

FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

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

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

LOADING:

DESIGN LOADS: L/480.000

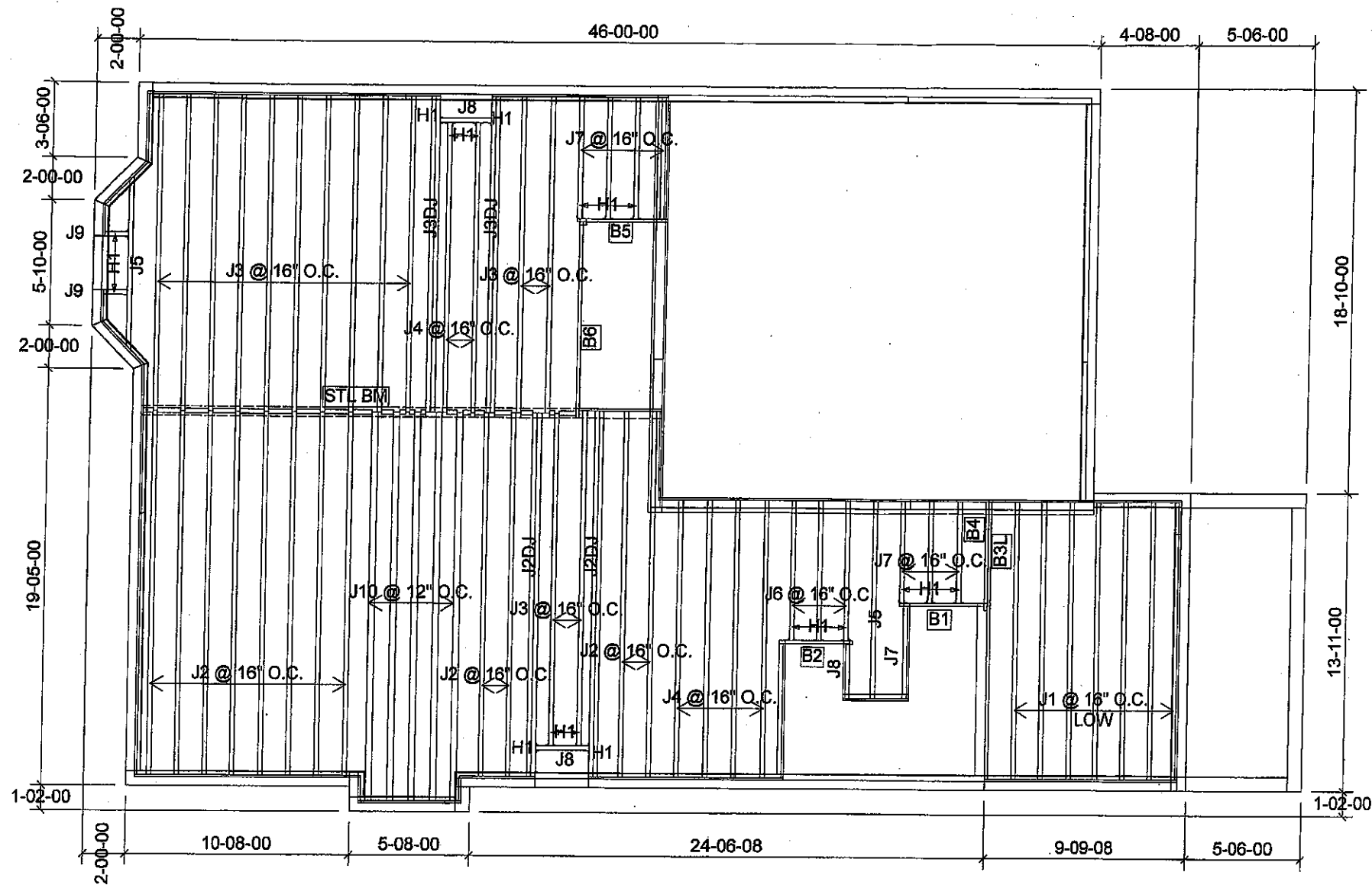
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-02-19

1st FLOOR



| Products | | | | | |
|----------|----------|---|-------|---------|----------|
| PlotID | Length | Product | Plies | Net Qty | Fab Type |
| J1 | 14-00-00 | 9 1/2" NI-40x | 1 | 7 | MFD |
| J2 | 18-00-00 | 11 7/8" NI-40x | 1 | 12 | MFD |
| J2DJ | 18-00-00 | 11 7/8" NI-40x | 2 | 4 | MFD |
| J3 | 16-00-00 | 11 7/8" NI-40x | 1 | 14 | MFD |
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| J5 | 10-00-00 | 11 7/8" NI-40x | 1 | 2 | MFD |
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| J9 | 2-00-00 | 11 7/8" NI-40x | 1 | 2 | MFD |
| J10 | 20-00-00 | 11 7/8" NI-80 | 1 | 5 | MFD |
| B3L | 14-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
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| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 9 | H1 | IUS2.56/11.88 |
| 4 | H1 | IUS2.56/11.88 |
| 6 | H1 | IUS2.56/11.88 |

CITY OF HAMILTON
Building Division

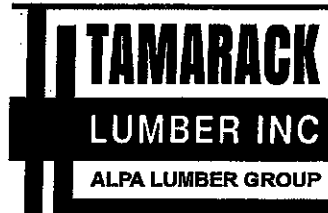
Permit No. **20-187703**

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE

THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
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These drawings and/or specifications have been reviewed by

[Signature] **DEC 14/20**
FOR CHIEF BUILDING OFFICIAL DATE



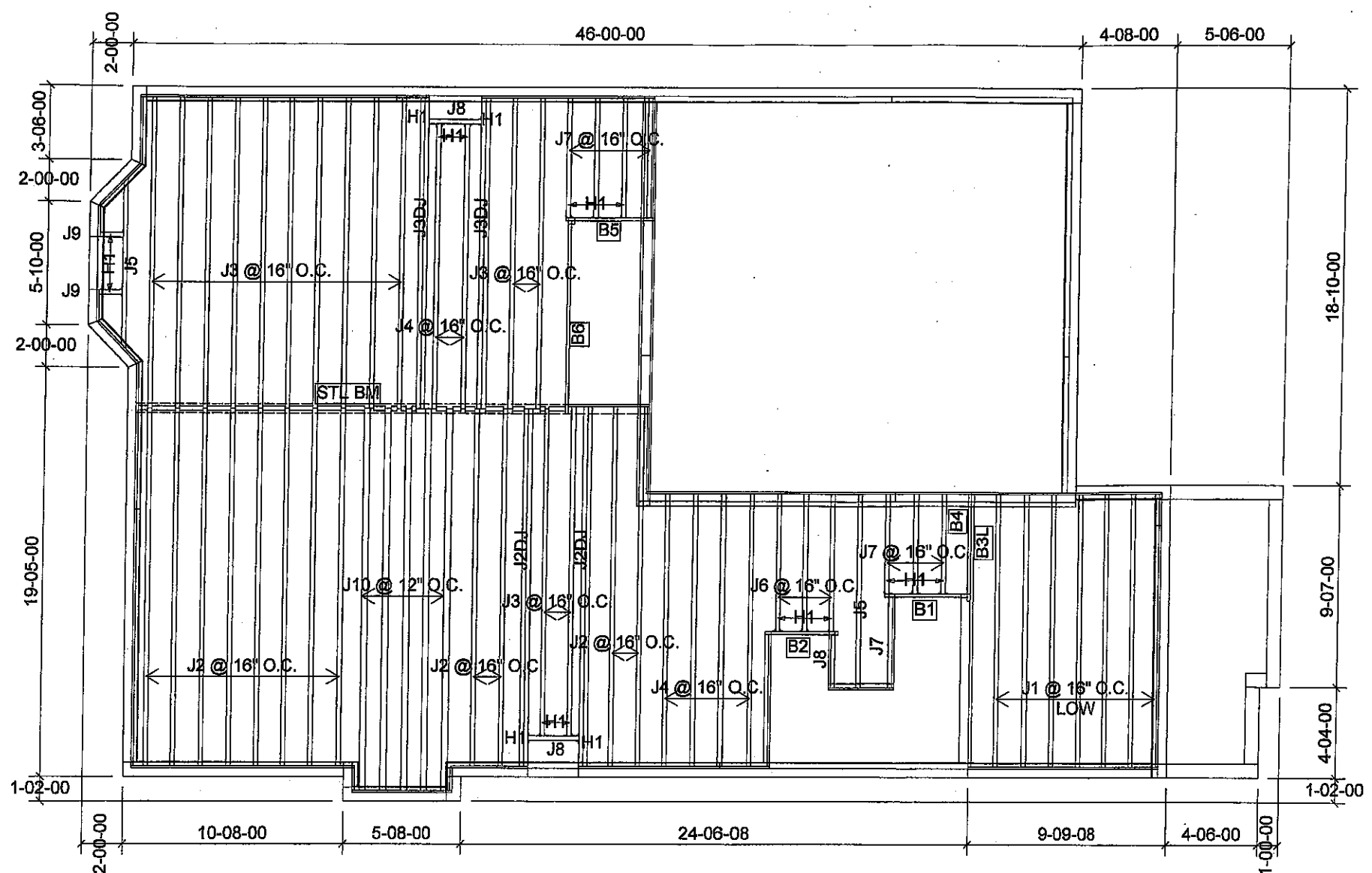
FROM PLAN DATED:
BUILDER: GREEN PARK HOMES
SITE: RUSSELL GARDENS PH 3
MODEL: VALLYCREEK 1
ELEVATION: 2
LOT:
CITY: WATERDOWN
SALESMAN: MARIO DICIANO
DESIGNER: AJ
REVISION:

NOTES:
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LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-02-19

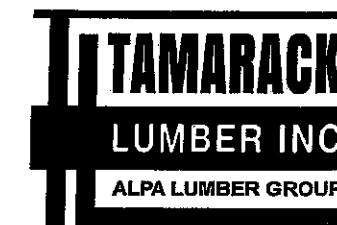
1st FLOOR



| Products | | | | | |
|----------|----------|---|-------|---------|----------|
| PlotID | Length | Product | Plies | Net Qty | Fab Type |
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| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 9 | H1 | IUS2.56/11.88 |
| 4 | H1 | IUS2.56/11.88 |
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CITY OF HAMILTON
Building Division
Permit No. 20-187703
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These drawings and/or specifications have been reviewed by
[Signature] DATE DEC 14/20
FOR CHIEF BUILDING OFFICIAL



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 3

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

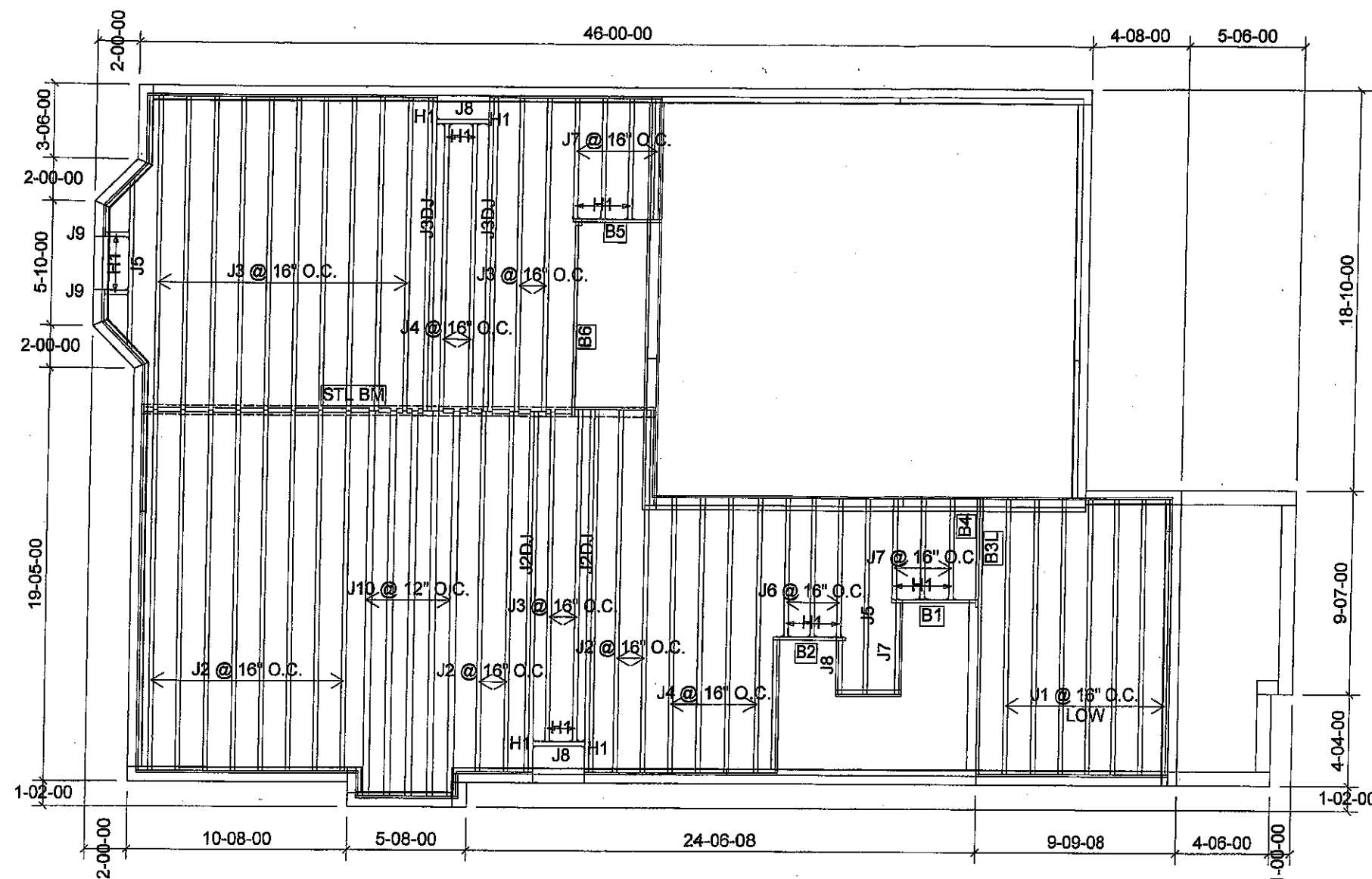
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LOADING:
DESIGN LOADS: L/480.000
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DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-02-19

1st FLOOR



| Products | | | | | |
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| Connector Summary | | |
|-------------------|-------|---------------|
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| 4 | H1 | IUS2.56/11.88 |
| 6 | H1 | IUS2.56/11.88 |

CITY OF HAMILTON
Building Division

Permit No. 20-187703

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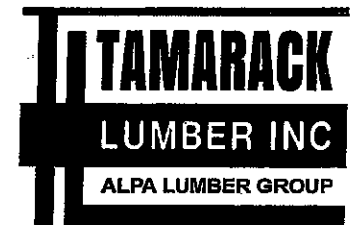
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FOR CHIEF BUILDING OFFICIAL

