

File name: UNIT 1803.mmdl

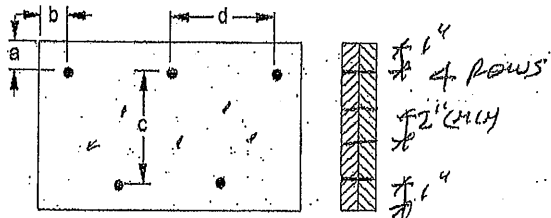
Description: 2ND FLOOR FRAMING\Flush Beams\B12(I711)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 1/2"  
b minimum = 3"

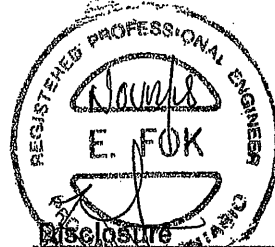
c = 3-1/2"  
d = 6"

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.

Connectors are:

Nails

3-1/2" ARDOX SPIRAL



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

DWG NO. TAM 044318 H  
STRUCTURAL  
COMPONENT ONLY

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

T-844464



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B13\I485

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Build 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B13\I485

City, Province, Postal Code: BRA...ON

Specifier:

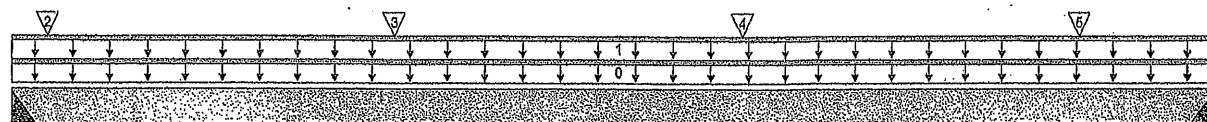
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

03-06-00

B2

Total Horizontal Product Length = 03-06-00

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	518 / 0	268 / 0		
B2, 2"	509 / 0	263 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	240	120			n/a
2	J5(I758)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	34	17			n/a
3	J5(I762)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	55	28			n/a
4	J5(I702)	Conc. Pt. (lbs)	L	02-01-04	02-01-04	Top	55	28			n/a
5	J5(I639)	Conc. Pt. (lbs)	L	03-01-04	03-01-04	Top	43	21			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	847 ft-lbs	11,610 ft-lbs	7.3%	1	01-09-08
End Shear	544 lbs	5,785 lbs	9.4%	1	00-11-08
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	01-09-02
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-09-02
Max Defl.	0.005"	n/a	n/a	4	01-09-02
Span / Depth	4.2				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,111 lbs	n/a	26.0%	Hanger
B2	Hanger 2" x 1-3/4"	1,093 lbs	n/a	25.6%	Hanger

## Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

## Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

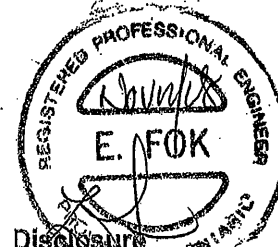
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 2012



## Disclaimer

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

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

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

DWG NO. TAM 8444184  
STRUCTURAL  
COMPONENT ONLY

T-1811423



Boise Cascade

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

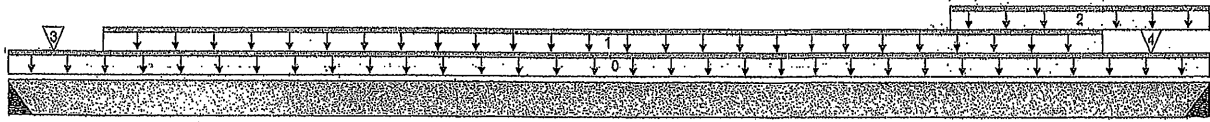
File name: UNIT 1803.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B14\I624

Specifier:

Designer: AJ

Company:



