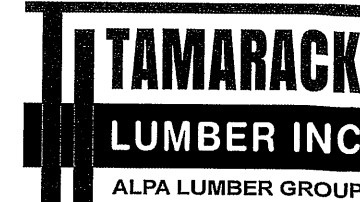


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	8-00-00	9 1/2" NI-40x	1	8
J3	6-00-00	9 1/2" NI-40x	1	9
J4	4-00-00	9 1/2" NI-40x	1	10
J5	2-00-00	9 1/2" NI-40x	1	1
B7 ✓	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4 ✓	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B5 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2 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
2	H2	HGUS410
1	H2	HGUS410
1	H3	HUS1.81/10
1	H5	HUC410
15	H9	IUS2.56/9.5
1	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/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 1801

ELEVATION: A & B

LOT:

CITY: BRAMPTON

SALESMAN: M D

DESIGNER: AJ

REVISION: AJ

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.

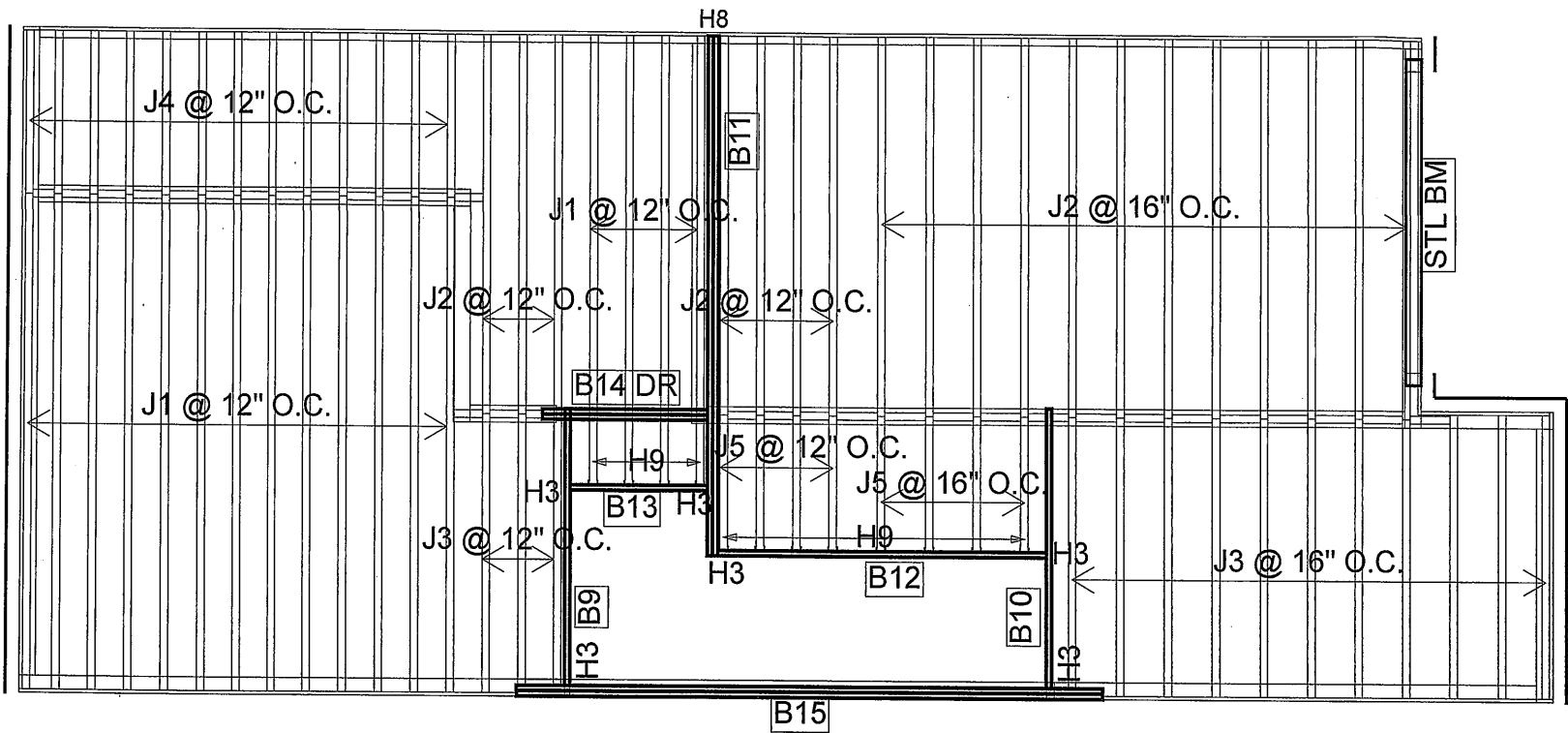
DWG# TAM 3106218 THROUGH DWG# TAM 8499104 INCLUSIVE DATED 11/2/18

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

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

DWG # TAM 3106218
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL
COMPONENTS ONLY



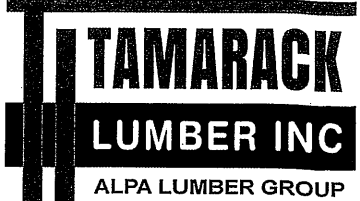
Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	17
J2	12-00-00	9 1/2" NI-40x	1	19
J3	8-00-00	9 1/2" NI-40x	1	14
J4	6-00-00	9 1/2" NI-40x	1	13
J5	4-00-00	9 1/2" NI-40x	1	8
B15 ✓	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11 ✓	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12 ✓	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14 DR ✓	6-00-00	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

Connector Summary		
Qty	Manuf	Product
2	H3	HUS1.81/10
4	H3	HUS1.81/10
12	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/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂

SUBFLOOR: 5/8" GLUE AND NAIL



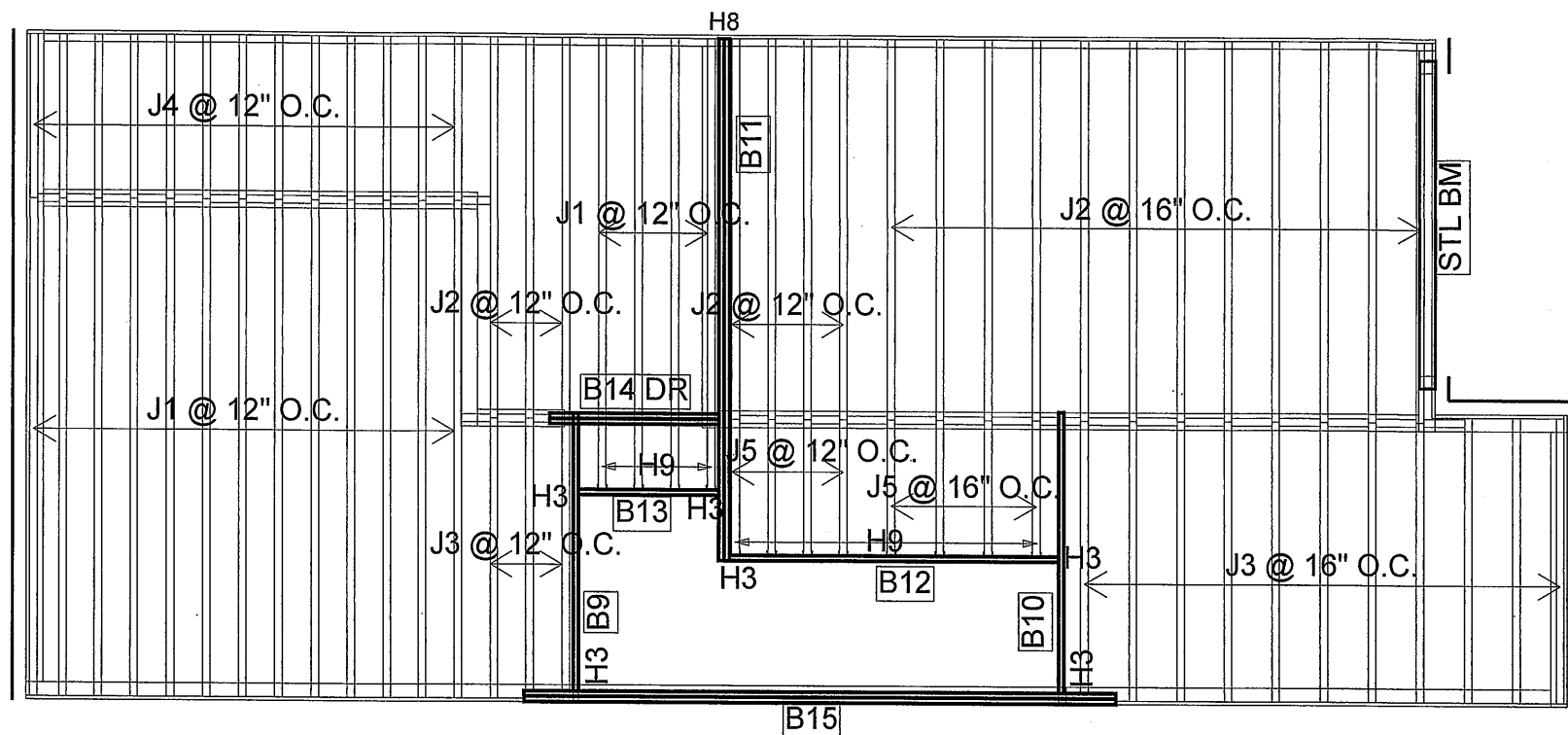
FROM PLAN DATED:
APRIL 2018
BUILDER:
ROYAL PINE HOMES
SITE:
FOREST SIDE
MODEL: UNIT 1801
ELEVATION: A
LOT:
CITY: BRAMPTON
SALESMAN: M D
DESIGNER: AJ
REVISION: AJ
DATE: 11/2/2018
2nd FLOOR

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 DAS 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 848018H THROUGH DWG# TAM 848618H INCLUSIVE DATED 1/7/18
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 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.