DATE

DEC 14/20



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

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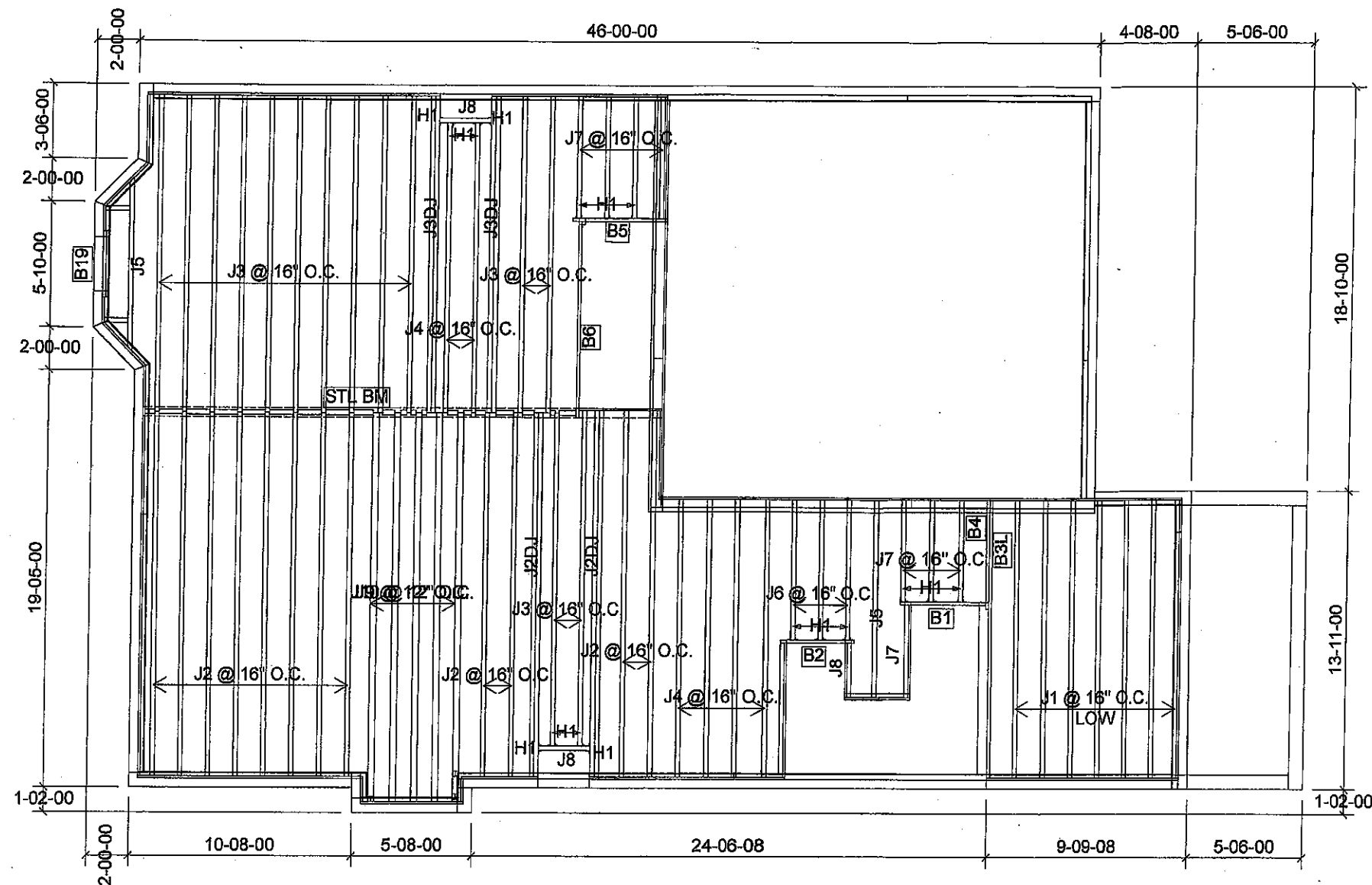
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-03-24

1st FLOOR

DECK CONDITION



| Products | | | | | |
|----------|----------|---|-------|---------|----------|
| PlotID | Length | Product | Piles | Net Qty | Fab Type |
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| J5 | 10-00-00 | 11 7/8" NI-40x | 1 | 2 | MFD |
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| B19 | 4-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |

| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 9 | H1 | IUS2.56/11.88 |
| 4 | H1 | IUS2.56/11.88 |
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CITY OF HAMILTON
Building Division

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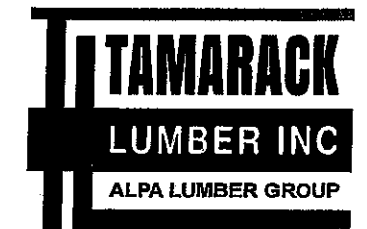
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DATE

DEC. 14/20



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 2

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

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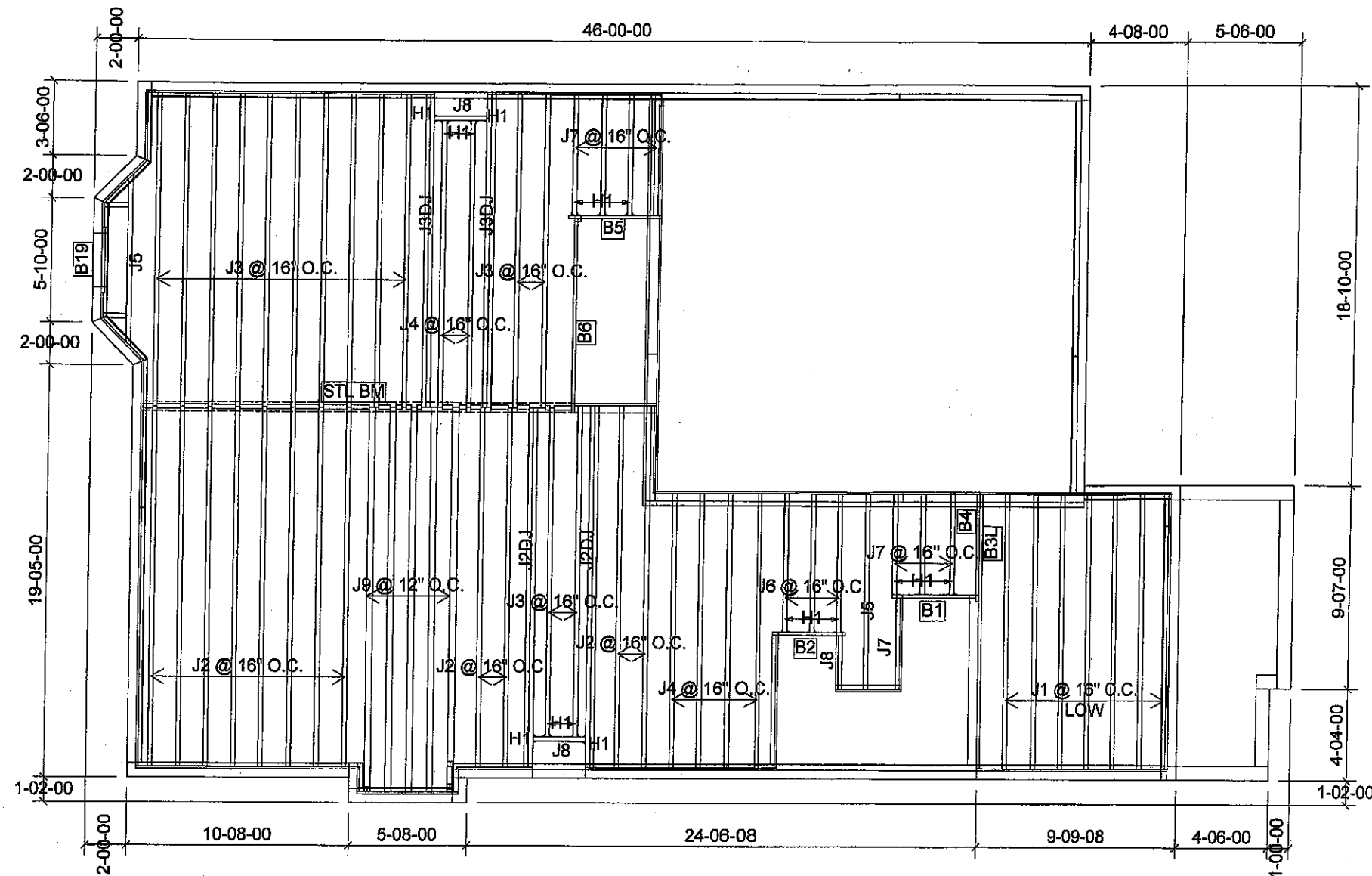
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DATE: 2020-03-24

1st FLOOR

DECK CONDITION



| Products | | | | | |
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| 4 | H1 | IUS2.56/11.88 |
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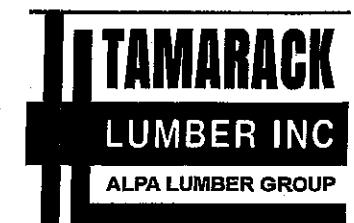
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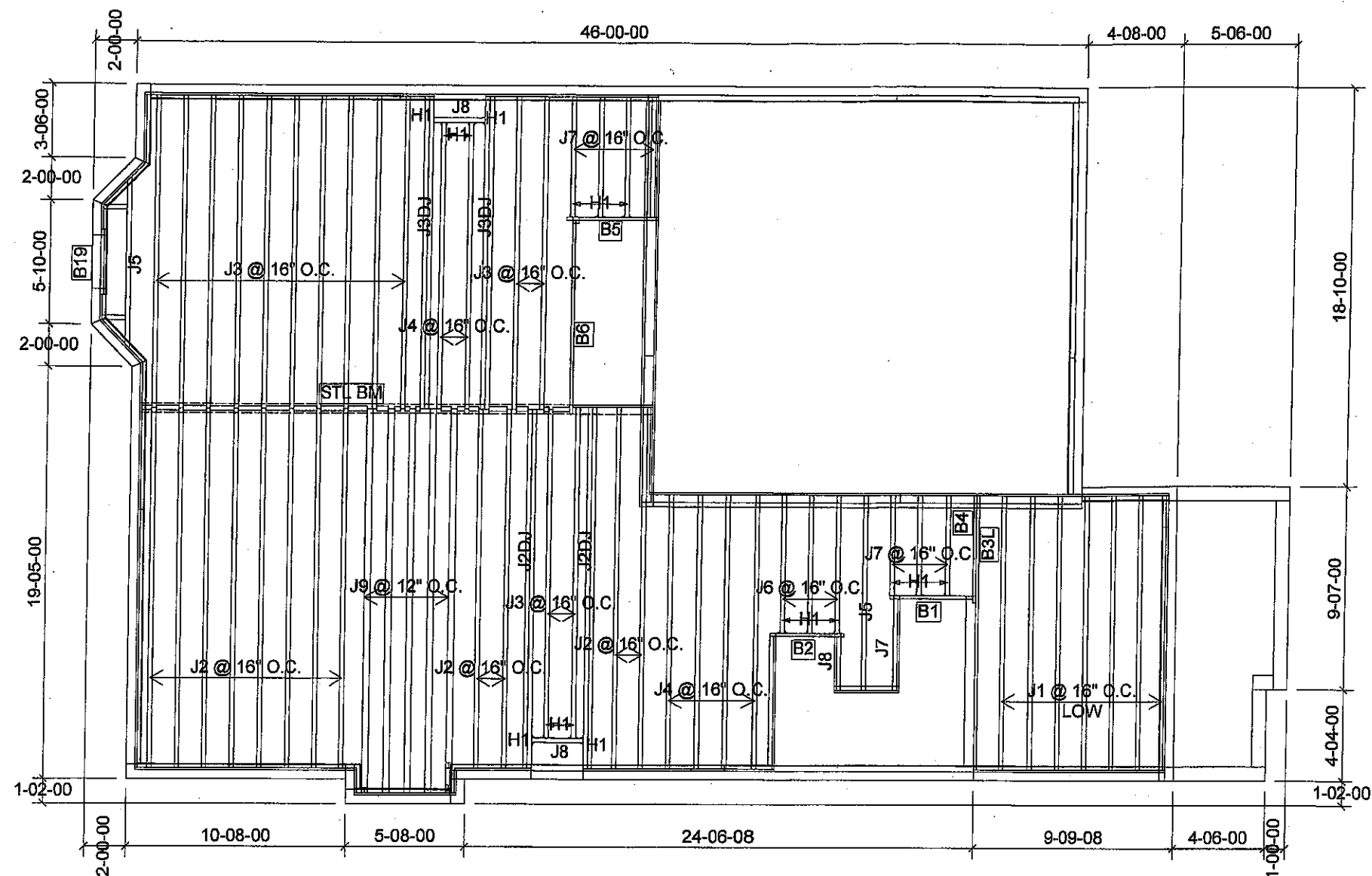
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1st FLOOR

DECK CONDITION



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| B5 | 6-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
| B1 | 4-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
| B2 | 4-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
| B19 | 4-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |

| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 9 | H1 | IUS2.56/11.88 |
| 4 | H1 | IUS2.56/11.88 |
| 4 | H1 | IUS2.56/11.88 |

CITY OF HAMILTON
Building Division

Permit No.

