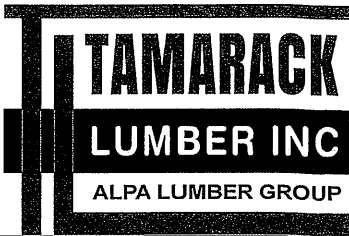


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	6
J1DJ	14-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	2
J3	10-00-00	9 1/2" NI-40x	1	3
J4	8-00-00	9 1/2" NI-40x	1	3
J4DJ	8-00-00	9 1/2" NI-40x	2	4
J5	6-00-00	9 1/2" NI-40x	1	16
J6	4-00-00	9 1/2" NI-40x	1	4
J7	2-00-00	9 1/2" NI-40x	1	2
B4	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B7	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
1	H3	HGUS410
1	H4	HUC410
2	H5	HUS1.81/10
1	H5	HUS1.81/10
2	H7	HU310-2
7	H9	IUS2.56/9.5
4	H9	IUS2.56/9.5
4	H9	IUS2.56/9.5
4	H9	IUS2.56/9.5

NOTES:
REFER TO THE **NORDIC**
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS SEE
FIGURE 1. **CANTILEVERED JOISTS**
INCLUDING **CANT' OVER BRICK** REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURE 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR **HOLES** INCLUDING **DUCT CHASE**
AND **FIELD CUT OPENINGS** SEE
FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. **CERAMIC TILE**
APPLICATION AS PER O.B.C. 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂
SUBFLOOR: 5/8" GLUE AND NAIL



FROM PLAN DATED:
FEB 2018

BUILDER:
ROYAL PINE HOMES

SITE:
FOREST SIDE
MODEL: UNIT 1804
CORNER
ELEVATION: A

LOT:

CITY: BRAMPTON

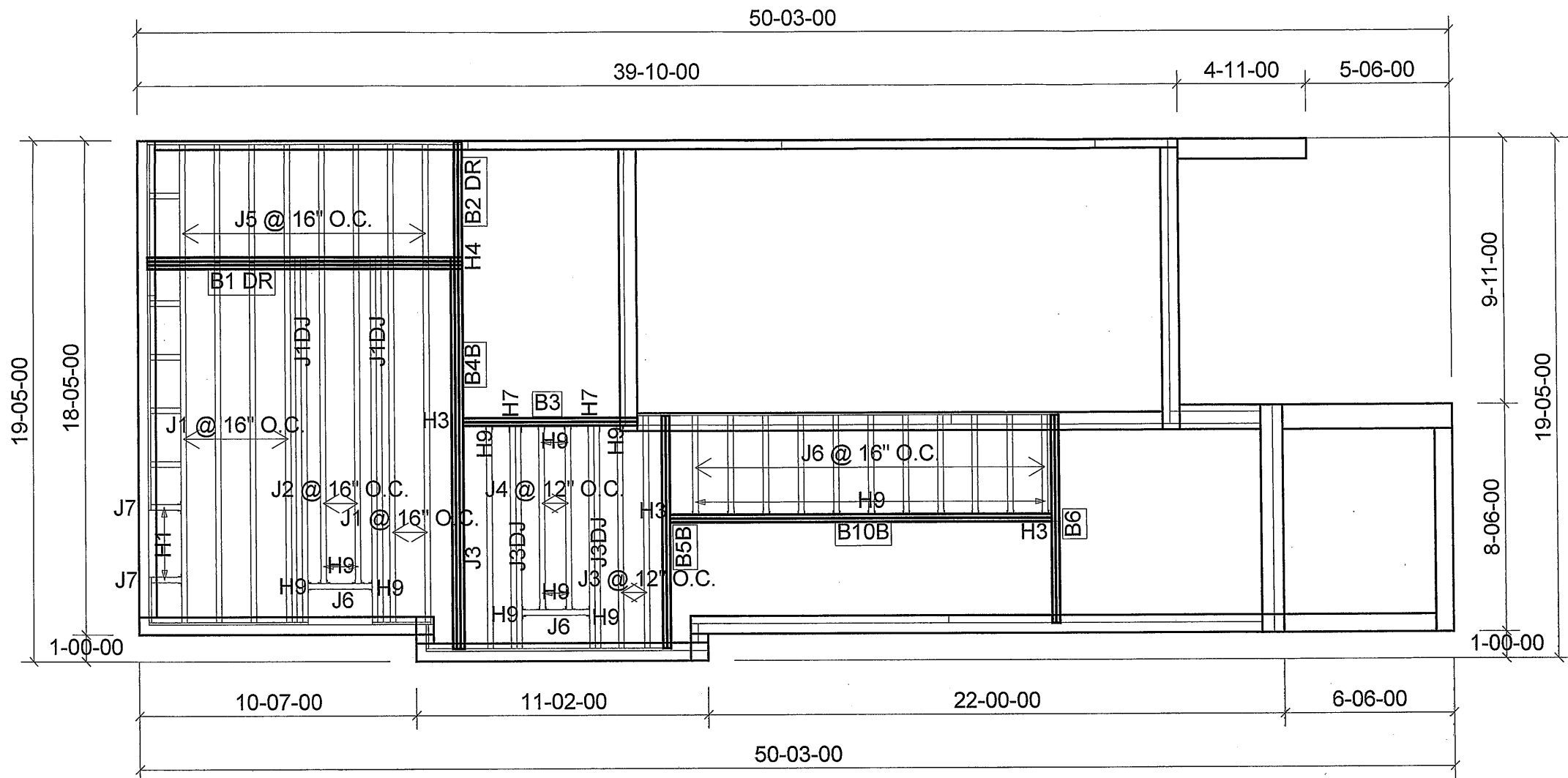
SALESMAN: M D
DESIGNER: AJ
REVISION:

DATE: 11/6/2018

1st FLOOR

STANDARD

DATE 11/27/18
BCIN: 26064; FIRM: 29991
ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS (AS PER PLAN WORK) DO NOT REPRESENT A PART OF THE SCOPE OF WORK WITHIN THE BOUNDARIES OF THE SEAL. THIS WORK IS DELEGATED TO A QUALIFIED BUILDING DESIGNER HAVING RESPONSIBILITY FOR THIS PROJECT. ALL BEAMS NOT ADDRESSED IN THIS DESCRIPTION AND LABELLED ON THIS LAYOUT ARE BEAMS SPECIFIED BY BUILDING DESIGNER AND/OR PROJECT ENGINEER AND ARE TO BE REVIEWED AND CONFIRMED BY THE SAME DESIGNER(S) PRIOR TO FABRICATION TO ENSURE ADEQUATE LOAD CAPACITY WITH RESPECT TO THE FLOOR SYSTEM COMPONENTS REVIEWED IN THIS SUBMISSION. MUNICIPALITY HAVING JURISDICTION TO OBTAIN LOT SPECIFIC SCHEDULE 1 FORM FROM THIS OFFICE PRIOR TO BUILDING PERMIT APPROVAL. INSTALLERS OF THIS FLOOR SYSTEM AND THEIR COMPANIES HAVE THE RESPONSIBILITY OF ENSURING THEY HAVE A COPY OF THE NORDIC INSTALLATION GUIDE AND ANY OTHER MANUFACTURER'S PRODUCT LITERATURE WHICH WILL AID IN THE OVERALL PROPER INSTALLATION OF THIS FLOOR SYSTEM. INSTALLERS ARE TO READ ALL PRODUCT LITERATURE AND INSTALLATION GUIDELINES BEFORE PROCEEDING. THE SUPPLIER AND SEALING ENGINEER OF THIS FLOOR SYSTEM ARE NOT RESPONSIBLE FOR SURPLUS OR DEFICIT OF PRODUCTS AT PROJECT'S END. THIS LAYOUT IS A GUIDE ONLY. CONFIRMATION OF ALL QUANTITIES, LENGTHS, AND DETAILS, REMAINS THE RESPONSIBILITY OF THE FLOOR SYSTEM INSTALLATION CONTRACTOR.
DWG# TAM 0399284 THROUGH DWG# TAM 0407184 INCLUSIVE DATED 11/27/18
SEALED STRUCTURAL COMPONENTS ONLY: +8423784
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.
A COMPLETE FRAMING PLAN REQUIRES THE NORDIC PUBLISHED LITERATURE, WHICH INCLUDES INSTALLATION REQUIREMENTS, HANDLING AND STORAGE GUIDELINES, AND FORMS AN INTEGRAL PART OF THIS SEALED DOCUMENT. INSTALL SQUASH BLOCKS FOR TRANSFERRING POINT LOADS FROM GIRDER TRUSSES, HEADERS, AND BEAMS DOWN TO FOUNDATION COMPONENTS. FOR PROPER INSTALLATION, SEE NORDIC LITERATURE. PROVIDE 2 X 4 OR 2 X 6 STUD GRADE OR BETTER SQUASH BLOCKS, MATCHING SUPPORTED WALL WIDTH ABOVE BLOCKS. INSTALL SQUASH BLOCKS ON EACH SIDE OF JOIST. BLOCKING TO BE 1/16" DEEPER THAN JOIST DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.
I REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF A FIRM REGISTERED UNDER SUBSECTION 3.2.5 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND THE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES.
REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.
DWG # TAM 3103078
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL COMPONENTS ONLY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	6
J1DJ	14-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	2
J3	10-00-00	9 1/2" NI-40x	1	3
J3DJ	10-00-00	9 1/2" NI-40x	2	4
J4	8-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	8
J6	4-00-00	9 1/2" NI-40x	1	13
J7	2-00-00	9 1/2" NI-40x	1	2
B10B	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4B	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B5B	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
2	H3	HGUS410
1	H3	HGUS410
1	H4	HUC410
2	H7	HU310-2
15	H9	IUS2.56/9.5
4	H9	IUS2.56/9.5
4	H9	IUS2.56/9.5

NOTES:
REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 5/8" GLUE AND NAIL

TAMARACK
LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED:
FEB 2018

BUILDER:
ROYAL PINE HOMES

SITE:
FOREST SIDE
MODEL: UNIT 1804
CORNER
ELEVATION: B
LOT:

CITY: BRAMPTON

SALESMAN: M D
DESIGNER: AJ
REVISION:

DATE: 11/6/2018

1st FLOOR
STANDARD

DATE 11/22/18

BCIN: 26064; FIRM: 29991

ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS 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.

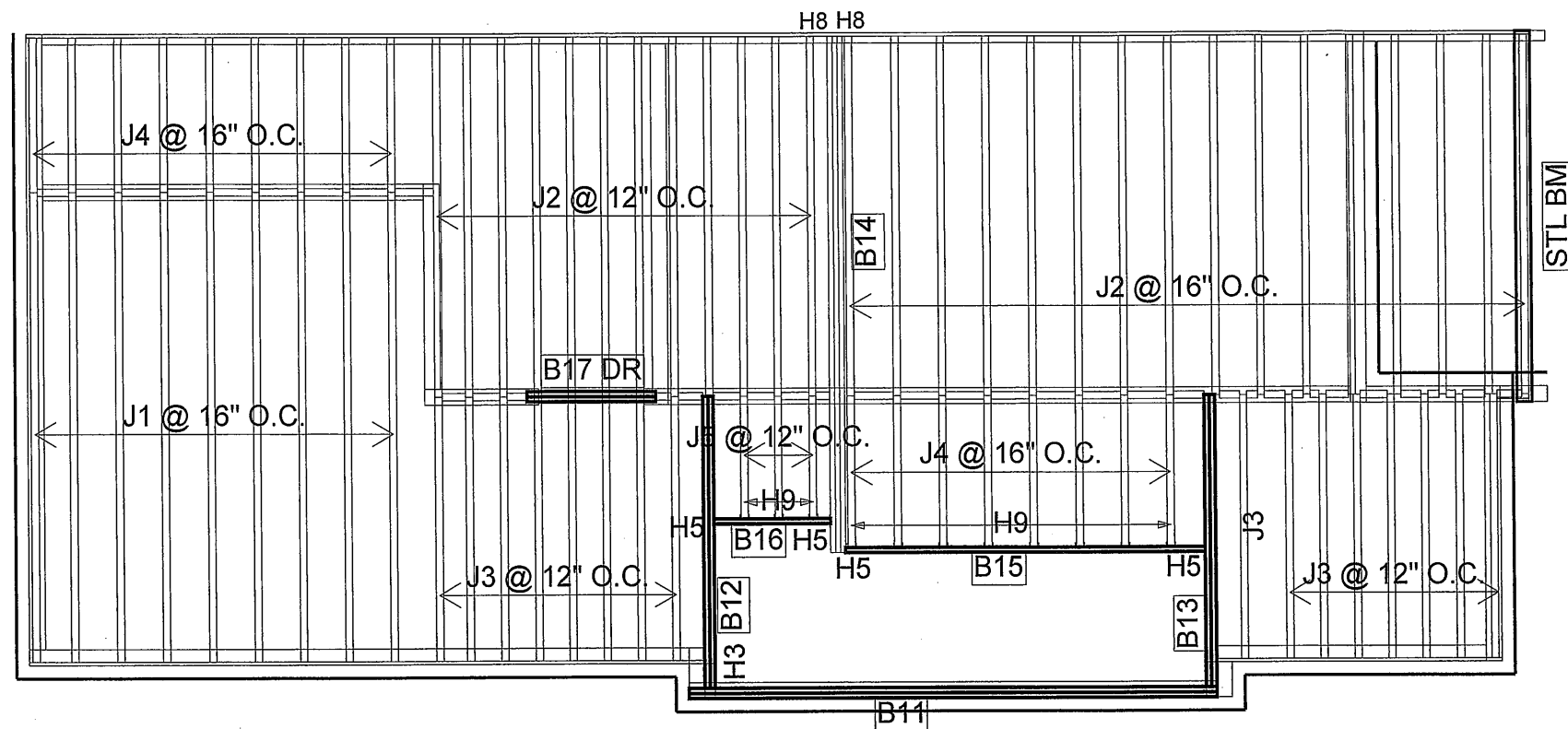
DWG# TAM 842918H THROUGH DWG# TAM 843118H + 8405-18H INCLUSIVE DATED 11/22/18

SEALED STRUCTURAL COMPONENTS ONLY: +8399-18H + 8400-18H + 8402-18H
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.

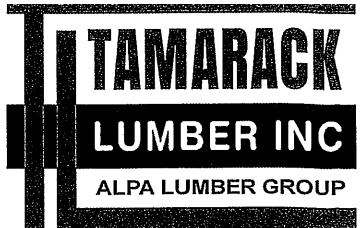
DWG # TAM 310517B
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL COMPONENTS ONLY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	12-00-00	9 1/2" NI-40x	1	28
J3	8-00-00	9 1/2" NI-40x	1	16
J4	6-00-00	9 1/2" NI-40x	1	17
J5	4-00-00	9 1/2" NI-40x	1	3
B11 ✓	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14 ✓	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B15 ✓	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12 ✓	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13 ✓	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 ✓	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17 DR ✓	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

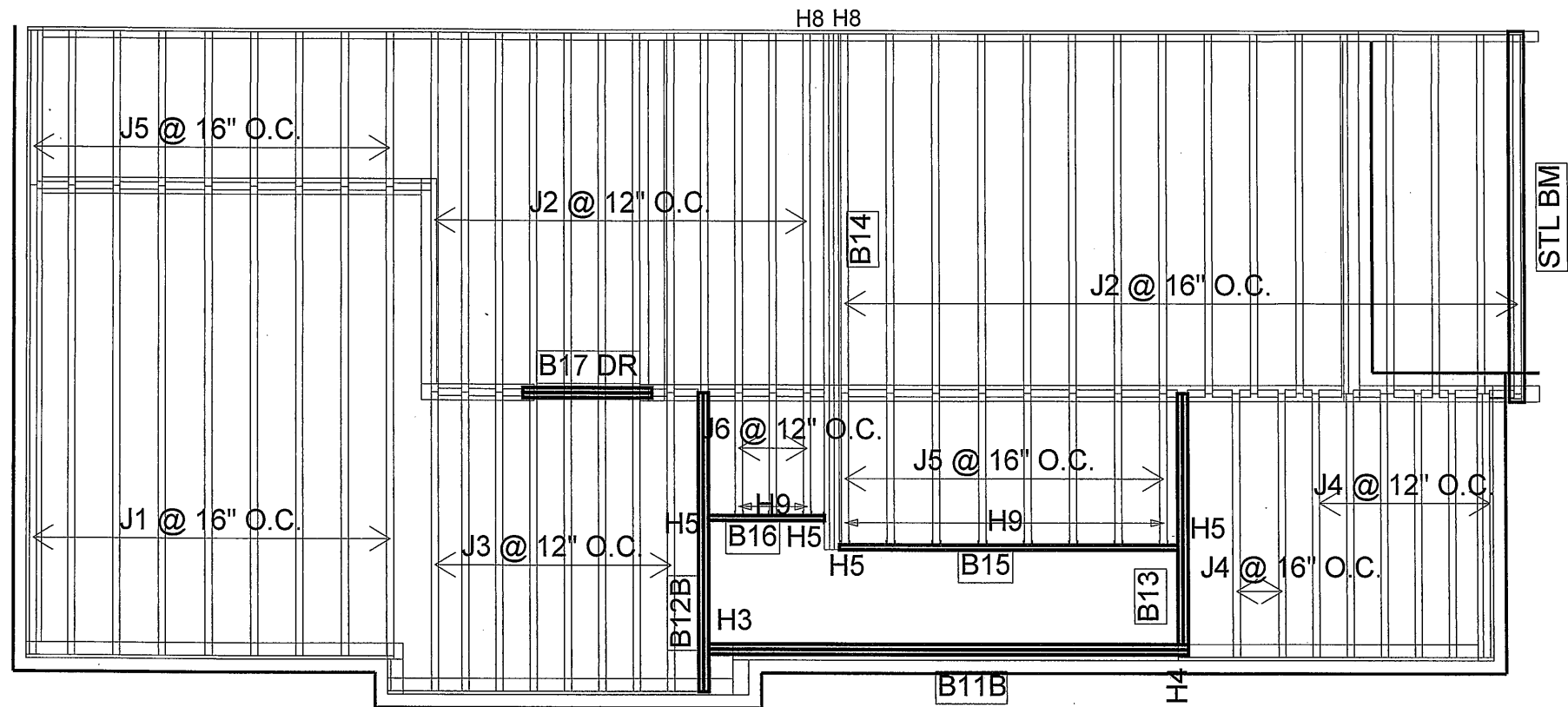
Connector Summary		
Qty	Manuf	Product
1	H3	HGUS410
2	H5	HUS1.81/10
2	H5	HUS1.81/10
11	H9	IUS2.56/9.5

NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 5/8" GLUE AND NAIL



FROM PLAN DATED:
FEB 2018
BUILDER:
ROYAL PINE HOMES
SITE:
FOREST SIDE
MODEL: UNIT 1804
CORNER
ELEVATION: A
LOT:
CITY: BRAMPTON
SALESMAN: M D
DESIGNER: AJ
REVISION:
DATE: 11/6/2018
2nd FLOOR

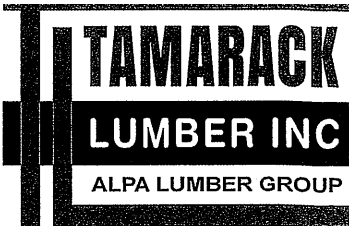
DATE 11/21/18
BCIN: 26084; FIRM: 29991
ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL 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 840818H **THROUGH DWG# TAM** 841418H **INCLUSIVE DATED** 11/21/18
SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.
A COMPLETE FRAMING PLAN REQUIRES THE NORDIC PUBLISHED LITERATURE, WHICH INCLUDES INSTALLATION REQUIREMENTS, HANDLING AND STORAGE GUIDELINES, AND FORMS AN INTEGRAL PART OF THIS SEALED DOCUMENT. INSTALL SQUASH BLOCKS FOR TRANSFERRING POINT LOADS FROM GIRDER TRUSSES, HEADERS, AND BEAMS DOWN TO FOUNDATION COMPONENTS. FOR PROPER INSTALLATION, SEE NORDIC LITERATURE. PROVIDE 2 X 4 OR 2 X 6 STUD GRADE OR BETTER SQUASH BLOCKS, MATCHING SUPPORTED WALL WIDTH ABOVE BLOCKS. INSTALL SQUASH BLOCKS ON EACH SIDE OF JOIST. BLOCKING TO BE 1/16" DEEPER THAN JOIST DEPTH. SEE NORDIC LITERATURE FOR NAILING REQUIREMENT.
I REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF A FIRM REGISTERED UNDER SUBSECTION 3.2.5 OF THE ONTARIO BUILDING CODE. I AM QUALIFIED AND HE FIRM IS REGISTERED, IN APPROPRIATE CLASSES AND/OR CATEGORIES.
REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.
DWG # TAM 3105218
BCIN: 26084
FIRM: 29991
SEALED STRUCTURAL COMPONENTS ONLY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	9
J2	12-00-00	9 1/2" NI-40x	1	28
J3	10-00-00	9 1/2" NI-40x	1	8
J4	8-00-00	9 1/2" NI-40x	1	8
J5	6-00-00	9 1/2" NI-40x	1	17
J6	4-00-00	9 1/2" NI-40x	1	3
B11B ✓	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14 ✓	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B15 ✓	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12B ✓	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13 ✓	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16 ✓	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17 DR ✓	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
1	H3	HGUS410
1	H4	HUC410
2	H5	HUS1.81/10
2	H5	HUS1.81/10
11	H9	IUS2.56/9.5

