

Products					
PlotID	Length	Product	Plies	Net Qty	
J1	18-00-00	11 7/8" NI-40x	1	14	
J2DJ	18-00-00	11 7/8" NI-40x	2	8	
J2	16-00-00	11 7/8" NI-40x	1	8	
J3	14-00-00	11 7/8" NI-40x	1	29	
J4DJ	14-00-00	11 7/8" NI-40x	2	12	
J4	12-00-00	11 7/8" NI-40x	1	2	
J5	10-00-00	11 7/8" NI-40x	1	5	
J6	8-00-00	11 7/8" NI-40x	1	8	
J7	4-00-00	11 7/8" NI-40x	1	7	
J8	2-00-00	11 7/8" NI-40x	1	2	
B2 ✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B6 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B1 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B4 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B8 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B9 ✓	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B12 ✓	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B10 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B13 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B3 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B5 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B7 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B11 ✓	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	

Connector Summary		
Qty	Manuf	Product
16	H1	IUS2.56/11.88
10	H1	IUS2.56/11.88
12	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H2	HUS1.81/10
2	H2.5A	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 FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

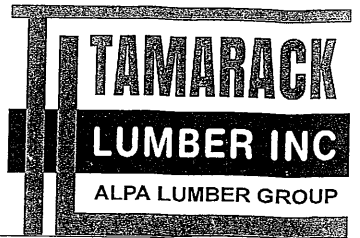
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 20.0 lb/ft<sup>2</sup>  
SNOW LOAD: 24.0 lb/ft<sup>2</sup>  
  
SUBFLOOR: 3/4" GLUED AND NAILED

DATE 9/01/24  
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 180664 THROUGH DWG# TAM 180794, INCLUSIVE DATED 8/24/24  
SEALED STRUCTURAL COMPONENTS ONLY: LESS 18071-24  
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.

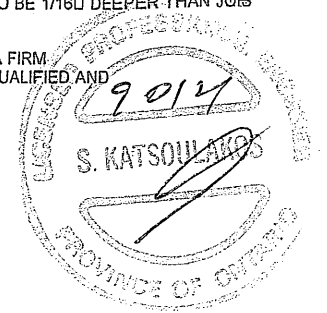
I REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF A FIRM REGISTERED UNDER SUBSECTION 3.2.5 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND HE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES.  
REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

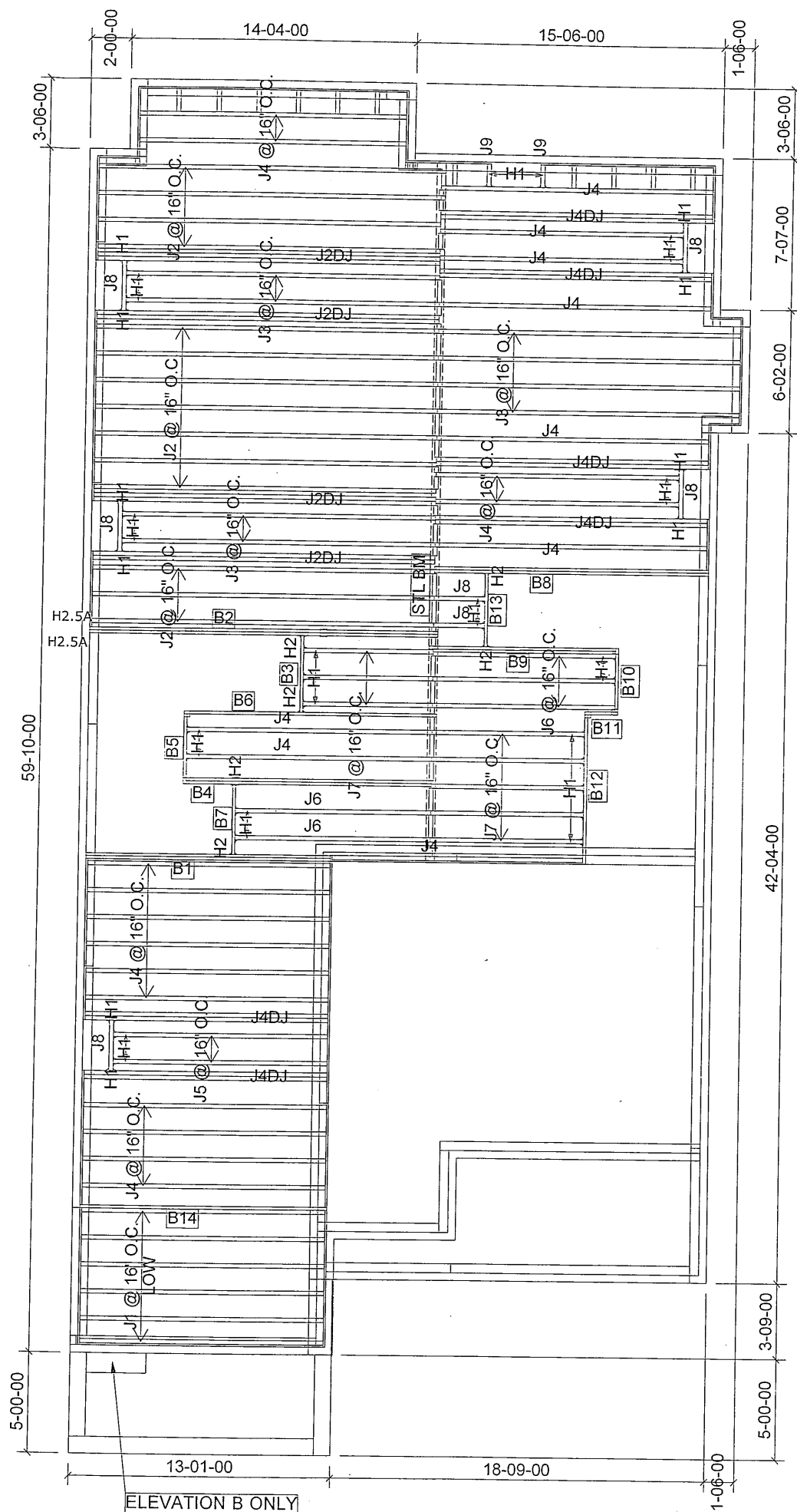
DWG # TAM 19559-21  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL COMPONENTS ONLY



FROM PLAN DATED: 2021/5  
BUILDER: ROYAL PINE HOMES  
SITE: VALES OF HUMBER NORTH  
MODEL: 40-3  
ELEVATION: A,B  
LOT:  
CITY: BRAMPTON  
SALESMAN: RICK DICIANO  
DESIGNER: AJ  
REVISION:

DATE: 2021-08-30  
1st FLOOR





Products					
PlotID	Length	Product	Plies	Net Qty	
J1	14-00-00	9 1/2" NI-40x	1	6	
J2	18-00-00	11 7/8" NI-40x	1	14	
J2DJ	18-00-00	11 7/8" NI-40x	2	8	
J3	16-00-00	11 7/8" NI-40x	1	8	
J4	14-00-00	11 7/8" NI-40x	1	23	
J4DJ	14-00-00	11 7/8" NI-40x	2	12	
J5	12-00-00	11 7/8" NI-40x	1	2	
J6	10-00-00	11 7/8" NI-40x	1	5	
J7	8-00-00	11 7/8" NI-40x	1	8	
J8	4-00-00	11 7/8" NI-40x	1	7	
J9	2-00-00	11 7/8" NI-40x	1	2	
B2 ✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B14 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B6 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B1 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B4 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B8 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	
B9 ✓	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B12 ✓	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B10 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B13 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B3 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B5 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B7 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	
B11 ✓	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	

Connector Summary		
Qty	Manuf	Product
16	H1	IUS2.56/11.88
10	H1	IUS2.56/11.88
12	H1	IUS2.56/11.88
2	H2	HUS1.81/10
4	H2	HUS1.81/10
2	H2.5A	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 FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TILE APPLICATION AS PER O.B.C 9.30.6.

#### LOADING:

DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 20.0 lb/ft<sup>2</sup>  
SNOW LOAD: 24.0 lb/ft<sup>2</sup>

SUBFLOOR: 3/4" GLUED AND NAILED

DATE 9/01/24

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 GAS 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 1806624 THROUGH DWG# TAM 1807924 INCLUSIVE DATED 8/24/24

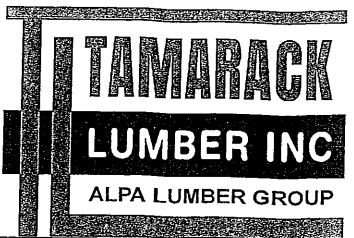
#### SEALED STRUCTURAL COMPONENTS ONLY:

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 19560-21  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL COMPONENTS ONLY



FROM PLAN DATED: 2021/5

#### BUILDER:

ROYAL PINE HOMES

#### SITE:

VALES OF HUMBER NORTH

MODEL: 40-3

ELEVATION: A,B

#### LOT:

CITY: BRAMPTON

SALESMAN: RICK DICIANO

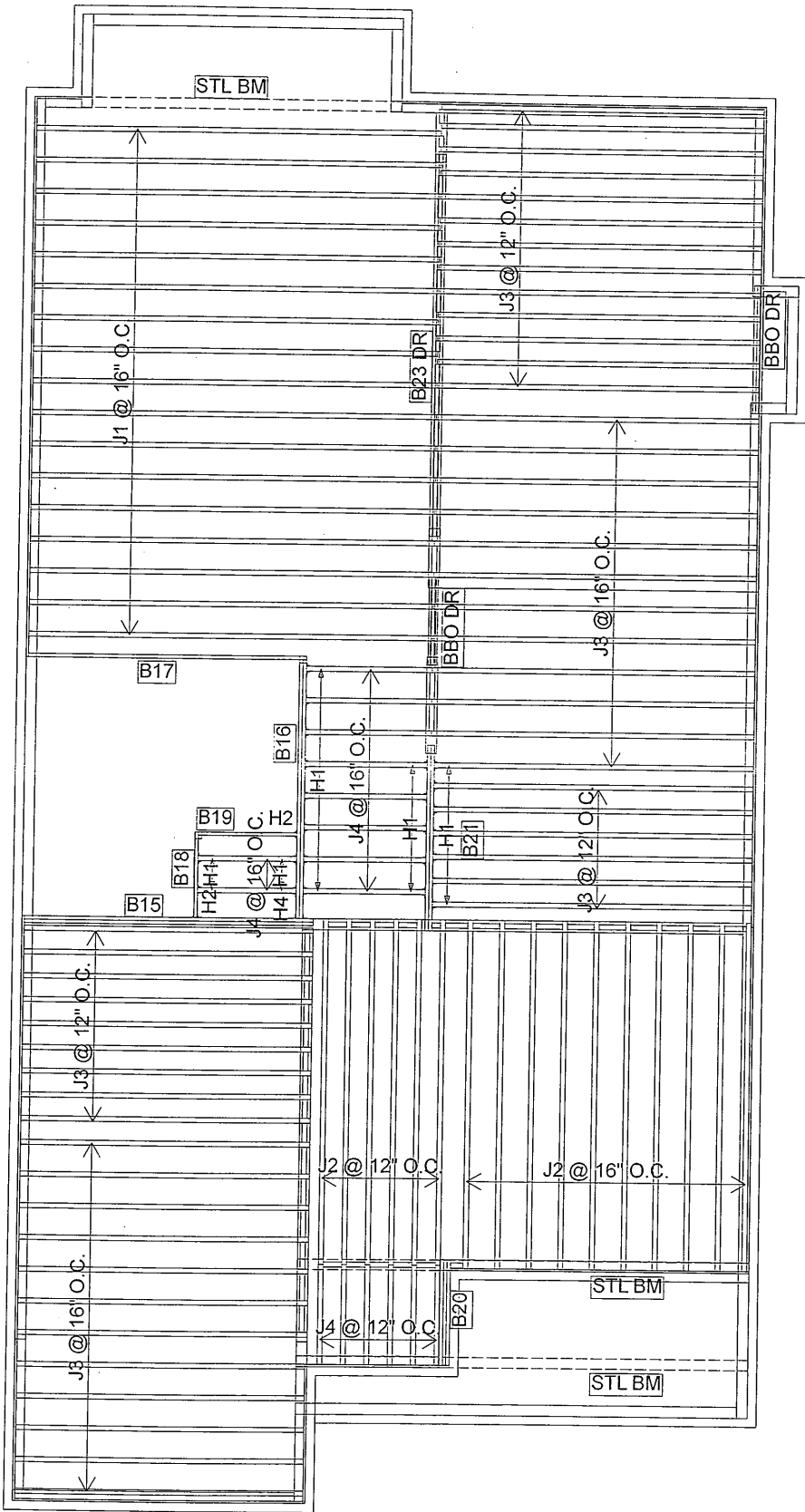
DESIGNER: AJ

REVISION:

DATE: 2021-08-30

1st FLOOR

SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J2	16-00-00	11 7/8" NI-40x	1	16
J3	14-00-00	11 7/8" NI-40x	1	52
J4	6-00-00	11 7/8" NI-40x	1	16
B15 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17 ✓	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16✓	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21 ✓	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19✓	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B20 ✓	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 ✓	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23 DR ✓	18-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3

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

TAMARACK

LUMBER INC

ALPA LUMBER GROUP

FROM PLAN DATED:

2021/5

BUILDER:

ROYAL PINE HOMES

SITE:

VALES OF HUMBER NORTH

MODEL: 40-3

ELEVATION: A,B

LOT:

CITY: BRAMPTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

DATE: 2021-08-30

2nd FLOOR

NOTES:

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

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SNOW LOAD: 24.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE 9/01/24

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 1808024 THROUGH DWG# TAM 1903724, INCLUSIVE DATED 8/24/24