20-187703

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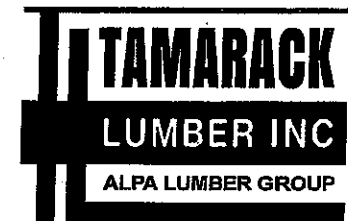
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THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL

DATE

DEC 14/20



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

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

LOADING:

DESIGN LOADS: L/480.000

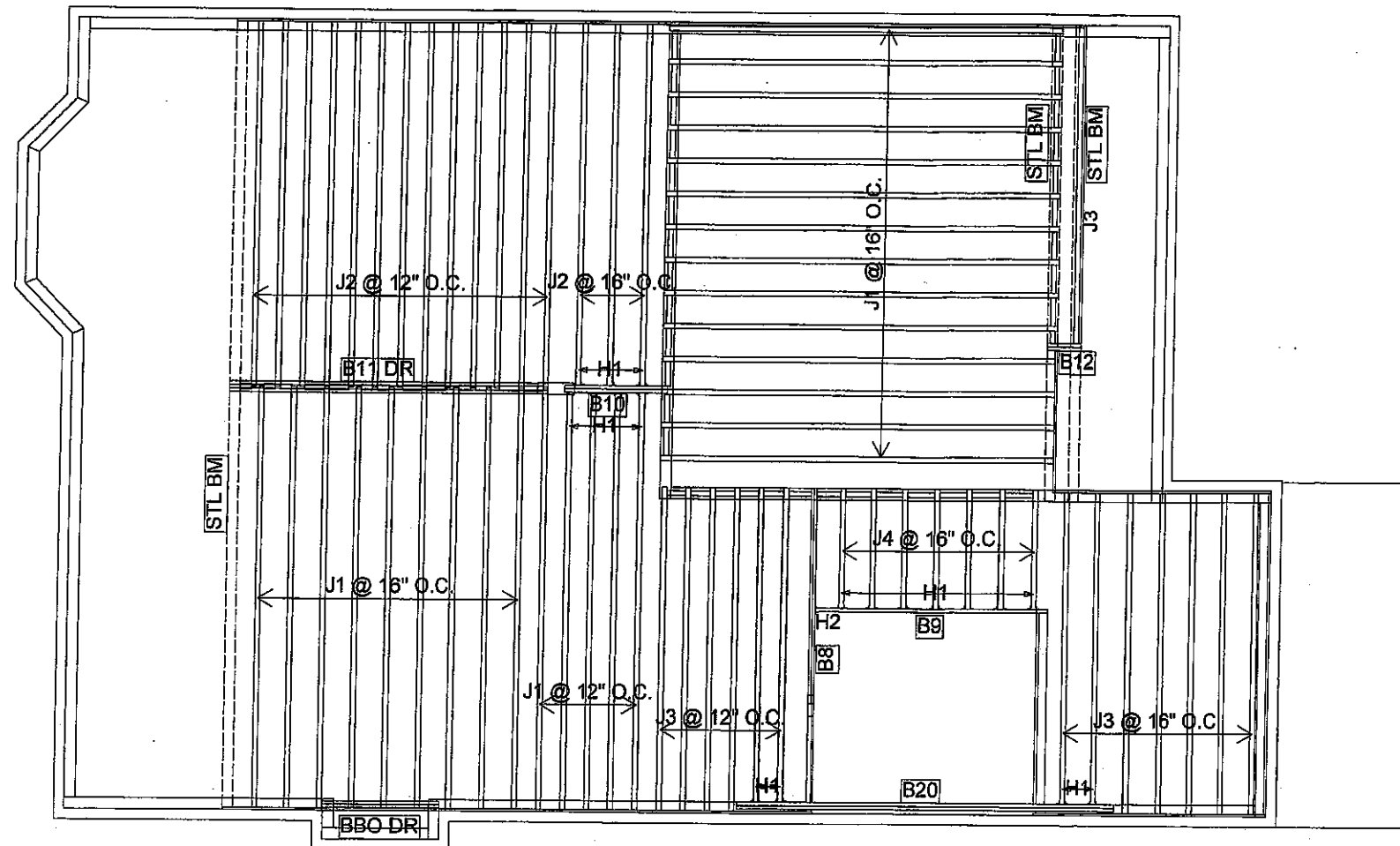
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-03-24

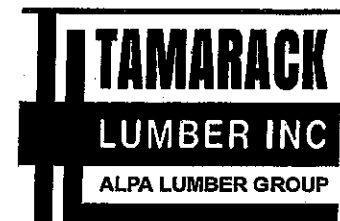
2nd FLOOR



| Products | | | | | |
|----------|----------|---|-------|---------|----------|
| PlotID | Length | Product | Plies | Net Qty | Fab Type |
| J1 | 18-00-00 | 11 7/8" NI-40x | 1 | 28 | MFD |
| J2 | 16-00-00 | 11 7/8" NI-40x | 1 | 16 | MFD |
| J3 | 14-00-00 | 11 7/8" NI-40x | 1 | 14 | MFD |
| J4 | 6-00-00 | 11 7/8" NI-40x | 1 | 7 | MFD |
| B20 | 16-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B11 DR | 14-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 3 | 3 | MFD |
| B9 | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
| B8 | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B10 | 6-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B12 | 2-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |

| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 7 | H1 | IUS2.56/11.88 |
| 11 | H1 | IUS2.56/11.88 |
| 1 | H2 | HUS1.81/10 |

CITY OF HAMILTON
Building Division
Permit No. 20-187703
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FOR CHIEF BUILDING OFFICIAL
DATE



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 2

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

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

LOADING:

DESIGN LOADS: L/480.000

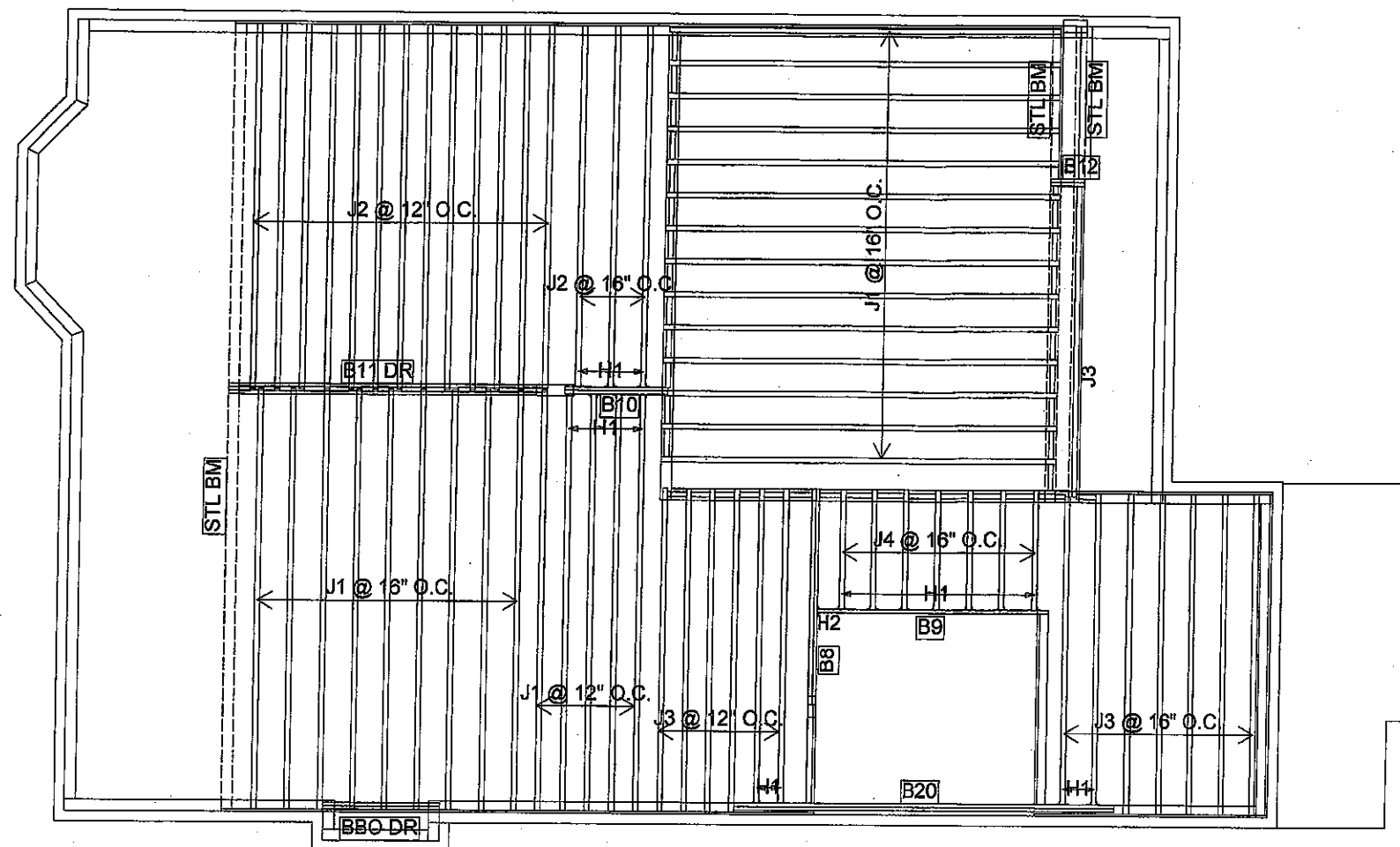
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-03-24

2nd FLOOR



| Products | | | | | |
|----------|----------|---|-------|---------|----------|
| PlotID | Length | Product | Plies | Net Qty | Fab Type |
| J1 | 18-00-00 | 11 7/8" NI-40x | 1 | 28 | MFD |
| J2 | 16-00-00 | 11 7/8" NI-40x | 1 | 16 | MFD |
| J3 | 14-00-00 | 11 7/8" NI-40x | 1 | 14 | MFD |
| J4 | 6-00-00 | 11 7/8" NI-40x | 1 | 7 | MFD |
| B20 | 16-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B11 DR | 14-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 3 | 3 | MFD |
| B9 | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
| B8 | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B10 | 6-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B12 | 2-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |

| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 7 | H1 | IUS2.56/11.88 |
| 11 | H1 | IUS2.56/11.88 |
| 1 | H2 | HUS1.81/10 |

CITY OF HAMILTON
Building Division

Permit No. 20-187703

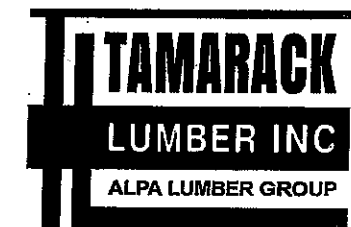
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These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL

DATE



FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: VALLYCREEK 1

ELEVATION: 3

LOT:

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

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

LOADING:

DESIGN LOADS: L/480.000

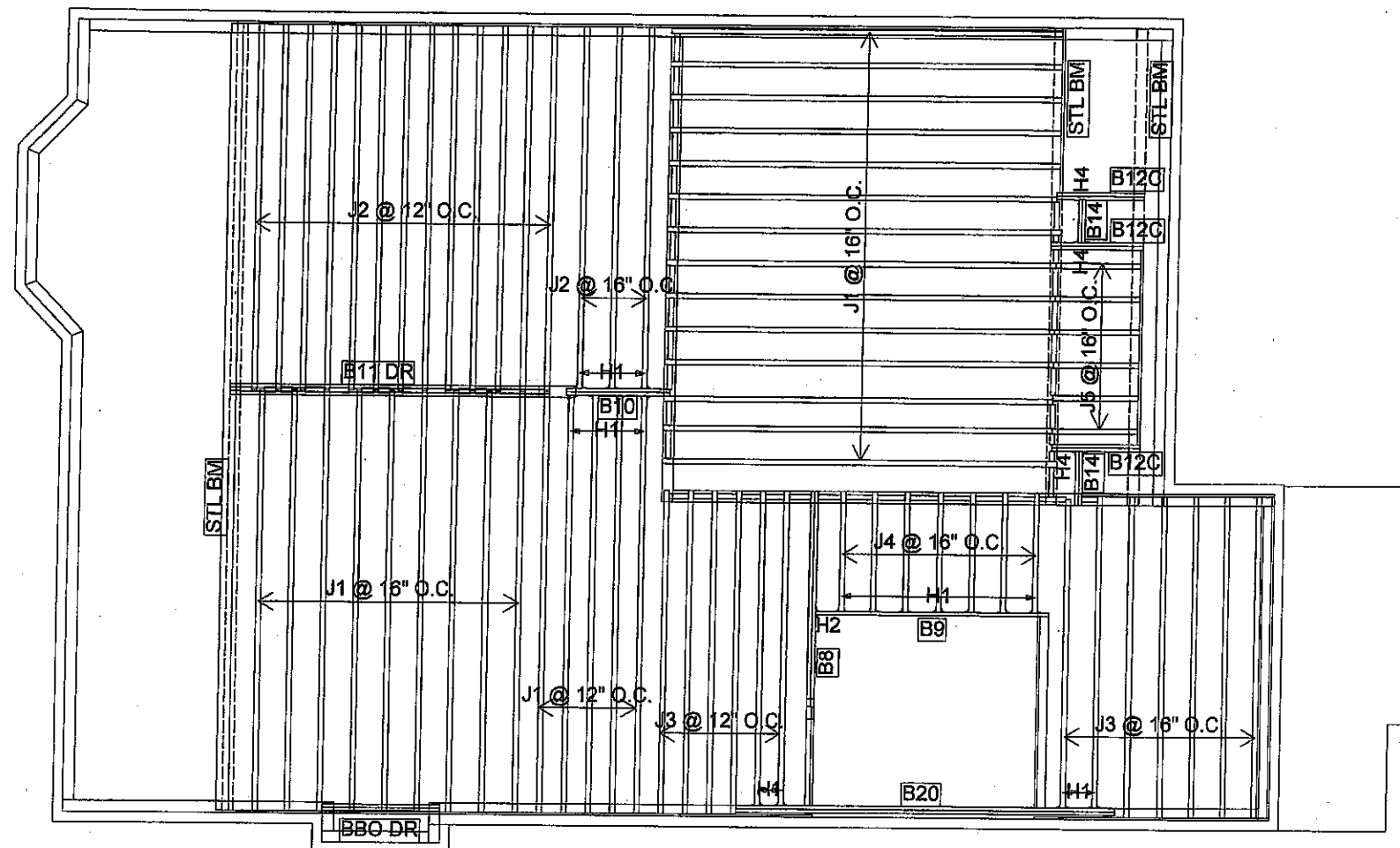
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-03-24

2nd FLOOR



| Products | | | | | |
|----------|----------|---|-------|---------|----------|
| PlotID | Length | Product | Plies | Net Qty | Fab Type |
| J1 | 18-00-00 | 11 7/8" NI-40x | 1 | 28 | MFD |
| J2 | 16-00-00 | 11 7/8" NI-40x | 1 | 16 | MFD |
| J3 | 14-00-00 | 11 7/8" NI-40x | 1 | 13 | MFD |
| J4 | 6-00-00 | 11 7/8" NI-40x | 1 | 7 | MFD |
| J5 | 4-00-00 | 11 7/8" NI-40x | 1 | 6 | MFD |
| B20 | 16-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B11 DR | 14-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 3 | 3 | MFD |
| B9 | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 1 | 1 | MFD |
| B8 | 10-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B10 | 6-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B12C | 4-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 6 | MFD |
| B14 | 4-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |
| B14 | 2-00-00 | 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP | 2 | 2 | MFD |

| Connector Summary | | |
|-------------------|-------|---------------|
| Qty | Manuf | Product |
| 7 | H1 | IUS2.56/11.88 |
| 11 | H1 | IUS2.56/11.88 |
| 1 | H2 | HUS1.81/10 |
| 3 | H4 | HGUS410 |

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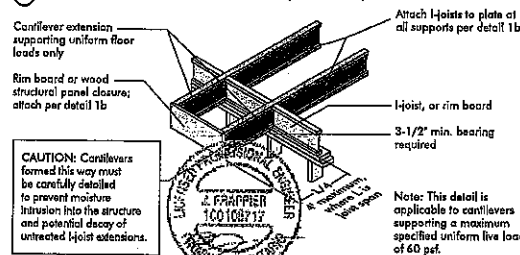
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GR
FOR CHIEF BUILDING OFFICIAL

