



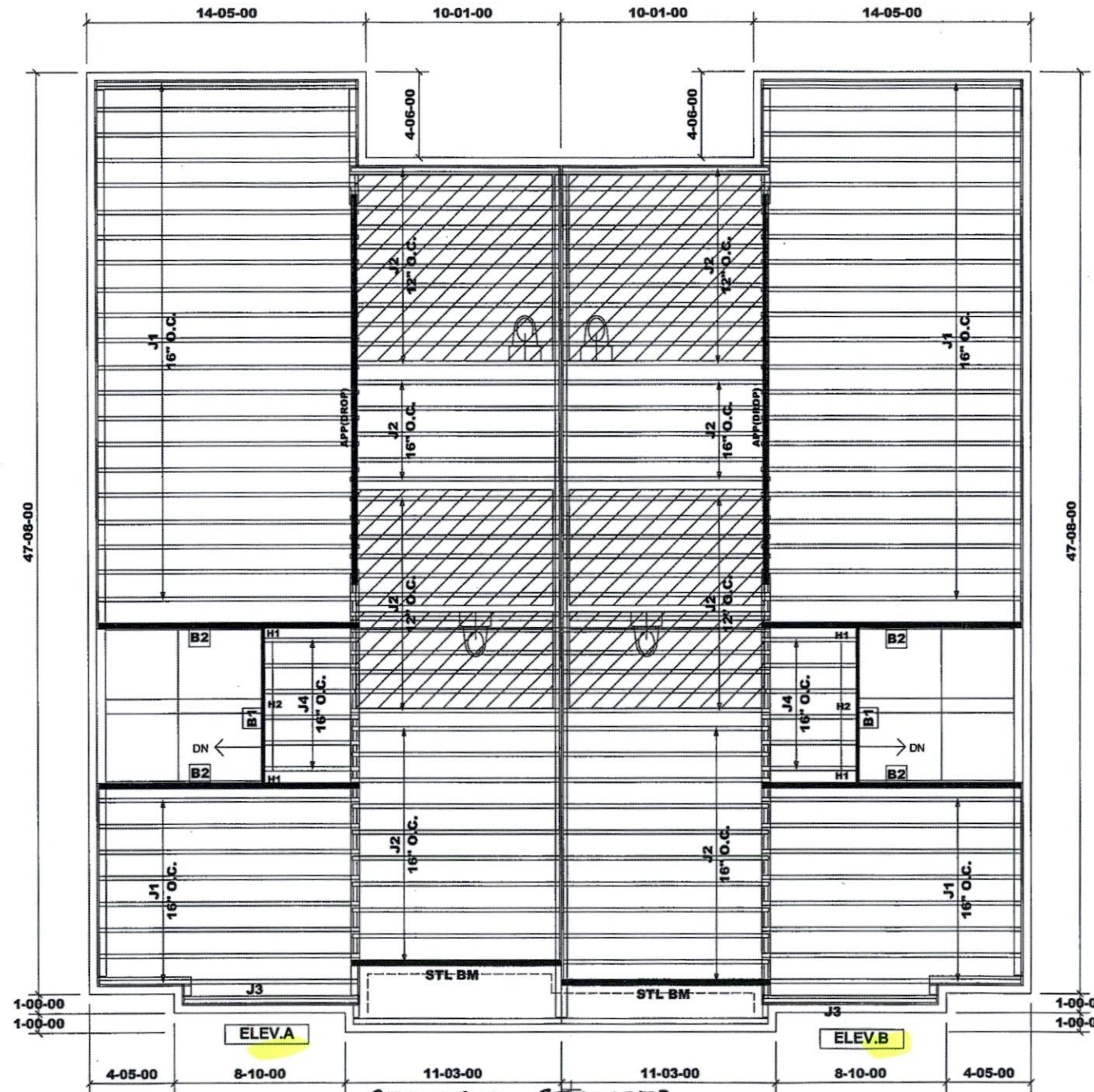
**CITY OF BRAMPTON – BUILDING DIVISION**

**FLOOR TRUSSES**

|                         |                        |              |                               |
|-------------------------|------------------------|--------------|-------------------------------|
| APPLICATION NO.:        | 19-567628 000 00 CM    | FOLDER TYP.: | <b>CM</b>                     |
| DESCRIPTION OF PROJECT: | PLAN M2039             | SUB TYP.:    | <b>Semi Detached Dwelling</b> |
| BUILDERS NAME:          | <b>GOLD PARK HOMES</b> |              |                               |
| PLAN NUMBER:            |                        | MODEL NAME:  | <b>2017/SD-10</b>             |

**CERTIFIED MODEL DOCUMENTS**

| PAGES:      | DESCRIPTION OF DOCUMENTS                     |              |                  |
|-------------|----------------------------------------------|--------------|------------------|
| <b>C</b>    | <b>FLOOR JOISTS, BEAMS &amp; COMPONENTS:</b> |              |                  |
|             | ELEVATION                                    | DESCRIPTION: | COMMENTS         |
| 2           |                                              | .....        |                  |
| 3           |                                              | .....        |                  |
|             |                                              | .....        |                  |
|             |                                              | .....        |                  |
|             |                                              | .....        |                  |
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|             |                                              | .....        |                  |
|             |                                              | .....        |                  |
|             |                                              | .....        |                  |
|             |                                              | .....        |                  |
| ENTERED BY: | ....                                         |              | DATE: yyyy/mm/dd |



TY OF BRAMPTON  
BUILDING DIVISION  
REVIEWED  
DEC 17 2019

All work shall conform to the Ontario Building Code O. Reg. 332/12 as amended

Engineered floor joists shall be installed in accordance with the supplier's layout and specifications forming part of the permit drawings.

| PlotID | Length    | Product                                | Piles | Net Qty |
|--------|-----------|----------------------------------------|-------|---------|
| J1     | 14-00-00  | 9 1/2" NI-20                           | 1     | 58      |
| J2     | 11-00-00  | 9 1/2" NI-20                           | 1     | 77      |
| J3     | 9-00-00   | 9 1/2" NI-20                           | 1     | 2       |
| J4     | 5-00-00   | 9 1/2" NI-20                           | 1     | 12      |
| B2     | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 8       |
| B1     | 8-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 2       |
| Ca1    | 272-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1     | 1       |
| Bk1    | 52-00-00  | 9 1/2" NI-20                           | 1     | 1       |

| Connector Summary |     |       |            |
|-------------------|-----|-------|------------|
| PlotID            | Qty | Manuf | Product    |
| H1                | 4   |       | HUS1.81/10 |
| H2                | 12  |       | LT259      |

RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
SUBFLOOR - 5/8" GLUE & NAILED  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

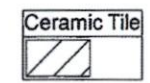
Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

FIRM BCIN 113884  
DESIGNER BCIN 25593

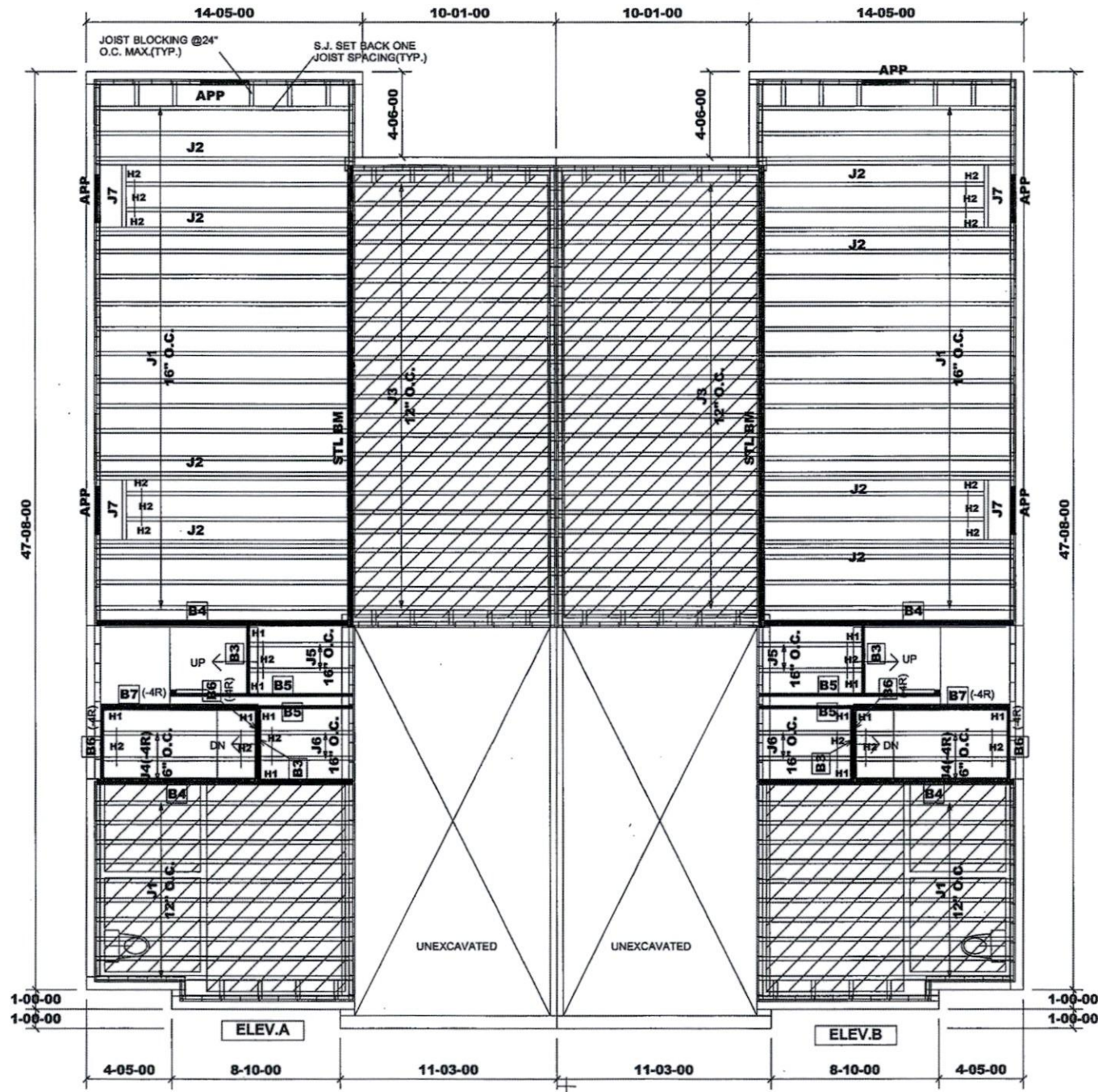
## Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: SD-10(STRAVINSKY)



SE004740 - SE004753



| Products |           |                                        |       |         |
|----------|-----------|----------------------------------------|-------|---------|
| PlotID   | Length    | Product                                | Plies | Net Qty |
| J1       | 14-00-00  | 9 1/2" NI-20                           | 1     | 56      |
| J2       | 14-00-00  | 9 1/2" NI-20                           | 2     | 16      |
| J3       | 11-00-00  | 9 1/2" NI-20                           | 1     | 46      |
| J4       | 8-00-00   | 9 1/2" NI-20                           | 1     | 6       |
| J5       | 6-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J6       | 5-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J7       | 4-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| B4       | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 8       |
| B5       | 10-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B7       | 9-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B3       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B6       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| Ca1      | 288-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1     | 1       |
| Bk1      | 80-00-00  | 9 1/2" NI-20                           | 1     | 1       |

| Connector Summary |     |       |            |
|-------------------|-----|-------|------------|
| PlotID            | Qty | Manuf | Product    |
| H1                | 12  |       | HUS1.81/10 |
| H2                | 32  |       | LT259      |

**RIMBOARD**  
 1- 1/8" X 9 1/2" O.S.B.  
**SUBFLOOR** - 5/8" GLUE & NAILED  
**APP** - AS PER PLAN  
**BBO** - BEAM BY OTHERS

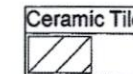
Ceramic tile application as per O.B.C. 9.30.6  
 Blocking panels are required over all interior supports  
 Squash blocks are required under concentrated loads.

FIRM BCIN 113884  
 DESIGNER BCIN 25593

## First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: SD-10(STRAVINSKY)



JT/PL: 39002/104573

Builder: Gold Park

Location: Brampton

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 314128

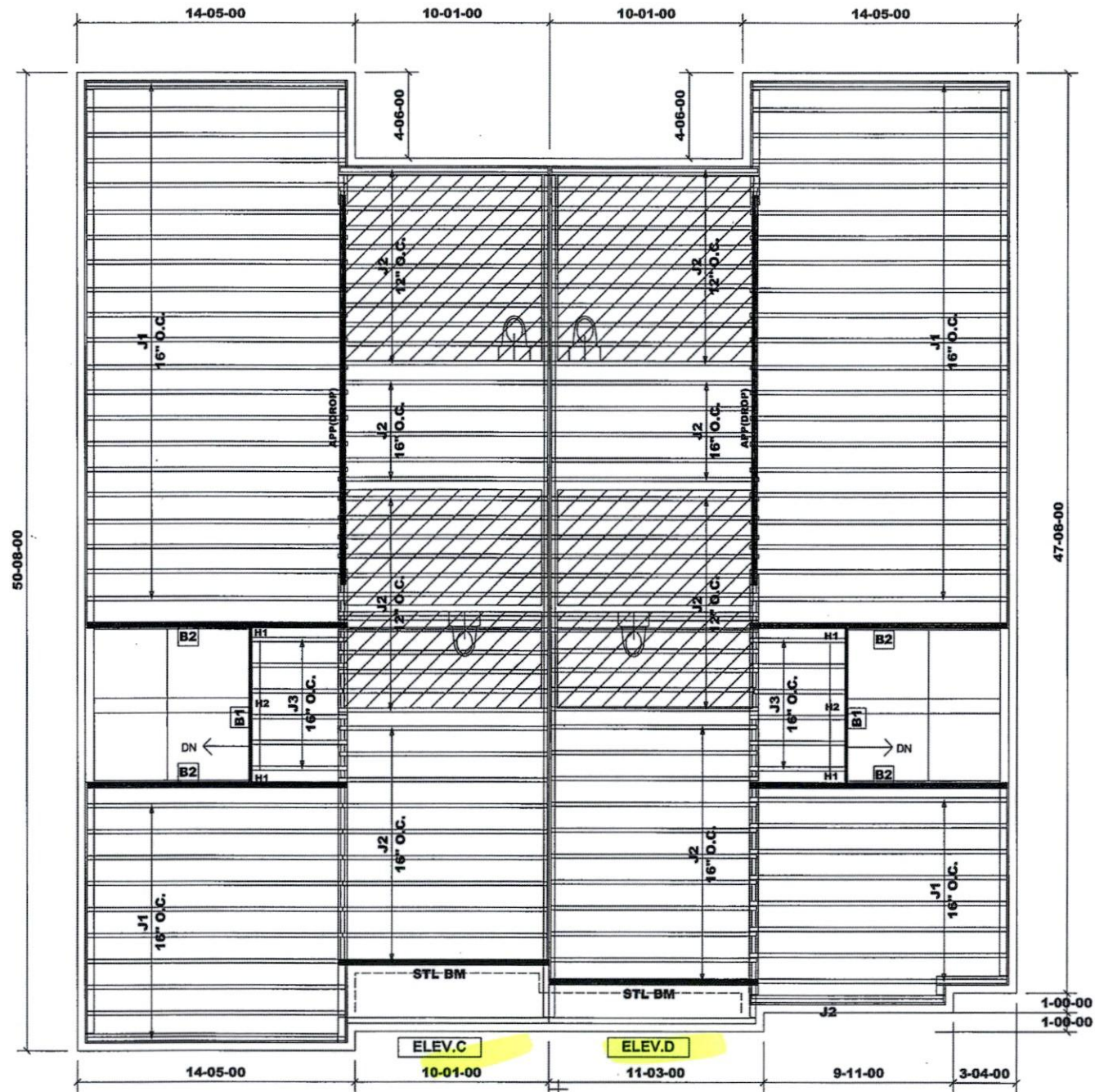
Project: Encore 2

Date: October 28, 2019

Sheet: 2 of 8

Maple, Ontario

Home Lumber



| Products |           |                                        |        |         |
|----------|-----------|----------------------------------------|--------|---------|
| PlotID   | Length    | Product                                | Pieces | Net Qty |
| J1       | 14-00-00  | 9 1/2" NI-20                           | 1      | 60      |
| J2       | 11-00-00  | 9 1/2" NI-20                           | 1      | 78      |
| J3       | 5-00-00   | 9 1/2" NI-20                           | 1      | 12      |
| B2       | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2      | 8       |
| B1       | 8-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1      | 2       |
| Ca1      | 276-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1      | 1       |
| Bk1      | 56-00-00  | 9 1/2" NI-20                           | 1      | 1       |

| Connector Summary |     |       |            |
|-------------------|-----|-------|------------|
| PlotID            | Qty | Manuf | Product    |
| H1                | 4   |       | HUS1.81/10 |
| H2                | 12  |       | LT259      |