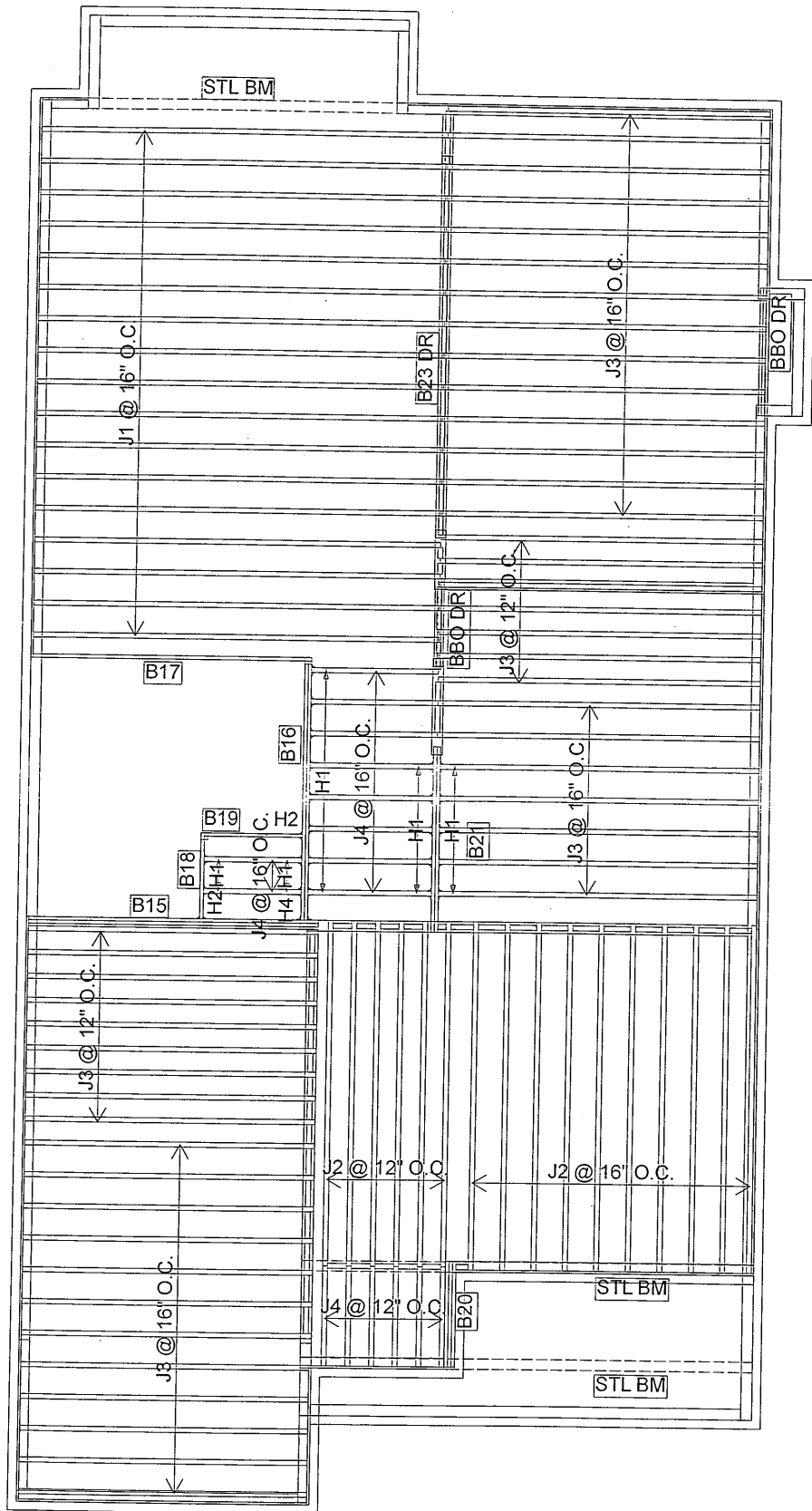
SEALED STRUCTURAL COMPONENTS ONLY:  
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER 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 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 19561-21  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL COMPONENTS ONLY

REGISTERED PROFESSIONAL ENGINEER  
9/01/24  
S. KATSOULAKOS  
PROVINCE OF ONTARIO



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	17
J2	16-00-00	11 7/8" NI-40x	1	16
J3	14-00-00	11 7/8" NI-40x	1	49
J4	6-00-00	11 7/8" NI-40x	1	16
B15	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B20	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23 DR	18-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3

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

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

LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 20.0 lb/ft²  
SNOW LOAD: 24.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE 9-01-24  
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 QAS 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 18082-4 THROUGH DWG# TAM 18087-4, INCLUSIVE DATED 8-24-24

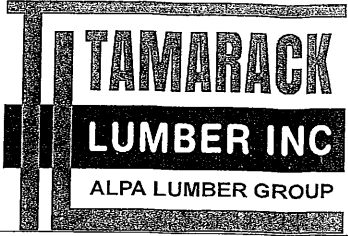
SEALED STRUCTURAL COMPONENTS ONLY:  
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER 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 19562-2  
BCIN: 26064  
FIRM: 29991  
SEALED STRUCTURAL COMPONENTS ONLY



FROM PLAN DATED: 2021/5

BUILDER: ROYAL PINE HOMES

SITE: VALES OF HUMBER NORTH

MODEL: 40-3

ELEVATION: A,B

LOT:

CITY: BRAMPTON

SALESMAN: RICK DICIANO

DESIGNER: AJ

REVISION:

DATE: 2021-08-30

2nd FLOOR


OPTION 5 BEDROOM





# NORDIC

## INSTALLATION GUIDE NORDIC JOIST

NS-G133   
ENGLISH  
VERSION  
2020-10-01

## Engineered Wood Products BASIC INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



## NORDIC STRUCTURES

nordic.ca

### WEB STIFFENERS

**2** Concentrated Load (Load Stiffener)

Tight joint, no gap

End Bearing (Bearing Stiffener)

Gap

Tight joint, no gap

Flange width 2-1/2" or 3-1/2"

Approx 2" 1/8" 1/4" Gap

Four 2-1/2" nails, 3" nails required for joists with 3-1/2" flange width

No gap

**Stiffener Size Requirements**

Flange width (in.)	Web stiffener size each side of web (in.)
2-1/2	1 x 2 S16 Minimum width
3-1/2	1-1/2 x 2 S16 Minimum width

### NAIL SPACING

Nailing into flange face

Nailing into flange edge

**Nailed to Only One Flange Edge (Top View)**

Closest nail spacing

**Nailed to Both Flange Edges (Top View)**

Closest nail spacing

1/2 offset spacing

**Recommended Closest Nail Spacing for Fastening Sheathing to Joist Flanges to Minimize Splitting**

Fastener size (diameter x length)	End distance (in.)	Nail spacing (in.)	
		Nailed to only one flange edge	Nailed to both flange edges
0.128" or smaller in diameter, and 3-1/4" or shorter in length	2	2	2
Greater than 0.128" up to 0.148" in diameter, and 3-1/4" or shorter in length	2	3	2

**Notes:**



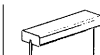

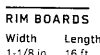
- If more than one row is required, offset rows a minimum of 18 inch and stagger.
- Closest nail spacing measured from one flange edge. Nails on opposite flange edge must be offset one-half the minimum spacing.

### INSTALLING NORDIC I-JOISTS

- Installation of Nordic I-joists shall be as shown in details 1.
  - Except for cutting to length, I-joist flanges should never be cut, drilled or notched.
  - Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
  - Concentrated loads should only be applied to the top surface of the top flange. Concentrated loads should not be suspended from the bottom flange with the exception of light loads, such as ceiling fans or light fixtures.
  - I-joists must be protected from the weather prior to installation.
  - I-joists must not be used in applications where they will be permanently exposed to weather, or will reach a moisture content of 15 percent or greater, such as in swimming pool or hot tub areas. They must not be installed where they will remain in direct contact with concrete or masonry.
  - End bearing length must be at least 1-3/4 inch. For multiple-span joists, intermediate bearing length must be at least 3-1/2 inches.
  - Ends of floor joists shall be restrained to prevent rollover. Use rim board or I-joist blocking panels.
  - I-joists installed beneath bearing walls perpendicular to the joists shall have full-depth blocking panels, rim board, or squash blocks (cripple blocks) to transfer gravity loads from above the floor system to the wall or foundation below.
  - For I-joists installed directly beneath bearing walls parallel to the joists or used as rim board or blocking panels, the maximum vertical load using a single I-joist is 3,300 plf, and 6,600 plf if double I-joists are used.
  - Continuous lateral support of the I-joist's compression flange is required to prevent rotation and buckling. In simple span uses, lateral support of the top flange is normally supplied by the floor sheathing. In multiple-span or cantilever applications, bracing of the I-joist's bottom flange is also required at interior supports of multiple-span joists, and at the end support next to the cantilever extension. The ends of all cantilever extensions must be laterally braced as shown in details 3, 4, or 5.
  - Nails installed in flange face or edge shall be spaced in accordance with the applicable building code requirements or approved building plans, but should not be closer than those specified on page 3.3 of the Nordic Joist Technical Guide (NS-GT3).
  - Details 1 show only I-joist-specific fastener requirements. For other fastener requirements, see the applicable building code.
  - For proper temporary bracing of wood I-joists and placement of temporary construction loads, see APA Technical Note, "Temporary Construction Loads over I-Joist Roofs and Floors, Form J735."
- 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 I-JOIST SERIES

#### RESIDENTIAL SERIES

 <b>NI-20</b> 2x3 S-P-F No. 2 3/8 in. web Depths 9-1/2 and 11-7/8 in. 33 pieces per unit	 <b>NI-40x</b> 2x3 1950F MSR 3/8 in. web Depths 9-1/2, 11-7/8, 14 and 16 in. 33 pieces per unit	 <b>NI-60</b> 2x3 2100F MSR 3/8 in. web Depths 9-1/2, 11-7/8, 14 and 16 in. 33 pieces per unit	 <b>NI-80</b> 2x4 2100F MSR 3/8 in. web Depths 9-1/2, 11-7/8, 14 and 16 in. 23 pieces per unit	 <b>NI-90</b> 2x4 2400F MSR 7/16 in. web Depths 11-7/8, 14 and 16 in. 23 pieces per unit	<b>RIM BOARDS</b> Width Length 1-1/8 in. 16 ft Depths 9-1/2 to 16 in. APA Rim Board Plus
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### SAFETY AND CONSTRUCTION PRECAUTIONS

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

#### Avoid Accidents by Following these Important Guidelines:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
  - When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
    - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2-inch nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
    - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
  - For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
  - Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
  - Never install a damaged I-joist.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.



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



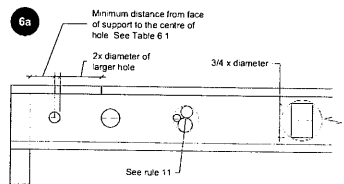
Never stack building materials over unsheathed I-joists. Once sheathed, do not overstress I-joist with concentrated loads from building materials.

### WEB HOLES AND OPENINGS

#### WEB HOLES IN I-JOISTS

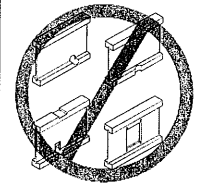
##### Rules for Cutting Holes in I-Joists

- The distance between the inside edge of the support and the centreline of any hole shall be in compliance with the requirements of Table 6.1.
- I-joist top and bottom flanges must never be cut, notched or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole, or twice the length of the longest side of the longest rectangular hole, and each hole must be sized and located in compliance with the requirements of Table 6.1.
- Holes measuring 1-1/2 inch or smaller shall be 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 shall be cut in accordance with the restrictions listed above and as illustrated in detail 6a.
- Limit three maximum size holes per span.
- A group of round holes at approximately the same location shall be permitted if it meets the requirements for a single round hole circumscribed around them.



**Notes:**

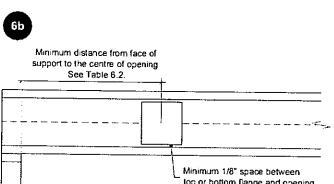
- Never drill, cut or notch the flange, or over-cut the web.
- Holes in web should be cut with a sharp saw.
- For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.



#### DUCT CHASE OPENINGS

##### Rules for Cutting Duct Chase Openings in I-Joists

- The distance between the inside edge of the support and the centreline of a duct chase opening shall be in compliance with the requirements of Table 6.2.
- I-joist top and bottom flanges must never be cut, notched or otherwise modified.
- The maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the opening and the adjacent I-joist flange.
- All openings shall be cut in accordance with the restrictions listed above and as illustrated in detail 6b.
- Limit one maximum size duct chase opening per span.



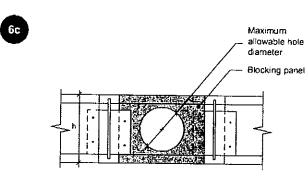
**Notes:**

- Never drill, cut or notch the flange, or over-cut the web.
- Holes in web should be cut with a sharp saw.
- Avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

#### HOLES IN BLOCKING PANELS

##### Maximum Allowable Hole Size in Lateral-restraint-only Blocking Panels

- The maximum allowable hole size for a lateral-restraint-only blocking panel is 2/3 of the lesser dimension of the blocking's depth or length. Assuming the blocking panel is longer than its height (or depth), the table side applies. For other applications, contact Nordic Structures.
- Holes cut into the blocking panels are subject to the following limitations:
  - The top and bottom flanges of an I-joist blocking panel must never be cut, notched or otherwise modified.
  - Field-cut holes must be centred in the blocking horizontally.
  - While round holes are preferred, rectangular holes may be used provided the corners are not over cut. Slightly rounding corners or pre-drilling corners with a 1-inch-diameter bit is recommended.
  - All holes must be cut in a workman-like manner in accordance with the limitations listed above.



I-joist or rim board blocking depth (in.)	Maximum allowable hole diameter (in.) <sup>(a)</sup>
9-1/2	6-1/4
11-7/8	7-3/4
14	9-1/4
16	10-1/2

<sup>(a)</sup> Maximum allowable hole diameter in blocking panel, where the blocking panel is longer than its height.

TABLE 6.1 - LOCATION OF WEB HOLES

Joist depth	Joist series	Minimum distance from inside face of any support to centre of hole (ft-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-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"	6-5"	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-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	-	-	-	-	-	-	-
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	-	-	-	-	-	-	-
	NI-40x	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-3"	10-2"	-	-	-	-	-
	NI-60	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-3"	10-2"	-	-	-	-	-
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-8"	7-8"	9-0"	10-0"	10-4"	11-9"	-	-	-	-	-
16"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	-	-	-	-	-	-	-
	NI-40x	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-3"	10-2"	-	-	-	-	-
	NI-60	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-3"	10-2"	-	-	-	-	-
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	5-6"	6-6"	8-0"	9-5"	11-0"	12-3"	12-9"	14-5"	16-0"	-	-
18"	NI-20	0-7"	0-8"	1-6"	3-3"	3-8"	4-9"	6-5"	7-5"	8-0"	9-10"	11-3"	11-9"	13-9"	15-4"	-	-
	NI-80	0-7"	0-8"	1-6"	3-3"	3-8"	4-9"	6-5"	7-5"	8-0"	9-10"	11-3"	11-9"	13-9"	15-4"	-	-

- Notes:**
- Tabulated values are applicable to residential floor construction meeting the above design criteria.
  - 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.