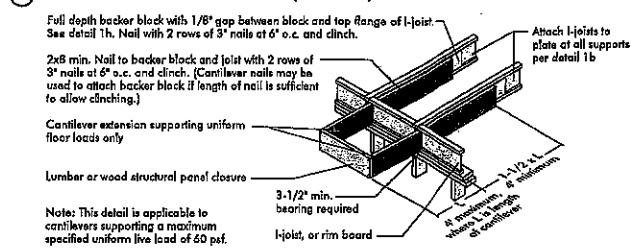
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DATE

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

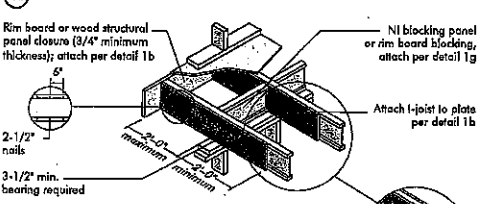


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

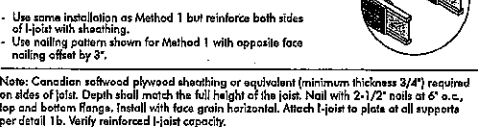


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



4b Alternate Method 2 — DOUBLE I-JOIST

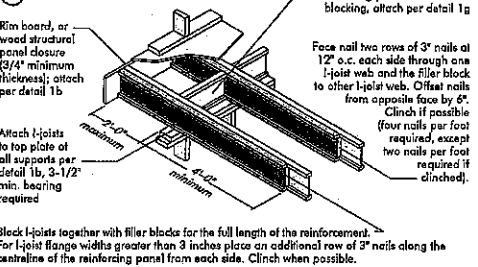


FIGURE 4 (continued)



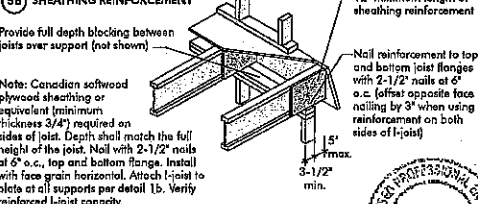
CANTILEVER REINFORCEMENT METHODS ALLOWED

| JOIST DEPTH (in.) | JOIST TRUSS SPAN (ft) | ROOF LOADING (UNFACTORED) | | | | JOIST SPACING (in.) | | | |
|-------------------|-----------------------|---------------------------|----|------|----|---------------------|----|------|----|
| | | 12 | 16 | 19.2 | 24 | 12 | 16 | 19.2 | 24 |
| 6 1/2" | 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 |
| | 34 | N | N | N | N | N | N | N | N |
| 11 7/8" | 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 |
| | 34 | N | N | N | N | N | N | N | N |
| 14" | 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 |
| | 34 | N | N | N | N | N | N | N | N |
| 16" | 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 |
| | 34 | N | N | N | N | N | N | N | N |

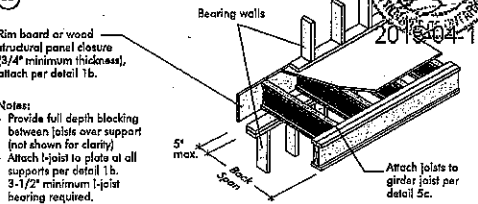
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = 3x deeper joist or closer spacing for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
5. 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

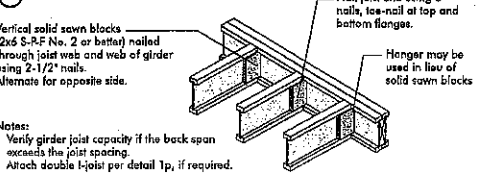


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

| JOIST DEPTH (in.) | JOIST TRUSS SPAN (ft) | ROOF LOADING (UNFACTORED) | | | | JOIST SPACING (in.) | | | |
|-------------------|-----------------------|---------------------------|----|------|----|---------------------|----|------|----|
| | | 12 | 16 | 19.2 | 24 | 12 | 16 | 19.2 | 24 |
| 6 1/2" | 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 |
| | 34 | N | N | N | N | N | N | N | N |
| 11 7/8" | 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 |
| | 34 | N | N | N | N | N | N | N | N |
| 14" | 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 |
| | 34 | N | N | N | N | N | N | N | N |
| 16" | 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 |
| | 34 | N | N | N | N | N | N | N | N |

1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = 3x deeper joist or closer spacing 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.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centerline 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 centered 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 holes shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole or twice the length of the longest side of the longest rectangular hole or duct chase opening; and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be 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 of 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 (h-in.) | | | | | | | | | | | | Span requirement Factor | | |
|-------------|--------------|--|-----|-----|-----|-----|-------|-----|-----|-------|-----|-----|--------|-------------------------|----|----|
| | | 2 | 3 | 4 | 5 | 6 | 6-1/4 | 7 | 8 | 8-5/8 | 9 | 10 | 10-3/4 | | 11 | 12 |
| 6 1/2" | N28 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 15 | 16 | 17 |
| | N30 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 16 | 17 | 18 |
| | N32 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 17 | 18 | 19 |
| | N34 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 18 | 19 | 20 |
| 11 7/8" | N28 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 15 | 16 | 17 |
| | N30 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 16 | 17 | 18 |
| | N32 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 17 | 18 | 19 |
| | N34 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 18 | 19 | 20 |
| 14" | N28 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 15 | 16 | 17 |
| | N30 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 16 | 17 | 18 |
| | N32 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 17 | 18 | 19 |
| | N34 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 18 | 19 | 20 |
| 16" | N28 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 15 | 16 | 17 |
| | N30 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 16 | 17 | 18 |
| | N32 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 17 | 18 | 19 |
| | N34 | 0.7 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 18 | 19 | 20 |

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 support to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.

OPTIONAL:

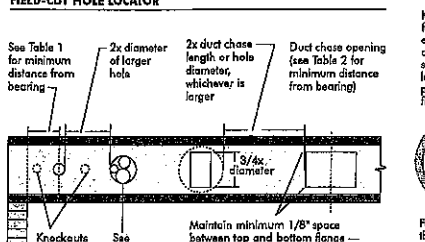
The above table is based on the I-joists used or their maximum span. If the I-joists are placed at less than their full maximum span (see Manufacturer's literature), the minimum distance from the centerline of the hole to the face of any support (S) as given above may be reduced as follows:

Reduced = $\frac{L_{actual}}{L_{max}} \times S$

Where:

- Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications.
- L_{actual} = The actual measured span distance between the inside faces of supports (ft).
- L_{max} = Span Adjustment Factor given in this table.
- S = The minimum distance from the inside face of any support to centre of hole from this table.
- If L_{actual} is greater than 1, use 1 in the above calculation for L_{actual} .

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.

A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes.

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

| JOIST 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.) | | | | | | | | | | | |
| | | Drill chase length (in.) | | | | | | | | | | | |
| | | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| 6 1/2" | N28 | 0.7 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| | N30 | 0.7 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| | N32 | 0.7 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| | N34 | 0.7 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| 11 7/8" | N28 | 0.9 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 |
| | N30 | 0.9 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 |
| | N32 | 0.9 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 |
| | N34 | 0.9 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 |
| 14" | N28 | 1.1 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 |
| | N30 | 1.1 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 |
| | N32 | 1.1 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 |
| | N34 | 1.1 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 |
| 16" | N28 | 1.3 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 |
| | N30 | 1.3 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 |
| | N32 | 1.3 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 |
| | N34 | 1.3 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 |

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 support to centre of opening.
3. The above table is based on simple-span joists only. For other applications, consult your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, consult your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. 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.
5. 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.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. 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 lines may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) then use on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.



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:

- 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.
- 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 should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole 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 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.
- 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.

- 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 of 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" | 7-3" | --- | --- | --- | --- | --- | --- |
| | Ni-80 | 2-0" | 3-4" | 4-9" | 6-3" | 8-0" | 8-4" | --- | --- | --- | --- | --- | --- |
| 11-7/8" | Ni-20 | 0-7" | 0-8" | 1-0" | 2-4" | 3-8" | 4-0" | 5-0" | 6-6" | 7-9" | --- | --- | --- |
| | Ni-40x | 0-7" | 0-8" | 1-0" | 2-4" | 3-8" | 4-0" | 5-0" | 6-6" | 7-9" | --- | --- | --- |
| | Ni-60 | 0-7" | 1-8" | 3-0" | 4-3" | 5-9" | 6-0" | 7-3" | 8-10" | 10-0" | --- | --- | --- |
| | Ni-80 | 1-3" | 2-10" | 4-0" | 5-4" | 7-0" | 7-3" | 8-4" | 10-0" | 11-2" | --- | --- | --- |
| 14" | 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" | 1-0" | 2-4" | 3-8" | 4-0" | 5-0" | 6-6" | 7-9" | --- | --- | --- |
| | Ni-60 | 0-7" | 1-8" | 3-0" | 4-3" | 5-9" | 6-0" | 7-3" | 8-10" | 10-0" | --- | --- | --- |
| | Ni-80 | 1-3" | 2-10" | 4-0" | 5-4" | 7-0" | 7-3" | 8-4" | 10-0" | 11-2" | --- | --- | --- |
| 16" | 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" | 1-0" | 2-4" | 3-8" | 4-0" | 5-0" | 6-6" | 7-9" | --- | --- | --- |
| | Ni-60 | 0-7" | 1-8" | 3-0" | 4-3" | 5-9" | 6-0" | 7-3" | 8-10" | 10-0" | --- | --- | --- |
| | Ni-80 | 1-3" | 2-10" | 4-0" | 5-4" | 7-0" | 7-3" | 8-4" | 10-0" | 11-2" | --- | --- | --- |

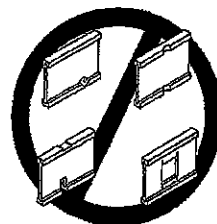
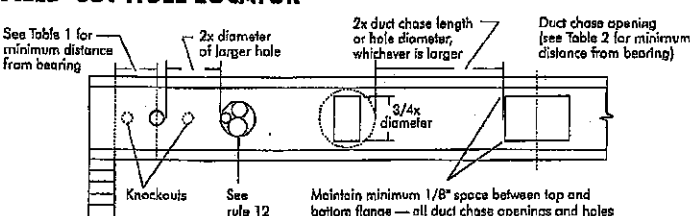
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used of their maximum spans. 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" | 6-10" | 6-5" | 6-10" | 7-3" | 7-8" | 8-2" | 8-6" | --- | --- | --- |
| | Ni-60 | 5-4" | 5-9" | 6-2" | 6-7" | 7-1" | 7-5" | 8-0" | 8-3" | 8-9" | --- | --- | --- |
| | Ni-80 | 5-1" | 5-5" | 5-10" | 6-3" | 6-7" | 7-1" | 7-5" | 8-1" | 8-4" | --- | --- | --- |
| 11-7/8" | Ni-20 | 5-9" | 6-2" | 6-6" | 7-1" | 7-5" | 7-9" | 8-3" | 8-9" | 9-4" | --- | --- | --- |
| | Ni-40x | 6-8" | 7-2" | 7-6" | 8-1" | 8-5" | 9-1" | 9-6" | 10-1" | 10-9" | --- | --- | --- |
| | Ni-60 | 7-3" | 7-8" | 8-0" | 8-6" | 9-0" | 9-3" | 9-9" | 10-3" | 11-0" | --- | --- | --- |
| | Ni-80 | 7-1" | 7-4" | 7-9" | 8-3" | 8-7" | 9-1" | 9-6" | 10-1" | 10-4" | --- | --- | --- |
| 14" | Ni-20 | 7-2" | 7-7" | 8-0" | 8-5" | 8-10" | 9-3" | 9-8" | 10-2" | 10-8" | --- | --- | --- |
| | Ni-40x | 7-6" | 7-11" | 8-4" | 8-9" | 9-2" | 9-6" | 10-1" | 10-7" | 10-11" | --- | --- | --- |
| | Ni-60 | 8-1" | 8-7" | 9-0" | 9-6" | 10-1" | 10-7" | 11-2" | 11-6" | 12-0" | --- | --- | --- |
| | Ni-80 | 8-9" | 9-3" | 9-8" | 10-1" | 10-4" | 10-8" | 11-2" | 11-7" | 12-3" | --- | --- | --- |
| 16" | Ni-20 | 9-2" | 9-8" | 10-0" | 10-6" | 10-11" | 11-5" | 11-9" | 12-4" | 12-11" | --- | --- | --- |
| | Ni-40x | 9-4" | 9-9" | 10-3" | 10-7" | 11-1" | 11-5" | 12-0" | 12-7" | 13-2" | --- | --- | --- |
| | Ni-60 | 10-3" | 10-8" | 11-2" | 11-6" | 12-1" | 12-6" | 13-0" | 13-7" | 14-1" | --- | --- | --- |
| | Ni-80 | 10-1" | 10-5" | 11-0" | 11-4" | 11-10" | 12-3" | 12-8" | 13-3" | 14-0" | --- | --- | --- |

- 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 supports to centre of opening.
- The above table is based on simple-span joists only. For other applications, contact 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 15 psf, and a live load deflection limit of L/480.
- The above table is based on the I-joists being used of 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 precast 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 unsecured 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:

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

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

PRODUCT WARRANTY

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

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

| 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 bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

Attach I-joist to top plate per detail 1b

| 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 bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral toe-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.

| Pair of Squash Blocks | Maximum Factored Vertical Load per Pair of Squash Blocks (lbs) |
|-----------------------|--|
| 2x Lumber | 5,500 |
| 1-1/8" Rim Board Plus | 6,600 |

Provide lateral bracing per detail 1a or 1b

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

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

NI blocking panel per detail 1a

| 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-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C308 or CAN/CSA-D437 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".

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

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

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

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

Top-mount hanger installed per manufacturer's recommendations

Filler block per detail 1p

Maximum support capacity = 1,620 lbs.

