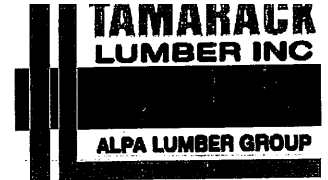


| Products | | | | |
|----------|----------|--|-------|---------|
| PlotID | Length | Product | Plies | Net Qty |
| J1 | 16-00-00 | 9 1/2" NI-40x | 1 | 2 |
| J2 | 14-00-00 | 9 1/2" NI-40x | 1 | 35 |
| J2DJ | 14-00-00 | 9 1/2" NI-40x | 2 | 8 |
| J3 | 12-00-00 | 9 1/2" NI-40x | 1 | 2 |
| J4 | 10-00-00 | 9 1/2" NI-40x | 1 | 7 |
| J5 | 6-00-00 | 9 1/2" NI-40x | 1 | 10 |
| J6 | 4-00-00 | 9 1/2" NI-40x | 1 | 4 |
| J7 | 2-00-00 | 9 1/2" NI-40x | 1 | 2 |
| B2 | 8-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 |
| B3 | 6-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 |
| B1 | 6-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2 | 2 |
| B7 | 6-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2 | 2 |
| B4 | 4-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 |
| B5 | 4-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 |

| Connector Summary | | |
|-------------------|-------|-------------|
| Qty | Manuf | Product |
| 2 | H1 | IUS2.56/9.5 |
| 11 | H1 | IUS2.56/9.5 |
| 4 | H1 | IUS2.56/9.5 |
| 5 | H1 | IUS2.56/9.5 |
| 1 | H2 | HU310-2 |
| 1 | H3 | HUS1.81/10 |



FROM PLAN DATED: OCT 2017

BUILDER: GREENPARK HOMES

SITE: SECONDO VALES ESTATES

MODEL: HOLLAND 8E

ELEVATION: 1

LOT:

CITY: EAST GWILLIMBURY

SALESMAN: M D

DESIGNER: AJ

REVISION: lbv

NOTES:

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

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

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

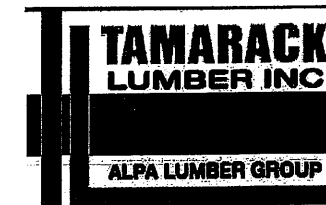
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2017-11-24

1st FLOOR



FROM PLAN DATED: OCT 2017

BUILDER: GREENPARK HOMES

SITE: SECONDO VALES ESTATES

MODEL: HOLLAND 8E

ELEVATION: 1

LOT:

CITY: EAST GWILLIMBURY

SALESMAN: M D

DESIGNER: AJ

REVISION: lbv

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

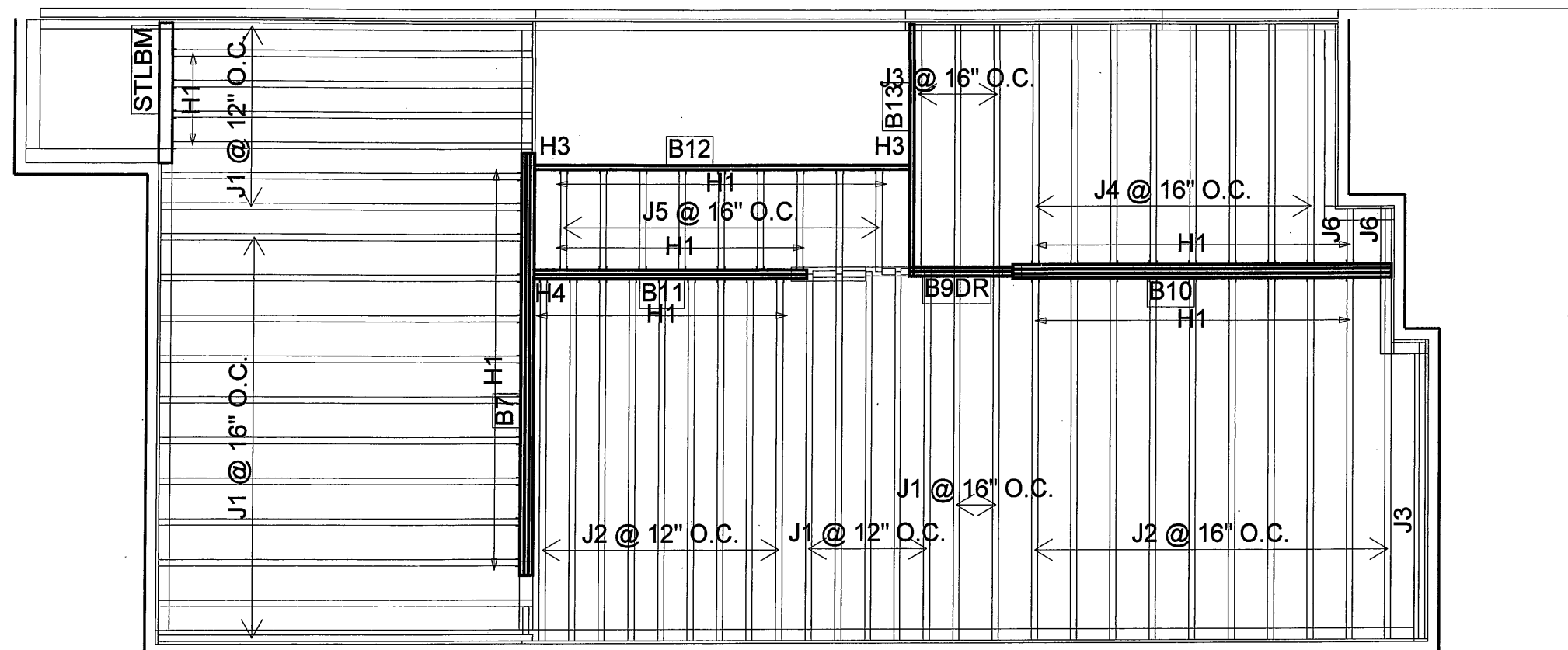
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-01-20