Design Criteria	
Joist spacing	Up to 24 inches
Loads	Live load = 40 psf and dead load = 15 psf
Deflection limits	L/480 under live load and L/240 under total load

TABLE 6.2 - LOCATION OF DUCT CHASE OPENINGS

Joist depth	Joist series	Minimum distance from inside face of any support to centre of opening (ft-in.)															
		8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38
9-1/2"	NI-20	4-1"	4-5"	4-10"	-	-	-	-	-	-	-	-	-	-	-	-	-
	NI-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	-	-	-	-	-	-	-	-	-
	NI-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	-	-	-	-	-	-	-	-	-
	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	5-0"	6-2"	7-6"	-	-	-	-	-	-	-	-	-	-	-	-	-
	NI-40x	6-8"	7-2"	7-6"	8-1"	8-4"	9-1"	9-5"	-	-	-	-	-	-	-	-	-
	NI-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	-	-	-	-	-	-	-	-	-
	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	8-11"	8-7"	9-0"	9-6"	10-1"	10-7"	11-2"	-	-	-	-	-	-	-	-	-
	NI-60	8-9"	9-3"	9-8"	10-11"	10-6"	11-1"	11-6"	-	-	-	-	-	-	-	-	-
	NI-80	9-0"	9-3"	9-9"	10-11"	11-1"	11-6"	12-1"	12-6"	-	-	-	-	-	-	-	-
16"	NI-20	8-2"	9-8"	10-0"	10-6"	10-11"	11-6"	12-4"	12-11"	-	-	-	-	-	-	-	-
	NI-40x	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	-	-	-	-	-	-	-	-	-
	NI-60	10-4"	10-9"	11-3"	11-9"	12-1"	12-7"	13-1"	13-8"	14-4"	-	-	-	-	-	-	-
	NI-80	10-9"	11-2"	11-8"	12-0"	12-6"	13-0"	13-6"	14-2"	14-10"	-	-	-	-	-	-	-

- Notes:**
- Tabulated values are applicable to residential floor construction meeting the above design criteria.

Design Criteria	
Joist spacing	Up to 24 inches
Loads	Live load = 40 psf and dead load = 15 psf
Deflection limits	L/480 under live load and L/240 under total load

### RIM BOARDS

**8a** Rim Board Joint Between Floor Joists

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

**8b** Rim Board Joint at Corner

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

Toe-nails at 6" o.c. (typical)

Toe-nails at 6" o.c. (typical)

**8c** Rim Board Joint at End

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

**8d** Rim Board Joint at End

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

**8e** Rim Board Joint at End

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

**8f** Rim Board Joint at End

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

**8g** Rim Board Joint at End

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

**8h** Rim Board Joint at End

Toe-nails at 6" o.c. (typical)

One 2-1/2" nail top and bottom (typical)

### I-JOIST MARKING

Certified by APA

Plant Number

CCMC Evaluation Report Number

CE Certification Numbers

**NORDIC JOIST**

APA PLANT 1052 202781326

CCMC 13032-R ESR-1742

CE 1224-CPD-0176 ETA-09/0035

NI-40x

MADE IN CANADA

Production Number

ICC-ES Evaluation Report Number


I-joist Series

**FOR ALL construction details**

**DC3**

## Schedule 1: Designer Information

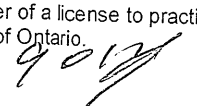
Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>			<b>Application number:</b>	
Building number, street name:			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name 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 mcengr@xplornet.com	
Telephone number (519) 287-2242 Business		Fax number	Cell number	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]</b>				
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings         </div> <div> <input type="checkbox"/> HVAC – House  <input type="checkbox"/> Building Services  <input type="checkbox"/> Detection, Lighting and Power  <input type="checkbox"/> Fire Protection         </div> <div> <input checked="" type="checkbox"/> Building Structural  <input type="checkbox"/> Plumbing – House  <input type="checkbox"/> Plumbing – All Buildings  <input type="checkbox"/> On-site Sewage Systems         </div> </div>				
Description of designer's work: ROYAL PINE HOMES-PROJECT:VALES OF HUMBER NORTH-MODEL: 40-3-ELEV.A OR B-1ST FLOOR-NOT LOT SPECIFIC REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK LUMBER INC. (SEE DWG #TAM19559-21 DATED 9-01-21). SUPPORTING STRUCTURE (S) TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
<b>D. Declaration of Designer</b>				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.				
Individual BCIN: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.				
Individual BCIN: _____				
Basis for exemption from registration: _____				
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.				
Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
Date		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 #TAM19559-21S  
DWG #TAM19563-21S



## Schedule 1: Designer Information

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

<b>A. Project Information</b>			<b>Application number:</b>	
Building number, street name:			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name 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 mcengr@xplornet.com	
Telephone number (519) 287-2242 Business		Fax number	Cell number	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]</b>				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings         </div> <div style="width: 30%;"> <input type="checkbox"/> HVAC – House  <input type="checkbox"/> Building Services  <input type="checkbox"/> Detection, Lighting and Power  <input type="checkbox"/> Fire Protection         </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> Building Structural  <input type="checkbox"/> Plumbing – House  <input type="checkbox"/> Plumbing – All Buildings  <input type="checkbox"/> On-site Sewage Systems         </div> </div>				
Description of designer's work: ROYAL PINE HOMES-PROJECT:VALES OF HUMBER NORTH-MODEL: 40-3-ELEV.A OR B-1ST FLOOR-SUNKEN-NOT LOT SPECIFIC REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK LUMBER INC. (SEE DWG #TAM19560-21 DATED 9-01-21). SUPPORTING STRUCTURE (S) TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
<b>D. Declaration of Designer</b>				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): <div style="text-align: center;">(print name)</div> <div style="margin-left: 20px;"> <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> </div> <div style="margin-left: 20px;"> <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: _____           </div>				
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		9 01 21 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 #TAM19560-21S  
DWG #TAM19564-21S

9 01 21

## 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

Building number, street name:

Application number:

Municipality

CITY OF BRAMPTON

Postal code

Plan number/ other description

Unit no.

Lot/con.

### 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 mcengr@xplornet.com

Telephone number

(519) 287-2242 Business

Fax number

Cell number

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

- |  |  |   |
|--|--|---|
| <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         |

Description of designer's work:

ROYAL PINE HOMES-PROJECT:VALES OF HUMBER NORTH-MODEL: 40-3-ELEV.A OR B-2ND FLOOR-NOT LOT SPECIFIC  
REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY  
TAMARACK LUMBER INC. (SEE DWG #TAM19561-21 DATED 9-01-21). SUPPORTING STRUCTURE (S) TO BE REVIEWED  
AND VERIFIED BY QUALIFIED BUILDING DESIGNER.

### D. Declaration of Designer

I, SAM KATSOULAKOS

(print name)

declare that (choose one as appropriate):

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

Individual BCIN: 26064

Firm BCIN: 29991

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

Individual BCIN: \_\_\_\_\_

Basis for exemption from registration: \_\_\_\_\_

- ☐ The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: \_\_\_\_\_

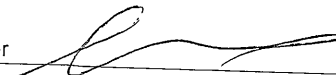
I certify that:

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

Date

9 01 21

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 #TAM19561-21S  
DWG #TAM19565-21S

9 01 21



## Schedule 1: Designer Information

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

<b>A. Project Information</b>				<b>Application number:</b>	
Building number, street name:				Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description			
<b>B. Individual who reviews and takes responsibility for design activities</b>					
Name 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 mcengr@xplornet.com		
Telephone number (519) 287-2242 Business		Fax number	Cell number		
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]</b>					
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House  <input type="checkbox"/> Small Buildings  <input type="checkbox"/> Large Buildings  <input type="checkbox"/> Complex Buildings             </div> <div style="width: 30%;"> <input type="checkbox"/> HVAC – House  <input type="checkbox"/> Building Services  <input type="checkbox"/> Detection, Lighting and Power  <input type="checkbox"/> Fire Protection             </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> Building Structural  <input type="checkbox"/> Plumbing – House  <input type="checkbox"/> Plumbing – All Buildings  <input type="checkbox"/> On-site Sewage Systems             </div> </div>					
Description of designer's work: ROYAL PINE HOMES-PROJECT:VALES OF HUMBER NORTH-MODEL: 40-3-ELEV.A OR B-2ND FLOOR-OPT. 5 BEDROOM-NOT LOT SPECIFIC REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK LUMBER INC. (SEE DWG #TAM19562-21 DATED 9-01-21). SUPPORTING STRUCTURE (S) TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.					
<b>D. Declaration of Designer</b>					
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): <div style="text-align: center;">(print name)</div> <div style="margin-left: 20px;"> <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> </div> <div style="margin-left: 20px;"> <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: _____                 </div>					
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 #TAM19562-21S  
DWG #TAM19566-21S

# NORDIC STRUCTURES

COMPANY  
July 12, 2021 16:39

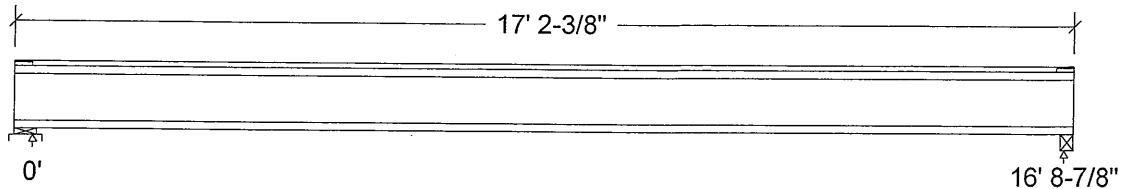
PROJECT  
J1 1ST FLOOR.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 8.0

### 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) and Support Bearing (in):



Unfactored:			
Dead	223		223
Live	446		446
Factored:			
Total	949		949
Bearing:			
Capacity			
Joist	2336		2138
Support	7744		-
Des ratio			
Joist	0.41		0.44
Support	0.12		-
Load case	#2		#2
Length	4-3/8		2-5/8
Min req'd	1-1/2		1-1/2
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.15		-

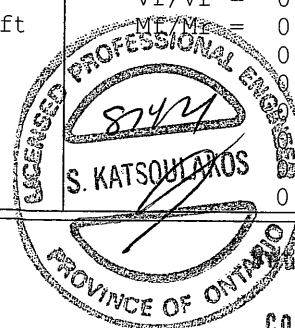
\*Minimum bearing length for joists is 1-1/2" for exterior supports

### Nordic Joist 11-7/8" NI-40x Floor joist @ 16" o.c.

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;  
Total length: 17' 2-3/8"; Clear span: 16' 7-3/8"; 3/4" nailed and glued OSB sheathing  
**This section PASSES the design code check.**

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 949	Vr = 2336	lbs	Vf/Vr = 0.41
Moment (+)	Mf = 3969	Mr = 6255	lbs-ft	Mf/Mr = 0.63
Perm. Defl'n	0.12 = < L/999	0.56 = L/360	in	0.21
Live Defl'n	0.23 = L/858	0.42 = L/480	in	0.56
Total Defl'n	0.35 = L/572	0.84 = L/240	in	0.42
Bare Defl'n	0.29 = L/693	0.56 = L/360	in	0.52
Vibration	Lmax = 16'-8.9	Lv = 18'-1.3	ft	0.92
Defl'n	= 0.030	= 0.038	in	0.78



16 CE  
NO. TAM/8064-21  
STRUCTURAL  
COMPONENT ONLY

**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 L=live(use, occupancy)  
 Load Patterns: s=S/2 L=L+Ls \_=no pattern load in this span  
 All Load Combinations (LCs) are listed in the Analysis output

**CALCULATIONS:**

$EI_{eff} = 459.76 \text{ lb-in}^2$      $K = 6.18e06 \text{ lbs}$      $GA = 0.77e06 \text{ lb}$   
 "Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
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. Allowable vibration-controlled span as per the Concluding Report, Development of Design Procedures for Vibration Controlled Spans using Engineered Wood Members, CWC et al for CCMC, 1997.
7. Floor vibration design from the CCMC Concluding Report (1997) on vibration controlled spans for engineered wood products.
8. 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.



DWS NO. TAW 18064-21  
 STRUCTURAL  
 COMPONENT ONLY

# NORDIC STRUCTURES

COMPANY  
July 12, 2021 16:27

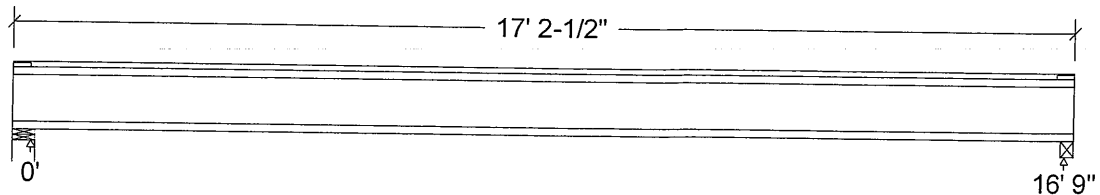
PROJECT  
J1 2ND FLOOR.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 8.0

### 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) and Support Bearing (in):



Unfactored:			
Dead	223		223
Live	447		447
Factored:			
Total	949		949
Bearing:			
Capacity			
Joist	2336		2138
Support	7744		4043
Des ratio			
Joist	0.41		0.44
Support	0.12		0.23
Load case	#2		#2
Length	4-3/8		2-5/8
Min req'd	1-1/2		1-1/2
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcp sup	769		769
Kzcp sup	-		1.00

\*Minimum bearing length for joists is 1-1/2" for exterior supports

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

### Nordic Joist 11-7/8" NI-40x Floor joist @ 16" o.c.

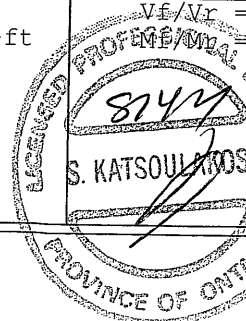
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Lumber Beam, No.1/No.2;

Total length: 17' 2-1/2"; Clear span: 16' 7-1/2"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

**This section PASSES the design code check.**

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 949	Vr = 2336	lbs	Vf/Vr = 0.41
Moment (+)	Mf = 3974	Mr = 6255	lbs-ft	0.64
Perm. Defl'n	0.12 = < L/999	0.56 = L/360	in	0.21
Live Defl'n	0.24 = L/837	0.42 = L/480	in	0.57
Total Defl'n	0.36 = L/558	0.84 = L/240	in	0.43
Bare Defl'n	0.29 = L/694	0.56 = L/360	in	0.52
Vibration	Lmax = 16'-9	Lv = 17'-8.1	ft	0.95
Defl'n	= 0.032	= 0.038	in	0.84



NO. TAM 18065-21  
STRUCTURAL  
COMPONENT ONLY

**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 L=live(use, occupancy)

Load Patterns: s=S/2 L=L+Ls \_=no pattern load in this span

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

**CALCULATIONS:**

EI<sub>eff</sub> = 447.63 lb-in<sup>2</sup> K = 6.18e06 lbs GA = 0.77e06 lb

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
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. Allowable vibration-controlled span as per the Concluding Report, Development of Design Procedures for Vibration Controlled Spans using Engineered Wood Members, CWC et al for CCMC, 1997.
7. Floor vibration design from the CCMC Concluding Report (1997) on vibration controlled spans for engineered wood products.
8. 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.