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

Install hanger per manufacturer's recommendations

Attach I-joist per detail 1b

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

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

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 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.
- 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" |

NOTE: 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 shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" 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 loads greater than shown in the I-joist properties table found in the 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 | 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 |

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

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

NORDIC STRUCTURES

COMPANY
Feb. 19, 2020 08:26

PROJECT
J2 1ST FLOOR.wwb

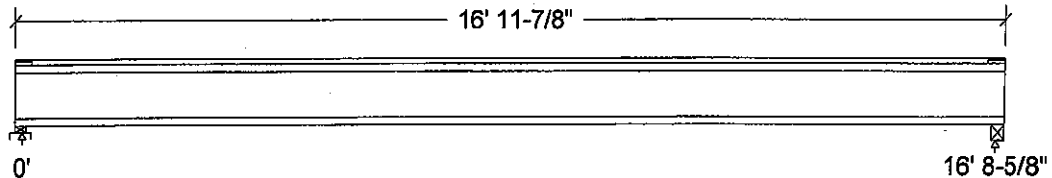
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

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

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



| | | | |
|-------------|-------|--|-------|
| Unfactored: | | | |
| Dead | 223 | | 223 |
| Live | 446 | | 446 |
| Factored: | | | |
| Total | 947 | | 947 |
| Bearing: | | | |
| Capacity | | | |
| Joist | 2101 | | 2138 |
| Support | 3971 | | - |
| Des ratio | | | |
| Joist | 0.45 | | 0.44 |
| Support | 0.24 | | - |
| Load case | #2 | | #2 |
| Length | 2-3/8 | | 2-5/8 |
| Min req'd | 1-3/4 | | 1-3/4 |
| Stiffener | No | | No |
| KD | 1.00 | | 1.00 |
| KB support | 1.00 | | - |
| fcp sup | 769 | | - |
| Kzcp sup | 1.09 | | - |

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

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

Total length: 16' 11-7/8"; Clear span: 16' 6-7/8"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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

| Criterion | Analysis Value | Design Value | Unit | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear | Vf = 947 | Vr = 2336 | lbs | Vf/Vr = 0.41 |
| Moment (+) | Mf = 3960 | Mr = 6255 | lbs-ft | Mf/Mr = 0.63 |
| Perm. Defl'n | 0.12 = < L/999 | 0.56 = L/360 | in | 0.21 |
| Live Defl'n | 0.23 = L/861 | 0.42 = L/480 | in | 0.56 |
| Total Defl'n | 0.35 = L/574 | 0.84 = L/240 | in | 0.42 |
| Bare Defl'n | 0.28 = L/712 | 0.56 = L/360 | in | 0.51 |
| Vibration | Lmax = 16'-8.6 | Lv = 18'-1.3 | ft | 0.92 |
| Defl'n | = 0.030 | = 0.038 | in | 0.78 |



NO. YAM 5545 -20
STRUCTURAL
COMPONENT ONLY

Additional Data:

| FACTORS: | f/E | KD | KH | KZ | KL | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr | 2336 | 1.00 | 1.00 | - | - | - | - | - | #2 |
| Mr+ | 6255 | 1.00 | 1.00 | - | 1.000 | - | - | - | #2 |
| EI | 371.1 million | - | - | - | - | - | - | - | #2 |

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

CALCULATIONS:E_Ieff = 459.76 lb-in² K= 6.18e06 lbs

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

CONFORMS TO NBC 2012

AMENDED 2020

Design Notes:

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



UWG NO. YAM 5545-20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Feb. 19, 2020 08:18

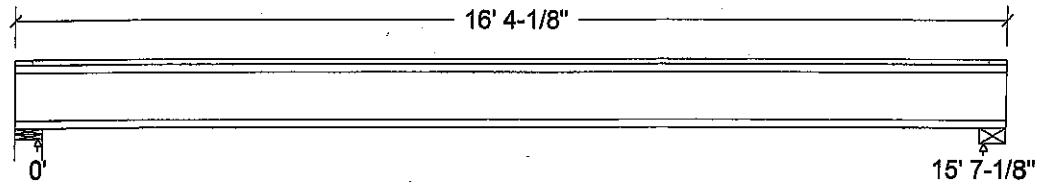
PROJECT
J1 2ND FLOOR ABOVE GARAGE.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

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

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



| | | | |
|-------------|-------|--|-------|
| Unfactored: | | | |
| Dead | 208 | | 208 |
| Live | 416 | | 416 |
| Factored: | | | |
| Total | 884 | | 884 |
| Bearing: | | | |
| Capacity | | | |
| Joist | 2336 | | 2336 |
| Support | 9724 | | - |
| Des ratio | | | |
| Joist | 0.38 | | 0.38 |
| Support | 0.09 | | - |
| Load case | #2 | | #2 |
| Length | 5-1/2 | | 5-1/4 |
| Min req'd | 1-3/4 | | 1-3/4 |
| Stiffener | No | | No |
| KD | 1.00 | | 1.00 |
| KB support | - | | - |
| fcp sup | 769 | | - |
| Kzcp sup | - | | - |

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

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

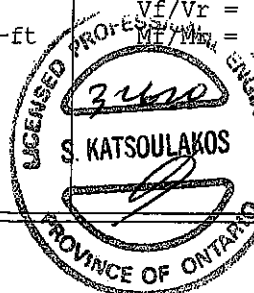
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;

Total length: 16' 4-1/8"; Clear span: 15' 5-3/8"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

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

| Criterion | Analysis Value | Design Value | Unit | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear | Vf = 884 | Vr = 2336 | lbs | Vf/Vr = 0.38 |
| Moment (+) | Mf = 3445 | Mr = 6255 | lbs-ft | Mf/Mr = 0.55 |
| Perm. Defl'n | 0.09 = < L/999 | 0.52 = L/360 | in | 0.18 |
| Live Defl'n | 0.18 = < L/999 | 0.39 = L/480 | in | 0.47 |
| Total Defl'n | 0.28 = L/679 | 0.78 = L/240 | in | 0.35 |
| Bare Defl'n | 0.22 = L/864 | 0.52 = L/360 | in | 0.42 |
| Vibration | Lmax = 15'-7.1 | Lv = 17'-2.4 | ft | 0.91 |
| Defl'n | = 0.030 | = 0.042 | in | 0.73 |



DWG NO. TAM5546-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

| FACTORS: | f/E | KD | KH | KZ | KL | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr | 2336 | 1.00 | 1.00 | - | - | - | - | - | #2 |
| Mr+ | 6255 | 1.00 | 1.00 | - | 1.000 | - | - | - | #2 |
| EI | 371.1 million | - | - | - | - | - | - | - | #2 |

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

CALCULATIONS:E_Ieff = 447.63 lb-in² K= 6.18e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

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



DWG NO. TAN5546 -20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Feb. 19, 2020 08:19

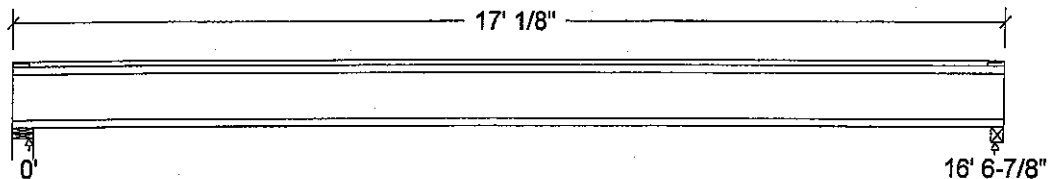
PROJECT
J1 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



| | | | |
|-------------|-------|--|-------|
| Unfactored: | | | |
| Dead | 221 | | 221 |
| Live | 442 | | 442 |
| Factored: | | | |
| Total | 939 | | 939 |
| Bearing: | | | |
| Capacity | | | |
| Joist | 2336 | | 2138 |
| Support | 7735 | | 4043 |
| Des ratio | | | |
| Joist | 0.40 | | 0.44 |
| Support | 0.12 | | 0.23 |
| Load case | #2 | | #2 |
| Length | 4-3/8 | | 2-5/8 |
| Min req'd | 1-3/4 | | 1-3/4 |
| Stiffener | No | | No |
| KD | 1.00 | | 1.00 |
| KB support | - | | 1.00 |
| fcp sup | 769 | | 769 |
| Kzcp sup | - | | 1.00 |

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

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

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

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

This section PASSES the design code check.

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

| Criterion | Analysis Value | Design Value | Unit | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear | Vf = 939 | Vr = 2336 | lbs | Vf/Vr = 0.40 |
| Moment (+) | Mf = 3891 | Mr = 6255 | lbs-ft | Mf/Mr = 0.62 |
| Perm. Defl'n | 0.12 = < L/999 | 0.55 = L/360 | in | 0.21 |
| Live Defl'n | 0.23 = L/862 | 0.41 = L/480 | in | 0.56 |
| Total Defl'n | 0.35 = L/574 | 0.83 = L/240 | in | 0.42 |
| Bare Defl'n | 0.27 = L/730 | 0.55 = L/360 | in | 0.49 |
| Vibration | Lmax = 16'-6.9 | Lv = 17'-8.1 | ft | 0.94 |
| Defl'n | = 0.031 | = 0.038 | in | 0.82 |



NO. TAM 5547-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

| FACTORS: | f/E | KD | KH | KZ | KL | KT | KS | KN | LC# |
|----------|---------------|------|------|----|-------|----|----|----|-----|
| Vr | 2336 | 1.00 | 1.00 | - | - | - | - | - | #2 |
| Mr+ | 6255 | 1.00 | 1.00 | - | 1.000 | - | - | - | #2 |
| EI | 371.1 million | - | - | - | - | - | - | - | #2 |

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

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

CALCULATIONS:E_Ieff = 447.63 lb-in² K= 6.18e06 lbs

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

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

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



DWG NO. YAM 5547 -20
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Feb. 19, 2020 08:22

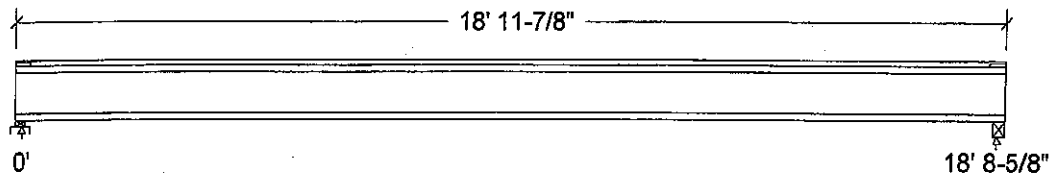
PROJECT
J10 1ST FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



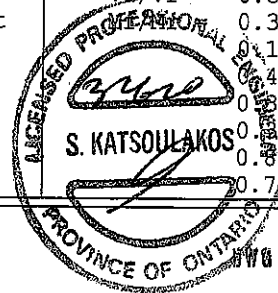
| | | | |
|-------------|-------|--|-------|
| Unfactored: | | | |
| Dead | 187 | | 187 |
| Live | 374 | | 374 |
| Factored: | | | |
| Total | 796 | | 796 |
| Bearing: | | | |
| Capacity | | | |
| Joist | 2187 | | 2211 |
| Support | 5559 | | - |
| Des ratio | | | |
| Joist | 0.36 | | 0.36 |
| Support | 0.14 | | - |
| Load case | #2 | | #2 |
| Length | 2-3/8 | | 2-5/8 |
| Min req'd | 1-3/4 | | 1-3/4 |
| Stiffener | No | | No |
| KD | 1.00 | | 1.00 |
| KB support | 1.00 | | - |
| fcp sup | 769 | | - |
| Kzcp sup | 1.09 | | - |

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

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;
Total length: 18' 11-7/8"; Clear span: 18' 6-7/8"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

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

| Criterion | Analysis Value | Design Value | Unit | Analysis/Design |
|--------------|----------------|--------------|--------|-----------------|
| Shear | Vf = 796 | Vr = 2336 | lbs | Vf/Vr = 0.34 |
| Moment (+) | Mf = 3723 | Mr = 11609 | lbs-ft | 0.32 |
| Perm. Defl'n | 0.10 = < L/999 | 0.62 = L/360 | in | 0.16 |
| Live Defl'n | 0.20 = < L/999 | 0.47 = L/480 | in | 0.44 |
| Total Defl'n | 0.31 = L/734 | 0.94 = L/240 | in | 0.33 |
| Bare Defl'n | 0.23 = L/980 | 0.62 = L/360 | in | 0.37 |
| Vibration | Lmax = 18'-8.6 | Lv = 21'-2.7 | ft | 0.88 |
| Defl'n | = 0.025 | = 0.034 | in | 0.78 |



PG 1/2
JWB NO. TAW5548 -20
STRUCTURAL
COMPONENT ONLY

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

CALCULATIONS:E_{ieff} = 625.37 lb-in² K= 6.18e06 lbs

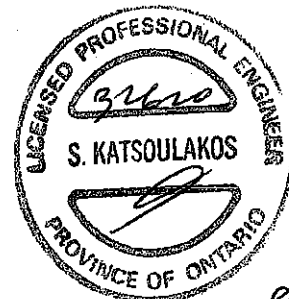
"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

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



964
 DWG NO. YAM 554B-20
 STRUCTURAL
 COMPONENT ONLY

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1(i2307) (Flush Beam)**

Dry | 2 spans | L cant.

February 19, 2020 08:00:55

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

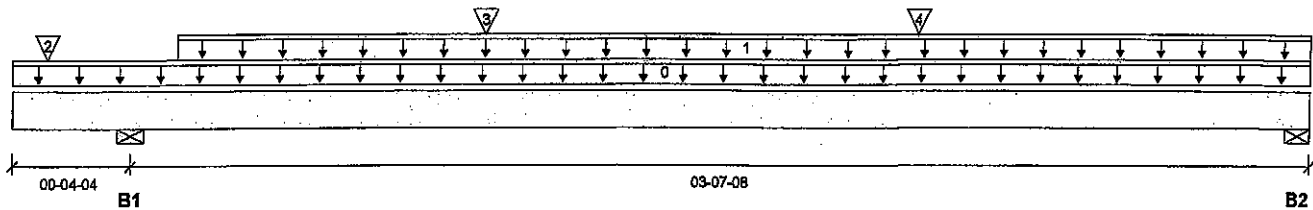
File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i2307)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-11-12

Reaction Summary (Down / Uplift) (lbs)

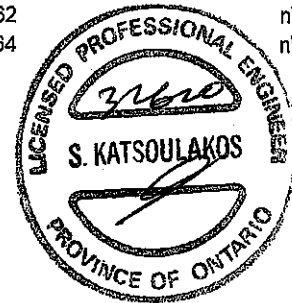
| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 3-1/2" | 625 / 0 | 325 / 0 | | |
| B2, 3-3/4" | 596 / 9 | 305 / 0 | | |

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 | 03-11-12 | Top | 6 | | | | 00-00-00 |
| 1 | STAIR | Unf. Lin. (lb/ft) | L | 00-06-00 | 03-11-12 | Top | 240 | 120 | | | n/a |
| 2 | J8(i2333) | Conc. Pt. (lbs) | L | 00-01-04 | 00-01-04 | Top | 122 | 61 | | | n/a |
| 3 | J8(i2291) | Conc. Pt. (lbs) | L | 01-05-04 | 01-05-04 | Top | 124 | 62 | | | n/a |
| 4 | J8(i2140) | Conc. Pt. (lbs) | L | 02-09-04 | 02-09-04 | Top | 127 | 64 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment | 998 ft-lbs | 17696 ft-lbs | 5.6% | 3 | 02-00-09 |
| Neg. Moment | -65 ft-lbs | -17696 ft-lbs | 0.4% | 1 | 00-04-04 |
| End Shear | 575 lbs | 7232 lbs | 8.0% | 3 | 02-08-02 |
| Cont. Shear | 553 lbs | 7232 lbs | 7.6% | 1 | 01-05-14 |
| Total Load Deflection | L/999 (0.003") | n/a | n/a | 10 | 02-00-09 |
| Live Load Deflection | L/999 (0.002") | n/a | n/a | 13 | 02-00-09 |
| Total Neg. Defl. | 2xL/1998 (-0.001") | n/a | n/a | 10 | 00-00-00 |
| Max Defl. | 0.003" | n/a | n/a | 10 | 02-00-09 |
| Span / Depth | 3.4 | | | | |

