

FROM PLAN DATED: JAN 2020

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLEYCREEK 11

ELEVATION: 1

LOT: 207

CITY: WATERDOWN

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

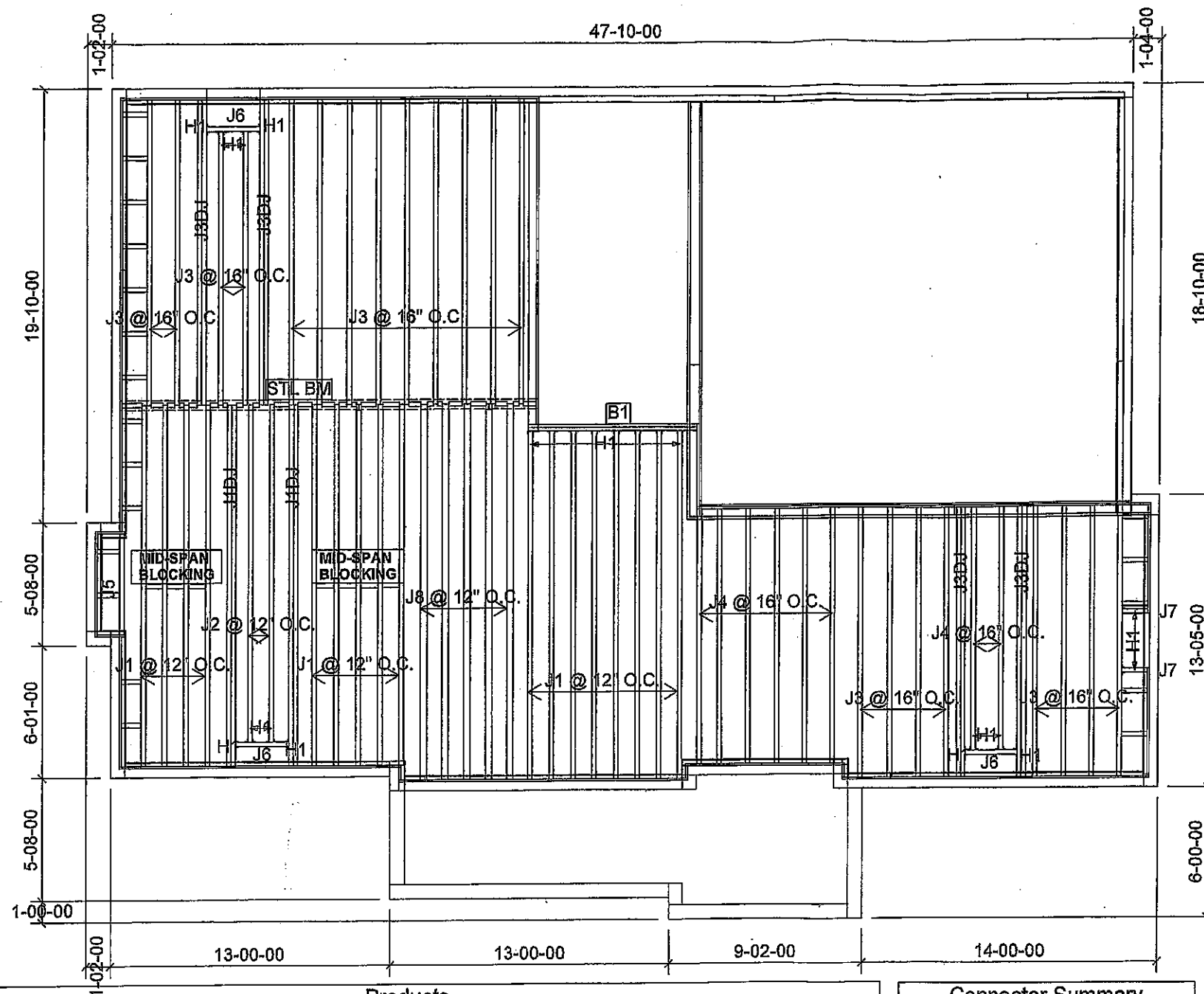
LIVE LOAD: 40.0 lb/ft<sup>2</sup>

DEAD LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 8/26/20

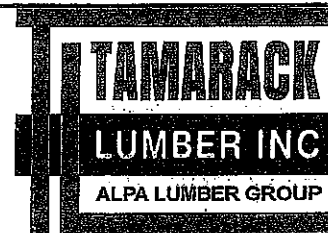
1st FLOOR



| Products |          |                                        |       |         |          |
|----------|----------|----------------------------------------|-------|---------|----------|
| PlotID   | Length   | Product                                | Plies | Net Qty | Fab Type |
| J1       | 18-00-00 | 9 1/2" NI-40x                          | 1     | 17      | MFD      |
| J1DJ     | 18-00-00 | 9 1/2" NI-40x                          | 2     | 4       | MFD      |
| J2       | 16-00-00 | 9 1/2" NI-40x                          | 1     | 2       | MFD      |
| J3       | 14-00-00 | 9 1/2" NI-40x                          | 1     | 21      | MFD      |
| J3DJ     | 14-00-00 | 9 1/2" NI-40x                          | 2     | 8       | MFD      |
| J4       | 12-00-00 | 9 1/2" NI-40x                          | 1     | 8       | MFD      |
| J5       | 6-00-00  | 9 1/2" NI-40x                          | 1     | 1       | MFD      |
| J6       | 4-00-00  | 9 1/2" NI-40x                          | 1     | 3       | MFD      |
| J7       | 2-00-00  | 9 1/2" NI-40x                          | 1     | 2       | MFD      |
| J8       | 18-00-00 | 9 1/2" NI-80                           | 1     | 5       | MFD      |
| B1       | 8-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 2       | MFD      |

| Connector Summary |       |             |
|-------------------|-------|-------------|
| Qty               | Manuf | Product     |
| 8                 | H1    | IUS2.56/9.5 |
| 6                 | H1    | IUS2.56/9.5 |
| 8                 | H1    | IUS2.56/9.5 |

Permit No. 21-107195  
THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE  
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH  
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW  
These drawings and/or specifications have been reviewed by  
JUL 06 2021  
DATE  
FOR CHIEF BUILDING OFFICIAL



FROM PLAN DATED: JAN 2020

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLEYCREEK 11

ELEVATION: 1

LOT: 287

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

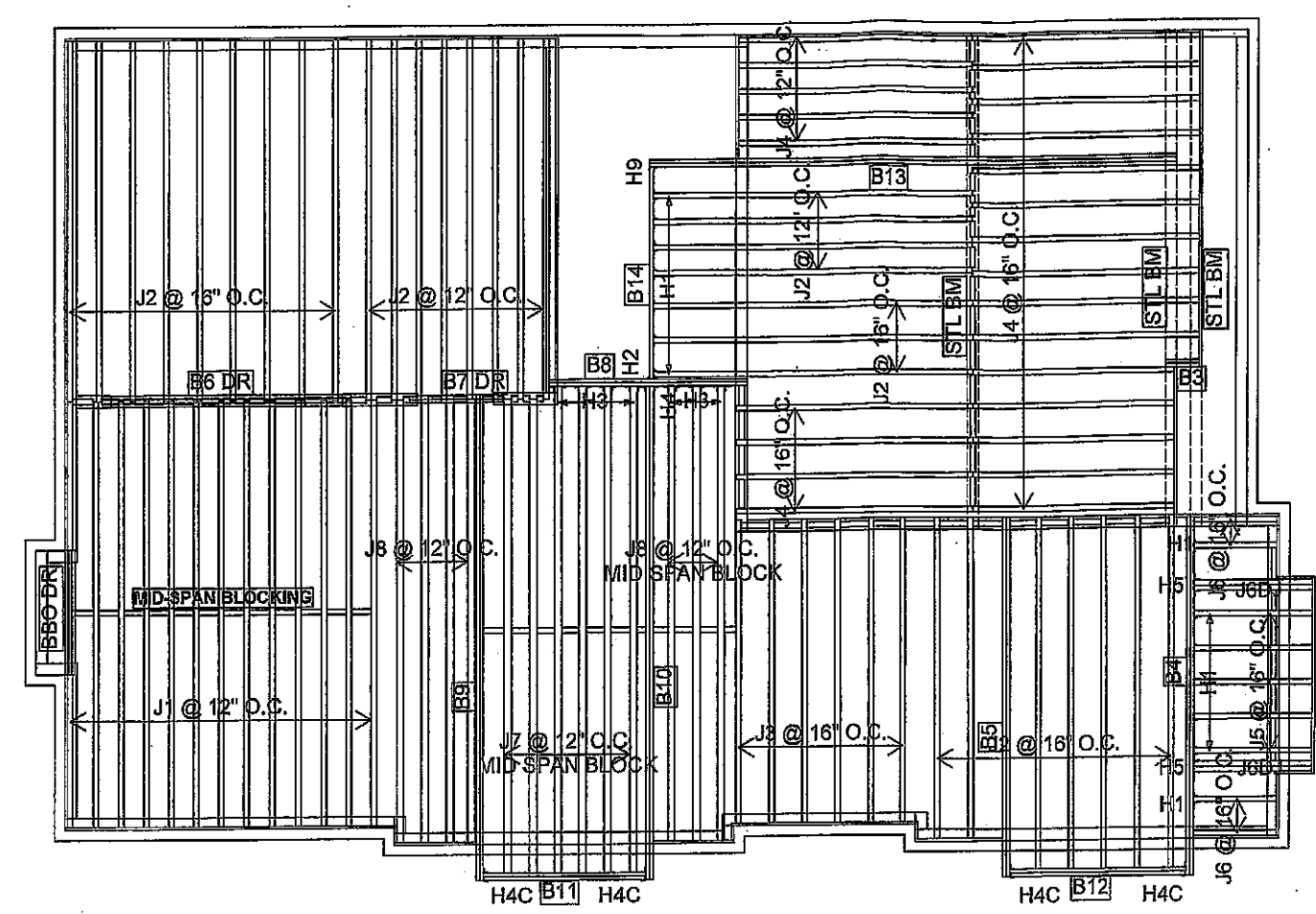
NOTES:  
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK 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: 8/26/20

2nd FLOOR



| Products |          |                                        |       |         |          |
|----------|----------|----------------------------------------|-------|---------|----------|
| PlotID   | Length   | Product                                | Plies | Net Qty | Fab Type |
| J1       | 18-00-00 | 9 1/2" NI-40x                          | 1     | 13      | MFD      |
| J2       | 14-00-00 | 9 1/2" NI-40x                          | 1     | 31      | MFD      |
| J3       | 12-00-00 | 9 1/2" NI-40x                          | 1     | 6       | MFD      |
| J4       | 10-00-00 | 9 1/2" NI-40x                          | 1     | 24      | MFD      |
| J5       | 6-00-00  | 9 1/2" NI-40x                          | 1     | 5       | MFD      |
| J6DJ     | 6-00-00  | 9 1/2" NI-40x                          | 2     | 4       | MFD      |
| J6       | 4-00-00  | 9 1/2" NI-40x                          | 1     | 4       | MFD      |
| J7       | 20-00-00 | 9 1/2" NI-80                           | 1     | 6       | MFD      |
| J8       | 18-00-00 | 9 1/2" NI-80                           | 1     | 7       | MFD      |
| B13      | 22-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B10      | 20-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B9       | 20-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B5       | 16-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B4       | 14-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B14      | 10-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 1     | 1       | MFD      |
| B6 DR    | 10-00-00 | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 3     | 3       | MFD      |
| B11      | 8-00-00  | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B12      | 8-00-00  | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B8       | 8-00-00  | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B7 DR    | 4-00-00  | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |
| B3       | 2-00-00  | 1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP | 2     | 2       | MFD      |

| Connector Summary |       |             |
|-------------------|-------|-------------|
| Qty               | Manuf | Product     |
| 7                 | H1    | IUS2.56/9.5 |
| 7                 | H1    | IUS2.56/9.5 |
| 1                 | H2    | HUS1.81/10  |
| 7                 | H3    | IUS3.56/9.5 |
| 4                 | H4C   | HUC410      |
| 1                 | H4    | HGUS410     |
| 2                 | H5    | HU310-2     |
| 1                 | H9    | LS90        |









# NORDIC STRUCTURES

COMPANY  
Aug. 26, 2020 15:53

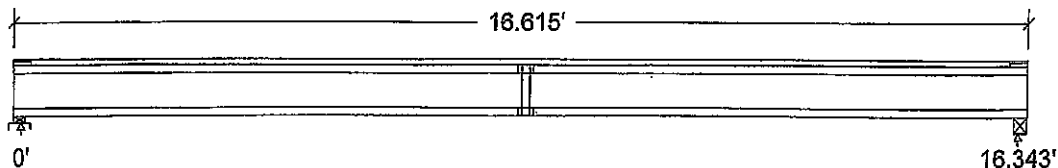
PROJECT  
J1 FIRST FLR.wwwb

## Design Check Calculation Sheet Nordic Sizer – Canada 7.2

### Loads:

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

### Maximum Reactions (lbs) and Support Bearing (in):



|             |       |  |       |
|-------------|-------|--|-------|
| Unfactored: |       |  |       |
| Dead        | 163   |  | 163   |
| Live        | 327   |  | 327   |
| Factored:   |       |  |       |
| Total       | 695   |  | 695   |
| Bearing:    |       |  |       |
| Capacity    |       |  |       |
| Joist       | 1865  |  | 1869  |
| Support     | 3981  |  | -     |
| Des ratio   |       |  |       |
| Joist       | 0.37  |  | 0.37  |
| Support     | 0.17  |  | -     |
| Load case   | #2    |  | #2    |
| Length      | 2-3/8 |  | 2-5/8 |
| Min req'd   | 1-3/4 |  | 1-3/4 |
| Stiffener   | No    |  | No    |
| KD          | 1.00  |  | 1.00  |
| KB support  | 1.00  |  | -     |
| fcp sup     | 769   |  | -     |
| Kzcp sup    | 1.09  |  | -     |

### Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

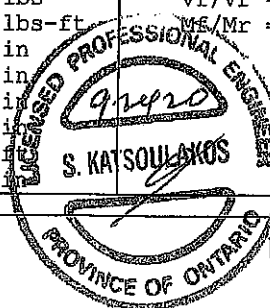
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;

Total length: 16.61'; Clear span: 16.197'; 3/4" nailed and glued OSB sheathing with 1 row of blocking

This section PASSES the design code check.