OWN NO. TAM18065-21  
 STRUCTURAL  
 COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

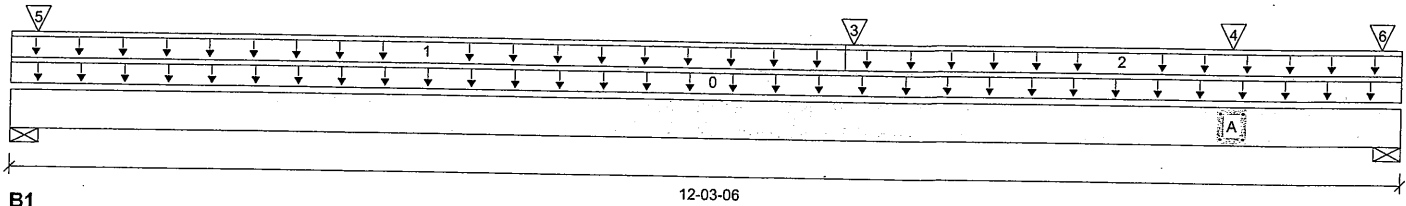
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i849)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 12-03-06

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	585 / 0	1116 / 0		
B2, 4-3/8"	2757 / 0	1880 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-03-06	Top	1.00	0.65	1.00	1.15	
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	07-03-08	Top	10	5			00-00-00 n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	07-03-08	12-03-06	Top	27	13			n/a
3	B7(i979)	Conc. Pt. (lbs)	L	07-04-06	07-04-06	Top	306	164			n/a
4	B3(i833)	Conc. Pt. (lbs)	L	10-09-04	10-09-04	Top	1424	840			n/a
5	E16(i1524)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	237	850			n/a
6	1(i952)	Conc. Pt. (lbs)	L	12-01-03	12-01-03	Top	1169	892			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4979 ft-lbs	35392 ft-lbs	14.1%	1	07-04-06
End Shear	3520 lbs	14464 lbs	24.3%	1	10-11-02
Total Load Deflection	L/999 (0.081")	n/a	n/a	4	06-08-15
Live Load Deflection	L/999 (0.049")	n/a	n/a	5	06-08-15
Max Defl.	0.081"	n/a	n/a	4	06-08-15
Span / Depth	11.7				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1563 lbs	20.3%	10.2%	Spruce-Pine-Fir
B2	Wall/Plate 4-3/8" x 3-1/2"	6486 lbs	68.8%	34.7%	Spruce-Pine-Fir

**Notes**

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. 7AM/18066-21  
 STRUCTURAL  
 COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

File name: 40-3 EL A,B SUNKEN.mmdl

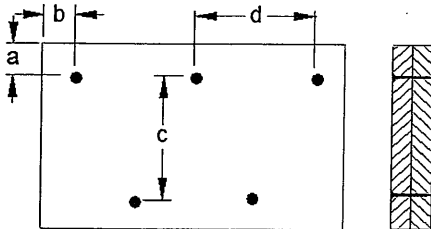
Description: 1ST FLR FRAMING\Flush Beams\B1(i849) (Flush Beam)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

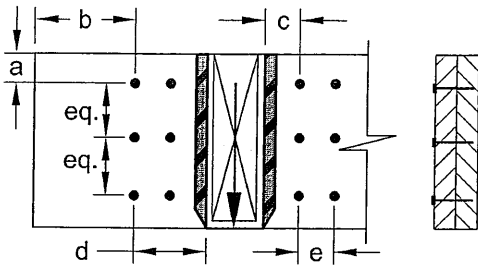
Calculated Side Load = 332.0 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

## Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 6



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are:

Nails

1  
3 1/2" ARDOX SPIRAL



DWG NO. TAM/8066-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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BC CALC® Member Report

Build 7773

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B10(i840)

City, Province, Postal Code:

Specifier:

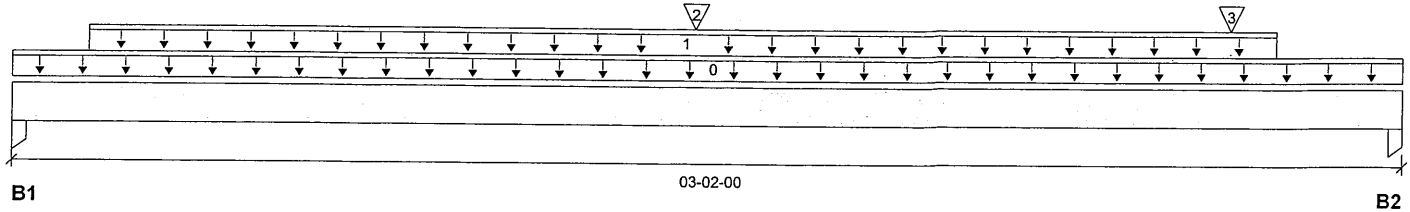
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-02-00

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

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	126 / 0	152 / 0		
B2, 3-1/2"	262 / 0	222 / 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	03-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-02-01	02-10-08	Top		60			n/a
2	J6(i803)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	Top	239	119			n/a
3	J6(i789)	Conc. Pt. (lbs)	L	02-09-04	02-09-04	Top	149	74			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	472 ft-lbs	17696 ft-lbs	2.7%	1	01-06-08
End Shear	370 lbs	7232 lbs	5.1%	1	01-01-10
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-06-08
Max Defl.	0.001"	n/a	n/a	4	01-06-08
Span / Depth	2.9				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	379 lbs	15.2%	10.1%	Unspecified
B2	Column 3-1/2" x 1-3/4"	671 lbs	13.5%	9.0%	Unspecified

### Notes

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

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

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

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

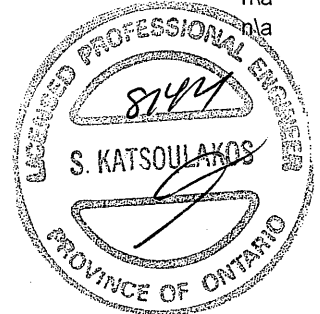
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020



OWG NO. TAM 18067-21

STRUCTURAL  
COMPONENT ONLY

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BC CALC® Member Report  
 Build 7773

**1ST FLR FRAMING\Flush Beams\B11(i983) (Flush Beam)**

Dry | 1 span | No cant.

July 12, 2021 16:13:48

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B11(i983)

City, Province, Postal Code:

Specifier:

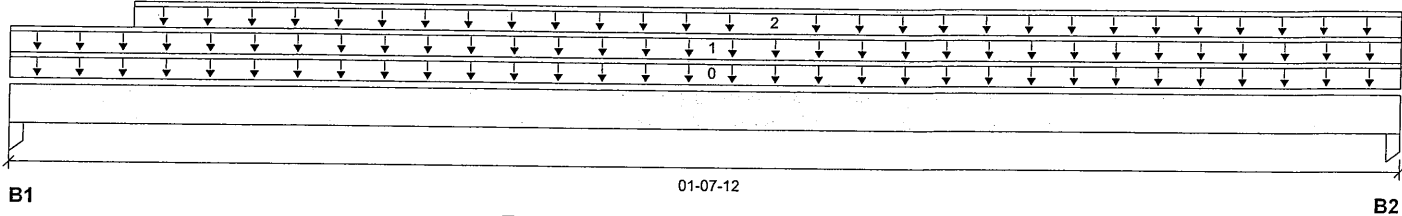
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 01-07-12

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	5 / 0	57 / 0		
B2, 3-1/2"	6 / 0	57 / 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	01-07-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	01-07-12	Top		60			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-01-12	01-07-12	Top	7	4			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17 ft-lbs	11502 ft-lbs	0.1%	0	00-09-14
End Shear	45 lbs	4701 lbs	0.9%	0	01-03-06
Span / Depth	1.2				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	79 lbs	2.5%	1.6%	Unspecified
B2	Column 3-1/2" x 1-3/4"	80 lbs	2.5%	1.6%	Unspecified

**Notes**

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-04-04.

CONFORMS TO CBC 2012

AMENDED 2020



DWG NO. TAM 18068-21

**STRUCTURAL**
**COMPONENT ONLY**
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BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

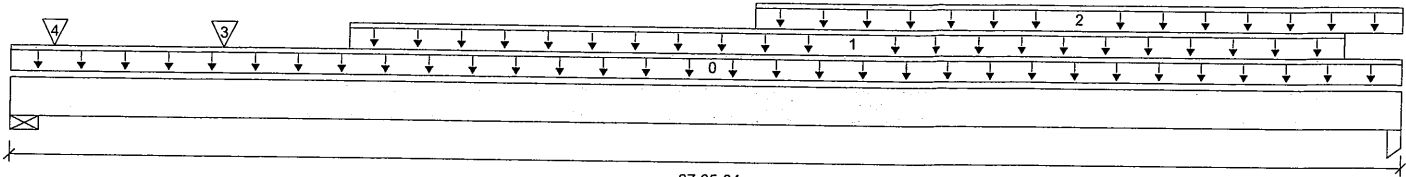
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B12(i750)

Specifier:

Designer:

Company:



B1

Total Horizontal Product Length = 07-05-04

B2

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1776 / 0	1369 / 0		
B2, 1-3/4"	826 / 0	433 / 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	07-05-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-09-08	07-01-08	Top	157	78			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	03-11-04	07-05-04	Top	120	60			n/a
3	J7(i754)	Conc. Pt. (lbs)	L	01-01-08	01-01-08	Top	177	88			n/a
4	1(i952)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	1169	1043			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2832 ft-lbs	17696 ft-lbs	16.0%	1	04-00-02
End Shear	1412 lbs	7232 lbs	19.5%	1	06-03-10
Total Load Deflection	L/999 (0.035")	n/a	n/a	4	03-11-04
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	03-11-04
Max Defl.	0.035"	n/a	n/a	4	03-11-04
Span / Depth	7.0				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	4375 lbs	73.9%	37.3%	Spruce-Pine-Fir
B2	Column 1-3/4" x 1-3/4"	1780 lbs	71.6%	47.6%	Unspecified

**Notes**

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

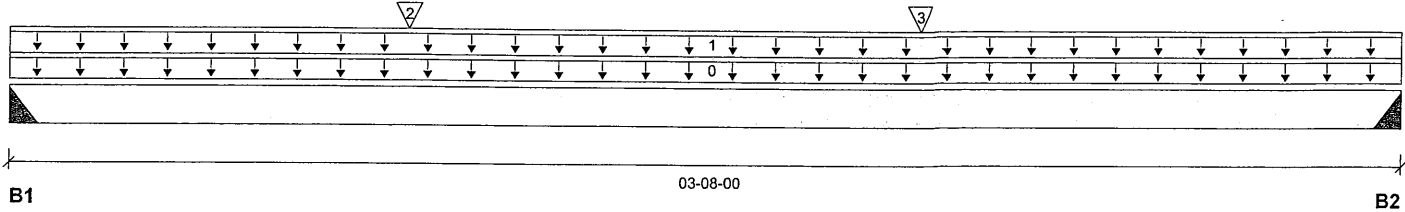
CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM/8069-21  
**STRUCTURAL COMPONENT ONLY**
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**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 2"	75 / 0	158 / 0		
B2, 2"	67 / 0	154 / 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	03-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top		60			n/a
2	J9(i788)	Conc. Pt. (lbs)	L	01-00-08	01-00-08	Top	67	33			n/a
3	J9(i807)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	75	37			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	191 ft-lbs	11502 ft-lbs	1.7%	0	01-10-09
End Shear	199 lbs	7232 lbs	2.7%	1	02-06-02
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-10-02
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-10-02
Max Defl.	0.001"	n/a	n/a	4	01-10-02
Span / Depth	3.5				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	221 lbs	n/a	8.0%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	216 lbs	n/a	7.8%	HUS1.81/10

**Cautions**

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

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

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

**Notes**

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-04.

CONFORMS TO OBC 2012

AMENDED 2020


 BMB NO. TAM / B070-21  
 STRUCTURAL  
 COMPONENT ONLY

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BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

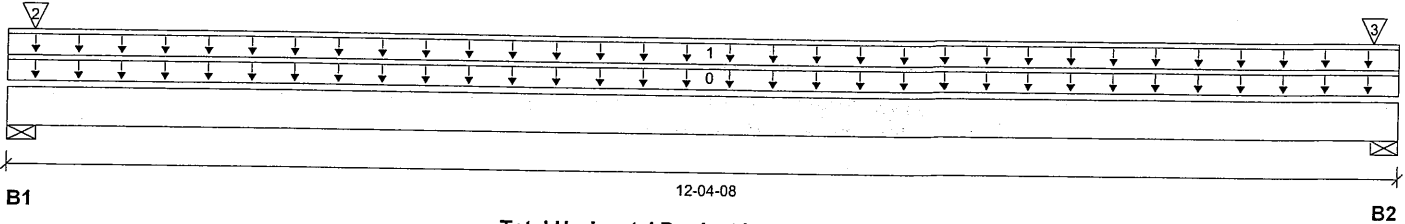
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B14(i1522)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 12-04-08

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	178 / 0	138 / 0		
B2, 5-1/2"	187 / 0	143 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-04-08	Top	1.00	0.65	1.00	1.15	
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-04-08	Top	23	11			00-00-00 n/a
2	E16(i1524)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	39	31			n/a
3	2(i953)	Conc. Pt. (lbs)	L	12-01-12	12-01-12	Top	48	36			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	928 ft-lbs	17696 ft-lbs	5.2%	1	06-02-04
End Shear	262 lbs	7232 lbs	3.6%	1	01-05-06
Total Load Deflection	L/999 (0.033")	n/a	n/a	4	06-02-04
Live Load Deflection	L/999 (0.019")	n/a	n/a	5	06-02-04
Max Defl.	0.033"	n/a	n/a	4	06-02-04
Span / Depth	11.7				


 DWG NO. TAM/BO71-21  
**STRUCTURAL COMPONENT ONLY**

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	440 lbs	7.4%	3.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	459 lbs	7.8%	3.9%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 11-05-08.

CONFORMS TO OBC 2012

AMENDED 2020

**Disclosure**

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**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**1ST FLR FRAMING\Flush Beams\B2(i1537) (Flush Beam)**

**PASSED**

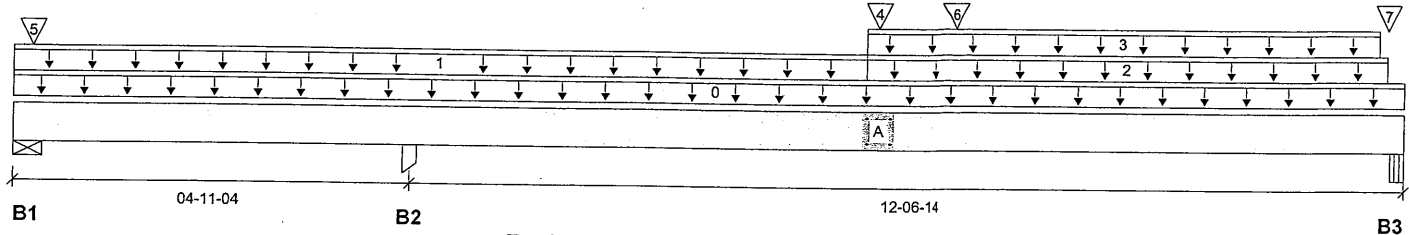
BC CALC® Member Report  
Build 7773  
Job name:  
Address:  
City, Province, Postal Code:  
Customer:  
Code reports:

Dry | 2 spans | No cant.