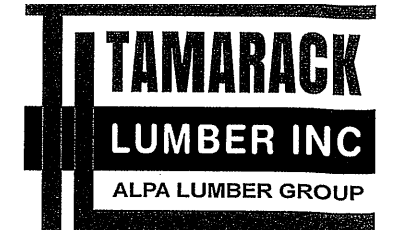
DWG # TAM 310637B
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL
COMPONENTS ONLY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	17
J2	12-00-00	9 1/2" NI-40x	1	19
J3	8-00-00	9 1/2" NI-40x	1	14
J4	6-00-00	9 1/2" NI-40x	1	13
J5	4-00-00	9 1/2" NI-40x	1	8
B15 ✓	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11 ✓	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12 ✓	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14 DR ✓	6-00-00	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

Connector Summary		
Qty	Manuf	Product
2	H3	HUS1.81/10
4	H3	HUS1.81/10
12	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/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 1801

ELEVATION: B

LOT:

CITY: BRAMPTON

SALESMAN: M D

DESIGNER: AJ

REVISION: AJ

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 LBS 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 B480-18H THROUGH DWG# TAM B486-18H INCLUSIVE DATED 11/2/18

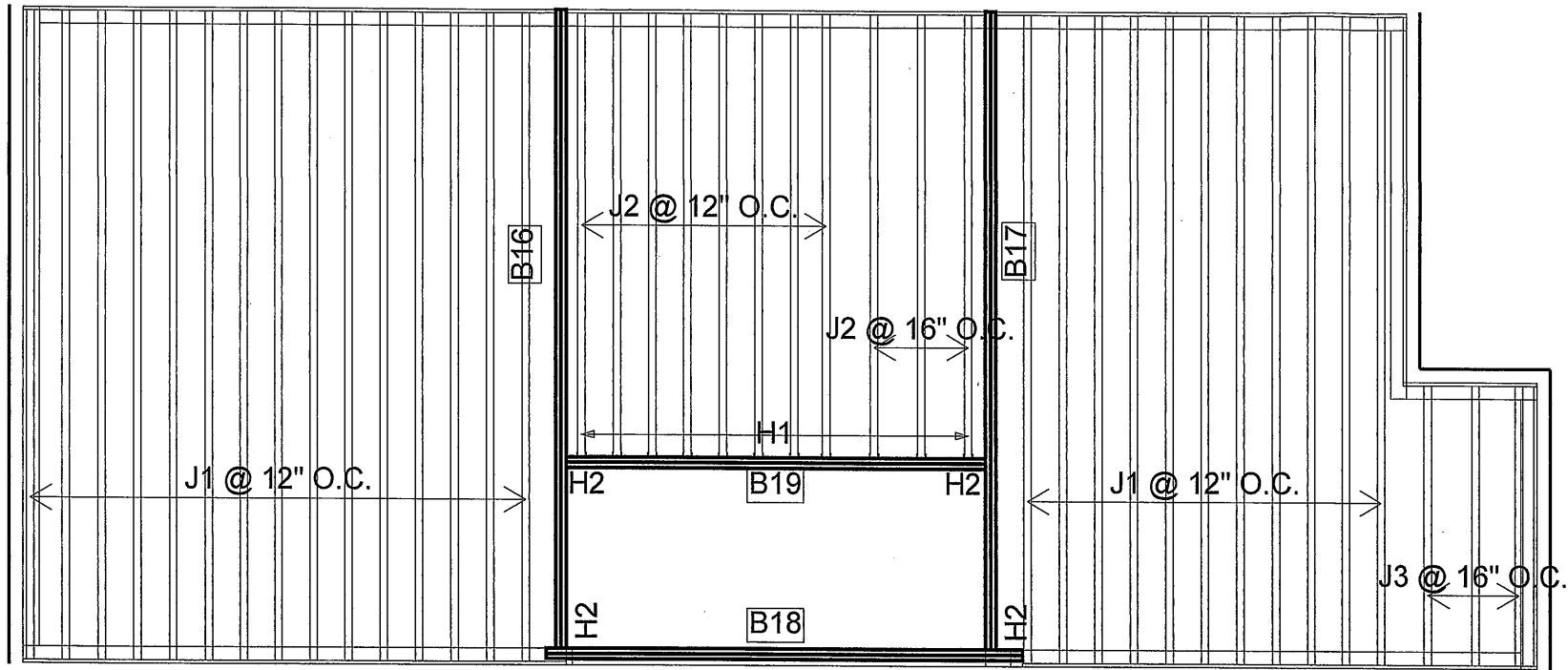
SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER 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 1/160 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 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

3106478



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	26
J2	14-00-00	11 7/8" NI-40x	1	11
J3	8-00-00	11 7/8" NI-40x	1	3
B16 ✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17 ✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19 ✓	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/11.88
4	H2	HGUS410

NOTES:

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

LOADING:

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

TAMARACK LUMBER INC

ALPA LUMBER GROUP

FROM PLAN DATED: APRIL 2018

BUILDER: ROYAL PINE HOMES

SITE: FOREST SIDE

MODEL: UNIT 1801

ELEVATION: A & B LOT:

CITY: BRAMPTON

SALESMAN: M D

DESIGNER: AJ

REVISION: AJ

DATE: 11/2/2018

3rd FLOOR

SUBFLOOR: 5/8" GLUE AND NAIL

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 DAS 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 048718H THROUGH DWG# TAM 049018H 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 1/160 DEEPER THAN JOIS DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.

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

REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

DWG # TAM 3106578
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-joint 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-joint web shall equal the clear distance between the flanges of the I-joint 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-joint 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'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	---	---	---
	NI-80	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"	8'-9"	10'-0"	---	---	---	---	---	---
	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"	14'-0"	15'-4"

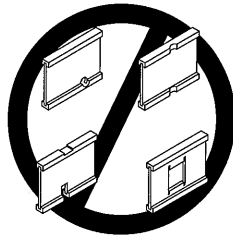
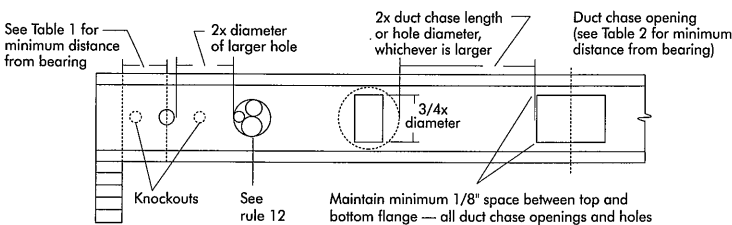
- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans. 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"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"				
	NI-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-9"				
	NI-70	5-1"	5-5"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	8-4"				
	NI-80	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"				
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"	11-10"	12-3"	12-8"	13-3"	14-0"				

- Above table may be used for I-joint 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-joint. 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.

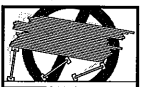
Holes in webs should be cut with a sharp saw.

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-joint.

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-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joint 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-joint 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-joint. 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-joint before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joint.

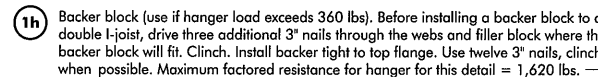
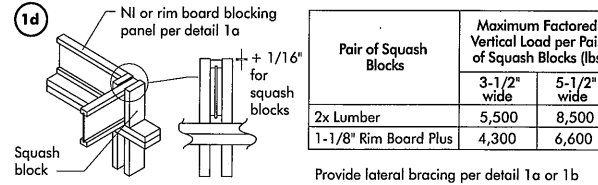
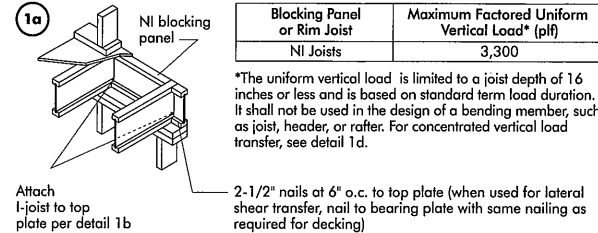
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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

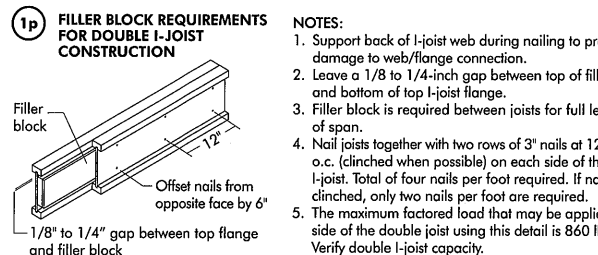
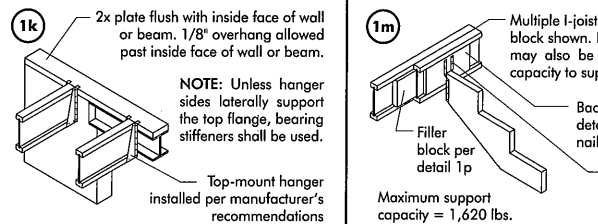


BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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".

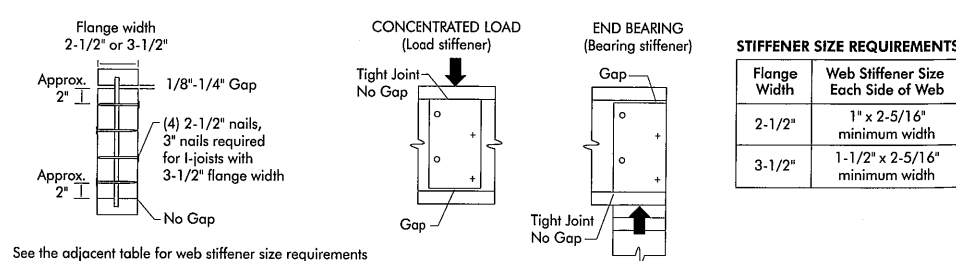


WEB STIFFENERS

RECOMMENDATIONS:

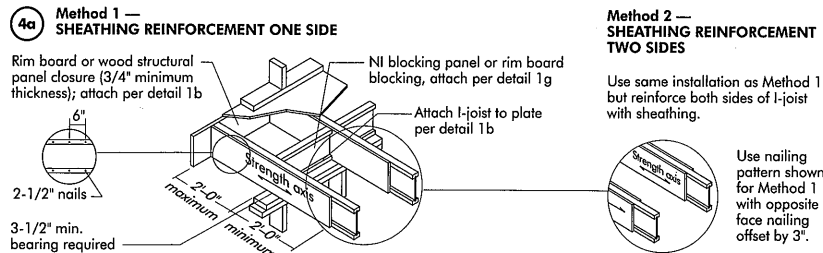
- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joint properties table found of the *I-joint Construction Guide* (C101). The gap between the stiffener and the flange is at the top.
- A **bearing stiffener** is required when the I-joint 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

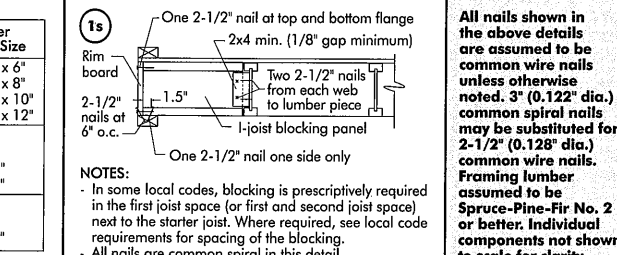
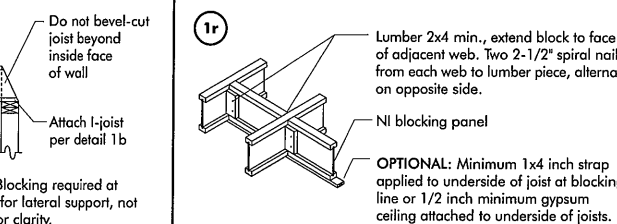
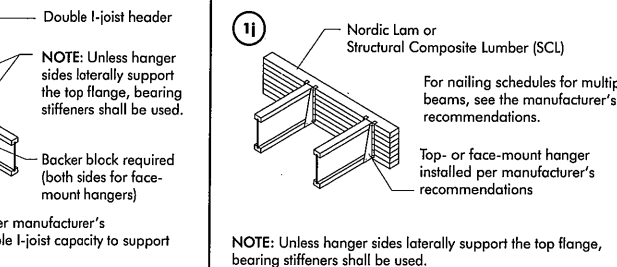
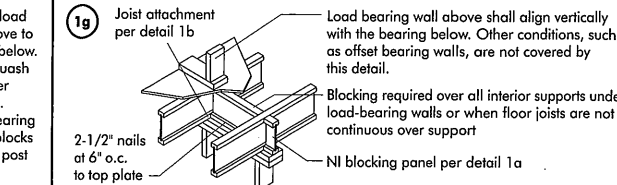
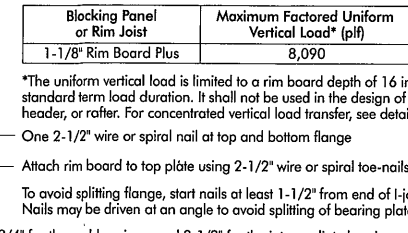


