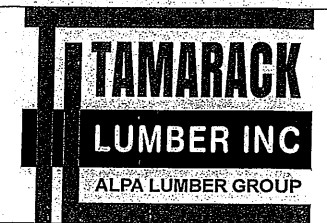


| Products |          |                                         |       |         |
|----------|----------|-----------------------------------------|-------|---------|
| PlotID   | Length   | Product                                 | Plies | Net Qty |
| J1       | 14-00-00 | 11 7/8" NI-40x                          | 1     | 9       |
| J1DJ     | 14-00-00 | 11 7/8" NI-40x                          | 2     | 2       |
| J2       | 12-00-00 | 11 7/8" NI-40x                          | 1     | 14      |
| J2DJ     | 12-00-00 | 11 7/8" NI-40x                          | 2     | 2       |
| J3       | 10-00-00 | 11 7/8" NI-40x                          | 1     | 14      |
| J4       | 4-00-00  | 11 7/8" NI-40x                          | 1     | 1       |
| J5       | 2-00-00  | 11 7/8" NI-40x                          | 1     | 6       |
| B4       | 14-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B14      | 12-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B2       | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1     | 1       |
| B7       | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1     | 1       |
| B1       | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B5       | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B6       | 4-00-00  | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1     | 1       |
| B3       | 4-00-00  | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |

| Connector Summary |       |               |
|-------------------|-------|---------------|
| Qty               | Manuf | Product       |
| 1                 | H1    | IUS2.56/11.88 |
| 9                 | H1    | IUS2.56/11.88 |
| 5                 | H1    | IUS2.56/11.88 |
| 4                 | H1    | IUS2.56/11.88 |
| 1                 | H2    | HUS1.81/10    |
| 1                 | H4    | HGUS410       |

DATE: 2021-06-07

1st FLOOR



FROM PLAN DATED: JAN 2019

BUILDER: ROYAL PINE HOMES

SITE: CENTREFIELD WEST GORMLEY

MODEL: 2011

ELEVATION: A,B

LOT:

CITY: RICHMOND HILL

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION.

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

LOADING:

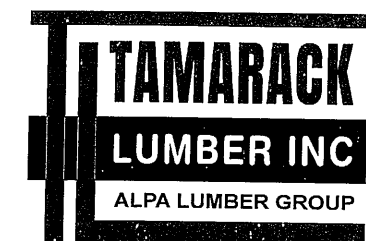
DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED



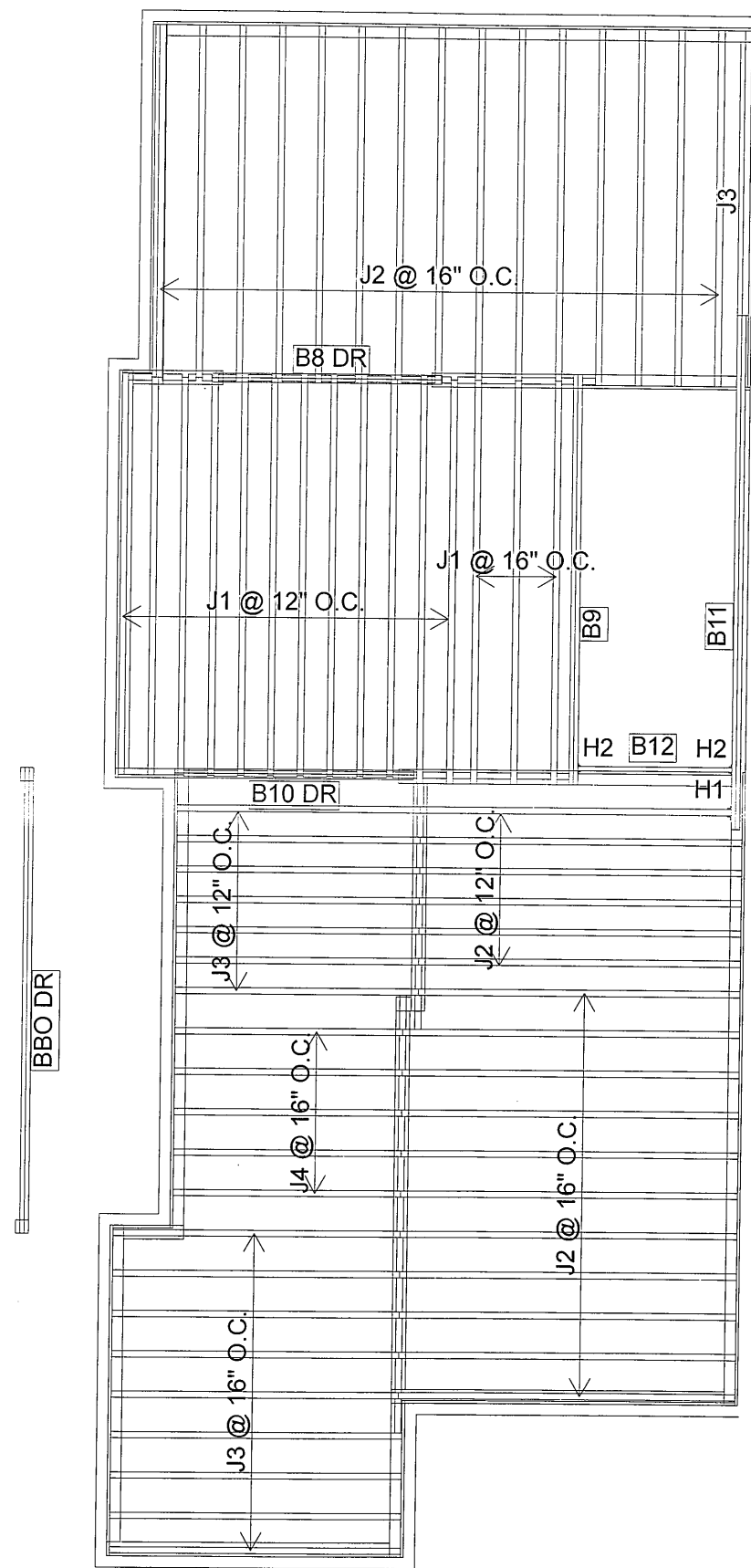
FROM PLAN DATED:  
BUILDER: ROYAL PINE HOMES  
SITE: CENTREFIELD WEST GORMLEY  
MODEL: 2011  
ELEVATION: A,B  
LOT:  
CITY: RICHMOND HILL  
SALESMAN: MARIO DICIANO  
DESIGNER: AJ  
REVISION:

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 7 TABLES 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  
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2021-06-23

2nd FLOOR



| Products |          |                                         |       |         |
|----------|----------|-----------------------------------------|-------|---------|
| PlotID   | Length   | Product                                 | Plies | Net Qty |
| J1       | 14-00-00 | 11 7/8" NI-40x                          | 1     | 15      |
| J2       | 12-00-00 | 11 7/8" NI-40x                          | 1     | 32      |
| J3       | 10-00-00 | 11 7/8" NI-40x                          | 1     | 17      |
| J4       | 8-00-00  | 11 7/8" NI-40x                          | 1     | 5       |
| B10 DR   | 8-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP  | 2     | 2       |
| B8 DR    | 8-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP  | 2     | 2       |
| B11      | 18-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B9       | 14-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B12      | 6-00-00  | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1     | 1       |

| Connector Summary |       |               |
|-------------------|-------|---------------|
| Qty               | Manuf | Product       |
| 1                 | H1    | IUS2.56/11.88 |
| 2                 | H2    | HUS1.81/10    |

# NORDIC

## INSTALLATION GUIDE NORDIC JOIST

NS-G133   
ENGLISH  
VERSION  
2020-10-01

Engineered Wood Products

## BASIC INSTALLATION GUIDE FOR RESIDENTIAL FLOORS

 NORDIC  
JOIST

NORDIC  
STRUCTURES

nordic.ca

### INSTALLING NORDIC I-JOISTS

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

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

### NORDIC I-JOIST SERIES

| NI-20                                                            | NI-40x                                                             |
|------------------------------------------------------------------|--------------------------------------------------------------------|
| 2x3 S-P-F No. 2<br>3/8 in. web<br>Depths<br>9-1/2 and 11-7/8 in. | 2x3 1950T MSR<br>3/8 in. web<br>Depths<br>9-1/2, 11-7/8 and 14 in. |
| 33 pieces per unit                                               | 33 pieces per unit                                                 |

### RESIDENTIAL SERIES

| NI-60                                                                  | NI-80                                                                  | NI-90                                                            | RIM BOARDS                                                                               |
|------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 2x3 2100T MSR<br>3/8 in. web<br>Depths<br>9-1/2, 11-7/8, 14 and 16 in. | 2x4 2100T MSR<br>3/8 in. web<br>Depths<br>9-1/2, 11-7/8, 14 and 16 in. | 2x4 2400T MSR<br>7/16 in. web<br>Depths<br>11-7/8, 14 and 16 in. | Width<br>1-1/8 in.<br>Length<br>16 ft<br>Depths<br>9-1/2 to 16 in.<br>APA Rim Board Plus |
| 33 pieces per unit                                                     | 23 pieces per unit                                                     | 23 pieces per unit                                               |                                                                                          |

### SAFETY AND CONSTRUCTION PRECAUTIONS

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

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

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

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



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



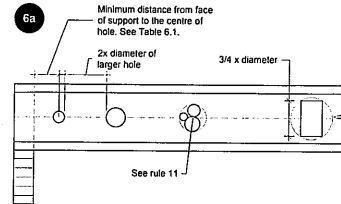
Never stack building materials over unsheathed I-joists. Once sheathed, do not overstress I-joist with concentrated loads from building materials.

### WEB HOLES AND OPENINGS

#### WEB HOLES IN I-JOISTS

Rules for Cutting Holes in I-joists

1. The distance between the inside edge of the support and the centreline of any hole shall be in compliance with the requirements of Table 6.1.
2. I-joist 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 that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole and the adjacent I-joist flange.
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 - and each hole must be sized and located in compliance with the requirements of Table 6.1.
7. Holes measuring 1-1/2 inch or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
8. 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.
9. All holes shall be cut in accordance with the restrictions listed above and as illustrated in detail 6a.
10. Limit three maximum-size holes per span.
11. A group of round holes at approximately the same location shall be permitted if it meets the requirements for a single round hole circumscribed around them.

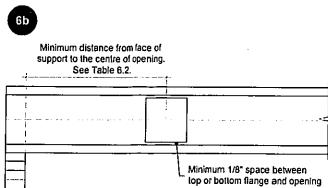


- Notes:
1. Never drill, cut or notch the flange, or over-cut the web.
  2. Holes in web should be cut with a sharp saw.
  3. For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular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

#### DUCT CHASE OPENINGS

Rules for Cutting Duct Chase Openings in I-joists

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

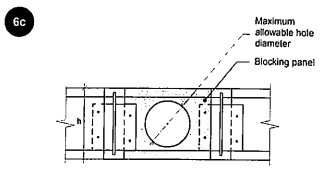


- Notes:
1. Never drill, cut or notch the flange, or over-cut the web.
  2. Holes in web should be cut with a sharp saw.
  3. Avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a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

#### HOLES IN BLOCKING PANELS

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

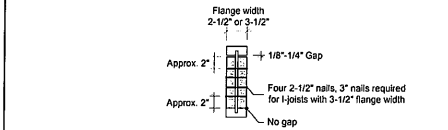
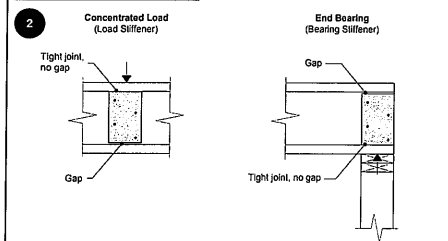
1. The maximum allowable hole size for a lateral-restraint-only blocking panel is 2/3 of the lesser dimension of the blocking's depth or length. Assuming the blocking panel is longer than its height (or depth), the table below applies. For other applications, contact Nordic Structures.
2. Holes cut into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



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

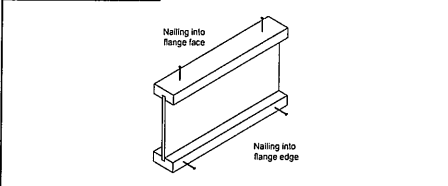
<sup>(a)</sup> Maximum allowable hole diameter in blocking panel, where the blocking panel is longer than its height.