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

| Criterion    | Analysis Value | Design Value | Unit   | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear        | Vf = 695       | Vr = 1895    | lbs    | Vf/Vr = 0.37    |
| Moment (+)   | Mf = 2838      | Mr = 4824    | lbs-ft | Mf/Mr = 0.59    |
| Perm. Defl'n | 0.13 = < L/999 | 0.54 = L/360 | in     | 0.25            |
| Live Defl'n  | 0.27 = L/731   | 0.41 = L/480 | in     | 0.66            |
| Total Defl'n | 0.40 = L/487   | 0.82 = L/240 | in     | 0.49            |
| Bare Defl'n  | 0.32 = L/612   | 0.54 = L/360 | in     | 0.59            |
| Vibration    | Lmax = 16.313  | Lv = 17.938  | ft     | 0.91            |
| Defl'n       | = 0.029        | = 0.039      | in     | 0.75            |



DWG NO. G11/3005-20  
STRUCTURAL  
COMPONENT ONLY

**Additional Data:**

| FACTORS: | f/E           | KD   | KH   | KZ | KL    | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr       | 1895          | 1.00 | 1.00 | -  | -     | -  | -  | -  | #2  |
| Mr+      | 4824          | 1.00 | 1.00 | -  | 1.000 | -  | -  | -  | #2  |
| EI       | 218.1 million | -    | -    | -  | -     | -  | -  | -  | #2  |

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

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

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

**CALCULATIONS:**E<sub>I</sub>eff = 265.29 lb-in<sup>2</sup> K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. 61113005-20  
STRUCTURAL  
COMPONENT ONLY

PG 2/2

# NORDIC STRUCTURES

COMPANY  
Aug. 26, 2020 15:54

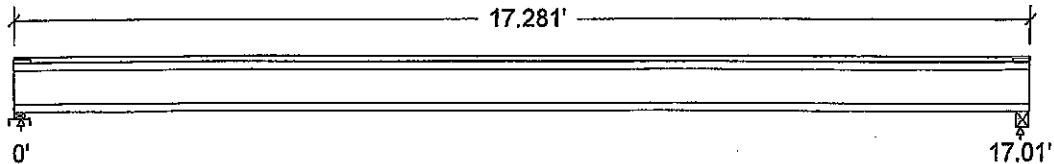
PROJECT  
J8 FIRST FLR.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 7.2

### Loads:

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

### Maximum Reactions (lbs) and Support Bearing (in):



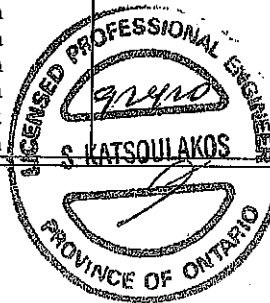
|             |       |  |       |
|-------------|-------|--|-------|
| Unfactored: |       |  |       |
| Dead        | 170   |  | 170   |
| Live        | 340   |  | 340   |
| Factored:   |       |  |       |
| Total       | 723   |  | 723   |
| Bearing:    |       |  |       |
| Capacity    |       |  |       |
| Joist       | 1893  |  | 1893  |
| Support     | 5573  |  | -     |
| Des ratio   |       |  |       |
| Joist       | 0.38  |  | 0.38  |
| Support     | 0.13  |  | -     |
| Load case   | #2    |  | #2    |
| Length      | 2-3/8 |  | 2-5/8 |
| Min req'd   | 1-3/4 |  | 1-3/4 |
| Stiffener   | No    |  | No    |
| KD          | 1.00  |  | 1.00  |
| KB support  | 1.00  |  | -     |
| fcp sup     | 769   |  | -     |
| Kzcp sup    | 1.09  |  | -     |

### Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;  
Total length: 17.28'; Clear span: 16.864'; 3/4" nailed and glued OSB sheathing  
This section **PASSES** the design code check.

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

| Criterion    | Analysis Value | Design Value | Unit   | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear        | Vf = 723       | Vr = 1895    | lbs    | Vf/Vr = 0.38    |
| Moment(+)    | Mf = 3074      | Mr = 8958    | lbs-ft | Mf/Mr = 0.34    |
| Perm. Defl'n | 0.11 = < L/999 | 0.57 = L/360 | in     | 0.20            |
| Live Defl'n  | 0.23 = L/892   | 0.43 = L/480 | in     | 0.54            |
| Total Defl'n | 0.34 = L/594   | 0.85 = L/240 | in     | 0.40            |
| Bare Defl'n  | 0.26 = L/783   | 0.57 = L/360 | in     | 0.46            |
| Vibration    | Lmax = 17.000  | Lv = 18.375  | ft     | 0.92            |
| Defl'n       | = 0.029        | = 0.037      | in     | 0.79            |



DWG NO. G111300620  
STRUCTURAL  
COMPONENT ONLY



**Additional Data:**

| FACTORS: | f/E           | KD   | KH   | KZ | KL    | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr       | 1895          | 1.00 | 1.00 | -  | -     | -  | -  | -  | #2  |
| Mr+      | 8958          | 1.00 | 1.00 | -  | 1.000 | -  | -  | -  | #2  |
| EI       | 324.1 million | -    | -    | -  | -     | -  | -  | -  | #2  |

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

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

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

**CALCULATIONS:**E<sub>IEff</sub> = 375.38 lb-in<sup>2</sup> K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. GIL/300620  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
Aug. 26, 2020 15:55

**PROJECT**  
J10 FIRST FLR.wwb

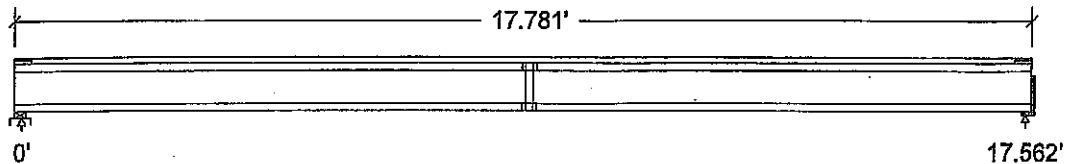
## Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

### Loads:

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

### Maximum Reactions (lbs) and Support Bearing (in):



|             |       |  |       |
|-------------|-------|--|-------|
| Unfactored: |       |  |       |
| Dead        | 176   |  | 176   |
| Live        | 351   |  | 351   |
| Factored:   |       |  |       |
| Total       | 746   |  | 746   |
| Bearing:    |       |  |       |
| Capacity    |       |  |       |
| Joist       | 1893  |  | 1893  |
| Support     | 5573  |  | -     |
| Des ratio   |       |  |       |
| Joist       | 0.39  |  | 0.39  |
| Support     | 0.13  |  | -     |
| Load case   | #2    |  | #2    |
| Length      | 2-3/8 |  | 2     |
| Min req'd   | 1-3/4 |  | 1-3/4 |
| Stiffener   | No    |  | No    |
| KD          | 1.00  |  | 1.00  |
| KB support  | 1.00  |  | -     |
| fcp sup     | 769   |  | -     |
| Kzcp sup    | 1.09  |  | -     |

**Nordic Joist 9-1/2" NI-80 Floor joist @ 12" o.c.**

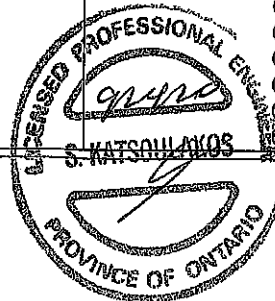
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Hanger;

Total length: 17.78'; Clear span: 17.416'; 3/4" nailed and glued OSB sheathing with 1 row of blocking

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

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

| Criterion    | Analysis Value | Design Value | Unit   | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear        | Vf = 746       | Vr = 1895    | lbs    | Vf/Vr = 0.39    |
| Moment(+)    | Mf = 3277      | Mr = 8958    | lbs-ft | Mf/Mr = 0.37    |
| Perm. Defl'n | 0.13 = L/999   | 0.59 = L/360 | in     | 0.22            |
| Live Defl'n  | 0.26 = L/816   | 0.44 = L/480 | in     | 0.59            |
| Total Defl'n | 0.39 = L/544   | 0.88 = L/240 | in     | 0.44            |
| Bare Defl'n  | 0.29 = L/716   | 0.59 = L/360 | in     | 0.50            |
| Vibration    | Lmax = 17.563  | Lv = 19.375  | ft     | 0.91            |
| Defl'n       | = 0.028        | = 0.036      | in     | 0.78            |



DWG NO. G1113007-20  
STRUCTURAL  
COMPONENT ONLY

P6 1/2

**Additional Data:**

| FACTORS: | f/E           | KD   | KH   | KZ | KL    | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr       | 1895          | 1.00 | 1.00 | -  | -     | -  | -  | -  | #2  |
| Mr+      | 8958          | 1.00 | 1.00 | -  | 1.000 | -  | -  | -  | #2  |
| EI       | 324.1 million | -    | -    | -  | -     | -  | -  | -  | #2  |

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake  
L=live(use,occupancy) Ls=live(storage,equipment) f=fireLoad Patterns: s=S/2 L=L+Ls \_=no pattern load in this span  
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**E<sub>I</sub>eff = 375.38 lb-in<sup>2</sup> K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. G1113007-20  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

COMPANY  
Aug. 26, 2020 15:59

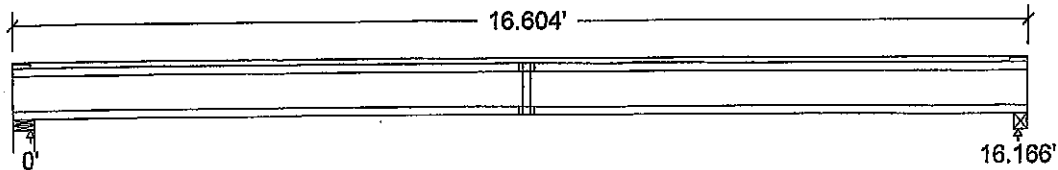
PROJECT  
J1 SECOND FLR.www

## Design Check Calculation Sheet Nordic Sizer – Canada 7.2

### Loads:

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

### Maximum Reactions (lbs) and Support Bearing (in):



|             |       |  |       |
|-------------|-------|--|-------|
| Unfactored: |       |  |       |
| Dead        | 162   |  | 162   |
| Live        | 323   |  | 323   |
| Factored:   |       |  |       |
| Total       | 687   |  | 687   |
| Bearing:    |       |  |       |
| Capacity    |       |  |       |
| Joist       | 1893  |  | 1869  |
| Support     | 7744  |  | 4043  |
| Des ratio   |       |  |       |
| Joist       | 0.36  |  | 0.37  |
| Support     | 0.09  |  | 0.17  |
| Load case   | #2    |  | #2    |
| Length      | 4-3/8 |  | 2-5/8 |
| Min req'd   | 1-3/4 |  | 1-3/4 |
| Stiffener   | No    |  | No    |
| KD          | 1.00  |  | 1.00  |
| KB support  | -     |  | 1.00  |
| fcp sup     | 769   |  | 769   |
| Kzcp sup    | -     |  | 1.00  |

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

### Nordic 9-1/2" NI-40x Floor joist @ 12" o.c.

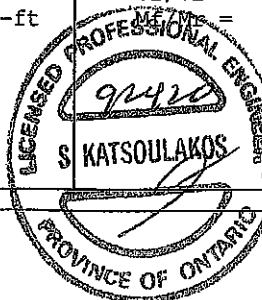
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Lumber Beam, No.1/No.2;

Total length: 16.6'; Clear span: 16.02'; 5/8" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

This section PASSES the design code check.

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

| Criterion    | Analysis Value     | Design Value   | Unit   | Analysis/Design  |
|--------------|--------------------|----------------|--------|------------------|
| Shear        | $V_f = 687$        | $V_r = 1895$   | lbs    | $V_f/V_r = 0.36$ |
| Moment (+)   | $M_f = 2777$       | $M_r = 4824$   | lbs-ft | $M_f/M_r = 0.58$ |
| Perm. Defl'n | $0.13 = < L/999$   | $0.54 = L/360$ | in     | 0.24             |
| Live Defl'n  | $0.26 = L/736$     | $0.40 = L/480$ | in     | 0.65             |
| Total Defl'n | $0.40 = L/491$     | $0.81 = L/240$ | in     | 0.49             |
| Bare Defl'n  | $0.31 = L/631$     | $0.54 = L/360$ | in     | 0.57             |
| Vibration    | $L_{max} = 16.188$ | $L_v = 18.625$ | ft     | 0.87             |
| Defl'n       | $= 0.027$          | $= 0.040$      | in     | 0.68             |



DWG NO. GIL-3000-20  
STRUCTURAL  
COMPONENT ONLY

**Additional Data:**

| FACTORS: | f/E           | KD   | KH   | KZ | KL    | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr       | 1895          | 1.00 | 1.00 | -  | -     | -  | -  | -  | #2  |
| Mr+      | 4824          | 1.00 | 1.00 | -  | 1.000 | -  | -  | -  | #2  |
| EI       | 218.1 million | -    | -    | -  | -     | -  | -  | -  | #2  |

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

Moment (+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

Support 2 - LC #2 = 1.25D + 1.5L

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

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

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

**CALCULATIONS:**E<sub>leff</sub> = 258.29 lb-in<sup>2</sup> K= 4.94e06 lbs

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

**CONFORMS TO QBC 2012****Design Notes:****AMENDED 2020**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. G1113003 20  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
Aug. 26, 2020 16:01

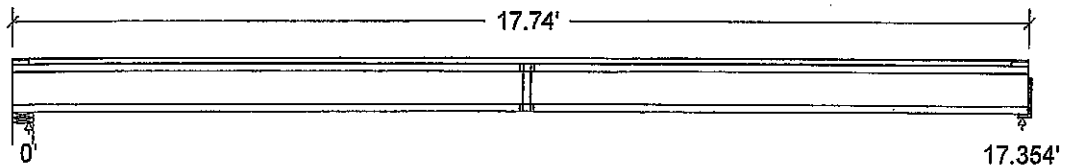
**PROJECT**  
J5 SECOND FLR.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 7.2

### Loads:

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

### Maximum Reactions (lbs) and Support Bearing (in):



|             |       |  |       |
|-------------|-------|--|-------|
| Unfactored: |       |  |       |
| Dead        | 174   |  | 174   |
| Live        | 347   |  | 347   |
| Factored:   |       |  |       |
| Total       | 738   |  | 738   |
| Bearing:    |       |  |       |
| Capacity    |       |  |       |
| Joist       | 1893  |  | 1893  |
| Support     | 10841 |  | -     |
| Des ratio   |       |  |       |
| Joist       | 0.39  |  | 0.39  |
| Support     | 0.07  |  | -     |
| Load case   | #2    |  | #2    |
| Length      | 4-3/8 |  | 2     |
| Min req'd   | 1-3/4 |  | 1-3/4 |
| Stiffener   | No    |  | No    |
| KD          | 1.00  |  | 1.00  |
| KB support  | -     |  | -     |
| fcp sup     | 769   |  | -     |
| Kzcp sup    | -     |  | -     |

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

### Nordic 9-1/2" NI-80 Floor Joist @ 12" o.c.

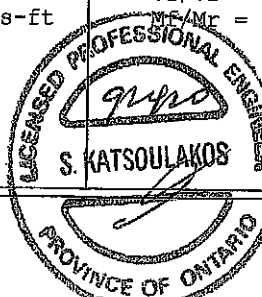
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Hanger;

Total length: 17.74'; Clear span: 17.208'; 5/8" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

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

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

| Criterion    | Analysis Value | Design Value | Unit   | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear        | Vf = 738       | Vr = 1895    | lbs    | Vf/Vr = 0.39    |
| Moment (+)   | Mf = 3200      | Mr = 8958    | lbs-ft | Mf/Mr = 0.36    |
| Perm. Defl'n | 0.13 = < L/999 | 0.58 = L/360 | in     | 0.22            |
| Live Defl'n  | 0.25 = L/827   | 0.43 = L/480 | in     | 0.58            |
| Total Defl'n | 0.38 = L/551   | 0.87 = L/240 | in     | 0.43            |
| Bare Defl'n  | 0.28 = L/740   | 0.58 = L/360 | in     | 0.49            |
| Vibration    | Lmax = 17.375  | Lv = 20.063  | ft     | 0.87            |
| Defl'n       | = 0.026        | = 0.036      | in     | 0.71            |



DWG NO. 8113009-20  
STRUCTURAL  
COMPONENT ONLY



**Additional Data:**

| FACTORS: | f/E           | KD   | KH   | KZ | KL    | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr       | 1895          | 1.00 | 1.00 | -  | -     | -  | -  | -  | #2  |
| Mr+      | 8958          | 1.00 | 1.00 | -  | 1.000 | -  | -  | -  | #2  |
| EI       | 324.1 million | -    | -    | -  | -     | -  | -  | -  | #2  |