16-00-12  
Total Horizontal Product Length = 16-00-12

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 2"	702 / 0	431 / 0		
B2, 2"	1,360 / 0	760 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-00-12	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	14-07-04	Top	79	40			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	12-06-12	16-00-12	Top	240	120			n/a
3	J4(I798)	Conc. Pt. (lbs)	L	00-07-04	00-07-04	Top	82	41			n/a
4	J4(I809)	Conc. Pt. (lbs)	L	15-03-04	15-03-04	Top	90	45			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,211 ft-lbs	23,220 ft-lbs	31.1%	1	08-07-04
End Shear	2,450 lbs	11,571 lbs	21.2%	1	15-01-04
Total Load Deflection	L/402 (0.473")	n/a	59.7%	4	08-03-04
Live Load Deflection	L/642 (0.296")	n/a	56.1%	5	08-03-04
Max Defl.	0.473"	n/a	n/a	4	08-03-04
Span / Depth	20.0				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	1,591 lbs	n/a	18.6%	Hanger
B2	Hanger 2" x 3-1/2"	2,991 lbs	n/a	35.0%	Hanger

**Cautions**

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

**Notes**

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

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

Calculations assume 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 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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.



DWG NO. TAM8435-18H  
STRUCTURAL  
COMPONENT ONLY  
pg 1/2

T-1811444



Boise Cascade



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

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRÄ...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

File name: UNIT 1803.mmdl

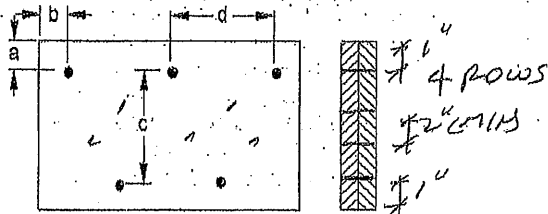
Description: 1ST FLOOR FRAMING\Flush Beams\B14\1524

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



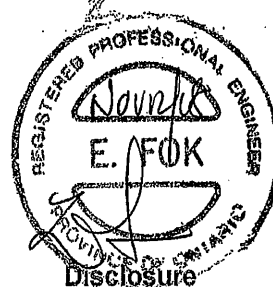
a minimum = 0"  
b minimum = 3"

c = 1-1/2"  
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.

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



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

DWG NO. TAM 8435-184  
STRUCTURAL  
COMPONENT ONLY

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

T-18114446





Boise Cascade

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

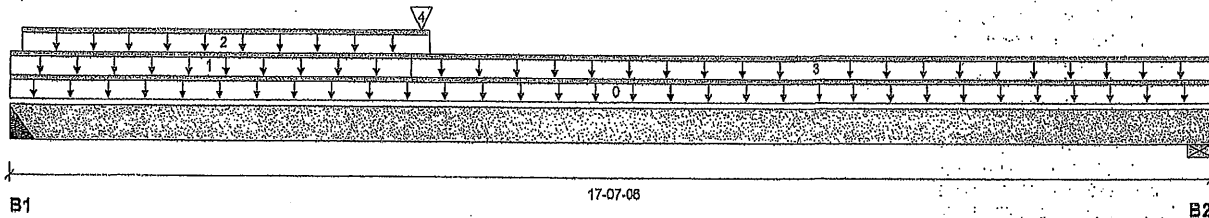
File name: UNIT 1803.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B15(i857)

Specifier:

Designer: AJ

Company:

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,305 / 0	1,089 / 0		
B2, 4-3/8"	860 / 0	615 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-07-08	Top		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Top	16	8			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-02-00	06-01-03	Top		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-10-00	17-07-08	Top	33	17			n/a
4	B17(i859)	Conc. Pt. (lbs)	L	05-11-12	05-11-12	Top	1,670	893			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,357 ft-lbs	35,392 ft-lbs	49.0%	1	05-11-12
End Shear	3,187 lbs	14,464 lbs	22.0%	1	01-01-14
Total Load Deflection	L/366 (0.564")	n/a	65.6%	4	08-02-00
Live Load Deflection	L/622 (0.332")	n/a	57.8%	5	08-02-00
Max Defl.	0.564"	n/a	n/a	4	08-02-00
Span / Depth	17.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	3,318 lbs	n/a	38.9%	Hanger
B2	Wall/Plate 4-3/8" x 3-1/2"	2,044 lbs	25.0%	10.9%	Unspecified