See the adjacent table for web stiffener size requirements

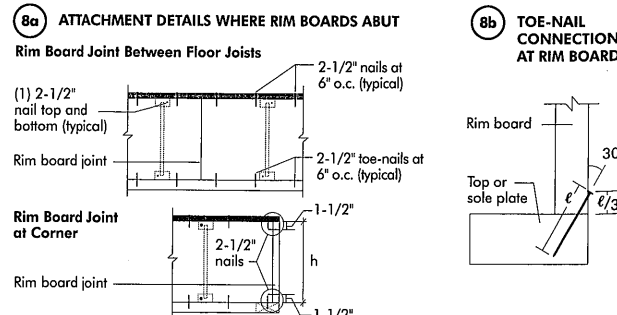
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



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



RIM BOARD INSTALLATION DETAILS



Schedule 1: Designer Information

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

A. Project Information				Application number:	
Building number, street name				Unit no.	Lot/con.
Municipality CITY OF BRAMPTON		Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities					
Name SAM KATSOULAKOS			Firm MICRO CITY ENGINEERING SERVICES INC.		
Street address R.R #1, PO BOX 61				Unit no.	Lot/con.
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail		
Telephone number (519) 287-2242 Business		Fax number (519) 287-5750	Cell number		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]					
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 33%;"> <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: 33%;"> <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 ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1801 - ELEV. A OR B 1ST FLOOR – STANDARD (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31062-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.					
D. Declaration of Designer					
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		Signature of Designer			

NOTE:

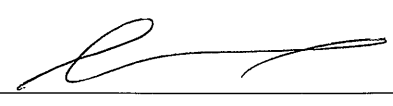
- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d). of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed 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 31062-18
 DWG #TAM 31066-18

Handwritten initials/signature

Schedule 1: Designer Information

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

A. Project Information			Application number:													
Building number, street name			Unit no.	Lot/con.												
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description														
B. Individual who reviews and takes responsibility for design activities																
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.														
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.												
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail													
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number														
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]																
<table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> House</td> <td><input type="checkbox"/> HVAC – House</td> <td><input checked="" type="checkbox"/> Building Structural</td> </tr> <tr> <td><input type="checkbox"/> Small Buildings</td> <td><input type="checkbox"/> Building Services</td> <td><input type="checkbox"/> Plumbing – House</td> </tr> <tr> <td><input type="checkbox"/> Large Buildings</td> <td><input type="checkbox"/> Detection, Lighting and Power</td> <td><input type="checkbox"/> Plumbing – All Buildings</td> </tr> <tr> <td><input type="checkbox"/> Complex Buildings</td> <td><input type="checkbox"/> Fire Protection</td> <td><input type="checkbox"/> On-site Sewage Systems</td> </tr> </table>					<input type="checkbox"/> House	<input type="checkbox"/> HVAC – House	<input checked="" type="checkbox"/> Building Structural	<input type="checkbox"/> Small Buildings	<input type="checkbox"/> Building Services	<input type="checkbox"/> Plumbing – House	<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings	<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems
<input type="checkbox"/> House	<input type="checkbox"/> HVAC – House	<input checked="" type="checkbox"/> Building Structural														
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<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings														
<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems														
Description of designer's work ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1801 - ELEV. A 2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31063-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.																
D. Declaration of Designer																
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		Signature of Designer 														

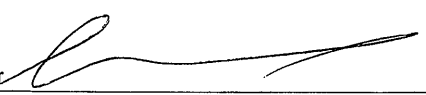
NOTE:

- 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 31063-18
 DWG #TAM 31067-18

Schedule 1: Designer Information

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

A. Project Information		Application number:	
Building number, street name		Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.	
Street address R.R #1, PO BOX 61		Unit no.	Lot/con.
Municipality GLENCOE	Postal code NOL 1M0	Province ONTARIO	E-mail
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]			
<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 ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1801 - ELEV. B 2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31064-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.			
D. Declaration of Designer			
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		Signature of Designer 	

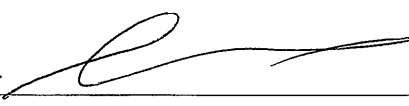
NOTE:

- 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.
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DWG #TAM 31064-18S
 DWG #TAM 31064-18S

Schedule 1: Designer Information

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

A. Project Information			Application number:	
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.		
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail	
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]				
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 33%;"> <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: 33%;"> <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 ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1801 - ELEV. A OR B 3RD FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31065-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
D. Declaration of Designer				
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.
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DWG #TAM **31065-18s**
 DWG #TAM **31069-18s**

NORDIC STRUCTURES

COMPANY
J9 1ST FLOOR
July 5, 2018 08:23

PROJECT
J1 3RD FLOOR
J1 3RD FLOOR

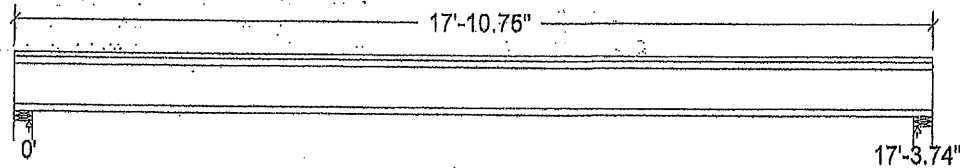
Design Check Calculation Sheet

Nordic Sizer - Canada 7.1

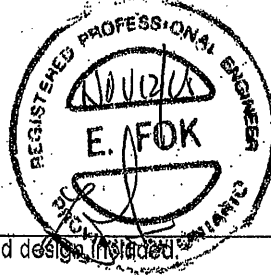
Loads:

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
fcg 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.

DWG NO. TAM B471-104
STRUCTURAL
COMPONENT ONLY

T-180453

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

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=floor

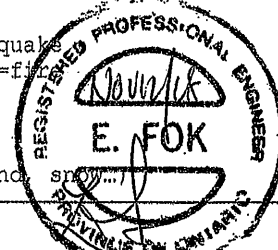
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: E_{IEff} = 433e06 lb-in² K = 6.18e06 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. CONFORMS TO NBC 2012
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.



DWG NO. TAW8471-18 14
STRUCTURAL
COMPONENT ONLY

T-Lewis

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

BC CALCO® Member Report

Build 8475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 08:03:00

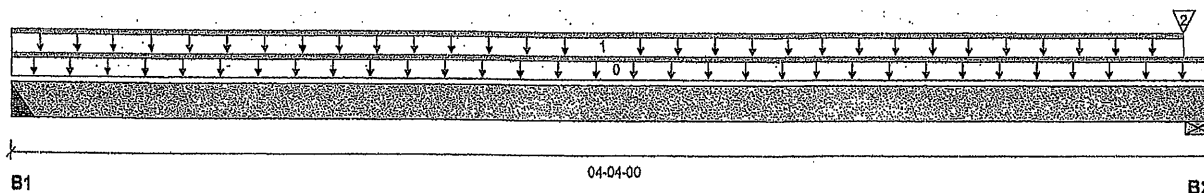
File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Dro...ed Beams\B2 DR(I1175)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	23 / 0	38 / 0		
B2, 4"	24 / 0	39 / 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(I1132)	Unf. Lin. (lb/ft)	L	00-00-00	04-02-14	Top	11	8			n/a
2	R1(I1132)	Conc. Pt. (lbs)	L	04-02-14	04-02-14	Top	1				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	74 ft-lbs	23,220 ft-lbs	0.3%	1	02-01-00
End Shear	27 lbs	7,521 lbs	0.4%	0	00-11-08
Total Load Deflection	L/999 (0")	n/a	n/a	4	02-01-00
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-01-00
Max Defl.	0"	n/a	n/a	4	02-01-00
Span / Depth	5.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	79 lbs	n/a	0.9%	Hanger
B2	Wall/Plate 4" x 3-1/2"	85 lbs	0.5%	0.5%	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 CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

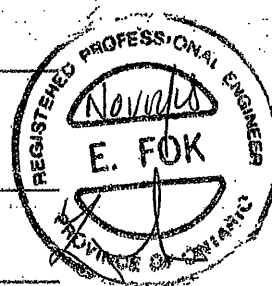
Design based on Dry Service Condition.

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.

Member has no side loads.

DWG NO. TAM B47278 14
STRUCTURAL
COMPONENT ONLY
p616

T-L8UK4SP



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 08:03:00

File name: UNIT 1801.mmdl

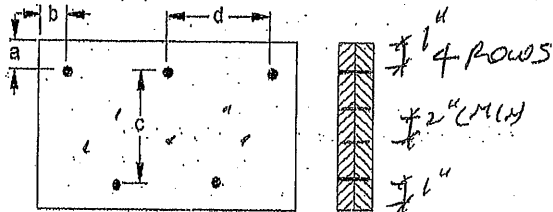
Description: 1ST FLOOR FRAMING\Dro...ed Beams\B2 DR(1175)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



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

c = 1-1/2"
d = 2" @ 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

Connectors are: 16d 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.

DWAND.TAM 042218 H
STRUCTURAL
COMPONENT ONLY

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

T. Chappell



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 08:03:00

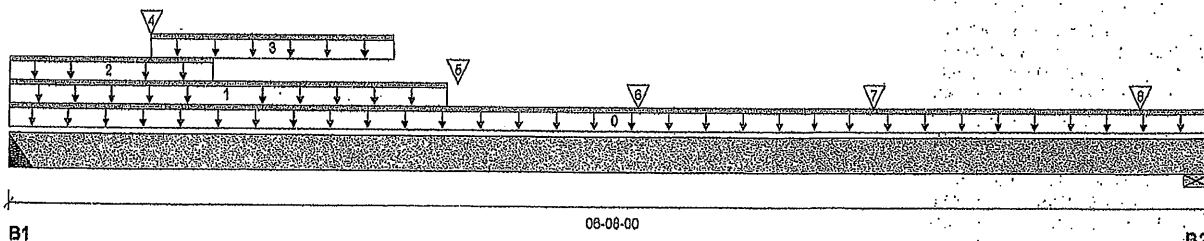
File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(11176)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 08-08-00

Reaction Summary (Down / Uplift) (lbs)

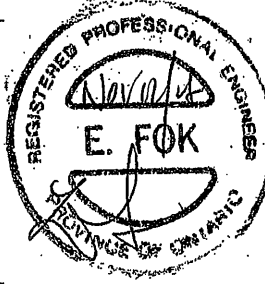
Bearing	Live	Dead	Snow	Wind
B1, 2"	1,952 / 0	1,352 / 0		
B2, 5-1/2"	1,175 / 0	845 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Trlbutary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-08-00	Top	10	81			00-00-00
1	5(103)	Unf. Lin. (lb/ft)	L	00-00-00	02-05-00	Top					n/a
2	5(103)	Unf. Lin. (lb/ft)	L	00-00-00	01-01-08	Top	316	157			n/a
3	5(103)	Unf. Lin. (lb/ft)	L	00-09-08	02-01-08	Top	267	133			n/a
4	J2(1139)	Conc. Pt. (lbs)	L	00-09-08	00-09-08	Top	187	94			n/a
5		Conc. Pt. (lbs)	L	02-05-12	02-05-12	Top	1,813	1,201			n/a
6	J4(1122)	Conc. Pt. (lbs)	L	03-05-08	03-05-08	Top	83	42			n/a
7	J4(1130)	Conc. Pt. (lbs)	L	04-09-08	04-09-08	Top	108	54			n/a
8		Conc. Pt. (lbs)	L	06-03-08	06-03-08	Top	225	192			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,315 ft-lbs	23,220 ft-lbs	31.5%	1	02-04-00
End Shear	3,783 lbs	11,571 lbs	32.7%	1	00-11-08
Total Load Deflection	L/999 (0.063")	n/a	n/a	4	03-00-02
Live Load Deflection	L/999 (0.037")	n/a	n/a	5	03-00-02
Max Defl.	0.063"	n/a	n/a	4	03-00-02
Span / Depth	7.8				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 3-1/2"	4,618 lbs	n/a	54.1%	Hanger
B2 Wall/Plate	5-1/2" x 3-1/2"	2,820 lbs	34.3%	12.0%	Unspecified

Cautions

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

DWG NO. TAM 8473-18H
STRUCTURAL
COMPONENT ONLY

T-L8W4855



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B1(I1176)**

Dry | 1 span | No cant.