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

Support 2 - LC #2 = 1.25D + 1.5L

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

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

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

**CALCULATIONS:**E<sub>IEff</sub> = 367.27 lb-in<sup>2</sup> K= 4.94e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...) CONFORMS TO OBC 2012

**Design Notes:**

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. 81113007-20  
STRUCTURAL  
COMPONENT ONLY

# NORDIC STRUCTURES

**COMPANY**  
Aug. 26, 2020 16:00

**PROJECT**  
J8 SECOND FLR.wwb

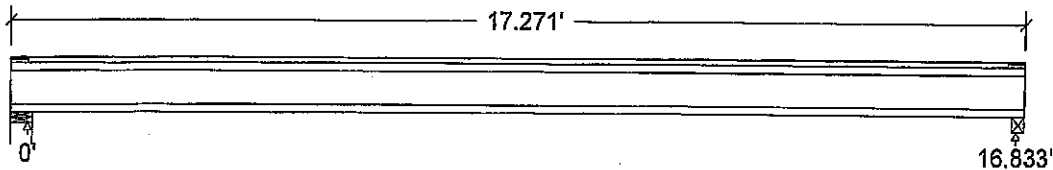
## Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

### Loads:

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

### Maximum Reactions (lbs) and Support Bearing (in):



|             |       |  |       |
|-------------|-------|--|-------|
| Unfactored: |       |  |       |
| Dead        | 168   |  | 168   |
| Live        | 337   |  | 337   |
| Factored:   |       |  |       |
| Total       | 715   |  | 715   |
| Bearing:    |       |  |       |
| Capacity    |       |  |       |
| Joist       | 1893  |  | 1893  |
| Support     | 10841 |  | 5661  |
| Des ratio   |       |  |       |
| Joist       | 0.38  |  | 0.38  |
| Support     | 0.07  |  | 0.13  |
| Load case   | #2    |  | #2    |
| Length      | 4-3/8 |  | 2-5/8 |
| Min req'd   | 1-3/4 |  | 1-3/4 |
| Stiffener   | No    |  | No    |
| KD          | 1.00  |  | 1.00  |
| KB support  | -     |  | 1.00  |
| fcp sup     | 769   |  | 769   |
| Kzcp sup    | -     |  | 1.00  |

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

### Nordic 9-1/2" NI-80 Floor joist @ 12" o.c.

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

Total length: 17.27'; Clear span: 16.687'; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

| Criterion    | Analysis Value | Design Value | Unit   | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear        | Vf = 715       | Vr = 1895    | lbs    | Vf/Vr = 0.38    |
| Moment(+)    | Mf = 3010      | Mr = 8958    | lbs-ft | Mf/Mr = 0.34    |
| Perm. Defl'n | 0.11 = < L/999 | 0.56 = L/360 | in     | 0.20            |
| Live Defl'n  | 0.22 = L/900   | 0.42 = L/480 | in     | 0.53            |
| Total Defl'n | 0.34 = L/600   | 0.84 = L/240 | in     | 0.40            |
| Bare Defl'n  | 0.25 = L/806   | 0.56 = L/360 | in     | 0.45            |
| Vibration    | Lmax = 16.813  | Lv = 17.813  | ft     | 0.95            |
| Defl'n       | = 0.032        | = 0.038      | in     | 0.84            |



DWG NO. GIL13010-20  
STRUCTURAL  
COMPONENT ONLY

**Additional Data:**

| FACTORS: | f/E           | KD   | KH   | KZ | KL    | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr       | 1895          | 1.00 | 1.00 | -  | -     | -  | -  | -  | #2  |
| Mr+      | 8958          | 1.00 | 1.00 | -  | 1.000 | -  | -  | -  | #2  |
| EI       | 324.1 million | -    | -    | -  | -     | -  | -  | -  | #2  |

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

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

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

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

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

**CALCULATIONS:**E<sub>I</sub>eff = 367.27 lb-in<sup>2</sup> K= 4.94e06 lbs

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

**CONFORMS TO OBC 2012****AMENDED 2020****Design Notes:**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. GIL/3010-20  
STRUCTURAL  
COMPONENT ONLY

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B20(i4350) (Flush Beam)**

Dry | 1 span | No cant.

August 27, 2020 08:14:55

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

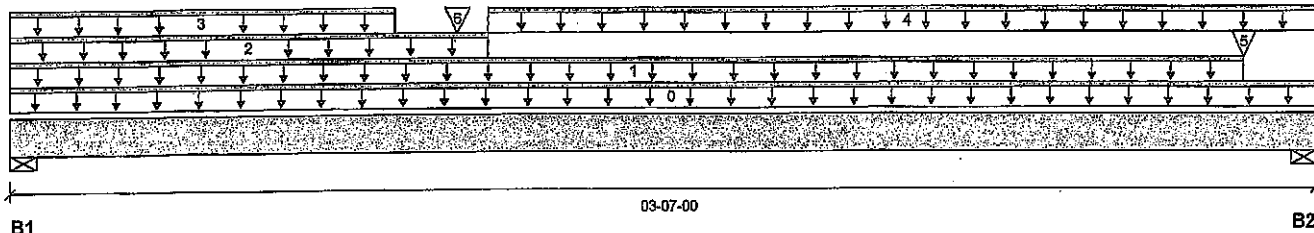
File name: VALLEYCREEK 11 EL 3 LOT 87.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B20(i4350)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-07-00

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

| Bearing | Live   | Dead    | Snow    | Wind |
|---------|--------|---------|---------|------|
| B1, 3"  | 97 / 0 | 753 / 0 | 339 / 0 |      |
| B2, 3"  | 58 / 0 | 378 / 0 | 117 / 0 |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.85 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-07-00 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | FC1 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-04-08 | Top  | 22           | 11           |              |              | n/a       |
| 2   | E1(i645)           | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-03-08 | Top  | 24           | 217          |              |              | n/a       |
| 3   | E1(i645)           | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-00-08 | Top  | 4            | 181          | 129          |              | n/a       |
| 4   | E47(i4111)         | Unf. Lin. (lb/ft) | L    | 01-03-08 | 03-07-00 | Top  |              | 100          |              |              | n/a       |
| 5   | Bk2(i4156)         | Conc. Pt. (lbs)   | L    | 03-04-08 | 03-04-08 | Top  | 5            |              |              |              | n/a       |
| 6   | E1(i645)           | Conc. Pt. (lbs)   | L    | 01-02-08 | 01-02-08 | Top  | 40           | 380          | 321          |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/<br>Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-----------------------|------|----------|
| Pos. Moment           | 1055 ft-lbs     | 23220 ft-lbs        | 4.5%                  | 13   | 01-02-08 |
| End Shear             | 774 lbs         | 11571 lbs           | 6.7%                  | 13   | 01-00-08 |
| Total Load Deflection | L/999 (0.003")  | n/a                 | n/a                   | 35   | 01-08-00 |
| Live Load Deflection  | L/999 (0.001")  | n/a                 | n/a                   | 51   | 01-07-09 |
| Max Defl.             | 0.003"          | n/a                 | n/a                   | 35   | 01-08-00 |
| Span / Depth          | 4.1             |                     |                       |      |          |

| Bearing Supports | Dim. (LxW)             | Demand   | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member | Material        |
|------------------|------------------------|----------|----------------------------------|---------------------------------|-----------------|
| B1               | Wall/Plate 3" x 3-1/2" | 1055 lbs | 25.1%                            | 12.7%                           | Spruce-Pine-Fir |
| B2               | Wall/Plate 3" x 3-1/2" | 530 lbs  | 12.6%                            | 6.4%                            | Spruce-Pine-Fir |

**Notes**

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

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



096 NO. TAM 1208420  
 STRUCTURAL  
 COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B20(I4350) (Flush Beam)

Dry | 1 span | No cant.

August 27, 2020 08:14:55

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: VALLEYCREEK 11 EL 3 LOT 87.mmdl

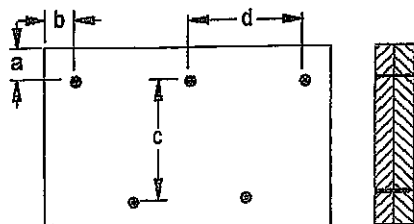
Description: 1ST FLR FRAMING\Flush Beams\B20(I4350)

Specifier:

Designer: AJ

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 5-1/2"

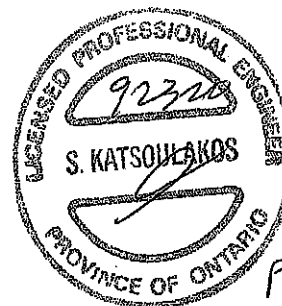
b minimum = 3"

d = 20 3/4"

Calculated Side Load = 5.6 lb/ft

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



ONE NO. 7AM 1288420

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®,



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

**PASSED**

## 2ND FLR FRAMING\Dropped Beams\B6 DR(i2117) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B6 DR(i2117)

City, Province, Postal Code:

Specifier:

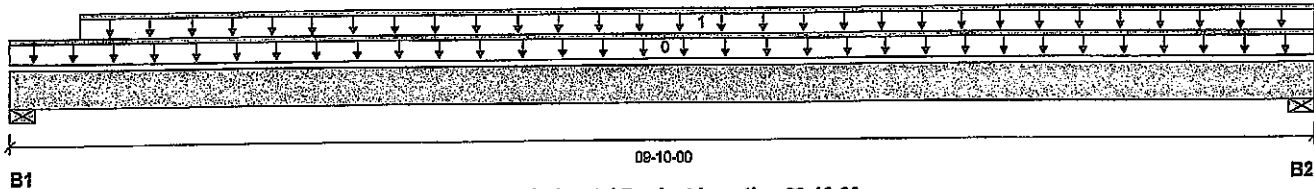
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-10-00

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

| Bearing | Live     | Dead     | Snow | Wind |
|---------|----------|----------|------|------|
| B1, 4"  | 2744 / 0 | 1445 / 0 |      |      |
| B2, 4"  | 3122 / 0 | 1634 / 0 |      |      |

### Load Summary

| Tag | Description   | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|---------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft) | L    | 00-00-00 | 09-10-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-06-08 | 09-10-00 | Top  | 631  | 316  |      |      | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 14113 ft-lbs    | 36222 ft-lbs        | 39.0%             | 1    | 04-08-14 |
| End Shear             | 5562 lbs        | 17356 lbs           | 32.0%             | 1    | 01-01-08 |
| Total Load Deflection | L/539 (0.207")  | n/a                 | 44.5%             | 4    | 04-11-11 |
| Live Load Deflection  | L/822 (0.136")  | n/a                 | 43.8%             | 5    | 04-11-11 |
| Max Defl.             | 0.207"          | n/a                 | n/a               | 4    | 04-11-11 |
| Span / Depth          | 11.7            |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 4" x 5-1/4" | 5923 lbs | 21.1%                     | 23.1%                    | Spruce-Pine-Fir |
| B2               | Wall/Plate 4" x 5-1/4" | 6725 lbs | 24.0%                     | 26.2%                    | Spruce-Pine-Fir |

### Notes

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

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

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

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

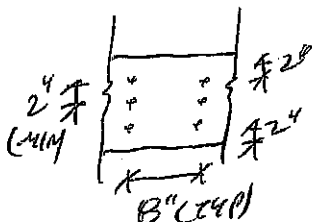
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. YAM5852 -20  
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®, AJST™, 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

**PASSED**

## 2ND FLR FRAMING\Dropped Beams\B7 DR(i2144) (Dropped Beam)

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

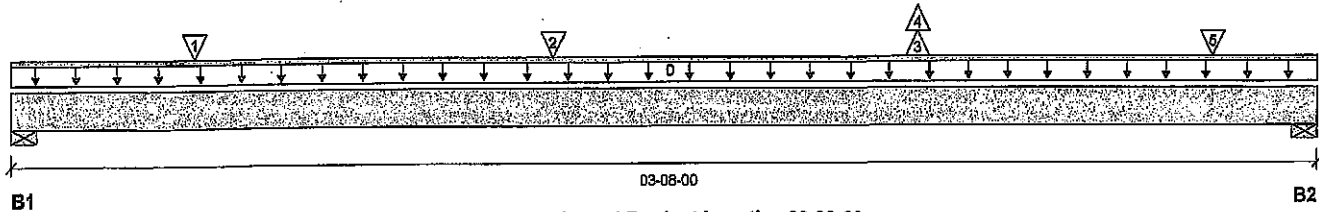
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B7 DR(i2144)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 03-08-00

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

| Bearing | Live      | Dead    | Snow   | Wind |
|---------|-----------|---------|--------|------|
| B1, 4"  | 1132 / 3  | 590 / 0 | 0 / 4  |      |
| B2, 4"  | 1059 / 10 | 578 / 0 | 0 / 18 |      |

### Load Summary

| Tag | Description | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|-------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-08-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | -           | Conc. Pt. (lbs)   | L    | 00-06-01 | 00-06-01 | Top  | 616  | 307  |      |      | n/a       |
| 2   | -           | Conc. Pt. (lbs)   | L    | 01-06-00 | 01-06-00 | Top  | 587  | 293  |      |      | n/a       |
| 3   | -           | Conc. Pt. (lbs)   | L    | 02-06-06 | 02-06-06 | Top  | 713  | 396  | -22  |      | n/a       |
| 4   | -           | Conc. Pt. (lbs)   | L    | 02-06-06 | 02-06-06 | Top  | -13  |      |      |      | n/a       |
| 5   | J2(i2170)   | Conc. Pt. (lbs)   | L    | 03-04-08 | 03-04-08 | Top  | 275  | 137  |      |      | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 1610 ft-lbs     | 23220 ft-lbs        | 6.9%              | 21   | 01-07-08 |
| End Shear             | 1552 lbs        | 11571 lbs           | 13.4%             | 21   | 02-06-08 |
| Total Load Deflection | L/999 (0.004")  | n/a                 | n/a               | 56   | 01-10-04 |
| Live Load Deflection  | L/999 (0.003")  | n/a                 | n/a               | 83   | 01-10-04 |
| Max Defl.             | 0.004"          | n/a                 | n/a               | 56   | 01-10-04 |
| Span / Depth          | 3.9             |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 4" x 3-1/2" | 2435 lbs | 13.0%                     | 14.3%                    | Spruce-Pine-Fir |
| B2 | Wall/Plate 4" x 3-1/2" | 2312 lbs | 12.4%                     | 13.5%                    | Spruce-Pine-Fir |

### Notes

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

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

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

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

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

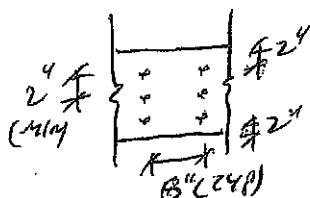
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



ENG. NO. 41520-20  
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 Floor/Value®, VERSA-LAM®, VERSA-RIM PLUS®,



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP  
2ND FLR FRAMING/Flush Beams/B10(i2111) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

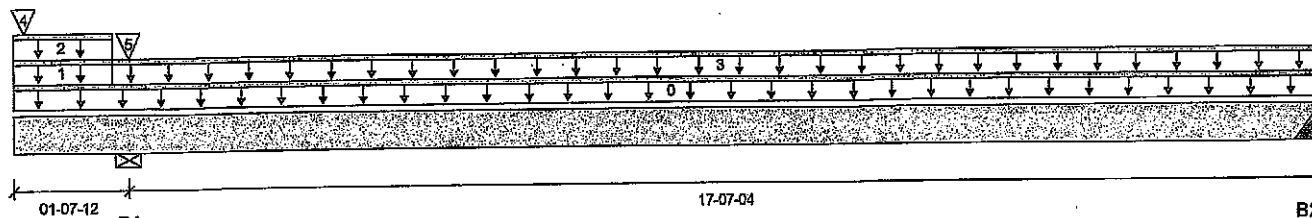
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING/Flush Beams/B10(i2111)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 19-03-00