**RIMBOARD**  
 1- 1/8" X 9 1/2" O.S.B.  
 SUBFLOOR - 5/8" GLUE & NAILED  
 APP - AS PER PLAN  
 BBO - BEAM BY OTHERS

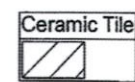
Ceramic tile application as per O.B.C. 9.30.6  
 Blocking panels are required over all interior supports  
 Squash blocks are required under concentrated loads.

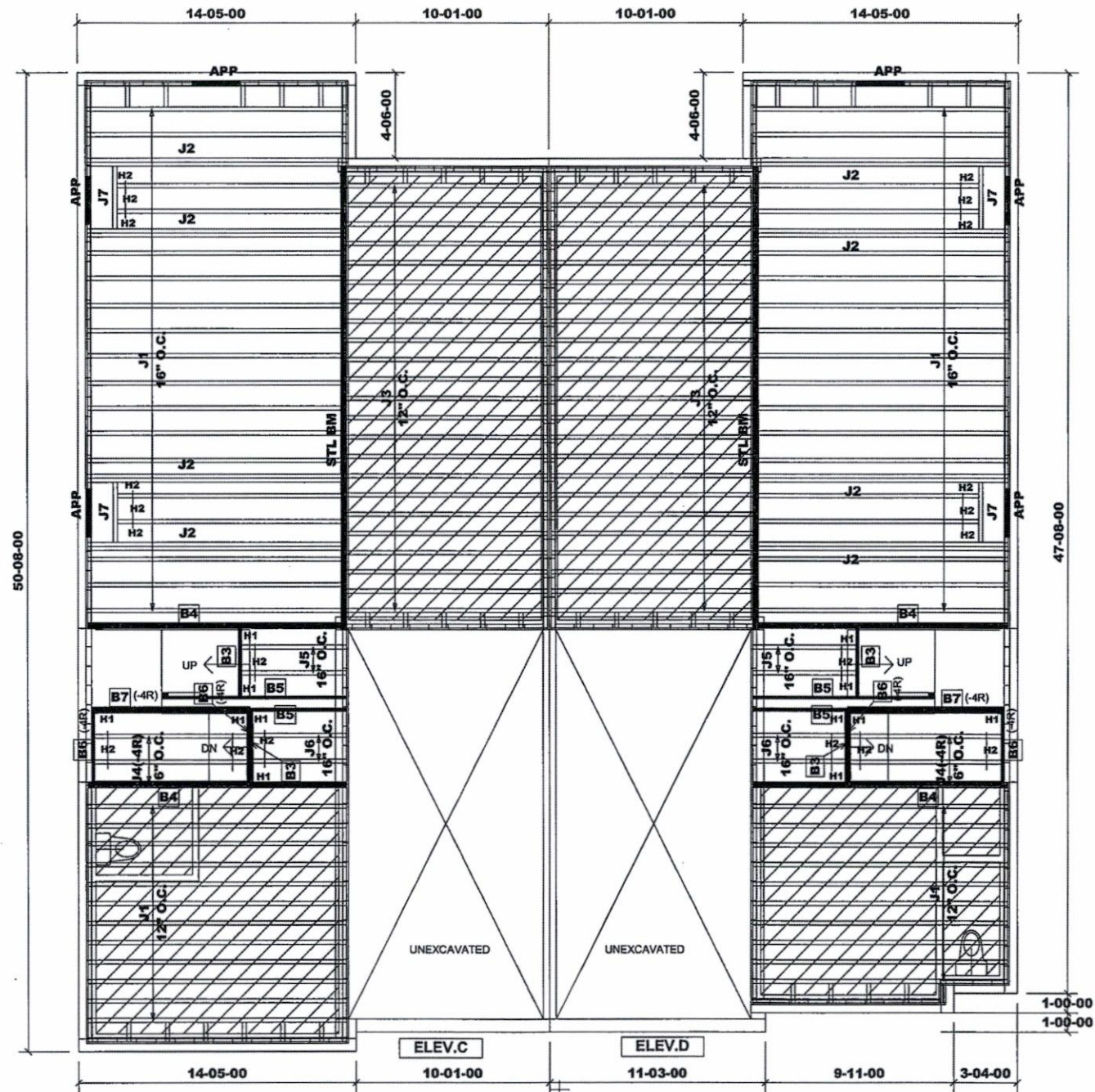
FIRM BCIN 113884  
 DESIGNER BCIN 25593

### Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: SD-10(STRAVINSKY)





| Products |           |                                        |       |         |
|----------|-----------|----------------------------------------|-------|---------|
| PlotID   | Length    | Product                                | Piles | Net Qty |
| J1       | 14-00-00  | 9 1/2" NI-20                           | 1     | 58      |
| J2       | 14-00-00  | 9 1/2" NI-20                           | 2     | 16      |
| J3       | 11-00-00  | 9 1/2" NI-20                           | 1     | 46      |
| J4       | 8-00-00   | 9 1/2" NI-20                           | 1     | 6       |
| J5       | 6-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J6       | 5-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J7       | 4-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| B4       | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 8       |
| B5       | 10-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B7       | 9-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B3       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B6       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| Ca1      | 292-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1     | 1       |
| Bk1      | 82-00-00  | 9 1/2" NI-20                           | 1     | 1       |

FIRM BCIN 113884  
DESIGNER BCIN 25593

| Connector Summary |     |       |         |
|-------------------|-----|-------|---------|
| PlotID            | Qty | Manuf | Product |
| H1                | 12  | HUS   | 1.81/10 |
| H2                | 32  | LT    | 259     |

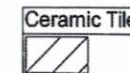
*LL*

RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
SUBFLOOR - 5/8" GLUE & NAILED  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

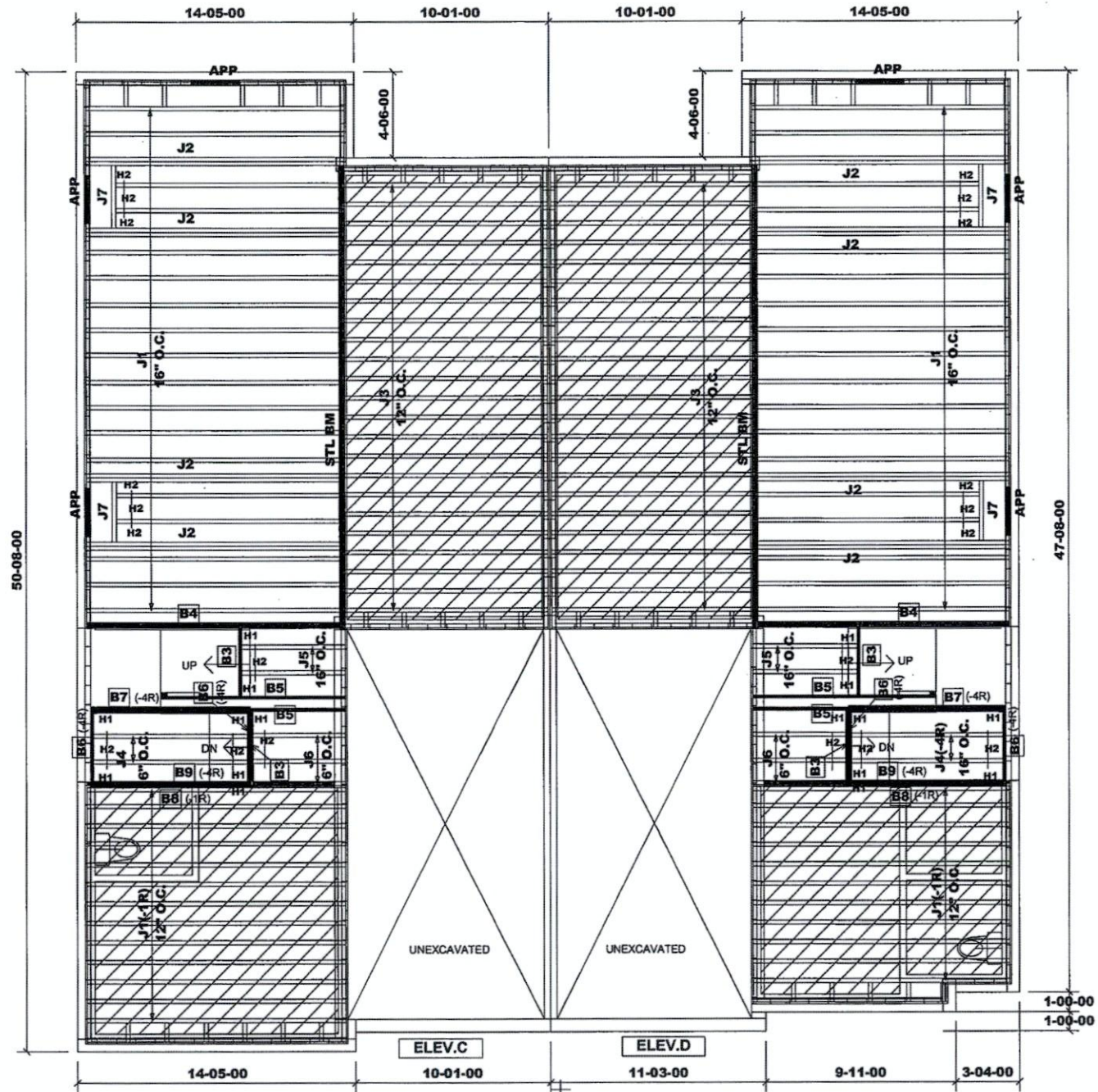
## First Floor Framing

Do not scale - refer to architectural plans for dimensions



MODEL: SD-10(STRAVINSKY)





| Products |           |                                        |       |         |
|----------|-----------|----------------------------------------|-------|---------|
| PlotID   | Length    | Product                                | Piles | Net Qty |
| J1       | 14-00-00  | 9 1/2" NI-20                           | 1     | 60      |
| J2       | 14-00-00  | 9 1/2" NI-20                           | 2     | 16      |
| J3       | 11-00-00  | 9 1/2" NI-20                           | 1     | 46      |
| J4       | 8-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J5       | 6-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J6       | 5-00-00   | 9 1/2" NI-20                           | 1     | 6       |
| J7       | 4-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| B4       | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B9       | 13-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B5       | 10-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B8       | 9-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 2       |
| B7       | 9-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B3       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B6       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| Ca1      | 276-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1     | 1       |
| Bk1      | 82-00-00  | 9 1/2" NI-20                           | 1     | 1       |

FIRM BCIN 113884  
DESIGNER BCIN 25593

| Connector Summary |     |       |            |
|-------------------|-----|-------|------------|
| PlotID            | Qty | Manuf | Product    |
| H1                | 16  |       | HUS1.81/10 |
| H2                | 32  |       | LT259      |

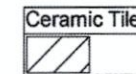
RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
SUBFLOOR - 5/8" GLUE & NAILED  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6