July 12, 2021 16:13:48

File name: 40-3 EL A,B SUNKEN.mmdl  
Description: 1ST FLR FRAMING\Flush Beams\B2(i1537)  
Specifier:  
Designer:  
Company:

CCMC 12472-R



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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	97 / 1018	0 / 16		
B2, 3-1/2"	2834 / 0	2171 / 0		
B3, 5-1/4"	2005 / 1	1373 / 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	17-06-02	Top	1.00	12	1.00	1.15	00-00-00
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	10-07-08	Top	12	6			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	10-07-08	17-03-08	Top	18	9			n/a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	10-07-08	17-02-04	Top	9				n/a
4	B3(i833)	Conc. Pt. (lbs)	L	10-09-04	10-09-04	Top	1800	1004			n/a
5	E16(i1524)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	67	709			n/a
6	PBO6(i975)	Conc. Pt. (lbs)	L	11-09-04	11-09-04	Top	840	959			n/a
7	6(i971)	Conc. Pt. (lbs)	L	17-03-10	17-03-10	Top	905	492			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13649 ft-lbs	35392 ft-lbs	38.6%	3	11-09-04
Neg. Moment	-11336 ft-lbs	-19577 ft-lbs	57.9%	1	04-11-04
End Shear	2660 lbs	14464 lbs	18.4%	1	16-01-00
Cont. Shear	4330 lbs	14464 lbs	29.9%	1	06-00-14
Total Load Deflection	L/752 (0.195")	n/a	31.9%	10	11-06-04
Live Load Deflection	L/999 (0.11")	n/a	n/a	13	11-06-04
Total Neg. Defl.	L/999 (-0.019")	n/a	n/a	10	03-00-06
Max Defl.	0.195"	n/a	n/a	10	11-06-04
Span / Depth	12.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	132 lbs	1.1%	0.6%	Spruce-Pine-Fir
B1	Uplift	1547 lbs			
B2	Column 3-1/2" x 3-1/2"	6965 lbs	70.0%	46.6%	Unspecified
B3	Beam 5-1/4" x 3-1/2"	4723 lbs	48.1%	21.1%	Unspecified

**Cautions**

Uplift of 1547 lbs found at bearing B1. (SIMPSON 2-HZ-SA @ (B1))



DWG NO. TAM 1807-21  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 2 spans | No cant.

July 12, 2021 16:13:48

File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i1537)

Specifier:

Designer:

Company:

## Notes

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

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

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

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

Design based on Dry Service Condition.

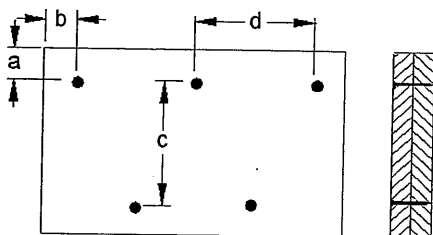
Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

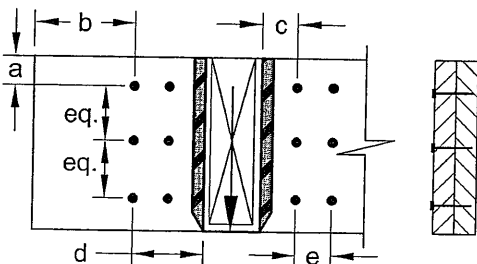
Connectors are: 1 Nails

3/4" ARDOX SPIRAL

## Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 5



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are: 16d Nails

3/4" ARDOX SPIRAL



BWG NO. TAM/BO72-21  
STRUCTURAL  
COMPONENT ONLY

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

## 1ST FLR FRAMING\Flush Beams\B3(i1550) (Flush Beam)

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: BRAMPTON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 9, 2021 14:28:39

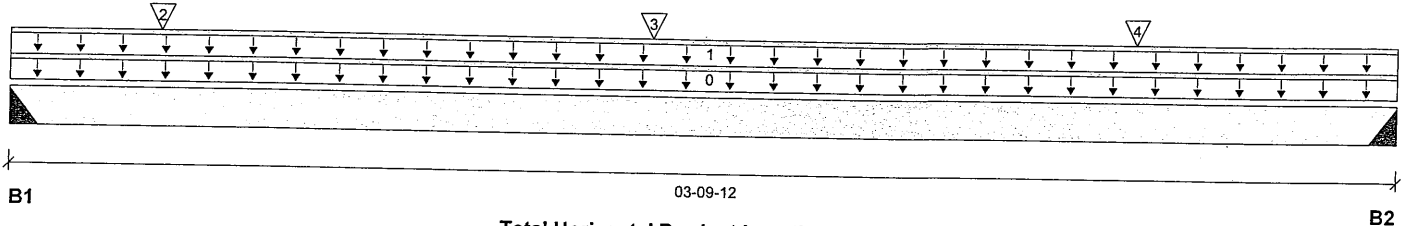
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i1550)

Specifier:

Designer: AJ

Company:



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

Bearing	Live	Dead	Snow	Wind
B1, 2"	691 / 0	357 / 0		
B2, 2"	671 / 0	347 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-12	Top	1.00	0.65	1.00	1.15	
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-09-12	Top	240	120			00-00-00
2	J7(i1541)	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	122	61			n/a
3	J7(i1547)	Conc. Pt. (lbs)	L	01-09-00	01-09-00	Top	178	89			n/a
4	J7(i1542)	Conc. Pt. (lbs)	L	03-01-00	03-01-00	Top	147	74			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1305 ft-lbs	17696 ft-lbs	7.4%	1	01-09-00
End Shear	707 lbs	7232 lbs	9.8%	1	02-07-14
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-11-01
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-11-01
Max Defl.	0.004"	n/a	n/a	4	01-11-01
Span / Depth	3.6				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	1483 lbs	n/a	34.7%	HUS1.81/10
B2 Hanger	2" x 1-3/4"	1441 lbs	n/a	33.7%	HUS1.81/10

### Cautions

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.  
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.  
Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Hanger Manufacturer: Unassigned  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 9  
Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO OBC 2012

AMENDED 2020



OWB NO. TAM 18073-21

STRUCTURAL

COMPONENT ONLY

### Disclosure

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

**PASSED**

BC CALC® Member Report  
Build 7773

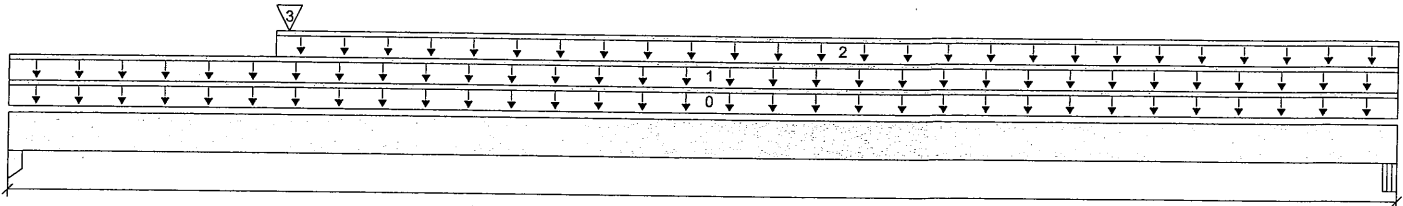
## 1ST FLR FRAMING\Flush Beams\B4(i1538) (Flush Beam)

Dry | 1 span | No cant.

August 9, 2021 14:28:39

Job name:  
Address:  
City, Province, Postal Code: BRAMPTON  
Customer:  
Code reports: CCMC 12472-R

File name: 40-3 EL A,B SUNKEN.mmdl  
Description: 1ST FLR FRAMING\Flush Beams\B4(i1538)  
Specifier:  
Designer: AJ  
Company:



12-04-04

Total Horizontal Product Length = 12-04-04

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

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	911 / 0	624 / 0		
B2, 2-5/8"	483 / 0	340 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-04-04	Top	1.00	0.65	1.00	1.15	
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-04-04	Top	24	12			00-00-00 n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	02-04-04	12-04-04	Top	29	15			n/a
3	-	Conc. Pt. (lbs)	L	02-05-09	02-05-09	Top	804	520			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4964 ft-lbs	35392 ft-lbs	14.0%	1	03-05-06
End Shear	2072 lbs	14464 lbs	14.3%	1	01-01-10
Total Load Deflection	L/999 (0.093")	n/a	n/a	4	05-08-15
Live Load Deflection	L/999 (0.055")	n/a	n/a	5	05-08-15
Max Defl.	0.093"	n/a	n/a	4	05-08-15
Span / Depth	12.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	1-3/4" x 3-1/2"	2147 lbs	43.2%	28.7%	Unspecified
B2 Beam	2-5/8" x 3-1/2"	1149 lbs	23.4%	10.3%	Unspecified

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 9  
Calculations assume unbraced length of Top: 00-00-00, Bottom: 09-07-10.

CONFORMS TO OBC 2012  
AMENDED 2020



UWS NO. TAN/18074-21  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Member Report  
Build 7773

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(i1538)

City, Province, Postal Code: BRAMPTON

Specifier:

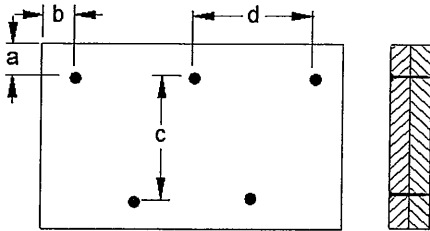
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

## Connection Diagram: Full Length of Member



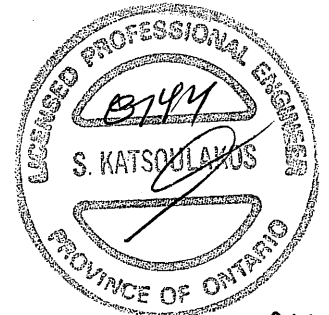
a minimum = 2"  
b minimum = 3"

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

Calculated Side Load = 472.3 lb/ft

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL



OWG NO. TAM/18074-21  
STRUCTURAL  
COMPONENT ONLY

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BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: BRAMPTON

Customer:

Code reports: CCMC 12472-R

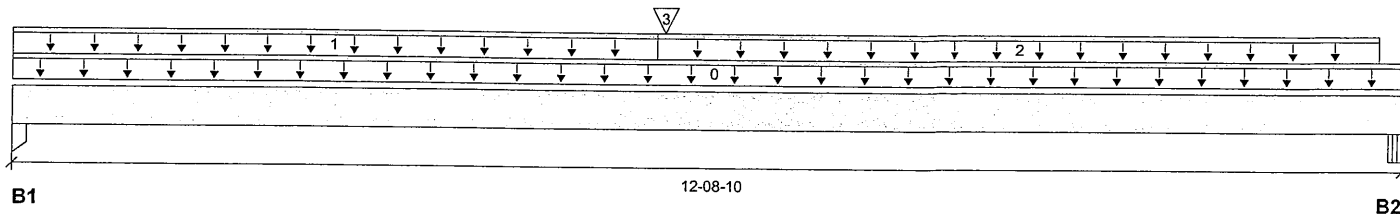
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(i1620)

Specifier:

Designer: AJ

Company:


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

Total Horizontal Product Length = 12-08-10

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	497 / 0	292 / 0		
B2, 5-1/4"	479 / 0	283 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-08-10	Top	1.00	0.65	1.00	1.15	
1	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Top	18	9			00-00-00
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	05-10-00	12-06-00	Top	27	13			n/a
3	B3(i1550)	Conc. Pt. (lbs)	L	05-10-14	05-10-14	Top	691	357			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5498 ft-lbs	17696 ft-lbs	31.1%	1	05-10-14
End Shear	1052 lbs	7232 lbs	14.5%	1	01-03-06
Total Load Deflection	L/822 (0.177")	n/a	29.2%	4	06-02-15
Live Load Deflection	L/999 (0.113")	n/a	n/a	5	06-01-15
Max Defl.	0.177"	n/a	n/a	4	06-02-15
Span / Depth	12.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	3-1/2" x 1-3/4"	1111 lbs	22.3%	14.9%	Unspecified
B2 Beam	5-1/4" x 1-3/4"	1072 lbs	21.9%	9.6%	Unspecified

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 06-03-10.

CONFORMS TO CBC 2012

AMENDED 2020


**Disclosure**

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

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

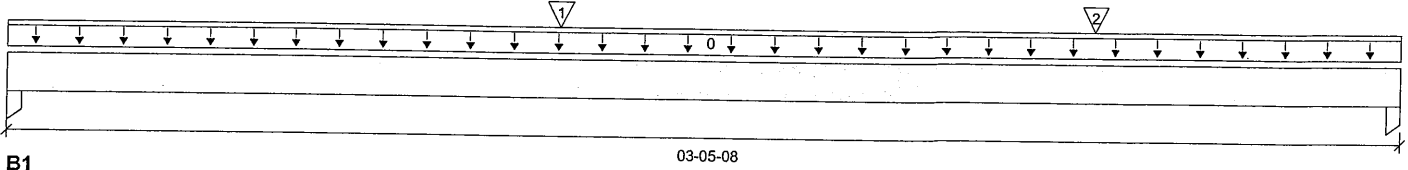
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(i981)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 03-05-08

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

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	127 / 0	74 / 0		
B2, 1-3/4"	160 / 0	89 / 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	03-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	J8(i982)	Conc. Pt. (lbs)	L	01-04-04	01-04-04	Top	152	76			n/a
2	J8(i986)	Conc. Pt. (lbs)	L	02-08-04	02-08-04	Top	135	67			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	313 ft-lbs	17696 ft-lbs	1.8%	1	01-04-04
End Shear	274 lbs	7232 lbs	3.8%	1	01-03-06
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-09-11
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-09-11
Max Defl.	0.001"	n/a	n/a	4	01-09-11
Span / Depth	3.2				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	284 lbs	5.7%	3.8%	Unspecified
B2	Column 1-3/4" x 1-3/4"	352 lbs	14.1%	9.4%	Unspecified

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-08.