DWG NO. TAM 5549-20
STRUCTURAL
COMPONENT ONLY**Bearing Supports**

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 3-1/2" x 1-3/4" | 1344 lbs | 35.7% | 18.0% | Spruce-Pine-Fir |
| B2 | Wall/Plate 3-3/4" x 1-3/4" | 1275 lbs | 31.6% | 15.9% | Spruce-Pine-Fir |

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFIRMS TO OBC 2012**Disclosure**

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

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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

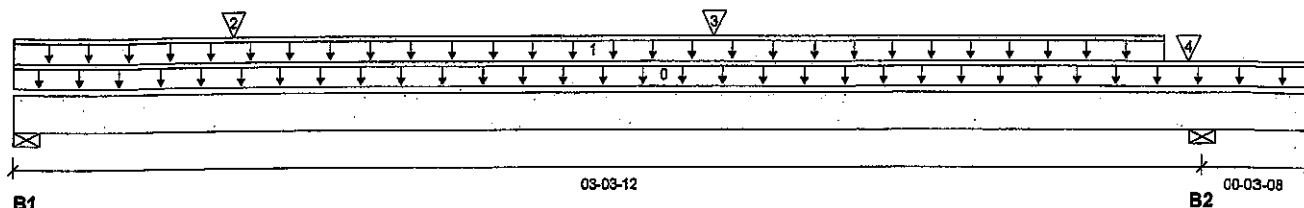
File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i1942)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-07-04

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 3-1/2" | 655 / 0 | 338 / 0 | | |
| B2, 3-1/2" | 634 / 0 | 328 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|-------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-07-04 | Top | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00 |
| 1 | STAIR | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-02-08 | Top | 240 | 120 | | | n/a |
| 2 | J7(i2132) | Conc. Pt. (lbs) | L | 00-07-04 | 00-07-04 | Top | 172 | 86 | | | n/a |
| 3 | J7(i2133) | Conc. Pt. (lbs) | L | 01-11-04 | 01-11-04 | Top | 172 | 86 | | | n/a |
| 4 | J7(i2135) | Conc. Pt. (lbs) | L | 03-03-04 | 03-03-04 | Top | 170 | 85 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment | 949 ft-lbs | 17696 ft-lbs | 5.4% | 2 | 01-11-04 |
| End Shear | 490 lbs | 7232 lbs | 6.8% | 1 | 01-03-06 |
| Cont. Shear | 458 lbs | 7232 lbs | 6.3% | 1 | 02-02-02 |
| Total Load Deflection | L/999 (0.002") | n/a | n/a | 9 | 01-09-04 |
| Live Load Deflection | L/999 (0.001") | n/a | n/a | 12 | 01-09-04 |
| Total Neg. Defl. | 2xL/1998 (-0.001") | n/a | n/a | 9 | 03-07-04 |
| Max Defl. | 0.002" | n/a | n/a | 9 | 01-09-04 |
| Span / Depth | 3.1 | | | | |


 OWC NO. YAM 5550-20
STRUCTURAL
COMPONENT ONLY
Disclosure

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

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

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 3-1/2" x 1-3/4" | 1405 lbs | 37.3% | 18.8% | Spruce-Pine-Fir |
| B2 | Wall/Plate 3-1/2" x 1-3/4" | 1362 lbs | 36.1% | 18.2% | Spruce-Pine-Fir |

Notes

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

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

Calculations assume 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

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

CONFORMS TO OBC 2012

AMENDED 2020

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B3L(11802) (Flush Beam)**

Dry | 1 span | No cant.

February 19, 2020 08:00:55

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3L(11802)

City, Province, Postal Code: WATERDOWN

Specifier:

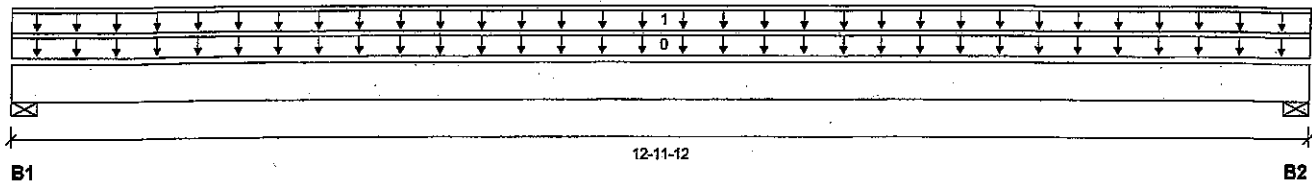
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 12-11-12

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 1-7/8" | 176 / 0 | 119 / 0 | | |
| B2, 4-3/8" | 181 / 0 | 122 / 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 | 12-11-12 | Top | 1.00 | 5 | | | 00-00-00 |
| 1 | FC1 Floor Material | Unf. Lin. (lb/ft) | L | 00-00-00 | 12-11-12 | Top | 28 | 14 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 1276 ft-lbs | 11610 ft-lbs | 11.0% | 1 | 06-04-10 |
| End Shear | 350 lbs | 5785 lbs | 6.1% | 1 | 00-11-06 |
| Total Load Deflection | L/999 (0.104") | n/a | n/a | 4 | 06-04-10 |
| Live Load Deflection | L/999 (0.062") | n/a | n/a | 5 | 06-04-10 |
| Max Defl. | 0.104" | n/a | n/a | 4 | 06-04-10 |
| Span / Depth | 15.9 | | | | |

DWG NO. TAM 5551-20
STRUCTURAL
COMPONENT ONLY

| Bearing Supports | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|------------------|----------------------------|---------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 1-7/8" x 1-3/4" | 412 lbs | 20.4% | 10.3% | Spruce-Pine-Fir |
| B2 | Wall/Plate 4-3/8" x 1-3/4" | 425 lbs | 9.0% | 4.6% | Spruce-Pine-Fir |

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Disclosure

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

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 19, 2020 08:00:55

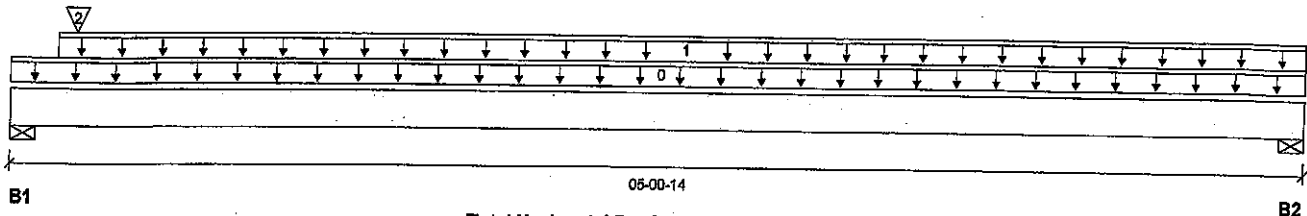
File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(i1854)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|----------|----------|------|------|
| B1, 4" | 1077 / 0 | 1242 / 0 | | |
| B2, 4-3/8" | 69 / 0 | 50 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 05-00-14 | Top | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00 |
| 1 | FC2 Floor Material | Unf. Lin. (lb/ft) | L | 00-02-04 | 05-00-14 | Top | 27 | 14 | | | n/a |
| 2 | 9(i865) | Conc. Pt. (lbs) | L | 00-03-02 | 00-03-02 | Top | 1014 | 1195 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 165 ft-lbs | 17696 ft-lbs | 0.9% | 1 | 02-06-04 |
| End Shear | 78 lbs | 7232 lbs | 1.1% | 1 | 01-03-14 |
| Total Load Deflection | L/999 (0.001") | n/a | n/a | 4 | 02-06-04 |
| Live Load Deflection | L/999 (0.001") | n/a | n/a | 5 | 02-06-04 |
| Max Defl. | 0.001" | n/a | n/a | 4 | 02-06-04 |
| Span / Depth | 4.5 | | | | |



DWG NO. TAN 5552-20
STRUCTURAL
COMPONENT ONLY

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 4" x 1-3/4" | 3168 lbs | 73.6% | 37.1% | Spruce-Pine-Fir |
| B2 | Wall/Plate 4-3/8" x 1-3/4" | 166 lbs | 3.5% | 1.8% | Spruce-Pine-Fir |

Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Disclosure

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

PASSED

1ST FLR FRAMING\Flush Beams\B5(i3094) (Flush Beam)

Dry | 3 spans | L & R cant.

February 19, 2020 08:00:55

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B5(i3094)

City, Province, Postal Code: WATERDOWN

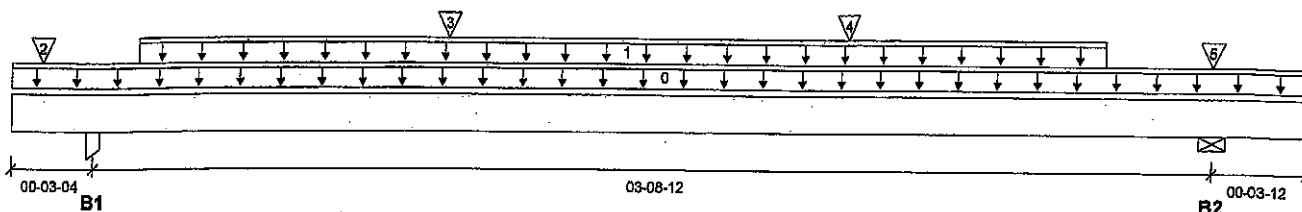
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-03-12

Reaction Summary (Down / Uplift) (lbs)

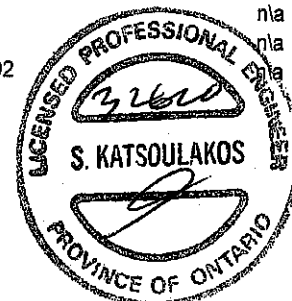
| Bearing | Live | Dead | Snow | Wind |
|------------|----------|----------|------|------|
| B1, 3-1/2" | 321 / 0 | 276 / 0 | | |
| B2, 5-1/2" | 1629 / 0 | 1280 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|-------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 04-03-12 | Top | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00 |
| 1 | WALL | Unf. Lin. (lb/ft) | L | 00-05-00 | 03-07-12 | Top | | 60 | | | n/a |
| 2 | J8(i3154) | Conc. Pt. (lbs) | L | 00-01-04 | 00-01-04 | Top | 153 | 77 | | | n/a |
| 3 | J8(i3130) | Conc. Pt. (lbs) | L | 01-05-04 | 01-05-04 | Top | 157 | 79 | | | n/a |
| 4 | J8(i3106) | Conc. Pt. (lbs) | L | 02-09-04 | 02-09-04 | Top | 153 | 76 | | | n/a |
| 5 | 10(i876) | Conc. Pt. (lbs) | L | 04-00-00 | 04-00-00 | Top | 1476 | 1102 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|--------------------|---------------------|-------------------|------|----------|
| Pos. Moment | 532 ft-lbs | 17696 ft-lbs | 3.0% | 3 | 02-02-04 |
| Neg. Moment | -54 ft-lbs | -17696 ft-lbs | 0.3% | 1 | 00-03-04 |
| Cont. Shear | 440 lbs | 7232 lbs | 6.1% | 3 | 02-09-06 |
| Total Load Deflection | L/999 (0.002") | n/a | n/a | 16 | 02-01-12 |
| Live Load Deflection | L/999 (0.001") | n/a | n/a | 21 | 02-01-12 |
| Total Neg. Defl. | 2xL/1998 (-0.001") | n/a | n/a | 14 | 04-03-12 |
| Max Defl. | 0.002" | n/a | n/a | 16 | 02-01-12 |
| Span / Depth | 3.8 | | | | |



OWB NO. TAM 5553-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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| Bearing Supports | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|------------------|-----------------|----------|---------------------------|--------------------------|-----------------|
| B1 Column | 3-1/2" x 1-3/4" | 826 lbs | 16.6% | 11.1% | Unspecified |
| B2 Wall/Plate | 5-1/2" x 1-3/4" | 4043 lbs | 68.3% | 34.4% | Spruce-Pine-Fir |

Notes

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

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

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

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

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

CONFORMS TO OBC 2012

AMENDED 2020

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****1ST FLR FRAMING\Flush Beams\B6(i3117) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 08:00:55

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B6(i3117)

City, Province, Postal Code: WATERDOWN

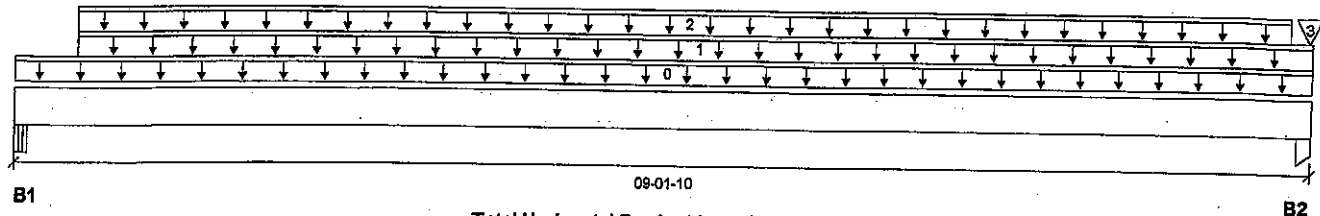
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

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

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 5-1/4" | 128 / 0 | 351 / 0 | | |
| B2, 1-3/4" | 137 / 0 | 351 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 09-01-10 | Top | | 6 | | | 00-00-00 |
| 1 | FC2 Floor Material | Unf. Lin. (lb/ft) | L | 00-05-04 | 09-01-10 | Top | 30 | 15 | | | n/a |
| 2 | WALL | Unf. Lin. (lb/ft) | L | 00-05-04 | 08-11-14 | Top | | 60 | | | n/a |
| 3 | FC2 Floor Material | Conc. Pt. (lbs) | L | 09-01-06 | 09-01-06 | Top | 4 | | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 1067 ft-lbs | 11502 ft-lbs | 9.3% | 0 | 04-08-09 |
| End Shear | 373 lbs | 4701 lbs | 7.9% | 0 | 01-05-02 |
| Total Load Deflection | L/999 (0.029") | n/a | n/a | 4 | 04-08-09 |
| Live Load Deflection | L/999 (0.008") | n/a | n/a | 5 | 04-08-09 |
| Max Defl. | 0.029" | n/a | n/a | 4 | 04-08-09 |
| Span / Depth | 8.8 | | | | |

DWG NO. TAM 5554-20
STRUCTURAL COMPONENT ONLY**Bearing Supports**

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|------------------------|---------|---------------------------|--------------------------|-------------|
| B1 | Beam 5-1/4" x 1-3/4" | 492 lbs | 15.4% | 6.7% | Unspecified |
| B2 | Column 1-3/4" x 1-3/4" | 492 lbs | 30.4% | 20.3% | Unspecified |