NOTES:
REFER TO THE **NORDIC**
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS SEE
FIGURE 1. **CANTILEVERED JOISTS**
INCLUDING **CANT' OVER BRICK** REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURE 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR **HOLES** INCLUDING **DUCT CHASE**
AND **FIELD CUT OPENINGS** SEE
FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. **CERAMIC TILE**
APPLICATION AS PER O.B.C. 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂
SUBFLOOR: 5/8" GLUE AND NAIL

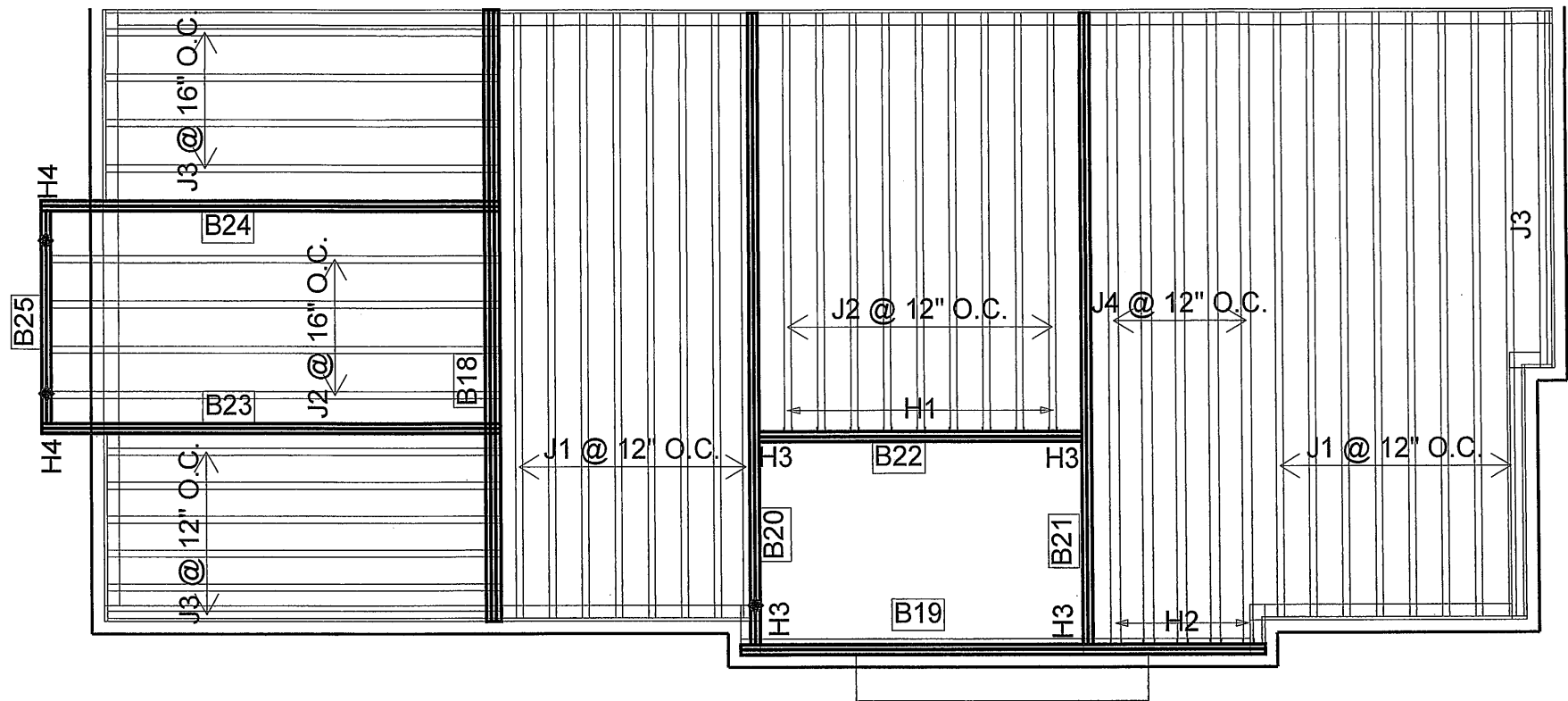


FROM PLAN DATED:
FEB 2018
BUILDER:
ROYAL PINE HOMES
SITE:
FOREST SIDE
MODEL: UNIT 1804
CORNER
ELEVATION: B
LOT:

CITY: BRAMPTON
SALESMAN: M D
DESIGNER: AJ
REVISION:

DATE: 11/6/2018
2nd FLOOR

DATE 11/22/18
BCIN: 26064; FIRM: 29991
ENGINEERING ONLY - DIMENSIONS TO BE VERIFIED ON SITE SUPPORTING STRUCTURE TO BE VERIFIED BY QUALIFIED BUILDING DESIGNER. ALL CONVENTIONAL FRAMING TO BE SPECIFIED, REVIEWED, AND CONFIRMED BY BUILDING DESIGNER PRIOR TO JOIST(S) AND FLOOR BEAM(S) INSTALLATION. ALL NOTES DESIGNATING MORE OR LESS 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 B42718H THROUGH DWG# TAM B42818H INCLUSIVE DATED 11/22/18
SEALED STRUCTURAL COMPONENTS ONLY: B42818H + B41178H + B41218H + B41418H
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 312537B
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL COMPONENTS ONLY

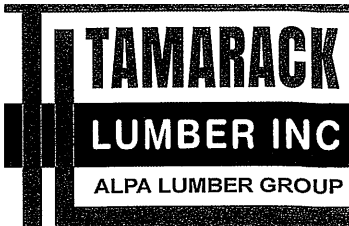


Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	16
J2	14-00-00	11 7/8" NI-40x	1	13
J3	12-00-00	11 7/8" NI-40x	1	11
J4	20-00-00	11 7/8" NI-80	1	5
B20 ✓	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21 ✓	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18 ✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B19 ✓	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B22 ✓	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25 ✓	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
5	H2	IUS3.56/11.88
4	H3	HGUS410
2	H4	HUC410

NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂

SUBFLOOR: 5/8" GLUE AND NAIL



FROM PLAN DATED:
FEB 2018

BUILDER:
ROYAL PINE HOMES

SITE:
FOREST SIDE
MODEL: UNIT 1804
CORNER
ELEVATION: A
LOT:

CITY: BRAMPTON

SALESMAN: M D
DESIGNER: AJ
REVISION:

DATE: 11/6/2018

3rd FLOOR

DATE 11/21/18

BCIN: 26064; FIRM: 29991

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

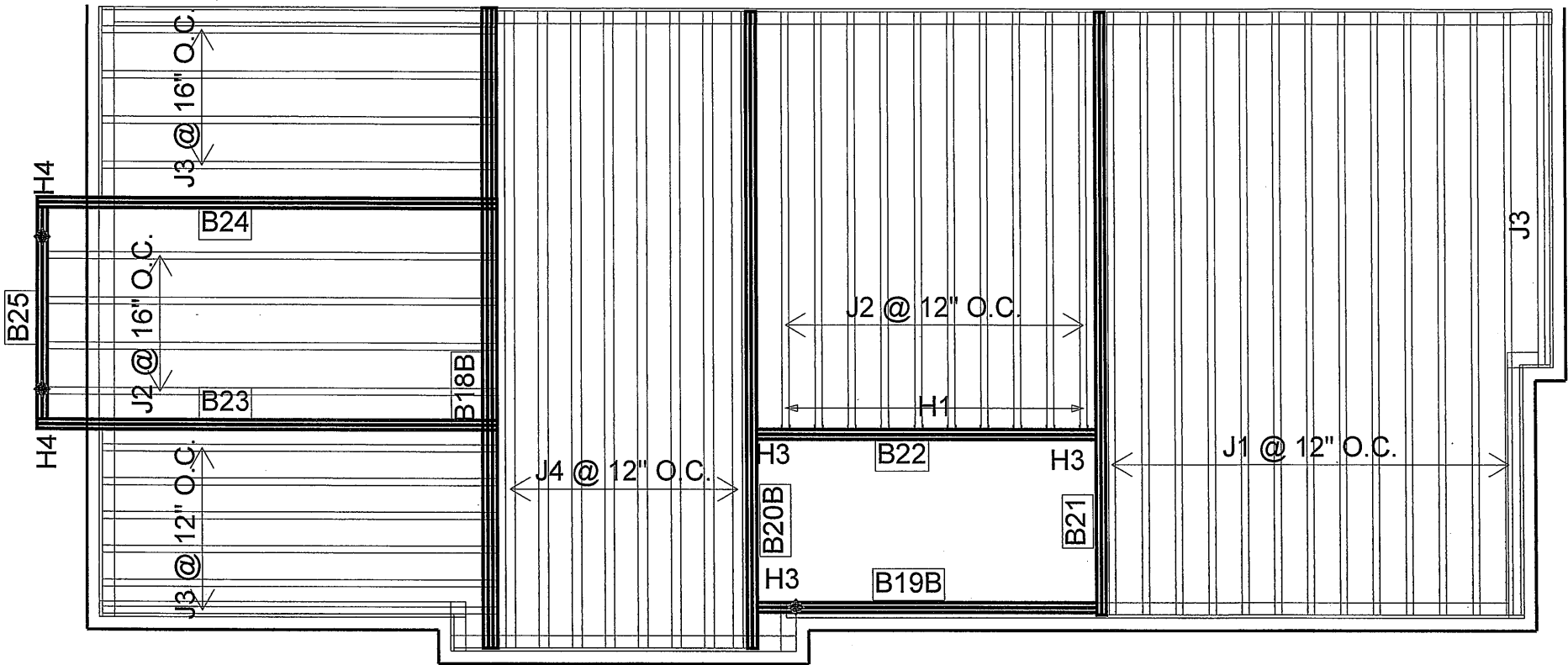
DWG# TAM 841518H THROUGH DWG# TAM 842218H INCLUSIVE DATED 11/21/18

SEALED STRUCTURAL COMPONENTS ONLY:
SEALED, THIRD PARTY LVL TYPE BEAMS, BUILT-UP CONVENTIONAL BEAMS, HEADERS, AND CONCENTRATED LOADED NORDIC WOOD-I JOIST ONLY. 2 X 6 SQUASH BLOCK REQUIRED AT ALL EXTERIOR SUPPORTS OR AS PER PROJECT ENGINEER'S SPECIFICATIONS. WEB FILLER REINFORCEMENT REQUIRED AT ALL HANGER SUPPORTED JOIST EXCEEDING A REACTION OF 1500 LBS (FACTORED)-SEE DETAILS.
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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 319547B
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL
COMPONENTS ONLY

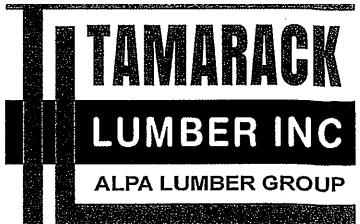


Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	13
J2	14-00-00	11 7/8" NI-40x	1	14
J3	12-00-00	11 7/8" NI-40x	1	11
J4	20-00-00	11 7/8" NI-80	1	8
B20B ✓	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18B ✓	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B21 ✓	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B23 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B24 ✓	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B19B ✓	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B22 ✓	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B25 ✓	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
3	H3	HGUS410
2	H4	HUC410

NOTES:
REFER TO THE **NORDIC**
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS SEE
FIGURE 1. **CANTILEVERED JOISTS**
INCLUDING **CANT' OVER BRICK** REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURE 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR **HOLES** INCLUDING **DUCT CHASE**
AND **FIELD CUT OPENINGS** SEE
FIGURE 7 TABLES 1 & 2 OF THE
INSTALLATION GUIDE. **CERAMIC TILE**
APPLICATION AS PER O.B.C. 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILED AREAS: 20 lb/ft₂

SUBFLOOR: 5/8" GLUE AND NAIL



FROM PLAN DATED:
FEB 2018

BUILDER:
ROYAL PINE HOMES

SITE:
FOREST SIDE
MODEL: UNIT 1804
CORNER
ELEVATION: B

LOT:

CITY: BRAMPTON

SALESMAN: M D
DESIGNER: AJ
REVISION:

DATE: 11/6/2018

3rd FLOOR

DATE 11/22/18

BCIN: 26064; FIRM: 29991

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

DWG# TAM 842478H THROUGH DWG# TAM 842678H, INCLUSIVE DATED 11/22/18

SEALED STRUCTURAL COMPONENTS ONLY: 841878H+841978H+842078H
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.
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REGISTERED FIRM: MICRO CITY ENGINEERING SERVICES INC.

DWG # TAM 3105578
BCIN: 26064
FIRM: 29991
SEALED STRUCTURAL
COMPONENTS ONLY



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.

2. I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.

3. Whenever possible, field-cut holes should be centred on the middle of the web.

4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
5. 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.

6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.

7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.

8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. 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.

10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.

11. Limit three maximum size holes per span, of which one may be a duct chase opening.

12. A group of round holes at approximately the same location should be permitted if they meet the requirements for a single round hole circumscribed around them.

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

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

1. Above table may be used for I-joint spacing of 24 inches on centre or less.

2. Hole location distance is measured from inside face of supports to centre of hole.

3. Distances in this chart are based on uniformly loaded joists.

4. 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.
1. Above table may be used for I-joint spacing of 24 inches on centre or less.

2. Duct chase opening location distance is measured from inside face of supports to centre of opening.

3. The above table is based on simple-span joists only. For other applications, contact your local distributor.

4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.

5. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

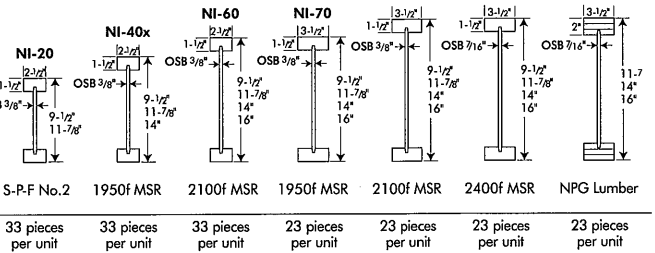


TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

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

1. Above table may be used for I-joint spacing of 24 inches on centre or less.

2. Duct chase opening location distance is measured from inside face of supports to centre of opening.

3. The above table is based on simple-span joists only. For other applications, contact your local distributor.

4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.

5. 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.
1. Above table may be used for I-joint spacing of 24 inches on centre or less.

2. Duct chase opening location distance is measured from inside face of supports to centre of opening.

3. The above table is based on simple-span joists only. For other applications, contact your local distributor.

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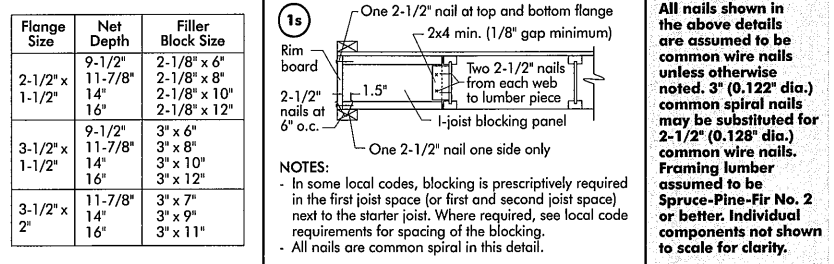
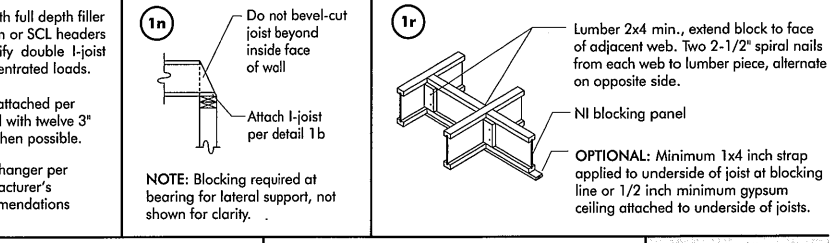
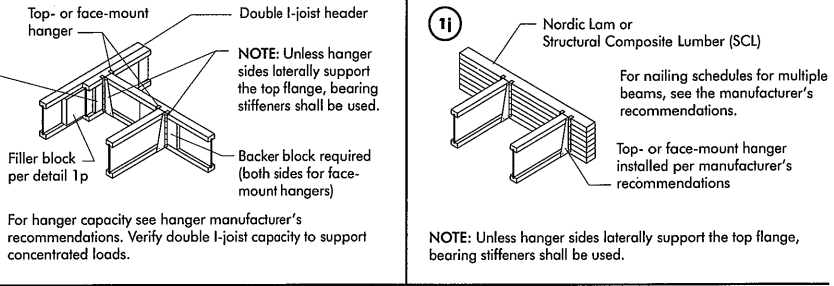
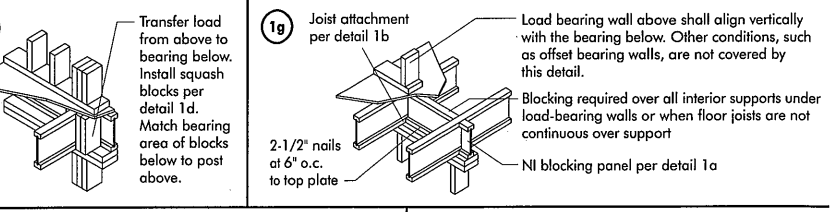
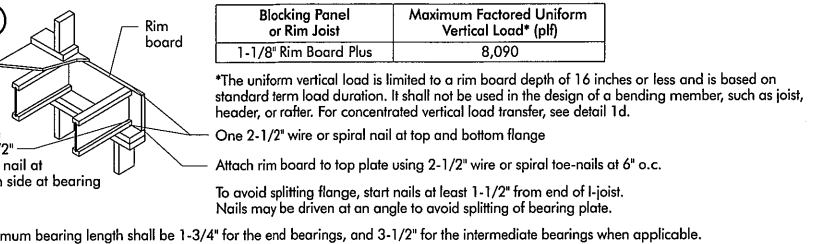
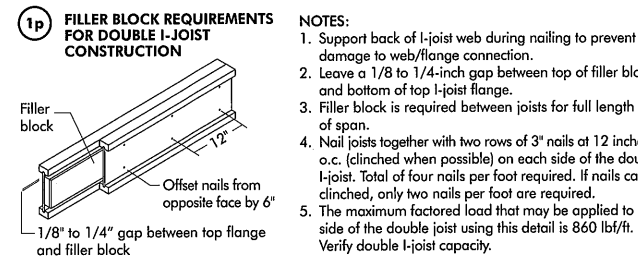
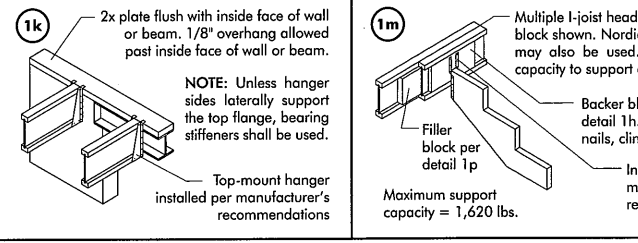
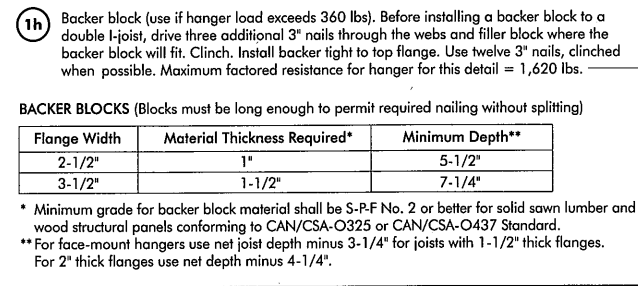
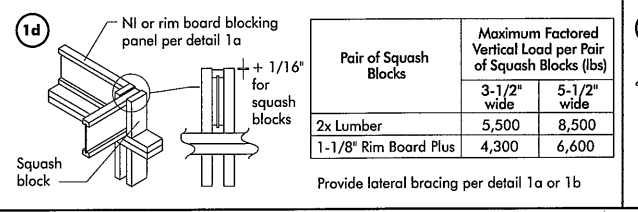
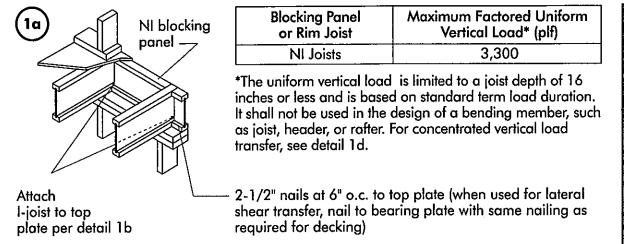
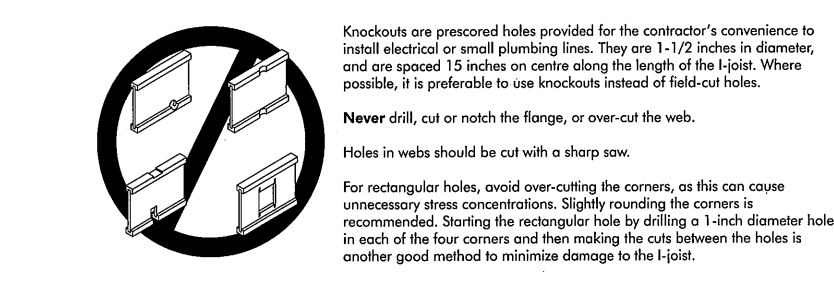
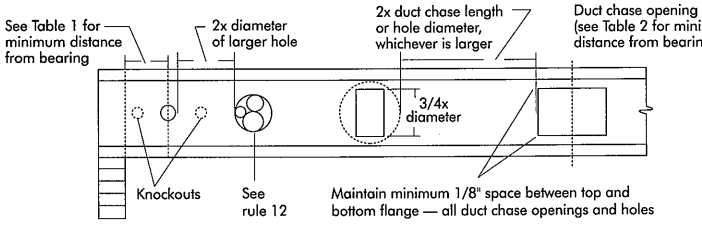