CONFORMS TO CBC 2012

AMENDED 2020


 DWG NO. YAM 18076-21  
 STRUCTURAL  
 COMPONENT ONLY

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

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

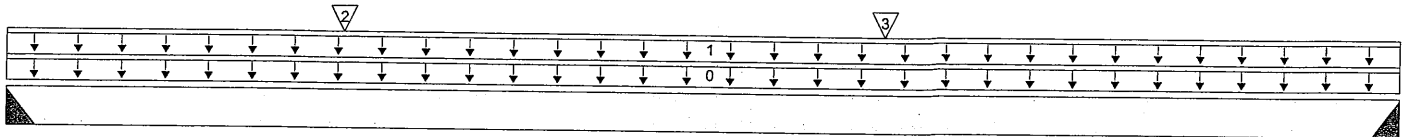
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B7(i979)

Specifier:

Designer:

Company:



B1

03-05-12

Total Horizontal Product Length = 03-05-12

B2

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	307 / 0	164 / 0		
B2, 2"	288 / 0	155 / 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	03-05-12	Top	1.00	0.65	1.00	1.15	
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-05-12	Top	120	60			n/a
2	J9(i987)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	80	40			n/a
3	J9(i985)	Conc. Pt. (lbs)	L	02-02-00	02-02-00	Top	97	49			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	541 ft-lbs	17696 ft-lbs	3.1%	1	01-10-09
End Shear	321 lbs	7232 lbs	4.4%	1	02-03-14
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-09-01
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-09-01
Max Defl.	0.002"	n/a	n/a	4	01-09-01
Span / Depth	3.3				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	665 lbs	n/a	15.6%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	625 lbs	n/a	14.6%	HUS1.81/10

## Cautions

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

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

## Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-02-08.

CONFORMS TO CBC 2012

AMENDED 2020



006 NO. TAM 18077-21

STRUCTURAL

COMPONENT ONLY

## Disclosure

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

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



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

## 1ST FLR FRAMING\Flush Beams\B8(i791) (Flush Beam)

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

July 12, 2021 16:13:48

Build 7773

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B8(i791)

City, Province, Postal Code:

Specifier:

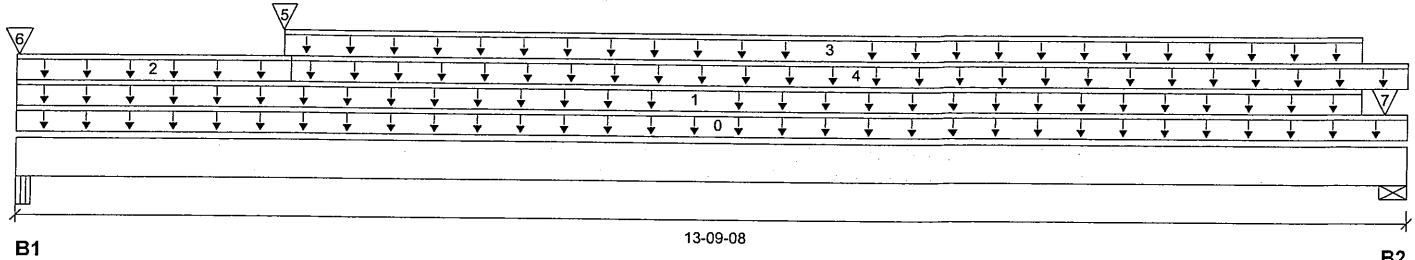
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-09-08

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

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	1111 / 0	1563 / 0		
B2, 5-1/2"	297 / 0	1189 / 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	13-09-08	Top		12			00-00-00
1	3(i968)	Unf. Lin. (lb/ft)	L	00-00-00	13-04-00	Top		81			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	02-08-06	Top	53	27			n/a
3	WALL	Unf. Lin. (lb/ft)	L	02-07-09	13-04-00	Top		60			n/a
4	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	02-08-06	13-09-08	Top	28	14			n/a
5	B13(i827)	Conc. Pt. (lbs)	L	02-07-08	02-07-08	Top	68	154			n/a
6	3(i968)	Conc. Pt. (lbs)	L	00-00-04	00-00-04	Top	806	421			n/a
7	E11(i922)	Conc. Pt. (lbs)	L	13-06-12	13-06-12	Top	85	66			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5281 ft-lbs	23005 ft-lbs	23.0%	0	06-07-06
End Shear	1397 lbs	9401 lbs	14.9%	0	01-02-08
Total Load Deflection	L/1085 (0.146")	n/a	22.1%	4	06-09-03
Live Load Deflection	L/999 (0.024")	n/a	n/a	5	06-07-06
Max Defl.	0.146"	n/a	n/a	4	06-09-03
Span / Depth	13.4				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-5/8" x 3-1/2"	3621 lbs	73.8%	32.3%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	1664 lbs	21.6%	10.9%	Spruce-Pine-Fir

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 10-07-10.

CONFORMS TO OBC 2012

AMENDED 2020



OWNED BY TAM 18078-21  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

File name: 40-3 EL A,B SUNKEN.mmdl

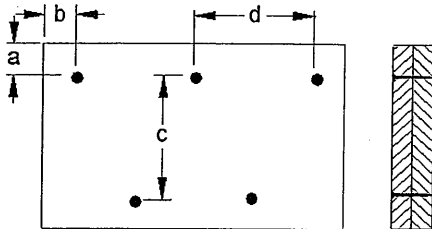
Description: 1ST FLR FRAMING\Flush Beams\B8(i791)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 107.8 lb/ft

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL



OWB NO. TAM/18078-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

**PASSED**

## 1ST FLR FRAMING\Flush Beams\B9(i826) (Flush Beam)

Dry | 1 span | No cant.

July 12, 2021 16:13:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

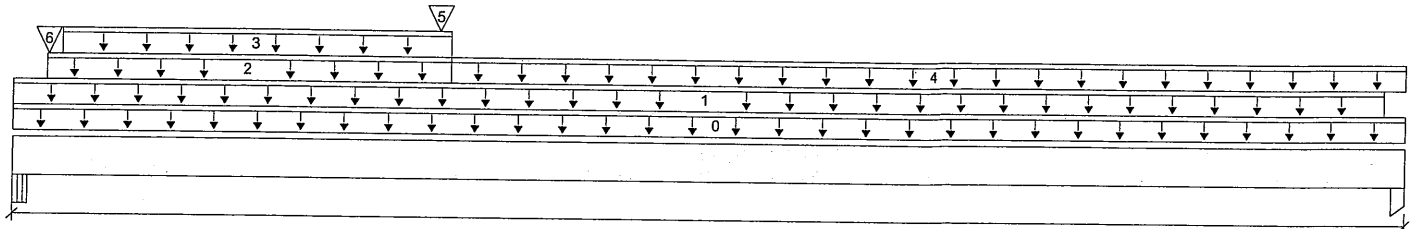
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B9(i826)

Specifier:

Designer:

Company:



09-04-10

B1

B2

Total Horizontal Product Length = 09-04-10

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	220 / 0	535 / 0		
B2, 1-3/4"	64 / 0	357 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-10	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	09-02-14	Top		60			n/a
2	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-02-10	02-11-00	Top	7	3			n/a
3	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-03-14	02-11-00	Top	22	11			n/a
4	FC2 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	02-11-00	09-04-10	Top	8	4			n/a
5	B13(i827)	Conc. Pt. (lbs)	L	02-10-02	02-10-02	Top	74	158			n/a
6	6(i971)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	84	60			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1295 ft-lbs	11502 ft-lbs	11.3%	0	04-01-00
End Shear	511 lbs	4701 lbs	10.9%	0	01-05-02
Total Load Deflection	L/999 (0.034")	n/a	n/a	4	04-09-00
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	04-06-00
Max Defl.	0.034"	n/a	n/a	4	04-09-00
Span / Depth	9.0				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 1-3/4"	749 lbs	23.5%	10.3%	Unspecified
B2	Column 1-3/4" x 1-3/4"	500 lbs	30.9%	20.6%	Unspecified

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 06-05-10.

CONFORMS TO OBC 2012

AMENDED 2020

### Disclosure

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DWG NO. TAM 18019-21

STRUCTURAL

COMPONENT ONLY



**Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B23 DR(i994) (Dropped Beam)**  
 Dry | 1 span | No cant.

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: 40-3 EL A,B SUNKEN.mmdl

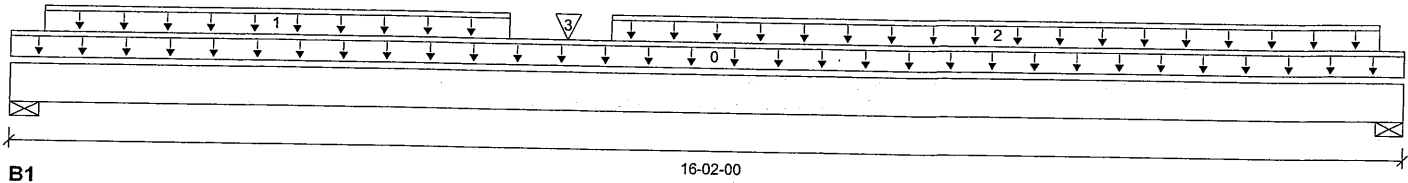
Description: 2ND FLR FRAMING\Dropped Beams\B23 DR(i994)

Specifier:

Designer:

Company:

July 12, 2021 16:13:48



Total Horizontal Product Length = 16-02-00

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

Bearing	Live	Dead	Snow	Wind
B1, 4"	4717 / 0	2526 / 0		
B2, 4"	4948 / 0	2640 / 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	16-02-00	Top	1.00	0.65	1.00	1.15	
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	05-08-08	Top	612	305			00-00-00
2	Smoothed Load	Unf. Lin. (lb/ft)	L	06-10-08	15-10-08	Top	625	312			n/a
3	-	Conc. Pt. (lbs)	L	06-04-08	06-04-08	Top	773	386			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	40592 ft-lbs	75348 ft-lbs	53.9%	1	07-08-08
End Shear	9512 lbs	25578 lbs	37.2%	1	01-06-00
Total Load Deflection	L/357 (0.526")	n/a	67.3%	4	08-00-08
Live Load Deflection	L/547 (0.343")	n/a	65.8%	5	08-00-08
Max Defl.	0.526"	n/a	n/a	4	08-00-08
Span / Depth	13.4				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 5-1/4"	10233 lbs	36.5%	39.9%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 5-1/4"	10722 lbs	38.3%	41.9%	Spruce-Pine-Fir

**Notes**

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

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

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

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

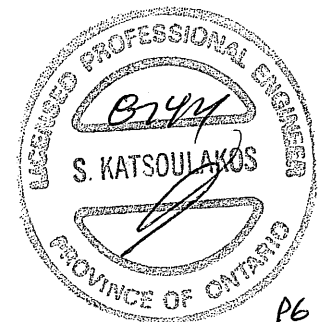
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 01-02-12, Bottom: 16-02-00.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAN/BOB-21  
 STRUCTURAL  
 COMPONENT ONLY



BC CALC® Member Report  
Build 7773

2ND FLR FRAMING\Dropped Beams\B23 DR(i994) (Dropped Beam)

Dry | 1 span | No cant.

July 12, 2021 16:13:48

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B23 DR(i994)

City, Province, Postal Code:

Specifier:

Customer:

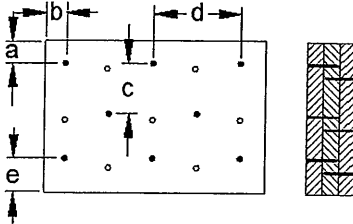
Designer:

Code reports:

CCMC 12472-R

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"  
b minimum = 3"

c = 5"  
d = 8"  
e minimum = 3"

Nailing applies to both sides of the member

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL



OWG NO. TAM 1800-21  
STRUCTURAL  
COMPONENT ONLY

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

**PASSED**

## 2ND FLR FRAMING\Flush Beams\B15(i972) (Flush Beam)

Dry | 1 span | No cant.

July 12, 2021 16:13:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

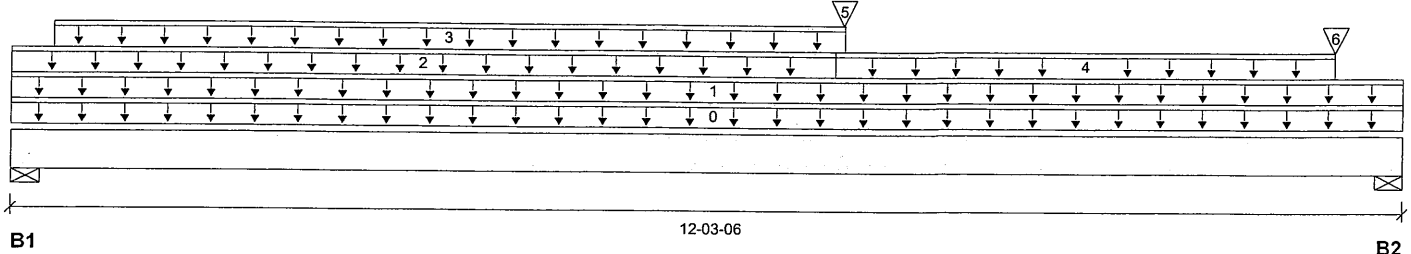
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B15(i972)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 12-03-06

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

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	199 / 0	466 / 0		
B2, 5-1/2"	1151 / 0	857 / 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	12-03-06	Top		12			00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	12-03-06	Top	3	2			n/a
2	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	07-02-06	Top	6	3			n/a
3	WALL	Unf. Lin. (lb/ft)	L	00-04-06	07-03-06	Top		60			n/a
4	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	07-02-06	11-08-02	Top	26	13			n/a
5	B18(i976)	Conc. Pt. (lbs)	L	07-03-04	07-03-04	Top	309	165			n/a
6	B16(i973)	Conc. Pt. (lbs)	L	11-08-02	11-08-02	Top	840	494			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3429 ft-lbs	35392 ft-lbs	9.7%	1	07-03-04
End Shear	888 lbs	14464 lbs	6.1%	1	10-10-00
Total Load Deflection	L/999 (0.057")	n/a	n/a	4	06-03-07
Live Load Deflection	L/999 (0.024")	n/a	n/a	5	06-05-10
Max Defl.	0.057"	n/a	n/a	4	06-03-07
Span / Depth	11.7				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	652 lbs	10.7%	5.4%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	2798 lbs	23.6%	11.9%	Spruce-Pine-Fir

### Cautions

Concentrated side load(s) 7 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



OWB NO. 7AM/12472-R-21  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Member Report  
Build 7773

Dry | 1 span | No cant.

July 12, 2021 16:13:48

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B15(i972)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

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.

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

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

Design based on Dry Service Condition.