July 5, 2018 08:03:00

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(I1176)

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.

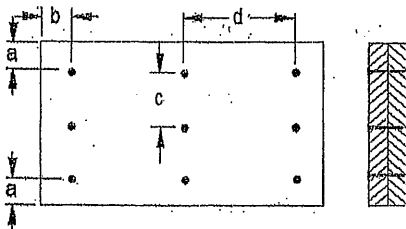
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

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.

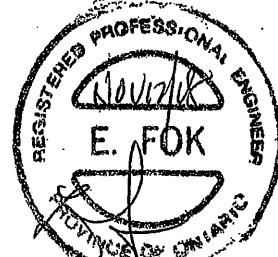
Connection Diagram: Full Length of Membera minimum = 2"
b minimum = 3"

c = 2-3/4"

d = 44

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).
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DWG NO. TAM 047310H
 STRUCTURAL
 COMPONENT ONLY

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

T. L. 804556



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

PASSED

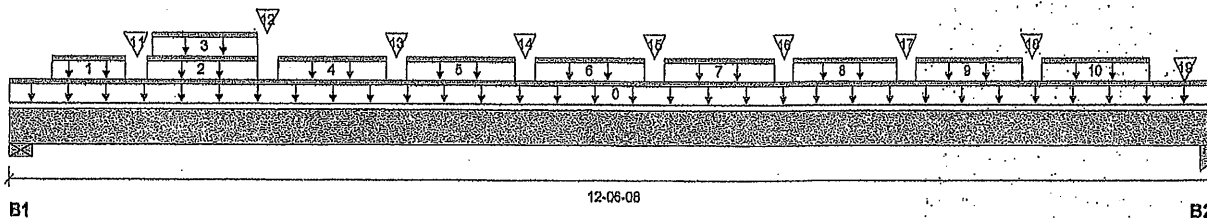
BC CALC® Member Report
Build 6475

Dry | 1 span | No cant.

July 5, 2018 08:03:00

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

File name: UNIT 1801.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B3 DR\1150
Specifier:
Designer: AJ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	4,254 / 0	3,136 / 0		
B2, 5-1/4"	5,606 / 0	4,161 / 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	12-06-08	Top		18			00-00-00
1	Bk1(11124)	Unf. Lin. (lb/ft)	L	00-05-08	01-02-12	Top	265	213			n/a
2	Bk1(11168)	Unf. Lin. (lb/ft)	L	01-05-04	02-06-12	Top		81			n/a
3	Bk1(11168)	Unf. Lin. (lb/ft)	L	01-06-00	02-06-12	Top	356	178			n/a
4	Bk1(11120)	Unf. Lin. (lb/ft)	L	02-09-04	03-10-12	Top	356	259			n/a
5	Bk1(11136)	Unf. Lin. (lb/ft)	L	04-01-04	05-02-12	Top	356	259			n/a
6	Bk1(11148)	Unf. Lin. (lb/ft)	L	05-05-04	06-06-12	Top	356	259			n/a
7	Bk1(11125)	Unf. Lin. (lb/ft)	L	06-09-04	07-10-12	Top	356	259			n/a
8	Bk1(11121)	Unf. Lin. (lb/ft)	L	08-01-04	09-02-12	Top	356	259			n/a
9	Bk1(11104)	Unf. Lin. (lb/ft)	L	09-05-04	10-06-12	Top	356	259			n/a
10	Bk1(11149)	Unf. Lin. (lb/ft)	L	10-09-04	11-10-12	Top	356	259			n/a
11	-	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	736	838			n/a
12	-	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	552	293			n/a
13	-	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	552	235			n/a
14	-	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	552	293			n/a
15	-	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	552	293			n/a
16	-	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	552	235			n/a
17	-	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	552	293			n/a
18	-	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	552	293			n/a
19	-	Conc. Pt. (lbs)	L	12-03-03	12-03-03	Top	1,785	1,630			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	28,433 ft-lbs	55,212 ft-lbs	51.5%	1	06-06-12
End Shear	9,774 lbs	21,696 lbs	45.0%	1	01-06-08
Total Load Deflection	L/412 (0.341")	n/a	58.3%	4	06-06-12
Live Load Deflection	L/682 (0.206")	n/a	52.8%	5	06-06-12
Max Defl.	0.341"	n/a	n/a	4	06-06-12
Span / Depth	11.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-1/2" x 5-1/4"	10,301 lbs	26.7%	24.7%	Unspecified
B2	Column 5-1/4" x 5-1/4"	13,611 lbs	76.0%	40.5%	Unspecified

DWG NO. TAM B477-18H
STRUCTURAL
COMPONENT ONLY

T-180456



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 08:03:00

File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3 DR\11150

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: 00-04-00, Bottom: 00-04-00.

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.

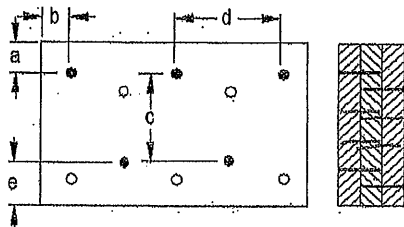
Importance Factor : Normal Part code : Part 9

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.

Nailing schedule applies to both sides of the member.

Connection Diagram: Full Length of Member



4 rows

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

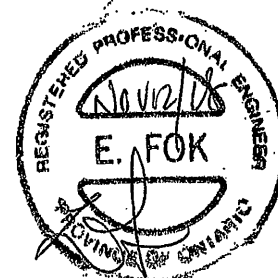
c = 6-7/8"
d = 8"
e minimum = 1/2"

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: 16d Nails

3-1/2" ARDOX SPIRAL



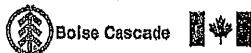
Disclosure

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DWG NO. TAM 8474-18 A
STRUCTURAL
COMPONENT ONLY

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

T-18045661



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

PASSED

BC CALC® Member Report

1ST FLOOR FRAMING\Flush Beams\B4\11138

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B4\11138

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

Specifier:

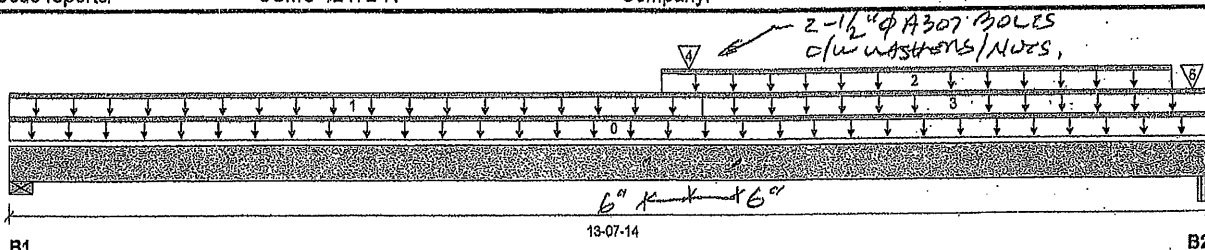
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-07-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	975 / 0	850 / 0		
B2, 5-1/4"	1,363 / 0	1,397 / 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	13-07-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-09-14	Top	27	13			n/a
2	4(1105)	Unf. Lin. (lb/ft)	L	07-04-08	13-02-14	Top		81			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	07-09-14	13-07-14	Top	11	5			n/a
4	B1(11176)	Conc. Pt. (lbs)	L	07-08-02	07-08-02	Top	1,911	1,326			n/a
5	3(1104)	Conc. Pt. (lbs)	L	13-05-10	13-05-10	Top	156	113			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16,847 ft-lbs	36,222 ft-lbs	46.5%	1	07-08-02
End Shear	3,283 lbs	17,356 lbs	18.9%	1	12-05-02
Total Load Deflection	L/381 (0.414")	n/a	63.0%	4	06-11-09
Live Load Deflection	L/714 (0.221")	n/a	50.4%	5	06-11-09
Max Defl.	0.414"	n/a	n/a	4	06-11-09
Span / Depth	16.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 5-1/4"	2,526 lbs	47.4%	16.6%	Unspecified
B2	Beam 5-1/4" x 5-1/4"	3,791 lbs	15.8%	11.3%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 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. OK with NAILING & BOLTING

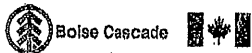
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

PROVIDE 4 ROWS OF 3-1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 1" LUMBER EDGE / END DISTANCE. DO NOT USE AIR NAILS. STAGGER NAILS 6" BETWEEN PLATES. 2" MIN. 3 12" CTR

DWG NO. TAM 8475-18 H
STRUCTURAL COMPONENT ONLY

T-184857

**Single 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 08:03:00

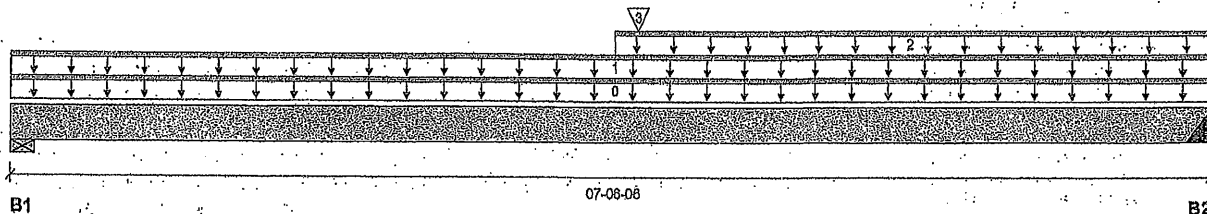
File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5(11135)

Specifier:

Designer: AJ

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	716 / 0	408 / 0		
B2, 2"	783 / 0	443 / 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	07-06-06	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-06-06	Top	12	6			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-09-02	07-06-06	Top	14	7			n/a
3	B7(11164)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	Top	1,341	736			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,677 ft-lbs	11,610 ft-lbs	48.9%	1	03-10-14
End Shear	1,669 lbs	5,785 lbs	28.8%	1	06-06-14
Total Load Deflection	L/999 (0.125")	n/a	n/a	4	03-10-00
Live Load Deflection	L/999 (0.08")	n/a	n/a	5	03-10-00
Max Defl.	0.125"	n/a	n/a	4	03-10-00
Span / Depth	9.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1:	Wall/Plate 2-3/8" x 1-3/4"	1,583 lbs	89.2%	31.2%	Unspecified
B2	Hanger 2" x 1-3/4"	1,729 lbs	n/a	40.5%	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**

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

DWG NO. TAM: B47618H
STRUCTURAL
COMPONENT ONLY

T-1811458



Single 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 08:03:00

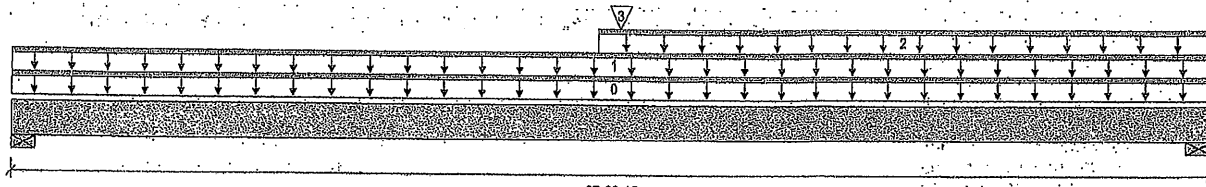
File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B6(11158)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	736 / 0	418 / 0		
B2, 4-3/8"	807 / 0	456 / 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	07-08-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-08-12	Top	17	9			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-09-02	07-08-12	Top	13	7			n/a
3	B7(11164)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	Top	1,347	739			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,760 ft-lbs	11,610 ft-lbs	49.6%	1	03-10-14
End Shear	1,699 lbs	5,785 lbs	29.4%	1	06-06-14
Total Load Deflection	L/688 (0.127")	n/a	34.9%	4	03-10-00
Live Load Deflection	L/999 (0.081")	n/a	n/a	5	03-10-00
Max Defl.	0.127"	n/a	n/a	4	03-10-00
Span / Depth	9.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 1-3/4"	1,626 lbs	91.6%	32.1%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	1,781 lbs	54.4%	19.1%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

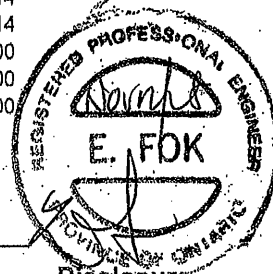
Resistance Factor phi has been applied to all presented results per CSA O86.