FIGURE 7
FIELD-CUT HOLE LOCATOR



SAFETY AND CONSTRUCTION PRECAUTIONS

- Do not walk on I-joists until fully fastened and braced, or serious injuries can result.
- Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.
- WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

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

PRODUCT WARRANTY

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

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

 - A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joint properties table found of the I-joint Construction Guide (C101). The gap between the stiffener and the flange is at the top.
 - A **bearing stiffener** is required when the I-joint is supported in a hanger and the sides of the hanger do not extend up to

Schedule 1: Designer Information

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

A. Project Information			Application number:	
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.		
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail	
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]				
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 30%;"> <input type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems </div> </div>				
Description of designer's work ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1804 - ELEV. A 1ST FLOOR – STANDARD (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31050-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
D. Declaration of Designer				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.				
Individual BCIN: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.				
Individual BCIN: _____				
Basis for exemption from registration: _____				
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.				
Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
Date		<u>11/22/18</u> Signature of Designer		

NOTE:

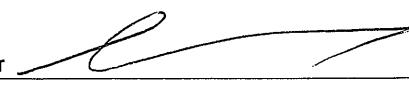
- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by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

DWG #TAM 31050-18
 DWG #TAM 31056-18

11/22/18

Schedule 1: Designer Information

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

A. Project Information			Application number:													
Building number, street name			Unit no.	Lot/con.												
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description														
B. Individual who reviews and takes responsibility for design activities																
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.														
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.												
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail													
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number														
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]																
<table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> House</td> <td><input type="checkbox"/> HVAC – House</td> <td><input checked="" type="checkbox"/> Building Structural</td> </tr> <tr> <td><input type="checkbox"/> Small Buildings</td> <td><input type="checkbox"/> Building Services</td> <td><input type="checkbox"/> Plumbing – House</td> </tr> <tr> <td><input type="checkbox"/> Large Buildings</td> <td><input type="checkbox"/> Detection, Lighting and Power</td> <td><input type="checkbox"/> Plumbing – All Buildings</td> </tr> <tr> <td><input type="checkbox"/> Complex Buildings</td> <td><input type="checkbox"/> Fire Protection</td> <td><input type="checkbox"/> On-site Sewage Systems</td> </tr> </table>					<input type="checkbox"/> House	<input type="checkbox"/> HVAC – House	<input checked="" type="checkbox"/> Building Structural	<input type="checkbox"/> Small Buildings	<input type="checkbox"/> Building Services	<input type="checkbox"/> Plumbing – House	<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings	<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems
<input type="checkbox"/> House	<input type="checkbox"/> HVAC – House	<input checked="" type="checkbox"/> Building Structural														
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<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings														
<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems														
Description of designer's work ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1804 - ELEV. B 1ST FLOOR – STANDARD (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31051-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.																
D. Declaration of Designer																
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)																
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.																
Individual BCIN: <u>26064</u>																
Firm BCIN: <u>29991</u>																
<input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.																
Individual BCIN: _____																
Basis for exemption from registration: _____																
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.																
Basis for exemption from registration and qualification: _____																
I certify that:																
1. The information contained in this schedule is true to the best of my knowledge.																
2. I have submitted this application with the knowledge and consent of the firm.																
Date		<u>11/24/18</u> Signature of Designer 														

NOTE:

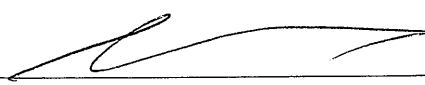
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DWG #TAM 31051-18
 DWG #TAM 31057-18

11/24/18


Schedule 1: Designer Information

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

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Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.		
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail	
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]				
<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 – FOREST SIDE – MODEL: UNIT 1804 - ELEV. A 2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31052-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
D. Declaration of Designer				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.				
Individual BCIN: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.				
Individual BCIN: _____				
Basis for exemption from registration: _____				
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.				
Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
Date		<u>11/27/18</u> Signature of Designer 		

NOTE:

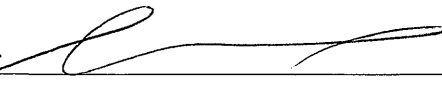
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DWG #TAM 31052-18S
 DWG #TAM 31052-18S

11/27/18
9

Schedule 1: Designer Information

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

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Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
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Street address R.R #1, PO BOX 61			Unit no.	Lot/con.
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail	
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number		
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Description of designer's work ROYAL PINE HOMES – FOREST SIDE – MODEL: UNIT 1804 - ELEV. B 2ND FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31053-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
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<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.				
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Individual BCIN: _____				
Basis for exemption from registration: _____				
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Basis for exemption from registration and qualification: _____				
I certify that:				
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2. I have submitted this application with the knowledge and consent of the firm.				
Date		11/24/18 Signature of Designer 		

NOTE:

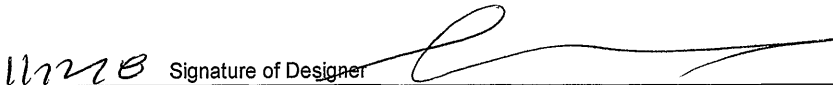
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DWG #TAM 31053-18S
 DWG #TAM 31059-18S

11/24/18


Schedule 1: Designer Information

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Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.		
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.
Municipality GLENCOE	Postal code NOL 1M0	Province ONTARIO	E-mail	
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]				
<div style="display: flex; justify-content: space-between;"> <div> <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 – FOREST SIDE – MODEL: UNIT 1804 - ELEV. A 3RD FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31054-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
D. Declaration of Designer				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.				
Individual BCIN: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: _____				
Basis for exemption from registration: _____				
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.				
Date		 Signature of Designer		

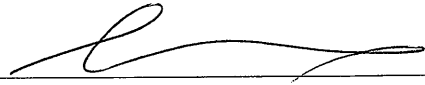
NOTE:

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

DWG #TAM 31054-18s
 DWG #TAM 3106018

Schedule 1: Designer Information

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

A. Project Information			Application number:	
Building number, street name			Unit no.	Lot/con.
Municipality CITY OF BRAMPTON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name SAM KATSOULAKOS		Firm MICRO CITY ENGINEERING SERVICES INC.		
Street address R.R #1, PO BOX 61			Unit no.	Lot/con.
Municipality GLENCOE	Postal code N0L 1M0	Province ONTARIO	E-mail	
Telephone number (519) 287-2242 Business	Fax number (519) 287-5750	Cell number		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]				
<div style="display: flex; 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 – FOREST SIDE – MODEL: UNIT 1804 - ELEV. B 3RD FLOOR (SCHEDULE IS NOT ISSUED AS LOT SPECIFIC) REVIEW PRE-ENGINEERED FLOOR SYSTEM COMPONENT DRAWINGS AND LAYOUT PLACEMENT PLAN SUPPLIED BY TAMARACK ROOF TRUSSES INC. (SEE DWG #TAM31055-18 DATED 11-12-18). SUPPORTING STRUCTURE TO BE REVIEWED AND VERIFIED BY QUALIFIED BUILDING DESIGNER.				
D. Declaration of Designer				
I, <u>SAM KATSOULAKOS</u> declare that (choose one as appropriate): (print name)				
<input checked="" type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.				
Individual BCIN: <u>26064</u>				
Firm BCIN: <u>29991</u>				
<input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.				
Individual BCIN: _____				
Basis for exemption from registration: _____				
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.				
Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
Date		Signature of Designer 		

NOTE:

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

DWG #TAM 31055 -185
 DWG #TAM 31056 -185

NORDIC STRUCTURES

COMPANY
J9 1ST FLOOR
July 6, 2018 16:22

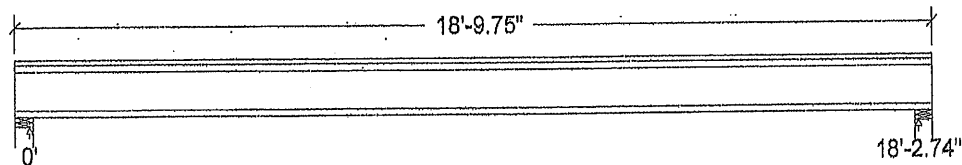
PROJECT
J4 3RD FLOOR
J4 3RD FLOOR EL B

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

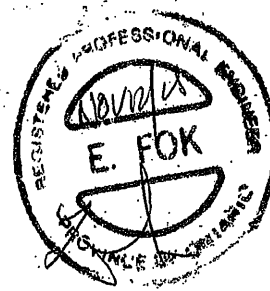
Loads:

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

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



Unfactored:			
Dead	182		182
Live	365		365
Factored:			
Total	775		775
Bearing:			
Resistance			
Joist	2336		2336
Support	10841		10841
Des ratio			
Joist	0.33		0.33
Support	0.07		0.07
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.15		1.15



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

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

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

Total length: 18'-9.75"; Clear span: 18'-0.99"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

DWANO.TAM 0398-18 1/4
STRUCTURAL
COMPONENT ONLY
10/1/18

T-1811508

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 775	Vr = 2336	lbs	Vf/Vr = 0.33
Moment (+)	Mf = 3530	Mr = 11609	lbs-ft	Mf/Mr = 0.30
Perm. Defl'n	0.09 = < L/999	0.61 = L/360	in	0.15
Live Defl'n	0.19 = < L/999	0.46 = L/480	in	0.41
Total Defl'n	0.28 = L/776	0.91 = L/240	in	0.31
Bare Defl'n	0.21 = < L/999	0.61 = L/360	in	0.34
Vibration	Lmax = 18'-2.8	Lv = 20'-5.8	ft	0.89
Defl'n	= 0.026	= 0.034	in	0.75

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
 Moment (+) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #2 = 1.0D + 1.0L (live)
 LC #2 = 1.0D + 1.0L (total)
 LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L
 Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
 L=live(use, occupancy) Ls=live(storage, equipment) f=fire

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

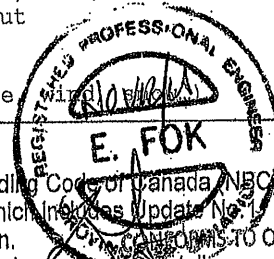
CALCULATIONS:

Deflection: E_{IEff} = 613e06 lb-in² K = 6.18e06 lbs

"Live" deflection = Deflection from all non-dead loads (live)

Design Notes:

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



DWG NO. TAM B398-18 H
 STRUCTURAL
 COMPONENT ONLY

T. L. (5086)



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Dropped Beams\B2 DR(12658)**

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Dro...ed Beams\B2 DR(12658)

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

Specifier:

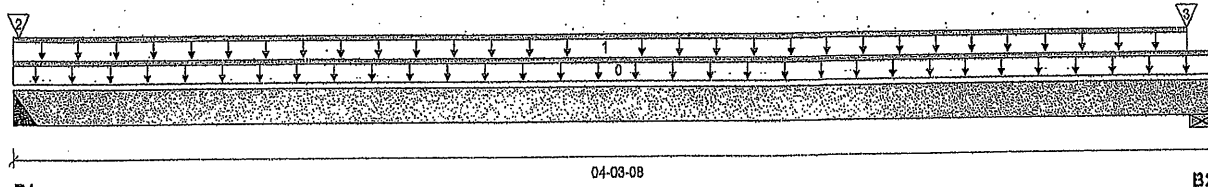
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 04-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	63 / 0	58 / 0		
B2, 3-1/2"	61 / 0	58 / 0		

Load Summary

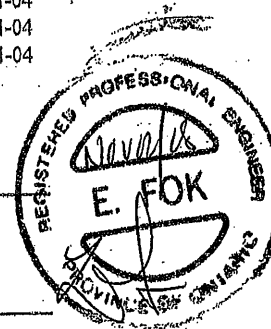
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-03-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	R1(12828)	Unf. Lin. (lb/ft)	L	00-00-00	04-02-06	Top	28	16			n/a
2	R1(12828)	Conc. Pt. (lbs)	L	00-00-04	00-00-04	Top	5	4			n/a
3	R1(12828)	Conc. Pt. (lbs)	L	04-02-06	04-02-06	Top	3	1			n/a

Controls Summary

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

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2-1/2" x 3-1/2"	167 lbs	n/a	1.6%	HUC410
B2	Wall/Plate 3-1/2" x 3-1/2"	161 lbs	0.9%	1.1%	Unspecified

**Cautions**

Header for the hanger-HUC410 at B1 is a Triple 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code: Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

CONFORMS TO OBC 2012

DWG NO. TAM B399-18 H
STRUCTURAL
COMPONENT ONLY

T. L. 18/509



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****1ST FLOOR FRAMING\Dropped Beams\B2 DR(12658)****PASSED**

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 6, 2018 14:05:35

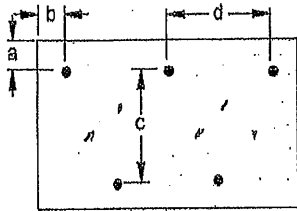
File name: UNIT 1804 CORNER new.mmdl

Description: 1ST FLOOR FRAMING\Dro...ed Beams\B2 DR(12658)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

4 rows
 2" (min)
 1"

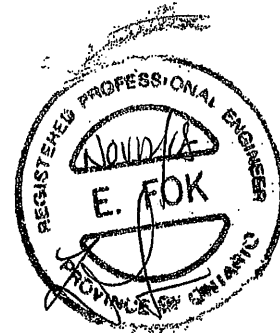
a minimum = 1"
 b minimum = 3"

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

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

Member has no side loads.

Connectors are: 16d Nails

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

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

DWG NO. TAM 839918
 STRUCTURAL
 COMPONENT ONLY

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

T-1845096



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1 DR\12853

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B1 DR\12853

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

Specifier:

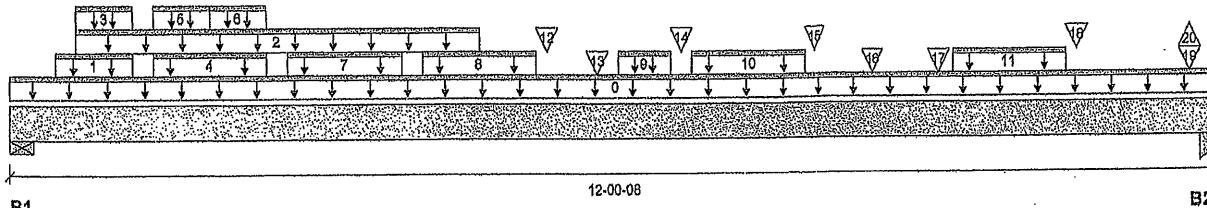
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



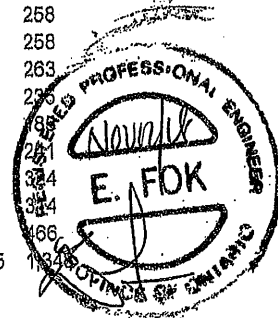
Total Horizontal Product Length = 12-00-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	3,758 / 0	2,437 / 0		
B2, 5-1/4"	5,381 / 4	3,891 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-08	Top		18			00-00-00
1	Bk1(12691)	Unf. Lin. (lb/ft)	L	00-05-08	01-02-12	Top		81			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-08-00	04-08-00	Top	417	222			n/a
3	Bk1(12691)	Unf. Lin. (lb/ft)	L	00-08-00	01-02-12	Top	328	164			n/a
4	Bk1(12798)	Unf. Lin. (lb/ft)	L	01-05-04	02-06-12	Top		81			n/a
5	Bk1(12798)	Unf. Lin. (lb/ft)	L	01-05-04	02-00-00	Top	328	164			n/a
6	Bk1(12798)	Unf. Lin. (lb/ft)	L	02-00-00	02-06-12	Top	354	177			n/a
7	Bk1(12809)	Unf. Lin. (lb/ft)	L	02-09-04	03-10-12	Top	354	258			n/a
8	Bk1(12809)	Unf. Lin. (lb/ft)	L	04-01-04	05-02-12	Top	354	258			n/a
9	Bk1(12751)	Unf. Lin. (lb/ft)	L	06-00-08	06-06-12	Top	354	258			n/a
10	Bk1(12809)	Unf. Lin. (lb/ft)	L	06-09-04	07-10-12	Top	354	258			n/a
11	Bk1(12809)	Unf. Lin. (lb/ft)	L	09-05-04	10-06-12	Top	354	258			n/a
12	-	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	475	263			n/a
13	J2(12664)	Conc. Pt. (lbs)	L	05-10-00	05-10-00	Top	388	235			n/a
14	-	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	454	281			n/a
15	-	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	447	281			n/a
16	-	Conc. Pt. (lbs)	L	08-07-06	08-07-06	Top	511	324			n/a
17	-	Conc. Pt. (lbs)	L	09-03-07	09-03-07	Top	548	334			n/a
18	-	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	757	466			n/a
19	B4(12855)	Conc. Pt. (lbs)	L	11-09-14	11-09-14	Top	1,485	1,324			n/a
20	B4(12855)	Conc. Pt. (lbs)	L	11-09-14	11-09-14	Top	-4				n/a



Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	26,923 ft-lbs	55,212 ft-lbs	48.8%	1	05-10-00
End Shear	8,738 lbs	21,696 lbs	40.3%	1	10-07-06
Total Load Deflection	L/446 (0.308")	n/a	53.8%	6	06-00-08
Live Load Deflection	L/732 (0.187")	n/a	49.2%	8	06-00-08
Max Defl.	0.308"	n/a	n/a	6	06-00-08
Span / Depth	11.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	8,684 lbs	33.4%	38.7%	Unspecified
B2	Column 5-1/4" x 5-1/4"	12,935 lbs	57.8%	38.5%	Unspecified

DWG NO. TAM B400-18-14
STRUCTURAL
COMPONENT ONLY

T-181510



Boise Cascade

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B1 DR\12853**

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1804 CORNER new.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1 DR\12853

Specifier:

Designer: AJ

Company:

Notes

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

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

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

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

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

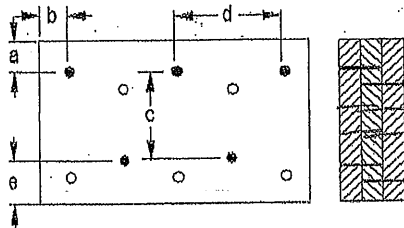
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor : Normal Part code : Part 9

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

Nailing schedule applies to both sides of the member.

Connection Diagram: Full Length of Member

a minimum = 1/2"

b minimum = 3"

c = 8-7/8"

d = 6"

e minimum = 1/2"

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

Nailing schedule applies to both sides of the member.

Connectors are: Nails

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

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

DWG NO. TAM 8400-18H
STRUCTURAL
COMPONENT ONLY

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

T. 8150 (r)



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B10(i2851)

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

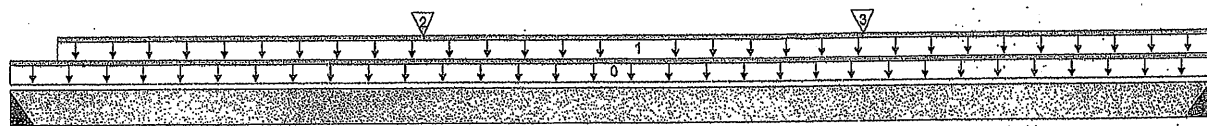
File name: UNIT 1804 CORNER new.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B10(i2851)

Specifier:

Designer: AJ

Company:



B1

03-07-12

B2

Total Horizontal Product Length = 03-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	499 / 0	258 / 0		
B2, 2"	541 / 0	279 / 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	03-07-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-01-12	03-07-12	Top	240	120			n/a
2	J8(i2865)	Conc. Pt. (lbs)	L	01-03-00	01-03-00	Top	105	52			n/a
3	J8(i2863)	Conc. Pt. (lbs)	L	02-07-00	02-07-00	Top	95	47			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	986 ft-lbs	11,610 ft-lbs	8.5%	1	01-09-08
End Shear	665 lbs	5,785 lbs	11.5%	1	02-08-04
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	01-10-00
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	01-10-00
Max Defl.	0.006"	n/a	n/a	4	01-10-00
Span / Depth	4.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,070 lbs	n/a	25.1%	Hanger
B2	Hanger 2" x 1-3/4"	1,160 lbs	n/a	27.2%	Hanger

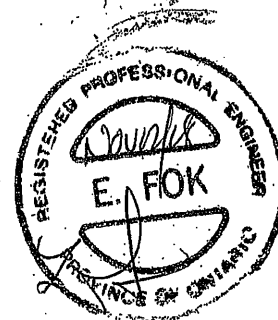
Cautions

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

Notes

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

CONFORMS TO OBC 2012



Disclosure

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

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

DWG NO. TAM B401 1811
 STRUCTURAL
 COMPONENT ONLY

Handwritten signature/initials.