**Cautions**

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

**Notes**

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

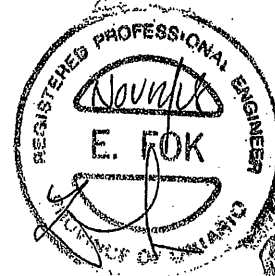
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

**CONFORMS TO CBC 2012**

Importance Factor: Normal Part code: Part 9

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.



DWG NO. TAM B44718H  
STRUCTURAL  
COMPONENT ONLY

T-1811426



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

PASSED

BC CALC® Member Report  
Build 6476

## 3RD FLOOR FRAMING\Flush Beams\B15(1857)

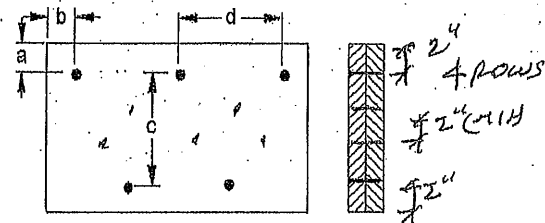
Dry | 1 span | No cant.

July 5, 2018 15:01:56

Job name:  
Address:  
City, Province, Postal Code: BRA...ON  
Customer:  
Code reports: CCMC 12472-R

File name: UNIT 1803.mmdl  
Description: 3RD FLOOR FRAMING\Flush Beams\B15(1857)  
Specifier:  
Designer: AJ  
Company:

### Connection Diagram: Full Length of Member



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

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



Disclosure:

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

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

DWG NO. TAM 044719  
STRUCTURAL  
COMPONENT ONLY

T-181146(1)



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

PASSED

BC CALC® Member Report  
Build 6475

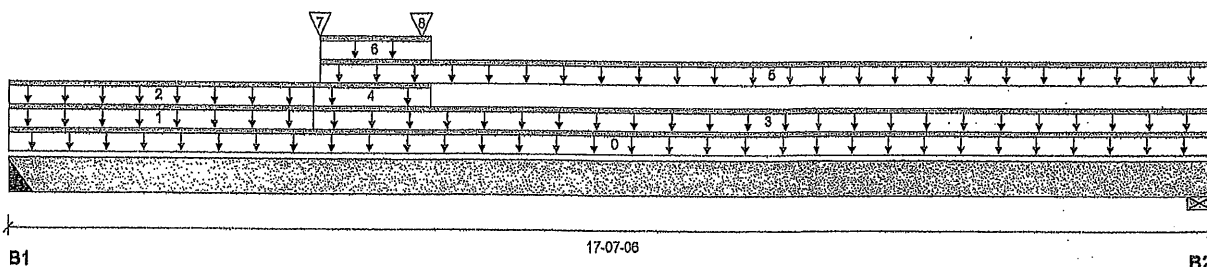
3RD FLOOR FRAMING\Flush Beams\B16(I858)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Job name:  
Address:  
City, Province, Postal Code: BRA...ON  
Customer:  
Code reports: CCMC 12472-R

File name: UNIT 1803.mmdl  
Description: 3RD FLOOR FRAMING\Flush Beams\B16(I858)  
Specifier:  
Designer: AJ  
Company:



Total Horizontal Product Length = 17-07-06

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,072 / 0	982 / 0		
B2, 4-3/8"	675 / 0	527 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-07-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-05-01	Top		52			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-05-01	Top	22	11			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	04-05-01	17-07-06	Top	20	10			n/a
4	WALL	Unf. Lin. (lb/ft)	L	04-05-01	06-01-06	Top		30			n/a
5	FC3 Floor Material	Unf. Lin. (lb/ft)	L	04-06-03	17-07-06	Top	7	4			n/a
6	WALL	Unf. Lin. (lb/ft)	L	04-06-03	06-01-06	Top		29			n/a
7	B18(I860)	Conc. Pt. (lbs)	L	04-06-03	04-06-03	Top	29	24			n/a
8	B17(I859)	Conc. Pt. (lbs)	L	05-11-12	05-11-12	Top	1,267	697			n/a