Reaction Summary (Down / Uplift) (lbs)

| Bearing    | Live     | Dead    | Snow    | Wind |
|------------|----------|---------|---------|------|
| B1, 5-1/2" | 447 / 0  | 841 / 0 | 301 / 0 |      |
| B2, 4"     | 268 / 10 | 181 / 0 | 0 / 17  |      |

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 | 19-03-00 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E47(i2278)         | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-05-00 | Top  | 44           | 121          | 84           |              | n/a       |
| 2   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-05-00 | Top  | 15           | 8            |              |              | n/a       |
| 3   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 01-05-00 | 19-03-00 | Top  | 30           | 15           |              |              | n/a       |
| 4   | B11(i2247)         | Conc. Pt. (lbs)   | L    | 00-01-12 | 00-01-12 | Top  | 66           | 332          | 127          |              | n/a       |
| 5   | E38(i2060)         | Conc. Pt. (lbs)   | L    | 01-07-12 | 01-07-12 | Top  | 20           | 55           | 38           |              | n/a       |

Controls Summary

|                       | Factored Demand    | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2435 ft-lbs        | 23220 ft-lbs        | 10.5%             | 33   | 10-11-08 |
| Neg. Moment           | -1486 ft-lbs       | -23220 ft-lbs       | 6.4%              | 37   | 01-07-12 |
| End Shear             | 543 lbs            | 11571 lbs           | 4.7%              | 33   | 18-01-08 |
| Cont. Shear           | 586 lbs            | 7521 lbs            | 7.8%              | 0    | 00-07-08 |
| Total Load Deflection | L/1170 (0.178")    | n/a                 | 20.5%             | 80   | 10-06-11 |
| Live Load Deflection  | L/999 (0.122")     | n/a                 | n/a               | 118  | 10-03-09 |
| Total Neg. Defl.      | 2xL/1998 (-0.043") | n/a                 | n/a               | 80   | 00-00-00 |
| Max Defl.             | 0.178"             | n/a                 | n/a               | 80   | 10-06-11 |
| Span / Depth          | 21.9               |                     |                   |      |          |

Bearing Supports

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 5-1/2" x 3-1/2" | 2024 lbs | 17.1%                     | 8.6%                     | Spruce-Pine-Fir |
| B2 | Hanger 4" x 3-1/2"         | 628 lbs  | n/a                       | 3.7%                     | HGUS410         |

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



9W6 NO. 7AM 5054 v20  
STRUCTURAL  
COMPONENT ONLY





**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B10(I2111) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B10(I2111)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

**Notes**

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

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

Calculations assume member is fully braced.

**CONFORMS TO OBC 2012**

Hanger Manufacturer: Unassigned

**AMENDED 2020**

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

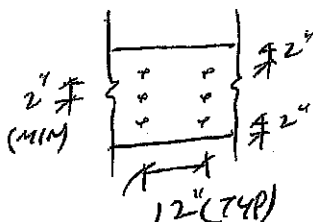
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

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



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



**DWG NO. YAN 5854-20  
STRUCTURAL  
COMPONENT ONLY**

**Disclosure**

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

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B11(I2247) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B11(I2247)

City, Province, Postal Code:

Specifier:

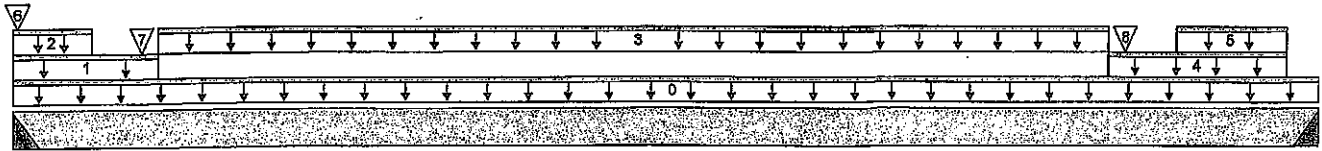
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



06-05-00

B1

B2

Total Horizontal Product Length = 06-05-00

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

| Bearing    | Live   | Dead    | Snow    | Wind |
|------------|--------|---------|---------|------|
| B1, 2-1/2" | 81 / 0 | 357 / 0 | 155 / 0 |      |
| B2, 2-1/2" | 66 / 0 | 331 / 0 | 127 / 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 | 06-05-00 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E54(I2287)  | Unf. Lin. (lb/ft) | L    | 00-00-00 | 00-08-08 | Top  |              | 81           |              |              | n/a       |
| 2   | E54(I2287)  | Unf. Lin. (lb/ft) | L    | 00-00-00 | 00-04-08 | Top  | 22           | 20           | 42           |              | n/a       |
| 3   | E55(I2288)  | Unf. Lin. (lb/ft) | L    | 00-08-08 | 05-04-08 | Top  |              | 61           |              |              | n/a       |
| 4   | E46(I2283)  | Unf. Lin. (lb/ft) | L    | 05-04-08 | 06-03-00 | Top  |              | 81           |              |              | n/a       |
| 5   | E46(I2283)  | Unf. Lin. (lb/ft) | L    | 05-08-08 | 06-03-00 | Top  | 22           | 20           | 42           |              | n/a       |
| 6   | E54(I2287)  | Conc. Pt. (lbs)   | L    | 00-00-04 | 00-00-04 | Top  | 10           | 9            | 19           |              | n/a       |
| 7   | E54(I2287)  | Conc. Pt. (lbs)   | L    | 00-07-08 | 00-07-08 | Top  | 59           | 94           | 113          |              | n/a       |
| 8   | E46(I2283)  | Conc. Pt. (lbs)   | L    | 05-05-08 | 05-05-08 | Top  | 58           | 93           | 111          |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/<br>Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-----------------------|------|----------|
| Pos. Moment           | 558 ft-lbs      | 15093 ft-lbs        | 3.7%                  | 0    | 03-03-14 |
| End Shear             | 382 lbs         | 7521 lbs            | 5.1%                  | 0    | 01-00-00 |
| Total Load Deflection | L/999 (0.007")  | n/a                 | n/a                   | 35   | 03-03-01 |
| Live Load Deflection  | L/999 (0.002")  | n/a                 | n/a                   | 51   | 03-03-14 |
| Max Defl.             | 0.007"          | n/a                 | n/a                   | 35   | 03-03-01 |
| Span / Depth          | 7.7             |                     |                       |      |          |

**Bearing Supports**

|           | Dim. (LxW)      | Demand  | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member | Material |
|-----------|-----------------|---------|----------------------------------|---------------------------------|----------|
| B1 Hanger | 2-1/2" x 3-1/2" | 500 lbs | n/a                              | 7.2%                            | HUC410   |
| B2 Hanger | 2-1/2" x 3-1/2" | 464 lbs | n/a                              | 6.7%                            | HUC410   |

**Cautions**

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

Header for the hanger HUC410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.



OWN NO. YAW 5055 -20  
STRUCTURAL  
COMPONENT ONLY



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

PASSED

## 2ND FLR FRAMING\Flush Beams\B11(I2247) (Flush Beam)

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B11(I2247)

Specifier:

Designer:

Company:

### Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

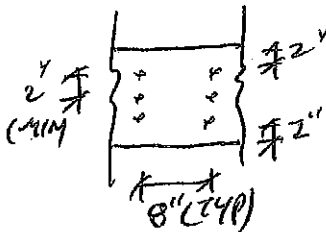
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. TAM 5855-20  
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 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B12(i2081) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B12(i2081)

City, Province, Postal Code:

Specifier:

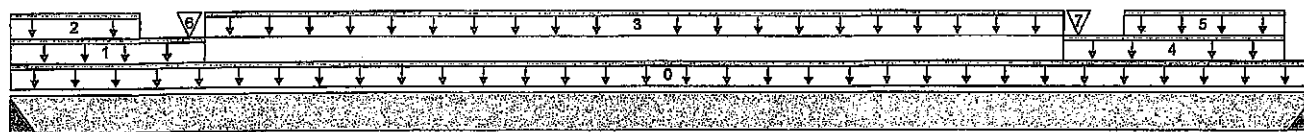
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

B1 B2

Total Horizontal Product Length = 07-01-00

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

| Bearing    | Live   | Dead    | Snow    | Wind |
|------------|--------|---------|---------|------|
| B1, 2-1/2" | 78 / 0 | 385 / 0 | 150 / 0 |      |
| B2, 2-1/2" | 74 / 0 | 368 / 0 | 141 / 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 | 07-01-00 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E56(i2289)  | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-00-08 | Top  |              | 81           |              |              | n/a       |
| 2   | E56(i2289)  | Unf. Lin. (lb/ft) | L    | 00-00-00 | 00-08-08 | Top  | 22           | 20           | 42           |              | n/a       |
| 3   | E57(i2290)  | Unf. Lin. (lb/ft) | L    | 01-00-08 | 05-08-08 | Top  |              | 61           |              |              | n/a       |
| 4   | E49(i2280)  | Unf. Lin. (lb/ft) | L    | 05-08-08 | 06-11-00 | Top  |              | 81           |              |              | n/a       |
| 5   | E49(i2280)  | Unf. Lin. (lb/ft) | L    | 06-00-08 | 06-11-00 | Top  | 22           | 20           | 42           |              | n/a       |
| 6   | E56(i2289)  | Conc. Pt. (lbs)   | L    | 00-11-08 | 00-11-08 | Top  | 59           | 94           | 113          |              | n/a       |
| 7   | E49(i2280)  | Conc. Pt. (lbs)   | L    | 05-09-08 | 05-09-08 | Top  | 58           | 93           | 111          |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 722 ft-lbs      | 15093 ft-lbs        | 4.8%              | 0    | 03-08-00 |
| End Shear             | 629 lbs         | 11571 lbs           | 5.4%              | 13   | 01-00-00 |
| Total Load Deflection | L/999 (0.012")  | n/a                 | n/a               | 35   | 03-08-04 |
| Live Load Deflection  | L/999 (0.004")  | n/a                 | n/a               | 51   | 03-08-00 |
| Max Defl.             | 0.012"          | n/a                 | n/a               | 35   | 03-08-04 |
| Span / Depth          | 8.6             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)             | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|------------------------|---------|---------------------------|--------------------------|----------|
| B1 | Hanger 2-1/2" x 3-1/2" | 539 lbs | n/a                       | 7.8%                     | HUC410   |
| B2 | Hanger 2-1/2" x 3-1/2" | 516 lbs | n/a                       | 7.4%                     | HUC410   |

**Cautions**

Header for the hanger HUC410 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

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

Header for the hanger HUC410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.



DESIGN NO. TAM5856-20  
STRUCTURAL  
COMPONENT ONLY



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

PASSED

## 2ND FLR FRAMING\Flush Beams\B12(I2081) (Flush Beam)

BC CALC® Member Report  
Build 7239

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Job name:  
Address:  
City, Province, Postal Code:  
Customer:  
Code reports:

CCMC 12472-R

File name: VALLEYCREEK 11 EL 1.mmdl  
Description: 2ND FLR FRAMING\Flush Beams\B12(I2081)  
Specifier:  
Designer:  
Company:

### Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

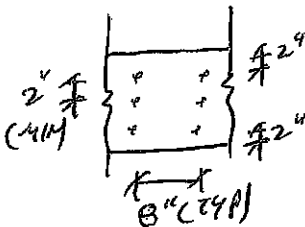
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. TAN5056-20  
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®, AJST™, 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\Flush Beams\B13(i2502) (Flush Beam)**

**PASSED**

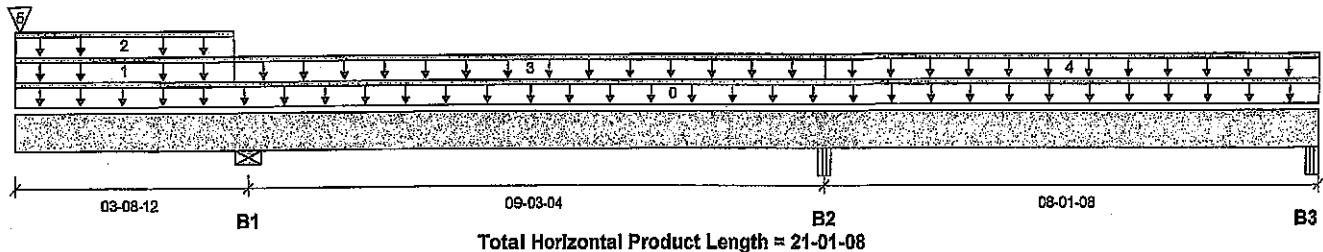
BC CALC® Member Report  
Build 7239  
Job name:  
Address:  
City, Province, Postal Code:  
Customer:  
Code reports:

Dry | 3 spans | L cant.

February 15, 2020 10:41:38

File name: VALLEYCREEK 11 EL 1.mmdl  
Description: 2ND FLR FRAMING\Flush Beams\B13(i2502)  
Specifier:  
Designer:  
Company:

CCMC 12472-R



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

| Bearing    | Live      | Dead     | Snow | Wind |
|------------|-----------|----------|------|------|
| B1, 5-1/2" | 2245 / 0  | 1227 / 0 |      |      |
| B2, 5-1/4" | 366 / 647 | 0 / 124  |      |      |
| B3, 5-1/4" | 259 / 30  | 149 / 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 | 21-01-08 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | STAIR              | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-06-00 | Top  | 120          | 60           |              |              | n/a       |
| 2   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-06-00 | Top  | 28           | 14           |              |              | n/a       |
| 3   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 03-06-00 | 13-00-00 | Top  | 40           | 20           |              |              | n/a       |
| 4   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 13-00-00 | 21-01-08 | Top  | 27           | 13           |              |              | n/a       |
| 5   | B14(i2507)         | Conc. Pt. (lbs)   | L    | 00-00-14 | 00-00-14 | Top  | 943          | 491          |              |              | n/a       |

**Controls Summary**

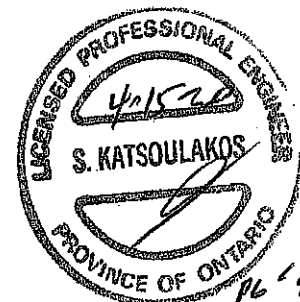
|                       | Factored Demand  | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|------------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2186 ft-lbs      | 23220 ft-lbs        | 9.4%              | 2    | 13-00-00 |
| Neg. Moment           | -9684 ft-lbs     | -23220 ft-lbs       | 41.7%             | 1    | 03-08-12 |
| End Shear             | 490 lbs          | 11571 lbs           | 4.2%              | 2    | 19-10-12 |
| Cont. Shear           | 2913 lbs         | 11571 lbs           | 25.2%             | 1    | 02-08-08 |
| Total Load Deflection | 2xL/269 (0.332") | n/a                 | 89.1%             | 13   | 00-00-00 |
| Live Load Deflection  | 2xL/402 (0.223") | n/a                 | 89.6%             | 18   | 00-00-00 |
| Total Neg. Defl.      | L/999 (-0.096")  | n/a                 | n/a               | 13   | 07-02-14 |
| Max Defl.             | -0.096"          | n/a                 | n/a               | 13   | 07-02-14 |
| Span / Depth          | 11.7             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 5-1/2" x 3-1/2" | 4901 lbs | 41.4%                     | 20.9%                    | Spruce-Pine-Fir |
| B2 | Beam 5-1/4" x 3-1/2"       | 437 lbs  | 5.6%                      | 2.0%                     | Unspecified     |
| B2 | Uplift                     | 1124 lbs |                           |                          |                 |
| B3 | Beam 5-1/4" x 3-1/2"       | 574 lbs  | 7.3%                      | 2.6%                     | Unspecified     |

**Cautions**

Uplift of 1124 lbs found at bearing B2. (SIMPSON 2-H2-54 @ (T. 92))



DWG NO. YAM 5857-20  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B13(i2502) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Dry | 3 spans | L cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13(i2502)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

**CONFORMS TO OBC 2012**

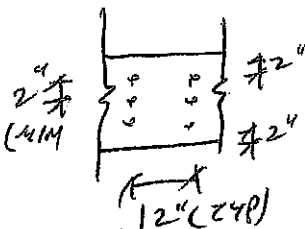
**AMENDED 2020**

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

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



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



SWR NO. TAM 5857-20  
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®.