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 OBC 2012



Disclosure

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

DRWG NO. TAM 8477-18 H
STRUCTURAL
COMPONENT ONLY

T-184459



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 08:03:00

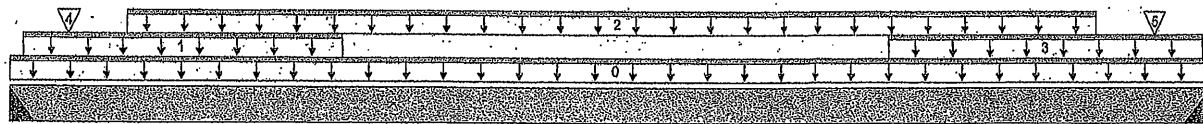
File name: UNIT 1801.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B7(11164)

Specifier:

Designer: AJ

Company:



B1

13-02-14

B2

Total Horizontal Product Length = 13-02-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,340 / 0	736 / 0		
B2, 2"	1,347 / 0	739 / 0		

Load Summary

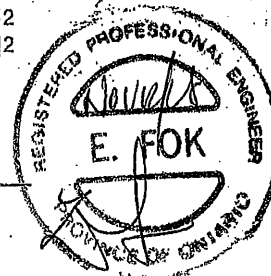
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-02-14	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-01-12	03-07-12	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-12	11-11-12	Top	80	40			n/a
3	STAIR	Unf. Lin. (lb/ft)	L	09-08-00	13-02-00	Top	240	120			n/a
4	J4(11122)	Conc. Pt. (lbs)	L	00-07-12	00-07-12	Top	83	42			n/a
5	J4(11171)	Conc. Pt. (lbs)	L	12-07-12	12-07-12	Top	79	40			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,943 ft-lbs	23,220 ft-lbs	29.9%	1	05-11-12
End Shear	2,435 lbs	11,571 lbs	21.0%	1	00-11-08
Total Load Deflection	L/488 (0.32")	n/a	49.2%	4	06-07-12
Live-Load Deflection	L/763 (0.205")	n/a	47.2%	5	06-07-12
Max Defl.	0.32"	n/a	n/a	4	06-07-12
Span / Depth	16.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	2,930 lbs	n/a	34.3%	Hanger
B2	Hanger 2" x 3-1/2"	2,944 lbs	n/a	34.5%	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

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.

DWNO.TAM 847818H
STRUCTURAL
COMPONENT ONLY

TL814660



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B7(I1164)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1801.mmdl

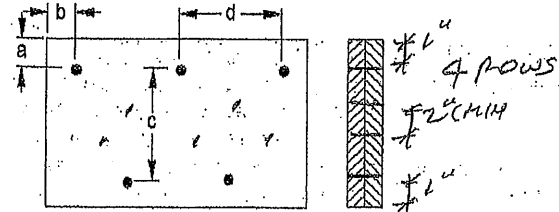
Description: 1ST FLOOR FRAMING\Flush Beams\B7(I1164)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 1/2"

b minimum = 3"

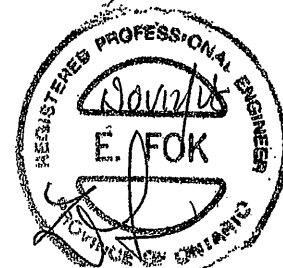
c = 1-1/2"

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: 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™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,
DWB NO. TAM 0478-18H
STRUCTURAL
COMPONENT ONLY

T-1846600



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

PASSED

BC CALC® Member Report

1ST FLOOR FRAMING\Flush Beams\B8(11131)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B8(11131)

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

Specifier:

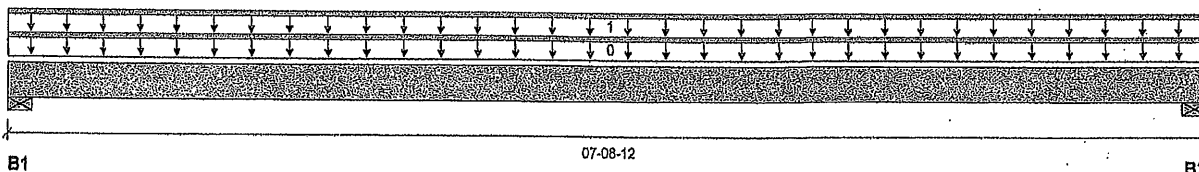
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	70 / 0	53 / 0		
B2, 4-3/8"	73 / 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	07-08-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-08-12	Top	19	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	302 ft-lbs	11,610 ft-lbs	2.6%	1	03-09-08
End Shear	127 lbs	5,785 lbs	2.2%	1	00-11-14
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	03-09-08
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	03-09-06
Max Defl.	0.008"	n/a	n/a	4	03-09-06
Span / Depth	9.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 1-3/4"	172 lbs	9.7%	3.4%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	179 lbs	5.5%	1.9%	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: 00-00-00, Bottom: 00-00-00.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code : Part.9

CONFORMS TO OBC 2012

Disclosure

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

DWG NO. TAM 048918H
STRUCTURAL
COMPONENT ONLY

T-1844661



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

PASSED

2ND FLOOR FRAMING/Dropped Beams/B14 DR(I1113)

BC CALC® Member Report

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 2ND FLOOR FRAMING/Dro...d Beams/B14 DR(I1113)

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

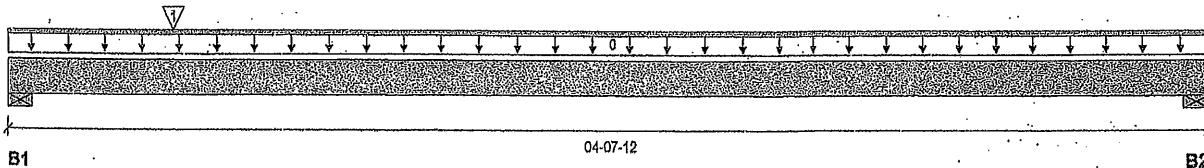
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/4"	896 / 0	694 / 0		
B2, 5-1/2"	73 / 0	84 / 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	04-07-12	Top		10			00-00-00
1		Conc. Pt. (lbs)	L	00-07-12	00-07-12	Top	969	733			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	667 ft-lbs	23,220 ft-lbs	2.9%	1	00-08-10
End Shear	565 lbs	11,571 lbs	4.9%	1	01-02-04
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-00-03
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-00-03
Max Defl.	0.002"	n/a	n/a	4	02-00-03
Span / Depth	4.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/4" x 3-1/2"	2,211 lbs	20.5%	10.9%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	215 lbs	1.7%	0.9%	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: 00-09-08, Bottom: 00-09-08.

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

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

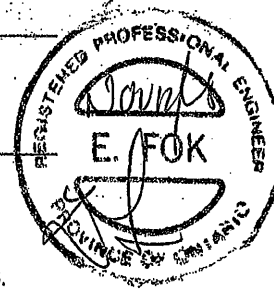
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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 B400104
STRUCTURAL
COMPONENT ONLY P612

T. Weber



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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B14 DR(I1113)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1801.mmdl

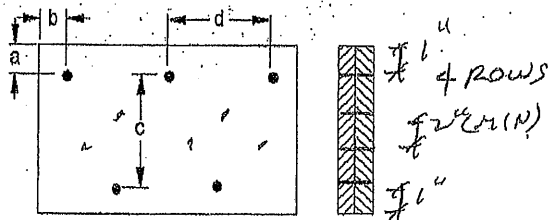
Description: 2ND FLOOR FRAMING\Dro...d Beams\B14 DR(I1113)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 6"
b minimum = 3"

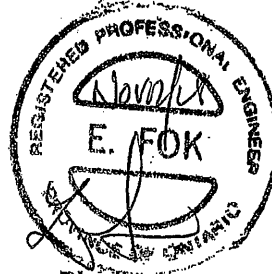
c = 1-1/2"
d = 4"

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

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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DWG NO. YAMB480-18H
STRUCTURAL
COMPONENT ONLY

T-18114624



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

PASSED

BC CALC® Member Report
Build 6475

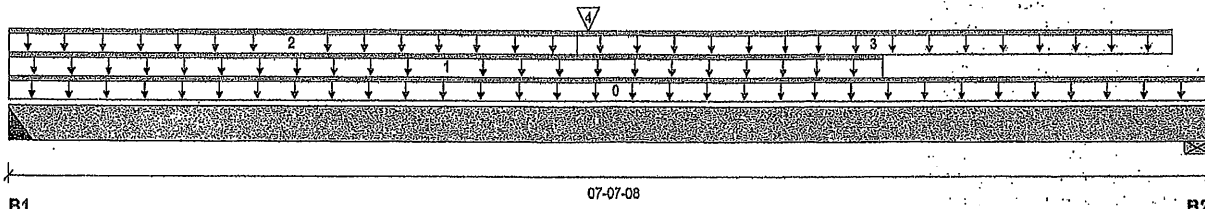
2ND FLOOR FRAMING\Flush Beams\B10(I1063)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

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

File name: UNIT 1801.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B10(I1063)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 07-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	229 / 0	352 / 0		
B2, 5-1/2"	251 / 0	280 / 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	07-07-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	05-06-06	Top		60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-12	Top	14	7			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-06-12	07-04-12	Top	27	13			n/a
4	B12(I945)	Conc. Pt. (lbs)	L	03-07-10	03-07-10	Top	327	186			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,029 ft-lbs	11,610 ft-lbs	17.5%	1	03-07-10
End Shear	676 lbs	5,785 lbs	11.7%	1	00-11-08
Total Load Deflection	L/999 (0.047")	n/a	n/a	4	03-07-10
Live Load Deflection	L/999 (0.022")	n/a	n/a	5	03-08-06
Max Defl.	0.047"	n/a	n/a	4	03-07-10
Span / Depth	9.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	783 lbs	n/a	18.3%	Hanger
B2	Wall/Plate 5-1/2" x 1-3/4"	726 lbs	17.7%	6.2%	Unspecified