### WEB STIFFENERS

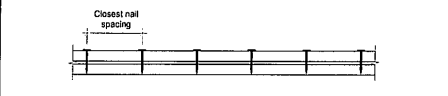


| Stiffener Size Requirements | Flange width (in.) | Web stiffener size each side of web (in.) |
|-----------------------------|--------------------|-------------------------------------------|
| 2-1/2                       | 1 x 2-5/16         | Minimum width                             |
| 3-1/2                       | 1-1/2 x 2-5/16     | Minimum width                             |

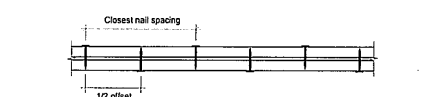
### NAIL SPACING



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

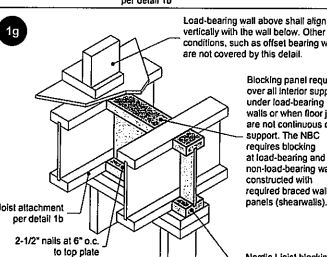
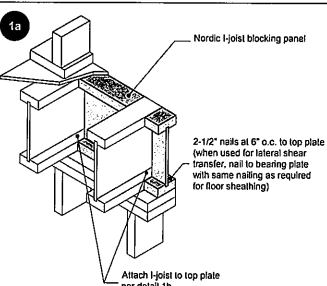


#### Nailed to Both Flange Edges (Top View)

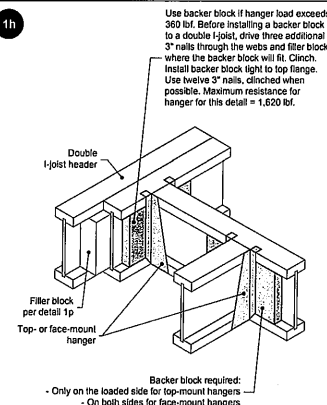


| Recommended Closest Nail Spacing for Fastening Sheathing to I-joist Flanges to Minimize Spilling | Flange face nailing <sup>(a)</sup> | Flange edge nailing <sup>(b)</sup> | Nail spacing (in.) |
|--------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|--------------------|
| Fastener size (diameter x length)                                                                | End distance (in.)                 | Nail spacing (in.)                 | End distance (in.) |
| 0.128" or smaller in diameter, and 3-1/4" or shorter in length                                   | 2                                  | 2                                  | 2                  |
| Greater than 0.128" up to 0.148" in diameter, and 3-1/4" or shorter in length                    | 2                                  | 3                                  | 2                  |

<sup>(a)</sup> If more than one row is required, offset rows a minimum of 1/2 inch and stagger.  
<sup>(b)</sup> Closest nail spacing measured from one flange edge. Nails on opposite flange edge must be offset one-half the minimum spacing.

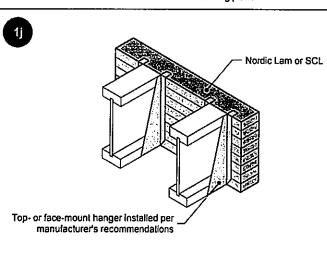
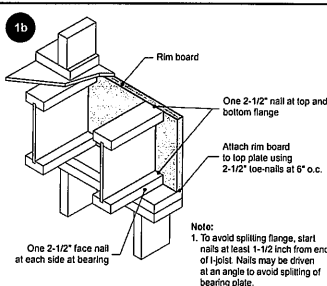


- Notes:
1. An occasional blocking panel (one per line of blocking) may be left out for the passage of plumbing or ventilation ducts. For other applications, contact Nordic Structures.
  2. For other options, see details 1g to 1p.

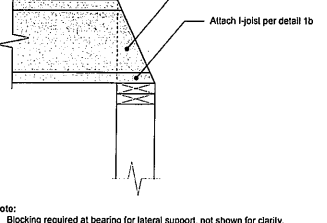
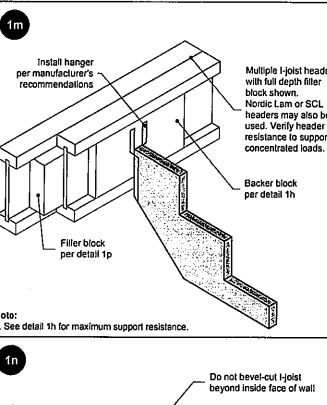


| Flange width (in.) | Material thickness required (in.) <sup>(a)</sup> | Minimum depth (in.) <sup>(b)</sup> |
|--------------------|--------------------------------------------------|------------------------------------|
| 2-1/2              | 1                                                | 5-1/2                              |
| 3-1/2              | 1-1/2                                            | 7-1/4                              |

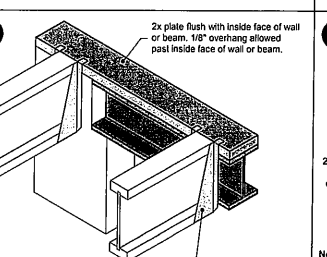
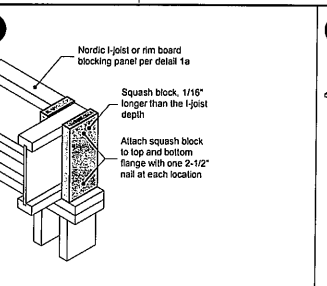
- Notes:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
  2. For hanger resistance, see manufacturer's recommendations.
  3. Verify double I-joist resistance to support concentrated loads.
  4. Backer blocks must be long enough to permit required nailing without splitting.



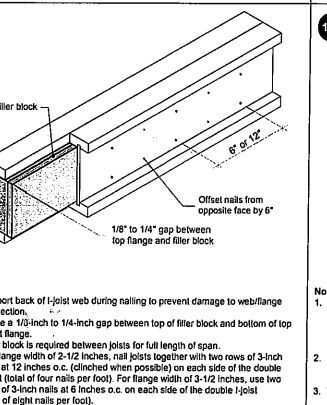
- Notes:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
  2. For nailing schedules for multiple Nordic Lam or SCL beams, see the manufacturer's recommendations.



- Notes:
1. Blocking required at bearing for lateral support, not shown for clarity.

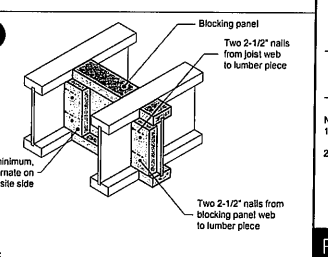
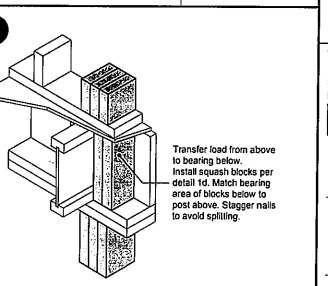


- Notes:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

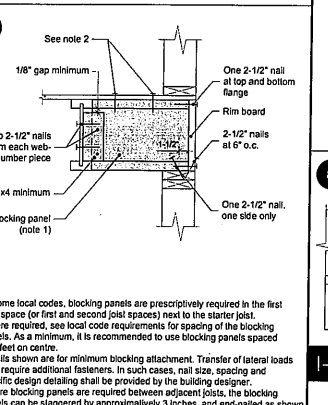


| Filler Block Requirements for Double I-joist Construction | Flange width (in.)  | Net depth (in.)               | Filler block size (in.) | Example |
|-----------------------------------------------------------|---------------------|-------------------------------|-------------------------|---------|
| 9-1/2                                                     | 2-1/8 to 2-1/4 x 6  | 2x6 x 5/8" or 3/4" sheathing  |                         |         |
| 11-7/8                                                    | 2-1/8 to 2-1/4 x 8  | 2x6 x 5/8" or 3/4" sheathing  |                         |         |
| 14                                                        | 2-1/8 to 2-1/4 x 10 | 2x10 x 5/8" or 3/4" sheathing |                         |         |
| 16                                                        | 2-1/8 to 2-1/4 x 12 | 2x12 x 5/8" or 3/4" sheathing |                         |         |

- Notes:
1. The height of the filler block may be different from that specified in the table, as long as it allows nailing and respects the required gap.



- Notes:
1. This detail may be used to reduce floor vibration.
  2. Blocking panels may be of any I-joist series. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.
  3. One occasional blocking panel may be left out for the passage of plumbing or ventilation ducts. Otherwise, a hole of not more than 2/3 of the lesser dimension of the blocking depth or length may be drilled in the blocking panel.



- Notes:
1. In some local codes, blocking panels are prescriptively required in the first joist space (or first and second joist spaces) next to the starter joist. Where required, see local code requirements for spacing of the blocking panels. As a minimum, it is recommended to use blocking panels spaced at 4 feet on centre.
  2. Details shown are for minimum blocking attachment. Transfer of lateral loads may require additional fasteners. In such cases, nail size, spacing and specific design detailing shall be provided by the building designer.
  3. Where blocking panels are required between adjacent joists, the blocking panels can be staggered by approximately 3 inches, and end-nailed as shown.
  4. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.

This document supersedes all previous versions. For the latest version, consult nordic.ca or contact Nordic Structures.

### TABLE 6.1 - LOCATION OF WEB HOLES

Simple or multiple span

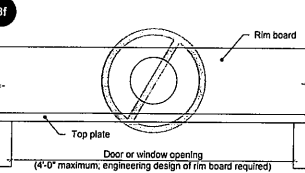
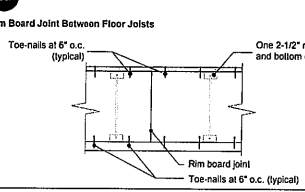
Minimum distance from inside face of any support to centre of hole (ft.-in.)

| Joist depth | Joist series | Round hole diameter (in.) |        |        |        |        |       |       |        |        |        |        |         |
|-------------|--------------|---------------------------|--------|--------|--------|--------|-------|-------|--------|--------|--------|--------|---------|
|             |              | 2                         | 3      | 4      | 5      | 6      | 8     | 10    | 12     | 14     | 16     | 18     | 20      |
| 9-1/2"      | NI-20        | 0'-7"                     | 1'-6"  | 2'-10" | 4'-3"  | 5'-8"  | 6'-0" | -     | -      | -      | -      | -      | -       |
|             | NI-40x       | 0'-7"                     | 1'-6"  | 3'-0"  | 4'-4"  | 6'-0"  | 6'-4" | -     | -      | -      | -      | -      | -       |
|             | NI-60        | 1'-3"                     | 2'-6"  | 4'-0"  | 5'-4"  | 7'-0"  | 7'-5" | -     | -      | -      | -      | -      | -       |
|             | NI-80        | 2'-3"                     | 3'-6"  | 5'-0"  | 6'-6"  | 8'-2"  | 8'-8" | -     | -      | -      | -      | -      | -       |
| 11-7/8"     | NI-20        | 0'-7"                     | 0'-8"  | 1'-0"  | 2'-4"  | 3'-8"  | 4'-0" | 5'-0" | 6'-8"  | 7'-8"  | -      | -      | -       |
|             | 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'-4"  | 3'-0"  | 4'-3"  | 5'-8"  | 6'-0" | 7'-3" | 8'-10" | 10'-0" | -      | -      | -       |
|             | NI-80        | 1'-6"                     | 2'-10" | 4'-2"  | 5'-6"  | 7'-0"  | 7'-5" | 8'-8" | 10'-3" | 11'-4" | -      | -      | -       |
| 14"         | NI-20        | 0'-7"                     | 0'-8"  | 1'-5"  | 3'-2"  | 4'-10" | 5'-8" | 6'-8" | 8'-9"  | 10'-2" | -      | -      | -       |
|             | NI-40x       | 0'-7"                     | 0'-8"  | 0'-8"  | 1'-0"  | 2'-4"  | 2'-9" | 3'-8" | 5'-2"  | 6'-0"  | 6'-8"  | 8'-3"  | 10'-2"  |
|             | NI-60        | 0'-7"                     | 0'-8"  | 1'-8"  | 3'-0"  | 4'-3"  | 4'-8" | 5'-8" | 7'-2"  | 8'-0"  | 8'-8"  | 10'-4" | 11'-9"  |
|             | NI-80        | 0'-10"                    | 2'-0"  | 3'-4"  | 4'-9"  | 6'-2"  | 6'-6" | 7'-6" | 9'-0"  | 10'-0" | 10'-8" | 12'-4" | 13'-9"  |
| 16"         | NI-20        | 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-40x       | 0'-7"                     | 0'-8"  | 0'-8"  | 1'-6"  | 2'-10" | 3'-2" | 4'-2" | 5'-6"  | 6'-4"  | 7'-0"  | 8'-5"  | 9'-8"   |
|             | NI-60        | 0'-7"                     | 1'-3"  | 2'-6"  | 3'-10" | 5'-3"  | 5'-6" | 6'-8" | 8'-0"  | 9'-0"  | 9'-5"  | 11'-0" | 12'-3"  |
|             | NI-80        | 0'-7"                     | 0'-8"  | 0'-8"  | 1'-9"  | 3'-3"  | 3'-8" | 4'-8" | 6'-5"  | 7'-5"  | 8'-0"  | 9'-10" | 11'-3"  |

- Notes:
1. Tabulated values are applicable to residential floor construction meeting the above design criteria.
  2. 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.