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

PASSED

## 2ND FLR FRAMING\Flush Beams\B14(I2507) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(I2507)

City, Province, Postal Code:

Specifier:

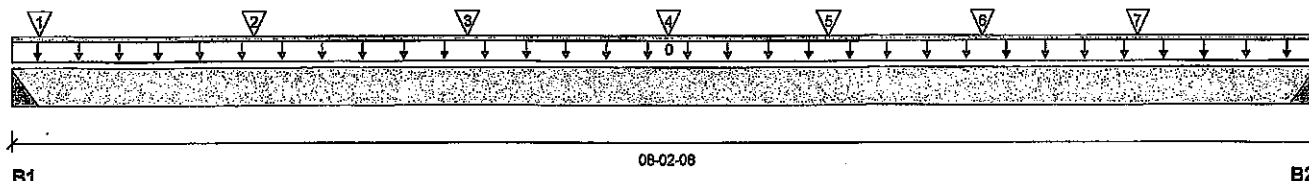
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



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

| Bearing | Live     | Dead    | Snow | Wind |
|---------|----------|---------|------|------|
| B1, 2"  | 1138 / 0 | 589 / 0 |      |      |
| B2, 2"  | 944 / 0  | 491 / 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 | 08-02-08 | Top  |              | 5            |              |              | 00-00-00  |
| 1   | J2(I2311)   | Conc. Pt. (lbs)   | L    | 00-02-00 | 00-02-00 | Top  | 281          | 141          |              |              | n/a       |
| 2   | J2(I2313)   | Conc. Pt. (lbs)   | L    | 01-06-00 | 01-06-00 | Top  | 347          | 173          |              |              | n/a       |
| 3   | J2(I2318)   | Conc. Pt. (lbs)   | L    | 02-10-00 | 02-10-00 | Top  | 337          | 169          |              |              | n/a       |
| 4   | J2(I2300)   | Conc. Pt. (lbs)   | L    | 04-01-02 | 04-01-02 | Top  | 294          | 147          |              |              | n/a       |
| 5   | J2(I2296)   | Conc. Pt. (lbs)   | L    | 05-01-02 | 05-01-02 | Top  | 260          | 130          |              |              | n/a       |
| 6   | J2(I2296)   | Conc. Pt. (lbs)   | L    | 06-01-02 | 06-01-02 | Top  | 260          | 130          |              |              | n/a       |
| 7   | J2(I2482)   | Conc. Pt. (lbs)   | L    | 07-01-02 | 07-01-02 | Top  | 303          | 151          |              |              | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 4501 ft-lbs     | 11610 ft-lbs        | 38.8%             | 1    | 04-01-02 |
| End Shear             | 2024 lbs        | 5785 lbs            | 35.0%             | 1    | 07-03-00 |
| Total Load Deflection | L/665 (0.144")  | n/a                 | 36.1%             | 4    | 04-01-02 |
| Live Load Deflection  | L/999 (0.095")  | n/a                 | n/a               | 5    | 04-01-02 |
| Max Defl.             | 0.144"          | n/a                 | n/a               | 4    | 04-01-02 |
| Span / Depth          | 10.1            |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)         | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material   |
|----|--------------------|----------|---------------------------|--------------------------|------------|
| B1 | Hanger 2" x 1-3/4" | 2444 lbs | n/a                       | 57.2%                    | HUS1.81/10 |
| B2 | Hanger 2" x 1-3/4" | 2029 lbs | n/a                       | 47.5%                    | LS90       |

### Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger LS90 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model LS90 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAW 5858-20  
STRUCTURAL  
COMPONENT ONLY





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

PASSED

2ND FLR FRAMING\Flush Beams\B14(i2507) (Flush Beam)

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14(i2507)

Specifier:

Designer:

Company:

## Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

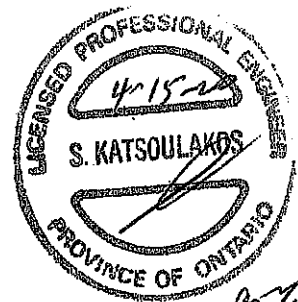
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. YAW5858-20

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®, AJST™, 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****PASSED****2ND FLR FRAMING\Flush Beams\B3(i2228) (Flush Beam)**

Dry | 1 span | No cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B3(i2228)

City, Province, Postal Code:

Specifier:

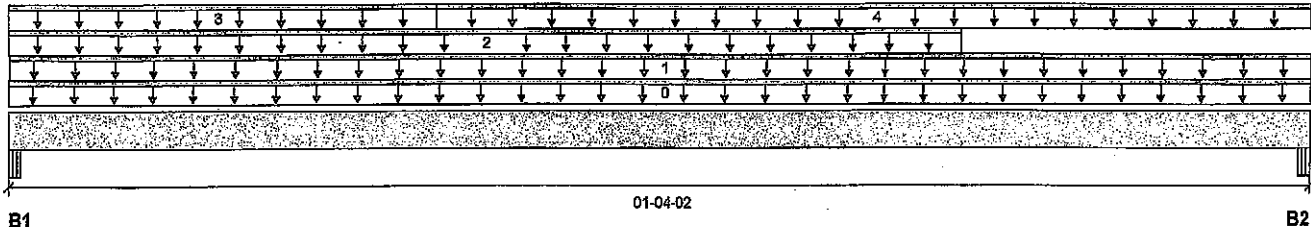
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

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

| Bearing    | Live   | Dead    | Snow    | Wind |
|------------|--------|---------|---------|------|
| B1, 5-1/4" | 75 / 0 | 124 / 0 | 105 / 0 |      |
| B2, 4-1/8" | 38 / 0 | 55 / 0  | 39 / 0  |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-04-02 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-04-02 | Top  | 22   | 11   |      |      | n/a       |
| 2   | E22(i2076)         | Unf. Lin. (lb/ft) | L    | 00-00-00 | 00-11-12 | Top  | 77   | 151  | 147  |      | n/a       |
| 3   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 00-05-04 | Top  | 5    |      |      |      | n/a       |
| 4   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-05-04 | 01-04-02 | Top  | 6    | 3    |      |      | n/a       |

**Controls Summary**

|              | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|--------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment  | 31 ft-lbs       | 23220 ft-lbs        | 0.1%              | 13   | 00-08-09 |
| End Shear    | 150 lbs         | 11571 lbs           | 1.3%              | 13   | 00-05-04 |
| Span / Depth | 0.9             |                     |                   |      |          |

**Bearing Supports**

|         | Dim. (LxW)      | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material    |
|---------|-----------------|---------|---------------------------|--------------------------|-------------|
| B1 Beam | 5-1/4" x 3-1/2" | 388 lbs | 4.9%                      | 1.7%                     | Unspecified |
| B2 Beam | 4-1/8" x 3-1/2" | 165 lbs | 2.7%                      | 0.9%                     | Unspecified |

**Notes**

Calculations assume member is fully braced.

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

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

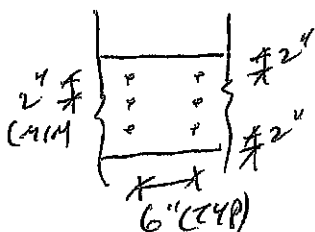
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

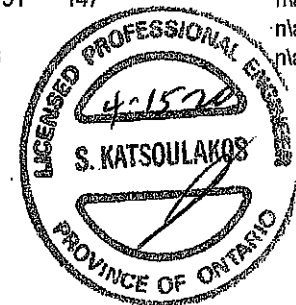
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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

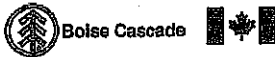


DWG NO. TAM 5059-20  
STRUCTURAL  
COMPONENT ONLY

**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 9-1/2" VERSA-LAM® 2.0 3100 SP

**PASSED**

## 2ND FLR FRAMING\Flush Beams\B4(i2221) (Flush Beam)

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

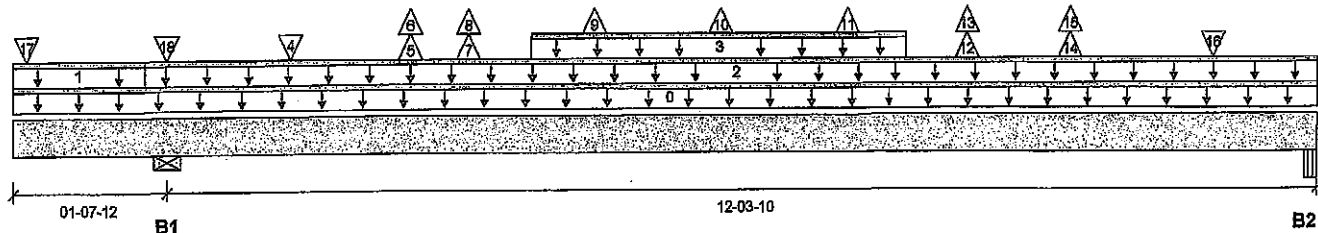
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B4(i2221)

Specifier:

Designer:

Company:



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

| Bearing    | Live      | Dead    | Snow     | Wind |
|------------|-----------|---------|----------|------|
| B1, 5-1/2" | 703 / 113 | 755 / 0 | 320 / 97 |      |
| B2, 4-3/8" | 550 / 132 | 32 / 0  | 0 / 100  |      |

### 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 | 13-11-06 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E50(i2282)         | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-05-00 | Top  | 44           | 121          | 84           |              | n/a       |
| 2   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 01-05-00 | 13-11-06 | Top  | 25           | 13           |              |              | n/a       |
| 3   | Smoothed Load      | Unf. Lin. (lb/ft) | L    | 05-06-00 | 09-06-00 | Top  | 70           |              |              |              | n/a       |
| 4   | J6(i2277)          | Conc. Pt. (lbs)   | L    | 02-11-06 | 02-11-06 | Top  | 86           | 43           |              |              | n/a       |
| 5   | J6DJ(i2145)        | Conc. Pt. (lbs)   | L    | 04-02-10 | 04-02-10 | Top  | 66           | -28          | -33          |              | n/a       |
| 6   | J6DJ(i2145)        | Conc. Pt. (lbs)   | L    | 04-02-10 | 04-02-10 | Top  | -25          |              |              |              | n/a       |
| 7   | J5(i2209)          | Conc. Pt. (lbs)   | L    | 04-10-00 | 04-10-00 | Top  | 68           | -50          | -62          |              | n/a       |
| 8   | J5(i2209)          | Conc. Pt. (lbs)   | L    | 04-10-00 | 04-10-00 | Top  | -49          |              |              |              | n/a       |
| 9   | J5(i2107)          | Conc. Pt. (lbs)   | L    | 06-02-00 | 06-02-00 | Top  | -23          | -12          |              |              | n/a       |
| 10  | J5(i2126)          | Conc. Pt. (lbs)   | L    | 07-06-00 | 07-06-00 | Top  | -23          | -4           |              |              | n/a       |
| 11  | J5(i2240)          | Conc. Pt. (lbs)   | L    | 08-10-00 | 08-10-00 | Top  | -23          | -17          |              |              | n/a       |
| 12  | J5(i2108)          | Conc. Pt. (lbs)   | L    | 10-02-00 | 10-02-00 | Top  | 85           | -47          | -62          |              | n/a       |
| 13  | J5(i2108)          | Conc. Pt. (lbs)   | L    | 10-02-00 | 10-02-00 | Top  | -53          |              |              |              | n/a       |
| 14  | J6DJ(i2231)        | Conc. Pt. (lbs)   | L    | 11-03-06 | 11-03-06 | Top  | 93           | -27          | -40          |              | n/a       |
| 15  | J6DJ(i2231)        | Conc. Pt. (lbs)   | L    | 11-03-06 | 11-03-06 | Top  | -35          |              |              |              | n/a       |
| 16  | J6(i2267)          | Conc. Pt. (lbs)   | L    | 12-10-00 | 12-10-00 | Top  | 85           | 42           |              |              | n/a       |
| 17  | B12(i2081)         | Conc. Pt. (lbs)   | L    | 00-01-12 | 00-01-12 | Top  | 71           | 365          | 136          |              | n/a       |
| 18  | E30(i2064)         | Conc. Pt. (lbs)   | L    | 01-07-12 | 01-07-12 | Top  | 20           | 55           | 39           |              | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2342 ft-lbs     | 23220 ft-lbs        | 10.1%             | 104  | 07-08-00 |
| Neg. Moment           | -1654 ft-lbs    | -23220 ft-lbs       | 7.1%              | 35   | 04-10-00 |
| End Shear             | 779 lbs         | 11571 lbs           | 6.7%              | 100  | 12-09-08 |
| Cont. Shear           | 628 lbs         | 7521 lbs            | 8.3%              | 0    | 00-07-08 |
| Total Load Deflection | L/999 (0.072")  | n/a                 | n/a               | 229  | 07-10-00 |
| Live Load Deflection  | L/999 (0.088")  | n/a                 | n/a               | 341  | 07-08-00 |
| Total Neg. Defl.      | L/999 (-0.062") | n/a                 | n/a               | 264  | 07-02-00 |
| Max Defl.             | 0.072"          | n/a                 | n/a               | 229  | 07-10-00 |
| Span / Depth          | 15.2            |                     |                   |      |          |

### Bearing Supports

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 5-1/2" x 3-1/2" | 2319 lbs | 19.6%                     | 9.9%                     | Spruce-Pine-Fir |



DWG NO. TAM5060-20  
STRUCTURAL  
COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B4(i2221) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B4(i2221)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

| Bearing Supports | Dim. (LxW)      | Demand  | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member | Material    |
|------------------|-----------------|---------|----------------------------------|---------------------------------|-------------|
| B2 Beam          | 4-3/8" x 3-1/2" | 864 lbs | 13.2%                            | 4.6%                            | Unspecified |
| B2 Uplift        |                 | 269 lbs |                                  |                                 |             |

**Cautions**

Uplift of 269 lbs found at bearing B2. (SIMPSON 2-H2-5A @ 10.32)

**Notes**

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

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

Calculations assume member is fully braced.