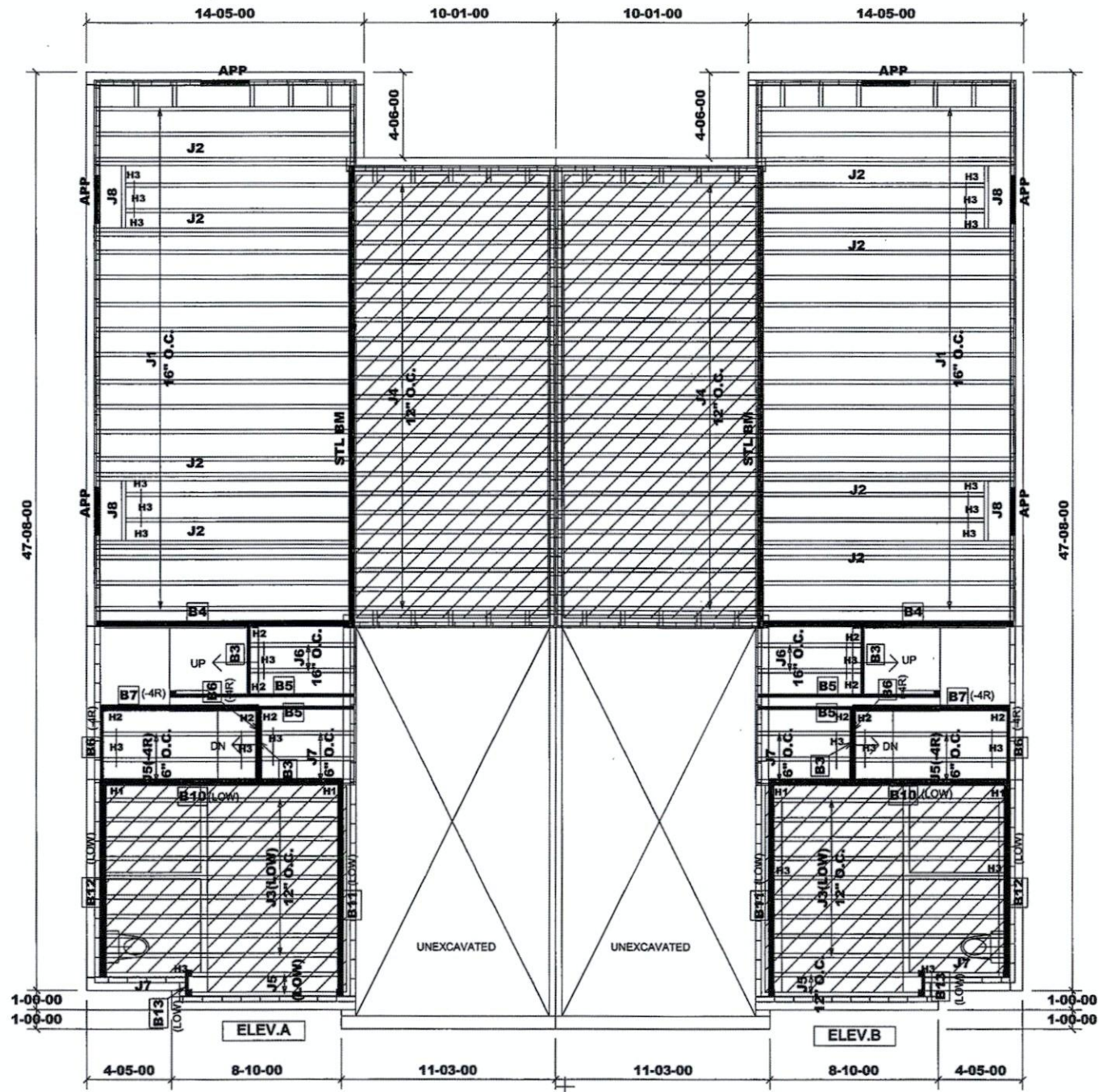
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

### First Floor Framing

Do not scale - refer to architectural plans for dimensions



MODEL: SD-10(STRAVINSKY)  
W/SUNKEN FOYER(-1R)



| Products |           |                                        |       |         |
|----------|-----------|----------------------------------------|-------|---------|
| PlotID   | Length    | Product                                | Plies | Net Qty |
| J1       | 14-00-00  | 9 1/2" NI-20                           | 1     | 36      |
| J2       | 14-00-00  | 9 1/2" NI-20                           | 2     | 16      |
| J3       | 13-00-00  | 9 1/2" NI-20                           | 1     | 18      |
| J4       | 11-00-00  | 9 1/2" NI-20                           | 1     | 46      |
| J5       | 8-00-00   | 9 1/2" NI-20                           | 1     | 10      |
| J6       | 6-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J7       | 5-00-00   | 9 1/2" NI-20                           | 1     | 8       |
| J8       | 4-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| B4       | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B10      | 13-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B11      | 12-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B12      | 11-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B5       | 10-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B7       | 9-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B3       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B6       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B13      | 2-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 2       |
| Ca1      | 226-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1     | 1       |
| Bk1      | 68-00-00  | 9 1/2" NI-20                           | 1     | 1       |

FIRM BCIN 113884  
DESIGNER BCIN 25593

| Connector Summary |     |       |            |
|-------------------|-----|-------|------------|
| PlotID            | Qty | Manuf | Product    |
| H1                | 4   |       | HGUS410    |
| H2                | 10  |       | HUS1.81/10 |
| H3                | 76  |       | LT259      |

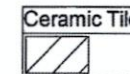
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**RIMBOARD**  
1- 1/8" X 9 1/2" O.S.B.  
SUBFLOOR - 5/8" GLUE & NAILED  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

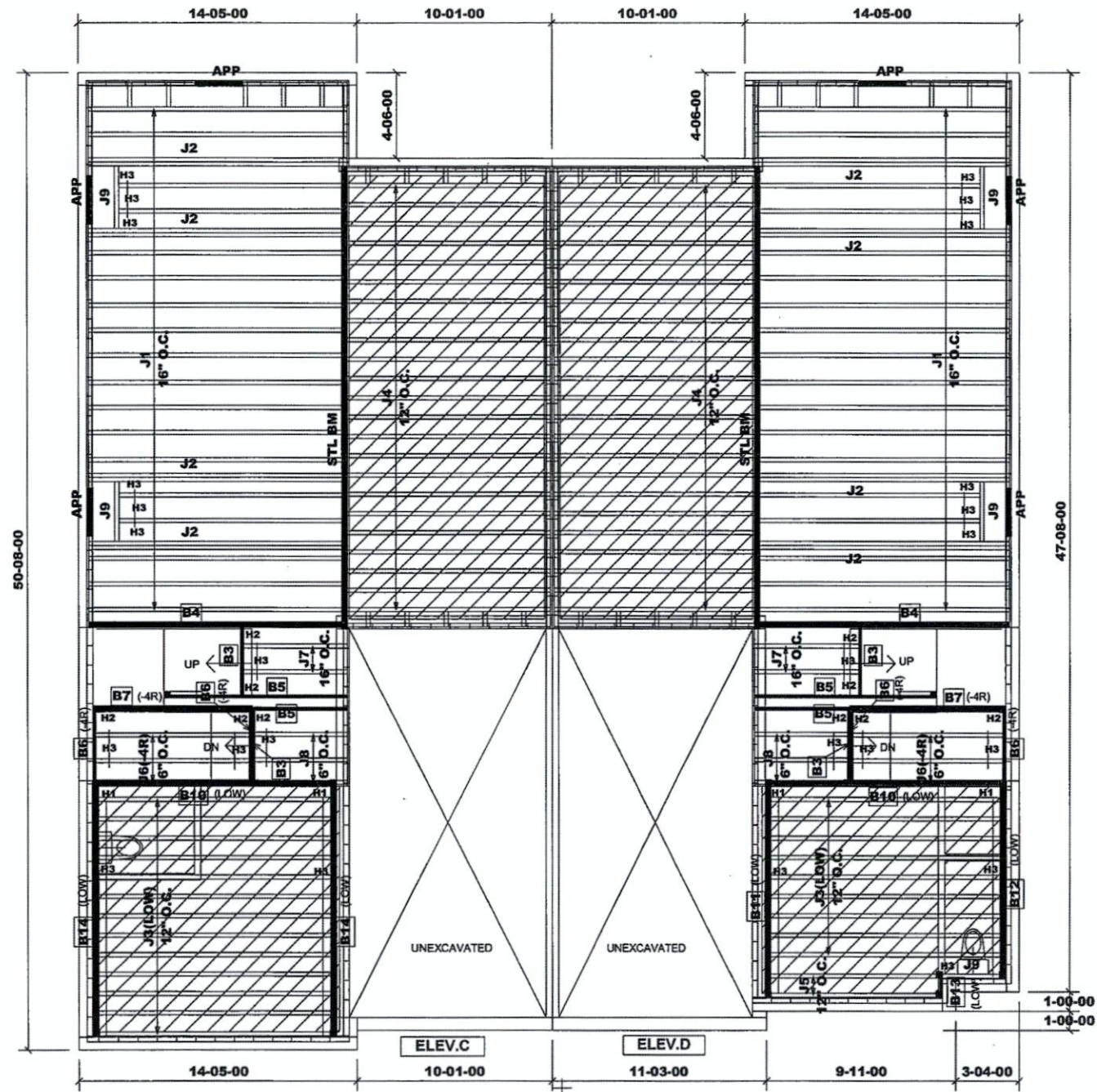
Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

### First Floor Framing

Do not scale - refer to architectural plans for dimensions



**MODEL: SD-10(STRAVINSKY)  
W/SUNKEN FOYER(LOW)**



| Products |           |                                        |       |         |
|----------|-----------|----------------------------------------|-------|---------|
| PlotID   | Length    | Product                                | Piles | Net Qty |
| J1       | 14-00-00  | 9 1/2" NI-20                           | 1     | 36      |
| J2       | 14-00-00  | 9 1/2" NI-20                           | 2     | 16      |
| J3       | 13-00-00  | 9 1/2" NI-20                           | 1     | 22      |
| J4       | 11-00-00  | 9 1/2" NI-20                           | 1     | 46      |
| J5       | 9-00-00   | 9 1/2" NI-20                           | 1     | 2       |
| J6       | 8-00-00   | 9 1/2" NI-20                           | 1     | 6       |
| J7       | 6-00-00   | 9 1/2" NI-20                           | 1     | 4       |
| J8       | 5-00-00   | 9 1/2" NI-20                           | 1     | 6       |
| J9       | 4-00-00   | 9 1/2" NI-20                           | 1     | 5       |
| B14      | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B4       | 14-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B10      | 13-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B11      | 12-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B12      | 11-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 2       |
| B5       | 10-00-00  | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B7       | 9-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2     | 4       |
| B3       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B6       | 4-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 4       |
| B13      | 2-00-00   | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1     | 1       |
| Ca1      | 226-00-00 | 1 1/8" x 9 1/2" Rim Board              | 1     | 1       |
| Bk1      | 68-00-00  | 9 1/2" NI-20                           | 1     | 1       |

FIRM BCIN 113884  
DESIGNER BCIN 25593

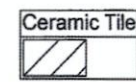
| Connector Summary |     |       |            |
|-------------------|-----|-------|------------|
| PlotID            | Qty | Manuf | Product    |
| H1                | 4   |       | HGUS410    |
| H2                | 10  |       | HUS1.81/10 |
| H3                | 80  |       | LT259      |

RIMBOARD  
1- 1/8" X 9 1/2" O.S.B.  
SUBFLOOR - 5/8" GLUE & NAILED  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6  
Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

### First Floor Framing

Do not scale - refer to architectural plans for dimensions



MODEL: SD-10(STRAVINSKY)  
W/SUNKEN FOYER(LOW)

**2nd Floor - Supply/BOM\Flush Beams\B1(i29843)**

Dry | 1 span | No cant.

October 28, 2019 10:04:27

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 2nd Floor - Supply/BOM\Flush Beams\B1(i29843)

City, Province, Postal Code: Brampton, ON

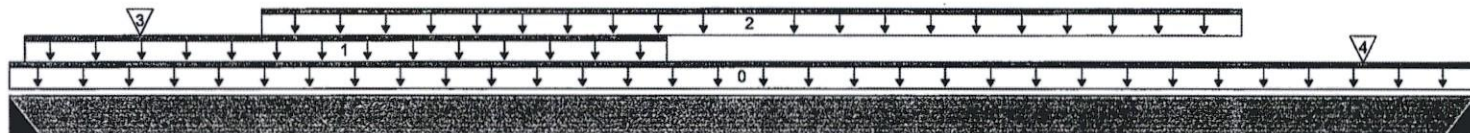
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



B1

08-00-00

B2

Total Horizontal Product Length = 08-00-00

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

| Bearing | Live    | Dead    | Snow | Wind |
|---------|---------|---------|------|------|
| B1, 2"  | 696 / 0 | 328 / 0 |      |      |
| B2, 2"  | 466 / 0 | 242 / 0 |      |      |

**Load Summary**

| Tag | Description   | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|---------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-00-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | User Load     | Unf. Lin. (lb/ft) | L    | 00-01-00 | 03-07-00 | Top  | 120  | 45   |      |      | n/a       |
| 2   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 01-04-08 | 06-08-08 | Top  | 99   | 50   |      |      | n/a       |
| 3   | J4(i29862)    | Conc. Pt. (lbs)   | L    | 00-08-08 | 00-08-08 | Top  | 109  | 55   |      |      | n/a       |
| 4   | J4(i29856)    | Conc. Pt. (lbs)   | L    | 07-04-08 | 07-04-08 | Top  | 105  | 53   |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2,443 ft-lbs    | 11,610 ft-lbs       | 21.0 %            | 1    | 03-04-08 |
| End Shear             | 1,168 lbs       | 5,785 lbs           | 20.2 %            | 1    | 00-11-08 |
| Total Load Deflection | L/999 (0.073")  | n/a                 | n/a               | 4    | 03-10-06 |
| Live Load Deflection  | L/999 (0.049")  | n/a                 | n/a               | 5    | 03-10-06 |
| Max Defl.             | 0.073"          | n/a                 | n/a               | 4    | 03-10-06 |
| Span / Depth          | 9.8             |                     |                   |      |          |


**Bearing Supports**

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|--------------------|-----------|---------------------------|--------------------------|----------|
| B1 | Hanger 2" x 1-3/4" | 1,453 lbs | n/a                       | 34.0 %                   | Hanger   |
| B2 | Hanger 2" x 1-3/4" | 1,002 lbs | n/a                       | 23.5 %                   | Hanger   |

**Cautions**
**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

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

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

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 2nd Floor - Supply/BOM/Flush Beams\B2(i29844)

City, Province, Postal Code: Brampton, ON

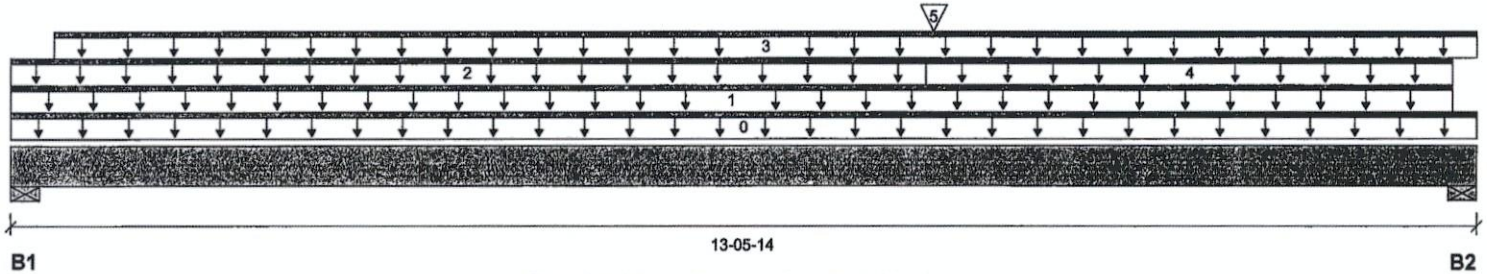
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 13-05-14

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 4-3/8" | 525 / 0 | 697 / 0 |      |      |
| B2, 5-1/2" | 761 / 0 | 841 / 0 |      |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.65 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-05-14 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | FC1 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-03-02 | Top  | 15           | 7            |              |              | n/a       |
| 2   | FC1 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-04-14 | Top  | 6            | 3            |              |              | n/a       |
| 3   | User Load          | Unf. Lin. (lb/ft) | L    | 00-04-14 | 13-05-14 | Top  | 20           | 70           |              |              | n/a       |
| 4   | FC1 Floor Material | Unf. Lin. (lb/ft) | L    | 08-04-14 | 13-03-02 | Top  | 17           | 9            |              |              | n/a       |
| 5   | B1(i29843)         | Conc. Pt. (lbs)   | L    | 08-05-12 | 08-05-12 | Top  | 696          | 328          |              |              | n/a       |