### RIM BOARDS

#### Rim Board Joint Between Floor Joists



#### Rim Board Joint at Corner



#### Top Plate



- Notes:
1. Do not cut holes in rim board installed over openings, such as doors or windows, where the rim board is not fully supported, except that holes of 1-1/2 inch or less in size are permitted provided they are positioned at the mid-depth and in the middle one-third of the span.

### TABLE 6.2 - LOCATION OF DUCT CHASE OPENINGS

Simple span

Minimum distance from inside face of any support to centre of opening (ft.-in.)

| Round hole diameter (in.) |      |       |       |       |        |        |       |       |        |  |  |  |
|---------------------------|------|-------|-------|-------|--------|--------|-------|-------|--------|--|--|--|
| 15-1/4                    | 7    | 8     | 8-5/8 | 9     | 10     | 10-3/4 | 11    | 12    | 12-3/4 |  |  |  |
| 6-0"                      | -    | -     | -     | -     | -      | -      | -     | -     | -      |  |  |  |
| 6-4"                      | -    | -     | -     | -     | -      | -      | -     | -     | -      |  |  |  |
| 7-5"                      | -    | -     | -     | -     | -      | -      | -     | -     | -      |  |  |  |
| 8-6"                      | -    | -     | -     | -     | -      | -      | -     | -     | -      |  |  |  |
| 4-0"                      | 5-0" | 6-6"  | 7-9"  | -     | -      | -      | -     | -     | -      |  |  |  |
| 4-4"                      | 5-5" | 7-0"  | 8-4"  | -     | -      | -      | -     | -     | -      |  |  |  |
| 6-0"                      | 7-3" | 8-10" | 10-0" | -     | -      | -      | -     | -     | -      |  |  |  |
| 7-5"                      | 8-6" | 10-3" | 11-4" | -     | -      | -      | -     | -     | -      |  |  |  |
| 8-4"                      | 6-9" | 8-9"  | 10-2" | -     | -      | -      | -     | -     | -      |  |  |  |
| 2-8"                      | 3-9" | 5-2"  | 6-0"  | 6-6"  | 8-3"   | 10-2"  | -     | -     | -      |  |  |  |
| 4-9"                      | 5-6" | 7-2"  | 8-0"  | 8-8"  | 10-4"  | 11-9"  | -     | -     | -      |  |  |  |
| 6-5"                      | 7-6" | 9-0"  | 10-8" | 12-2" | 13-9"  | -      | -     | -     | -      |  |  |  |
| 4-9"                      | 5-9" | 7-5"  | 8-4"  | 11-4" | 12-11" | -      | -     | -     | -      |  |  |  |
| 3-2"                      | 4-2" | 5-6"  | 6-4"  | 7-0"  | 8-5"   | 9-8"   | 10-2" | 12-2" | 13-9"  |  |  |  |
| 5-6"                      | 6-6" | 8-0"  | 9-0"  | 9-6"  | 11-0"  | 12-3"  | 12-9" | 14-6" | 16-0"  |  |  |  |
| 3-8"                      | 4-9" | 6-5"  | 7-5"  | 8-0"  | 9-0"   | 11-3"  | 11-9" | 13-9" | 15-4"  |  |  |  |

| Joist depth | Joist series | Duct chase length (in.) |        |        |         |        |         |        |        |         |   |   |   |
|-------------|--------------|-------------------------|--------|--------|---------|--------|---------|--------|--------|---------|---|---|---|
|             |              | 8                       | 10     | 12     | 14      | 16     | 18      | 20     | 22     | 24      |   |   |   |
| 9-1/2"      | NI-20        | 4'-1"                   | 4'-5"  | 4'-10" | -       | -      | -       | -      | -      | -       | - | - | - |
|             | NI-40x       | 5'-3"                   | 5'-8"  | 6'-0"  | 6'-5"   | 6'-10" | 7'-3"   | 7'-8"  | -      | -       | - | - | - |
|             | NI-60        | 5'-4"                   | 5'-9"  | 6'-2"  | 6'-7"   | 7'-1"  | 7'-5"   | 8'-0"  | -      | -       | - | - | - |
|             | NI-80        | 5'-3"                   | 5'-8"  | 6'-0"  | 6'-5"   | 6'-10" | 7'-3"   | 7'-8"  | 8'-2"  | 8'-6"   | - | - | - |
| 11-7/8"     | NI-20        | 6'-9"                   | 6'-2"  | 6'-6"  | -       | -      | -       | -      | -      | -       | - | - | - |
|             | NI-40x       | 6'-8"                   | 7'-2"  | 7'-5"  | 8'-1"   | 8'-5"  | 9'-1"   | 9'-6"  | -      | -       | - | - | - |
|             | NI-60        | 7'-3"                   | 7'-8"  | 8'-0"  | 8'-6"   | 9'-0"  | 9'-3"   | 9'-9"  | -      | -       | - | - | - |
|             | NI-80        | 7'-2"                   | 7'-7"  | 8'-0"  | 8'-5"   | 8'-10" | 9'-3"   | 9'-8"  | 10'-2" | 10'-8"  | - | - | - |
| 14"         | NI-20        | 7'-6"                   | 7'-11" | 8'-4"  | 8'-9"   | 9'-2"  | 9'-7"   | 10'-1" | 10'-7" | 10'-11" | - | - | - |
|             | NI-40x       | 8'-1"                   | 8'-7"  | 9'-0"  | 9'-6"   | 10'-1" | 10'-7"  | 11'-2" | -      | -       | - | - | - |
|             | NI-60        | 8'-9"                   | 9'-3"  | 9'-8"  | 10'-11" | 10'-6" | 11'-1"  | 11'-6" | -      | -       | - | - | - |
|             | NI-80        | 9'-0"                   | 9'-3"  | 9'-9"  | 10'-1"  | 10'-7" | 11'-1"  | 11'-6" | 12'-1" | 12'-6"  | - | - | - |
| 16"         | NI-20        | 9'-2"                   | 9'-3"  | 10'-9" | 10'-11" | 11'-6" | 11'-11" | 11'-6" | 12'-4" | 12'-11" | - | - | - |
|             | NI-40x       | 10'-3"                  | 10'-8" | 11'-2" | 11'-7"  | 12-0"  | 12-5"   | 13-2"  | -      | -       | - | - | - |
|             | NI-60        | 10'-4"                  | 10'-9" | 11'-3" | 11'-9"  | 12'-1" | 12'-7"  | 13'-1" | 13'-8" | 14'-4"  | - | - | - |
|             | NI-80        | 10'-9"                  | 11'-2" | 11'-8" | 12'-0"  | 12'-6" | 13-0"   | 13'-6" | 14'-2" | 14'-10" | - | - | - |



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

**PASSED**

## 1ST FLR FRAMING\Flush Beams\B1(i1226) (Flush Beam)

Dry | 1 span | No cant.

June 7, 2021 15:57:08

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

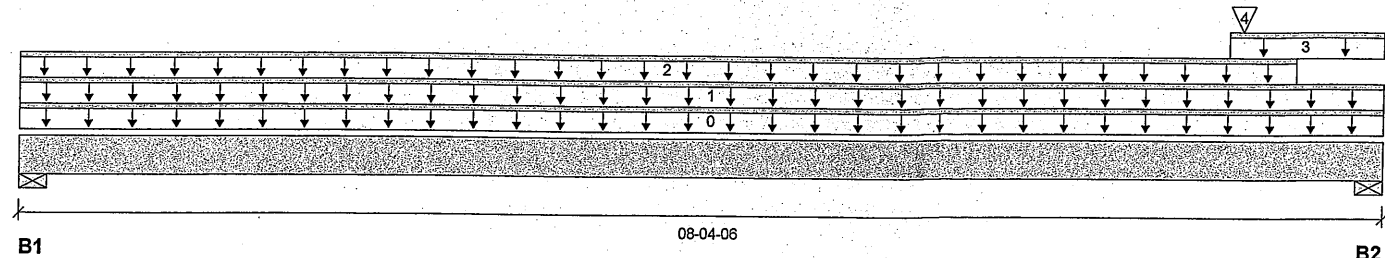
File name: UNIT 2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i1226)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 08-04-06

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

| Bearing    | Live     | Dead     | Snow | Wind |
|------------|----------|----------|------|------|
| B1, 2-3/8" | 1258 / 0 | 680 / 0  |      |      |
| B2, 5-1/2" | 2187 / 0 | 1255 / 0 |      |      |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.65 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|------------------------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight                        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-04-06 | Top  |              | 12           |              |              | 00-00-00  |
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-04-06 | Top  | 20           | 10           |              |              | n/a       |
| 2   | Smoothed Load                      | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-09-14 | Top  | 269          | 134          |              |              | n/a       |
| 3   | 1(i508)                            | Unf. Lin. (lb/ft) | L    | 07-04-14 | 08-04-06 | Top  | 195          | 178          |              |              | n/a       |
| 4   | 1(i508)                            | Conc. Pt. (lbs)   | L    | 07-05-14 | 07-05-14 | Top  | 984          | 529          |              |              | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 5388 ft-lbs     | 35392 ft-lbs        | 15.2%             | 1    | 04-05-14 |
| End Shear             | 3106 lbs        | 14464 lbs           | 21.5%             | 1    | 06-11-00 |
| Total Load Deflection | L/999 (0.043")  | n/a                 | n/a               | 4    | 04-01-14 |
| Live Load Deflection  | L/999 (0.028")  | n/a                 | n/a               | 5    | 04-01-14 |
| Max Defl.             | 0.043"          | n/a                 | n/a               | 4    | 04-01-14 |
| Span / Depth          | 7.9             |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 2-3/8" x 3-1/2" | 2738 lbs | 53.5%                     | 27.0%                    | Spruce-Pine-Fir |
| B2               | Wall/Plate 5-1/2" x 3-1/2" | 4849 lbs | 40.9%                     | 20.6%                    | Spruce-Pine-Fir |

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO CBC 2012

AMENDED 2020


 DWG NO. TAM 12494-21  
 STRUCTURAL  
 COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: UNIT 2011 EL A,B.mmdl

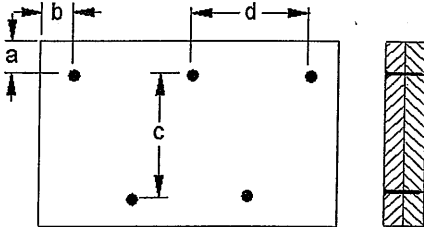
Description: 1ST FLR FRAMING\Flush Beams\B1(i1226)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 7-7/8"

d = 8"

Calculated Side Load = 745.3 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



OWG NO. TAM 2494-21  
STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

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



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

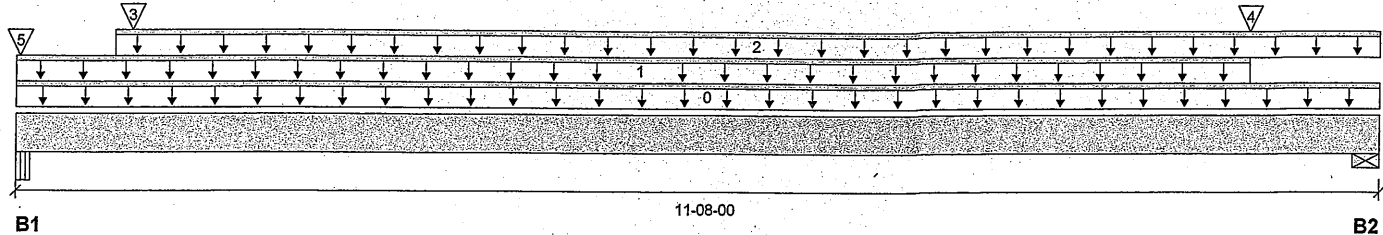
File name: UNIT 2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B14(i1162)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 11-08-00

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 2-5/8" | 983 / 0 | 620 / 0 |      |      |
| B2, 2-3/8" | 541 / 0 | 342 / 0 |      |      |

### Load Summary

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.65 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|------------------------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight                        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 11-08-00 | Top  |              | 12           |              |              | 00-00-00  |
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 10-06-06 | Top  | 12           | 6            |              |              | n/a       |
| 2   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-10-00 | 11-08-00 | Top  | 28           | 14           |              |              | n/a       |
| 3   | B3(i1191)                          | Conc. Pt. (lbs)   | L    | 00-11-12 | 00-11-12 | Top  | 671          | 358          |              |              | n/a       |
| 4   | J4(i1187)                          | Conc. Pt. (lbs)   | L    | 10-06-06 | 10-06-06 | Top  | 292          | 146          |              |              | n/a       |
| 5   | 6(i511)                            | Conc. Pt. (lbs)   | L    | 00-00-06 | 00-00-06 | Top  | 111          | 93           |              |              | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2534 ft-lbs     | 35392 ft-lbs        | 7.2%              | 1    | 05-03-03 |
| End Shear             | 1574 lbs        | 14464 lbs           | 10.9%             | 1    | 01-02-08 |
| Total Load Deflection | L/999 (0.046")  | n/a                 | n/a               | 4    | 05-08-06 |
| Live Load Deflection  | L/999 (0.027")  | n/a                 | n/a               | 5    | 05-08-06 |
| Max Defl.             | 0.046"          | n/a                 | n/a               | 4    | 05-08-06 |
| Span / Depth          | 11.5            |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)      | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|-----------------|----------|---------------------------|--------------------------|-----------------|
| B1 Beam          | 2-5/8" x 3-1/2" | 2250 lbs | 45.9%                     | 20.1%                    | Unspecified     |
| B2 Wall/Plate    | 2-3/8" x 3-1/2" | 1239 lbs | 24.2%                     | 12.2%                    | Spruce-Pine-Fir |

### Cautions

Concentrated side load(s) 5 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 09-03-10.