## Controls Summary

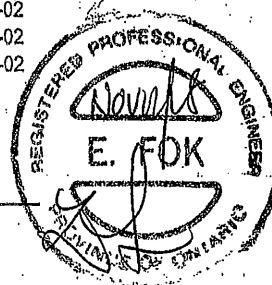
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	14,094 ft-lbs	35,392 ft-lbs	39.8%	1	05-11-12
End Shear	2,662 lbs	14,464 lbs	18.4%	1	01-01-14
Total Load Deflection	L/447 (0.462")	n/a	53.7%	4	08-02-02
Live Load Deflection	L/783 (0.264")	n/a	46.0%	5	08-02-02
Max Defl.	0.462"	n/a	n/a	4	08-02-02
Span / Depth	17.4				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	2,810 lbs	n/a	32.9%	Hanger
B2	Wall/Plate 4-3/8" x 3-1/2"	1,672 lbs	20.4%	8.9%	Unspecified

## Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.



BEWU.TAM B44B18H  
STRUCTURAL  
COMPONENT ONLY p64/2

T-1811427



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

PASSED

BC CALC® Member Report

3RD FLOOR FRAMING\Flush Beams\B16(i858)

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Buld 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B16(i858)

City, Province, Postal Code: BRA...ON

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

## Notes

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

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

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 2015 and CSA O86.

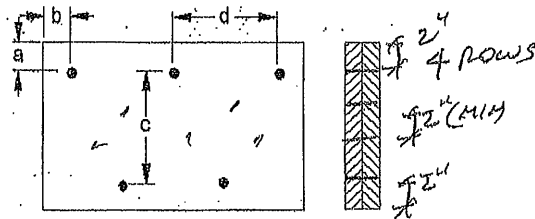
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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.

## Connection Diagram: Full Length of Member



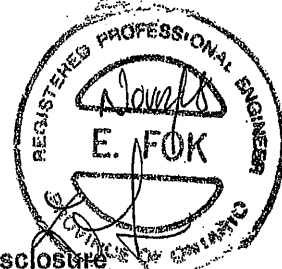
a minimum = 2"  
b minimum = 3"

c = 7-7/8"  
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.

Connectors are: Nails

3-1/2" ARDOX SPIRAL



## Disclosure

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

DWG NO. TAM B-44B18  
STRUCTURAL  
COMPONENT ONLY

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

T-1811427(V)



Boise Cascade



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

PASSED

## 3RD FLOOR FRAMING\Flush Beams\B17\I859

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

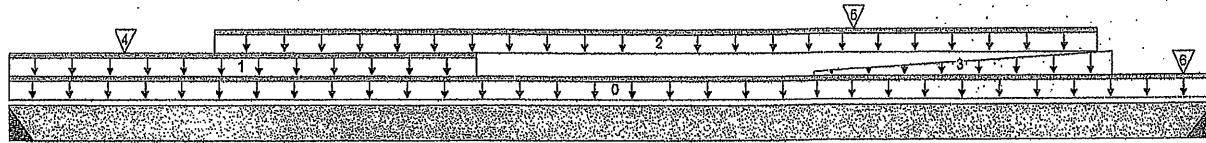
File name: UNIT 1803.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B17\I859

Specifier:

Designer: AJ

Company:



B1

09-01-00

B2

Total Horizontal Product Length = 09-01-00

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,674 / 0	895 / 0		
B2, 2"	1,267 / 0	697 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-01-00	Top		12			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-08	08-02-08	Top	232	116			n/a
3	FC3 Floor Material	Trapezoidal (lb/ft)	L	06-00-07	08-03-14	Top	4	2			n/a
4	J2(I878)	Conc. Pt. (lbs)	L	00-10-08	00-10-08	Top	277	139			n/a
5	B18(I860)	Conc. Pt. (lbs)	L	06-04-06	06-04-06	Top		20			n/a
6	J2(I861)	Conc. Pt. (lbs)	L	08-10-08	08-10-08	Top	194	97			n/a

## Controls Summary

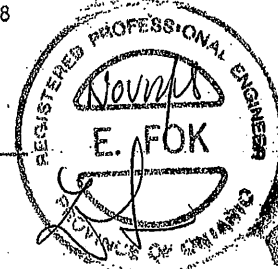
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,728 ft-lbs	35,392 ft-lbs	19.0%	1	03-06-08
End Shear	2,856 lbs	14,464 lbs	19.7%	1	01-01-14
Total Load Deflection	L/999 (0.069")	n/a	n/a	4	04-04-08
Live Load Deflection	L/999 (0.045")	n/a	n/a	5	04-04-08
Max Defl.	0.069"	n/a	n/a	4	04-04-08
Span / Depth	9.0				

## Bearing Supports

		Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger	2" x 3-1/2"	3,630 lbs	n/a	42.5%	Hanger
B2	Hanger	2" x 3-1/2"	2,772 lbs	n/a	32.5%	Hanger

## Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM B44918H  
STRUCTURAL  
COMPONENT ONLY

T-Lucas



Boise Cascade

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

File name: UNIT 1803.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B17\1859

Specifier:

Designer: AJ

Company:

**Notes**

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

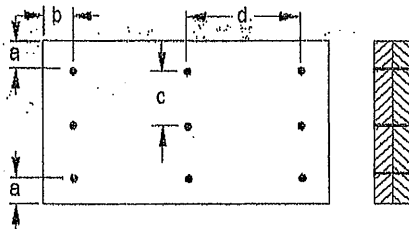
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

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.

**Connection Diagram: Full Length of Member**

a minimum = 2"

c = 4"

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.

Connectors are: 16d 1 Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

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

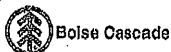
Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods.

Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

DWG NO. TAW-B17-18  
STRUCTURAL  
COMPONENT ONLY

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

T-18114286



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

**PASSED**

BC CALC® Member Report

Bulld 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 15:01:56

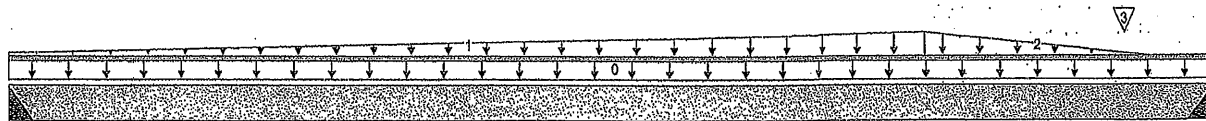
File name: UNIT 1803.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B18(1860)

Specifier:

Designer: AJ

Company:



B1

03-02-04

B2

Total Horizontal Product Length = 03-02-04

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	17 / 0	18 / 0		
B2, 2"	30 / 0	25 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top		6			00-00-00
1	FC3 Floor Material	Trapezoidal (lb/ft)	L	00-00-00	02-05-01	Top	3	2			n/a
							22	11			
2	FC3 Floor Material	Trapezoidal (lb/ft)	L	02-05-01	03-00-05	Top	6	2			n/a
							0	0			
3	J4(1875)	Conc. Pt. (lbs)	L	02-11-08	02-11-08	Top	15	8			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	43 ft-lbs	17,696 ft-lbs	0.2%	1	01-08-07
End Shear	38 lbs	7,232 lbs	0.5%	1	01-01-14
Total Load Deflection	L/999 (0")	n/a	n/a	6	01-07-02
Live Load Deflection	L/999 (0")	n/a	n/a	8	01-07-13
Max Defl.	0"	n/a	n/a	6	01-07-02
Span / Depth	3.0				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger 2" x 1-3/4"	48 lbs	n/a	1.1%	Hanger
B2	Hanger 2" x 1-3/4"	77 lbs	n/a	1.8%	Hanger

## Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

## Notes

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

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

Calculations assume unbraced length of Top: 00-01-15, Bottom: 00-01-15.