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012**AMENDED 2020****Disclosure**

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

PASSED

2ND FLR FRAMING\Dropped Beams\B11 DR(i3086) (Dropped Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 08:00:55

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B11 DR(i3086)

City, Province, Postal Code: WATERDOWN

Specifier:

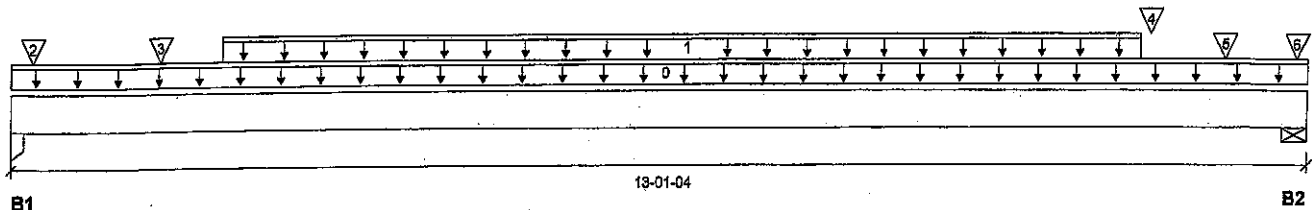
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-01-04

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|----------|----------|------|------|
| B1, 5-1/4" | 4071 / 0 | 2449 / 0 | | |
| B2, 5-1/8" | 4256 / 0 | 2250 / 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 | 13-01-04 | Top | | 18 | | | 00-00-00 |
| 1 | Smoothed Load | Unf. Lin. (lb/ft) | L | 02-01-04 | 11-05-04 | Top | 619 | 310 | | | n/a |
| 2 | STL BM(i874) | Conc. Pt. (lbs) | L | 00-02-10 | 00-02-10 | Top | | 293 | | | n/a |
| 3 | - | Conc. Pt. (lbs) | L | 01-05-13 | 01-05-13 | Top | 1304 | 652 | | | n/a |
| 4 | J2(i3087) | Conc. Pt. (lbs) | L | 11-06-08 | 11-06-08 | Top | 291 | 146 | | | n/a |
| 5 | - | Conc. Pt. (lbs) | L | 12-03-06 | 12-03-06 | Top | 637 | 319 | | | n/a |
| 6 | J1(i3162) | Conc. Pt. (lbs) | L | 13-00-00 | 13-00-00 | Top | 320 | 160 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 26595 ft-lbs | 55212 ft-lbs | 48.2% | 1 | 06-06-08 |
| End Shear | 8769 lbs | 21696 lbs | 40.4% | 1 | 01-05-02 |
| Total Load Deflection | L/420 (0.354") | n/a | 57.2% | 4 | 06-06-08 |
| Live Load Deflection | L/641 (0.231") | n/a | 56.1% | 5 | 06-06-08 |
| Max Defl. | 0.354" | n/a | n/a | 4 | 06-06-08 |
| Span / Depth | 12.5 | | | | |

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Column 5-1/4" x 5-1/4" | 9167 lbs | 41.0% | 27.3% | Unspecified |
| B2 | Wall/Plate 5-1/8" x 5-1/4" | 9196 lbs | 25.6% | 28.0% | Spruce-Pine-Fir |

Notes

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

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

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

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

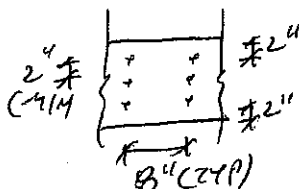
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



PWO NO. TAM 5555-20

STRUCTURAL

COMPONENT ONLY

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

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B10(1856) (Flush Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 08:00:55

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

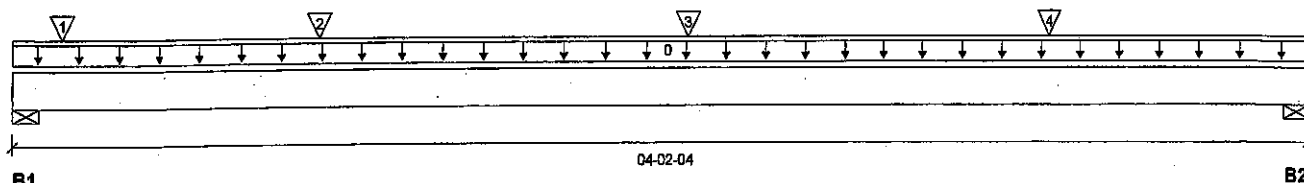
File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B10(1856)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 04-02-04

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|----------|---------|------|------|
| B1, 4" | 1415 / 0 | 734 / 0 | | |
| B2, 2-3/4" | 1077 / 0 | 563 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Tributary |
|-----|-------------|-------------------|------|----------|----------|------|--------------|--------------|--------------|--------------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 04-02-04 | Top | | 12 | | | 00-00-00 |
| 1 | J1(I2334) | Conc. Pt. (lbs) | L | 00-01-14 | 00-01-14 | Top | 337 | 169 | | | n/a |
| 2 | - | Conc. Pt. (lbs) | L | 00-11-12 | 00-11-12 | Top | 726 | 363 | | | n/a |
| 3 | - | Conc. Pt. (lbs) | L | 02-01-14 | 02-01-14 | Top | 726 | 363 | | | n/a |
| 4 | - | Conc. Pt. (lbs) | L | 03-04-01 | 03-04-01 | Top | 703 | 351 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 2526 ft-lbs | 35392 ft-lbs | 7.1% | 1 | 02-01-14 |
| End Shear | 1764 lbs | 14464 lbs | 12.2% | 1 | 01-03-14 |
| Total Load Deflection | L/999 (0.004") | n/a | n/a | 4 | 02-01-14 |
| Live Load Deflection | L/999 (0.003") | n/a | n/a | 5 | 02-01-14 |
| Max Defl. | 0.004" | n/a | n/a | 4 | 02-01-14 |
| Span / Depth | 3.8 | | | | |



DWG NO. YAM 5556-20
STRUCTURAL
COMPONENT ONLY

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 4" x 3-1/2" | 3039 lbs | 35.3% | 17.8% | Spruce-Pine-Fir |
| B2 | Wall/Plate 2-3/4" x 3-1/2" | 2319 lbs | 39.2% | 19.8% | Spruce-Pine-Fir |

Notes

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

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

Calculations assume member is fully braced.

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

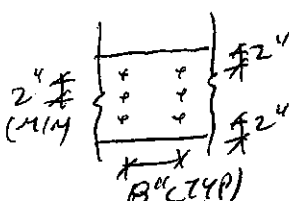
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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

Disclosure

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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

February 19, 2020 08:00:55

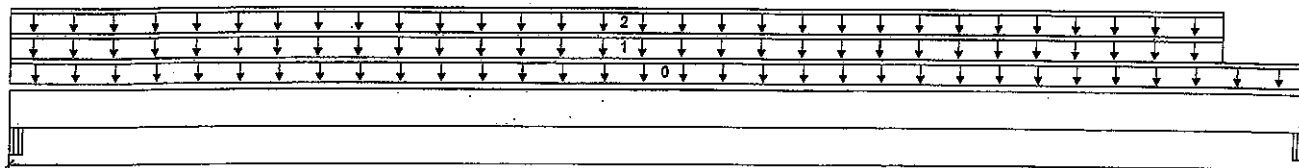
File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12(i2495) (Flush Beam)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 01-05-04

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|--------|--------|--------|------|
| B1, 5-1/4" | 24 / 0 | 88 / 0 | 45 / 0 | |
| B2, 5-1/4" | 21 / 0 | 77 / 0 | 39 / 0 | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|-------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 01-05-04 | Top | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00 |
| 1 | ROOF | Unf. Lin. (lb/ft) | L | 00-00-00 | 01-04-02 | Top | 33 | 30 | 63 | | n/a |
| 2 | WALL | Unf. Lin. (lb/ft) | L | 00-00-00 | 01-04-02 | Top | | 80 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|--------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 17 ft-lbs | 35392 ft-lbs | n/a | 13 | 00-08-10 |
| End Shear | 79 lbs | 14464 lbs | 0.5% | 13 | 00-05-04 |
| Span / Depth | 0.7 | | | | |

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------|---------|---------------------------|--------------------------|-------------|
| B1 | Beam 5-1/4" x 3-1/2" | 201 lbs | 2.1% | 0.9% | Unspecified |
| B2 | Beam 5-1/4" x 3-1/2" | 176 lbs | 1.8% | 0.8% | Unspecified |

Notes

Calculations assume member is fully braced.

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

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

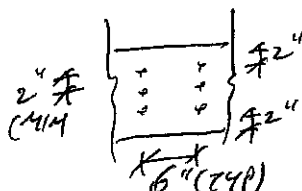
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO NBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 6" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DWG NO. TAM 5557-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B8(i1791) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 08:00:55

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B8(i1791)

City, Province, Postal Code: WATERDOWN

Specifier:

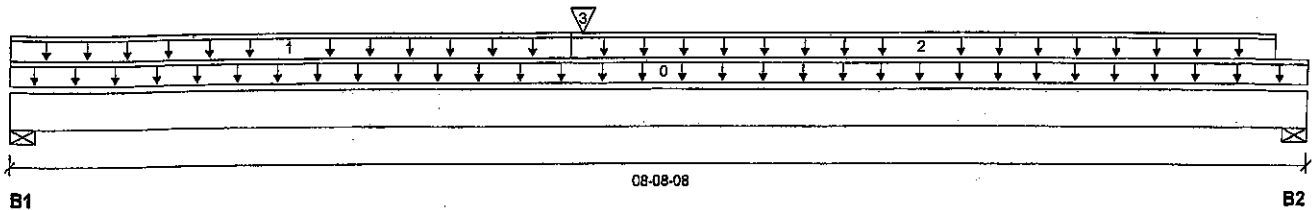
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:

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

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 4" | 407 / 0 | 270 / 0 | | |
| B2, 5-1/2" | 391 / 0 | 261 / 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 | 08-08-08 | Top | 12 | | | | 00-00-00 |
| 1 | FC3 Floor Material | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-08-12 | Top | 25 | 13 | | | n/a |
| 2 | FC3 Floor Material | Unf. Lin. (lb/ft) | L | 03-08-12 | 08-05-12 | Top | 47 | 23 | | | n/a |
| 3 | B9(i2266) | Conc. Pt. (lbs) | L | 03-09-10 | 03-09-10 | Top | 483 | 268 | | | n/a |

| Controls Summary | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 2855 ft-lbs | 35392 ft-lbs | 8.1% | 1 | 03-09-10 |
| End Shear | 858 lbs | 14464 lbs | 5.9% | 1 | 01-03-14 |
| Total Load Deflection | L/999 (0.021") | n/a | n/a | 4 | 04-02-13 |
| Live Load Deflection | L/999 (0.013") | n/a | n/a | 5 | 04-02-13 |
| Max Defl. | 0.021" | n/a | n/a | 4 | 04-02-13 |
| Span / Depth | 8.1 | | | | |



ONE NO. TAM 555B-20
STRUCTURAL
COMPONENT ONLY

| Bearing Supports | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|------------------|----------------------------|---------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 4" x 3-1/2" | 948 lbs | 11.0% | 5.6% | Spruce-Pine-Fir |
| B2 | Wall/Plate 5-1/2" x 3-1/2" | 913 lbs | 7.7% | 3.9% | Spruce-Pine-Fir |

Notes

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

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

Calculations assume member is fully braced.

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

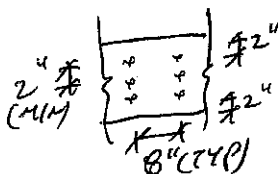
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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

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

BC CALC® Member Report

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 1 NEW.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B9(i2266)

City, Province, Postal Code: WATERDOWN

Specifier:

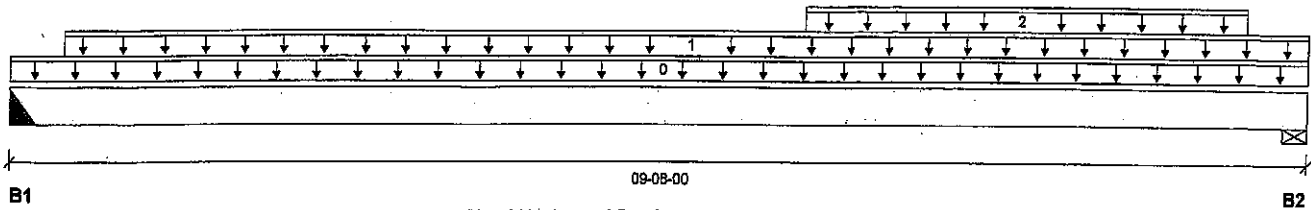
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B1, 2" | 487 / 0 | 270 / 0 | | |
| B2, 5-1/2" | 824 / 0 | 440 / 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 | 09-08-00 | Top | 6 | | | | 00-00-00 |
| 1 | Smoothed Load | Unf. Lin. (lb/ft) | L | 00-04-14 | 09-08-00 | Top | 98 | 49 | | | n/a |
| 2 | STAIR | Unf. Lin. (lb/ft) | L | 05-10-08 | 09-02-08 | Top | 120 | 60 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 3043 ft-lbs | 17696 ft-lbs | 17.2% | 1 | 05-00-14 |
| End Shear | 1246 lbs | 7232 lbs | 17.2% | 1 | 08-02-10 |
| Total Load Deflection | L/999 (0.066") | n/a | n/a | 4 | 04-09-14 |
| Live Load Deflection | L/999 (0.043") | n/a | n/a | 5 | 04-09-14 |
| Max Defl. | 0.066" | n/a | n/a | 4 | 04-09-14 |
| Span / Depth | 9.3 | | | | |

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|----------------------------|----------|---------------------------|--------------------------|-----------------|
| B1 | Hanger 2" x 1-3/4" | 1069 lbs | n/a | 25.0% | HUS1.81/10 |
| B2 | Wall/Plate 5-1/2" x 1-3/4" | 1785 lbs | 30.1% | 15.2% | Spruce-Pine-Fir |

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



SEE NO. TAM 5559-20
STRUCTURAL
COMPONENT ONLY

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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

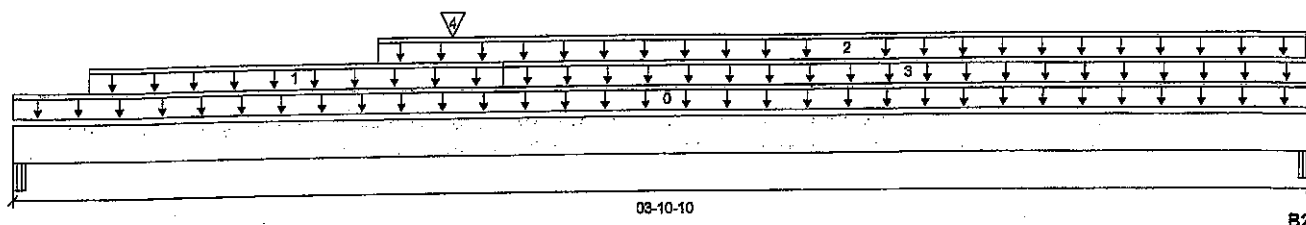
File name: VALLEYCREEK 1 EL 3 NEW.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12C(i3748)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-10-10

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|---------|------|
| B1, 5-1/4" | 115 / 0 | 258 / 0 | 114 / 0 | |
| B2, 5-1/4" | 120 / 0 | 295 / 0 | 139 / 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 | 03-10-10 | Top | 1.00 | 0.65 | 1.00 | 1.15 | 00-00-00 |
| 1 | FC3 Floor Material | Unf. Lin. (lb/ft) | L | 00-02-11 | 01-05-06 | Top | 16 | 8 | | | n/a |
| 2 | E18(i3596) | Unf. Lin. (lb/ft) | L | 01-01-00 | 03-10-06 | Top | 33 | 111 | 63 | | n/a |
| 3 | FC3 Floor Material | Unf. Lin. (lb/ft) | L | 01-05-06 | 03-10-10 | Top | 19 | 9 | | | n/a |
| 4 | - | Conc. Pt. (lbs) | L | 01-03-11 | 01-03-11 | Top | 77 | 165 | 78 | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 550 ft-lbs | 35392 ft-lbs | 1.6% | 13 | 01-07-10 |
| End Shear | 506 lbs | 14464 lbs | 3.5% | 13 | 01-05-02 |
| Total Load Deflection | L/999 (0.001") | n/a | n/a | 35 | 01-10-11 |
| Live Load Deflection | L/999 (0") | n/a | n/a | 51 | 01-10-11 |
| Max Defl. | 0.001" | n/a | n/a | 35 | 01-10-11 |
| Span / Depth | 3.2 | | | | |

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|---------|-----------------|---------|---------------------------|--------------------------|-------------|
| B1 Beam | 5-1/4" x 3-1/2" | 609 lbs | 6.2% | 2.7% | Unspecified |
| B2 Beam | 5-1/4" x 3-1/2" | 697 lbs | 7.1% | 3.1% | Unspecified |

Notes

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

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

Calculations assume member is fully braced.