**Controls Summary**

|                       | Factored Demand  | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|------------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 7,728 ft-lbs     | 23,220 ft-lbs       | 33.3 %            | 1    | 08-05-12 |
| End Shear             | 1,961 lbs        | 11,571 lbs          | 16.9 %            | 1    | 12-02-14 |
| Total Load Deflection | L/509 (0.302")   | n/a                 | 47.2 %            | 4    | 07-00-09 |
| Live Load Deflection  | L/1,043 (0.147") | n/a                 | 34.5 %            | 5    | 07-00-09 |
| Max Defl.             | 0.302"           | n/a                 | n/a               | 4    | 07-00-09 |
| Span / Depth          | 16.2             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)                 | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|-----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 4-3/8" x 3-1/2" | 1,659 lbs | 17.6 %                    | 8.9 %                    | Spruce-Pine-Fir |
| B2 | Wall/Plate 5-1/2" x 3-1/2" | 2,192 lbs | 18.5 %                    | 9.3 %                    | 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

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

Nail one ply to another with

3 1/2" spiral nails @ 12"

o.c. staggered in 2 rows



BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B3(i30981)

City, Province, Postal Code: Brampton, ON

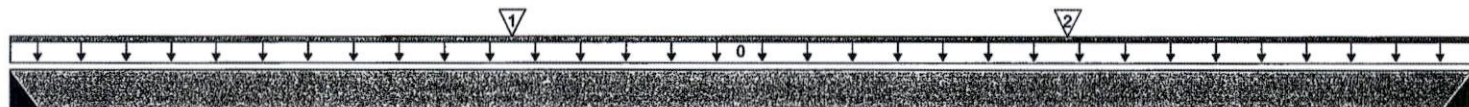
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



B1

03-06-04

B2

Total Horizontal Product Length = 03-06-04

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

| Bearing | Live    | Dead    | Snow | Wind |
|---------|---------|---------|------|------|
| B1, 2"  | 309 / 0 | 141 / 0 |      |      |
| B2, 2"  | 347 / 0 | 157 / 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 | 03-06-04 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | J5(i30983)  | Conc. Pt. (lbs)   | L    | 01-02-08 | 01-02-08 | Top  | 338  | 145  |      |      | n/a       |
| 2   | J5(i30967)  | Conc. Pt. (lbs)   | L    | 02-06-08 | 02-06-08 | Top  | 318  | 136  |      |      | n/a       |

**Controls Summary**

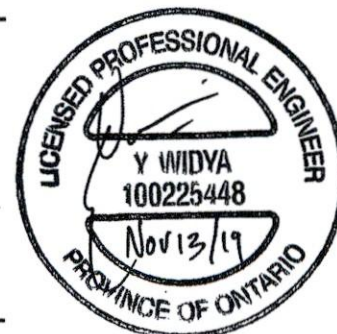
|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 703 ft-lbs      | 11,610 ft-lbs       | 6.1 %             | 1    | 01-02-08 |
| End Shear             | 711 lbs         | 5,785 lbs           | 12.3 %            | 1    | 02-06-12 |
| Total Load Deflection | L/999 (0.004")  | n/a                 | n/a               | 4    | 01-09-00 |
| Live Load Deflection  | L/999 (0.003")  | n/a                 | n/a               | 5    | 01-09-00 |
| Max Defl.             | 0.004"          | n/a                 | n/a               | 4    | 01-09-00 |
| Span / Depth          | 4.2             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)         | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|--------------------|---------|---------------------------|--------------------------|----------|
| B1 | Hanger 2" x 1-3/4" | 640 lbs | n/a                       | 15.0 %                   | Hanger   |
| B2 | Hanger 2" x 1-3/4" | 716 lbs | n/a                       | 16.8 %                   | Hanger   |

**Cautions**
**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


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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****1st Floor - Supply/BOM\Flush Beams\B4(i30976)**

Dry | 1 span | No cant.

October 28, 2019 10:21:57

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B4(i30976)

City, Province, Postal Code: Brampton, ON

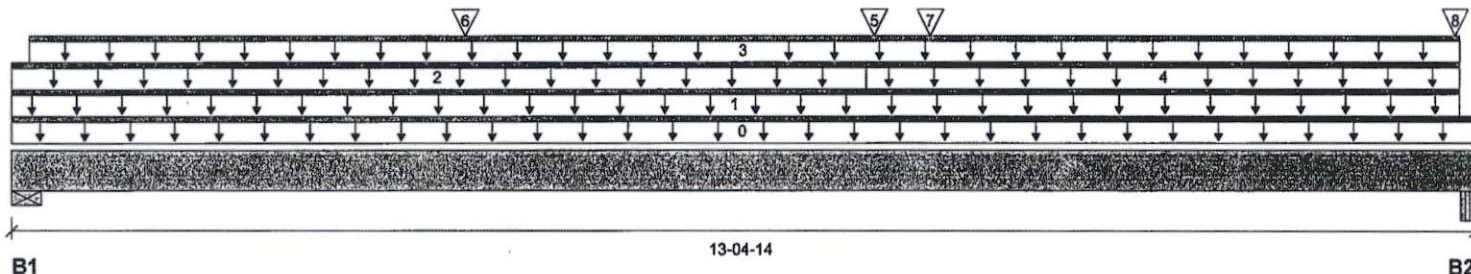
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 13-04-14

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

| Bearing    | Live      | Dead      | Snow | Wind |
|------------|-----------|-----------|------|------|
| B1, 1-7/8" | 765 / 0   | 786 / 0   |      |      |
| B2, 3-1/2" | 1,131 / 0 | 1,258 / 0 |      |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live<br>1.00 | Dead<br>0.65 | Snow<br>1.00 | Wind<br>1.15 | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-04-14 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-03-02 | Top  | 15           | 8            |              |              | n/a       |
| 2   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-09-14 | Top  | 6            | 3            |              |              | n/a       |
| 3   | User Load          | Unf. Lin. (lb/ft) | L    | 00-01-14 | 13-03-02 | Top  | 20           | 70           |              |              | n/a       |
| 4   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 07-09-14 | 13-03-02 | Top  | 22           | 11           |              |              | n/a       |
| 5   | B3(i30981)         | Conc. Pt. (lbs)   | L    | 07-10-12 | 07-10-12 | Top  | 346          | 156          |              |              | n/a       |
| 6   | User Load          | Conc. Pt. (lbs)   | L    | 04-01-14 | 04-01-14 | Top  | 440          | 165          |              |              | n/a       |
| 7   | FC3 Floor Material | Conc. Pt. (lbs)   | L    | 08-04-14 | 08-04-14 | Top  | 90           | 34           |              |              | n/a       |
| 8   | 4(i29839)          | Conc. Pt. (lbs)   | L    | 13-02-10 | 13-02-10 | Top  | 383          | 456          |              |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/<br>Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-----------------------|------|----------|
| Pos. Moment           | 8,102 ft-lbs    | 23,220 ft-lbs       | 34.9 %                | 1    | 07-04-06 |
| End Shear             | 1,982 lbs       | 11,571 lbs          | 17.1 %                | 1    | 00-11-06 |
| Total Load Deflection | L/437 (0.359")  | n/a                 | 54.9 %                | 4    | 06-08-02 |
| Live Load Deflection  | L/845 (0.186")  | n/a                 | 42.6 %                | 5    | 06-08-02 |
| Max Defl.             | 0.359"          | n/a                 | n/a                   | 4    | 06-08-02 |
| Span / Depth          | 16.5            |                     |                       |      |          |

**Bearing Supports**

|    | Dim. (LxW)                 | Demand    | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member | Material        |
|----|----------------------------|-----------|----------------------------------|---------------------------------|-----------------|
| B1 | Wall/Plate 1-7/8" x 3-1/2" | 2,130 lbs | 52.8 %                           | 26.6 %                          | Spruce-Pine-Fir |
| B2 | Beam 3-1/2" x 3-1/2"       | 3,269 lbs | 43.4 %                           | 21.9 %                          | Unspecified     |

**Notes**

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nail one ply to another with  
3 1/2" spiral nails @ 12"

o.c., staggered in 2 rows



SE004743

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B5(i30783)

City, Province, Postal Code: Brampton, ON

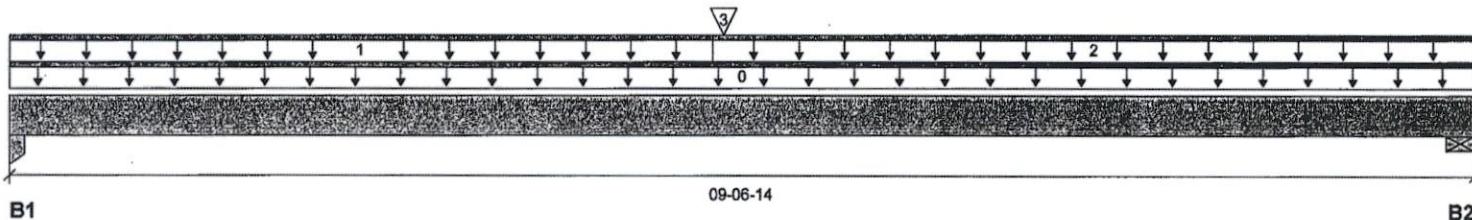
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 09-06-14

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 4"     | 307 / 0 | 162 / 0 |      |      |
| B2, 2-3/8" | 354 / 0 | 186 / 0 |      |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 09-06-14 | Top  | 1.00 | 0.65 | 1.00 | 1.15 |           |
| 1   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 04-07-00 | Top  | 13   | 6    |      |      | n/a       |
| 2   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 04-07-00 | 09-06-14 | Top  | 40   | 20   |      |      | n/a       |
| 3   | -                  | Conc. Pt. (lbs)   | L    | 04-07-14 | 04-07-14 | Top  | 402  | 170  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2,551 ft-lbs    | 11,610 ft-lbs       | 22.0 %            | 1    | 04-07-14 |
| End Shear             | 674 lbs         | 5,785 lbs           | 11.7 %            | 1    | 08-07-00 |
| Total Load Deflection | L/999 (0.093")  | n/a                 | n/a               | 4    | 04-10-13 |
| Live Load Deflection  | L/999 (0.062")  | n/a                 | n/a               | 5    | 04-10-13 |
| Max Defl.             | 0.093"          | n/a                 | n/a               | 4    | 04-10-13 |
| Span / Depth          | 11.6            |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)                 | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|---------|---------------------------|--------------------------|-----------------|
| B1 | Column 4" x 1-3/4"         | 663 lbs | 9.1 %                     | 7.8 %                    | Unspecified     |
| B2 | Wall/Plate 2-3/8" x 1-3/4" | 765 lbs | 29.9 %                    | 15.1 %                   | 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


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

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B6(i30956)

City, Province, Postal Code: Brampton, ON

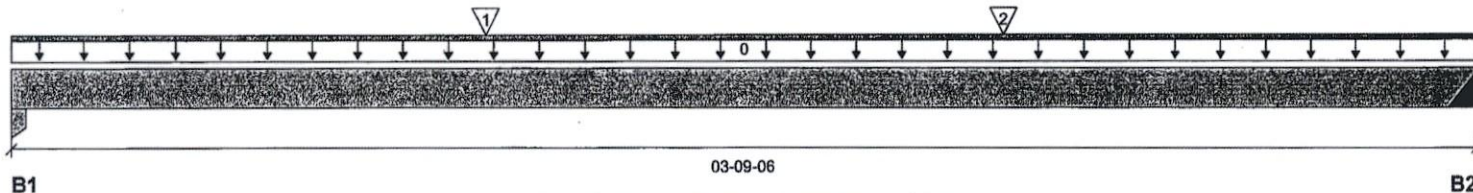
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 03-09-06

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 2-7/8" | 216 / 0 | 118 / 0 |      |      |
| B2, 2"     | 219 / 0 | 118 / 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 | 03-09-06 | Top  |              | 5            |              |              | 00-00-00  |
| 1   | J4(i30953)  | Conc. Pt. (lbs)   | L    | 01-02-10 | 01-02-10 | Top  | 201          | 101          |              |              | n/a       |
| 2   | J4(i30955)  | Conc. Pt. (lbs)   | L    | 02-06-10 | 02-06-10 | Top  | 234          | 117          |              |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 530 ft-lbs      | 11,610 ft-lbs       | 4.6 %             | 1    | 02-06-10 |
| End Shear             | 470 lbs         | 5,785 lbs           | 8.1 %             | 1    | 02-09-14 |
| Total Load Deflection | L/999 (0.003")  | n/a                 | n/a               | 4    | 01-11-02 |
| Live Load Deflection  | L/999 (0.002")  | n/a                 | n/a               | 5    | 01-11-02 |
| Max Defl.             | 0.003"          | n/a                 | n/a               | 4    | 01-11-02 |
| Span / Depth          | 4.4             |                     |                   |      |          |


**Bearing Supports**

|                  |            |                 |         | Demand/<br>Resistance<br>Support | Demand/<br>Resistance<br>Member |             |
|------------------|------------|-----------------|---------|----------------------------------|---------------------------------|-------------|
| Bearing Supports | Dim. (LxW) |                 | Demand  |                                  |                                 | Material    |
| B1               | Column     | 2-7/8" x 1-3/4" | 472 lbs | 9.0 %                            | 7.7 %                           | Unspecified |
| B2               | Hanger     | 2" x 1-3/4"     | 476 lbs | n/a                              | 11.2 %                          | Hanger      |

**Cautions**
**Notes**

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

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BC CALC®, BC FRAMER®, AJST™, 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****1st Floor - Supply/BOM\Flush Beams\B7(i30775)**

BC CALC® Member Report

Dry | 1 span | No cant.