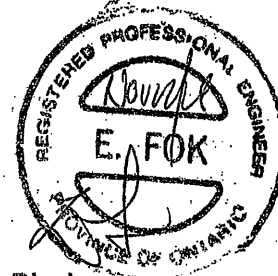
Cautions

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



Disclosure

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

DRUGO.TAM 040818 H
STRUCTURAL
COMPONENT ONLY

T-1811663



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

2ND FLOOR FRAMING\Flush Beams\B11(I1172)

BC CALC® Member Report

Dry | 2 spans | L cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11(I1172)

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

Specifier:

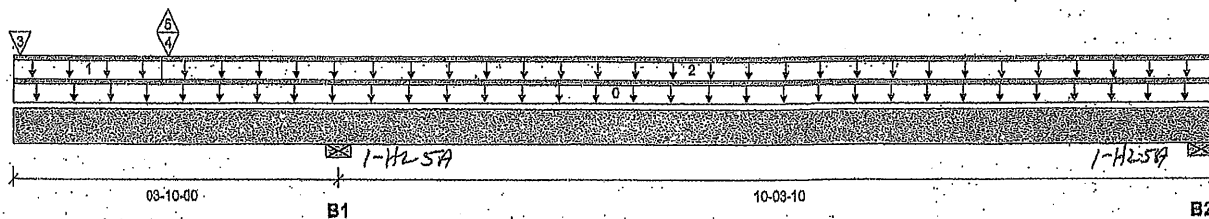
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 14-01-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,564 / 16	908 / 0		
B2, 2-3/8"	72 / 295	0 / 78		

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	14-01-10	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-09-04	Top	9	5			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-09-04	14-01-10	Top	13	7			n/a
3	B12(I945)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	Top	353	198			n/a
4	B13(I1152)	Conc. Pt. (lbs)	L	01-10-02	01-10-02	Top	804	405			n/a
5	B13(I1152)	Conc. Pt. (lbs)	L	01-10-02	01-10-02	Top	-13				n/a

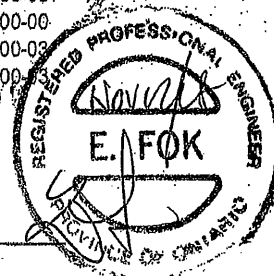
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16 ft-lbs	23,220 ft-lbs	n/a	8	13-00-03
Neg. Moment	-6,579 ft-lbs	-23,220 ft-lbs	28.3%	1	03-10-00
End Shear	529 lbs	11,571 lbs	4.6%	3	13-01-12
Cont. Shear	2,587 lbs	11,571 lbs	22.4%	1	02-09-12
Total Load Deflection	2xL/350 (0.263")	n/a	68.6%	12	00-00-00
Live Load Deflection	2xL/524 (0.175")	n/a	68.6%	16	00-00-00
Total Neg. Defl.	L/999 (-0.099")	n/a	n/a	12	08-00-03
Max Defl.	-0.099"	n/a	n/a	12	08-00-03
Span / Depth	12.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-1/2" x 3-1/2"	3,481 lbs	42.3%	14.8%	Unspecified
B2	Wall/Plate 2-3/8" x 3-1/2"	38 lbs	1.1%	0.4%	Unspecified
B2	Uplift	541 lbs			

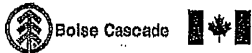
Cautions

Uplift of 541 lbs found at span 2 - Right. *SIMPSON 1-H2-57 @ (B2+B1)*



DRW NO. TAM 340418H
STRUCTURAL
COMPONENT ONLY

T-18114664



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

2ND FLOOR FRAMING\Flush Beams\B11(1172)

BC CALC® Member Report

Dry | 2 spans | L cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11(1172)

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 Q86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.

Design based on Dry Service Condition.

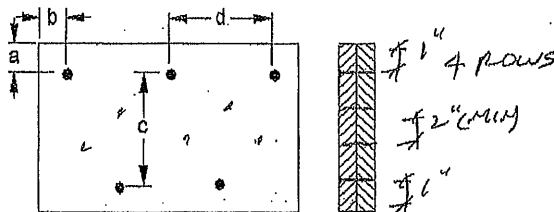
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 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 = 1/2"

c = 1-1/2"

b minimum = 3"

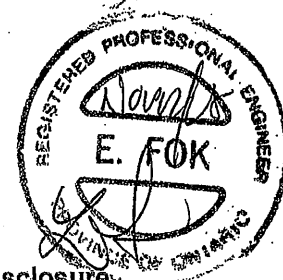
d = 6"

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

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

DWG NO. TAM 0482-18
STRUCTURAL
COMPONENT ONLY

T-181146464



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B12(1945)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B12(1945)

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

Specifier:

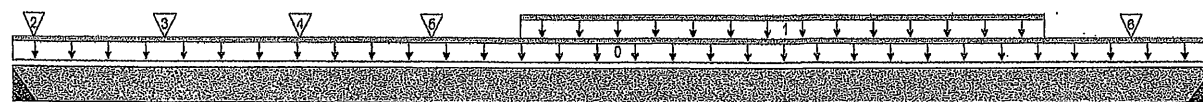
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

09-01-06

B2

Total Horizontal Product Length = 09-01-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	353 / 0	198 / 0		
B2, 2"	327 / 0	186 / 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	09-01-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-10-00	07-10-00	Top	76	38			n/a
2	J5(11008)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	Top	64	27			n/a
3	J5(11072)	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	77	38			n/a
4	J5(1988)	Conc. Pt. (lbs)	L	02-02-00	02-02-00	Top	77	38			n/a
5	J5(1899)	Conc. Pt. (lbs)	L	03-02-00	03-02-00	Top	89	45			n/a
6	J5(1986)	Conc. Pt. (lbs)	L	08-06-00	08-06-00	Top	77	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,676 ft-lbs	11,610 ft-lbs	14.4%	1	04-06-00
End Shear	656 lbs	5,785 lbs	11.3%	1	00-11-08
Total Load Deflection	L/999 (0.067")	n/a	n/a	4	04-06-00
Live Load Deflection	L/999 (0.043")	n/a	n/a	5	04-06-00
Max Defl.	0.067"	n/a	n/a	4	04-06-00
Span / Depth	11.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	776 lbs	n/a	18.2%	Hanger
B2	Hanger 2" x 1-3/4"	724 lbs	n/a	17.0%	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 member is fully braced.

Hanger Manufacturer: Unassigned

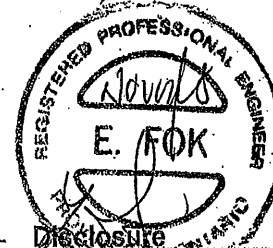
Resistance Factor phi has been applied to all presented results per CSA O86.

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



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®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.

DWG NO. 7AM0483-18H
STRUCTURAL
COMPONENT ONLY

T-1811465



Single 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 08:03:00

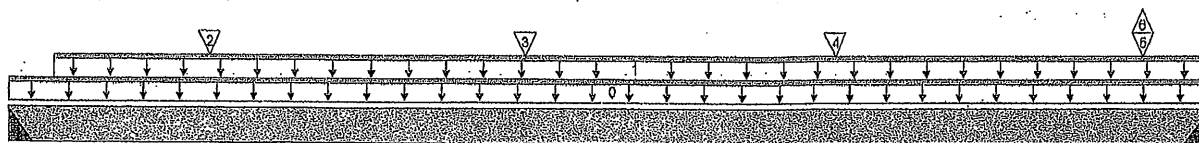
File name: UNIT 1801.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B13\I1152

Specifier:

Designer: AJ

Company:



B1

03-10-04

B2

Total Horizontal Product Length = 03-10-04

Reaction Summary (Down / Uplift) (lbs)

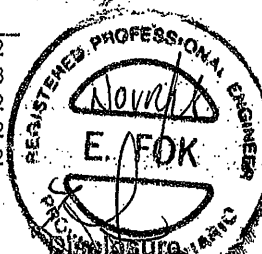
Bearing	Live	Dead	Snow	Wind
B1, 2"	848 / 0	434 / 0		
B2, 2"	804 / 13	405 / 0		

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	03-10-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-01-12	03-10-04	Top	240	120			n/a
2	J1(I1140)	Conc. Pt. (lbs)	L	00-07-12	00-07-12	Top	237	119			n/a
3	J1(I1105)	Conc. Pt. (lbs)	L	01-07-12	01-07-12	Top	248	124			n/a
4	J1(I1123)	Conc. Pt. (lbs)	L	02-07-12	02-07-12	Top	248	124			n/a
5	J1(I996)	Conc. Pt. (lbs)	L	03-07-12	03-07-12	Top	29				n/a
6	J1(I996)	Conc. Pt. (lbs)	L	03-07-12	03-07-12	Top	-13				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,712 ft-lbs	11,610 ft-lbs	14.7%	1	01-07-12
End Shear	1,195 lbs	5,785 lbs	20.7%	1	00-11-08
Total Load Deflection	L/999 (0.011")	n/a	n/a	6	01-10-12
Live Load Deflection	L/999 (0.008")	n/a	n/a	8	01-10-12
Max Defl.	0.011"	n/a	n/a	6	01-10-12
Span / Depth	4.6				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,814 lbs	n/a	42.5%	Hanger
B2	Hanger 2" x 1-3/4"	1,712 lbs	n/a	40.1%	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 OBC2012

DWG NO. TAM 8484-18
 STRUCTURAL
 COMPONENT ONLY

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

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

T-1811466

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

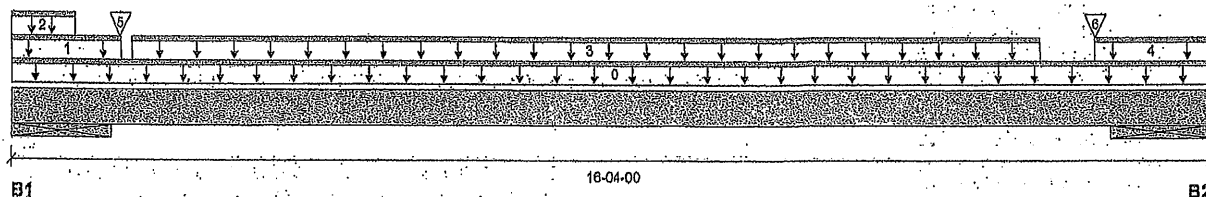
File name: UNIT 1801.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B15(1165)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 16-1/4"	2,451 / 0	2,326 / 0		
B2, 16-1/4"	2,367 / 0	2,265 / 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	16-04-00	Top		10			00-00-00
1	E22(i330)	Unf. Lin. (lb/ft)	L	00-00-00	01-06-00	Top		81			n/a
2	E22(i330)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-02	Top	364	182			n/a
3	E21(i328)	Unf. Lin. (lb/ft)	L	01-07-12	14-00-04	Top		62			n/a
4	E19(i325)	Unf. Lin. (lb/ft)	L	14-09-02	16-04-00	Top	370	266			n/a
5	-	Conc. Pt. (lbs)	L	01-05-14	01-05-14	Top	2,127	1,562			n/a
6	-	Conc. Pt. (lbs)	L	14-09-05	14-09-05	Top	1,792	1,412			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,805 ft-lbs	15,093 ft-lbs	18.6%	0	08-03-04
End Shear	1,859 lbs	11,571 lbs	16.1%	1	14-02-04
Total Load Deflection	L/925 (0.178")	n/a	25.9%	4	08-03-04
Live Load Deflection	L/999 (0.038")	n/a	n/a	5	08-03-04
Max Defl.	0.178"	n/a	n/a	4	08-03-04
Span / Depth	17.4				
Dist. Load (B1)	901.98 lb/ft	57,645.00 lb/ft	1.6%		
Dist. Load (B2)	888.22 lb/ft	57,645.00 lb/ft	1.5%		

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 16-1/4" x 3-1/2"	6,584 lbs	27.1%	9.5%	Unspecified
B2	Wall/Plate 16-1/4" x 3-1/2"	6,381 lbs	26.3%	9.2%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-08-14, Bottom: 00-08-14.