Hanger Manufacturer: Unassigned

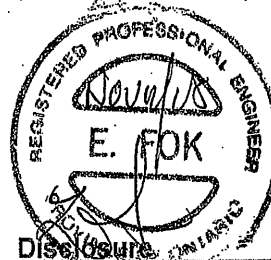
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO QBC 2012



Disclosure

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

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

DWG NO. TAM 045018 H  
STRUCTURAL  
COMPONENT ONLY

T-1811429



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

**PASSED**

## 3RD FLOOR FRAMING\Flush Beams\B19(1948)

BC CALC® Member Report

Dry | 1 span | No cant.

July 5, 2018 15:01:56

Buld 6475

Job name:

File name: UNIT 1803.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B19(1948)

City, Province, Postal Code: BRA...ON

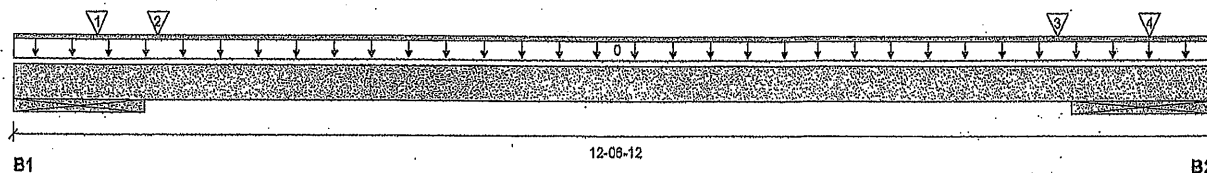
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 12-06-12

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 16-3/4"	1,621 / 0	1,324 / 0		
B2, 18"	1,445 / 0	1,254 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-06-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	J1(1933)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	310	155			n/a
2	B15(1857)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	Top	1,316	1,097			n/a
3	B16(1858)	Conc. Pt. (lbs)	L	10-11-00	10-11-00	Top	1,073	961			n/a
4	J1(1935)	Conc. Pt. (lbs)	L	11-10-12	11-10-12	Top	367	214			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	829 ft-lbs	21,912 ft-lbs	3.8%	1	05-04-11
End Shear	539 lbs	14,464 lbs	3.7%	1	02-04-10
Total Load Deflection	L/999 (0.012")	n/a	n/a	4	06-02-12
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	06-01-05
Max Defl.	0.012"	n/a	n/a	4	06-02-12
Span / Depth	9.9				
Conc. Load (B1)	659 lbs	16,813 lbs	3.9%		
Conc. Load (B2)	818 lbs	16,813 lbs	4.9%		

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 16-3/4" x 3-1/2"	4,086 lbs	13.1%	5.7%	Unspecified
B2	Wall/Plate 18" x 3-1/2"	3,736 lbs	11.1%	4.9%	Unspecified

### Notes

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

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

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

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 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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.



DWG NO. TAM 9451-18H  
STRUCTURAL  
COMPONENT ONLY  
p612

T-1811430





Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****3RD FLOOR FRAMING\Flush Beams\B19(1948)**

Dry | 1 span | No cant.

July 5, 2018 15:01:56

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: BRA...ON

Customer:

Code reports: CCMC 12472-R

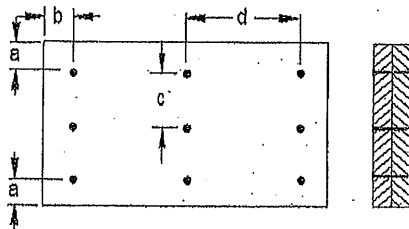
File name: UNIT 1803.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B19(1948)

Specifier:

Designer: AJ

Company:

**Connection Diagram: Full Length of Member**

a minimum = 2"

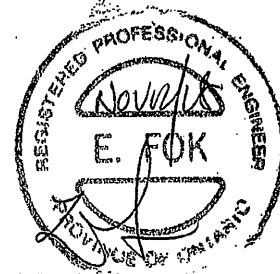
c = 4"

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.