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

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

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

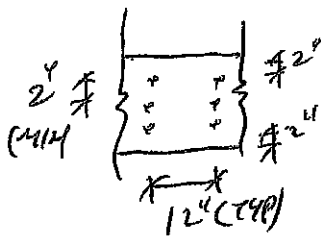
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020



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



OWN NO. TAM5860-20  
STRUCTURAL  
COMPONENT ONLY

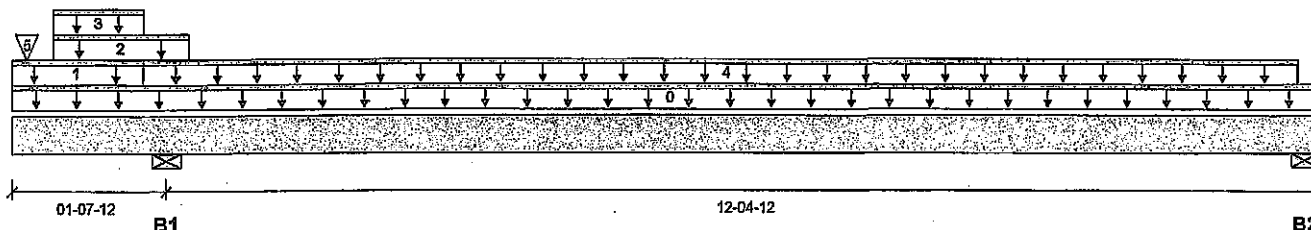
**Disclosure**

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 7239**
**Job name:**
**File name:** VALLEYCREEK 11 EL 1.mmdl

**Address:**
**Description:** 2ND FLR FRAMING\Flush Beams\B5(i2245)

**City, Province, Postal Code:**
**Specifier:**
**Customer:**
**Designer:**
**Code reports:**
**CCMC 12472-R**
**Company:**

**Total Horizontal Product Length = 14-00-08**
**Reaction Summary (Down / Uplift) (lbs)**

| Bearing    | Live     | Dead    | Snow    | Wind |
|------------|----------|---------|---------|------|
| B1, 5-1/2" | 542 / 0  | 912 / 0 | 316 / 0 |      |
| B2, 5-1/2" | 329 / 19 | 162 / 0 | 0 / 30  |      |

**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 | 14-00-08 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-05-00 | Top  | 28           | 14           |              |              | n/a       |
| 2   | E48(i2281)         | Unf. Lin. (lb/ft) | L    | 00-05-08 | 01-10-08 | Top  |              | 81           |              |              | n/a       |
| 3   | E48(i2281)         | Unf. Lin. (lb/ft) | L    | 00-05-08 | 01-05-00 | Top  | 44           | 40           | 84           |              | n/a       |
| 4   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 01-05-00 | 13-09-12 | Top  | 53           | 27           |              |              | n/a       |
| 5   | -                  | Conc. Pt. (lbs)   | L    | 00-01-15 | 00-01-15 | Top  | 108          | 436          | 205          |              | n/a       |

**Controls Summary**

|                       | Factored Demand    | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 1803 ft-lbs        | 23220 ft-lbs        | 7.8%              | 33   | 08-02-07 |
| Neg. Moment           | -1728 ft-lbs       | -23220 ft-lbs       | 7.4%              | 37   | 01-07-12 |
| End Shear             | 565 lbs            | 11571 lbs           | 4.9%              | 33   | 12-09-08 |
| Cont. Shear           | 1050 lbs           | 11571 lbs           | 9.1%              | 37   | 00-07-08 |
| Total Load Deflection | L/999 (0.06")      | n/a                 | n/a               | 80   | 07-10-10 |
| Live Load Deflection  | L/999 (0.05")      | n/a                 | n/a               | 118  | 07-06-14 |
| Total Neg. Defl.      | 2xL/1998 (-0.017") | n/a                 | n/a               | 80   | 00-00-00 |
| Max Defl.             | 0.06"              | n/a                 | n/a               | 80   | 07-10-10 |
| Span / Depth          | 15.2               |                     |                   |      |          |


**Disclosure COMPONENT ONLY**

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

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

**Bearing Supports**

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 5-1/2" x 3-1/2" | 2268 lbs | 19.2%                     | 9.7%                     | Spruce-Pine-Fir |
| B2 | Wall/Plate 5-1/2" x 3-1/2" | 696 lbs  | 5.9%                      | 3.0%                     | Spruce-Pine-Fir |

**Notes**

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

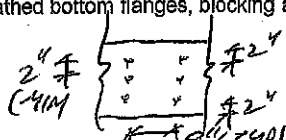
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

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

**CONFORMS TO OBC 2012**


**PROVIDE 3 ROWS OF 3/4" ARDUX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END**



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

PASSED

## 2ND FLR FRAMING\Flush Beams\B8(I2504) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 15, 2020 10:41:38

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(I2504)

City, Province, Postal Code:

Specifier:

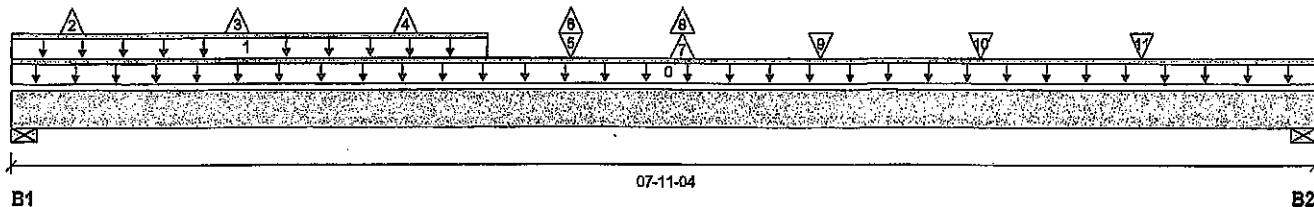
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-11-04

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

| Bearing    | Live      | Dead     | Snow  | Wind |
|------------|-----------|----------|-------|------|
| B1, 4-1/4" | 2021 / 14 | 1075 / 0 | 0 / 8 |      |
| B2, 5-1/2" | 1878 / 8  | 1010 / 0 | 0 / 9 |      |

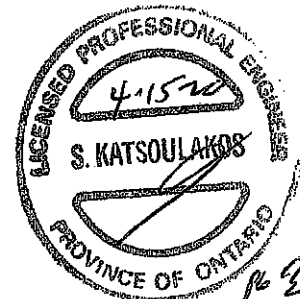
### Load Summary

| 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 | 07-11-04 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-00-00 | 02-10-08 | Top  | 376          | 186          |              |              | n/a       |
| 2   | J7(I2204)     | Conc. Pt. (lbs)   | L    | 00-04-08 | 00-04-08 | Top  | -3           |              |              |              | n/a       |
| 3   | J7(I2199)     | Conc. Pt. (lbs)   | L    | 01-04-08 | 01-04-08 | Top  | -3           |              |              |              | n/a       |
| 4   | J7(I2199)     | Conc. Pt. (lbs)   | L    | 02-04-08 | 02-04-08 | Top  | -3           |              |              |              | n/a       |
| 5   | J7(I2227)     | Conc. Pt. (lbs)   | L    | 03-04-08 | 03-04-08 | Top  | 294          | 146          |              |              | n/a       |
| 6   | J7(I2227)     | Conc. Pt. (lbs)   | L    | 03-04-08 | 03-04-08 | Top  | -3           |              |              |              | n/a       |
| 7   | -             | Conc. Pt. (lbs)   | L    | 04-00-08 | 04-00-08 | Top  | 1407         | 769          | -17          |              | n/a       |
| 8   | -             | Conc. Pt. (lbs)   | L    | 04-00-08 | 04-00-08 | Top  | -10          |              |              |              | n/a       |
| 9   | J8(I2259)     | Conc. Pt. (lbs)   | L    | 04-10-08 | 04-10-08 | Top  | 333          | 166          |              |              | n/a       |
| 10  | J8(I2115)     | Conc. Pt. (lbs)   | L    | 05-10-08 | 05-10-08 | Top  | 355          | 177          |              |              | n/a       |
| 11  | J8(I2255)     | Conc. Pt. (lbs)   | L    | 06-10-08 | 06-10-08 | Top  | 399          | 200          |              |              | n/a       |

### Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 9701 ft-lbs     | 23220 ft-lbs        | 41.8%             | 21   | 04-00-10 |
| End Shear             | 3849 lbs        | 11571 lbs           | 33.3%             | 21   | 06-08-04 |
| Total Load Deflection | L/999 (0.117")  | n/a                 | n/a               | 56   | 03-11-12 |
| Live Load Deflection  | L/999 (0.076")  | n/a                 | n/a               | 83   | 03-11-12 |
| Max Defl.             | 0.117"          | n/a                 | n/a               | 56   | 03-11-12 |
| Span / Depth          | 9.2             |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 4-1/4" x 3-1/2" | 4376 lbs | 47.8%                     | 24.1%                    | Spruce-Pine-Fir |
| B2               | Wall/Plate 5-1/2" x 3-1/2" | 4078 lbs | 34.4%                     | 17.4%                    | Spruce-Pine-Fir |



OWB NO. YAN5062-20  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B8(i2504) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 15, 2020 10:41:38

File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B8(i2504)

Specifier:

Designer:

Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

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

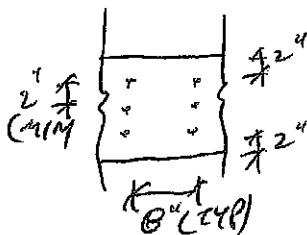
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**

**AMENDED 2020**



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



**UWS NO. TAN 5062-20  
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®,



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B9(12133) (Flush Beam)**

Dry | 2 spans | L cant.

February 15, 2020 10:41:38

BC CALCO® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

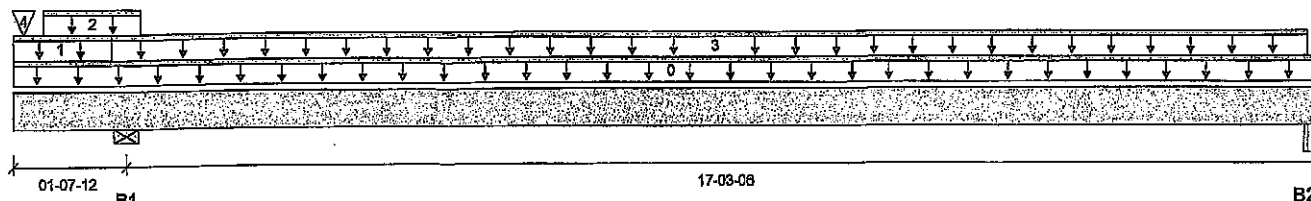
File name: VALLEYCREEK 11 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B9(12133)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 18-11-02

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

| Bearing    | Live     | Dead    | Snow    | Wind |
|------------|----------|---------|---------|------|
| B1, 5-1/2" | 454 / 0  | 846 / 0 | 328 / 0 |      |
| B2, 3-1/2" | 242 / 12 | 164 / 0 | 0 / 20  |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 18-11-02 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-05-00 | Top  | 25   | 12   |      |      | n/a       |
| 2   | E45(12279)         | Unf. Lin. (lb/ft) | L    | 00-05-08 | 01-10-08 | Top  | 44   | 121  | 84   |      | n/a       |
| 3   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 01-05-00 | 18-09-06 | Top  | 28   | 14   |      |      | n/a       |
| 4   | -                  | Conc. Pt. (lbs)   | L    | 00-01-14 | 00-01-14 | Top  | 98   | 395  | 187  |      | n/a       |

**Controls Summary**

|                       | Factored Demand    | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2191 ft-lbs        | 23220 ft-lbs        | 9.4%              | 45   | 10-10-14 |
| Neg. Moment           | -1597 ft-lbs       | -23220 ft-lbs       | 6.9%              | 50   | 01-07-12 |
| End Shear             | 500 lbs            | 11571 lbs           | 4.3%              | 45   | 17-10-02 |
| Cont. Shear           | 958 lbs            | 11571 lbs           | 8.3%              | 50   | 00-07-08 |
| Total Load Deflection | L/1334 (0.153")    | n/a                 | 18.0%             | 108  | 10-06-06 |
| Live Load Deflection  | L/999 (0.107")     | n/a                 | n/a               | 160  | 10-01-13 |
| Total Neg. Defl.      | 2xL/1998 (-0.036") | n/a                 | n/a               | 108  | 00-00-00 |
| Max Defl.             | 0.153"             | n/a                 | n/a               | 108  | 10-06-06 |
| Span / Depth          | 21.5               |                     |                   |      |          |

|                  |            |                 | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member | Material |                 |
|------------------|------------|-----------------|----------------------------------|---------------------------------|----------|-----------------|
| Bearing Supports | Dim. (LxW) | Demand          |                                  |                                 |          |                 |
| B1               | Wall/Plate | 5-1/2" x 3-1/2" | 2063 lbs                         | 17.4%                           | 8.8%     | Spruce-Pine-Fir |
| B2               | Beam       | 3-1/2" x 3-1/2" | 569 lbs                          | 3.8%                            | 3.8%     | VL 2.0 3100 SP  |

**Notes**

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

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

Calculations assume member is fully braced.

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

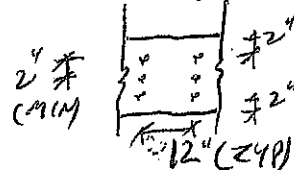
BC CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

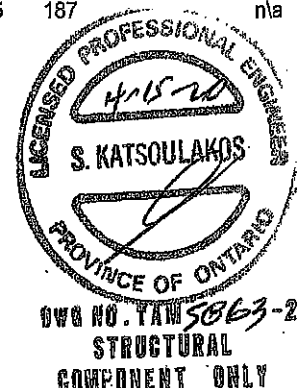
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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



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

**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 CALCO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

CONFORMS TO OBC 2012

AMENDED 2020



Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(i2629)

City, Province, Postal Code:

Specifier:

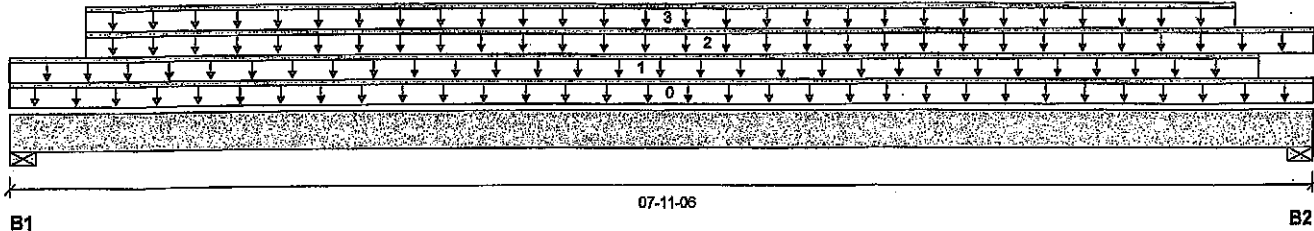
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 07-11-06

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

| Bearing    | Live     | Dead     | Snow | Wind |
|------------|----------|----------|------|------|
| B1, 5-1/2" | 2310 / 0 | 1191 / 0 |      |      |
| B2, 4-3/8" | 2008 / 0 | 1041 / 0 |      |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-11-06 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | Smoothed Load      | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-07-04 | Top  | 340  | 170  |      |      | n/a       |
| 2   | FC1 Floor Material | Unf. Lin. (lb/ft) | L    | 00-05-08 | 07-11-06 | Top  | 6    | 3    |      |      | n/a       |
| 3   | STAIR              | Unf. Lin. (lb/ft) | L    | 00-05-08 | 07-05-08 | Top  | 240  | 120  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 8113 ft-lbs     | 23220 ft-lbs        | 34.9%             | 1    | 04-01-04 |
| End Shear             | 4016 lbs        | 11571 lbs           | 34.7%             | 1    | 06-09-08 |
| Total Load Deflection | L/999 (0.108")  | n/a                 | n/a               | 4    | 03-11-12 |
| Live Load Deflection  | L/999 (0.071")  | n/a                 | n/a               | 5    | 03-11-12 |
| Max Defl.             | 0.108"          | n/a                 | n/a               | 4    | 03-11-12 |
| Span / Depth          | 9.2             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)                 | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 5-1/2" x 3-1/2" | 4954 lbs | 41.8%                     | 21.1%                    | Spruce-Pine-Fir |
| B2 | Wall/Plate 4-3/8" x 3-1/2" | 4313 lbs | 45.8%                     | 23.1%                    | Spruce-Pine-Fir |

**Notes**

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

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

Calculations assume member is fully braced.