October 28, 2019 10:05:43

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B.mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B7(i30775)

City, Province, Postal Code: Brampton, ON

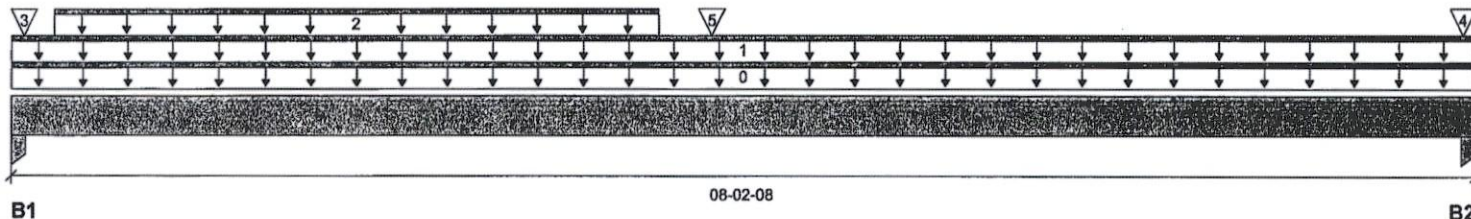
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses

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

| Bearing | Live      | Dead    | Snow | Wind |
|---------|-----------|---------|------|------|
| B1, 4"  | 1,086 / 0 | 695 / 0 |      |      |
| B2, 4"  | 953 / 0   | 525 / 0 |      |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live  | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|-------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-02-08 | Top  | 1.00  | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC6 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-02-08 | Top  | 30    | 15   |      |      | n/a       |
| 2   | User Load          | Unf. Lin. (lb/ft) | L    | 00-03-00 | 03-07-08 | Top  | 40    | 75   |      |      | n/a       |
| 3   | B6(i30778)         | Conc. Pt. (lbs)   | L    | 00-00-14 | 00-00-14 | Top  | 219   | 118  |      |      | n/a       |
| 4   | B6(i30776)         | Conc. Pt. (lbs)   | L    | 08-01-10 | 08-01-10 | Top  | 219   | 118  |      |      | n/a       |
| 5   | -                  | Conc. Pt. (lbs)   | L    | 03-11-01 | 03-11-01 | Top  | 1,216 | 527  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 5,714 ft-lbs    | 23,220 ft-lbs       | 24.6 %            | 1    | 03-11-08 |
| End Shear             | 1,800 lbs       | 11,571 lbs          | 15.6 %            | 1    | 01-01-08 |
| Total Load Deflection | L/999 (0.072")  | n/a                 | n/a               | 4    | 04-00-11 |
| Live Load Deflection  | L/999 (0.047")  | n/a                 | n/a               | 5    | 04-00-11 |
| Max Defl.             | 0.072"          | n/a                 | n/a               | 4    | 04-00-11 |
| Span / Depth          | 9.7             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|--------------------|-----------|---------------------------|--------------------------|-------------|
| B1 | Column 4" x 3-1/2" | 2,497 lbs | 17.1 %                    | 14.6 %                   | Unspecified |
| B2 | Column 4" x 3-1/2" | 2,085 lbs | 14.3 %                    | 12.2 %                   | 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.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nail one ply to another with  
 3 1/2" spiral nails @ 12"  
 o.c, staggered in 2 rows



## 1st Floor - Supply/BOM\Flush Beams\B8(i32200)

Dry | 1 span | No cant.

October 28, 2019 11:55:37

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-C+D(-1R).mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B8(i32200)

City, Province, Postal Code: Brampton, ON

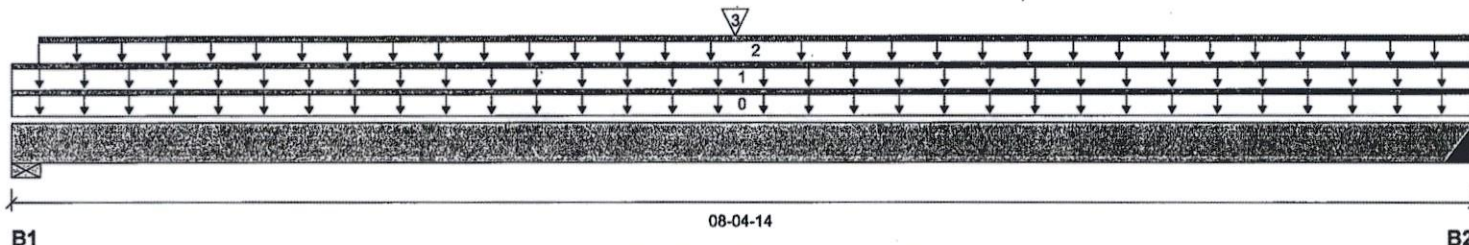
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 08-04-14

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

| Bearing    | Live    | Dead    | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 1-7/8" | 336 / 0 | 403 / 0 |      |      |
| B2, 2"     | 335 / 0 | 413 / 0 |      |      |

## Load Summary

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-04-14 | Top  |      | 5    |      |      | 00-00-00  |
| 1   | FC3 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-04-14 | Top  | 8    | 4    |      |      | n/a       |
| 2   | User Load          | Unf. Lin. (lb/ft) | L    | 00-01-14 | 08-04-14 | Top  | 20   | 70   |      |      | n/a       |
| 3   | User Load          | Conc. Pt. (lbs)   | L    | 04-01-14 | 04-01-14 | Top  | 440  | 165  |      |      | n/a       |

## Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 2,959 ft-lbs    | 11,610 ft-lbs       | 25.5 %            | 1    | 04-01-14 |
| End Shear             | 894 lbs         | 5,785 lbs           | 15.4 %            | 1    | 00-11-06 |
| Total Load Deflection | L/999 (0.092")  | n/a                 | n/a               | 4    | 04-02-08 |
| Live Load Deflection  | L/999 (0.046")  | n/a                 | n/a               | 5    | 04-02-08 |
| Max Defl.             | 0.092"          | n/a                 | n/a               | 4    | 04-02-08 |
| Span / Depth          | 10.4            |                     |                   |      |          |

## Bearing Supports

|    | Dim. (LxW)                 | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material        |
|----|----------------------------|-----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 1-7/8" x 1-3/4" | 1,008 lbs | 50.0 %                    | 25.2 %                   | Spruce-Pine-Fir |
| B2 | Hanger 2" x 1-3/4"         | 1,019 lbs | n/a                       | 23.9 %                   | HUS1.81/10      |

## Cautions

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

## 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



## 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 7118

Job name: 39002(SD-10)

File name: 314128-C+D(-1R).mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B9(i31472)

City, Province, Postal Code: Brampton, ON

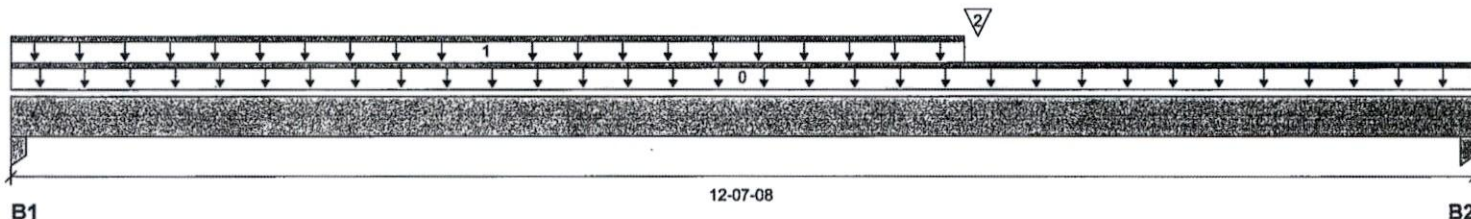
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 12-07-08

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

| Bearing | Live    | Dead    | Snow | Wind |
|---------|---------|---------|------|------|
| B1, 4"  | 459 / 0 | 382 / 0 |      |      |
| B2, 4"  | 690 / 0 | 591 / 0 |      |      |

**Load Summary**

| Tag | Description        | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight        | Unf. Lin. (lb/ft) | L    | 00-00-00 | 12-07-08 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | FC6 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 08-02-08 | Top  | 26   | 13   |      |      | n/a       |
| 2   | -                  | Conc. Pt. (lbs)   | L    | 08-03-14 | 08-03-14 | Top  | 933  | 744  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 6,951 ft-lbs    | 21,848 ft-lbs       | 31.8 %            | 1    | 08-04-08 |
| End Shear             | 1,760 lbs       | 11,571 lbs          | 15.2 %            | 1    | 11-06-00 |
| Total Load Deflection | L/659 (0.22")   | n/a                 | 36.4 %            | 4    | 06-09-13 |
| Live Load Deflection  | L/999 (0.12")   | n/a                 | n/a               | 5    | 06-09-13 |
| Max Defl.             | 0.22"           | n/a                 | n/a               | 4    | 06-09-13 |
| Span / Depth          | 15.3            |                     |                   |      |          |


**Bearing Supports**

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|--------------------|-----------|---------------------------|--------------------------|-------------|
| B1 | Column 4" x 3-1/2" | 1,166 lbs | 8.0 %                     | 6.8 %                    | Unspecified |
| B2 | Column 4" x 3-1/2" | 1,774 lbs | 12.1 %                    | 10.4 %                   | Unspecified |

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Calculations assume unbraced length of Top: 04-05-00, Bottom: 04-05-00.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9  
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another with  
 3 1/2" spiral nails @ 12"  
 o.c, staggered in 2 rows

**1st Floor - Supply/BOM\Flush Beams\B10(i32303)**

Dry | 1 span | No cant.

October 28, 2019 14:44:47

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B(-1R).mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM\Flush Beams\B10(i32303)

City, Province, Postal Code: Brampton, ON

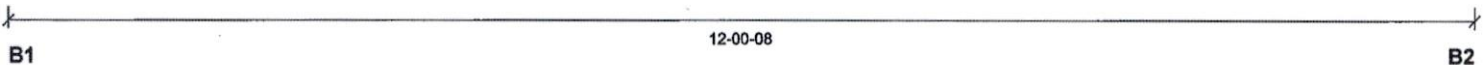
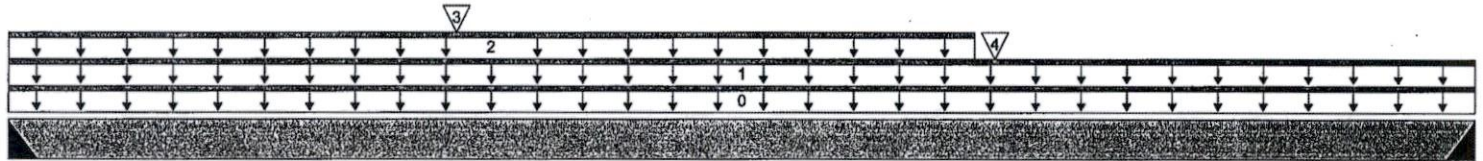
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 12-00-08

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

| Bearing | Live    | Dead    | Snow | Wind |
|---------|---------|---------|------|------|
| B1, 2"  | 685 / 0 | 686 / 0 |      |      |
| B2, 2"  | 578 / 0 | 493 / 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 | 12-00-08 | Top  |              | 10           |              |              | 00-00-00  |
| 1   | FC8 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 12-00-08 | Top  | 26           | 13           |              |              | n/a       |
| 2   | User Load          | Unf. Lin. (lb/ft) | L    | 00-00-00 | 07-11-00 | Top  | 20           | 70           |              |              | n/a       |
| 3   | User Load          | Conc. Pt. (lbs)   | L    | 03-08-00 | 03-08-00 | Top  | 440          | 165          |              |              | n/a       |
| 4   | PBO3(i30781)       | Conc. Pt. (lbs)   | L    | 08-01-00 | 08-01-00 | Top  | 354          | 188          |              |              | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 5,795 ft-lbs    | 23,220 ft-lbs       | 25.0 %            | 1    | 05-06-05 |
| End Shear             | 1,739 lbs       | 11,571 lbs          | 15.0 %            | 1    | 00-11-08 |
| Total Load Deflection | L/666 (0.213")  | n/a                 | 36.1 %            | 4    | 05-11-01 |
| Live Load Deflection  | L/999 (0.113")  | n/a                 | n/a               | 5    | 05-11-01 |
| Max Defl.             | 0.213"          | n/a                 | n/a               | 4    | 05-11-01 |
| Span / Depth          | 14.9            |                     |                   |      |          |


**Bearing Supports**

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|--------------------|-----------|---------------------------|--------------------------|----------|
| B1 | Hanger 2" x 3-1/2" | 1,885 lbs | n/a                       | 22.1 %                   | HGUS410  |
| B2 | Hanger 2" x 3-1/2" | 1,483 lbs | n/a                       | 17.4 %                   | HGUS410  |

**Cautions**

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

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

 Nail one ply to another with  
 3 1/2" spiral nails @ 12"  
 o.c, staggered in 2 rows



## 1st Floor - Supply/BOM/Flush Beams/B11(i32305)

Dry | 1 span | No cant.

October 28, 2019 14:44:47

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B(-1R).mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM/Flush Beams/B11(i32305)

City, Province, Postal Code: Brampton, ON

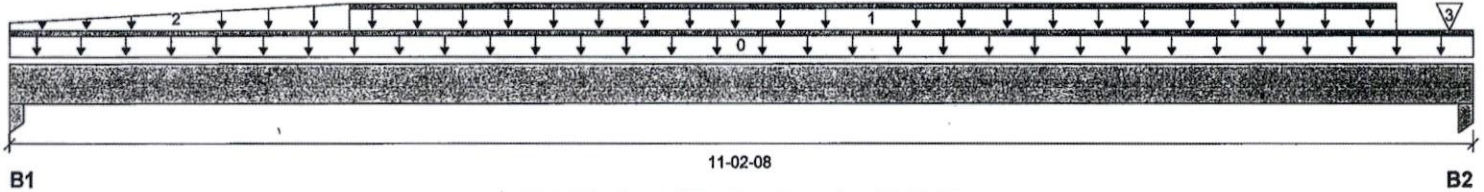
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 11-02-08

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

| Bearing | Live      | Dead      | Snow | Wind |
|---------|-----------|-----------|------|------|
| B1, 4"  | 1,282 / 0 | 694 / 0   |      |      |
| B2, 4"  | 1,836 / 0 | 1,176 / 0 |      |      |

## Load Summary

| Tag | Description   | Load Type           | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|---------------|---------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft)   | L    | 00-00-00 | 11-02-08 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft)   | L    | 02-07-04 | 10-07-04 | Top  | 252  | 126  |      |      | n/a       |
| 2   | Smoothed Load | Trapezoidal (lb/ft) | L    | 00-00-00 | 02-07-04 | Top  | 93   | 47   |      |      | n/a       |
| 3   | B10(i32303)   | Conc. Pt. (lbs)     | L    | 11-00-04 | 11-00-04 | Top  | 587  | 500  |      |      | n/a       |

## Controls Summary

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 7,704 ft-lbs    | 23,220 ft-lbs       | 33.2 %            | 1    | 06-01-04 |
| End Shear             | 2,691 lbs       | 11,571 lbs          | 23.3 %            | 1    | 10-01-00 |
| Total Load Deflection | L/573 (0.223")  | n/a                 | 41.9 %            | 4    | 05-07-04 |
| Live Load Deflection  | L/881 (0.145")  | n/a                 | 40.9 %            | 5    | 05-07-04 |
| Max Defl.             | 0.223"          | n/a                 | n/a               | 4    | 05-07-04 |
| Span / Depth          | 13.5            |                     |                   |      |          |

## Bearing Supports

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|--------------------|-----------|---------------------------|--------------------------|-------------|
| B1 | Column 4" x 3-1/2" | 2,790 lbs | 19.1 %                    | 16.3 %                   | Unspecified |
| B2 | Column 4" x 3-1/2" | 4,224 lbs | 28.9 %                    | 24.7 %                   | Unspecified |

## Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nail one ply to another with

3 1/2" spiral nails @ 10"

o.c., staggered in 2 rows



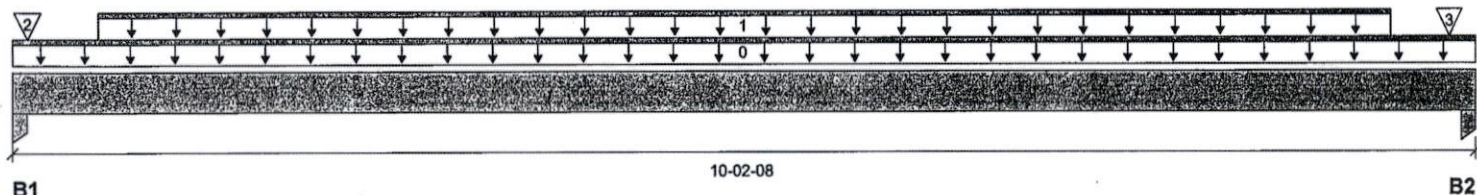
**1st Floor - Supply/BOM\Flush Beams\B12(i32306)**

Dry | 1 span | No cant.