Connectors are: 16d Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

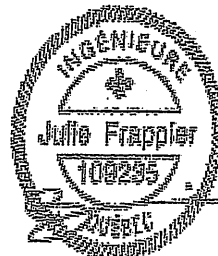
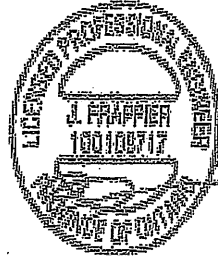
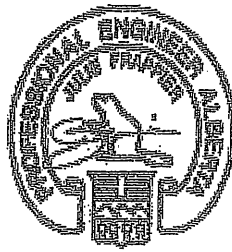
Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability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

OWNED BY TAM 0451-18 1/4  
STRUCTURAL COMPONENT ONLY  
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

T-1811430(1)

## Maximum Floor Spans

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

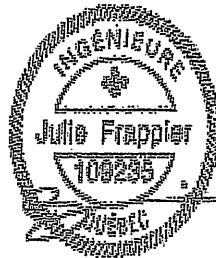
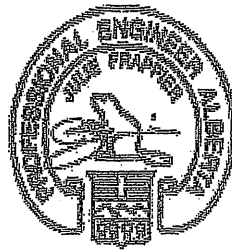


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ .
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



## Maximum Floor Spans

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

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

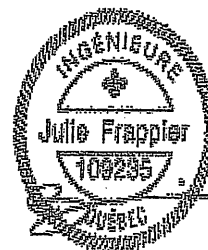
  

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-10"	15'-5"	14'-0"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ .
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.

## Maximum Floor Spans

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

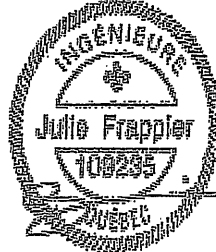
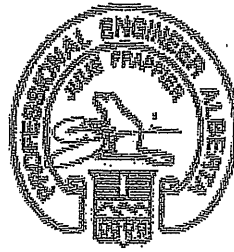


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.



## Maximum Floor Spans

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

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

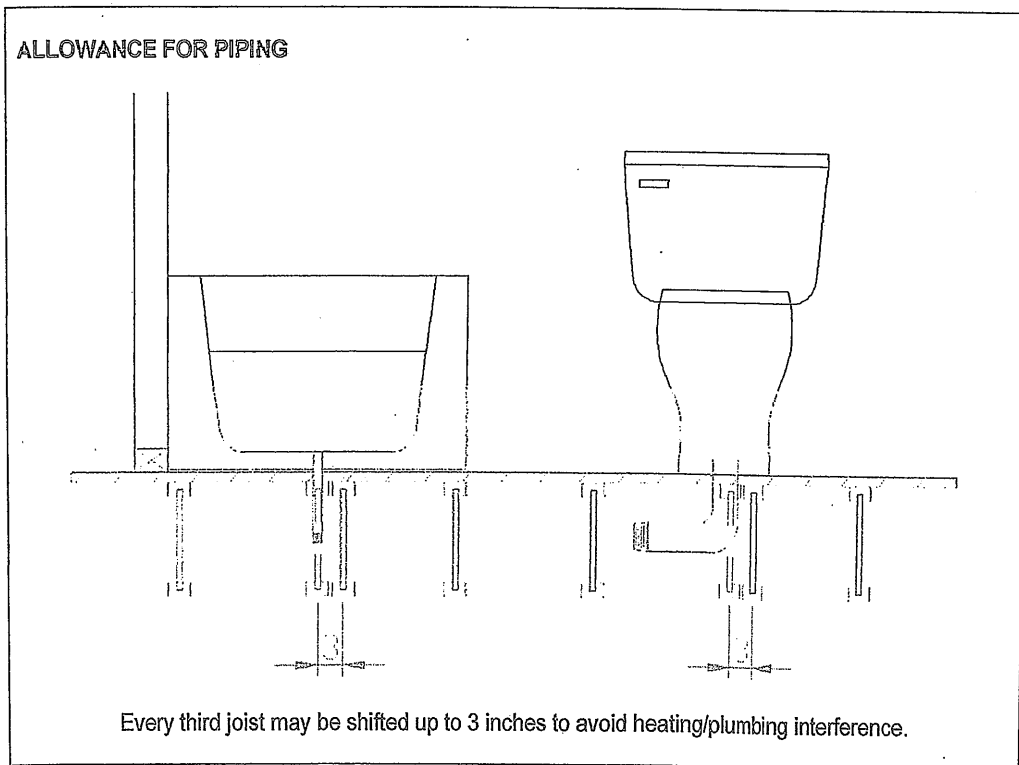
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.