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

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

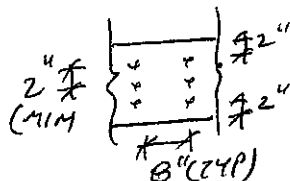
Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



JWB NO. TAM 5560-20

STRUCTURAL

COMPONENT ONLY

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



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

PASSED

2ND FLR FRAMING\Flush Beams\B14(i3718) (Flush Beam)

BC CALC® Member Report

Dry | 1 span | No cant.

February 19, 2020 08:14:08

Build 7239

Job name:

File name: VALLEYCREEK 1 EL 3 NEW.mmd\

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14(i3718)

City, Province, Postal Code: WATERDOWN

Specifier:

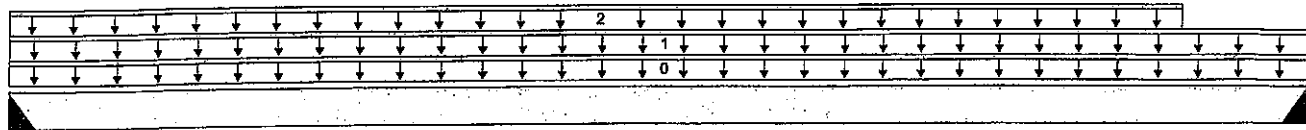
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1

01-08-08

B2

Total Horizontal Product Length = 01-08-08

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|---------|--------|---------|--------|------|
| B1, 4" | 65 / 0 | 124 / 0 | 54 / 0 | |
| B2, 4" | 60 / 0 | 105 / 0 | 43 / 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 | 01-08-08 | Top | 12 | | | | 00-00-00 |
| 1 | FC3 Floor Material | Unf. Lin. (lb/ft) | L | 00-00-00 | 01-08-08 | Top | 43 | 22 | | | n/a |
| 2 | E17(i3598) | Unf. Lin. (lb/ft) | L | 00-00-00 | 01-06-08 | Top | 33 | 111 | 63 | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|--------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 61 ft-lbs | 35392 ft-lbs | 0.2% | 1 | 00-10-04 |
| End Shear | 168 lbs | 14464 lbs | 1.2% | 1 | 01-03-14 |
| Span / Depth | 1.2 | | | | |

Bearing Supports

| | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|----|--------------------|---------|---------------------------|--------------------------|----------|
| B1 | Hanger 4" x 3-1/2" | 306 lbs | n/a | 1.8% | HGUS410 |
| B2 | Hanger 4" x 3-1/2" | 264 lbs | n/a | 1.5% | HGUS410 |

Cautions

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

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

Notes

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

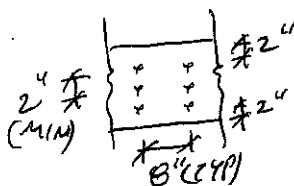
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



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



ENG. NO. TAM 5561-20
STRUCTURAL COMPONENT ONLY

Disclosure

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

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



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

1ST FLR FRAMING\Flush Beams\B19(i3834) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 24, 2020 14:44:02

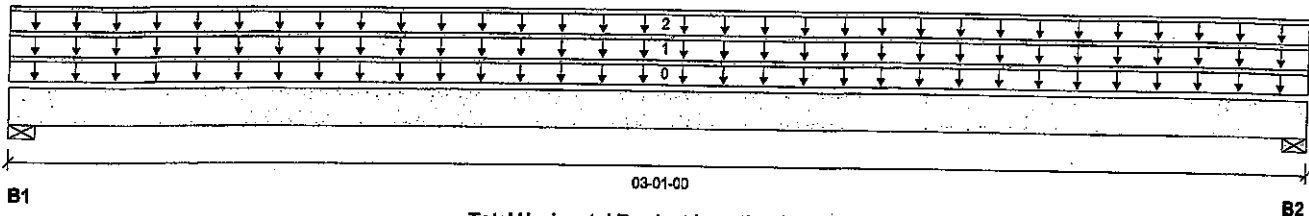
File name: VALLEYCREEK 1 EL 1 DECK CONDITION.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B19(i3834)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|---------|--------|---------|------|------|
| B1, 3" | 41 / 0 | 164 / 0 | | |
| B2, 3" | 41 / 0 | 164 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Loc. | Live | Dead | Snow | Wind | Tributary |
|-----|--------------------|-------------------|------|----------|----------|------|------|------|------|------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-01-00 | Top | 12 | | | | 00-00-00 |
| 1 | E3(i859) | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-01-00 | Top | 81 | | | | n/a |
| 2 | FC2 Floor Material | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-01-00 | Top | 27 | 13 | | | n/a |

| Controls Summary | Factored Demand | Factored Resistance | Demand/Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-------------------|------|----------|
| Pos. Moment | 136 ft-lbs | 23005 ft-lbs | 0.6% | 0 | 01-06-08 |
| End Shear | 45 lbs | 9401 lbs | 0.5% | 0 | 01-02-14 |
| Total Load Deflection | L/999 (0") | n/a | n/a | 4 | 01-06-08 |
| Max Defl. | 0" | n/a | n/a | 4 | 01-06-08 |
| Span / Depth | 2.7 | | | | |



ENG. NO. YAM5562-20
STRUCTURAL
COMPONENT ONLY

| Bearing Supports | Dim. (LxW) | Demand | Demand/Resistance Support | Demand/Resistance Member | Material |
|------------------|------------------------|---------|---------------------------|--------------------------|-----------------|
| B1 | Wall/Plate 3" x 3-1/2" | 229 lbs | 5.5% | 2.8% | Spruce-Pine-Fir |
| B2 | Wall/Plate 3" x 3-1/2" | 229 lbs | 5.5% | 2.8% | Spruce-Pine-Fir |

Notes

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

Calculations assume member is fully braced.

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

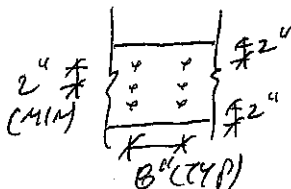
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 2012

AMENDED 2020



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

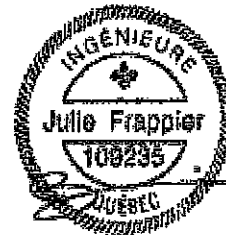
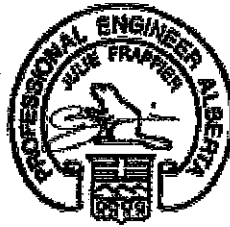
Disclosure

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

Maximum Floor Spans

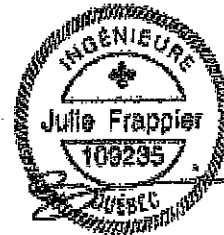
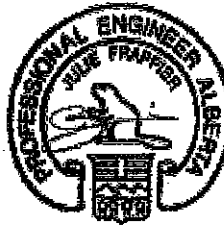
Live Load = 40 psf; Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

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

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

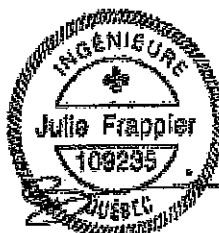
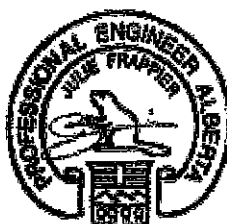


Maximum Floor Spans

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

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

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



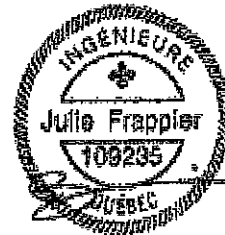
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

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

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



Construction Detail

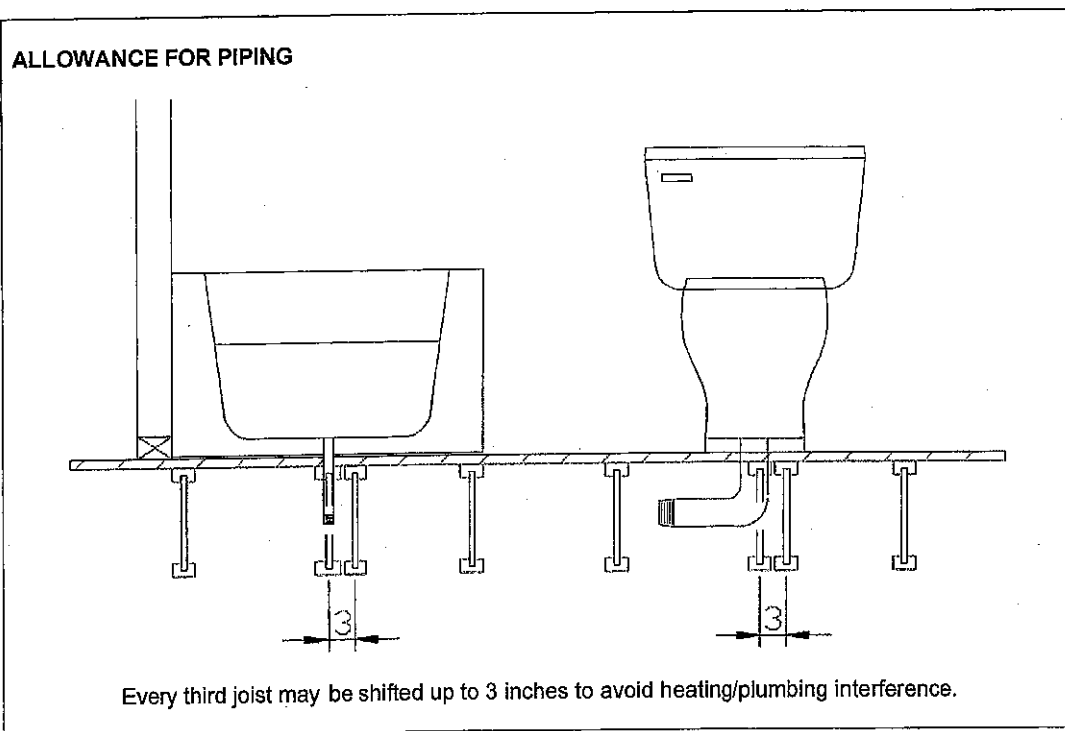
Limit States Design

Allowance for Piping (Installation Notes)

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

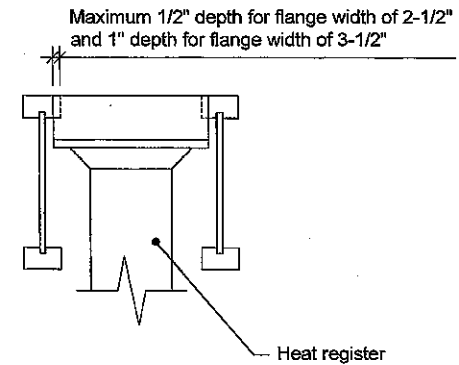
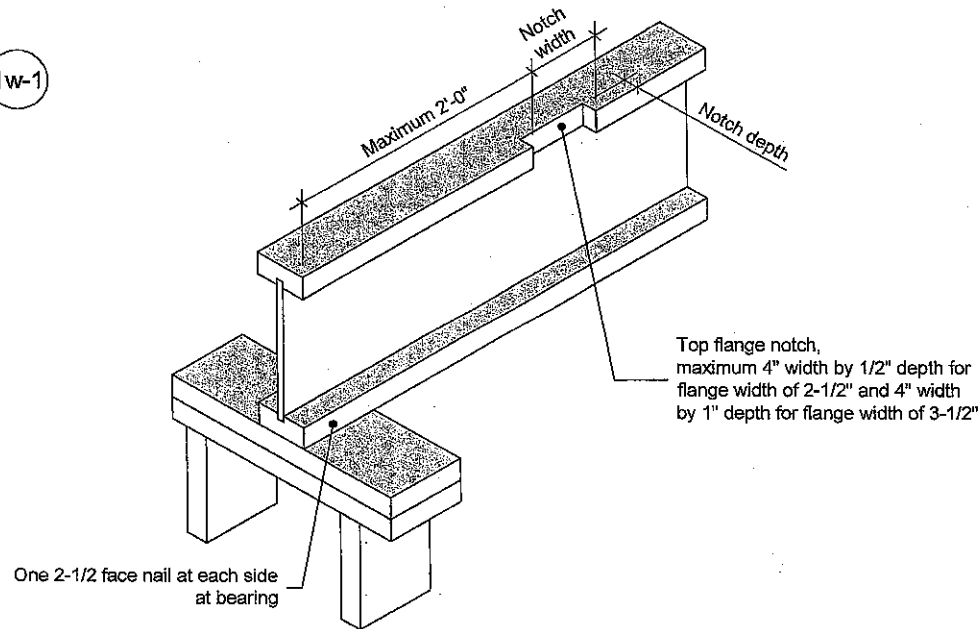
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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



Revised April 12, 2012

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Notes:

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

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

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

NORDIC
STRUCTURES

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nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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DATE

2018-04-10

NUMBER

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