October 28, 2019 14:44:47

BC CALC® Member Report

|                                           |                                                             |                                 |
|-------------------------------------------|-------------------------------------------------------------|---------------------------------|
| Build 7118                                | Job name: 39002(SD-10)                                      | File name: 314128-A+B(-1R).mmdl |
| Address: Encore 2                         | Description: 1st Floor - Supply/BOM\Flush Beams\B12(i32306) |                                 |
| City, Province, Postal Code: Brampton, ON | Specifier:                                                  |                                 |
| Customer: Gold Park                       | Designer: NL                                                |                                 |
| Code reports: CCMC 12472-R                | Company: Alpa Roof Trusses                                  |                                 |



Total Horizontal Product Length = 10-02-08

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

| Bearing | Live      | Dead      | Snow | Wind |
|---------|-----------|-----------|------|------|
| B1, 4"  | 1,196 / 0 | 645 / 0   |      |      |
| B2, 4"  | 1,826 / 0 | 1,318 / 0 |      |      |

**Load Summary**

| Tag | Description   | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|---------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft) | L    | 00-00-00 | 10-02-08 | Top  | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 00-07-04 | 09-07-04 | Top  | 252  | 126  |      |      | n/a       |
| 2   | J7(i32264)    | Conc. Pt. (lbs)   | L    | 00-01-04 | 00-01-04 | Top  | 52   | 26   |      |      | n/a       |
| 3   | -             | Conc. Pt. (lbs)   | L    | 10-00-04 | 10-00-04 | Top  | 691  | 706  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 6,447 ft-lbs    | 23,220 ft-lbs       | 27.8 %            | 1    | 05-01-04 |
| End Shear             | 2,462 lbs       | 11,571 lbs          | 21.3 %            | 1    | 01-01-08 |
| Total Load Deflection | L/761 (0.152")  | n/a                 | 31.5 %            | 4    | 05-01-04 |
| Live Load Deflection  | L/999 (0.099")  | n/a                 | n/a               | 5    | 05-01-04 |
| Max Defl.             | 0.152"          | n/a                 | n/a               | 4    | 05-01-04 |
| Span / Depth          | 12.2            |                     |                   |      |          |


**Bearing Supports**

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|--------------------|-----------|---------------------------|--------------------------|-------------|
| B1 | Column 4" x 3-1/2" | 2,601 lbs | 17.8 %                    | 15.2 %                   | Unspecified |
| B2 | Column 4" x 3-1/2" | 4,387 lbs | 30.0 %                    | 25.7 %                   | Unspecified |

**Notes**

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

Nail one ply to another with  
 3 1/2" spiral nails @ 16"  
 o.c., staggered in 2 rows

BC CALC® Member Report

Build 7118

Job name: 39002(SD-10)

File name: 314128-A+B(-1R).mmdl

Address: Encore 2

Description: 1st Floor - Supply/BOM/Flush Beams/B13(i32278)

City, Province, Postal Code: Brampton, ON

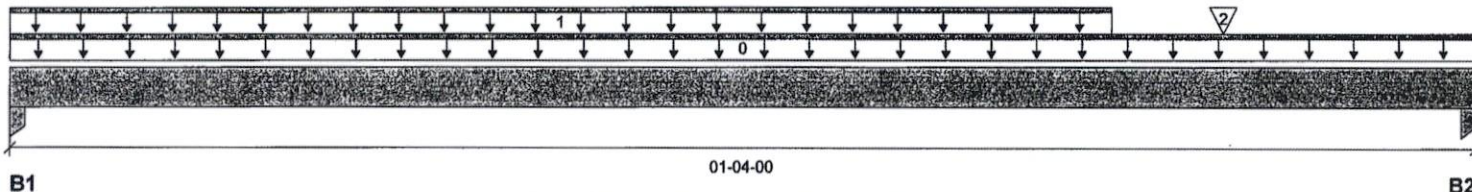
Specifier:

Customer: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 01-04-00

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

| Bearing | Live   | Dead   | Snow | Wind |
|---------|--------|--------|------|------|
| B1, 4"  | 2 / 0  | 4 / 0  |      |      |
| B2, 4"  | 49 / 0 | 27 / 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 | 01-04-00 | Top  | 1.00 | 0.65 | 1.00 | 1.15 |           |
| 1   | FC8 Floor Material | Unf. Lin. (lb/ft) | L    | 00-00-00 | 01-00-00 | Top  | 3    | 1    |      |      | n/a       |
| 2   | -                  | Conc. Pt. (lbs)   | L    | 01-01-03 | 01-01-03 | Top  | 48   | 24   |      |      | n/a       |

**Controls Summary**

|              | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|--------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment  | 1 ft-lbs        | 7,546 ft-lbs        | n/a               | 0    | 00-08-00 |
| End Shear    | 3 lbs           | 3,761 lbs           | n/a               | 0    | 00-04-00 |
| Span / Depth | 1.0             |                     |                   |      |          |

**Bearing Supports**

|    | Dim. (LxW)         | Demand  | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|--------------------|---------|---------------------------|--------------------------|-------------|
| B1 | Column 4" x 1-3/4" | 6 lbs   | 0.1 %                     | 0.1 %                    | Unspecified |
| B2 | Column 4" x 1-3/4" | 108 lbs | 1.5 %                     | 1.3 %                    | 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.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9


**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®,

**1st Floor - Supply/BOM\Flush Beams\B14(i32743)**

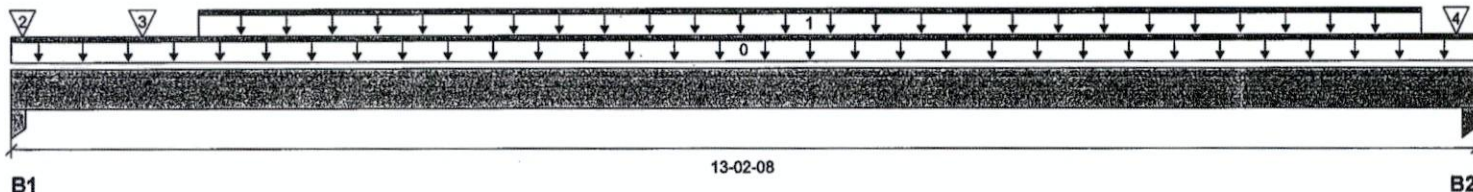
Dry | 1 span | No cant.

October 28, 2019 15:39:51

BC CALC® Member Report

Build 7118

 Job name: 39002(SD-10)  
 Address: Encore 2  
 City, Province, Postal Code: Brampton, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

 File name: 314128-C+D(-2R).mmdl  
 Description: 1st Floor - Supply/BOM\Flush Beams\B14(i32743)  
 Specifier:  
 Designer: NL  
 Company: Alpa Roof Trusses


Total Horizontal Product Length = 13-02-08

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

| Bearing | Live      | Dead      | Snow | Wind |
|---------|-----------|-----------|------|------|
| B1, 4"  | 1,669 / 0 | 896 / 0   |      |      |
| B2, 4"  | 2,194 / 0 | 1,516 / 0 |      |      |

**Load Summary**

| Tag | Description   | Load Type         | Ref. | Start    | End      | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|---------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0   | Self-Weight   | Unf. Lin. (lb/ft) | L    | 00-00-00 | 13-02-08 | Top  | 10   |      |      |      | 00-00-00  |
| 1   | Smoothed Load | Unf. Lin. (lb/ft) | L    | 01-08-06 | 12-08-06 | Top  | 252  | 126  |      |      | n/a       |
| 2   | J3(i32763)    | Conc. Pt. (lbs)   | L    | 00-01-04 | 00-01-04 | Top  | 151  | 76   |      |      | n/a       |
| 3   | J3(i32761)    | Conc. Pt. (lbs)   | L    | 01-02-06 | 01-02-06 | Top  | 277  | 139  |      |      | n/a       |
| 4   | B10(i32440)   | Conc. Pt. (lbs)   | L    | 13-00-04 | 13-00-04 | Top  | 650  | 666  |      |      | n/a       |

**Controls Summary**

|                       | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment           | 11,023 ft-lbs   | 23,220 ft-lbs       | 47.5 %            | 1    | 06-02-06 |
| End Shear             | 3,288 lbs       | 11,571 lbs          | 28.4 %            | 1    | 01-01-08 |
| Total Load Deflection | L/337 (0.45")   | n/a                 | 71.1 %            | 4    | 06-08-06 |
| Live Load Deflection  | L/518 (0.293")  | n/a                 | 69.5 %            | 5    | 06-08-06 |
| Max Defl.             | 0.45"           | n/a                 | n/a               | 4    | 06-08-06 |
| Span / Depth          | 16.0            |                     |                   |      |          |


**Bearing Supports**

|    | Dim. (LxW)         | Demand    | Demand/Resistance Support | Demand/Resistance Member | Material    |
|----|--------------------|-----------|---------------------------|--------------------------|-------------|
| B1 | Column 4" x 3-1/2" | 3,623 lbs | 24.8 %                    | 21.2 %                   | Unspecified |
| B2 | Column 4" x 3-1/2" | 5,187 lbs | 35.5 %                    | 30.4 %                   | Unspecified |

**Notes**

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

Nail one ply to another with

3 1/2" spiral nails @ 16"

o.c, staggered in 2 rows

## Maximum Floor Spans – M2.1, L/360

### Design Criteria

|                    |                                                            |
|--------------------|------------------------------------------------------------|
| Spans:             | Simple span                                                |
| Loads:             | Live load = 40 psf and dead load = 20 psf                  |
| Deflection limits: | L/360 under live load and L/240 under total load           |
| Sheathing:         | 5/8 in. nailed-glued oriented strand board (OSB) sheathing |



### Maximum Floor Spans

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

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

### Notes:

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

The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

(Nordic Request 1810-095)



Distributed by:



## INSTALLING NORDIC I-JOISTS

- Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
- Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
- Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
- Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
- When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
- Leave a 1/16-inch gap between the I-joist end and a header.
- Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
- Never install I-joists where they will be permanently exposed to moisture, or where they will remain in direct contact with concrete or masonry.
- Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
- For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
- Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and on I-joist-compatible depths selected.
- Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
- Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

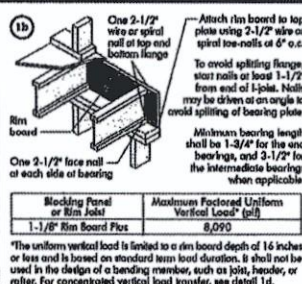
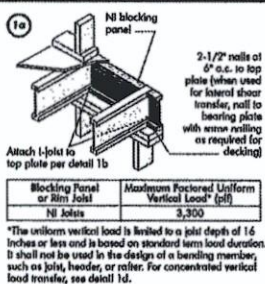
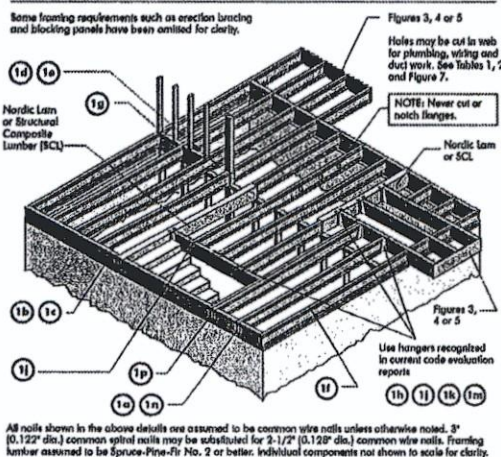


FIGURE 1  
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS



## SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unshathed I-joists. Once shathed, do not over-stress I-joist with concentrated loads from building materials.