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

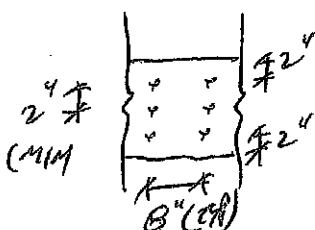
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

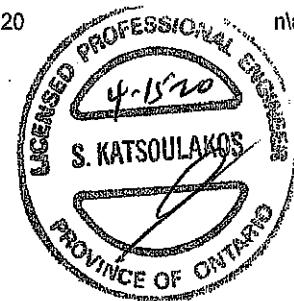
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



OWN NO. TAM 5864-20

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®.



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B15C(i2881) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 2 spans | R cant.

February 15, 2020 11:50:49

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B15C(i2881)

City, Province, Postal Code: WATERDOWN

Specifier:

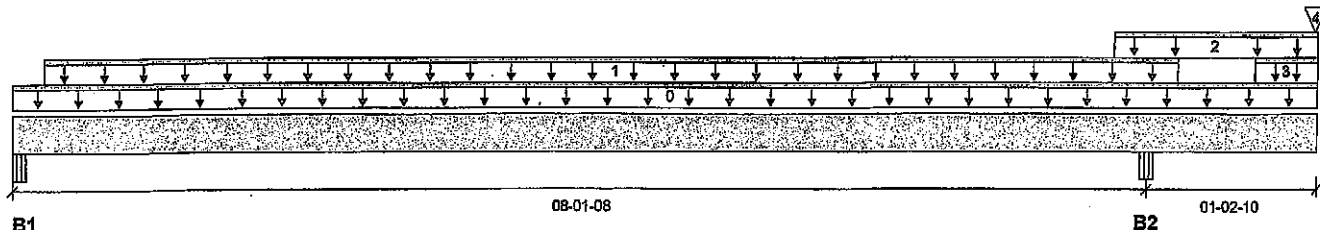
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-04-02

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

| Bearing    | Live     | Dead    | Snow    | Wind |
|------------|----------|---------|---------|------|
| B1, 5-1/4" | 109 / 11 | 82 / 0  | 0 / 14  |      |
| B2, 5-1/4" | 255 / 0  | 268 / 0 | 228 / 0 |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 09-04-02 | Top  | 10   |      |      |      | 00-00-00  |
| 1   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-02-10 | 08-04-02 | Top  | 27   | 14   |      |      | n/a       |
| 2   | E22(i2076)         | Unf. Lin. (lb/ft) | L    | 07-10-10 | 09-04-02 | Top  | 77   | 70   | 147  |      | n/a       |
| 3   | E22(i2076)         | Unf. Lin. (lb/ft) | L    | 08-10-10 | 09-04-02 | Top  |      | 81   |      |      | n/a       |
| 4   | FC2 Floor Material | Conc. Pt. (lbs)   | L    | 09-03-14 | 09-03-14 | Top  | 21   | 11   |      |      |           |

**Controls Summary**

|                       | Factored Demand    | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 459 ft-lbs         | 23220 ft-lbs        | 2.0%              | 44   | 03-11-14 |
| Neg. Moment           | -383 ft-lbs        | -23220 ft-lbs       | 1.6%              | 49   | 08-01-08 |
| End Shear             | 193 lbs            | 11571 lbs           | 1.7%              | 44   | 01-02-12 |
| Cont. Shear           | 253 lbs            | 11571 lbs           | 2.2%              | 1    | 07-01-06 |
| Total Load Deflection | L/999 (0.007")     | n/a                 | n/a               | 107  | 04-02-01 |
| Live Load Deflection  | L/999 (0.004")     | n/a                 | n/a               | 159  | 04-03-03 |
| Total Neg. Defl.      | 2xL/1998 (-0.003") | n/a                 | n/a               | 107  | 09-04-02 |
| Max Defl.             | 0.007"             | n/a                 | n/a               | 107  | 04-02-01 |
| Span / Depth          | 9.8                |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)           | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|----------------------|---------|---------------------------|--------------------------|-------------|
| B1 | Beam 5-1/4" x 3-1/2" | 268 lbs | 2.7%                      | 1.2%                     | Unspecified |
| B2 | Beam 5-1/4" x 3-1/2" | 945 lbs | 9.6%                      | 4.2%                     | Unspecified |

**Notes**

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

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

Calculations assume member is fully braced.

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

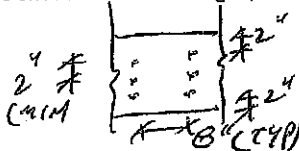
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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



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



HWB NO. TAM 5065-20  
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®.



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B16C(i3217) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:08:50

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16C(i3217)

City, Province, Postal Code: WATERDOWN

Specifier:

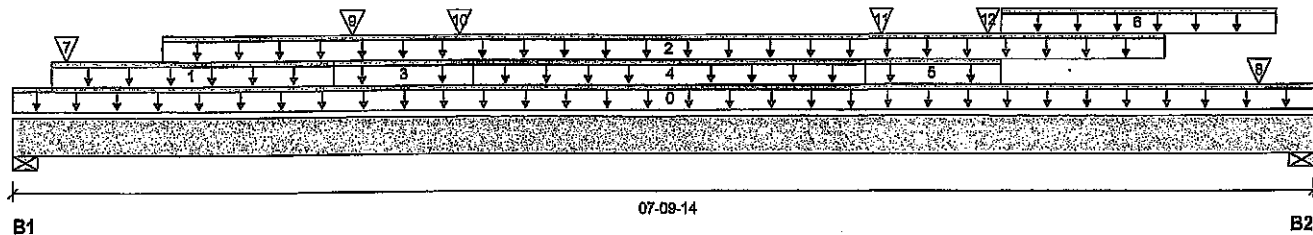
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

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

| Bearing | Live     | Dead     | Snow    | Wind |
|---------|----------|----------|---------|------|
| B1, 6"  | 1550 / 0 | 1184 / 0 | 279 / 0 |      |
| B2, 6"  | 1569 / 0 | 1191 / 0 | 274 / 0 |      |

**Load Summary**

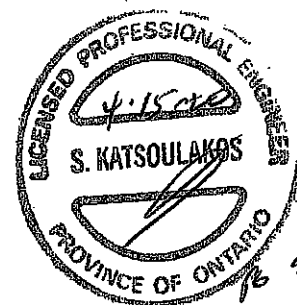
| Tag | Description   | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.65 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|---------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-09-14 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E60(i3186)    | Unf. Lin. (lb/ft) | L    | 00-02-15 | 01-10-15 | Top  |              | 61           |              |              | n/a       |
| 2   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-10-13 | 06-10-13 | Top  | 356          | 178          |              |              | n/a       |
| 3   | E61(i3167)    | Unf. Lin. (lb/ft) | L    | 01-10-15 | 02-08-15 | Top  |              | 81           |              |              | n/a       |
| 4   | E62(i3168)    | Unf. Lin. (lb/ft) | L    | 02-08-15 | 05-00-15 | Top  |              | 61           |              |              | n/a       |
| 5   | E63(i3169)    | Unf. Lin. (lb/ft) | L    | 05-00-15 | 05-10-15 | Top  |              | 81           |              |              | n/a       |
| 6   | E64(i3170)    | Unf. Lin. (lb/ft) | L    | 05-10-15 | 07-06-15 | Top  |              | 61           |              |              | n/a       |
| 7   | -             | Conc. Pt. (lbs)   | L    | 00-04-00 | 00-04-00 | Top  | 392          | 250          | 84           |              | n/a       |
| 8   | -             | Conc. Pt. (lbs)   | L    | 07-05-11 | 07-05-11 | Top  | 400          | 252          | 77           |              | n/a       |
| 9   | -             | Conc. Pt. (lbs)   | L    | 02-00-03 | 02-00-03 | Top  | 37           | 51           | 89           |              | n/a       |
| 10  | E61(i3167)    | Conc. Pt. (lbs)   | L    | 02-07-15 | 02-07-15 | Top  | 51           | 69           | 106          |              | n/a       |
| 11  | -             | Conc. Pt. (lbs)   | L    | 05-02-02 | 05-02-02 | Top  | 48           | 66           | 113          |              | n/a       |
| 12  | E63(i3169)    | Conc. Pt. (lbs)   | L    | 05-09-15 | 05-09-15 | Top  | 40           | 54           | 84           |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 6002 ft-lbs     | 23220 ft-lbs        | 25.9%             | 1    | 04-03-05 |
| End Shear             | 3028 lbs        | 11571 lbs           | 26.2%             | 1    | 06-06-05 |
| Total Load Deflection | L/999 (0.078")  | n/a                 | n/a               | 35   | 03-10-13 |
| Live Load Deflection  | L/999 (0.047")  | n/a                 | n/a               | 51   | 03-10-13 |
| Max Defl.             | 0.078"          | n/a                 | n/a               | 35   | 03-10-13 |
| Span / Depth          | 8.8             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 6" x 3-1/2" | 4084 lbs | 31.5%                     | 15.9%                    | Spruce-Pine-Fir |
| B2 | Wall/Plate 6" x 3-1/2" | 4116 lbs | 31.7%                     | 16.0%                    | Spruce-Pine-Fir |



ONE NO. TAN 5866-20  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B16C(13217) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 18, 2020 08:08:50

File name: VALLEYCREEK 11 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16C(13217)

Specifier:

Designer: AJ

Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

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

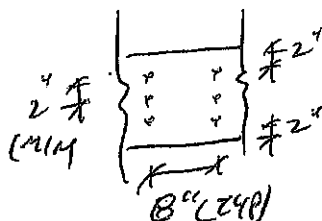
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**

**AMENDED 2020**



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



ENG NO. TAM 5866-20  
**STRUCTURAL  
COMPONENT ONLY**

**Disclosure**

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

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



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B17C(I3161) (Flush Beam)**

**PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:08:50

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B17C(I3161)

City, Province, Postal Code: WATERDOWN

Specifier:

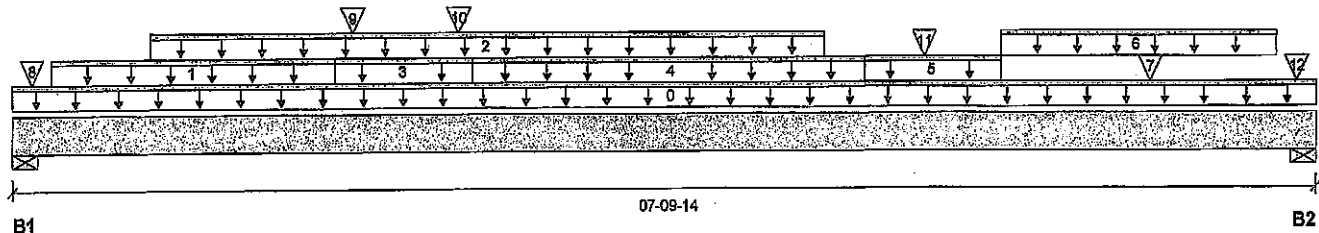
Customer:

Designer: AJ

Code reports:

CGMC 12472-R

Company:



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

| Bearing | Live     | Dead     | Snow    | Wind |
|---------|----------|----------|---------|------|
| B1, 6"  | 983 / 0  | 927 / 0  | 416 / 0 |      |
| B2, 6"  | 1202 / 0 | 1057 / 0 | 619 / 0 |      |

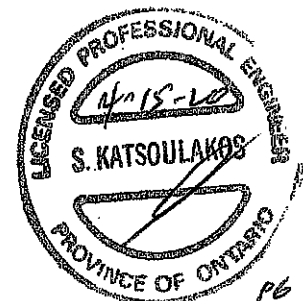
**Load Summary**

| 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 | 07-09-14 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E70(I3174)    | Unf. Lin. (lb/ft) | L    | 00-02-15 | 01-10-15 | Top  |              | 61           |              |              | n/a       |
| 2   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-09-15 | 04-09-15 | Top  | 254          | 127          |              |              | n/a       |
| 3   | E69(I3176)    | Unf. Lin. (lb/ft) | L    | 01-10-15 | 02-08-15 | Top  |              | 81           |              |              | n/a       |
| 4   | E68(I3177)    | Unf. Lin. (lb/ft) | L    | 02-08-15 | 05-00-15 | Top  |              | 61           |              |              | n/a       |
| 5   | E67(I3180)    | Unf. Lin. (lb/ft) | L    | 05-00-15 | 05-10-15 | Top  |              | 81           |              |              | n/a       |
| 6   | E66(I3175)    | Unf. Lin. (lb/ft) | L    | 05-10-15 | 07-06-15 | Top  |              | 61           |              |              | n/a       |
| 7   | J2(I2981)     | Conc. Pt. (lbs)   | L    | 06-09-15 | 06-09-15 | Top  | 338          | 169          |              |              | n/a       |
| 8   | E34(I2053)    | Conc. Pt. (lbs)   | L    | 00-01-07 | 00-01-07 | Top  | 40           | 74           | 84           |              | n/a       |
| 9   | -             | Conc. Pt. (lbs)   | L    | 02-00-03 | 02-00-03 | Top  | 37           | 51           | 89           |              | n/a       |
| 10  | E69(I3176)    | Conc. Pt. (lbs)   | L    | 02-07-15 | 02-07-15 | Top  | 51           | 68           | 106          |              | n/a       |
| 11  | -             | Conc. Pt. (lbs)   | L    | 05-05-06 | 05-05-06 | Top  | 657          | 499          | 680          |              | n/a       |
| 12  | E65(I3182)    | Conc. Pt. (lbs)   | L    | 07-08-06 | 07-08-06 | Top  | 37           | 51           | 77           |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 5995 ft-lbs     | 23220 ft-lbs        | 25.8%             | 1    | 04-01-15 |
| End Shear             | 3180 lbs        | 11571 lbs           | 27.5%             | 1    | 06-06-05 |
| Total Load Deflection | L/999 (0.08")   | n/a                 | n/a               | 35   | 03-11-15 |
| Live Load Deflection  | L/999 (0.05")   | n/a                 | n/a               | 51   | 03-11-15 |
| Max Defl.             | 0.08"           | n/a                 | n/a               | 35   | 03-11-15 |
| Span / Depth          | 8.8             |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 6" x 3-1/2" | 3049 lbs | 23.5%                     | 11.8%                    | Spruce-Pine-Fir |
| B2               | Wall/Plate 6" x 3-1/2" | 3744 lbs | 28.8%                     | 14.5%                    | Spruce-Pine-Fir |



9W6 NO. 7AM 5867-20  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B17C(i3161) (Flush Beam)**

**PASSED**

BC CALC® Member Report  
Build 7239

Dry | 1 span | No cant.

February 18, 2020 08:08:50

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

File name: VALLEYCREEK 11 EL 2.mmdl  
Description: 2ND FLR FRAMING\Flush Beams\B17C(i3161)  
Specifier:  
Designer: AJ  
Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

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

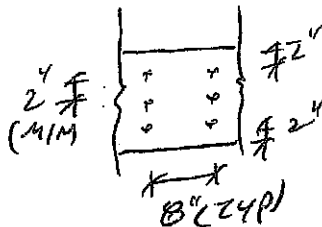
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**

**AMENDED 2020**



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



ENG NO. TAM 5867 -20  
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®.