CONFORMS TO CBC 2012

AMENDED 2020



046 NO. TAM 12495-21  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: UNIT 2011 EL A,B.mmdl

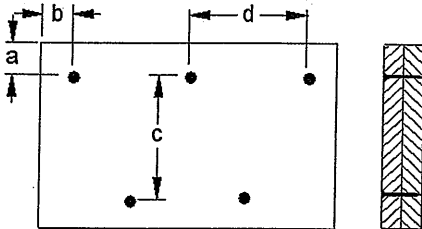
Description: 1ST FLR FRAMING\Flush Beams\B14(i1162)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 310.3 lb/ft

Connectors are: 16d Nails

**3 1/2" ARDOX SPIRAL**



ENG NO. TAM 12485-21  
**STRUCTURAL  
COMPONENT ONLY**

### Disclosure

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

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

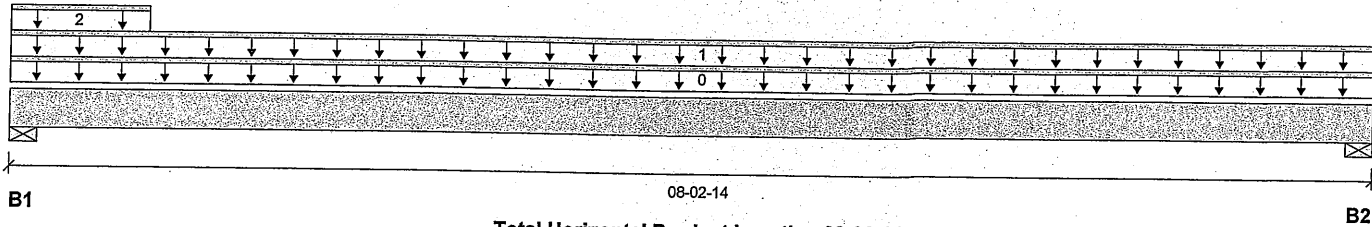
File name: UNIT2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i1139)

Specifier:

Designer: AJ

Company:


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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 8"     | 423 / 0 | 306 / 0 |      |      |
| B2, 4-3/8" | 22 / 0  | 35 / 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 | 08-02-14 | Top  | 1.00 | 0.65 | 1.00 | 1.15 |           |
| 1   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-02-14 | Top  | 5    | 3    |      |      | n/a       |
| 2   | E2(i451)           | Unf. Lin. (lb/ft) | L    | 00-00-00 | 00-10-00 | Top  | 457  | 310  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 138 ft-lbs      | 17696 ft-lbs        | 0.8%              | 1    | 04-00-05 |
| End Shear             | 251 lbs         | 7232 lbs            | 3.5%              | 1    | 01-07-14 |
| Total Load Deflection | L/999 (0.002")  | n/a                 | n/a               | 4    | 04-02-04 |
| Live Load Deflection  | L/999 (0.001")  | n/a                 | n/a               | 5    | 04-02-04 |
| Max Defl.             | 0.002"          | n/a                 | n/a               | 4    | 04-02-04 |
| Span / Depth          | 7.4             |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 8" x 1-3/4"     | 1016 lbs | 11.8%                     | 6.0%                     | Spruce-Pine-Fir |
| B2               | Wall/Plate 4-3/8" x 1-3/4" | 76 lbs   | 1.6%                      | 0.8%                     | Spruce-Pine-Fir |

**Notes**

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

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

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

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

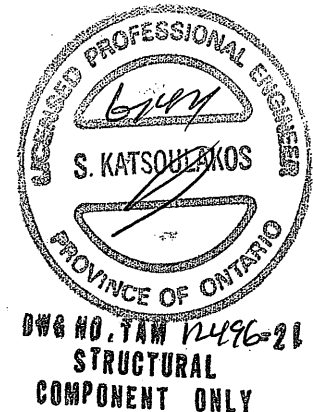
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 07-10-08.

CONFORMS TO OBC 2012

AMENDED 2020


**Disclosure**

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





BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

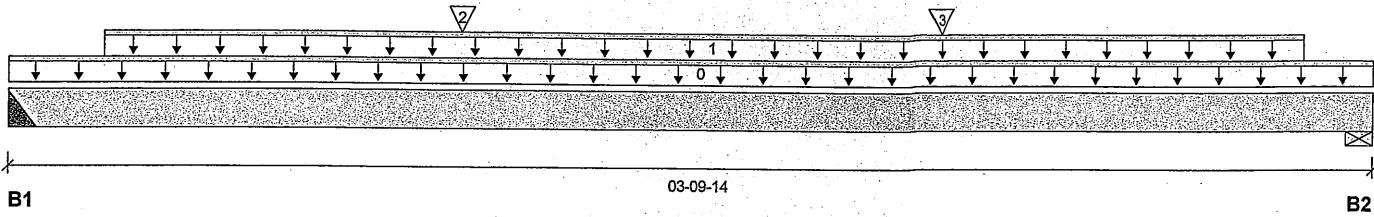
File name: UNIT 2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i1191)

Specifier:

Designer: AJ

Company:



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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 4"     | 714 / 0 | 381 / 0 |      |      |
| B2, 2-3/8" | 665 / 0 | 355 / 0 |      |      |

### Load Summary

| Tag | Description | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|-------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-09-14 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | STAIR       | Unf. Lin. (lb/ft) | L    | 00-03-02 | 03-07-08 | Top  | 240  | 120  |      |      | n/a       |
| 2   | J2(i1176)   | Conc. Pt. (lbs)   | L    | 01-03-00 | 01-03-00 | Top  | 300  | 150  |      |      | n/a       |
| 3   | J2(i1189)   | Conc. Pt. (lbs)   | L    | 02-07-00 | 02-07-00 | Top  | 272  | 136  |      |      | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 1396 ft-lbs     | 35392 ft-lbs        | 3.9%              | 1    | 01-11-15 |
| End Shear             | 939 lbs         | 14464 lbs           | 6.5%              | 1    | 01-03-14 |
| Total Load Deflection | L/999 (0.002")  | n/a                 | n/a               | 4    | 01-11-15 |
| Live Load Deflection  | L/999 (0.001")  | n/a                 | n/a               | 5    | 01-11-15 |
| Max Defl.             | 0.002"          | n/a                 | n/a               | 4    | 01-11-15 |
| Span / Depth          | 3.5             |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Hanger 4" x 3-1/2"         | 1548 lbs | n/a                       | 9.1%                     | HGUS410         |
| B2 | Wall/Plate 2-3/8" x 3-1/2" | 1441 lbs | 28.2%                     | 14.2%                    | Spruce-Pine-Fir |

### Cautions

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

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

### Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO CBC 2012

AMENDED 2020



ONE NO. TAM 12497-21  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: UNIT 2011 EL A,B.mmdl

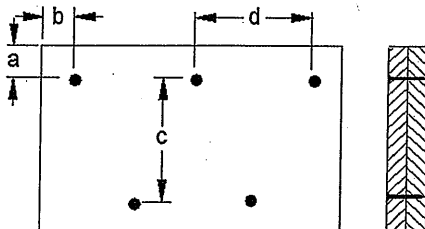
Description: 1ST FLR FRAMING\Flush Beams\B3(i1191)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 318.8 lb/ft

Connectors are: 16d Nails

**3 1/2" ARDOX SPIRAL**

BOISE CASCADE SOFTWARE CORPORATION, 2021



DWG NO. TAM 12497-21  
STRUCTURAL  
COMPONENT ONLY

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

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

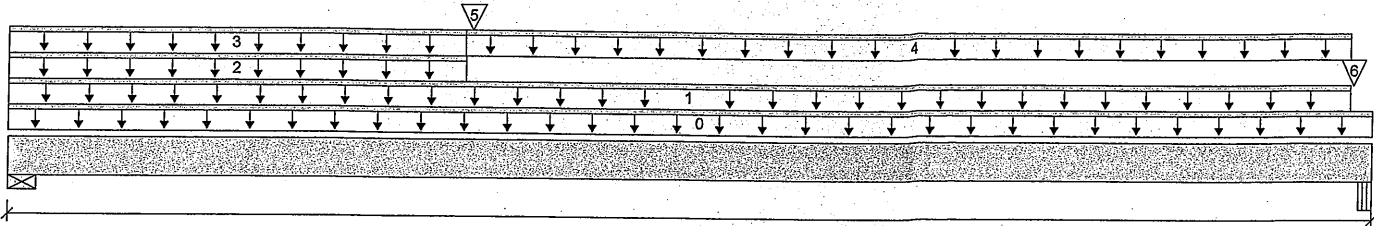
File name: UNIT 2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(i1179)

Specifier:

Designer: AJ

Company:



B1

13-04-14

B2

Total Horizontal Product Length = 13-04-14

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 4-3/8" | 820 / 0 | 495 / 0 |      |      |
| B2, 5-1/4" | 706 / 0 | 496 / 0 |      |      |

**Load Summary**

| Tag | Description                        | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.65 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|------------------------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight                        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-04-14 | Top  |              | 12           |              |              | 00-00-00  |
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-02-04 | Top  | 28           | 14           |              |              | n/a       |
| 2   | STAIR                              | Unf. Lin. (lb/ft) | L    | 00-00-00 | 04-04-15 | Top  | 120          | 60           |              |              | n/a       |
| 3   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 04-04-14 | Top  | 6            | 3            |              |              | n/a       |
| 4   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 04-04-14 | 13-02-04 | Top  | 25           | 13           |              |              | n/a       |
| 5   | B6(i1163)                          | Conc. Pt. (lbs)   | L    | 04-05-12 | 04-05-12 | Top  | 131          | 73           |              |              | n/a       |
| 6   | 6(i511)                            | Conc. Pt. (lbs)   | L    | 13-02-10 | 13-02-10 | Top  | 245          | 182          |              |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/<br>Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-----------------------|------|----------|
| Pos. Moment           | 4320 ft-lbs     | 35392 ft-lbs        | 12.2%                 | 1    | 04-10-00 |
| End Shear             | 1387 lbs        | 14464 lbs           | 9.6%                  | 1    | 01-04-04 |
| Total Load Deflection | L/999 (0.09")   | n/a                 | n/a                   | 4    | 06-04-04 |
| Live Load Deflection  | L/999 (0.055")  | n/a                 | n/a                   | 5    | 06-04-04 |
| Max Defl.             | 0.09"           | n/a                 | n/a                   | 4    | 06-04-04 |
| Span / Depth          | 12.9            |                     |                       |      |          |

| Bearing Supports | Dim. (LxW)                 | Demand   | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member | Material        |
|------------------|----------------------------|----------|----------------------------------|---------------------------------|-----------------|
| B1               | Wall/Plate 4-3/8" x 3-1/2" | 1849 lbs | 19.6%                            | 9.9%                            | Spruce-Pine-Fir |
| B2               | Beam 5-1/4" x 3-1/2"       | 1680 lbs | 17.1%                            | 7.5%                            | Unspecified     |

**Notes**

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 08-05-00.