### WARNING

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

### Avoid Accidents by Following these Important Guidelines:

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

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

## STORAGE AND HANDLING GUIDELINES

- Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
- Store, stack, and handle I-joists vertically and level only.
- Always stack and handle I-joists in the upright position only.
- Do not store I-joists in direct contact with the ground and/or liquids.
- Protect I-joists from weather, and use spacers to separate bundles.
- Bundled units should be kept intact until time of installation.
- When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
  - Pick I-joists in bundles as shipped by the supplier.
  - Orient the bundles so that the webs of the I-joists are vertical.
  - Pick the bundles at the 6th points, using a spreader bar if necessary.
- Do not handle I-joists in a horizontal orientation.
- NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

## MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to single-span or multiple-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 1.5L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailered oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate 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 uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on U.S. Steel Design per CAN/CSA C308-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

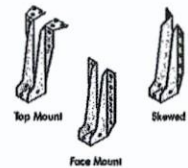
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS  
SIMPLE AND MULTIPLE SPANS

| Joist Depth | Joist Series | Simple spans      |        |         |         | Multiple spans    |         |         |         |
|-------------|--------------|-------------------|--------|---------|---------|-------------------|---------|---------|---------|
|             |              | On centre spacing |        |         |         | On centre spacing |         |         |         |
|             |              | 12"               | 16"    | 19.2"   | 24"     | 12"               | 16"     | 19.2"   | 24"     |
| 9-1/2"      | N-20         | 12'-1"            | 14'-2" | 15'-9"  | 15'-5"  | 14'-3"            | 15'-4"  | 14'-10" | 14'-7"  |
|             | N-40         | 14'-1"            | 16'-2" | 14'-8"  | 14'-6"  | 17'-3"            | 15'-10" | 15'-10" | 15'-5"  |
|             | N-60         | 16'-3"            | 15'-4" | 14'-10" | 14'-11" | 17'-3"            | 16'-2"  | 16'-2"  | 16'-4"  |
|             | N-80         | 17'-1"            | 16'-1" | 16'-4"  | 15'-7"  | 18'-2"            | 17'-4"  | 16'-9"  | 17'-2"  |
| 11-7/8"     | N-20         | 12'-1"            | 14'-2" | 15'-9"  | 15'-5"  | 14'-3"            | 15'-4"  | 16'-11" | 17'-2"  |
|             | N-40         | 14'-1"            | 16'-2" | 16'-5"  | 16'-4"  | 17'-3"            | 16'-2"  | 17'-9"  | 17'-7"  |
|             | N-60         | 16'-3"            | 15'-4" | 16'-5"  | 16'-7"  | 18'-2"            | 18'-9"  | 18'-0"  | 18'-9"  |
|             | N-80         | 17'-1"            | 16'-1" | 17'-4"  | 17'-5"  | 19'-4"            | 19'-11" | 19'-2"  | 19'-8"  |
| 14"         | N-20         | 12'-1"            | 14'-2" | 15'-9"  | 15'-5"  | 14'-3"            | 15'-4"  | 19'-3"  | 19'-9"  |
|             | N-40         | 14'-1"            | 16'-2" | 17'-0"  | 17'-1"  | 17'-3"            | 18'-9"  | 19'-8"  | 19'-4"  |
|             | N-60         | 16'-3"            | 15'-4" | 17'-0"  | 17'-1"  | 18'-2"            | 19'-11" | 20'-0"  | 20'-10" |
|             | N-80         | 17'-1"            | 16'-1" | 18'-1"  | 18'-2"  | 20'-3"            | 20'-11" | 21'-10" | 21'-10" |
| 18"         | N-20         | 12'-1"            | 14'-2" | 15'-9"  | 15'-5"  | 14'-3"            | 15'-4"  | 21'-10" | 21'-10" |
|             | N-40         | 14'-1"            | 16'-2" | 18'-1"  | 18'-2"  | 20'-3"            | 21'-11" | 22'-2"  | 22'-2"  |
|             | N-60         | 16'-3"            | 15'-4" | 19'-4"  | 19'-5"  | 21'-4"            | 22'-10" | 21'-10" | 21'-10" |
|             | N-80         | 17'-1"            | 16'-1" | 20'-8"  | 20'-9"  | 22'-9"            | 23'-11" | 23'-9"  | 23'-9"  |
| 22"         | N-20         | 12'-1"            | 14'-2" | 15'-9"  | 15'-5"  | 14'-3"            | 15'-4"  | 23'-9"  | 23'-9"  |
|             | N-40         | 14'-1"            | 16'-2" | 19'-4"  | 19'-5"  | 21'-4"            | 22'-10" | 23'-9"  | 23'-9"  |
|             | N-60         | 16'-3"            | 15'-4" | 20'-8"  | 20'-9"  | 22'-9"            | 23'-11" | 23'-9"  | 23'-9"  |
|             | N-80         | 17'-1"            | 16'-1" | 21'-5"  | 21'-6"  | 23'-9"            | 24'-11" | 23'-9"  | 23'-9"  |

CEC EVALUATION REPORT T302-R

## I-JOIST HANGERS

- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
- Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.

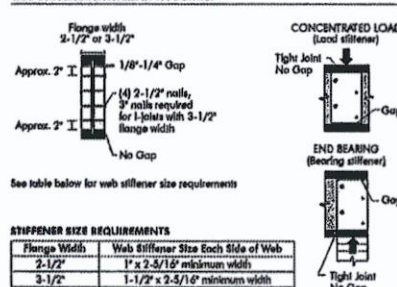


## WEB STIFFENERS

## RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Connection Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

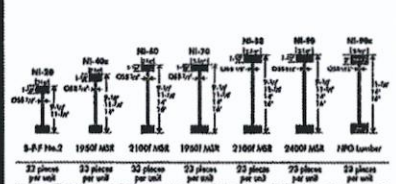
FIGURE 2  
WEB STIFFENER INSTALLATION DETAILS

See table below for web stiffener size requirements

## STIFFENER SIZE REQUIREMENTS

| Flange Width | Web Stiffener Size Each Side of Web |
|--------------|-------------------------------------|
| 2-1/2"       | 1" x 2-5/16" minimum width          |
| 3-1/2"       | 1-1/2" x 2-5/16" minimum width      |

## NORDIC I-JOIST SERIES



Chenier's Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

(Nordic Request 1810-095)



**1a** Transfer load from above to bearing below. Install equally spaced blocks per detail 1d. Match bearing area of blocks below to post above.

**1b** Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

**1c** Provide blocker for sliding attachment unless notifiable sheathing is used.

**1d** Wall sheathing, as required.

**1e** Rim board may be used in lieu of I-joists. Blocker is not required when rim board is used. Blocking per code shall be carried to the foundation.

**1f** Joist attachment per detail 1b.

**1g** Load bearing wall above shall align vertically with the bearing below. Other conditions, such as other bearing walls, are not covered by this detail.

**1h** Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.

**1i** NI blocking panel per detail 1e.

**1j** Backer block (use if hanger load exceeds 360 lb). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch, install blocker tight to top flange. Use twelve 3" nails, clinched where possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

**1k** Double I-joist header.

**1l** Top- or face-mount hanger.

**1m** Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

**1n** Backer block required (both sides for face-mount hangers).

**1o** For hanger capacity use hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

**1p** BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting).

| Flange Width | Material Thickness Required* | Minimum Depth** |
|--------------|------------------------------|-----------------|
| 2-1/2"       | 1"                           | 5-1/2"          |
| 3-1/2"       | 1-1/2"                       | 7-1/4"          |

\* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid term lumber and wood structural panels conforming to CAN/CSA-C308 or CAN/CSA-C309 Standard.

\*\* For face-mount hangers use nail joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".

**1q** Notes: 1. Support back of I-joist web during nailing to prevent damage to web/flange connection. 2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange. 3. Filler block is required between joists for full length of span. 4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required. 5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

**1r** FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

| Flange Size     | Joist Depth | Filler Block Size |
|-----------------|-------------|-------------------|
| 2-1/2" x 1-1/2" | 9-1/2"      | 2-1/8" x 6"       |
|                 | 11-7/8"     | 2-1/8" x 8"       |
|                 | 14"         | 2-1/8" x 10"      |
|                 | 16"         | 2-1/8" x 12"      |
| 3-1/2" x 1-1/2" | 9-1/2"      | 3" x 6"           |
|                 | 11-7/8"     | 3" x 8"           |
|                 | 14"         | 3" x 10"          |
|                 | 16"         | 3" x 12"          |
| 3-1/2" x 2"     | 11-7/8"     | 3" x 7"           |
|                 | 14"         | 3" x 9"           |
|                 | 16"         | 3" x 11"          |

**1s** Lumber 2x4 min., extend back to face of adjacent wall. Two 2-1/2" spiral nails from each web to lumber plate, alternate on opposite side.

**1t** NI blocking panel.

**1u** Optional: Minimum 1x4 inch strip applied to underside of joist at blocking line or 1/2 inch minimum gypsum blocking attached to underside of joists.

**1v** One 2-1/2" nails at top and bottom flange.

**1w** Two 2-1/2" nails from each web to lumber plate.

**1x** 2x4 min. (1/8" gap minimum).

**1y** Two 2-1/2" nails from each web to lumber plate.

**1z** One 2-1/2" nails one side only.

**1aa** 2-1/2" nails at 6" o.c.

**1ab** Notes: 1. In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking. 2. All nails are common spiral in this detail.

The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

Installation must comply with latest documentation on I-Joint and other Nordic products from the <http://nordic.ca/>

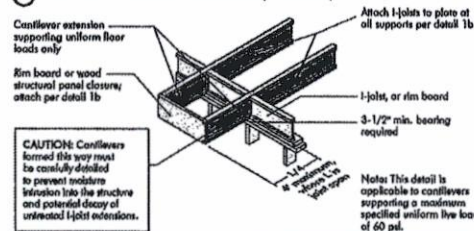
This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

(Nordic Request 1810-095)

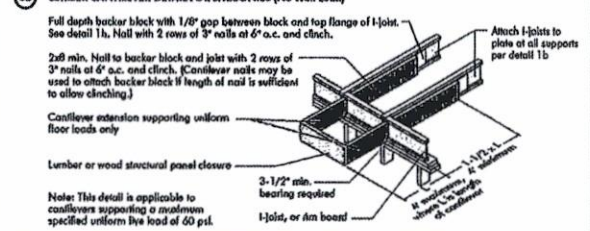


## CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

### 3a I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

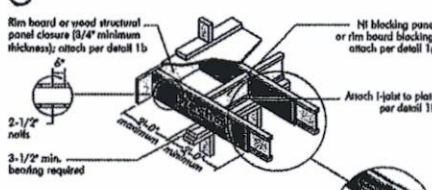


### 3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

### 4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

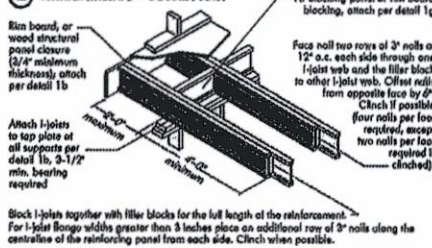


### Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 9°.

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

### 4b Alternative Method 2 — DOUBLE I-JOIST



### FIGURE 4 (continued)



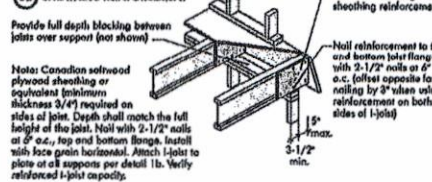
### CANTILEVER REINFORCEMENT METHODS ALLOWED

| Joint Depth (in.) | Roof Truss Span (ft) | ROOF LOADING (UNFACTORED) |    |      |    |                          |    |      |    |
|-------------------|----------------------|---------------------------|----|------|----|--------------------------|----|------|----|
|                   |                      | LL = 30 psf, DL = 15 psf  |    |      |    | LL = 40 psf, DL = 15 psf |    |      |    |
|                   |                      | Joint Spacing (in.)       |    |      |    | Joint Spacing (in.)      |    |      |    |
|                   |                      | 12                        | 16 | 19.2 | 24 | 12                       | 16 | 19.2 | 24 |
| 9-1/2             | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
| 11-7/8            | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
| 14                | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
| 16                | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |

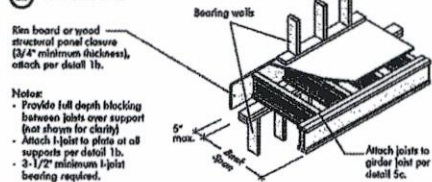
- N = No reinforcement required.
- 1 = 16 reinforced with 3/4" wood structural panel on one side only.
- 2 = 16 reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = Use a deeper joist or closer spacing.
- Maximum design load shall be 18 psf roof dead load, 25 psf floor dead load, and 60 psf wall load. Wall load is based on 9-0" maximum width window or door openings.
- For larger openings, or multiple 9-0" width openings spaced less than 6-0" o.c., additional joist beneath the opening's cripple studs may be required.
- Joist applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is formed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

## BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

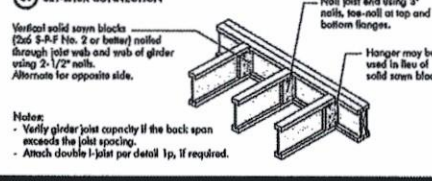
### 5a SHEATHING REINFORCEMENT



### 5b SET-BACK DETAIL



### 5c SET-BACK CONNECTION



### FIGURE 5 (continued)



### BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

| Joint Depth (in.) | Roof Truss Span (ft) | ROOF LOADING (UNFACTORED) |    |      |    |                          |    |      |    |
|-------------------|----------------------|---------------------------|----|------|----|--------------------------|----|------|----|
|                   |                      | LL = 30 psf, DL = 15 psf  |    |      |    | LL = 40 psf, DL = 15 psf |    |      |    |
|                   |                      | Joint Spacing (in.)       |    |      |    | Joint Spacing (in.)      |    |      |    |
|                   |                      | 12                        | 16 | 19.2 | 24 | 12                       | 16 | 19.2 | 24 |
| 9-1/2             | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
| 11-7/8            | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
| 14                | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
| 16                | 24                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 26                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 28                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 30                   | N                         | N  | N    | N  | N                        | N  | N    | N  |
|                   | 32                   | N                         | N  | N    | N  | N                        | N  | N    | N  |

- N = No reinforcement required.
- 1 = 16 reinforced with 3/4" wood structural panel on one side only.
- 2 = 16 reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = Use a deeper joist or closer spacing.
- Maximum design load shall be 18 psf roof dead load, 25 psf floor dead load, and 60 psf wall load. Wall load is based on 9-0" maximum width window or door openings.
- For larger openings, or multiple 9-0" width openings spaced less than 6-0" o.c., additional joist beneath the opening's cripple studs may be required.
- Joist applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is formed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

## WEB HOLES

## RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes shall not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knothole is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a conditioned section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

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

| Joist Depth | Joist Series | Minimum distance from inside face of any support to center of hole (ft-in.) |     |     |      |     |     |       |     |     |       |     |     | Span Factor |        |     |     |
|-------------|--------------|-----------------------------------------------------------------------------|-----|-----|------|-----|-----|-------|-----|-----|-------|-----|-----|-------------|--------|-----|-----|
|             |              | Round hole diameter (in.)                                                   |     |     |      |     |     |       |     |     |       |     |     |             |        |     |     |
|             |              | 1                                                                           | 2   | 3   | 4    | 5   | 6   | 6 1/4 | 7   | 8   | 8 5/8 | 9   | 10  |             | 10 3/4 | 11  | 12  |
| 9-1/2"      | 9-1/2"       | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 10-1/2"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 11-1/2"      | 1-0                                                                         | 1-3 | 2-4 | 3-0  | 3-8 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 12-1/2"      | 1-0                                                                         | 1-3 | 2-4 | 3-0  | 3-8 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 13-1/2"      | 1-0                                                                         | 1-3 | 2-4 | 3-0  | 3-8 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 14-1/2"      | 1-0                                                                         | 1-3 | 2-4 | 3-0  | 3-8 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
| 11-7/8"     | 11-7/8"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 12-3/8"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 12-7/8"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 13-3/8"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 13-7/8"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 14-3/8"      | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
| 14"         | 14"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 15"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 16"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 17"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 18"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 19"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
| 16"         | 16"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 17"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 18"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 19"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 20"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |
|             | 21"          | 1-0                                                                         | 0-7 | 1-4 | 2-10 | 3-0 | 3-8 | 3-0   | 3-0 | 3-0 | 3-0   | 3-0 | 3-0 | 3-0         | 3-0    | 3-0 | 3-0 |

- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of support to centre of hole.
- Distances in this chart are based on uniformly loaded joists.