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

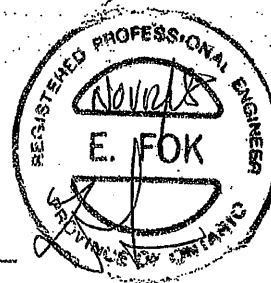
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

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.



OWNER: FAMB 840818 H
STRUCTURAL
COMPONENT ONLY
PB 1/2

T-1811467



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B15(I1165)**

Dry | 1 span | No cant.

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1801.mmdl

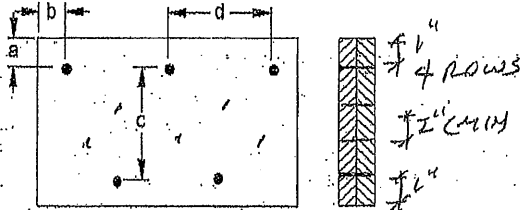
Description: 2ND FLOOR FRAMING\Flush Beams\B15(I1165)

Specifier:

Designer: AJ

Company:

July 5, 2018 08:03:00

Connection Diagram: Full Length of Member

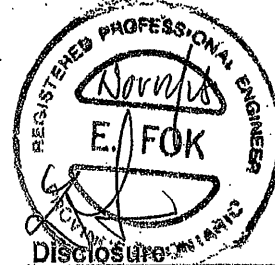
a minimum = 1/2"
b minimum = 3"

c = 7-1/2"
d = 0"

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.

DWNO.TAM 0460181
STRUCTURAL
COMPONENT ONLY

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

T-18114616)

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

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B9(11128)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B9(11128)

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

Specifier:

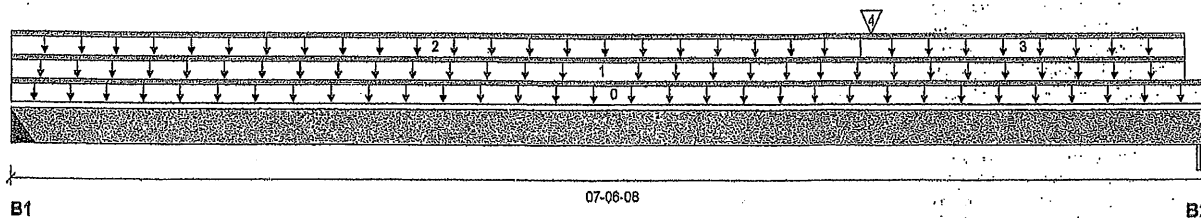
Customer:

Designer: AJ

Code reports:

CGMC 12472-R

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	254 / 0	370 / 0		
B2, 3-1/2"	673 / 0	583 / 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	07-06-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-04-12	Top		60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-04-00	Top	7	4			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	05-04-00	07-04-12	Top	20	10			n/a
4	B13(1152)	Conc. Pt. (lbs)	L	05-04-14	05-04-14	Top	848	433			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,068 ft-lbs	11,610 ft-lbs	26.4%	1	05-04-14
End Shear	1,621 lbs	5,785 lbs	28.0%	1	06-05-08
Total Load Deflection	L/999 (0.069")	n/a	n/a	4	04-00-07
Live Load Deflection	L/999 (0.036")	n/a	n/a	5	04-01-04
Max Defl.	0.069"	n/a	n/a	4	04-00-07
Span / Depth	9.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	843 lbs	n/a	19.7%	Hanger
B2 Beam	3-1/2" x 1-3/4"	1,738 lbs	32.5%	23.3%	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

Disclosure

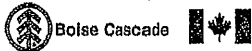
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DRW NO. TAM 048 618 H
STRUCTURAL
COMPONENT ONLY

T-1811468



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

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: THIRD FLOOR FRAMING\Flush Beams\B16(i663)

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

Specifier:

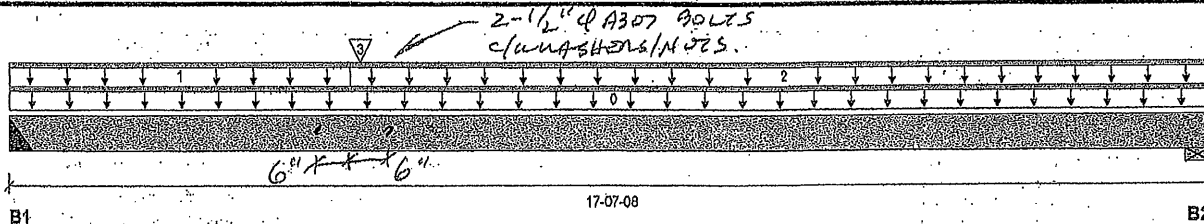
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 17-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,762 / 0	1,034 / 0		
B2, 5-1/2"	913 / 0	585 / 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	05-00-00	Top	23	11			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-00-00	17-07-08	Top	31	16			n/a
3	B19(i696)	Conc. Pt. (lbs)	L	05-01-12	05-01-12	Top	2,164	1,151			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	19,004 ft-lbs	35,392 ft-lbs	53.7%	1	05-01-12
End Shear	3,862 lbs	14,464 lbs	26.7%	1	01-01-14
Total Load Deflection	L/344 (0.597")	n/a	69.7%	4	07-10-14
Live Load Deflection	L/547 (0.375")	n/a	65.8%	5	07-10-14
Max Defl.	0.597"	n/a	n/a	4	07-10-14
Span / Depth	17.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	3,935 lbs	n/a	46.1%	Hanger
B2	Wall/Plate 5-1/2" x 3-1/2"	2,100 lbs	25.5%	8.9%	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 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.

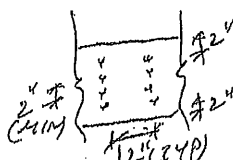
Importance Factor: Normal Part code: Part 9.

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection. *OK WITH MATERIALS + BOLTING*

CONFORMS TO OBC 2012

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



PROVIDE 4 ROWS OF 3-1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE / END DISTANCE. DO NOT USE AIR NAILS.

STRUCTURAL COMPONENT ONLY

T-1811469



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****THIRD FLOOR FRAMING\Flush Beams\B17(i641)**

BC CALCO® Member Report

Dry | 1-span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: THIRD FLOOR FRAMING\Flush Beams\B17(i641)

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

Specifier:

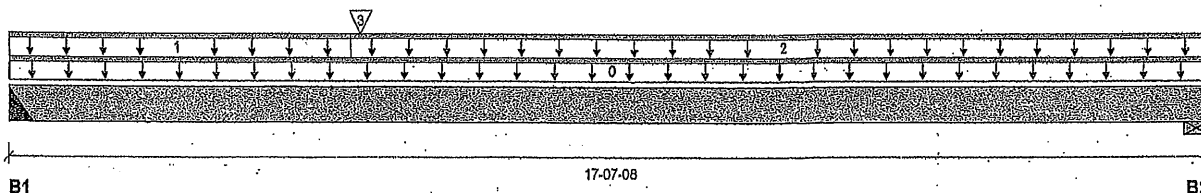
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 17-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,352 / 0	830 / 0		
B2, 5-1/2"	755 / 0	606 / 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	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-00-00	Top		24	12		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-00-00	17-07-08	Top		34	17		n/a
3	B19(i695)	Conc. Pt. (lbs)	L	05-01-12	05-01-12	Top		1,562	852		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	14,588 ft-lbs	35,392 ft-lbs	41.2%	1	05-01-12
End Shear	2,989 lbs	14,464 lbs	20.7%	1	01-01-14
Total Load Deflection	L/436 (0.471")	n/a	55.0%	4	08-00-15
Live Load Deflection	L/706 (0.291")	n/a	51.0%	5	07-10-14
Max Defl.	0.471"	n/a	n/a	4	08-00-15
Span / Depth	17.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	3,065 lbs	n/a	35.9%	Hanger
B2	Wall/Plate 5-1/2" x 3-1/2"	1,766 lbs	21.5%	7.5%	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.

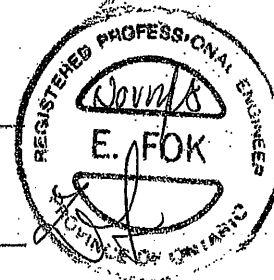
BC CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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.



NO. TAM 048818 H
STRUCTURAL
COMPONENT ONLY

T-1811470



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 08:03:00

File name: UNIT 1801.mmdl

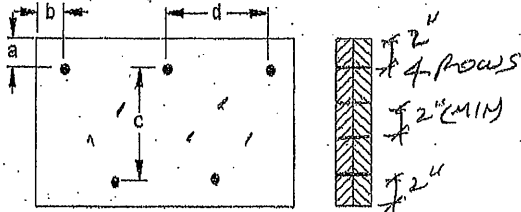
Description: THIRD FLOOR FRAMING\Flush Beams\B17(i641)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



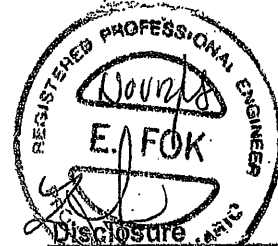
a minimum = 2"
b minimum = 3"

c = 7-7/8"
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.

Connectors are: 1 Nails.

3-1/2" ARDOX SPIRAL



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

BY AND FOR THE
STRUCTURAL
COMPONENT ONLY

P622

T-181147061



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

PASSED

BC CALC® Member Report

Buld 6476

Job name:

Address:

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

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 5, 2018 08:03:00

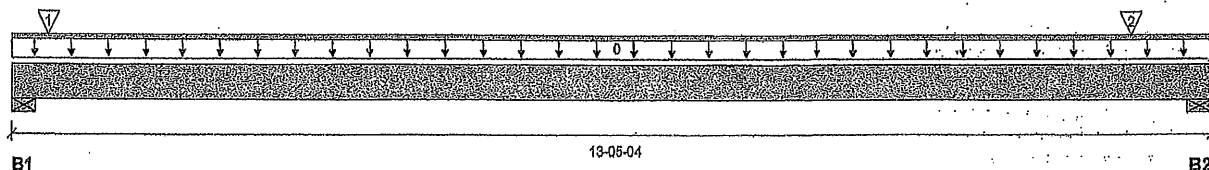
File name: UNIT 1801.mmdl

Description: THIRD FLOOR FRAMING\Flush Beams\B18\640

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 13-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 8-3/4"	1,846 / 0	1,167 / 0		
B2, 4"	1,305 / 0	878 / 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	13-05-04	Top	1.00	12			00-00-00
1	B16\663	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	1,774	1,040			n/a
2	B17\641	Conc. Pt. (lbs)	L	12-06-08	12-06-08	Top	1,361	835			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,900 ft-lbs	17,060 ft-lbs	11.1%	1	12-08-08
End Shear	1,895 lbs	14,464 lbs	11.7%	1	12-01-06
Total Load Deflection	L/999 (0.031")	n/a	n/a	4	07-08-12
Live Load Deflection	L/999 (0.015")	n/a	n/a	5	07-10-11
Max Defl.	0.031"	n/a	n/a	4	07-08-12
Span / Depth	12.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 8-3/4" x 3-1/2"	4,228 lbs	32.3%	11.3%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	3,056 lbs	51.1%	17.9%	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: 11-08-00, Bottom: 11-08-00.