CONFORMS TO CBC 2012

AMENDED 2020



DWG NO. TAM 1249821  
STRUCTURAL  
COMPONENT ONLY

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 7, 2021 15:57:08

File name: UNIT 2011 EL A,B.mmdl

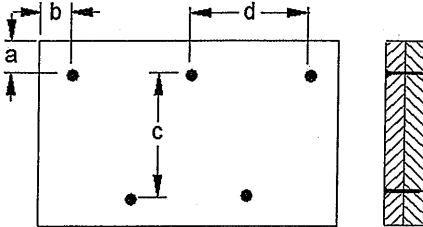
Description: 1ST FLR FRAMING\Flush Beams\B4(i1179)

Specifier:

Designer: AJ

Company:

### Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 143.9 lb/ft

Connectors are: 1-1/2" ARDOX SPIRAL

3 1/2" ARDOX SPIRAL



BWG NO. TAM 12498-21

STRUCTURAL

COMPONENT ONLY

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

1ST FLR FRAMING\Flush Beams\B5(i1220) (Flush Beam)

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 7, 2021 15:57:08

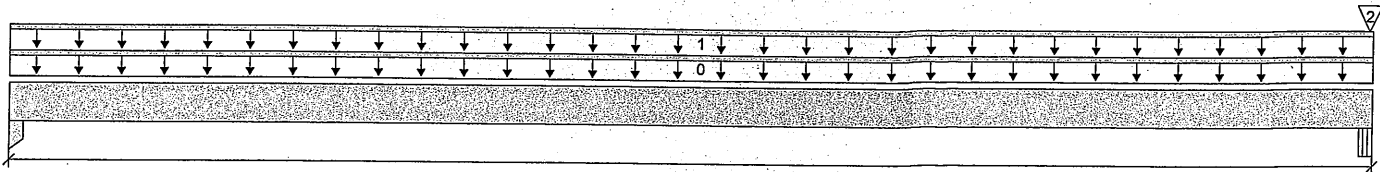
File name: UNIT 2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(i1220)

Specifier:

Designer: AJ

Company:



B1

08-07-10

B2

Total Horizontal Product Length = 08-07-10

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 1-3/4" | 129 / 0 | 116 / 0 |      |      |
| B2, 2-5/8" | 907 / 0 | 788 / 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 | 08-07-10 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-07-10 | Top  | 30   | 15   |      |      | n/a       |
| 2   | 6(i511)                            | Conc. Pt. (lbs)   | L    | 08-07-06 | 08-07-06 | Top  | 775  | 670  |      |      | n/a       |

## Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 698 ft-lbs      | 35392 ft-lbs        | 2.0%              | 1    | 04-03-06 |
| End Shear             | 249 lbs         | 14464 lbs           | 1.7%              | 1    | 01-01-10 |
| Total Load Deflection | L/999 (0.007")  | n/a                 | n/a               | 4    | 04-03-06 |
| Live Load Deflection  | L/999 (0.003")  | n/a                 | n/a               | 5    | 04-03-06 |
| Max Defl.             | 0.007"          | n/a                 | n/a               | 4    | 04-03-06 |
| Span / Depth          | 8.5             |                     |                   |      |          |

## Bearing Supports

|    | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|------------------------|----------|---------------------------|--------------------------|-------------|
| B1 | Column 1-3/4" x 3-1/2" | 339 lbs  | 6.8%                      | 4.5%                     | Unspecified |
| B2 | Beam 2-5/8" x 3-1/2"   | 2345 lbs | 47.8%                     | 20.9%                    | Unspecified |

## Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 08-05-00.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM12499-21  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: UNIT 2011 EL A,B.mmdl

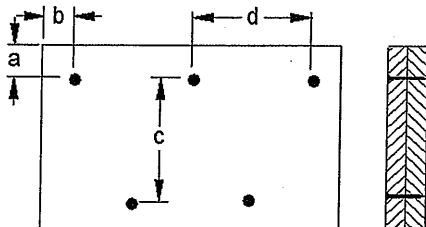
Description: 1ST FLR FRAMING\Flush Beams\B5(i1220)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Connectors are: 3 1/2" ARDOX SPIRAL Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 12472-21  
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®,



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

**PASSED**

## 1ST FLR FRAMING\Flush Beams\B6(i1163) (Flush Beam)

Dry | 1 span | No cant.

June 7, 2021 15:57:08

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

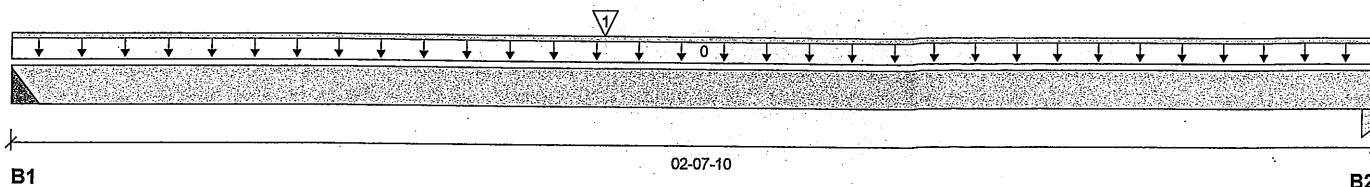
File name: UNIT 2011 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(i1163)

Specifier:

Designer: AJ

Company:



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

| Bearing    | Live    | Dead   | Snow | Wind |
|------------|---------|--------|------|------|
| B1, 2"     | 136 / 0 | 75 / 0 |      |      |
| B2, 3-1/2" | 108 / 0 | 62 / 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 | 02-07-10 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | J3(i1184)   | Conc. Pt. (lbs)   | L    | 01-01-08 | 01-01-08 | Top  | 244  | 122  |      |      | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 299 ft-lbs      | 17696 ft-lbs        | 1.7%              | 1    | 01-01-08 |
| End Shear             | 273 lbs         | 7232 lbs            | 3.8%              | 1    | 01-01-14 |
| Total Load Deflection | L/999 (0")      | n/a                 | n/a               | 4    | 01-02-08 |
| Live Load Deflection  | L/999 (0")      | n/a                 | n/a               | 5    | 01-02-08 |
| Max Defl.             | 0"              | n/a                 | n/a               | 4    | 01-02-08 |
| Span / Depth          | 2.3             |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)             | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|------------------------|---------|---------------------------|--------------------------|-------------|
| B1 | Hanger 2" x 1-3/4"     | 298 lbs | n/a                       | 7.0%                     | HUS1.81/10  |
| B2 | Column 3-1/2" x 1-3/4" | 240 lbs | 4.8%                      | 3.2%                     | Unspecified |

### Cautions

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

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

### Notes

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

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

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 01-01-06.

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM12500-21  
**STRUCTURAL COMPONENT ONLY**

### Disclosure

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



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

**PASSED**

## 1ST FLR FRAMING\Flush Beams\B7(i1196) (Flush Beam)

Dry | 1 span | No cant.

June 7, 2021 15:57:08

BC CALC® Member Report

Build 7773

Job name:

File name: UNIT2011 EL A,B.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(i1196)

City, Province, Postal Code: RICHMOND HILL

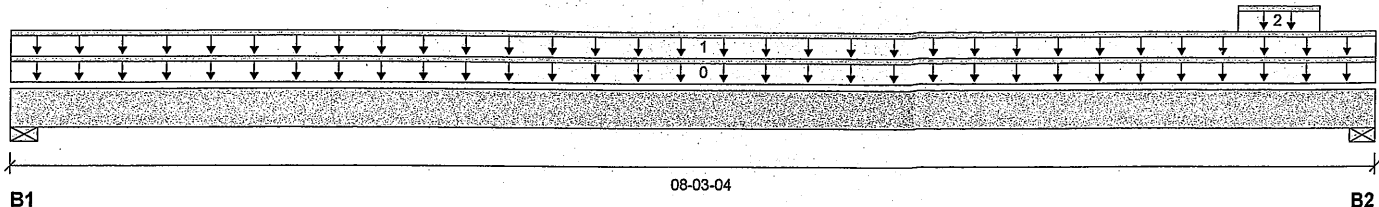
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



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

| Bearing     | Live    | Dead    | Snow | Wind |
|-------------|---------|---------|------|------|
| B1, 2-3/8"  | 101 / 0 | 74 / 0  |      |      |
| B2, 10-3/8" | 124 / 0 | 129 / 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 | 08-03-04 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC1 Floor Decking (Plan View Fill) | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-03-04 | Top  | 27   | 13   |      |      | n/a       |
| 2   | 3(i509)                            | Unf. Lin. (lb/ft) | L    | 07-04-14 | 07-10-14 | Top  | 10   | 86   |      |      | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 432 ft-lbs      | 17696 ft-lbs        | 2.4%              | 1    | 03-09-10 |
| End Shear             | 168 lbs         | 7232 lbs            | 2.3%              | 1    | 01-02-04 |
| Total Load Deflection | L/999 (0.006")  | n/a                 | n/a               | 4    | 03-09-10 |
| Live Load Deflection  | L/999 (0.004")  | n/a                 | n/a               | 5    | 03-09-10 |
| Max Defl.             | 0.006"          | n/a                 | n/a               | 4    | 03-09-10 |
| Span / Depth          | 7.4             |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)                  | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|-----------------------------|---------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 2-3/8" x 1-3/4"  | 244 lbs | 9.5%                      | 4.8%                     | Spruce-Pine-Fir |
| B2 | Wall/Plate 10-3/8" x 1-3/4" | 348 lbs | 3.1%                      | 1.6%                     | Spruce-Pine-Fir |

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 07-06-00.

CONFORMS TO CBC 2012

AMENDED 2020


 DWG NO. TAM 12501-21  
 STRUCTURAL  
 COMPONENT ONLY

### Disclosure

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

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





**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B10 DR(i1086) (Dropped Beam)**

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

June 7, 2021 15:57:08

Build 7773

Job name:

File name: UNIT2011 EL A,B.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i1086)

City, Province, Postal Code: RICHMOND HILL

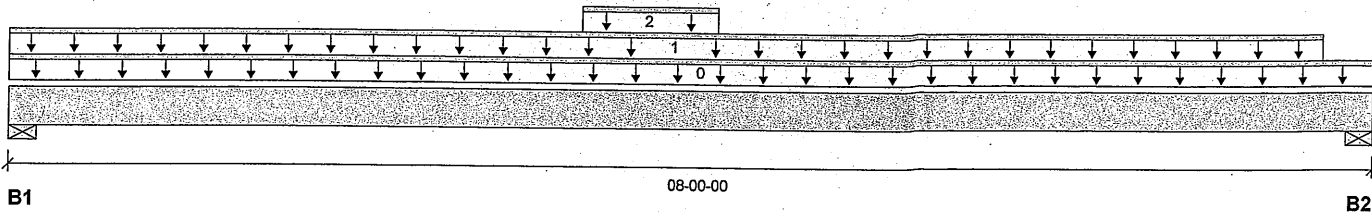
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



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

| Bearing    | Live     | Dead    | Snow | Wind |
|------------|----------|---------|------|------|
| B1, 5-1/2" | 1145 / 0 | 611 / 0 |      |      |
| B2, 6"     | 993 / 0  | 534 / 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 | 08-00-00 | Top  | 10   |      |      |      | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-08-06 | Top  | 271  | 135  |      |      | n/a       |
| 2   | Bk2(i1157)    | Unf. Lin. (lb/ft) | L    | 03-03-10 | 04-01-02 | Top  | 53   | 26   |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 3847 ft-lbs     | 23219 ft-lbs        | 16.6%             | 1    | 04-02-06 |
| End Shear             | 1878 lbs        | 11571 lbs           | 16.2%             | 1    | 01-03-00 |
| Total Load Deflection | L/999 (0.05")   | n/a                 | n/a               | 4    | 03-11-15 |
| Live Load Deflection  | L/999 (0.032")  | n/a                 | n/a               | 5    | 03-11-15 |
| Max Defl.             | 0.05"           | n/a                 | n/a               | 4    | 03-11-15 |
| Span / Depth          | 9.1             |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 5-1/2" x 3-1/2" | 2480 lbs | 9.7%                      | 10.6%                    | Spruce-Pine-Fir |
| B2               | Wall/Plate 6" x 3-1/2"     | 2157 lbs | 7.7%                      | 8.4%                     | Spruce-Pine-Fir |

**Notes**

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

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

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

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

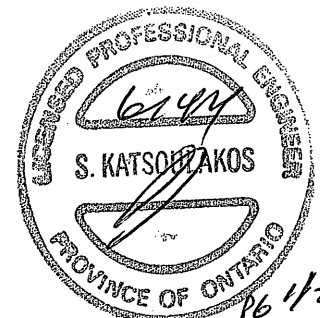
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-10-05, Bottom: 07-06-08.

**CONFORMS TO OBC 2012**

**AMENDED 2020**



OWG NO. TAM 12502-21  
**STRUCTURAL  
COMPONENT ONLY**



BC CALC® Member Report

Dry | 1 span | No cant.