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B3(12849)**

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B3(12849)

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

Specifier:

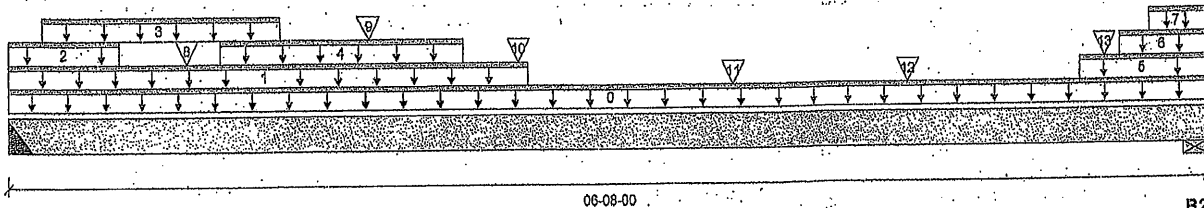
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 06-08-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1,557 / 0	1,004 / 0		
B2, 5-1/2"	1,746 / 0	1,036 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary 00-00-00
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-08-00	Top		10			n/a
1	2(1188)	Unf. Lin. (lb/ft)	L	00-00-00	02-10-08	Top		81			n/a
2	2(1188)	Unf. Lin. (lb/ft)	L	00-00-00	00-07-08	Top	218	105			n/a
3	2(1188)	Unf. Lin. (lb/ft)	L	00-02-04	01-06-04	Top	251	126			n/a
4	2(1188)	Unf. Lin. (lb/ft)	L	01-02-04	02-06-04	Top	266	133			n/a
5	5(1286)	Unf. Lin. (lb/ft)	L	05-11-08	06-08-00	Top		81			n/a
6	5(1286)	Unf. Lin. (lb/ft)	L	06-02-04	06-08-00	Top	108	54			n/a
7	5(1286)	Unf. Lin. (lb/ft)	L	06-04-04	06-08-00	Top	206	103			n/a
8	J5(12673)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	173	86			n/a
9	J6(12680)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	188	94			n/a
10	-	Conc. Pt. (lbs)	L	02-09-14	02-09-14	Top	842	440			n/a
11	J7(11862)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	129	65			n/a
12	J8(12788)	Conc. Pt. (lbs)	L	05-00-00	05-00-00	Top	188	94			n/a
13	-	Conc. Pt. (lbs)	L	06-01-04	06-01-04	Top	843				n/a

Controls Summary

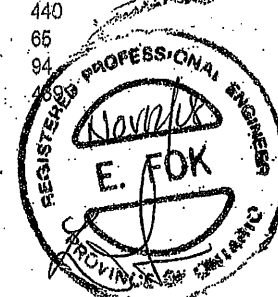
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,153 ft-lbs	23,220 ft-lbs	22.2%	1	02-09-08
End Shear	2,883 lbs	11,571 lbs	24.9%	1	01-00-08
Total Load Deflection	L/999 (0.045")	n/a	n/a	4	03-01-08
Live Load Deflection	L/999 (0.028")	n/a	n/a	5	03-01-08
Max Defl.	0.046"	n/a	n/a	4	03-01-08
Span / Depth	7.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 3-1/2"	3,591 lbs	n/a	28.0%	HGUS410
B2 Wall/Plate	5-1/2" x 3-1/2"	3,915 lbs	38.1%	16.7%	Unspecified

Cautions

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



DWG NO. TAM8402-18 H
STRUCTURAL
COMPONENT ONLY

T. Wilson



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B3(12849)**

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

File name: UNIT 1804 CORNER new.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3(12849)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

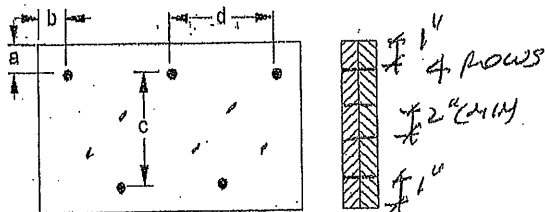
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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

Connection Diagram: Full Length of Member

a minimum = 1"

b minimum = 3"

c = 1 1/2"

d = 6"

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

Connectors are: 16d 1. Nails

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

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DWANG, TAM BY 2018 H
STRUCTURAL
COMPONENT ONLY

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

2018/5/26



Boise Cascade



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

1ST FLOOR FRAMING\Flush Beams\B4(i2855)

PASSED

BC CALCO® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B4(i2855)

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

Specifier:

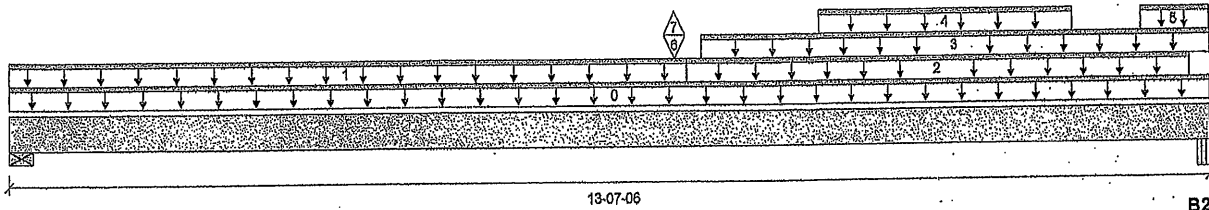
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 13-07-06

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	1,057 / 3	825 / 0		
B2, 5-1/4"	1,481 / 4	1,345 / 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	13-07-06	Top		14			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-07-06	Top	47	24			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	07-07-06	13-04-12	Top	28	14			n/a
3	3(192)	Unf. Lin. (lb/ft)	L	07-09-06	13-07-06	Top		81			n/a
4	3(192)	Unf. Lin. (lb/ft)	L	09-01-10	12-00-10	Top	53	21			n/a
5	3(192)	Unf. Lin. (lb/ft)	L	12-10-02	13-07-08	Top	254	120			n/a
6	-	Conc. Pt. (lbs)	L	07-05-11	07-05-11	Top	1,860	1,084			n/a
7	-	Conc. Pt. (lbs)	L	07-05-11	07-05-11	Top	-7				n/a

Controls Summary

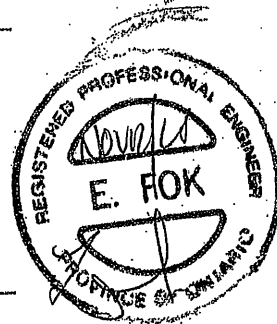
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	15,875 ft-lbs	36,222 ft-lbs	43.8%	1	07-05-10
End Shear	3,453 lbs	17,358 lbs	19.9%	1	12-04-10
Total Load Deflection	L/396 (0.397")	n/a	60.5%	6	06-11-09
Live Load Deflection	L/712 (0.221")	n/a	50.6%	8	06-10-05
Max Defl.	0.397"	n/a	n/a	6	06-11-09
Span / Depth	16.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 5-1/4"	2,617 lbs	39.3%	17.2%	Unspecified
B2	Beam 5-1/4" x 5-1/4"	3,903 lbs	13.0%	11.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 CONFORMS TO OBC 2012
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Nailing schedule applies to both sides of the member.



DWG NO. TAM B403-18 H
 STRUCTURAL
 COMPONENT ONLY

TL81513



Boise Cascade



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

1ST FLOOR FRAMING\Flush Beams\B4(12855)

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 6, 2018 14:05:35

File name: UNIT 1804 CORNER new.mmdl

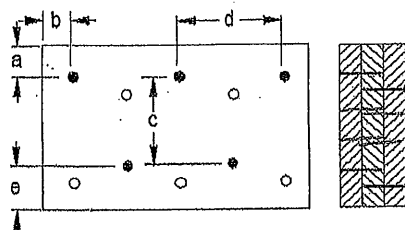
Description: 1ST FLOOR FRAMING\Flush Beams\B4(12855)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



4 rows

a minimum = 8"

b minimum = 3"

c = 6 1/2"

d = 12 1/4"

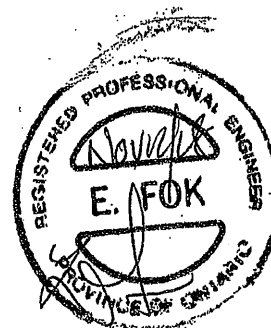
e minimum = 3"

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



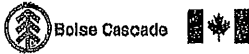
Disclosure

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DWG NO. TAM B40318H
STRUCTURAL
COMPONENT ONLY per

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

T-Lusurlo

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

BC CALC® Member Report

1ST FLOOR FRAMING\Flush Beams\B5(i2856)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B5(i2856)

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

Specifier:

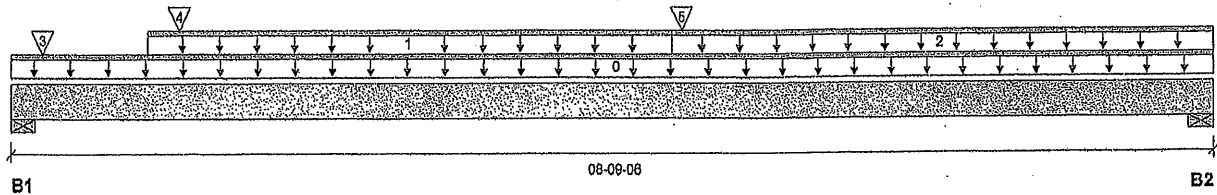
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-09-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 9-1/2"	3,541 / 0	3,972 / 0	1,798 / 0	
B2, 4-3/8"	401 / 0	251 / 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	08-09-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	04-09-08	Top	13				n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-09-08	08-09-06	Top	38	19			n/a
3	E28(i2867)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	3,237	3,696	1,798		n/a
4	E9(i179)	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top		81			n/a
5	B10(i2851)	Conc. Pt. (lbs)	L	04-10-06	04-10-06	Top	505	261			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,601 ft-lbs	23,220 ft-lbs	11.2%	1	04-10-06
End Shear	808 lbs	11,571 lbs	7.0%	1	07-07-08
Total Load Deflection	L/999 (0.034")	n/a	n/a	35	04-08-05
Live Load Deflection	L/999 (0.021")	n/a	n/a	51	04-08-05
Max Defl.	0.034"	n/a	n/a	35	04-08-05
Span / Depth	9.8				

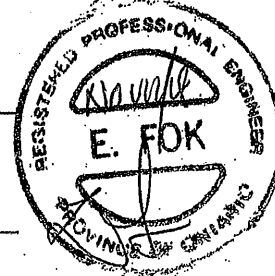
TOP EDGE
LOADED
ONLY.**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 9-1/2" x 3-1/2"	12,075 lbs	68.0%	29.8%	Unspecified
B2	Wall/Plate 4-3/8" x 3-1/2"	915 lbs	11.2%	4.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-06-08, Bottom: 00-06-08.
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
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO OBC 2012

DWG NO. TAM 0404184
STRUCTURAL
COMPONENT ONLY

T-1813up



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****1ST FLOOR FRAMING\Flush Beams\B5\12856****PASSED**

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports:- CCMC 12472-R

Dry | 1 span | No cant.

July 6, 2018 14:05:35

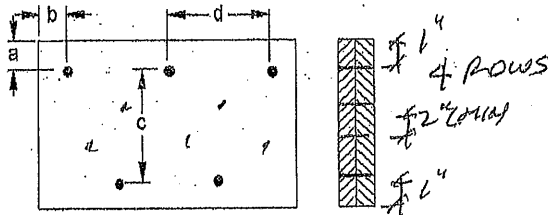
File name: UNIT 1804 CORNER new.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5\12856

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

a minimum = 1/2"

b minimum = 3"

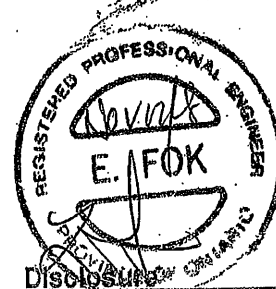
c = 3-1/2"

d = 4"

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

Connectors are:

Nails

3-1/2" ARDOX SPIRAL

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DWG NO. TAM 0404-18H
STRUCTURAL
COMPONENT ONLY

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

T. L8115ue6y



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B6(12866)

BC CALCO® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6476

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B6(12866)

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

Specifier:

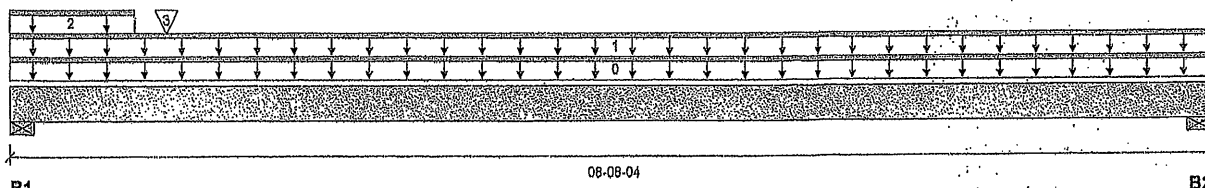
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	44 / 0	158 / 0		
B2, 4-3/8"	46 / 0	72 / 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	08-08-04	Top		10			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-08-04	Top	10	5			n/a
2	E7(177)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-14	Top		81			n/a
3	E6(185)	Conc. Pt. (lbs)	L	01-01-10	01-01-10	Top		28			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	215 ft-lbs	15,093 ft-lbs	1.4%	0	03-10-00
End Shear	179 lbs	7,521 lbs	2.4%	0	00-11-14
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	04-02-13
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	04-02-13
Max Defl.	0.006"	n/a	n/a	4	04-02-13
Span / Depth	10.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 2-3/8" x 3-1/2"	221 lbs	7.7%	3.4%	Unspecified
B2	Wall/Plate 4-3/8" x 3-1/2"	159 lbs	1.9%	0.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

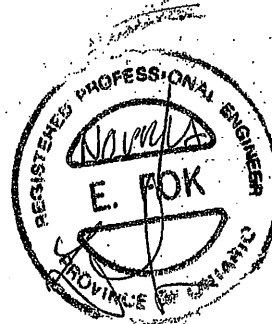
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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

Member has no side loads.



DWG NO. TAM B405-18 H
STRUCTURAL
COMPONENT ONLY

T-180515



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

PASSED

BC CALC® Member Report
Build 6475

1ST FLOOR FRAMING\Flush Beams\B6(12866)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B6(12866)

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

Specifier:

Customer:

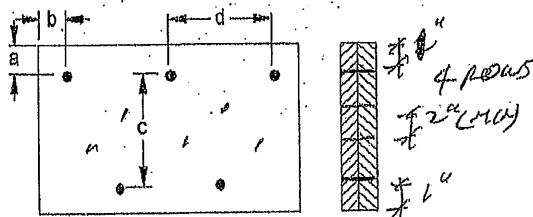
Designer: AJ

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

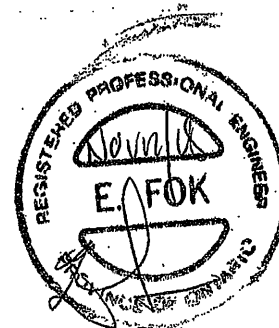
c = 3-1/2"
d = 12"

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

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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DWAND.TAM 040518 H
STRUCTURAL
COMPONENT ONLY
BC CALC®, BC FRAMER®, AJST®,
ALLJOIST®, BC RIM BOARD™, BC®,
BOISE GLULAM™, BC FloorValue®,
VERSA-LAM®, VERSA-RIM PLUS®.

T-184518(v)



Boise Cascade



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

1ST FLOOR FRAMING\Flush Beams\B8(i2857)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B8(i2857)

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

Specifier:

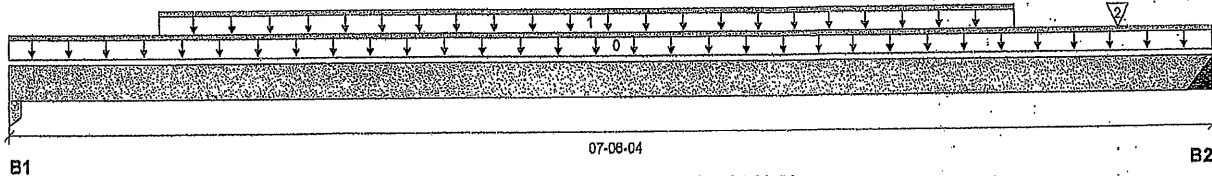
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	271 / 0	153 / 0		
B2, 2"	322 / 0	177 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-06-04	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-04	06-03-04	Top	94	46			n/a
2	J7(i2843)	Conc. Pt. (lbs)	L	06-11-04	06-11-04	Top	93	46			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,304 ft-lbs	11,610 ft-lbs	11.2%	1	04-03-04
End Shear	605 lbs	5,785 lbs	10.5%	1	06-06-12
Total Load Deflection	L/999 (0.034")	n/a	n/a	4	03-10-04
Live Load Deflection	L/999 (0.022")	n/a	n/a	5	03-10-04
Max Defl.	0.034"	n/a	n/a	4	03-10-04
Span / Depth	9.1				

Bearing Supports

			Demand/Resistance Support	Demand/Resistance Member	
Bearing Supports	Dim. (LxW)	Demand			Material
B1	Column	3-1/2" x 1-3/4"	598 lbs	12.0%	8.0%
B2	Hanger	2" x 1-3/4"	704 lbs	n/a	16.5%
					Unspecified Hanger

Cautions

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

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC2012

Disclosure

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

DRG NO. YAM B40618 H
STRUCTURAL
COMPONENT ONLY

T-181816



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B9(12847)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

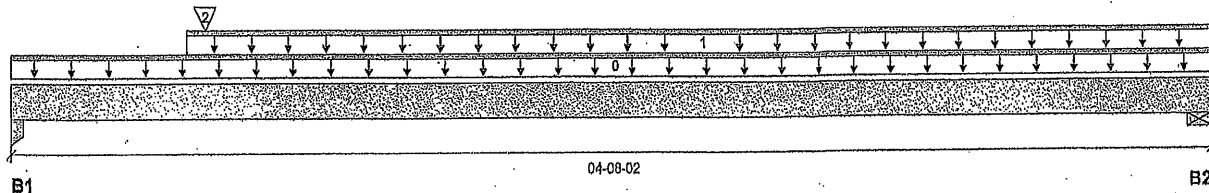
File name: UNIT 1804 CORNER new.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B9(12847)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	496 / 0	266 / 0		
B2, 4-3/8"	149 / 0	87 / 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	04-08-02	Top	5				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-08-04	04-08-02	Top	27	13			n/a
2	B10(12851)	Conc. Pt. (lbs)	L	00-09-02	00-09-02	Top	535	276			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	723 ft-lbs	11,610 ft-lbs	6.2%	1	00-09-02
End Shear	813 lbs	5,785 lbs	14.1%	1	00-11-04
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	01-11-14
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	01-11-14
Max Defl.	0.006"	n/a	n/a	4	01-11-14
Span / Depth	5.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	1,077 lbs	43.3%	28.8%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	332 lbs	8.1%	3.6%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

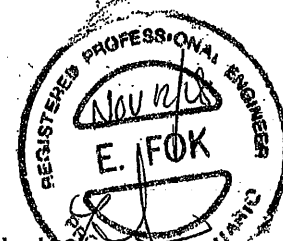
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



Disclosures

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BWONG TAM 040718H
STRUCTURAL
COMPONENT ONLY

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

T-1811517



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING/Dropped Beams\B17 DR\2651)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 2ND FLOOR FRAMING\Drop...d Beams\B17 DR\2651)

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

Specifier:

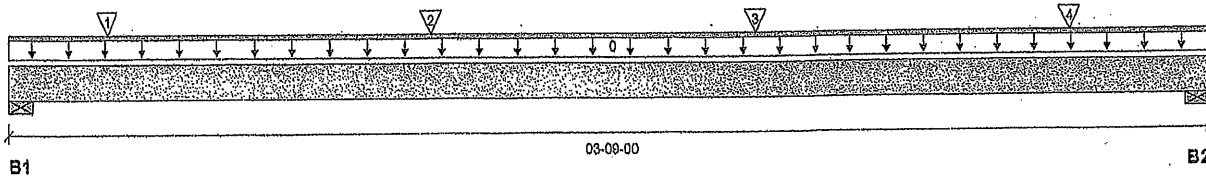
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	727 / 0	382 / 0		
B2, 4"	673 / 0	354 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-00	Top		10			00-00-00
1	-	Conc. Pt. (lbs)	L	00-03-12	00-03-12	Top	350	175			n/a
2	-	Conc. Pt. (lbs)	L	01-03-12	01-03-12	Top	350	175			n/a
3	-	Conc. Pt. (lbs)	L	02-03-12	02-03-12	Top	350	175			n/a
4	-	Conc. Pt. (lbs)	L	03-03-12	03-03-12	Top	350	175			n/a

Controls Summary

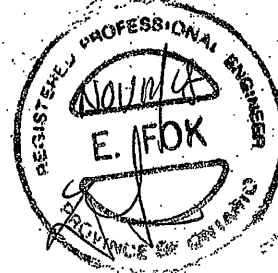
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	939 ft-lbs	23,220 ft-lbs	4.0%	1	02-03-12
End Shear	810 lbs	11,571 lbs	7.0%	1	01-01-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-10-08
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-10-08
Max Defl.	0.002"	n/a	n/a	4	01-10-08
Span / Depth	4.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1,568 lbs	13.8%	9.2%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	1,452 lbs	12.8%	8.5%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-02-00, Bottom: 00-02-00.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 CONFORMS TO OBC 2012.
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Member has no side loads.