Resistance Factor phi has been applied to all presented results per CSA Q86.

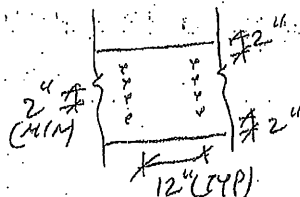
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.

Design based on Dry Service Condition.

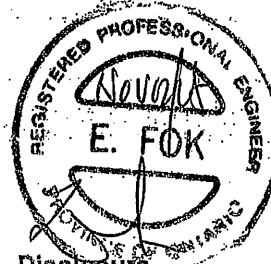
Importance Factor: Normal Part code: Part 9

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*



PROVIDE 2 ROWS OF 3-1/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE / END DISTANCE. DO NOT USE AIR NAILS.



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

DWIND.TAM B489-18H
STRUCTURAL
COMPONENT ONLY

T-1114071



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****THIRD FLOOR FRAMING\Flush Beams\B19\I695)**

BC CALC® Member Report

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Build 6475

Job name:

File name: UNIT 1801.mmdl

Address:

Description: THIRD FLOOR FRAMING\Flush Beams\B19\I695)

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

Specifier:

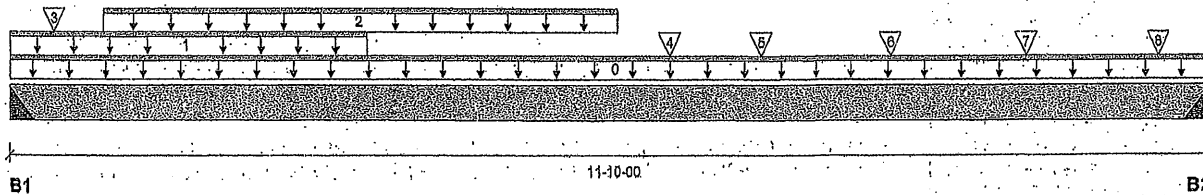
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 11-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	2,168 / 0	1,154 / 0		
B2, 2"	1,568 / 0	850 / 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	11-10-00	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	00-11-04	05-11-04	Top	251	125			n/a
3	J2(I801)	Conc. Pt. (lbs)	L	00-05-04	00-05-04	Top	198	99			n/a
4	J2(I713)	Conc. Pt. (lbs)	L	06-05-04	06-05-04	Top	238	119			n/a
5	J2(I737)	Conc. Pt. (lbs)	L	07-04-00	07-04-00	Top	279	140			n/a
6	J2(I796)	Conc. Pt. (lbs)	L	08-08-00	08-08-00	Top	334	167			n/a
7	J2(I763)	Conc. Pt. (lbs)	L	10-00-00	10-00-00	Top	334	167			n/a
8	J2(I728)	Conc. Pt. (lbs)	L	11-04-00	11-04-00	Top	248	124			n/a

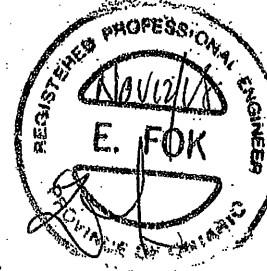
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10,806 ft-lbs	35,392 ft-lbs	30.5%	1	05-05-04
End Shear	3,782 lbs	14,464 lbs	26.1%	1	01-01-14
Total Load Deflection	L/727 (0.192")	n/a	33.0%	4	05-08-04
Live Load Deflection	L/999 (0.125")	n/a	n/a	5	05-08-04
Max Defl.	0.192"	n/a	n/a	4	05-08-04
Span / Depth	11.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	4,695 lbs	n/a	55.0%	Hanger
B2	Hanger 2" x 3-1/2"	3,398 lbs	n/a	39.8%	Hanger

Cautions

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



DWG NO. TAM 049018H
STRUCTURAL
COMPONENT ONLY

T-111147



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

PASSED

BC CALC® Member Report
Build 6475

THIRD FLOOR FRAMING\Flush Beams\B19(i695)

Dry | 1 span | No cant.

July 5, 2018 08:03:00

Job name:

File name: UNIT 1801.mmdl

Address:

Description: THIRD FLOOR FRAMING\Flush Beams\B19(i695)

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.

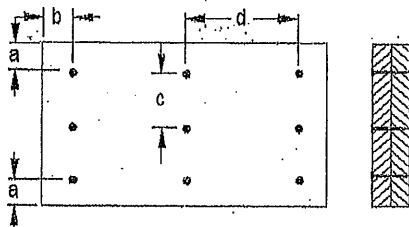
Design based on Dry Service Condition.

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



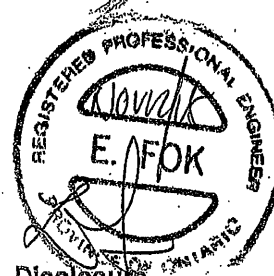
a minimum = 2"
b minimum = 3"

c = 4"
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: 18d: 1 Nails

3-1/2" ARDOX SPIRAL



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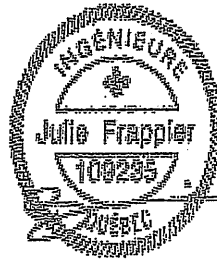
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DWG NO. TAM 0490-18H
STRUCTURAL
COMPONENT ONLY

T-081147-01

Maximum Floor Spans

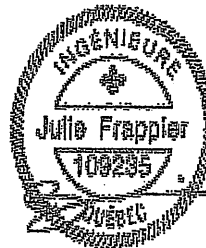
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



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
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	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
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-0"	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
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	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
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	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.



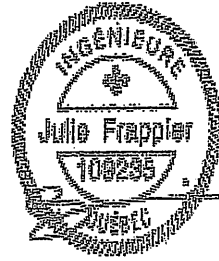
Maximum Floor Spans

Live Load = 40 psf; Dead Load = 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"	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
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	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
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	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
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	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
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	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-L274C.



Maximum Floor Spans

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

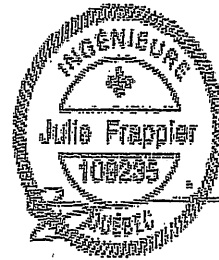
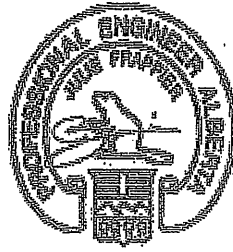
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	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"
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'-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"
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	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	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"
14"	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
	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"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
	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.
- 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 = 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'-9"	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"

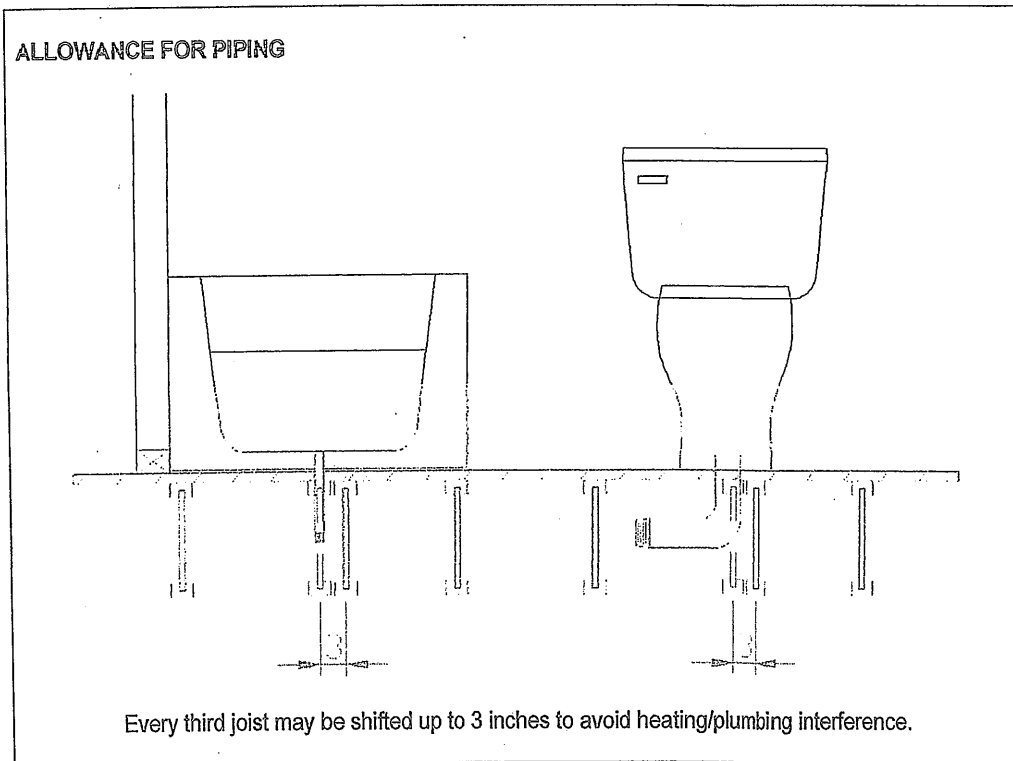
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live 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)

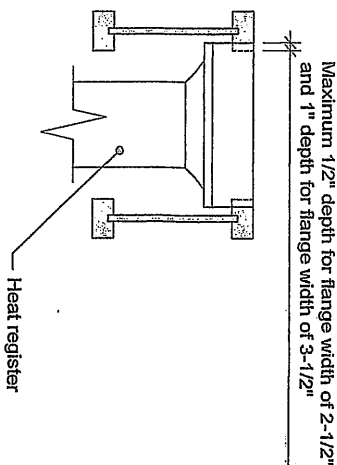
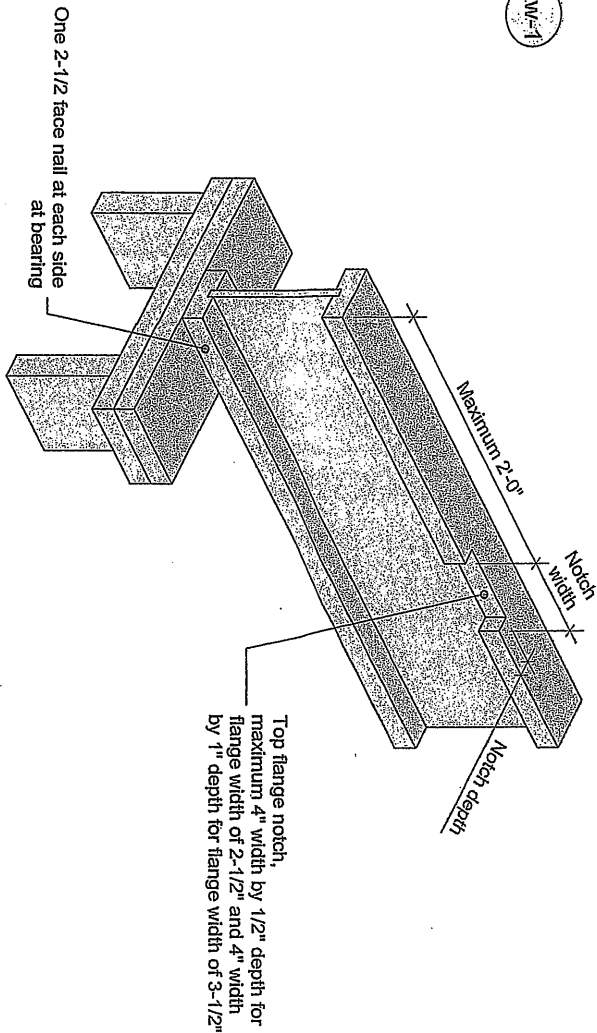
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches.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

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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