June 7, 2021 15:57:08

Build 7773

Job name:

File name: UNIT 2011 EL A,B.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i1086)

City, Province, Postal Code: RICHMOND HILL

Specifier:

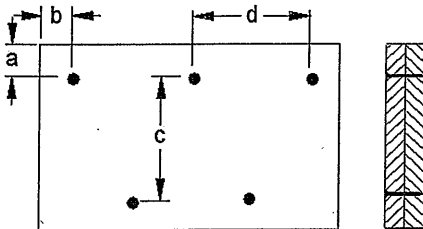
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

### Connection Diagram: Full Length of Member



a minimum = 2"  
b minimum = 3"

c = 5-1/2"  
d = 6"

Connectors are: 3 1/2" ARDOX SPIRAL Nails



ENG NO. TAM 12502-21  
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®,



**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B12(i1077) (Dropped Beam)**

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

June 7, 2021 15:57:08

Build 7773

Job name:

File name: UNIT2011 EL A,B.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B12(i1077)

City, Province, Postal Code: RICHMOND HILL

Specifier:

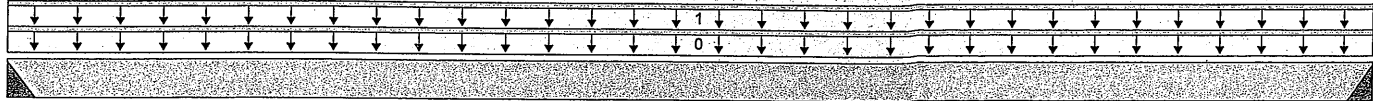
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

05-02-00

B2

Total Horizontal Product Length = 05-02-00

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

| Bearing | Live    | Dead   | Snow | Wind |
|---------|---------|--------|------|------|
| B1, 2"  | 103 / 0 | 67 / 0 |      |      |
| B2, 2"  | 103 / 0 | 67 / 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 | 05-02-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FLOOR       | Unf. Lin. (lb/ft) | L    | 00-00-00 | 05-02-00 | Top  | 40   | 20   |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 284 ft-lbs      | 9631 ft-lbs         | 3.0%              | 1    | 02-07-00 |
| End Shear             | 132 lbs         | 7232 lbs            | 1.8%              | 1    | 01-01-14 |
| Total Load Deflection | L/999 (0.002")  | n/a                 | n/a               | 4    | 02-07-00 |
| Live Load Deflection  | L/999 (0.001")  | n/a                 | n/a               | 5    | 02-07-00 |
| Max Defl.             | 0.002"          | n/a                 | n/a               | 4    | 02-07-00 |
| Span / Depth          | 5.0             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)         | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material   |
|----|--------------------|---------|---------------------------|--------------------------|------------|
| B1 | Hanger 2" x 1-3/4" | 239 lbs | n/a                       | 5.6%                     | HUS1.81/10 |
| B2 | Hanger 2" x 1-3/4" | 239 lbs | n/a                       | 5.6%                     | HUS1.81/10 |

**Cautions**

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

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

**Notes**

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

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

Hanger Manufacturer: Unassigned

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

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

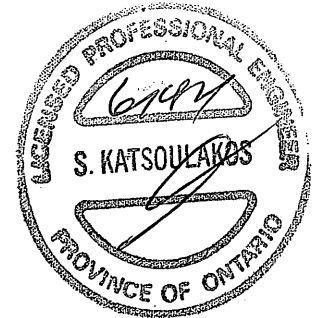
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Calculations assume unbraced length of Top: 05-02-00, Bottom: 05-02-00.

CONFORMS TO CBC 2012

AMENDED 2020



DWG NO. TAM/2503-21

**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®,



**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B13() (Dropped Beam)**

**PASSED**

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 7, 2021 15:57:08

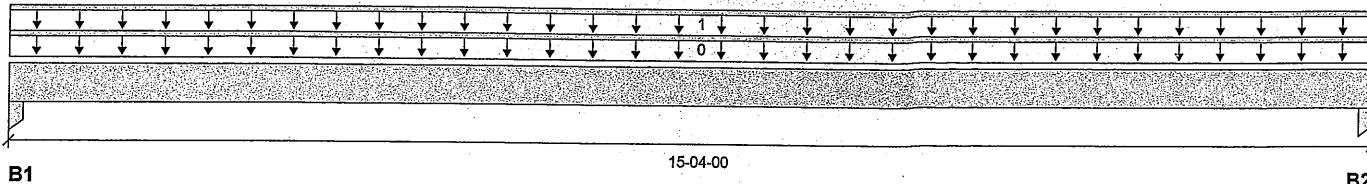
File name: UNIT 2011 EL A,B.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B13()

Specifier:

Designer: AJ

Company:



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

| Bearing    | Live | Dead    | Snow    | Wind |
|------------|------|---------|---------|------|
| B1, 5-1/4" |      | 414 / 0 | 736 / 0 |      |
| B2, 5-1/4" |      | 414 / 0 | 736 / 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 | 15-04-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | LOW ROOF    | Unf. Lin. (lb/ft) | L    | 00-00-00 | 15-04-00 | Top  |      | 42   | 96   |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 5624 ft-lbs     | 12980 ft-lbs        | 43.3%             | 1    | 07-08-00 |
| End Shear             | 1320 lbs        | 14464 lbs           | 9.1%              | 1    | 01-05-02 |
| Total Load Deflection | L/1120 (0.156") | n/a                 | 21.4%             | 12   | 07-08-00 |
| Live Load Deflection  | L/999 (0.1")    | n/a                 | n/a               | 17   | 07-08-00 |
| Max Defl.             | 0.156"          | n/a                 | n/a               | 12   | 07-08-00 |
| Span / Depth          | 14.7            |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|------------------------|----------|---------------------------|--------------------------|-------------|
| B1 | Column 5-1/4" x 3-1/2" | 1622 lbs | 10.9%                     | 7.2%                     | Unspecified |
| B2 | Column 5-1/4" x 3-1/2" | 1622 lbs | 10.9%                     | 7.2%                     | Unspecified |

**Notes**

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 15-04-00, Bottom: 15-04-00.

CONFORMS TO CBC 2012

AMENDED 2020



ENG NO. TAM 12504-21  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

June 7, 2021 15:57:08

File name: UNIT 2011 EL A,B.mmdl

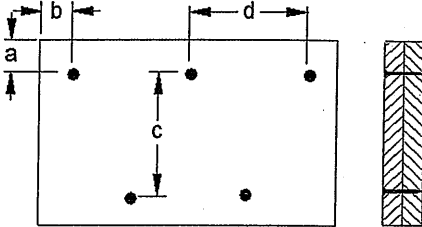
Description: 2ND FLR FRAMING\Dropped Beams\B13()

Specifier:

Designer: AJ

Company:

### Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL



OWG NO. TAM 12504-21  
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®,



# Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Dropped Beams\B8 DR(i1145) (Dropped Beam)

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

June 7, 2021 15:57:08

Build 7773

Job name:

File name: UNIT 2011 EL A,B.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B8 DR(i1145)

City, Province, Postal Code: RICHMOND HILL

Specifier:

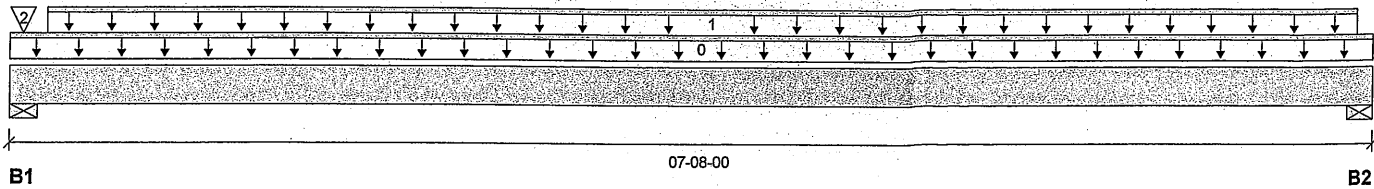
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-08-00

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

| Bearing | Live     | Dead     | Snow | Wind |
|---------|----------|----------|------|------|
| B1, 4"  | 1934 / 0 | 1003 / 0 |      |      |
| B2, 4"  | 1978 / 0 | 1024 / 0 |      |      |

## Load Summary

| Tag | Description   | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|---------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-08-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-02-08 | 07-06-14 | Top  | 496  | 248  |      |      | n/a       |
| 2   | J1(i1083)     | Conc. Pt. (lbs)   | L    | 00-00-14 | 00-00-14 | Top  | 260  | 130  |      |      | n/a       |

## Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 6682 ft-lbs     | 23219 ft-lbs        | 28.8%             | 1    | 03-06-08 |
| End Shear             | 3348 lbs        | 11571 lbs           | 28.9%             | 1    | 01-01-08 |
| Total Load Deflection | L/999 (0.086")  | n/a                 | n/a               | 4    | 03-09-11 |
| Live Load Deflection  | L/999 (0.057")  | n/a                 | n/a               | 5    | 03-09-11 |
| Max Defl.             | 0.086"          | n/a                 | n/a               | 4    | 03-09-11 |
| Span / Depth          | 9.0             |                     |                   |      |          |

## Bearing Supports

|    | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 4" x 3-1/2" | 4155 lbs | 22.2%                     | 24.3%                    | Spruce-Pine-Fir |
| B2 | Wall/Plate 4" x 3-1/2" | 4247 lbs | 22.7%                     | 24.9%                    | Spruce-Pine-Fir |

## Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-10-12, Bottom: 07-08-00.

CONFORMS TO OBC 2012

AMENDED 2020


 DWG NO. TAM12505-21  
 STRUCTURAL  
 COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Dropped Beams\B8 DR(i1145) (Dropped Beam)**

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

June 7, 2021 15:57:08

Build 7773

Job name:

File name: UNIT 2011 EL A,B.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B8 DR(i1145)

City, Province, Postal Code: RICHMOND HILL

Specifier:

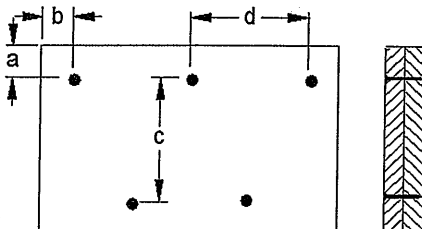
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

**Connection Diagram: Full Length of Member**



a minimum = 2"

c = 5-1/2"

b minimum = 3"

d = 3"

Connectors are: 1. Nails

**3 1/2" ARDOX SPIRAL**



ENG. NO. TAM 12505-21

**STRUCTURAL**

**COMPONENT ONLY**

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

BC CALC® Member Report

Build 0

Job name:

File name: UNIT 2011 EL A,B.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11(i1073)

City, Province, Postal Code: RICHMOND HILL

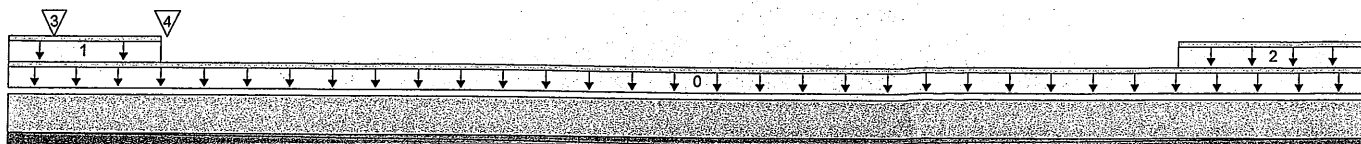
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



## Load Summary

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 16-11-12 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-10-12 | Top  | 6    | 3    |      |      | n/a       |
| 2   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 14-06-04 | 16-11-12 | Top  | 22   | 11   |      |      | n/a       |
| 3   | J2(i1043)          | Conc. Pt. (lbs)   | L    | 00-06-12 | 00-06-12 | Top  | 240  | 120  |      |      | n/a       |
| 4   | B12(i1077)         | Conc. Pt. (lbs)   | L    | 01-11-10 | 01-11-10 | Top  | 103  | 67   |      |      | n/a       |

## Controls Summary

|            | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|------------|-----------------|---------------------|-------------------|------|----------|
| Dist. Load | 46.04 lb/ft     | 57645.1 lb/ft       | n/a               |      |          |
| Conc. Load | 510 lbs         | 16813 lbs           | 3.0%              |      |          |

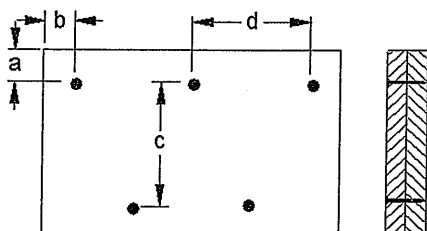
CONFORMS TO OBC 2012

## Notes

AMENDED 2020

Calculations assume unbraced length of Top: 12-05-12, Bottom: 00-00-00.