DWG NO. TAM 840814
 STRUCTURAL
 COMPONENT ONLY

T-1811518



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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B17 DR(i2651)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 2ND FLOOR FRAMING\Dro...d Beams\B17 DR(i2651)

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

Specifier:

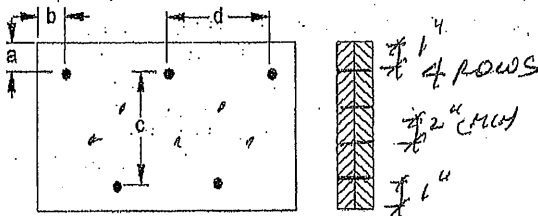
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 8"

c = 3-1/2"

b minimum = 3"

d = 6"

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

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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OWNED, TAM BY 040818H
STRUCTURAL
COMPONENT ONLY

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

2018/5/8 (v)



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B11(12850)**

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11(12850)

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

Specifier:

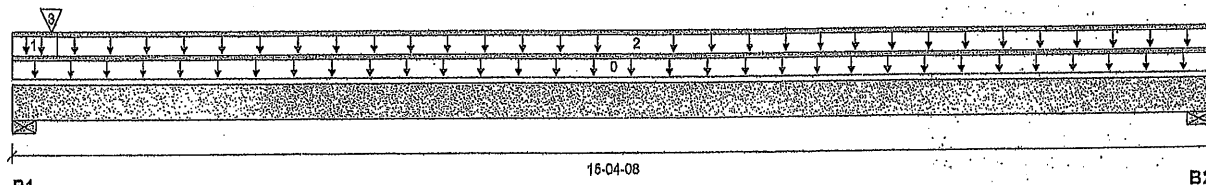
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 15-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 9"	3,237 / 0	3,637 / 0	1,798 / 0	
B2, 3-1/2"		605 / 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	15-04-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	E27(12639)	Unf. Lin. (lb/ft)	L	00-00-00	00-07-00	Top		82			n/a
2	E21(1870)	Unf. Lin. (lb/ft)	L	00-07-00	15-04-08	Top		72			n/a
3		Conc. Pt. (lbs)	L	00-06-02	00-06-02	Top	(3,237	2,989	1,798		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,968 ft-lbs	15,093 ft-lbs	19.7%	0	07-11-00
End Shear	724 lbs	7,521 lbs	9.6%	0	01-06-08
Total Load Deflection	L/1,088 (0.159")	n/a	22.1%	35	07-11-00
Max Defl.	0.159"	n/a	n/a	35	07-11-00
Span / Depth	18.3				

TOP ENDS
LOADED
ONLY

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 9" x 3-1/2"	11,200 lbs	66.6%	29.1%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	847 lbs	19.9%	8.7%	Unspecified

Notes

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

Calculations assume member is fully braced.

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

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

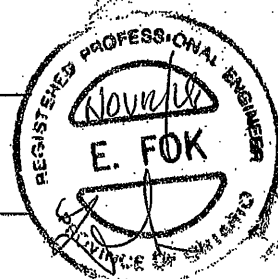
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor : Normal Part code : Part 9

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

DWG NO. TAM B40918H
STRUCTURAL
COMPONENT ONLY

T-18519



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B11(I2850)**

Dry | 1 span | No cant.

PASSED

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

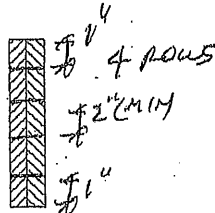
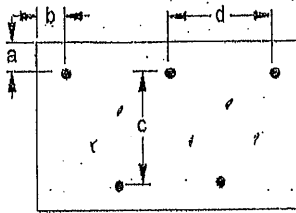
File name: UNIT 1804 CORNER new.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(I2850)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

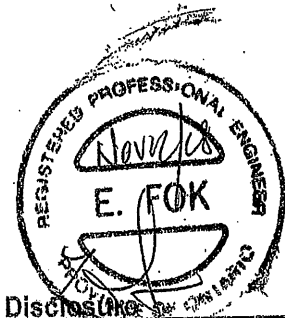
a minimum = 1/2"
b minimum = 3"

c = 1-1/2"
d = 12"

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

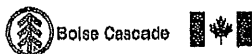
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DWG NO. TAM 0409-18 H
STRUCTURAL
COMPONENT ONLY

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

T. L. (15186)

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B12(I2848)**

July 6, 2018 14:05:35

BC CALC® Member Report

Dry | 1 span | No cant.

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B12(I2848)

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

Specifier:

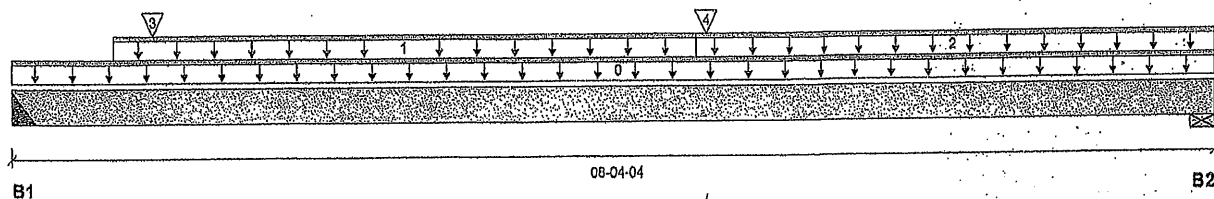
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-04-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	403 / 0	245 / 0		
B2, 2-3/4"	448 / 0	269 / 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	08-04-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-08-08	04-08-08	Top	22	11			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-08-08	08-04-04	Top	40	20			n/a
3	FC2 Floor Material	Conc. Pt. (lbs)	L	00-11-13	00-11-13	Top	113	57			n/a
4	B16(I2756)	Conc. Pt. (lbs)	L	04-09-06	04-09-06	Top	504	260			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,819 ft-lbs	23,220 ft-lbs	12.1%	1	04-09-06
End Shear	910 lbs	11,571 lbs	7.9%	1	07-04-00
Total Load Deflection	L/999 (0.04")	n/a	n/a	4	04-02-15
Live Load Deflection	L/999 (0.025")	n/a	n/a	5	04-02-15
Max Defl.	0.04"	n/a	n/a	4	04-02-15
Span / Depth	10.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	910 lbs	n/a	10.7%	Hanger
B2	Wall/Plate 2-3/4" x 3-1/2"	1,009 lbs	19.6%	8.6%	Unspecified

Cautions

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

Notes

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

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

Calculations assume unbraced length of Top: 00-07-06, Bottom: 00-07-06.

Hanger Manufacturer: Unassigned

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

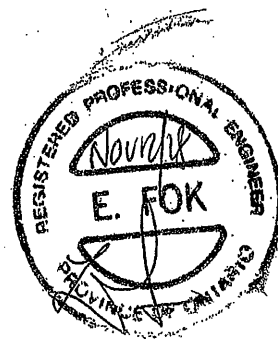
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

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





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

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B12(12848)

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

Specifier:

Customer:

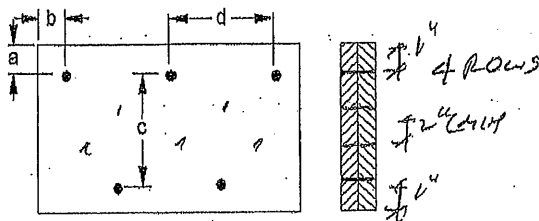
Designer: AJ

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 1/2"

c = 1-1/2"

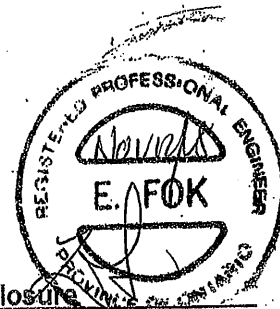
b minimum = 3"

d = 6"

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL



Disclosure

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

DRG NO. TAM 8410.18 H
STRUCTURAL
COMPONENT ONLY

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

T-181520(5)



BOLSE CASCADE



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B13(i4051)

BC CALC® Member Report

Dry | 1 span | No cant.

November 8, 2018 11:08:26

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B13(i4051)

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

Specifier:

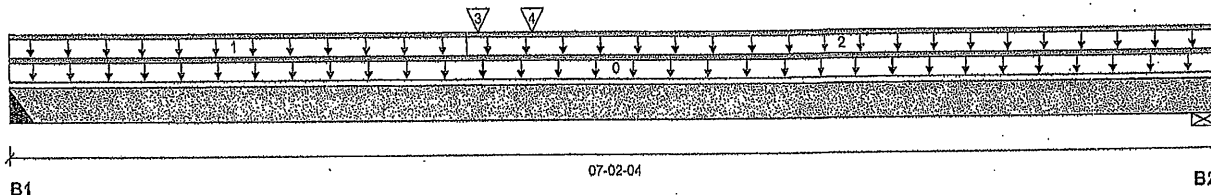
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	749 / 0	424 / 0		
B2, 2-3/4"	510 / 0	300 / 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	07-02-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-08-08	Top	11	6			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-08-08	07-02-04	Top	19	10			n/a
3	B15(i4067)	Conc. Pt. (lbs)	L	02-09-06	02-09-06	Top	1,105	578			n/a
4	STAIR	Conc. Pt. (lbs)	L	03-01-02	03-01-02	Top	37	18			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,290 ft-lbs	23,220 ft-lbs	18.5%	1	02-09-06
End Shear	1,620 lbs	11,571 lbs	14.0%	1	00-11-08
Total Load Deflection	L/999 (0.042")	n/a	n/a	4	03-04-09
Live Load Deflection	L/999 (0.027")	n/a	n/a	5	03-04-09
Max Defl.	0.042"	n/a	n/a	4	03-04-09
Span / Depth	8.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	1,654 lbs	n/a	19.4%	HUC410
B2	Wall/Plate 2-3/4" x 3-1/2"	1,139 lbs	27.7%	9.7%	Unspecified

Cautions

Header for the hanger HUC410 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO CBC 2012

OWNED, TAM B411 - 10/11
 STRUCTURAL
 COMPONENT ONLY

T-L81521



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

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 8, 2018 11:06:26

File name: UNIT 1804 CORNER EL B.mmdl

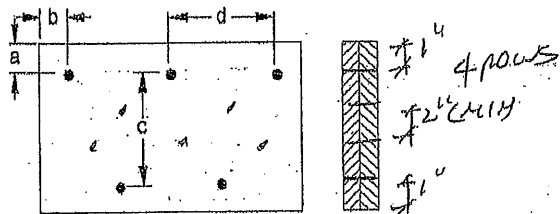
Description: 2ND FLOOR FRAMING\Flush Beams\B13(i4051)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

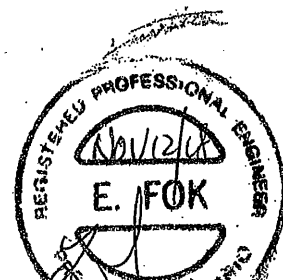


a minimum = 1"
b minimum = 3"

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

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Connectors are: 16d Nails

3/4" ARDOX SPIRAL



Disclosure

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DRG NO. TAM 8411 - 18
STRUCTURAL
COMPONENT ONLY P6/2

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

FL852165



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

2ND FLOOR FRAMING\Flush Beams\B14(i2768)

Dry | 2 spans | L cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

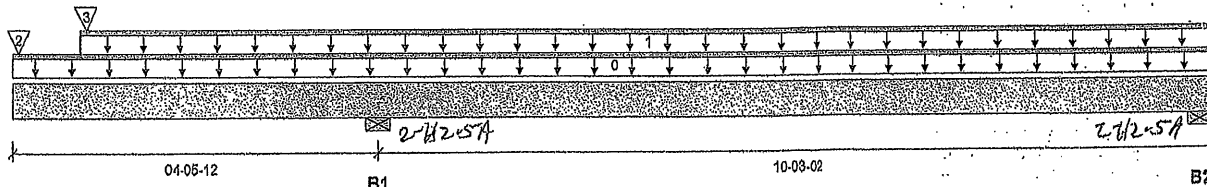
File name: UNIT 1804 CORNER new.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B14(i2768)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 14-08-14

Reaction Summary (Down / Uplift) (lbs)

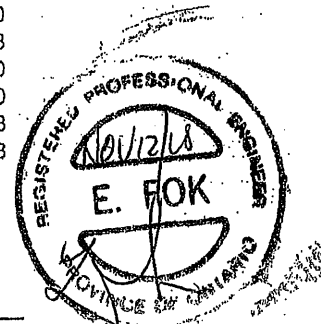
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,830 / 0	1,115 / 0		
B2, 2-3/8"	115 / 477	0 / 134		

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	14-08-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-10-00	14-08-14	Top	22	11			n/a
2	B15(i2817)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	Top	629	341			n/a
3	B16(i2756)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	522	268			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17 ft-lbs	38,222 ft-lbs	n/a	6	13-10-03
Neg. Moment	-10,612 ft-lbs	-36,222 ft-lbs	29.3%	1	04-05-12
End Shear	864 lbs	17,356 lbs	5.0%	2	13-09-00
Cont. Shear	2,695 lbs	17,356 lbs	15.6%	1	03-05-08
Total Load Deflection	2xL/300 (0.359")	n/a	80.1%	9	00-00-00
Live Load Deflection	2xL/452 (0.238")	n/a	79.6%	12	00-00-00
Total Neg. Defl.	L/999 (-0.106")	n/a	n/a	9	08-08-08
Max Defl.	-0.106"	n/a	n/a	9	08-08-08
Span / Depth	12.8				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 5-1/4"	4,138 lbs	26.8%	11.7%	Unspecified
B2	Wall/Plate 2-3/8" x 5-1/4"	51 lbs	0.8%	0.3%	Unspecified
B2	Uplift	883 lbs			

Cautions

Uplift of 882 lbs found at span 2 - Right.

- Simpson 2-H2-5A @ B1+B2

DWG NO. TAMB4218H
STRUCTURAL
COMPONENT ONLY

Tamblyn



Boise Cascade

**Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B14(I2768)**

Dry | 2 spans | L cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1804 CORNER new.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B14(I2768)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

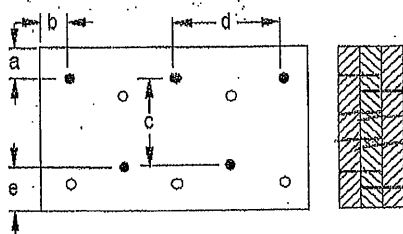
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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

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

Nailing schedule applies to both sides of the member.

Connection Diagram: Full Length of Member

a minimum = 1/4"

b minimum = 3"

c = 6 1/2"

d = 8"

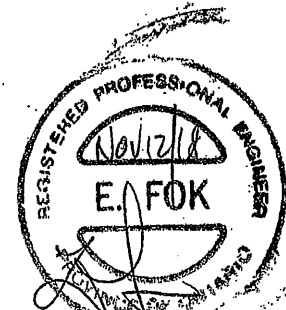
e minimum = 2"

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

Nailing schedule applies to both sides of the member.

Connectors are:

Nails

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

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DWG NO. TAM B4/12-18 H
STRUCTURAL
COMPONENT ONLY

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

T-181522(x)



Boise Cascade



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

PASSED

BC CALC® Member Report
Build 6475

2ND FLOOR FRAMING\Flush Beams\B15(12817)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B15(12817)

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

Specifier:

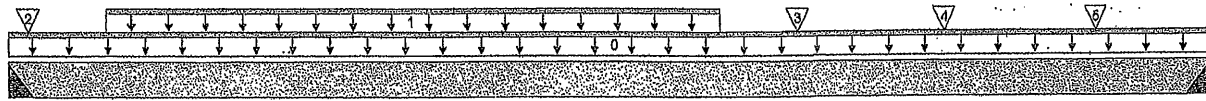
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

10-06-00

B2

Total Horizontal Product Length = 10-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	624 / 0	339 / 0		
B2, 2"	1,051 / 0	552 / 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	10-06-00	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-00	06-02-00	Top	89	45			n/a
2	J4(12748)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	Top	80	40			n/a
3	J4(12697)	Conc. Pt. (lbs)	L	06-10-00	06-10-00	Top	274	137			n/a
4	J4(12783)	Conc. Pt. (lbs)	L	08-02-00	08-02-00	Top	439	220			n/a
5	J4(12811)	Conc. Pt. (lbs)	L	09-06-00	09-06-00	Top	406	203			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,491 ft-lbs	11,610 ft-lbs	38.7%	1	06-10-00
End Shear	2,261 lbs	5,785 lbs	39.1%	1	09-06-08
Total Load Deflection	L/524 (0.236")	n/a	45.8%	4	05-06-00
Live Load Deflection	L/804 (0.154")	n/a	44.8%	5	05-06-00
Max Defl.	0.236"	n/a	n/a	4	05-06-00
Span / Depth	13.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,359 lbs	n/a	31.8%	Hanger
B2	Hanger 2" x 1-3/4"	2,267 lbs	n/a	53.1%	Hanger

Cautions

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

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned.

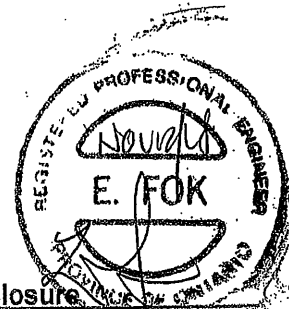
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

DWG NO. TAM 0413-18
STRUCTURAL
COMPONENT ONLY

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

T-181523



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B16(12756)

Dry | 1 span | No cat.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

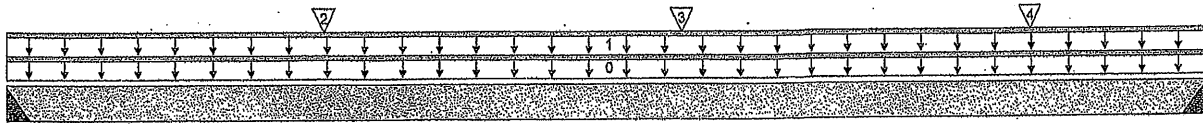
File name: UNIT 1804 CORNER new.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B16(12756)

Specifier:

Designer: AJ

Company:



B1 03-04-12 B2

Total Horizontal Product Length = 03-04-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	503 / 0	259 / 0		
B2, 2"	522 / 0	268 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-04-12	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-12	Top	240	120			n/a
2	J5(12725)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	74	37			n/a
3	J5(12712)	Conc. Pt. (lbs)	L	01-10-12	01-10-12	Top	73	36			n/a
4	J5(12649)	Conc. Pt. (lbs)	L	02-10-12	02-10-12	Top	63	31			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	854 ft-lbs	11,610 ft-lbs	7.4%	1	01-09-05
End Shear	572 lbs	5,785 lbs	9.9%	1	00-11-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-08-05
Live Load Deflection	L/999 (0.003")	n/a	n/a	6	01-08-05
Max Defl.	0.004"	n/a	n/a	4	01-08-05
Span / Depth	4.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,079 lbs	n/a	25.3%	Hanger
B2	Hanger 2" x 1-3/4"	1,119 lbs	n/a	26.2%	Hanger

Cautions

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

Notes

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

CONFORMS TO OBC 2012

DWNO.TAM 3414-184
 STRUCTURAL
 COMPONENT ONLY



Disclosure

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

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

T-1811524



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Dropped Beams\B18(12637)

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Dropped Beams\B18(12637)

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

Specifier:

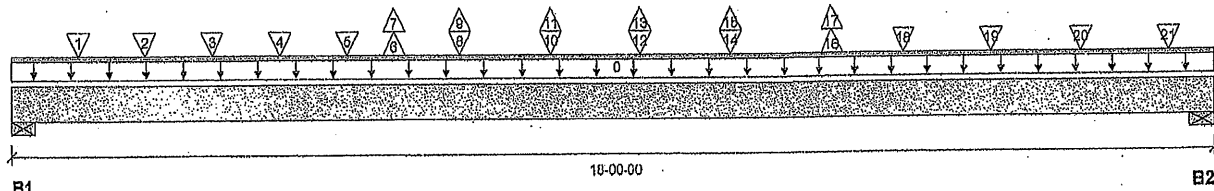
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 18-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2,069 / 50	1,162 / 0	0 / 55	
B2, 5-1/2"	2,122 / 50	1,190 / 0	0 / 55	

Load Summary

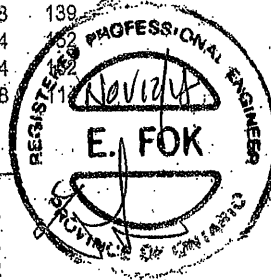
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	J3(1298)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	206	103			n/a
2	J3(1279)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	228	114			n/a
3	J3(1279)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	228	114			n/a
4	J3(1279)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	228	114			n/a
5	J3(1280)	Conc. Pt. (lbs)	L	05-00-00	05-00-00	Top	192	96			n/a
6	B23(12146)	Conc. Pt. (lbs)	L	05-08-04	05-08-04	Top	193	72	-55		n/a
7	B23(12146)	Conc. Pt. (lbs)	L	05-08-04	05-08-04	Top	-29				n/a
8	J2(11073)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	267	130			n/a
9	J2(11073)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	-9				n/a
10	J2(11115)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	308	149			n/a
11	J2(11115)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	-10				n/a
12	J2(11115)	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	308	149			n/a
13	J2(11115)	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	-10				n/a
14	J2(11164)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	335	164			n/a
15	J2(11164)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	-11				n/a
16	B24(12137)	Conc. Pt. (lbs)	L	12-02-12	12-02-12	Top	308	132	-55		n/a
17	B24(12137)	Conc. Pt. (lbs)	L	12-02-12	12-02-12	Top	-31				n/a
18	J3(11264)	Conc. Pt. (lbs)	L	13-04-00	13-04-00	Top	278	139			n/a
19	J3(11214)	Conc. Pt. (lbs)	L	14-08-00	14-08-00	Top	304				n/a
20	J3(11214)	Conc. Pt. (lbs)	L	16-00-00	16-00-00	Top	-304				n/a
21	J3(11081)	Conc. Pt. (lbs)	L	17-04-00	17-04-00	Top	228				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	19,947 ft-lbs	55,212 ft-lbs	36.1%	21	09-04-00
End Shear	4,313 lbs	21,696 lbs	19.9%	21	01-05-06
Total Load Deflection	L/403 (0.512")	n/a	59.6%	56	09-02-12
Live Load Deflection	L/625 (0.33")	n/a	57.6%	83	09-02-12
Max Defl.	0.512"	n/a	n/a	56	09-02-12
Span / Depth	17.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 5-1/4"	4,556 lbs	19.4%	12.9%	Unspecified
B2	Wall/Plate 5-1/2" x 5-1/4"	4,670 lbs	19.9%	13.3%	Unspecified



DRG NO. TAM 8415181
STRUCTURAL
COMPONENT ONLY

E. FOK



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Dropped Beams\B18\I2637

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Dropped Beams\B18\I2637

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

Specifier:

Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

Notes

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

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

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

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.