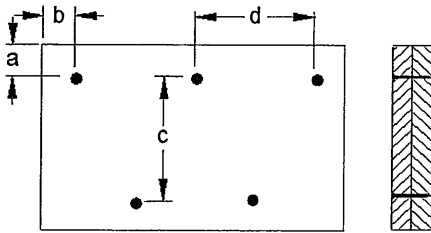
Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 6"

Calculated Side Load = 334.9 lb/ft

Connectors are: 16d 1 Nails

3 1/2" ARDOX SPIRAL



OWB NO. TAM 18081-21  
STRUCTURAL  
COMPONENT ONLY

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BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

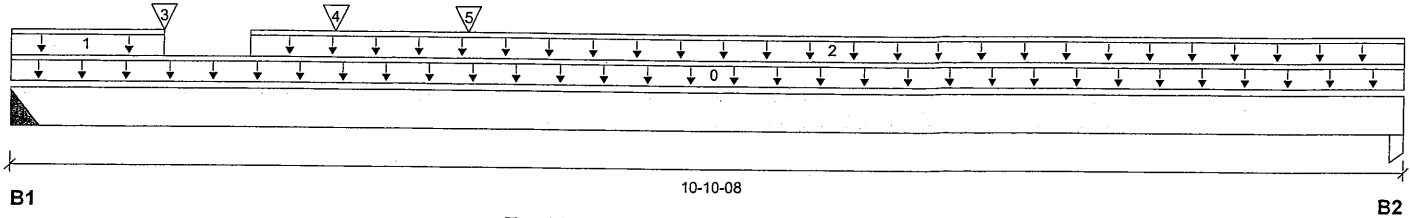
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16(i973)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 10-10-08

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

Bearing	Live	Dead	Snow	Wind
B1, 4"	864 / 0	507 / 0		
B2, 1-3/4"	705 / 0	423 / 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	10-10-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	01-02-00	Top	24	12			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-00	10-10-08	Top	119	60			n/a
3	-	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	307	153			n/a
4	J4(i1036)	Conc. Pt. (lbs)	L	02-06-00	02-06-00	Top	106	53			n/a
5	B19(i977)	Conc. Pt. (lbs)	L	03-06-06	03-06-06	Top	46	35			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4279 ft-lbs	35392 ft-lbs	12.1%	1	05-02-00
End Shear	1789 lbs	14464 lbs	12.4%	1	01-03-14
Total Load Deflection	L/999 (0.062")	n/a	n/a	4	05-06-00
Live Load Deflection	L/999 (0.039")	n/a	n/a	5	05-06-00
Max Defl.	0.062"	n/a	n/a	4	05-06-00
Span / Depth	10.6				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	1929 lbs	n/a	11.3%	HGUS410
B2	Column 1-3/4" x 3-1/2"	1587 lbs	31.9%	21.2%	Unspecified

**Cautions**

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.


 090 NO. TAM 18082-21  
 STRUCTURAL  
 COMPONENT ONLY

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B16(i973) (Flush Beam)**

**PASSED**

BC CALC® Member Report  
Build 7773

Dry | 1 span | No cant.

July 12, 2021 16:13:48

Job name:

File name: 40-3 EL A,B SUNKEN.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16(i973)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

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.

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.

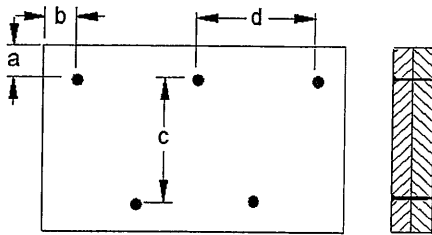
Importance Factor : Normal Part code : Part 9

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

CONFORMS TO CBC 2012

AMENDED 2020

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 330.0 lb/ft

Connectors are: 16d 1 Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 18082-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

**PASSED**

## 2ND FLR FRAMING\Flush Beams\B17(i974) (Flush Beam)

Dry | 1 span | No cant.

July 12, 2021 16:13:48

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

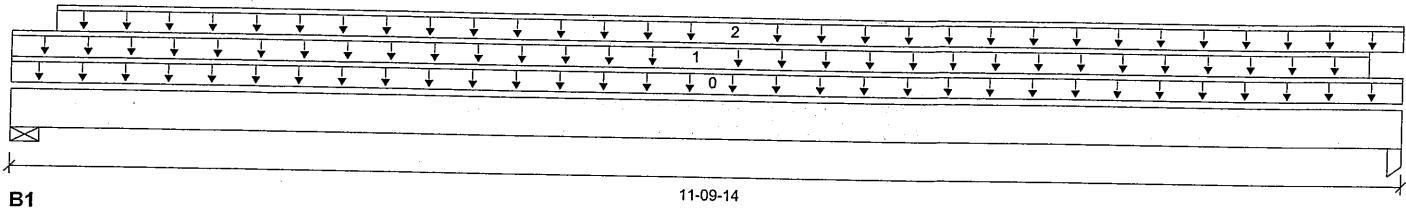
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B17(i974)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 11-09-14

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

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	114 / 0	428 / 0		
B2, 3-1/2"	107 / 0	441 / 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	11-09-14	Top	1.00	0.65	1.00	1.15	
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	11-06-06	Top	19	10			00-00-00
2	WALL	Unf. Lin. (lb/ft)	L	00-04-06	11-09-14	Top		60			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1687 ft-lbs	11502 ft-lbs	14.7%	0	05-11-06
End Shear	486 lbs	4701 lbs	10.3%	0	01-04-04
Total Load Deflection	L/999 (0.071")	n/a	n/a	4	05-11-06
Live Load Deflection	L/999 (0.014")	n/a	n/a	5	05-11-06
Max Defl.	0.071"	n/a	n/a	4	05-11-06
Span / Depth	11.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	599 lbs	19.6%	9.9%	Spruce-Pine-Fir
B2	Column 3-1/2" x 1-3/4"	618 lbs	19.1%	12.7%	Unspecified

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 11-02-00.

CONFORMS TO CBC 2012

AMENDED 2020


 DWG NO. TAM 18083-21  
 STRUCTURAL  
 COMPONENT ONLY

### Disclosure

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

## 2ND FLR FRAMING\Flush Beams\B18(i976) (Flush Beam)

Dry | 1 span | No cant.

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: 40-3 EL A,B SUNKEN.mmdl

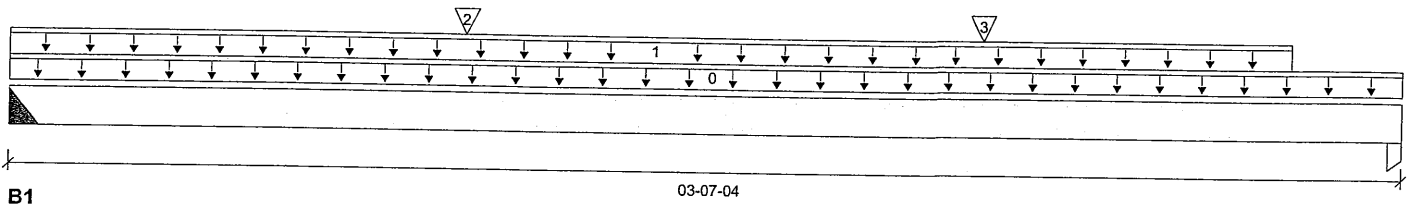
Description: 2ND FLR FRAMING\Flush Beams\B18(i976)

Specifier:

Designer:

Company:

July 12, 2021 16:13:48



Total Horizontal Product Length = 03-07-04

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	318 / 0	169 / 0		
B2, 3-1/2"	307 / 0	165 / 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	03-07-04	Top	1.00	0.65	1.00	1.15	
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-03-12	Top	120	60			00-00-00
2	J4(i1016)	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	119	59			n/a
3	J4(i1036)	Conc. Pt. (lbs)	L	02-06-00	02-06-00	Top	109	55			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	587 ft-lbs	17696 ft-lbs	3.3%	1	01-08-01
End Shear	385 lbs	7232 lbs	5.3%	1	01-01-14
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-08-15
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-08-15
Max Defl.	0.002"	n/a	n/a	4	01-08-15
Span / Depth	3.3				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	689 lbs	n/a	16.1%	HUS1.81/10
B2	Column 3-1/2" x 1-3/4"	667 lbs	13.4%	8.9%	Unspecified

### Cautions

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

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

### Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO CBC 2012

AMENDED 2020


 DWG NO. TAM 10004 -21  
 STRUCTURAL  
 COMPONENT ONLY

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

## 2ND FLR FRAMING\Flush Beams\B19(i977) (Flush Beam)

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

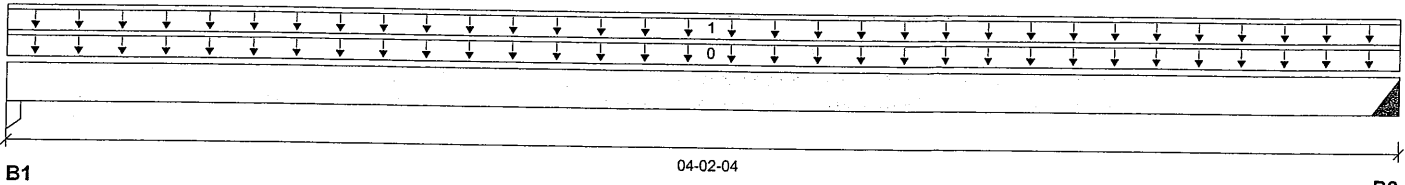
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B19(i977)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-02-04

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

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	46 / 0	36 / 0		
B2, 2"	46 / 0	36 / 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	04-02-04	Top	1.00	0.65	1.00	1.15	
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-02-04	Top	22	11			00-00-00 n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	109 ft-lbs	17696 ft-lbs	0.6%	1	02-01-00
End Shear	52 lbs	7232 lbs	0.7%	1	01-01-10
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	4.0				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	1-3/4" x 1-3/4"	113 lbs	4.6%	3.0%	Unspecified
B2 Hanger	2" x 1-3/4"	115 lbs	n/a	2.7%	HUS1.81/10

### Cautions

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

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

### Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM/10085-21  
 STRUCTURAL  
 COMPONENT ONLY

### Disclosure

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

## 2ND FLR FRAMING\Flush Beams\B20(i991) (Flush Beam)

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

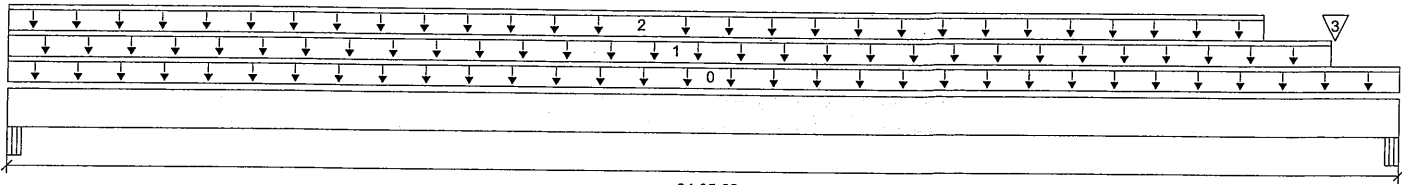
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B20(i991)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-05-02

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

Bearing	Live	Dead	Snow	Wind
B1, 4-1/8"	30 / 0	519 / 0	563 / 0	
B2, 5-1/4"	28 / 0	538 / 0	593 / 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	04-05-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Decking (Plan View Fill)	Unf. Lin. (lb/ft)	L	00-00-00	04-02-08	Top	14	7			n/a
2	E26(i1533)	Unf. Lin. (lb/ft)	L	00-00-00	03-11-14	Top		221	260		n/a
3	E27(i1531)	Conc. Pt. (lbs)	L	04-02-10	04-02-10	Top		94	119		n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1250 ft-lbs	35392 ft-lbs	3.5%	13	02-02-00
End Shear	586 lbs	14464 lbs	4.1%	13	01-04-00
Total Load Deflection	L/999 (0.002")	n/a	n/a	35	02-02-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	02-02-00
Max Defl.	0.002"	n/a	n/a	35	02-02-00
Span / Depth	3.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	4-1/8" x 3-1/2"	1524 lbs	19.8%	8.7%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	1590 lbs	16.2%	7.1%	Unspecified

### Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 03-07-12.

CONFORMS TO OBC 2012

AMENDED 2020


 DWD NO. 7AM 18086-21  
 STRUCTURAL  
 COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

File name: 40-3 EL A,B SUNKEN.mmdl

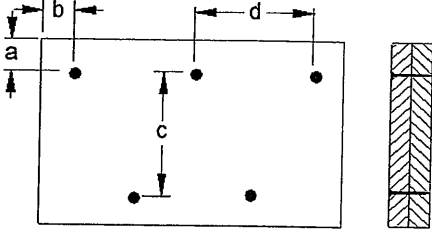
Description: 2ND FLR FRAMING\Flush Beams\B20(i991)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Connectors are: 3 1/2" ARDOX SPIRAL



DWG NO. TAM 18086-21  
STRUCTURAL  
COMPONENT ONLY

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

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

July 12, 2021 16:13:48

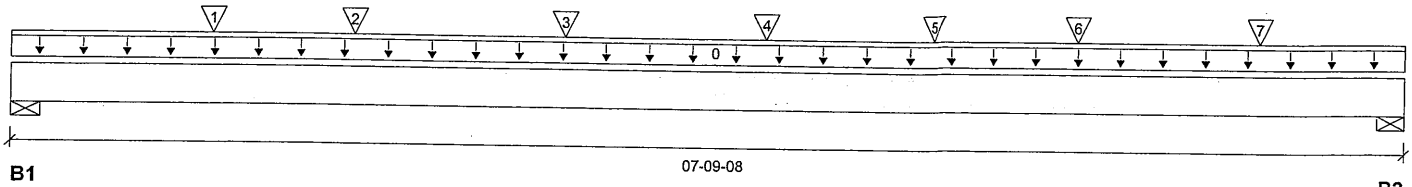
File name: 40-3 EL A,B SUNKEN.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B21(i992) (Flush Beam)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 07-09-08

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1383 / 0	738 / 0		
B2, 4"	1414 / 0	753 / 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	07-09-08	Top	1.00	0.65	1.00	1.15	
1	J3(i1178)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	356	178			00-00-00
2	-	Conc. Pt. (lbs)	L	01-10-11	01-10-11	Top	489	244			n/a
3	-	Conc. Pt. (lbs)	L	03-00-10	03-00-10	Top	419	209			n/a
4	-	Conc. Pt. (lbs)	L	04-02-01	04-02-01	Top	419	209			n/a
5	J3(i1182)	Conc. Pt. (lbs)	L	05-01-04	05-01-04	Top	271	135			n/a
6	-	Conc. Pt. (lbs)	L	05-11-02	05-11-02	Top	399	200			n/a
7	-	Conc. Pt. (lbs)	L	06-11-08	06-11-08	Top	444	222			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5486 ft-lbs	35392 ft-lbs	15.5%	1	04-01-04
End Shear	2713 lbs	14464 lbs	18.8%	1	01-05-06
Total Load Deflection	L/999 (0.036")	n/a	n/a	4	03-11-12
Live Load Deflection	L/999 (0.024")	n/a	n/a	5	03-11-12
Max Defl.	0.036"	n/a	n/a	4	03-11-12
Span / Depth	7.2				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2998 lbs	25.3%	12.8%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	3061 lbs	35.5%	17.9%	Spruce-Pine-Fir

## Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM/0087-21  
 STRUCTURAL  
 COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