## Allowance for Piping (Installation Notes)

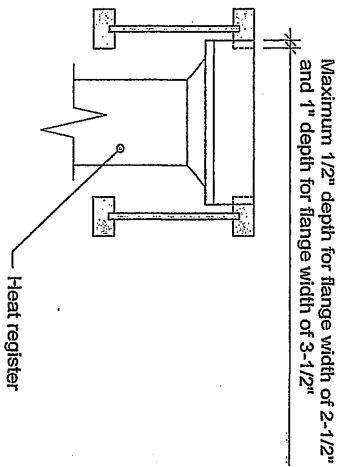
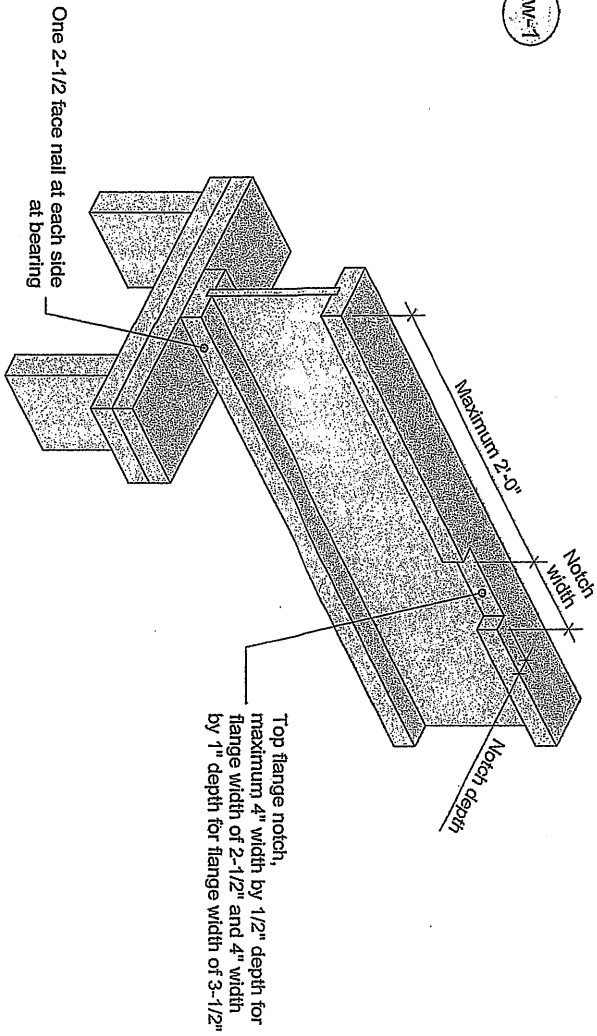
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches.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

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

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



Revised April 12, 2012



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

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

**NORDIC**  
**STRUCTURES**

T 514-871-8528  
1 866 817-3418  
nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1W-1