CONFORMS TO OBC 2012

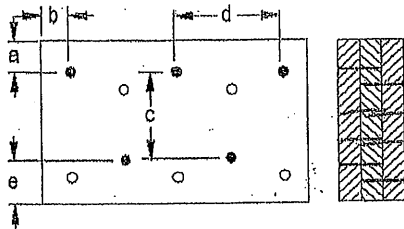
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connection Diagram: Full Length of Member

a minimum = 4"

b minimum = 3"

c = 6-7/8"

d = 12"

e minimum = 2"

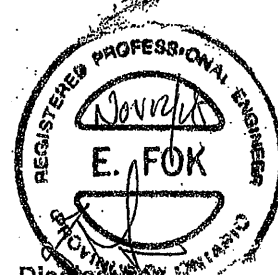
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

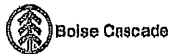
**Disclosure**

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

DWG NO. TAM 0418-18 H
STRUCTURAL
COMPONENT ONLY

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

T-1811525 (2)



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B19(12764)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B19(12764)

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

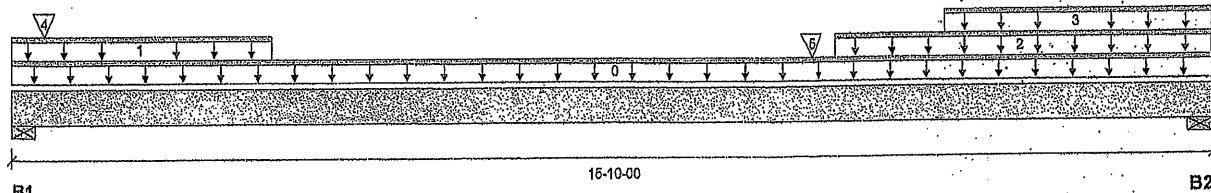
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 15-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 7"	2,830 / 0	2,742 / 0	1,798 / 0	
B2, 5-1/2"	2,355 / 0	1,856 / 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	15-10-00	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	03-05-01	Top		80			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	10-09-14	15-09-14	Top	374	186			n/a
3	WALL	Unf. Lin. (lb/ft)	L	12-03-09	15-10-00	Top		80			n/a
4	B20(12670)	Conc. Pt. (lbs)	L	00-05-04	00-05-04	Top	2,192	1,897	1,798		n/a
5	B21(11749)	Conc. Pt. (lbs)	L	10-05-12	10-05-12	Top	1,126	1,021			n/a

Controls Summary

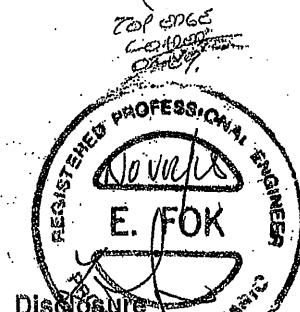
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16,242 ft-lbs	20,414 ft-lbs	79.6%	1	10-05-12
End Shear	4,943 lbs	14,464 lbs	34.2%	1	14-04-10
Total Load Deflection	L/453 (0.395")	n/a	53.0%	35	08-08-09
Live Load Deflection	L/849 (0.211")	n/a	42.4%	51	08-08-09
Max Defl.	0.395"	n/a	n/a	35	08-08-09
Span / Depth	15.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 7" x 3-1/2"	9,471 lbs	72.4%	31.7%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	5,852 lbs	56.9%	24.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 09-09-00, Bottom: 09-09-00.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 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
 Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection. *OK with MAILING*
CONFORMS TO OBC 2012



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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®

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

DWG NO. TAM 0416-18 H
 STRUCTURAL COMPONENT ONLY

T-1811516



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B20(i2670)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

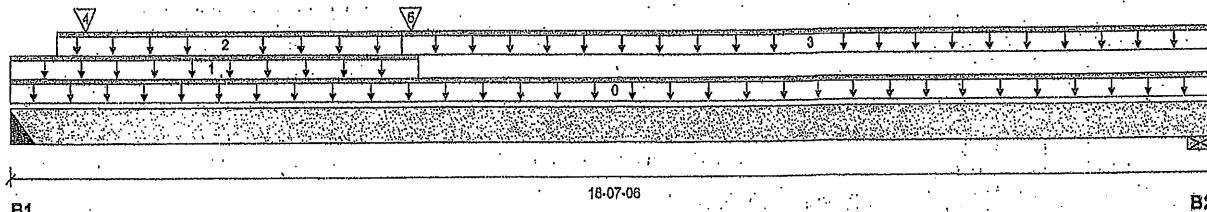
File name: UNIT 1804 CORNER new.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B20(i2670)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 18-07-06

Reaction Summary (Down / Uplift) (lbs)

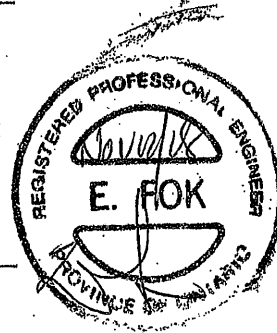
Bearing	Live	Dead	Snow	Wind
B1, 2"	2,169 / 0	1,897 / 0	1,808 / 0	
B2, 4-3/8"	880 / 0	656 / 0	112 / 0	

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	18-07-06	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-03-02	Top		60			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-08-08	06-00-00	Top	8				n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	06-00-00	18-07-06	Top	25	13			n/a
4	GIRDER	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	880	800	1,920		n/a
5	B22(11429)	Conc. Pt. (lbs)	L	06-01-12	06-01-12	Top	1,826	972			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	22,030 ft-lbs	35,392 ft-lbs	62.2%	1	06-01-12
End Shear	7,368 lbs	14,464 lbs	50.9%	1	01-01-14
Total Load Deflection	L/265 (0.826")	n/a	90.7%	35	08-05-15
Live Load Deflection	L/426 (0.513")	n/a	84.4%	51	08-03-14
Max Defl.	0.826"	n/a	n/a	35	08-05-15
Span / Depth	18.4				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	7,462 lbs	n/a	87.4%	Hanger
B2	Wall/Plate 4-3/8" x 3-1/2"	2,252 lbs	27.5%	12.1%	Unspecified

Cautions

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

DWG NO. TAM0417.18H
STRUCTURAL
COMPONENT ONLY

T-281527



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

3RD FLOOR FRAMING\Flush Beams\B20\12670

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Buld 6475

Job name:

File name: UNIT 1804 CORNER new.mrdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B20\12670

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

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Notes

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

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

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

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.

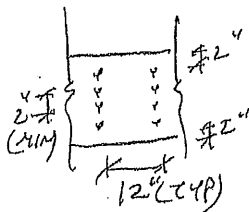
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

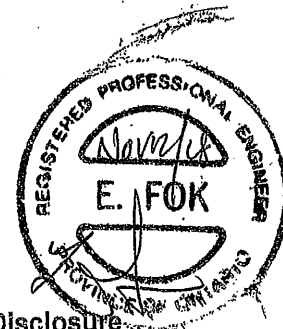
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

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



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



Disclosure

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DWG NO. YAM B417.18 H
STRUCTURAL
COMPONENT ONLY

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

T-1815216



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B21(i4173)

BC CALC® Member Report

Dry | 1 span | No cant.

November 8, 2018 11:06:26

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B21(i4173)

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

Specifier:

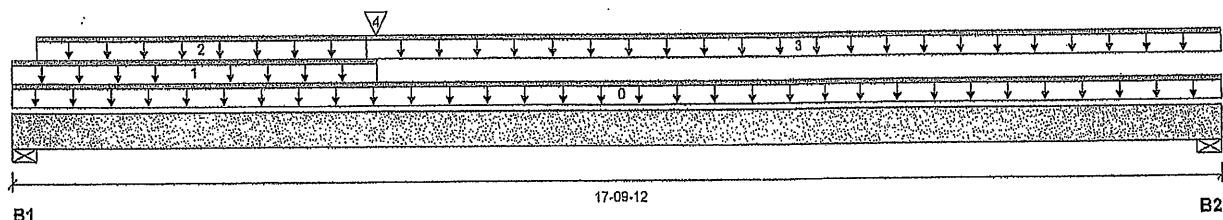
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 17-09-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1,116 / 0	985 / 0		
B2, 4-3/8"	561 / 0	450 / 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	17-09-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	05-04-02	Top		80			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-04-06	05-02-06	Top	10	5			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-02-06	17-09-12	Top	17	9			n/a
4	B22(i4196)	Conc. Pt. (lbs)	L	05-04-02	05-04-02	Top	1,407	765			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13,061 ft-lbs	35,392 ft-lbs	36.9%	1	05-04-02
End Shear	2,753 lbs	14,464 lbs	19.0%	1	01-04-04
Total Load Deflection	L/495 (0.417")	n/a	48.5%	4	08-01-08
Live Load Deflection	L/860 (0.24")	n/a	41.9%	5	08-01-08
Max Defl.	0.417"	n/a	n/a	4	08-01-08
Span / Depth	17.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	2,905 lbs	44.4%	15.6%	Unspecified
B2	Wall/Plate 4-3/8" x 3-1/2"	1,404 lbs	21.5%	7.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

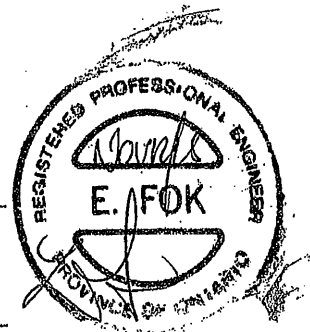
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012



DWG NO. TAM8418-18 H
STRUCTURAL
COMPONENT ONLY

T-1811528



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B21(i4173)

Dry | 1 span | No cant.

November 8, 2018 11:06:26

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

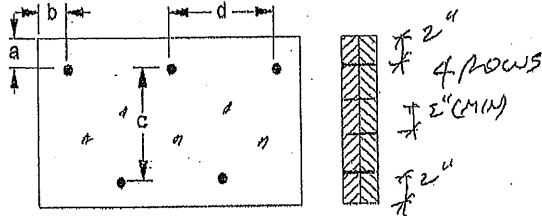
File name: UNIT 1804 CORNER EL B.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B21(i4173)

Specifier:

Designer: AJ

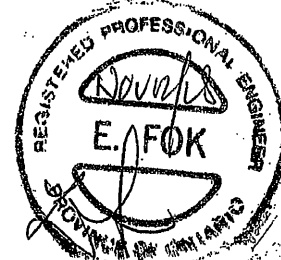
Company:

Connection Diagram: Full Length of Membera minimum = 2"
b minimum = 3"c = 7-7/8"
d = 12"

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

Connectors are: Nails

3 1/2" ARDOX SPIRAL

**Disclosure**

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DWG NO. TAM 8418-1811
STRUCTURAL
COMPONENT ONLY

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

T-184586u



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****3RD FLOOR FRAMING\Flush Beams\B22(I1429)**

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports:

CCMC 12472-R

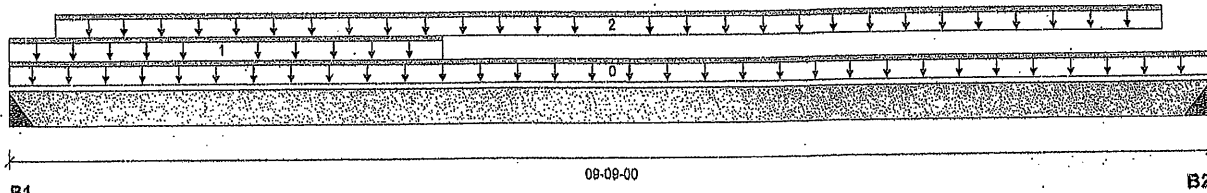
File name: UNIT 1804 CORNER new.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B22(I1429)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 09-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,832 / 0	975 / 0		
B2, 2"	1,282 / 0	700 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-09-00	Top	120	120			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	09-04-08	Top	253	126			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,821 ft-lbs	35,392 ft-lbs	22.1%	1	03-10-08
End Shear	3,205 lbs	14,464 lbs	22.2%	1	01-01-14
Total Load Deflection	L/999 (0.094")	n/a	n/a	4	04-09-00
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	04-09-00
Max Defl.	0.094"	n/a	n/a	4	04-09-00
Span / Depth	9.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	3,967 lbs	n/a	46.4%	Hanger
B2	Hanger 2" x 3-1/2"	2,798 lbs	n/a	32.8%	Hanger

Cautions

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

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

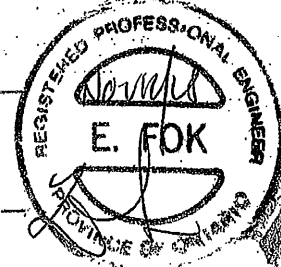
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

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



DWG NO. TAM B419-18H
STRUCTURAL
COMPONENT ONLY

T-181129



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****3RD FLOOR FRAMING\Flush Beams\B22(11429)**

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:05:35

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B22(11429)

City, Province, Postal Code: BRANSON

Specifier:

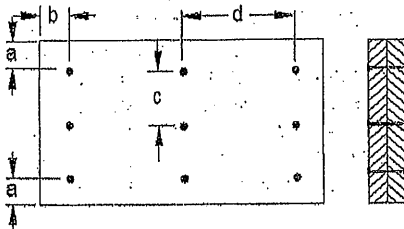
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

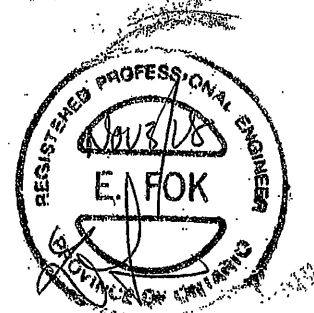
c = 4"

b minimum = 3"

d = 12"

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

Connectors are: 16d Nails

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

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

DWG NO. TAM0419-18 H
STRUCTURAL
COMPONENT ONLY

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

T-1811529(N)



Bolt Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B23(I2146)

Dry | 2 spans | L cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B23(I2146)

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

Specifier:

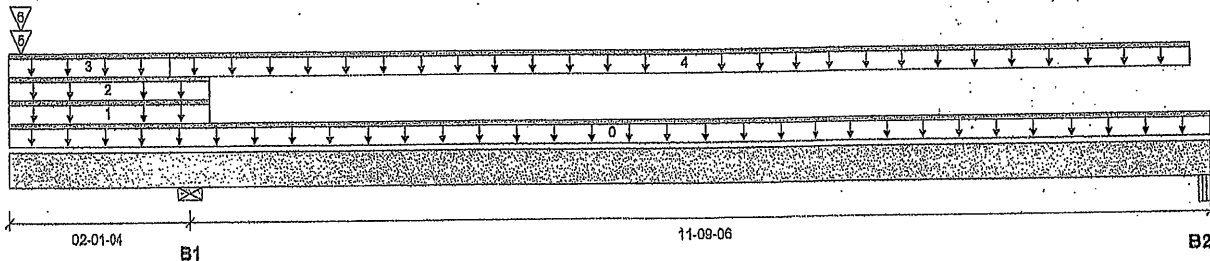
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-10-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	444 / 0	953 / 0	435 / 0	
B2, 5-1/4"	195 / 28	78 / 0	0 / 51	

Load Summary

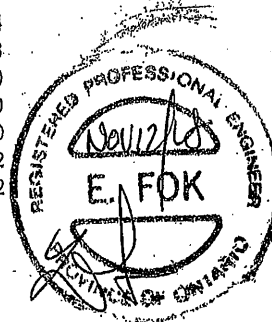
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-10-10	Top		12			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	Top	33	30	72		n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	Top		80			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-10-08	Top	23	11			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-10-08	13-08-00	Top	33	17			n/a
5	B25(I2160)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	99	378	216		n/a
6	WALL	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top		12			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	815 ft-lbs	35,392 ft-lbs	2.3%	45	09-02-01
Neg. Moment	-2,515 ft-lbs	-35,392 ft-lbs	7.1%	49	02-01-04
End Shear	284 lbs	14,464 lbs	2.0%	45	12-05-08
Cont. Shear	1,202 lbs	14,464 lbs	8.3%	49	00-10-10
Total Load Deflection	2xL/1,998 (0.026")	n/a	n/a	122	00-00-00
Live Load Deflection	2xL/1,998 (0.015")	n/a	n/a	174	00-00-00
Total Neg. Defl.	L/999 (-0.018")	n/a	n/a	122	06-03-12
Max Defl.	-0.018"	n/a	n/a	122	06-03-12
Span / Depth	11.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,292 lbs	22.3%	9.8%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	391 lbs	2.0%	1.7%	Unspecified



DWG NO. TAM 842018H
STRUCTURAL
COMPONENT ONLY

T-1811530



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****3RD FLOOR FRAMING\Flush Beams\B23(I2146)**

Dry | 2 spans | L cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1804 CORNER new.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B23(I2146)

Specifier:

Designer: AJ

Company:

Notes

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

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

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

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

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

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

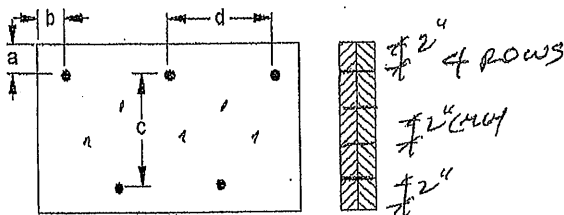
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

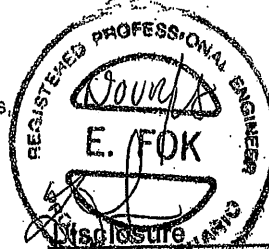
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

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

Connection Diagram: Full Length of Membera minimum = 2"
b minimum = 3"c = 7-7/8"
d = 20" 12"

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

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

DWG NO. TAM 0410-18 H
STRUCTURAL
COMPONENT ONLY
BC CALC®, BC FRAMER®, AJST™,
ALLJOIST®, BC RIM BOARD™, BCI®,
BOISE GLULAM™, BC FloorValue®,
VERSA-LAM®, VERSA-RIM PLUS®

T-18153061



Boise Cascade



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

PASSED

BC CALC® Member Report

3RD FLOOR FRAMING\Flush Beams\B24(I2137)

Dry | 2 spans | L cant.