## Connection Diagram: Full Length of Member



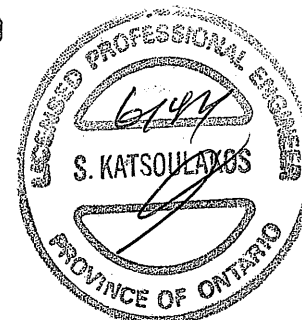
a minimum = 2"  
b minimum = 3"

c = 7-7/8"  
d = 12"

Calculated Side Load = 255.0 lb/ft

Connectors are: 1. Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM/2506/21

STRUCTURAL  
COMPONENT ONLY

## Disclosure

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

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





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

**PASSED**

## 2ND FLR FRAMING\Flush Beams\B9(i1069) (Flush Beam)

Dry | 1 span | No cant.

June 7, 2021 15:57:08

BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

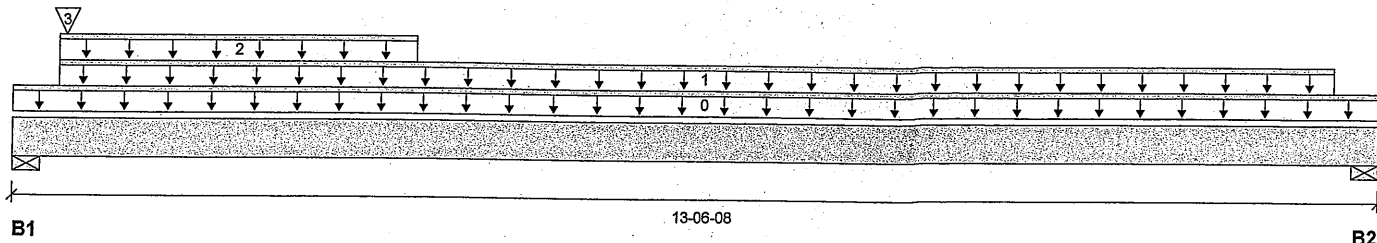
File name: UNIT 2011 EL A,B.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B9(i1069)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 13-06-08

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 5-1/2" | 566 / 0 | 380 / 0 |      |      |
| B2, 5-1/2" | 161 / 0 | 162 / 0 |      |      |

### Load Summary

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-06-08 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 00-05-08 | 13-01-00 | Top  | 16   | 8    |      |      | n/a       |
| 2   | STAIR              | Unf. Lin. (lb/ft) | L    | 00-05-08 | 03-11-08 | Top  | 120  | 60   |      |      | n/a       |
| 3   | B12(i1077)         | Conc. Pt. (lbs)   | L    | 00-06-06 | 00-06-06 | Top  | 103  | 67   |      |      | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 1964 ft-lbs     | 35392 ft-lbs        | 5.5%              | 1    | 04-02-09 |
| End Shear             | 772 lbs         | 14464 lbs           | 5.3%              | 1    | 01-05-06 |
| Total Load Deflection | L/999 (0.041")  | n/a                 | n/a               | 4    | 06-04-08 |
| Live Load Deflection  | L/999 (0.023")  | n/a                 | n/a               | 5    | 06-02-15 |
| Max Defl.             | 0.041"          | n/a                 | n/a               | 4    | 06-04-08 |
| Span / Depth          | 12.9            |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 5-1/2" x 3-1/2" | 1324 lbs | 11.2%                     | 5.6%                     | Spruce-Pine-Fir |
| B2 | Wall/Plate 5-1/2" x 3-1/2" | 444 lbs  | 3.7%                      | 1.9%                     | Spruce-Pine-Fir |

### Notes

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Calculations assume unbraced length of Top: 00-00-00, Bottom: 12-05-12.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 12507-21  
STRUCTURAL  
COMPONENT ONLY



BC CALC® Member Report

Build 7773

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports: CCMC 12472-R

File name: UNIT 2011 EL A,B.mmdl

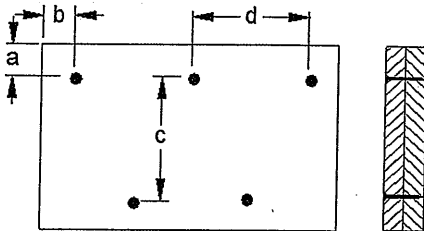
Description: 2ND FLR FRAMING\Flush Beams\B9(i1069)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 8"

Calculated Side Load = 119.1 lb/ft

Connectors are: 3 1/2" ARDOX SPIRAL Nails

3 1/2" ARDOX SPIRAL



ENG NO. TAM 12507-21  
STRUCTURAL  
COMPONENT ONLY

### Disclosure

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

# NORDIC STRUCTURES

## Maximum Floor Spans – S2.1

### Design Criteria

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

### Maximum Floor Spans

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

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

### Notes:

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

## Maximum Floor Spans – S4.1

### Design Criteria

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

### Maximum Floor Spans

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

| Joist depth | Joist series | Mid-span blocking with 1x4 inch strap<br>On centre spacing |         |         |         | Mid-span blocking and 1/2 in. gypsum ceiling<br>On centre spacing |         |         |         |
|-------------|--------------|------------------------------------------------------------|---------|---------|---------|-------------------------------------------------------------------|---------|---------|---------|
|             |              | 12"                                                        | 16"     | 19.2"   | 24"     | 12"                                                               | 16"     | 19.2"   | 24"     |
|             |              |                                                            |         |         |         |                                                                   |         |         |         |
| 9-1/2"      | NI-20        | 16'-10"                                                    | 15'-5"  | 14'-6"  | 13'-5"  | 16'-10"                                                           | 15'-5"  | 14'-6"  | 13'-5"  |
|             | NI-40x       | 18'-8"                                                     | 17'-2"  | 16'-3"  | 15'-2"  | 18'-10"                                                           | 17'-2"  | 16'-3"  | 15'-2"  |
|             | NI-60        | 18'-11"                                                    | 17'-6"  | 16'-6"  | 15'-5"  | 19'-2"                                                            | 17'-6"  | 16'-6"  | 15'-5"  |
|             | NI-80        | 20'-3"                                                     | 18'-10" | 17'-11" | 16'-10" | 20'-8"                                                            | 19'-3"  | 18'-2"  | 16'-10" |
| 11-7/8"     | NI-20        | 20'-1"                                                     | 18'-5"  | 17'-5"  | 16'-2"  | 20'-1"                                                            | 18'-5"  | 17'-5"  | 16'-2"  |
|             | NI-40x       | 21'-10"                                                    | 20'-4"  | 19'-4"  | 17'-8"  | 22'-5"                                                            | 20'-6"  | 19'-4"  | 17'-8"  |
|             | NI-60        | 22'-1"                                                     | 20'-7"  | 19'-8"  | 18'-4"  | 22'-8"                                                            | 20'-10" | 19'-8"  | 18'-4"  |
|             | NI-80        | 23'-8"                                                     | 22'-0"  | 20'-11" | 19'-10" | 24'-1"                                                            | 22'-6"  | 21'-6"  | 20'-0"  |
|             | NI-90        | 24'-1"                                                     | 22'-5"  | 21'-4"  | 20'-2"  | 24'-7"                                                            | 22'-11" | 21'-10" | 20'-7"  |
| 14"         | NI-40x       | 24'-5"                                                     | 22'-9"  | 21'-9"  | 19'-5"  | 25'-1"                                                            | 23'-2"  | 21'-9"  | 19'-5"  |
|             | NI-60        | 24'-10"                                                    | 23'-2"  | 22'-1"  | 20'-10" | 25'-6"                                                            | 23'-8"  | 22'-4"  | 20'-10" |
|             | NI-80        | 26'-6"                                                     | 24'-8"  | 23'-6"  | 22'-2"  | 27'-1"                                                            | 25'-3"  | 24'-1"  | 22'-9"  |
|             | NI-90        | 27'-0"                                                     | 25'-1"  | 23'-11" | 22'-7"  | 27'-6"                                                            | 25'-8"  | 24'-6"  | 23'-2"  |
| 16"         | NI-60        | 27'-3"                                                     | 25'-5"  | 24'-3"  | 22'-11" | 28'-0"                                                            | 26'-2"  | 24'-9"  | 23'-1"  |
|             | NI-80        | 29'-1"                                                     | 27'-1"  | 25'-9"  | 24'-4"  | 29'-8"                                                            | 27'-9"  | 26'-5"  | 25'-0"  |
|             | NI-90        | 29'-7"                                                     | 27'-6"  | 26'-2"  | 24'-9"  | 30'-2"                                                            | 28'-2"  | 26'-10" | 25'-5"  |

### Notes:

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

## Maximum Floor Spans – S6.1

### Design Criteria

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

### Maximum Floor Spans

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

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

### Notes:

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

## Maximum Floor Spans – S7.1

### Design Criteria

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

### Maximum Floor Spans

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

| Joist depth | Joist series | Mid-span blocking with 1x4 inch strap<br>On centre spacing |         |         |         | Mid-span blocking and 1/2 in. gypsum ceiling<br>On centre spacing |         |        |         |
|-------------|--------------|------------------------------------------------------------|---------|---------|---------|-------------------------------------------------------------------|---------|--------|---------|
|             |              | 12"                                                        | 16"     | 19.2"   | 24"     | 12"                                                               | 16"     | 19.2"  | 24"     |
|             |              |                                                            |         |         |         |                                                                   |         |        |         |
| 9-1/2"      | NI-20        | 16'-10"                                                    | 15'-5"  | 14'-6"  | 13'-5"  | 16'-10"                                                           | 15'-5"  | 14'-6" | 13'-5"  |
|             | NI-40x       | 18'-7"                                                     | 17'-2"  | 16'-3"  | 15'-2"  | 18'-10"                                                           | 17'-2"  | 16'-3" | 15'-2"  |
|             | NI-60        | 18'-10"                                                    | 17'-6"  | 16'-6"  | 15'-5"  | 19'-1"                                                            | 17'-6"  | 16'-6" | 15'-5"  |
|             | NI-80        | 20'-2"                                                     | 18'-9"  | 17'-11" | 16'-10" | 20'-7"                                                            | 19'-2"  | 18'-2" | 16'-10" |
| 11-7/8"     | NI-20        | 20'-1"                                                     | 18'-5"  | 17'-5"  | 16'-2"  | 20'-1"                                                            | 18'-5"  | 17'-5" | 16'-2"  |
|             | NI-40x       | 21'-9"                                                     | 20'-3"  | 19'-4"  | 17'-8"  | 22'-4"                                                            | 20'-5"  | 19'-4" | 17'-8"  |
|             | NI-60        | 22'-0"                                                     | 20'-6"  | 19'-7"  | 18'-4"  | 22'-7"                                                            | 20'-10" | 19'-8" | 18'-4"  |
|             | NI-80        | 23'-6"                                                     | 21'-10" | 20'-10" | 19'-9"  | 24'-0"                                                            | 22'-5"  | 21'-4" | 20'-0"  |
| 14"         | NI-90        | 24'-0"                                                     | 22'-4"  | 21'-3"  | 20'-1"  | 24'-6"                                                            | 22'-10" | 21'-9" | 20'-7"  |
|             | NI-40x       | 24'-4"                                                     | 22'-8"  | 21'-8"  | 19'-5"  | 25'-0"                                                            | 23'-2"  | 21'-9" | 19'-5"  |
|             | NI-60        | 24'-9"                                                     | 23'-0"  | 22'-0"  | 20'-9"  | 25'-5"                                                            | 23'-8"  | 22'-4" | 20'-10" |
|             | NI-80        | 26'-5"                                                     | 24'-6"  | 23'-4"  | 22'-1"  | 27'-0"                                                            | 25'-2"  | 24'-0" | 22'-8"  |
| 16"         | NI-90        | 26'-11"                                                    | 25'-0"  | 23'-10" | 22'-6"  | 27'-5"                                                            | 25'-7"  | 24'-5" | 23'-1"  |
|             | NI-60        | 27'-2"                                                     | 25'-4"  | 24'-2"  | 22'-10" | 27'-11"                                                           | 26'-1"  | 24'-9" | 23'-1"  |
|             | NI-80        | 29'-0"                                                     | 26'-11" | 25'-8"  | 24'-3"  | 29'-7"                                                            | 27'-7"  | 26'-4" | 24'-11" |
|             | NI-90        | 29'-6"                                                     | 27'-5"  | 26'-1"  | 24'-8"  | 30'-1"                                                            | 28'-1"  | 26'-9" | 25'-4"  |