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B18C(i3165) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:08:50

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B18C(i3165)

City, Province, Postal Code: WATERDOWN

Specifier:

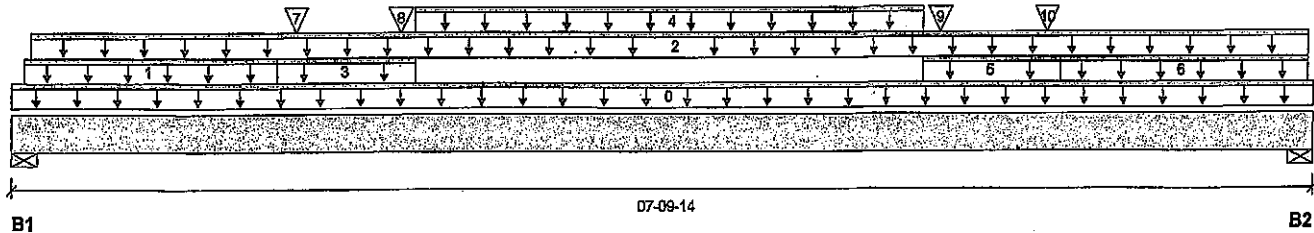
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

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

| Bearing | Live    | Dead    | Snow    | Wind |
|---------|---------|---------|---------|------|
| B1, 6"  | 139 / 0 | 448 / 0 | 211 / 0 |      |
| B2, 6"  | 142 / 0 | 451 / 0 | 217 / 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 | 07-09-14 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | E74(i3186)         | Unf. Lin. (lb/ft) | L    | 00-00-15 | 01-06-15 | Top  |              | 61           |              |              | n/a       |
| 2   | FC2 Floor Material | Unf. Lin. (lb/ft) | L    | 00-01-07 | 07-09-07 | Top  | 10           | 5            |              |              | n/a       |
| 3   | E73(i3185)         | Unf. Lin. (lb/ft) | L    | 01-06-15 | 02-04-15 | Top  |              | 81           |              |              | n/a       |
| 4   | E72(i3184)         | Unf. Lin. (lb/ft) | L    | 02-04-15 | 05-05-07 | Top  |              | 61           |              |              | n/a       |
| 5   | E71(i3183)         | Unf. Lin. (lb/ft) | L    | 05-05-07 | 06-03-07 | Top  |              | 81           |              |              | n/a       |
| 6   | E29(i2059)         | Unf. Lin. (lb/ft) | L    | 06-03-07 | 07-09-07 | Top  |              | 61           |              |              | n/a       |
| 7   | -                  | Conc. Pt. (lbs)   | L    | 01-08-06 | 01-08-06 | Top  | 40           | 47           | 83           |              | n/a       |
| 8   | E73(i3185)         | Conc. Pt. (lbs)   | L    | 02-03-15 | 02-03-15 | Top  | 62           | 84           | 130          |              | n/a       |
| 9   | -                  | Conc. Pt. (lbs)   | L    | 05-06-11 | 05-06-11 | Top  | 66           | 83           | 138          |              | n/a       |
| 10  | E71(i3183)         | Conc. Pt. (lbs)   | L    | 06-02-07 | 06-02-07 | Top  | 37           | 50           | 78           |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 1622 ft-lbs     | 23220 ft-lbs        | 7.0%              | 13   | 03-10-01 |
| End Shear             | 896 lbs         | 11571 lbs           | 7.7%              | 13   | 06-06-05 |
| Total Load Deflection | L/999 (0.023")  | n/a                 | n/a               | 35   | 03-11-03 |
| Live Load Deflection  | L/999 (0.011")  | n/a                 | n/a               | 51   | 03-11-03 |
| Max Defl.             | 0.023"          | n/a                 | n/a               | 35   | 03-11-03 |
| Span / Depth          | 8.8             |                     |                   |      |          |

| Bearing Supports | Dim. (LxW)             | Demand   | Demand/Resistance Support | Demand/Resistance Member | Material        |
|------------------|------------------------|----------|---------------------------|--------------------------|-----------------|
| B1               | Wall/Plate 6" x 3-1/2" | 1016 lbs | 7.8%                      | 3.9%                     | Spruce-Pine-Fir |
| B2               | Wall/Plate 6" x 3-1/2" | 1031 lbs | 7.9%                      | 4.0%                     | Spruce-Pine-Fir |



DOB NO. YAM 5868-20  
STRUCTURAL  
COMPONENT ONLY



**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**  
**2ND FLR FRAMING\Flush Beams\B18C(I3165) (Flush Beam)**

**PASSED**

BC CALC® Member Report  
Build 7239

Dry | 1 span | No cant

February 18, 2020 08:08:50

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

File name: VALLEYCREEK 11 EL 2.mmdl  
Description: 2ND FLR FRAMING\Flush Beams\B18C(I3165)  
Specifier:  
Designer: AJ  
Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

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

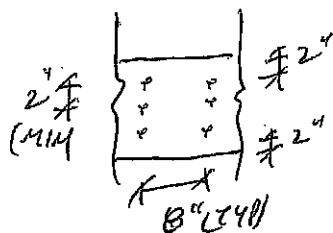
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**

**AMENDED 2020**



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



DWG NO. YAM5868-20  
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®, AJST™, 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****PASSED****1ST FLR FRAMING\Flush Beams\B2A(i3302) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

April 14, 2020 15:39:44

Build 7239

Job name:

File name: VALLEYCREEK 11 EL 1 DECK CONDITION.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2A(i3302)

City, Province, Postal Code: WATERDOWN

Specifier:

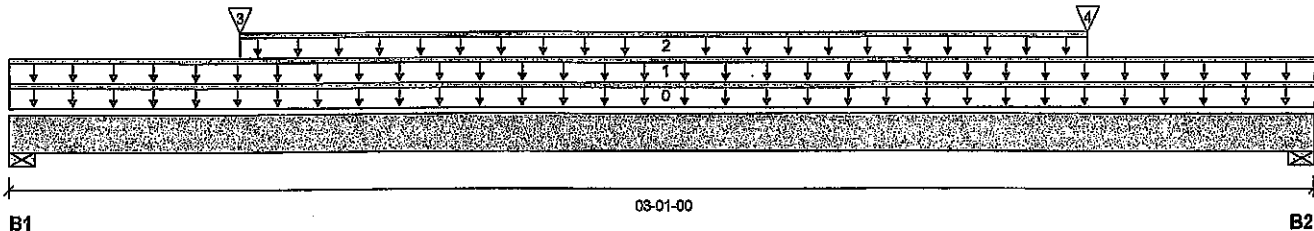
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

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

| Bearing | Live   | Dead    | Snow | Wind |
|---------|--------|---------|------|------|
| B1, 3"  | 90 / 0 | 317 / 0 |      |      |
| B2, 3"  | 90 / 0 | 317 / 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 | 03-01-00 | Top  | 10   |      |      |      | 00-00-00  |
| 1   | E5(i638)           | Unf. Lin. (lb/ft) | L    | 00-00-00 | 03-01-00 | Top  | 31   | 182  |      |      | n/a       |
| 2   | FC1 Floor Material | Unf. Lin. (lb/ft) | L    | 00-06-08 | 02-06-08 | Top  | 27   | 13   |      |      | n/a       |
| 3   | Bk2(i3316)         | Conc. Pt. (lbs)   | L    | 00-06-08 | 00-06-08 | Top  | 16   | 8    |      |      | n/a       |
| 4   | Bk2(i3309)         | Conc. Pt. (lbs)   | L    | 02-06-08 | 02-06-08 | Top  | 16   | 8    |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 266 ft-lbs      | 15093 ft-lbs        | 1.8%              | 0    | 01-06-08 |
| End Shear             | 157 lbs         | 7521 lbs            | 2.1%              | 0    | 01-00-08 |
| Total Load Deflection | L/999 (0.001")  | n/a                 | n/a               | 4    | 01-06-08 |
| Live Load Deflection  | L/999 (0")      | n/a                 | n/a               | 5    | 01-06-08 |
| Max Defl.             | 0.001"          | n/a                 | n/a               | 4    | 01-06-08 |
| Span / Depth          | 3.4             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)             | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|------------------------|---------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 3" x 3-1/2" | 444 lbs | 10.6%                     | 5.3%                     | Spruce-Pine-Fir |
| B2 | Wall/Plate 3" x 3-1/2" | 444 lbs | 10.6%                     | 5.3%                     | Spruce-Pine-Fir |

**Notes**

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

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

Calculations assume member is fully braced.

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

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

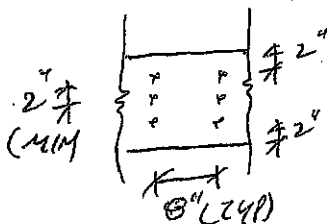
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

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



OWN NO. 7AM5869-20

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



## Maximum Floor Spans

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

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

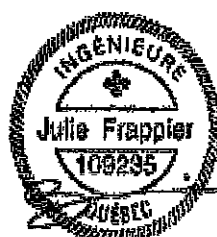
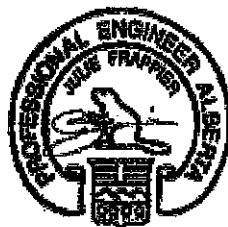
  

| Depth   | Series | Mid-Span Blocking |         |        |         | Mid-Span Blocking and 1/2" Gypsum Ceiling |         |         |         |
|---------|--------|-------------------|---------|--------|---------|-------------------------------------------|---------|---------|---------|
|         | 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

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

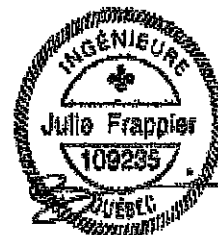
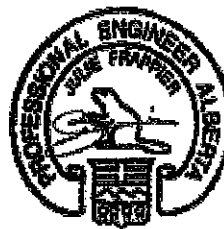
### Maximum Floor Spans

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



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

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



## Maximum Floor Spans

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

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

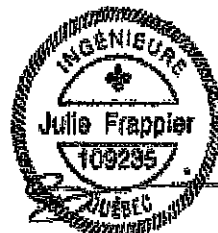
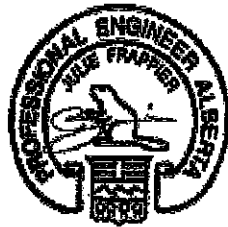
  

| Depth   | Series | Mid-Span Blocking |         |         |         | Mid-Span Blocking and 1/2" Gypsum Ceiling |         |         |         |
|---------|--------|-------------------|---------|---------|---------|-------------------------------------------|---------|---------|---------|
|         |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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and CBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

## Maximum Floor Spans

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

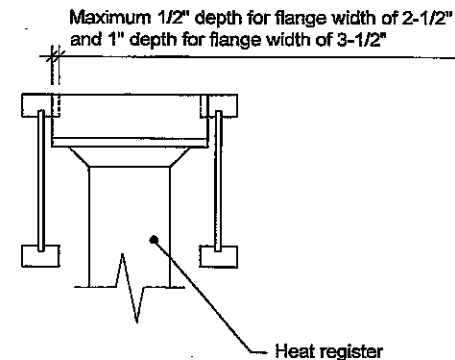
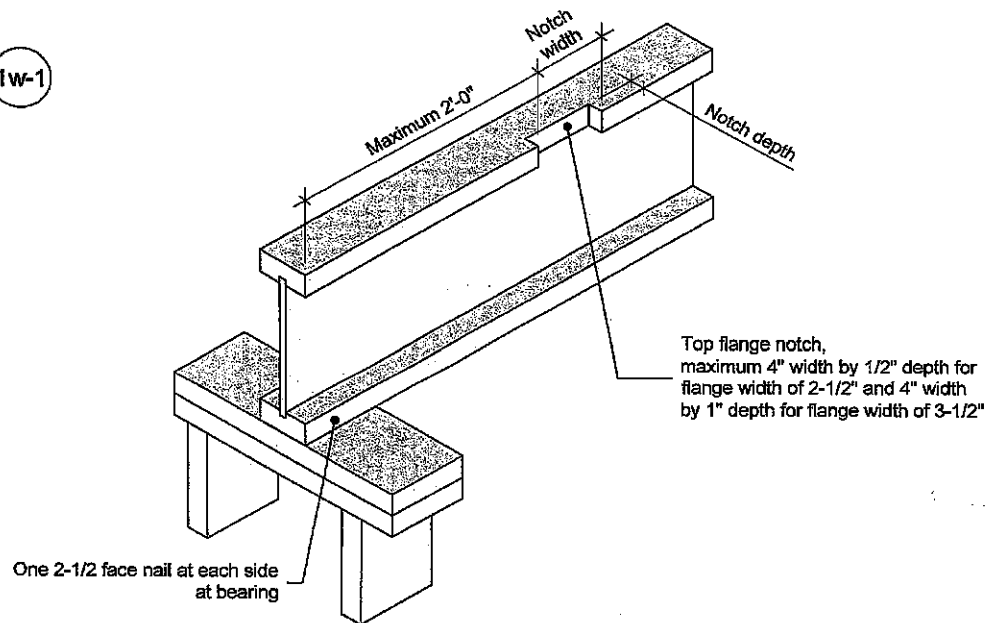


| Depth   | Series | Bare              |         |         |     | 1/2" Gypsum Ceiling |         |         |     |
|---------|--------|-------------------|---------|---------|-----|---------------------|---------|---------|-----|
|         |        | On Centre Spacing |         |         |     | On Centre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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ .
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

1W-1



**Notes:**

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

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

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

**NORDIC**  
**STRUCTURES**

T 514-871-8526  
1 866 817-3418

nordic.ca

**TITLE**

Notch in I-joist for Heat Register

**CATEGORY**

I-joist - Typical Floor Framing and Construction Details

**DOCUMENT**

-

**DATE**

2018-04-10

**NUMBER**

1W-1



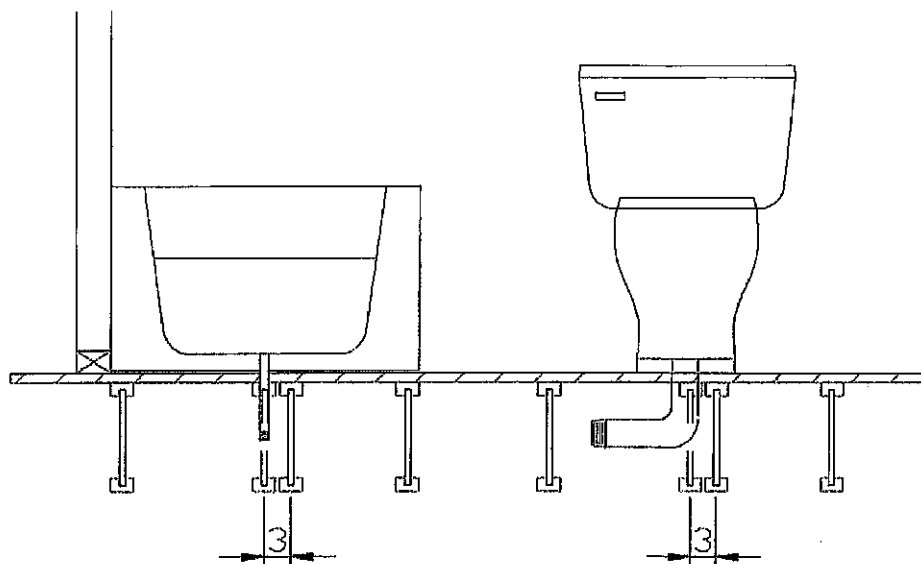
## Allowance for Piping (Installation Notes)

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

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

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

### ALLOWANCE FOR PIPING



Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference.

Revised April 12, 2012