July 6, 2018 14:05:35

Build 8475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B24(I2137)

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

Specifier:

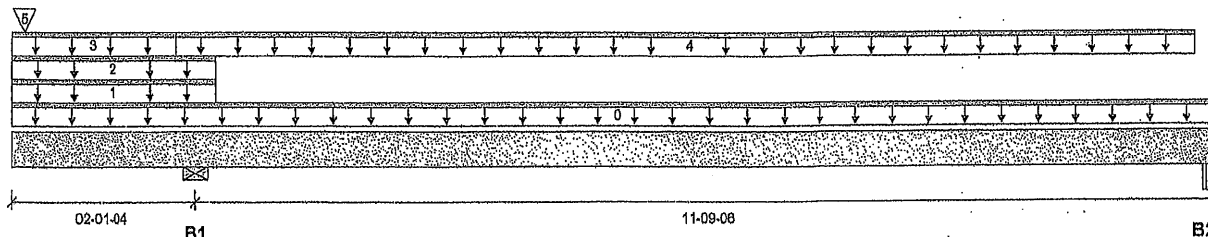
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	586 / 0	1,011 / 0	435 / 0	
B2, 5-1/4"	313 / 30	138 / 0	0 / 51	

Load Summary

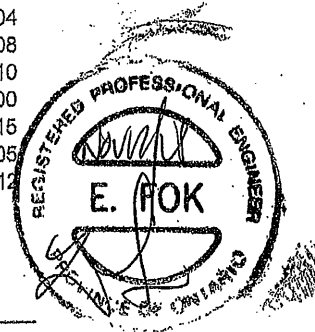
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-10-10	Top		12			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	Top	33	30	72		n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	Top		80			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-10-08	Top	34	17			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-10-08	13-08-00	Top	53	27			n/a
5	B25(I2160)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	99	378	216		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,486 ft-lbs	35,392 ft-lbs	4.2%	45	08-08-15
Neg. Moment	-2,529 ft-lbs	-35,392 ft-lbs	7.1%	49	02-01-04
End Shear	483 lbs	14,464 lbs	3.3%	45	12-05-08
Cont. Shear	1,205 lbs	14,464 lbs	8.3%	49	00-10-10
Total Load Deflection	2xL/1,998 (0.024")	n/a	n/a	122	00-00-00
Live Load Deflection	L/999 (0.021")	n/a	n/a	160	07-08-15
Total Neg. Defl.	L/999 (-0.015")	n/a	n/a	122	06-00-05
Max Defl.	0.021"	n/a	n/a	108	08-03-12
Span / Depth	11.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,578 lbs	25.1%	11.0%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	641 lbs	3.2%	2.9%	Unspecified



DWG NO. TAM 042184
STRUCTURAL
COMPONENT ONLY

T-1811831



Bolse Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****3RD FLOOR FRAMING\Flush Beams\B24(i2137)**

BC CALC® Member Report

Dry | 2 spans | L cant.

July 6, 2018 14:05:35

Build 6476

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B24(i2137)

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

Specifier:

Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

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

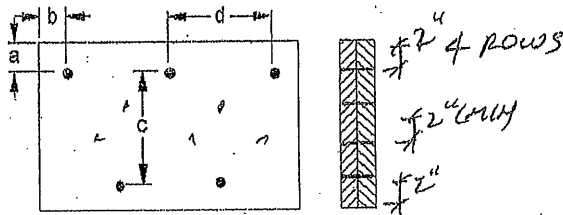
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

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

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

Connection Diagram: Full Length of Membera minimum = 2"
b minimum = 3"c = 7-7/8"
d = 6"

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

Connectors are: Nails

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

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

DWG NO. TAM B42-18 H
STRUCTURAL
COMPONENT ONLY

T-18053164



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B25(I2160)

Dry | 1 span | No cant.

July 8, 2018 14:05:35

BC CALCO Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports:

CCMC 12472-R

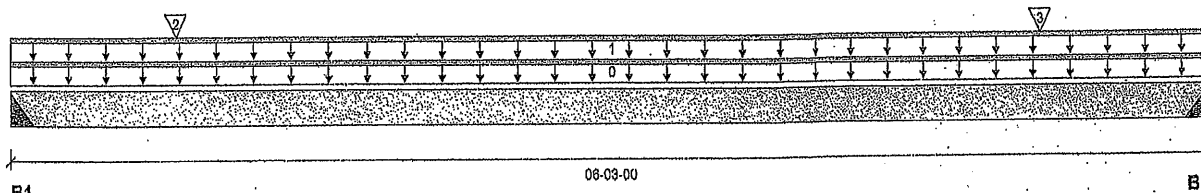
File name: UNIT 1804 CORNER new.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B25(I2160)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	99 / 0	378 / 0	216 / 0	
B2, 2"	99 / 0	378 / 0	216 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-03-00	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-03-00	Top		80			n/a
2	WINDOW	Conc. Pt. (lbs)	L	00-10-08	00-10-08	Top	99	90	216		n/a
3	WINDOW	Conc. Pt. (lbs)	L	05-04-08	05-04-08	Top	99	90	216		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	685 ft-lbs	23,005 ft-lbs	3.0%	0	03-01-08
End Shear	610 lbs	14,464 lbs	4.2%	13	01-01-14
Total Load Deflection	L/999 (0.005")	n/a	n/a	35	03-01-08
Live Load Deflection	L/999 (0.002")	n/a	n/a	51	03-01-08
Max Defl.	0.005"	n/a	n/a	35	03-01-08
Span / Depth	6.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 3-1/2"	895 lbs	n/a	10.5%	Hanger
B2 Hanger	2" x 3-1/2"	895 lbs	n/a	10.5%	Hanger

Cautions

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

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

BC CALCO 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.

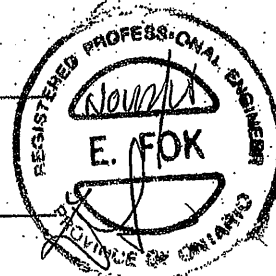
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.



DWG NO. TAM B25-18 H
STRUCTURAL
COMPONENT ONLY

T-181522



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B25(i2160)

Dry | 1 span | No cant.

July 6, 2018 14:05:35

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

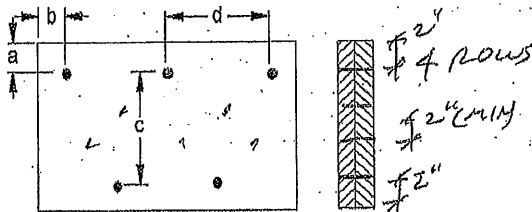
File name: UNIT 1804 CORNER new.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B25(i2160)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

c = 7-7/8"

b minimum = 3"

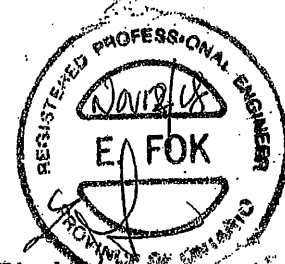
d = 12"

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

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

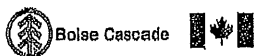
**Disclosure**

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DWG NO. TAM 842-18
STRUCTURAL
COMPONENT ONLY

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

T-181532(v)



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

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 14:11:08

Build 6475

Job name:

File name: UNIT 1804 CORNER new.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B7(12969)

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

Specifier:

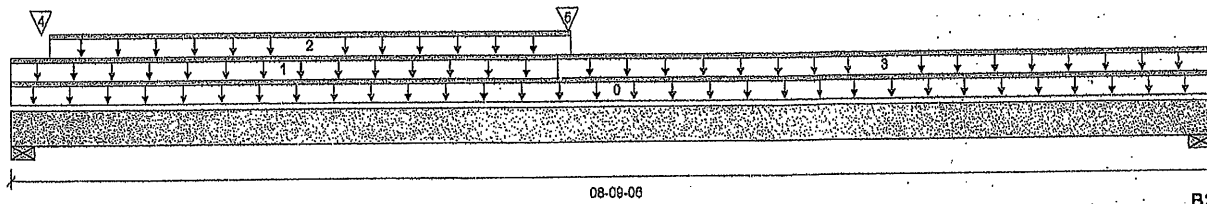
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-09-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	941 / 0	1,280 / 0		
B2, 4-3/8"	467 / 0	262 / 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	08-09-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-11-08	Top	15	7			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-03-08	04-00-09	Top	240	120			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-11-08	08-09-06	Top	27	13			n/a
4	E12(1199)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		780			n/a
5	B8(12926)	Conc. Pt. (lbs)	L	04-00-06	04-00-06	Top	318	175			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,868 ft-lbs	11,610 ft-lbs	33.3%	1	03-11-08
End Shear	1,591 lbs	5,785 lbs	27.5%	1	01-01-00
Total Load Deflection	L/999 (0.122")	n/a	n/a	4	04-01-04
Live Load Deflection	L/999 (0.079")	n/a	n/a	5	04-01-04
Max Defl.	0.122"	n/a	n/a	4	04-01-04
Span / Depth	10.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	3,011 lbs	92.1%	40.3%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	1,028 lbs	25.1%	11.0%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

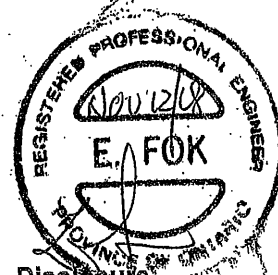
Resistance Factor phi has been applied to all presented results per CSA O86.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



Disclosure

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

OWNED BY TAM 042218 H
STRUCTURAL
COMPONENT ONLY

T-1811533



Boise Cascade



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

3RD FLOOR FRAMING\Dropped Beams\B18B(I3488)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 16:06:18

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 3RD FLOOR FRAMING\Dropped Beams\B18B(I3488)

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

Specifier:

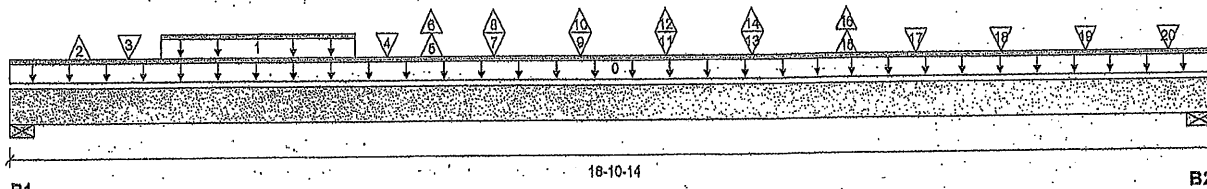
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 18-10-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1,958 / 79	1,103 / 0	0 / 52	
B2, 5-1/2"	2,208 / 54	1,243 / 0	0 / 58	

Load Summary

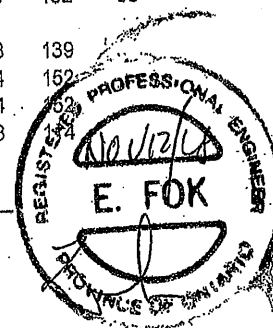
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	18-10-14	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-04-14	06-04-14	Top	230	115			n/a
2	J3(I3308)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	-33	-4			n/a
3	J3(I3342)	Conc. Pt. (lbs)	L	01-10-14	01-10-14	Top	206	103			n/a
4	J3(I3352)	Conc. Pt. (lbs)	L	05-10-14	05-10-14	Top	192	96			n/a
5	B23(I3528)	Conc. Pt. (lbs)	L	06-07-02	06-07-02	Top	193	72	-55		n/a
6	B23(I3528)	Conc. Pt. (lbs)	L	06-07-02	06-07-02	Top	-29				n/a
7	J2(I3493)	Conc. Pt. (lbs)	L	07-06-14	07-06-14	Top	267	130			n/a
8	J2(I3493)	Conc. Pt. (lbs)	L	07-06-14	07-06-14	Top	-9				n/a
9	J2(I3534)	Conc. Pt. (lbs)	L	08-10-14	08-10-14	Top	308	149			n/a
10	J2(I3534)	Conc. Pt. (lbs)	L	08-10-14	08-10-14	Top	-10				n/a
11	J2(I3497)	Conc. Pt. (lbs)	L	10-02-14	10-02-14	Top	308	149			n/a
12	J2(I3497)	Conc. Pt. (lbs)	L	10-02-14	10-02-14	Top	-10				n/a
13	J2(I3444)	Conc. Pt. (lbs)	L	11-06-14	11-06-14	Top	335	164			n/a
14	J2(I3444)	Conc. Pt. (lbs)	L	11-06-14	11-06-14	Top	-11				n/a
15	B24(I3505)	Conc. Pt. (lbs)	L	13-01-10	13-01-10	Top	308	132	-55		n/a
16	B24(I3505)	Conc. Pt. (lbs)	L	13-01-10	13-01-10	Top	-31				n/a
17	J3(I3337)	Conc. Pt. (lbs)	L	14-02-14	14-02-14	Top	278	139			n/a
18	J3(I3339)	Conc. Pt. (lbs)	L	15-06-14	15-06-14	Top	304	152			n/a
19	J3(I3339)	Conc. Pt. (lbs)	L	16-10-14	16-10-14	Top	304				n/a
20	J3(I3330)	Conc. Pt. (lbs)	L	18-02-14	18-02-14	Top	228				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	21,787 ft-lbs	55,212 ft-lbs	39.5%	21	08-10-14
End Shear	4,403 lbs	21,696 lbs	20.3%	21	17-05-08
Total Load Deflection	L/349 (0.627")	n/a	68.8%	56	09-00-02
Live Load Deflection	L/542 (0.403")	n/a	66.4%	83	09-00-02
Max Defl.	0.627"	n/a	n/a	56	09-00-02
Span / Depth	18.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 5-1/4"	4,316 lbs	23.1%	15.4%	Unspecified
B2	Wall/Plate 5-1/2" x 5-1/4"	4,866 lbs	20.8%	13.8%	Unspecified



DWG NO. TAM 0424104
STRUCTURAL
COMPONENT ONLY

T-811324



Boise Cascade

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****3RD FLOOR FRAMING\Dropped Beams\B18B(i3488)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 16:06:18

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 3RD FLOOR FRAMING\Dropped Beams\B18B(i3488)

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

Specifier:

Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

Notes

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

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

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

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.

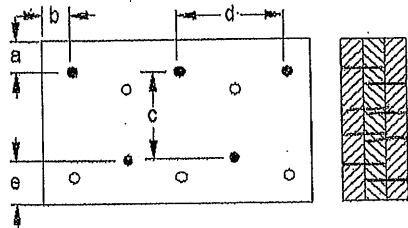
CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

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

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connection Diagram: Full Length of Member

a minimum = 4"

b minimum = 3"

c = 8-7/8"

d = 12"

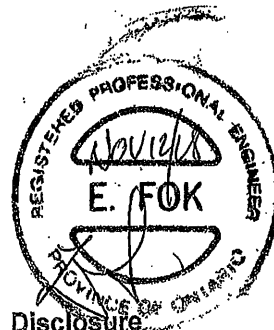
e minimum = 3"

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

Nailing schedule applies to both sides of the member.

Member has no side loads.

Connectors are: 16d Nails

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

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DWG NO. TAM 842418H
STRUCTURAL
COMPONENT ONLY

T-18115346



Boise Cascade



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

PASSED

3RD FLOOR FRAMING\Flush Beams\B19B(I3304)

Dry | 1 span | No cant.

July 6, 2018 16:06:18

BC CALCO® Member Report

Bulld 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

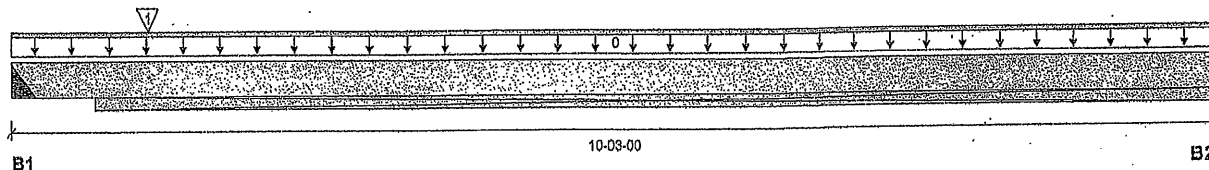
File name: UNIT 1804 CORNER EL B.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B19B(I3304)

Specflier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"		5 / 0		
B2, 114-1/2"	880 / 0	918 / 0	1,920 / 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	10-03-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	GIRDER	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	880	800	1,920		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1 ft-lbs	23,005 ft-lbs	n/a	0	00-05-04
End Shear	5 lbs	9,401 lbs	n/a	0	00-02-00
Span / Depth	0.7				
Conc. Load (B2)	4,760 lbs	16,813 lbs	28.3%		

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	7 lbs	n/a	0.1%	HGUS410
B2	Wall/Plate 114-1/2" x 3-1/2"	4,908 lbs	2.3%	1.0%	Unspecified

Cautions

Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

Hanger Manufacturer: Unassigned

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

BC CALCO® 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.

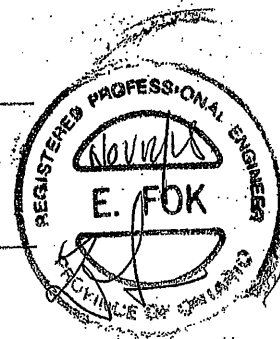
Design based on Dry Service Condition.

CONFORMS TO OBC 2012

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.



DWG NO. TAM 0425-184
STRUCTURAL
COMPONENT ONLY
P6 1/2

T-L81535



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****3RD FLOOR FRAMING\Flush Beams\B19B(I3304)****PASSED**

July 6, 2018 18:06:18

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports:

CCMC 12472-R

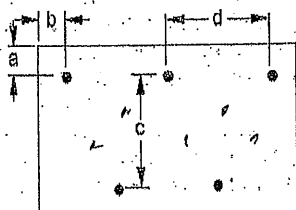
File name: UNIT 1804 CORNER EL B.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B19B(I3304)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

7" 4 ROWS
 7" C/M
 7"

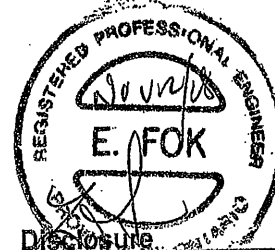
a minimum = 2"
 b minimum = 3"

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

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

Member has no side loads.

Connectors are: 16d 1 Nails

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

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

T-181153561



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****3RD FLOOR FRAMING\Flush Beams\B20B\I3309**

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 16:06:18

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 3RD FLOOR FRAMING\Flush Beams\B20B\I3309

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

Specifier:

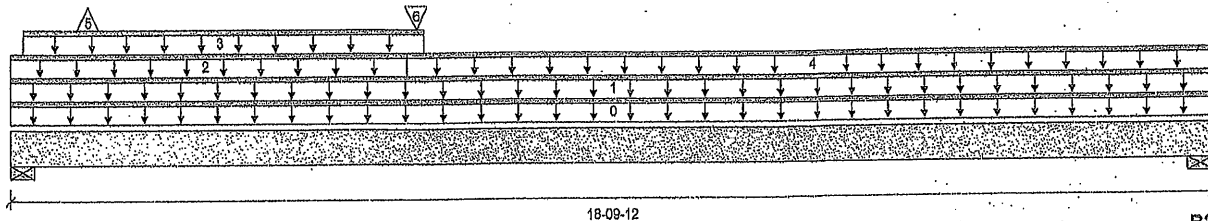
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 18-09-12

Reaction Summary (Down / Uplift) (lbs)

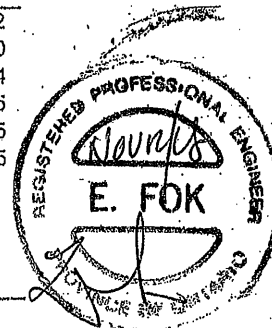
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1,461 / 245	963 / 0	0 / 534	
B2, 4-3/8"	885 / 13	626 / 0	0 / 28	

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	18-09-12	Top		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	18-09-12	Top	8	4			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-02-06	Top	6	3			n/a
3	WALL	Unf. Lin. (lb/ft)	L	00-02-06	06-05-08	Top		60			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	06-02-06	18-09-12	Top	20	10			n/a
5	B19(I3304)	Conc. Pt. (lbs)	L	01-02-10	01-02-10	Top	-258	-248	-562		n/a
6	B22(I3376)	Conc. Pt. (lbs)	L	06-04-02	06-04-02	Top	1,896	1,010			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	19,772 ft-lbs	35,392 ft-lbs	55.9%	21	06-04-02
Neg. Moment	-204 ft-lbs	-35,392 ft-lbs	0.6%	36	01-02-10
End Shear	3,247 lbs	14,464 lbs	22.5%	21	01-04-04
Total Load Deflection	L/308 (0.71")	n/a	78.0%	56	08-08-05
Live Load Deflection	L/514 (0.425")	n/a	70.1%	83	08-08-05
Max Defl.	0.71"	n/a	n/a	56	08-08-05
Span / Depth	18.4				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	3,395 lbs	41.5%	18.2%	Unspecified
B1	Uplift	179 lbs			
B2	Wall/Plate 4-3/8" x 3-1/2"	2,111 lbs	25.8%	11.3%	Unspecified

Cautions

Uplift of 179 lbs found at span 1 - Left. (SIMPSON 1-H2-5A 2 5/8")

DWG NO. TAM 0426184
STRUCTURAL
COMPONENT ONLY

T-181526



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****3RD FLOOR FRAMING\Flush Beams\B20B(i3309)****PASSED**

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 6, 2018 16:06:18

File name: UNIT 1804 CORNER EL B.mmdl

Description: 3RD FLOOR FRAMING\Flush Beams\B20B(i3309)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

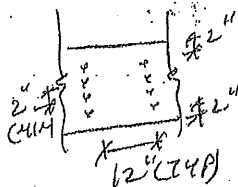
Resistance Factor phi has been applied to all presented results per CSA Q86.