### Notes:

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

## Maximum Floor Spans – M2.1

### Design Criteria

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

### Maximum Floor Spans

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

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

### Notes:

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

## Maximum Floor Spans – M4.1

### Design Criteria

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

### Maximum Floor Spans

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

| Joist depth | Joist series | Mid-span blocking with 1x4 inch strap |         |         |         | Mid-span blocking and 1/2 in. gypsum ceiling |         |         |         |
|-------------|--------------|---------------------------------------|---------|---------|---------|----------------------------------------------|---------|---------|---------|
|             |              | On centre spacing                     |         |         |         | On centre spacing                            |         |         |         |
|             |              | 12"                                   | 16"     | 19.2"   | 24"     | 12"                                          | 16"     | 19.2"   | 24"     |
| 9-1/2"      | NI-20        | 16'-10"                               | 15'-5"  | 14'-6"  | 13'-5"  | 16'-10"                                      | 15'-5"  | 14'-6"  | 13'-5"  |
|             | NI-40x       | 18'-8"                                | 17'-2"  | 16'-3"  | 14'-11" | 18'-10"                                      | 17'-2"  | 16'-3"  | 14'-11" |
|             | NI-60        | 18'-11"                               | 17'-6"  | 16'-6"  | 15'-5"  | 19'-2"                                       | 17'-6"  | 16'-6"  | 15'-5"  |
|             | NI-80        | 20'-3"                                | 18'-10" | 17'-11" | 16'-10" | 20'-8"                                       | 19'-3"  | 18'-2"  | 16'-10" |
| 11-7/8"     | NI-20        | 20'-1"                                | 18'-5"  | 17'-5"  | 16'-1"  | 20'-1"                                       | 18'-5"  | 17'-5"  | 16'-1"  |
|             | NI-40x       | 21'-10"                               | 20'-4"  | 19'-0"  | 17'-0"  | 22'-5"                                       | 20'-6"  | 19'-0"  | 17'-0"  |
|             | NI-60        | 22'-1"                                | 20'-7"  | 19'-8"  | 18'-4"  | 22'-8"                                       | 20'-10" | 19'-8"  | 18'-4"  |
|             | NI-80        | 23'-8"                                | 22'-0"  | 20'-11" | 19'-10" | 24'-1"                                       | 22'-6"  | 21'-6"  | 20'-0"  |
|             | NI-90        | 24'-1"                                | 22'-5"  | 21'-4"  | 20'-2"  | 24'-7"                                       | 22'-11" | 21'-10" | 20'-7"  |
| 14"         | NI-40x       | 24'-5"                                | 22'-9"  | 20'-11" | 18'-8"  | 25'-1"                                       | 22'-11" | 20'-11" | 18'-8"  |
|             | NI-60        | 24'-10"                               | 23'-2"  | 22'-1"  | 20'-10" | 25'-6"                                       | 23'-8"  | 22'-4"  | 20'-10" |
|             | NI-80        | 26'-6"                                | 24'-8"  | 23'-6"  | 22'-2"  | 27'-1"                                       | 25'-3"  | 24'-1"  | 22'-9"  |
|             | NI-90        | 27'-0"                                | 25'-1"  | 23'-11" | 22'-7"  | 27'-6"                                       | 25'-8"  | 24'-6"  | 23'-2"  |
| 16"         | NI-60        | 27'-3"                                | 25'-5"  | 24'-3"  | 22'-11" | 28'-0"                                       | 26'-2"  | 24'-9"  | 23'-1"  |
|             | NI-80        | 29'-1"                                | 27'-1"  | 25'-9"  | 24'-4"  | 29'-8"                                       | 27'-9"  | 26'-5"  | 25'-0"  |
|             | NI-90        | 29'-7"                                | 27'-6"  | 26'-2"  | 24'-9"  | 30'-2"                                       | 28'-2"  | 26'-10" | 25'-5"  |

### Notes:

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



# NORDIC STRUCTURES

## Maximum Floor Spans – M6.1

### Design Criteria

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

### Maximum Floor Spans

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

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

### Notes:

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

# NORDIC STRUCTURES

## Maximum Floor Spans – M7.1

### Design Criteria

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

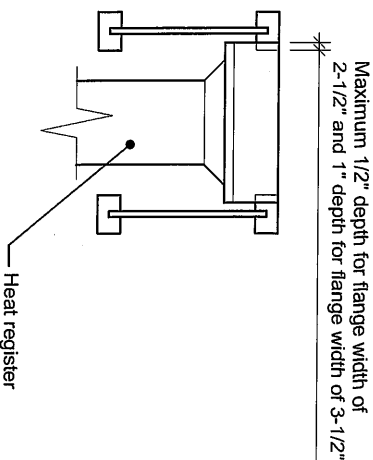
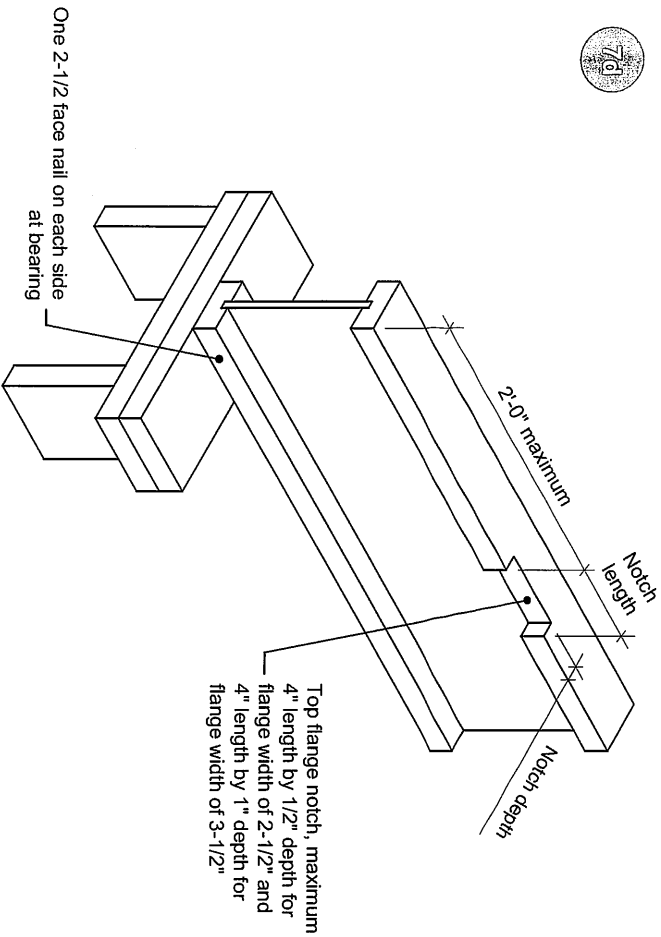
### Maximum Floor Spans

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

| Joist depth | Joist series | Mid-span blocking with 1x4 inch strap |         |         |         | Mid-span blocking and 1/2 in. gypsum ceiling |         |         |         |
|-------------|--------------|---------------------------------------|---------|---------|---------|----------------------------------------------|---------|---------|---------|
|             |              | On centre spacing                     |         |         |         | On centre spacing                            |         |         |         |
|             |              | 12"                                   | 16"     | 19.2"   | 24"     | 12"                                          | 16"     | 19.2"   | 24"     |
| 9-1/2"      | NI-20        | 16'-10"                               | 15'-5"  | 14'-6"  | 13'-5"  | 16'-10"                                      | 15'-5"  | 14'-6"  | 13'-5"  |
|             | NI-40x       | 18'-7"                                | 17'-2"  | 16'-3"  | 14'-11" | 18'-10"                                      | 17'-2"  | 16'-3"  | 14'-11" |
|             | NI-60        | 18'-10"                               | 17'-6"  | 16'-6"  | 15'-5"  | 19'-1"                                       | 17'-6"  | 16'-6"  | 15'-5"  |
|             | NI-80        | 20'-2"                                | 18'-9"  | 17'-11" | 16'-10" | 20'-7"                                       | 19'-2"  | 18'-2"  | 16'-10" |
| 11-7/8"     | NI-20        | 20'-1"                                | 18'-5"  | 17'-5"  | 16'-1"  | 20'-1"                                       | 18'-5"  | 17'-5"  | 16'-1"  |
|             | NI-40x       | 21'-9"                                | 20'-3"  | 19'-0"  | 17'-0"  | 22'-4"                                       | 20'-5"  | 19'-0"  | 17'-0"  |
|             | NI-60        | 22'-0"                                | 20'-6"  | 19'-7"  | 18'-4"  | 22'-7"                                       | 20'-10" | 19'-8"  | 18'-4"  |
|             | NI-80        | 23'-6"                                | 21'-10" | 20'-10" | 19'-9"  | 24'-0"                                       | 22'-5"  | 21'-4"  | 20'-0"  |
|             | NI-90        | 24'-0"                                | 22'-4"  | 21'-3"  | 20'-1"  | 24'-6"                                       | 22'-10" | 21'-9"  | 20'-7"  |
| 14"         | NI-40x       | 24'-4"                                | 22'-8"  | 20'-11" | 18'-8"  | 25'-0"                                       | 22'-11" | 20'-11" | 18'-8"  |
|             | NI-60        | 24'-9"                                | 23'-0"  | 22'-0"  | 20'-9"  | 25'-5"                                       | 23'-8"  | 22'-4"  | 20'-10" |
|             | NI-80        | 26'-5"                                | 24'-6"  | 23'-4"  | 22'-1"  | 27'-0"                                       | 25'-2"  | 24'-0"  | 22'-8"  |
|             | NI-90        | 26'-11"                               | 25'-0"  | 23'-10" | 22'-6"  | 27'-5"                                       | 25'-7"  | 24'-5"  | 23'-1"  |
| 16"         | NI-60        | 27'-2"                                | 25'-4"  | 24'-2"  | 22'-10" | 27'-11"                                      | 26'-1"  | 24'-9"  | 23'-1"  |
|             | NI-80        | 29'-0"                                | 26'-11" | 25'-8"  | 24'-3"  | 29'-7"                                       | 27'-7"  | 26'-4"  | 24'-11" |
|             | NI-90        | 29'-6"                                | 27'-5"  | 26'-1"  | 24'-8"  | 30'-1"                                       | 28'-1"  | 26'-9"  | 25'-4"  |

### Notes:

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



**Notes:**

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

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

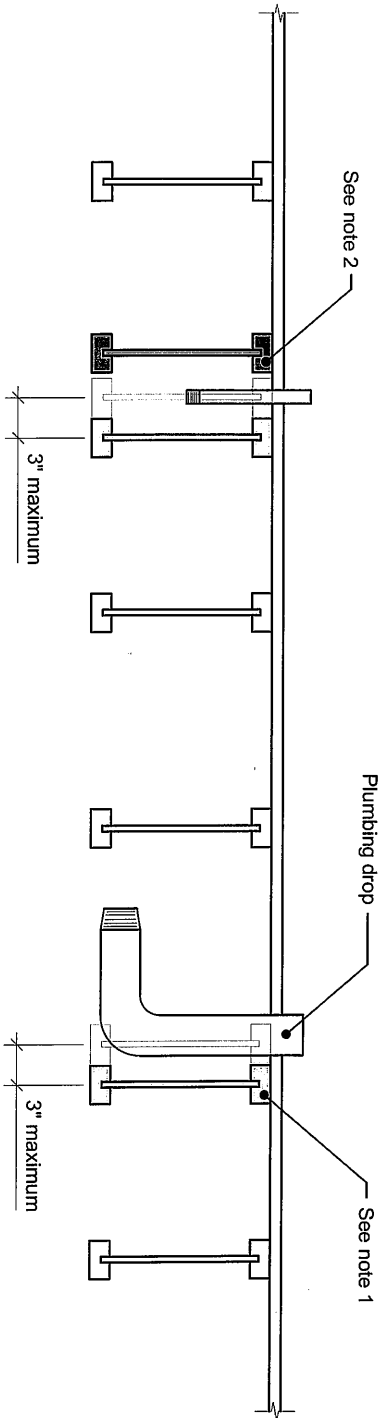
**NORDIC**  
STRUCTURES

nordic.ca

NS-DC3   
[DETAILS]  
NORDIC JOIST

TITLE  
Notch in I-joist for Heat Register  
CATEGORY  
Openings for Vertical Elements

DRAWING  
7d  
SCALE  
-  
DATE  
2020-10-01  
PAGE  
3.11



**Notes:**

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

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

TITLE

Allowance for Piping

DRAWING

7c

**NORDIC**  
STRUCTURES

NS-DC3 

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DETAILS  
NORDIC JOIST

CATEGORY

Openings for Vertical Elements

SCALE

-

DATE

2020-10-01

PAGE

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