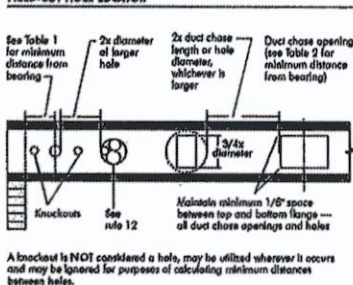
## OPTIONAL:

The above table is based on the I-joist used at first maximum span. If the I-joist is placed at less than first maximum span (see Maximum Floor Span), the minimum distance is measured from inside face of support to centre of hole.

Reduced =  $\frac{D_{actual}}{D_{max}} \times D$

Where:  
 $D_{actual}$  = Distance from the inside face of any support to centre of hole, reduced for less than maximum span applications [6]. The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.  
 $D_{max}$  = The actual maximum span distance between the inside faces of supports [6].  
 $D$  = Span Adjusted Factor given in this table.  
 1. The minimum distance from the inside face of any support to centre of hole from this table.  
 If  $D_{actual}$  is greater than 1, use 1 in the above calculation for  $D_{actual}$ .

FIGURE 7  
FIELD-CUT HOLE LOCATOR



Knotholes are preselected holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the joist. Where possible, it is preferable to use knotholes instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this causes unnecessary stress concentrations. Slightly rounding the corners is recommended. Boring the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

TABLE 2  
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

| Joist Depth | Joist Series | Minimum distance from inside face of any support to centre of opening (ft-in.) |     |     |     |     |     |     |     |     |     |     |     |
|-------------|--------------|--------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|             |              | 1                                                                              | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
| 9-1/2"      | 9-1/2"       | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 10-1/2"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 11-1/2"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
| 11-7/8"     | 11-7/8"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 12-1/8"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 12-3/4"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
| 14"         | 14"          | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 14-1/2"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 15-1/8"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
| 16"         | 16"          | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 16-1/2"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |
|             | 17-1/8"      | 1-0                                                                            | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 | 1-0 |

- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of support to centre of opening.
- The above table is based on simple-span joists only. For other applications, consult your local distributor.
- Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 10 psf, and a live load deflection limit of L/400. For other applications, consult your local distributor.

## INSTALLING THE GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
- Snap a chalk line across the I-joists four feet from the wall for panel edge alignment and as a boundary for spreading glue.
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
- Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
- After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
- Tap the second row of panels into place, using a block to protect groove edges.
- Tapger and joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.
- Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue band.

FASTENERS FOR SHEATHING AND SUBFLOORING<sup>(1)</sup>

| Maximum Joist Spacing (in.) | Minimum Panel Thickness (in.) | Nail Size and Type          |                             |         | Maximum Spacing of Fasteners |          |
|-----------------------------|-------------------------------|-----------------------------|-----------------------------|---------|------------------------------|----------|
|                             |                               | Common Wire or Spiral Nails | Ring Thread Nails or Screws | Staples | Edges                        | Supports |
| 16                          | 5/8                           | 2"                          | 1-3/4"                      | 2"      | 6"                           | 12"      |
| 20                          | 5/8                           | 2"                          | 1-3/4"                      | 2"      | 6"                           | 12"      |
| 24                          | 3/4                           | 2"                          | 1-3/4"                      | 2"      | 6"                           | 12"      |

- Fasteners of sheathing and subflooring shall conform to the above table.
- Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to flanging.
- Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
- Use only adhesives conforming to CAN/COSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues check with panel manufacturer.

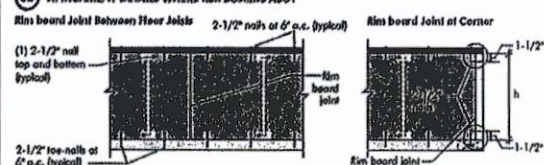
Ref: NBC-CNBC, National Building Code of Canada 2010, Table 9.23.3.5.

## IMPORTANT NOTE:

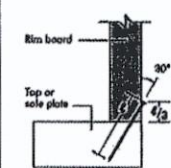
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

## RIM BOARD INSTALLATION DETAILS

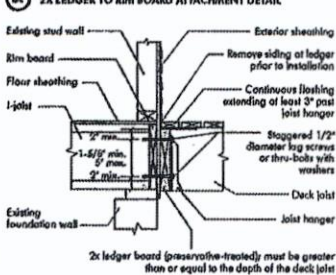
## 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



## 8b TOE-NAIL CONNECTION AT RIM BOARD



## 8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

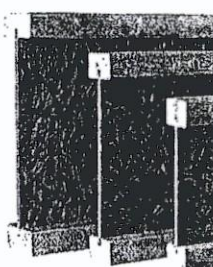


**DIAMETERS**  
MEMBER COMPANY

**PRODUCT WARRANTY**

Chandler-Chilgrensen guarantees that its members with our qualifications, handle products as per our manufacturing advice in material and workmanship.

Furthermore, Chandler-Chilgrensen warrants that our products when utilized in accordance with our building and installation instructions, will meet or exceed our qualifications for the life of the structure.





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

### WEB HOLE SPECIFICATIONS RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

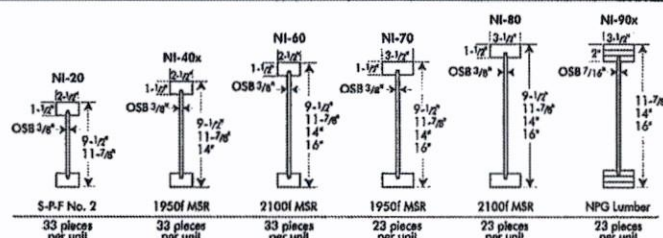


TABLE 1  
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

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

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.
4. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

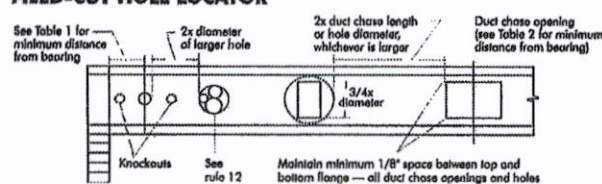
TABLE 2  
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

| Joist Depth | Joist Series | Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.) |      |       |       |       |       |       |       |       |     |     |     |
|-------------|--------------|-------------------------------------------------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|
|             |              | Duct Chase Length (in.)                                                       |      |       |       |       |       |       |       |       |     |     |     |
| 9-1/2"      | NI-20        | 4-1"                                                                          | 4-5" | 4-10" | 5-4"  | 5-8"  | 6-1"  | 6-6"  | 7-1"  | 7-5"  | --- | --- | --- |
|             | NI-40x       | 5-3"                                                                          | 5-8" | 6-0"  | 6-5"  | 6-10" | 7-3"  | 7-8"  | 8-2"  | 8-5"  | --- | --- | --- |
|             | NI-60        | 6-4"                                                                          | 6-9" | 6-2"  | 6-7"  | 7-1"  | 7-5"  | 8-0"  | 8-3"  | 8-8"  | --- | --- | --- |
|             | NI-70        | 5-1"                                                                          | 5-5" | 6-10" | 6-3"  | 6-7"  | 7-1"  | 7-6"  | 8-1"  | 8-4"  | --- | --- | --- |
| 11-7/8"     | NI-80        | 5-3"                                                                          | 5-8" | 6-0"  | 6-5"  | 6-10" | 7-3"  | 7-8"  | 8-2"  | 8-5"  | --- | --- | --- |
|             | NI-20        | 5-9"                                                                          | 6-2" | 6-6"  | 7-1"  | 7-5"  | 7-9"  | 8-3"  | 8-9"  | 9-4"  | --- | --- | --- |
|             | NI-40x       | 6-8"                                                                          | 7-2" | 7-6"  | 8-1"  | 8-6"  | 9-1"  | 9-6"  | 10-1" | 10-9" | --- | --- | --- |
|             | NI-60        | 7-3"                                                                          | 7-8" | 8-0"  | 8-6"  | 9-0"  | 9-3"  | 9-9"  | 10-3" | 11-0" | --- | --- | --- |
| 14"         | NI-70        | 7-1"                                                                          | 7-6" | 7-9"  | 8-3"  | 8-7"  | 9-1"  | 9-6"  | 10-1" | 10-4" | --- | --- | --- |
|             | NI-80        | 7-2"                                                                          | 7-7" | 8-0"  | 8-5"  | 8-10" | 9-3"  | 9-8"  | 10-2" | 10-8" | --- | --- | --- |
|             | NI-90x       | 7-7"                                                                          | 8-1" | 8-5"  | 8-10" | 9-4"  | 9-8"  | 10-2" | 10-8" | 11-2" | --- | --- | --- |
|             | NI-40x       | 8-1"                                                                          | 8-7" | 9-0"  | 9-6"  | 10-1" | 10-7" | 11-2" | 12-0" | 12-8" | --- | --- | --- |
| 16"         | NI-60        | 8-9"                                                                          | 9-3" | 9-8"  | 10-1" | 10-6" | 11-1" | 11-6" | 12-3" | 13-0" | --- | --- | --- |
|             | NI-70        | 8-7"                                                                          | 9-1" | 9-5"  | 10-1" | 10-6" | 11-2" | 11-7" | 12-3" | 13-0" | --- | --- | --- |
|             | NI-80        | 9-0"                                                                          | 9-3" | 9-9"  | 10-1" | 10-7" | 11-1" | 11-6" | 12-1" | 12-6" | --- | --- | --- |
|             | NI-90x       | 9-4"                                                                          | 9-9" | 10-3" | 10-7" | 11-1" | 11-7" | 12-1" | 12-7" | 13-2" | --- | --- | --- |

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 16 psf, and a live load deflection limit of 1/480.
5. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7  
FIELD-CUT HOLE LOCATOR



Knockouts are pre-scored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

### SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unfastened I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

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

#### AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
  - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" x 12" joists fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
  - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

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



### PRODUCT WARRANTY

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

Furthermore, Chamberlain Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

(Nordic Request 1810-095)



**1a** NI blocking panel

| Blocking Panel or Rim Joist | Maximum Factored Uniform Vertical Load* (psf) |
|-----------------------------|-----------------------------------------------|
| NI Joists                   | 3,300                                         |

\*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a banding member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

Attach I-joist to top plate per detail 1b

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with some nailing as required for decking)

**1b** Rim board

| Blocking Panel or Rim Joist | Maximum Factored Uniform Vertical Load* (psf) |
|-----------------------------|-----------------------------------------------|
| 1-1/8" Rim Board Plus       | 8,090                                         |

\*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a banding member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

One 2-1/2" face nail at each side of bearing

Attach rim board to top plate using 2-1/2" wire or spiral too-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

**1d** NI or rim board blocking panel per detail 1a

| Pair of Squash Blocks | Maximum Factored Vertical Load per Pair of Squash Blocks (lbs) |
|-----------------------|----------------------------------------------------------------|
| 2x Lumber             | 5,500                                                          |
| 1-1/8" Rim Board Plus | 4,300                                                          |

3-1/2" wide

5-1/2" wide

2x Lumber

1-1/8" Rim Board Plus

Provide lateral bracing per detail 1a or 1b

**1e** Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

**1f** Joist attachment per detail 1b

2-1/2" nails at 6" o.c. to top plate

Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

NI blocking panel per detail 1a

**1h** Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

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

| Flange Width | Material Thickness Required* | Minimum Depth** |
|--------------|------------------------------|-----------------|
| 2-1/2"       | 1"                           | 5-1/2"          |
| 3-1/2"       | 1-1/2"                       | 7-1/4"          |

\* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C325 or CAN/CSA-C437 Standard.

\*\* For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

Top- or face-mount hanger

Double I-joist header

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

Filler block per detail 1p

Backer block required (both sides for face-mount hangers)

For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

**1i** Nordic Lam or Structural Composite Lumber (SCL)

For nailing schedules for multiple beams, see the manufacturer's recommendations.

Top- or face-mount hanger installed per manufacturer's recommendations

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

**1k** 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

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

Top-mount hanger installed per manufacturer's recommendations

**1m** Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Filler block per detail 1p

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

**1n** Do not bawl-cut joist beyond inside face of wall

Attach I-joist per detail 1b

NOTE: Blocking required at bearing for lateral support, not shown for clarity.

**1r** Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

NI blocking panel

OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

**1p** FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

1-8" to 1-4" gap between top flange and filler block

**NOTES:**

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joist together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot are required. If nails are clinched, only two nails per foot are required.
- The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

| Flange Size     | Net Depth | Filler Block Size |
|-----------------|-----------|-------------------|
| 2-1/2" x 1-1/2" | 9-1/2"    | 2-1/8" x 6"       |
|                 | 11-7/8"   | 2-1/8" x 8"       |
|                 | 14"       | 2-1/8" x 10"      |
|                 | 16"       | 2-1/8" x 12"      |
| 3-1/2" x 1-1/2" | 9-1/2"    | 3" x 6"           |
|                 | 11-7/8"   | 3" x 8"           |
|                 | 14"       | 3" x 10"          |
|                 | 16"       | 3" x 12"          |
| 3-1/2" x 2"     | 11-7/8"   | 3" x 7"           |
|                 | 14"       | 3" x 9"           |
|                 | 16"       | 3" x 11"          |

**1s** One 2-1/2" nail at top and bottom flange

2x4 min., 1/8" gap minimum

Two 2-1/2" nails from each web to lumber piece

I-joist blocking panel

One 2-1/2" nail one side only

**NOTES:**

- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

## WEB STIFFENERS

## RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2  
WEB STIFFENER INSTALLATION DETAILS

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

Approx. 2"

1/8"-1/4" Gap

(4) 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

Approx. 2"

No Gap

See the adjacent table for web stiffener size requirements

**CONCENTRATED LOAD** (Load stiffener)

Tight Joint No Gap

Gap

**END BEARING** (Bearing stiffener)

Gap

Tight Joint No Gap

**STIFFENER SIZE REQUIREMENTS**

| Flange Width | Web Stiffener Size Each Side of Web |
|--------------|-------------------------------------|
| 2-1/2"       | 1" x 2-5/16" minimum width          |
| 3-1/2"       | 1-1/2" x 2-5/16" minimum width      |

## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

**Method 1 — SHEATHING REINFORCEMENT ONE SIDE**

Rim board or wood structural panel closure (3/4" minimum thickness) attach per detail 1b

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joist to plate per detail 1b

2-1/2" nails

3-1/2" min. bearing required

**Method 2 — SHEATHING REINFORCEMENT TWO SIDES**

Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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

## RIM BOARD INSTALLATION DETAILS

**8a** ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

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

Rim board joint

2-1/2" too-nails at 6" o.c. (typical)

Rim Board Joint at Corner

2-1/2" nails

1-1/2"

1-1/2"

**8b** TOE-NAIL CONNECTION AT RIM BOARD

Rim board

Top or sole plate

30°

6/32"

The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document 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 its component based on the design criteria and loadings shown on the calculation sheets.

(Nordic Request 1810-095)