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

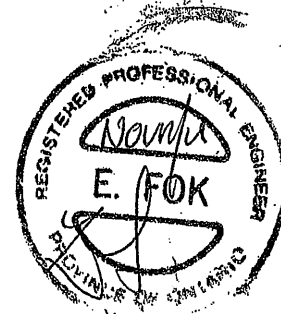
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection. *OK WITH NAILING.***CONFORMS TO OBC 2012**

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

**Disclosure**

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BC CALC®, BC FRAMER®, AJS™,
ALLJOIST®, BC RIM BOARD™, BC®,
BOISE GLULAM™, BC FloorValue®,
VERSA-LAM®, VERSA-RIM PLUS®,
STRUCTURAL
COMPONENT ONLY *10/2*

T-18152661

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B11B(i4102)**

BC CALC® Member Report

Dry | 1 span | No cant.

November 8, 2018 11:06:26

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11B(i4102)

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

Specifier:

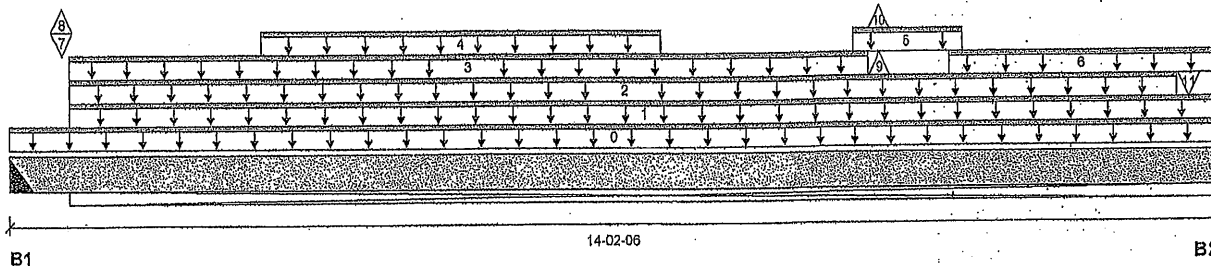
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 14-02-06

Reaction Summary (Down / Uplift) (lbs)

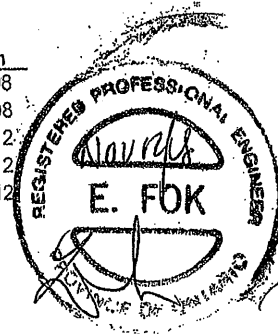
Bearing	Live	Dead	Snow	Wind
B1, 2"	283 / 1	248 / 0	530 / 0	
B2, 161-7/8"	4,485 / 9	4,446 / 0	1,961 / 9	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-02-06	Top		10			00-00-00
1	E19(i871)	Unf. Lin. (lb/ft)	L	00-08-08	14-02-06	Top		81			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-08-08	13-09-00	Top	9	5			n/a
3	E19(i871)	Unf. Lin. (lb/ft)	L	00-08-08	10-01-00	Top	9	5			n/a
4	E19(i871)	Unf. Lin. (lb/ft)	L	02-11-14	07-07-10	Top	16	24	12		n/a
5	E19(i871)	Unf. Lin. (lb/ft)	L	09-10-14	11-02-14	Top	190	95			n/a
6	E19(i871)	Unf. Lin. (lb/ft)	L	11-00-14	14-02-06	Top	360	180			n/a
7	E19(i871)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	1,171	1,099	2,436		n/a
8	E19(i871)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	-4				n/a
9	-	Conc. Pt. (lbs)	L	10-02-12	10-02-12	Top	1,129	993	-9		n/a
10	-	Conc. Pt. (lbs)	L	10-02-12	10-02-12	Top	-6				n/a
11	B13(i4051)	Conc. Pt. (lbs)	L	13-10-12	13-10-12	Top	751	425			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	704 ft-lbs	23,220 ft-lbs	3.0%	53	00-07-08
End Shear	1,250 lbs	11,571 lbs	10.8%	53	00-11-08
Total Load Deflection	L/999 (0")	n/a	n/a	116	00-05-12
Live Load Deflection	L/999 (0")	n/a	n/a	168	00-05-12
Max Defl.	0"	n/a	n/a	116	00-05-12
Span / Depth	0.8				
Dist. Load (B2)	1,290.36 lb/ft	57,645.00 lb/ft	2.2%		
Conc. Load (B2)	2,935 lbs	16,813 lbs	17.5%		



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	1,367 lbs	n/a	16.0%	HGUS410
B2	Wall/Plate 161-7/8" x 3-1/2"	14,246 lbs	5.9%	2.1%	Unspecified

Cautions

Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

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

OWNED BY B427-1011
STRUCTURAL
COMPONENT ONLY p612

T-LR(153)



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B11B(i4102)**

Dry | 1 span | No cant.

November 8, 2018 11:06:26

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1804 CORNER EL B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11B(i4102)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

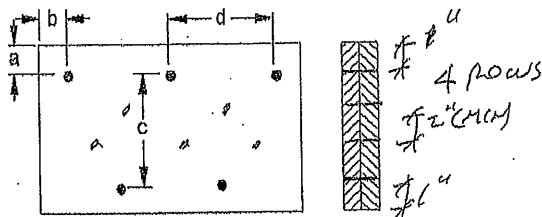
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

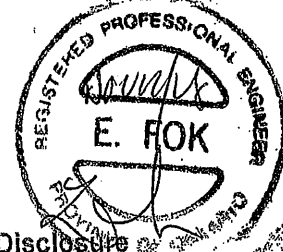
CONFORMS TO NBC 2012**Connection Diagram: Full Length of Member**

a minimum = 1"
b minimum = 3"

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

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

Connectors are: Nails

3/4" ARDOX SPIRAL**Disclosure**

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

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

DWG NO. TAM B422-18H
STRUCTURAL
COMPONENT ONLY

162

T-181153761



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B12B\I3473)**

Dry | 1 span | No cant.

July 6, 2018 16:06:18

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

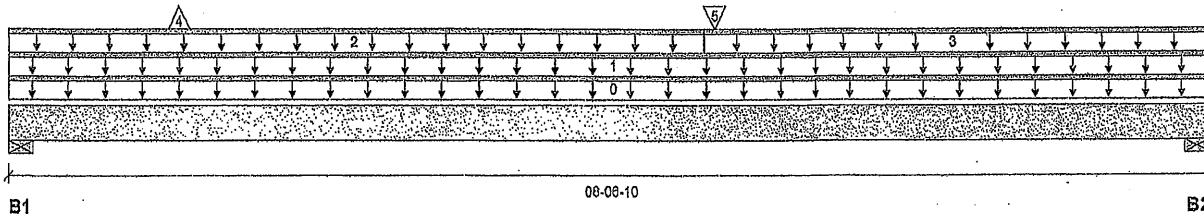
File name: UNIT 1804 CORNER EL B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B12B\I3473)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 08-06-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	332 / 0	201 / 0		
B2, 2-3/4"	440 / 0	264 / 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	08-06-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-06-10	Top	19	10			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-10-14	Top	6	3			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-10-14	08-06-10	Top	21	10			n/a
4	B11B(I3148)	Conc. Pt. (lbs)	L	01-02-10	01-02-10	Top		12			n/a
5	B16(I3205)	Conc. Pt. (lbs)	L	04-11-12	04-11-12	Top	504	260			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,755 ft-lbs	23,220 ft-lbs	11.9%	1	04-11-12
End Shear	891 lbs	11,571 lbs	7.7%	1	07-06-08
Total Load Deflection	L/999 (0.039")	n/a	n/a	4	04-08-11
Live Load Deflection	L/999 (0.024")	n/a	n/a	5	04-06-11
Max Defl.	0.039"	n/a	n/a	4	04-06-11
Span / Depth	10.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	749 lbs	9.2%	4.0%	Unspecified
B2	Wall/Plate 2-3/4" x 3-1/2"	991 lbs	19.3%	8.4%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

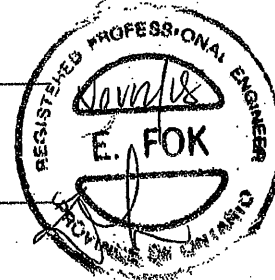
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

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



DWG NO. TAM 842818H
STRUCTURAL
COMPONENT ONLY

T-181538



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B12B(i3473)****PASSED**

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 6, 2018 16:06:18

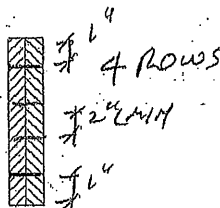
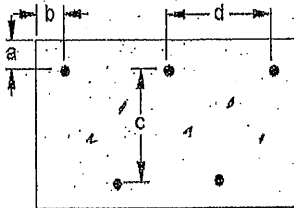
File name: UNIT 1804 CORNER EL B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B12B(i3473)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

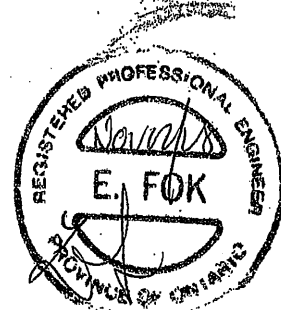
c = 3-1/2"

b minimum = 3"

d = 6"

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

Connectors are: 1 Nails

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

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

DWG NO. TAM 428-18 H
STRUCTURAL
COMPONENT ONLY

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

T-181153861



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B10B(I3541)

Dry | 1 span | No cant.

July 6, 2018 18:06:18

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

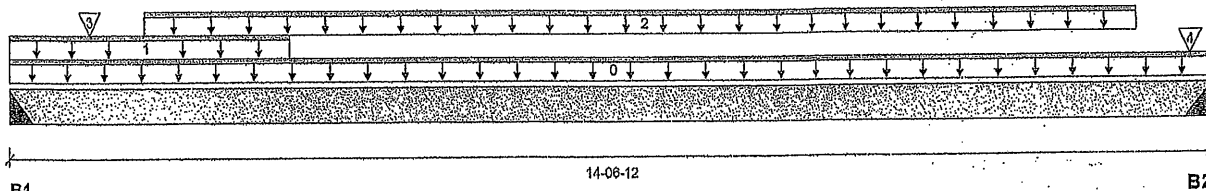
File name: UNIT 1804 CORNER EL B.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B10B(I3541)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 14-06-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1,269 / 0	704 / 0		
B2, 2"	673 / 0	406 / 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	14-06-12	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-12	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-08-00	13-08-00	Top	79	40			n/a
3	J6(I3454)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	99	49			n/a
4	J6(I3470)	Conc. Pt. (lbs)	L	14-04-00	14-04-00	Top	74	37			n/a

Controls Summary

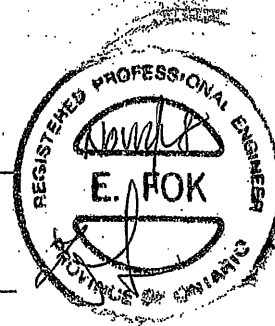
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,155 ft-lbs	23,220 ft-lbs	26.5%	1	06-04-00
End Shear	2,284 lbs	11,571 lbs	19.7%	1	00-11-08
Total Load Deflection	L/523 (0.329")	n/a	45.9%	4	07-00-00
Live Load Deflection	L/831 (0.207")	n/a	43.3%	5	07-00-00
Max Defl.	0.329"	n/a	n/a	4	07-00-00
Span / Depth	18.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 3-1/2"	2,784 lbs	n/a	32.6%	HGUS410
B2 Hanger	2" x 3-1/2"	1,517 lbs	n/a	17.8%	HGUS410

Cautions

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

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.



DWG NO. TAM 042718H
STRUCTURAL
COMPONENT ONLY
P618

T-1811539



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B10B(I3541)**

Dry | 1 span | No cant.

July 6, 2018 16:08:18

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: UNIT 1804 CORNER EL. B.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B10B(I3541)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

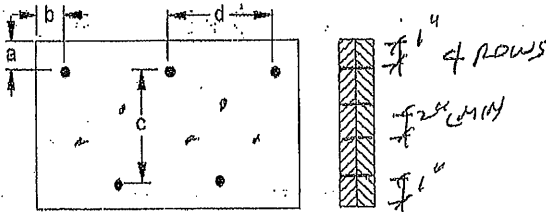
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

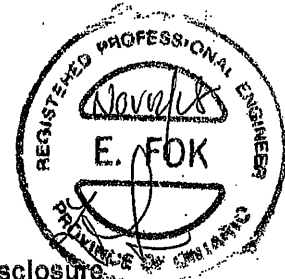
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connection Diagram: Full Length of Membera minimum = 2"
b minimum = 3"c = 1-1/2"
d = 6"

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

Connectors are:

Nails

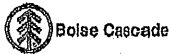
3-1/2" ARDOX SPIRAL**Disclosure**

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

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

OWNED BY BOISE CASCADE
STRUCTURAL
COMPONENT ONLY

T-1811539(6)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4B(I3486)

BC CALC® Member Report

Dry | 1 span | No cant.

July 6, 2018 16:06:18

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B4B(I3486)

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

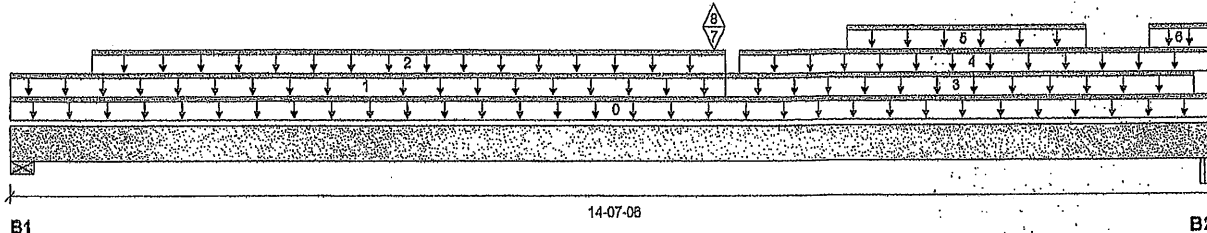
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	1,058 / 3	819 / 0		
B2, 5-1/4"	1,632 / 4	1,441 / 0		

PROVIDE 4 ROWS OF 3-1/2" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE / END DISTANCE. DO NOT USE AIR NAILS.

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	14-07-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-07-06	Top	24	12			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-00-00	08-07-06	Top	23	12			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-07-06	14-04-12	Top	28	14			n/a
4	3(I192)	Unf. Lin. (lb/ft)	L	08-09-06	14-07-06	Top		81			n/a
5	3(I192)	Unf. Lin. (lb/ft)	L	10-01-10	13-00-10	Top	53	21			n/a
6	3(I192)	Unf. Lin. (lb/ft)	L	13-10-02	14-07-06	Top	254	120			n/a
7	-	Conc. Pt. (lbs)	L	08-05-11	08-05-11	Top	1,788	1,147			n/a
8	-	Conc. Pt. (lbs)	L	08-05-11	08-05-11	Top	-7				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,877 ft-lbs	36,222 ft-lbs	49.4%	1	08-05-10
End Shear	3,800 lbs	17,356 lbs	21.9%	1	13-04-10
Total Load Deflection	L/329 (0.515")	n/a	73.0%	6	07-06-06
Live Load Deflection	L/564 (0.29")	n/a	61.7%	8	07-06-06
Max Defl.	0.515"	n/a	n/a	6	07-06-06
Span / Depth	17.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 5-1/4"	2,610 lbs	39.2%	17.2%	Unspecified
B2	Beam 5-1/4" x 5-1/4"	4,250 lbs	14.1%	12.6%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

Disclosure

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

DWG NO. TAM 0430-10H
STRUCTURAL
COMPONENT ONLY

T-1811540



Boise Cascade



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

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

July 6, 2018 16:06:18

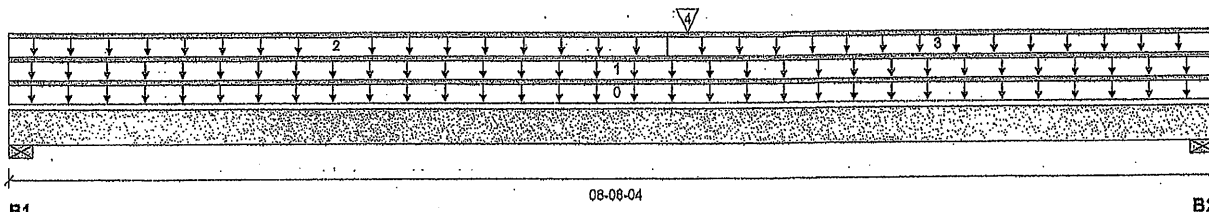
File name: UNIT 1804 CORNER EL B.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5B(i3476)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 08-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	645 / 0	393 / 0		
B2, 4-3/8"	866 / 0	515 / 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	08-08-04	Top		10			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-08-04	Top	15	8			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-08-06	Top	6	3			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-08-06	08-08-04	Top	23	11			n/a
4	B10(i3541)	Conc. Pt. (lbs)	L	04-10-02	04-10-02	Top	1,262	700			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,205 ft-lbs	23,220 ft-lbs	26.7%	1	04-10-02
End Shear	1,837 lbs	11,571 lbs	15.9%	1	07-06-06
Total Load Deflection	L/999 (0.088")	n/a	n/a	4	04-05-09
Live Load Deflection	L/999 (0.055")	n/a	n/a	5	04-05-09
Max Defl.	0.088"	n/a	n/a	4	04-05-09
Span / Depth	10.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 3-1/2"	1,458 lbs	32.9%	14.4%	Unspecified
B2	Wall/Plate 4-3/8" x 3-1/2"	1,944 lbs	23.8%	10.4%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

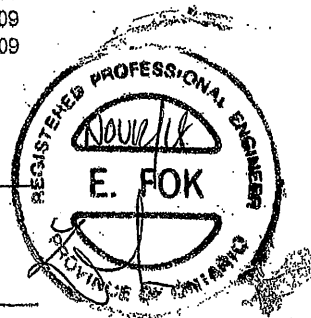
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

CONFORMS TO OBC 2012

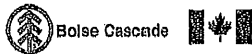
Importance Factor: Normal Part code: Part 9

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



DWG NO. TAM B43 18H
STRUCTURAL
COMPONENT ONLY

T-1811541



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

PASSED

BC CALC® Member Report

1ST FLOOR FRAMING\Flush Beams\B5B(i3476)

Dry | 1 span | No cant.

July 6, 2018 16:06:18

Build 6475

Job name:

File name: UNIT 1804 CORNER EL B.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B5B(i3476)

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

Specifier:

Customer:

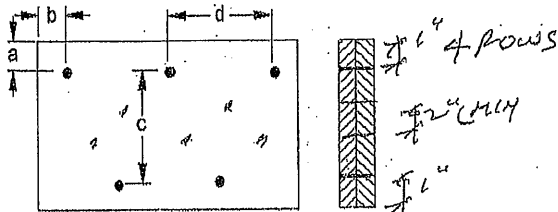
Designer: AJ

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



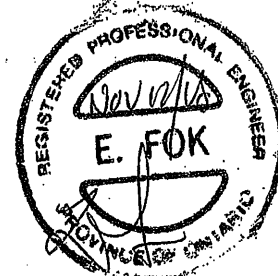
a minimum = 1/2"
b minimum = 3"

c = 1/2"
d = 6"

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

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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

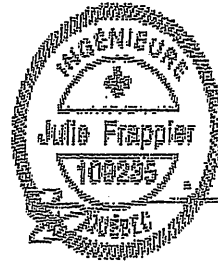
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DWG NO. TAM 043018 H
STRUCTURAL
COMPONENT ONLY

T-1801541(2)

Maximum Floor Spans

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



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

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

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

Maximum Floor Spans

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



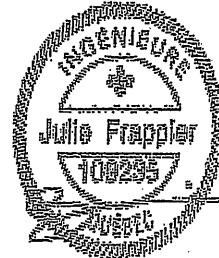
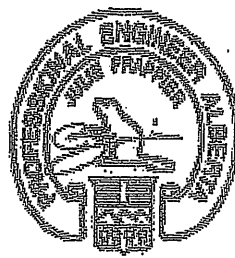
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

Maximum Floor Spans

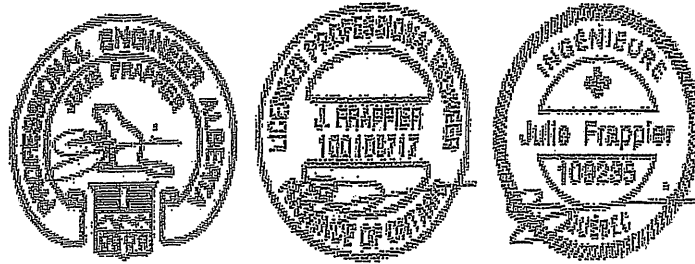
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans: L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of $L/480$ and a total load deflection limit of $L/240$.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

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

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

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

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