File name: 40-3 EL A,B SUNKEN.mmdl

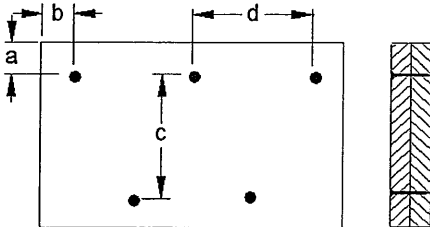
Description: 2ND FLR FRAMING\Flush Beams\B21(i992)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

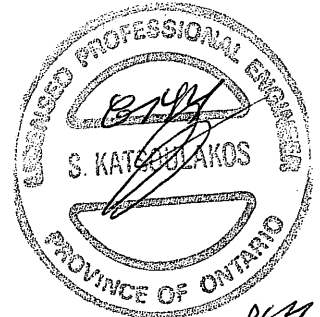
c = 7-7/8"

d = 8"

Calculated Side Load = 575.3 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM/BOB7-21  
STRUCTURAL  
COMPONENT ONLY

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## Maximum Floor Spans – S2.1

### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued oriented strand board (OSB) sheathing

### Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
	NI-60	16'-4"	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
11-7/8"	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	-
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	16'-11"	-
	NI-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
	NI-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	-	20'-9"	19'-2"	18'-4"	-
14"	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
	NI-60	20'-6"	18'-11"	18'-2"	-	21'-2"	19'-8"	18'-9"	-
	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	-
16"	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	NI-90	24'-5"	22'-6"	21'-6"	-	25'-1"	23'-2"	22'-2"	-

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

### Notes:

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

### Maximum Floor Spans – S4.1

#### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

#### Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-2"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
14"	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
16"	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

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

#### Notes:

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

### Maximum Floor Spans – S6.1

#### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 15 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued Canadian softwood plywood

#### Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	14'-11"	14'-1"	13'-7"	-	15'-4"	14'-6"	14'-1"	-
	NI-40x	15'-11"	15'-0"	14'-6"	-	16'-4"	15'-5"	14'-11"	-
	NI-60	16'-1"	15'-2"	14'-8"	-	16'-6"	15'-7"	15'-1"	-
	NI-80	17'-1"	16'-1"	15'-6"	-	17'-5"	16'-5"	15'-10"	-
11-7/8"	NI-20	16'-9"	15'-10"	15'-4"	-	17'-4"	16'-4"	15'-10"	-
	NI-40x	17'-10"	16'-10"	16'-3"	-	18'-6"	17'-4"	16'-9"	-
	NI-60	18'-1"	17'-0"	16'-5"	-	18'-9"	17'-6"	16'-11"	-
	NI-80	19'-6"	18'-0"	17'-4"	-	20'-1"	18'-7"	17'-9"	-
	NI-90	19'-11"	18'-4"	17'-8"	-	20'-5"	18'-11"	18'-1"	-
14"	NI-40x	19'-10"	18'-4"	17'-8"	-	20'-6"	19'-1"	18'-3"	-
	NI-60	20'-2"	18'-8"	17'-11"	-	20'-10"	19'-4"	18'-6"	-
	NI-80	21'-8"	20'-0"	19'-1"	-	22'-4"	20'-8"	19'-9"	-
	NI-90	22'-1"	20'-5"	19'-6"	-	22'-9"	21'-0"	20'-1"	-
16"	NI-60	22'-0"	20'-4"	19'-6"	-	22'-9"	21'-1"	20'-2"	-
	NI-80	23'-7"	21'-10"	20'-10"	-	24'-4"	22'-6"	21'-6"	-
	NI-90	24'-1"	22'-2"	21'-2"	-	24'-9"	22'-11"	21'-10"	-

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

#### Notes:

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

### Maximum Floor Spans – S7.1

#### Design Criteria

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

#### Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling 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	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	15'-1"
	NI-60	17'-1"	16'-1"	15'-6"	14'-10"	17'-6"	16'-6"	15'-11"	15'-3"
	NI-80	18'-1"	17'-0"	16'-4"	15'-8"	18'-7"	17'-4"	16'-8"	16'-0"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-7"	18'-5"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-3"	17'-10"	17'-2"	16'-6"	19'-10"	18'-5"	17'-8"	16'-11"
	NI-60	19'-6"	18'-1"	17'-4"	16'-8"	20'-1"	18'-8"	17'-10"	17'-1"
	NI-80	20'-11"	19'-4"	18'-5"	17'-7"	21'-5"	19'-10"	18'-11"	17'-11"
	NI-90	21'-4"	19'-9"	18'-9"	17'-10"	21'-10"	20'-3"	19'-3"	18'-3"
14"	NI-40x	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-5"	19'-6"	18'-6"
	NI-60	21'-8"	20'-1"	19'-2"	18'-2"	22'-4"	20'-9"	19'-9"	18'-9"
	NI-80	23'-3"	21'-6"	20'-5"	19'-4"	23'-10"	22'-1"	21'-0"	19'-11"
	NI-90	23'-9"	21'-11"	20'-10"	19'-8"	24'-3"	22'-6"	21'-5"	20'-3"
16"	NI-60	23'-7"	21'-10"	20'-10"	19'-9"	24'-4"	22'-7"	21'-7"	20'-5"
	NI-80	25'-4"	23'-5"	22'-3"	21'-1"	26'-0"	24'-1"	22'-11"	21'-8"
	NI-90	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"

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

#### Notes:

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



### Maximum Floor Spans – M2.1

#### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued oriented strand board (OSB) sheathing

#### Maximum Floor Spans

Joist depth	Joist series	Bare				1/2 in. 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'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
	NI-60	16'-4"	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
11-7/8"	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	-
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	16'-11"	-
	NI-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
	NI-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	-	20'-9"	19'-2"	18'-4"	-
14"	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
	NI-60	20'-6"	18'-11"	18'-2"	-	21'-2"	19'-8"	18'-9"	-
	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	-
16"	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	NI-90	24'-5"	22'-6"	21'-6"	-	25'-1"	23'-2"	22'-2"	-

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

#### Notes:

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

## Maximum Floor Spans – M4.1

### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing

### Maximum Floor Spans

Joist depth	Joist series	Bare				1/2 in. gypsum ceiling			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	14'-11"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
14"	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
16"	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

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

### Notes:

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

### Maximum Floor Spans – M6.1

#### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	5/8 in. nailed-glued Canadian softwood plywood

#### Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	14'-11"	14'-1"	13'-7"	-	15'-4"	14'-6"	14'-1"	-
	NI-40x	15'-11"	15'-0"	14'-6"	-	16'-4"	15'-5"	14'-11"	-
	NI-60	16'-1"	15'-2"	14'-8"	-	16'-6"	15'-7"	15'-1"	-
	NI-80	17'-1"	16'-1"	15'-6"	-	17'-5"	16'-5"	15'-10"	-
11-7/8"	NI-20	16'-9"	15'-10"	15'-4"	-	17'-4"	16'-4"	15'-10"	-
	NI-40x	17'-10"	16'-10"	16'-3"	-	18'-6"	17'-4"	16'-9"	-
	NI-60	18'-1"	17'-0"	16'-5"	-	18'-9"	17'-6"	16'-11"	-
	NI-80	19'-6"	18'-0"	17'-4"	-	20'-1"	18'-7"	17'-9"	-
	NI-90	19'-11"	18'-4"	17'-8"	-	20'-5"	18'-11"	18'-1"	-
14"	NI-40x	19'-10"	18'-4"	17'-8"	-	20'-6"	19'-1"	18'-3"	-
	NI-60	20'-2"	18'-8"	17'-11"	-	20'-10"	19'-4"	18'-6"	-
	NI-80	21'-8"	20'-0"	19'-1"	-	22'-4"	20'-8"	19'-9"	-
	NI-90	22'-1"	20'-5"	19'-6"	-	22'-9"	21'-0"	20'-1"	-
16"	NI-60	22'-0"	20'-4"	19'-6"	-	22'-9"	21'-1"	20'-2"	-
	NI-80	23'-7"	21'-10"	20'-10"	-	24'-4"	22'-6"	21'-6"	-
	NI-90	24'-1"	22'-2"	21'-2"	-	24'-9"	22'-11"	21'-10"	-

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

#### Notes:

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

### Maximum Floor Spans – M7.1

#### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/480 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued Canadian softwood plywood

#### Maximum Floor Spans

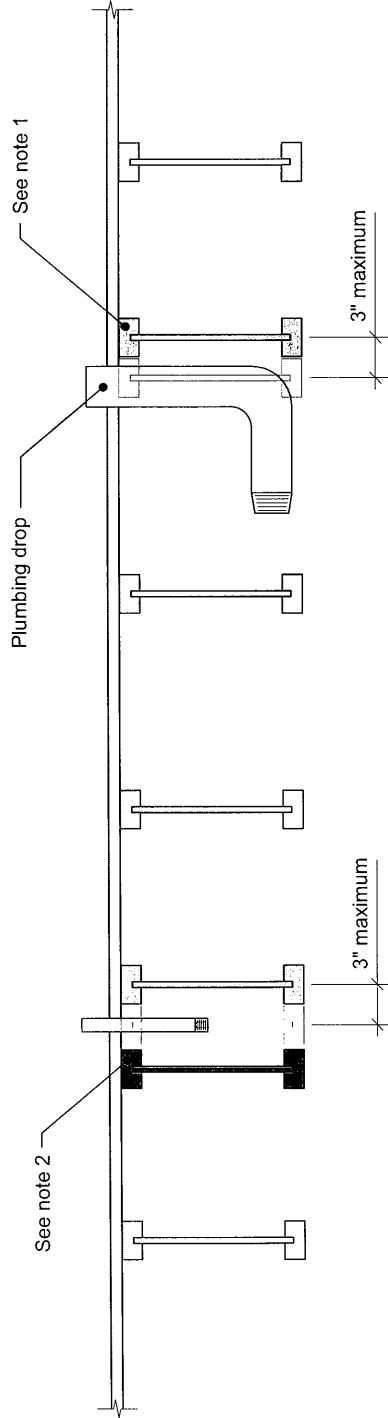
Joist depth	Joist series	Bare				1/2 in. gypsum ceiling			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	14'-11"
	NI-60	17'-1"	16'-1"	15'-6"	14'-10"	17'-6"	16'-6"	15'-11"	15'-3"
	NI-80	18'-1"	17'-0"	16'-4"	15'-8"	18'-7"	17'-4"	16'-8"	16'-0"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-7"	18'-5"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-3"	17'-10"	17'-2"	16'-6"	19'-10"	18'-5"	17'-8"	16'-11"
	NI-60	19'-6"	18'-1"	17'-4"	16'-8"	20'-1"	18'-8"	17'-10"	17'-1"
	NI-80	20'-11"	19'-4"	18'-5"	17'-7"	21'-5"	19'-10"	18'-11"	17'-11"
	NI-90	21'-4"	19'-9"	18'-9"	17'-10"	21'-10"	20'-3"	19'-3"	18'-3"
14"	NI-40x	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-5"	19'-6"	18'-6"
	NI-60	21'-8"	20'-1"	19'-2"	18'-2"	22'-4"	20'-9"	19'-9"	18'-9"
	NI-80	23'-3"	21'-6"	20'-5"	19'-4"	23'-10"	22'-1"	21'-0"	19'-11"
	NI-90	23'-9"	21'-11"	20'-10"	19'-8"	24'-3"	22'-6"	21'-5"	20'-3"
16"	NI-60	23'-7"	21'-10"	20'-10"	19'-9"	24'-4"	22'-7"	21'-7"	20'-5"
	NI-80	25'-4"	23'-5"	22'-3"	21'-1"	26'-0"	24'-1"	22'-11"	21'-8"
	NI-90	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"

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

#### Notes:

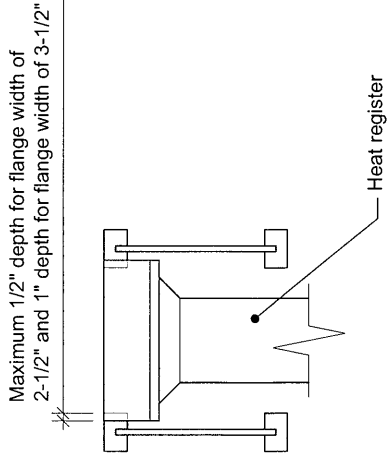
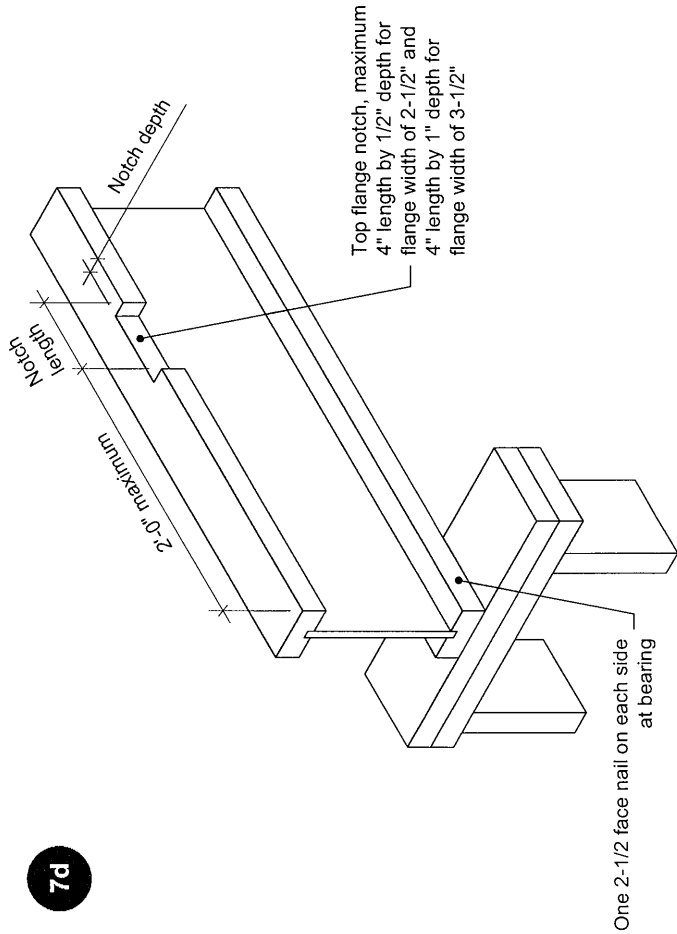
1. The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
3. Minimum bearing length shall be 1-3/4 inch for end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



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

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

TITLE		DRAWING	
Allowance for Piping		7c	
CATEGORY	SCALE	DATE	PAGE
Openings for Vertical Elements	-	2020-10-01	3.10



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

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

TITLE		DRAWING	
Notch in I-joist for Heat Register		7d	
CATEGORY		SCALE	PAGE
Openings for Vertical Elements		-	2020-10-01 3.11