2nd FLOOR



| Products | | | | | Connector Summary | | |
|----------|----------|--|-------|---------|-------------------|-------|-------------|
| PlotID | Length | Product | Plies | Net Qty | Qty | Manuf | Product |
| J1 | 14-00-00 | 9 1/2" NI-40x | 1 | 25 | 9 | H1 | IUS2.56/9.5 |
| J2 | 12-00-00 | 9 1/2" NI-40x | 1 | 19 | 16 | H1 | IUS2.56/9.5 |
| J3 | 10-00-00 | 9 1/2" NI-40x | 1 | 4 | 29 | H1 | IUS2.56/9.5 |
| J4 | 8-00-00 | 9 1/2" NI-40x | 1 | 8 | 4 | H1 | IUS2.56/9.5 |
| J5 | 4-00-00 | 9 1/2" NI-40x | 1 | 9 | 1 | H3 | HUS1.81/10 |
| J6 | 2-00-00 | 9 1/2" NI-40x | 1 | 2 | 1 | H3 | HUS1.81/10 |
| B12 | 14-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 | 1 | H4 | HGUS410 |
| B10 | 14-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 3 | 3 | | | |
| B7 | 14-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 3 | 3 | | | |
| B13 | 10-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 1 | 1 | | | |
| B11 | 10-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2 | 2 | | | |
| B9DR | 4-00-00 | 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP | 2 | 2 | | | |

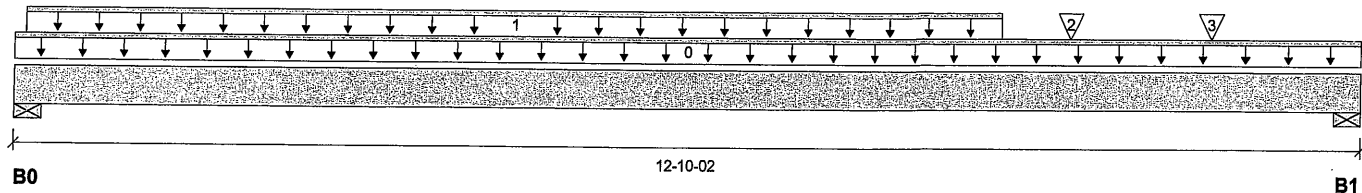
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

January 20, 2018 10:23:52

Job name:
Address:
City, Province, Postal Code: EAS...URY
Customer:
Code reports: CCMC 12472-R

File name: HOLLAND 8E.mmdl
Description: 1st Floor\Flush Beams\B10(i2159)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 12-10-02

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|-----------|-----------|------|------|
| B0, 3-1/2" | 2,522 / 0 | 1,036 / 0 | | |
| B1, 4-3/8" | 2,149 / 0 | 897 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Tributary |
|-----|---------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-----------|
| 0 | Self-Weight | Unf. Lin. (lb/ft) | L | 00-00-00 | 12-10-02 | | 14 | | | 00-00-00 |
| 1 | Smoothed Load | Unf. Lin. (lb/ft) | L | 00-01-04 | 09-05-04 | 405 | 152 | | | n/a |
| 2 | - | Conc. Pt. (lbs) | L | 10-01-04 | 10-01-04 | 522 | 195 | | | n/a |
| 3 | - | Conc. Pt. (lbs) | L | 11-05-04 | 11-05-04 | 369 | 138 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand/ Resistance | Case | Location |
|-----------------------|-----------------|---------------------|-----------------------|------|----------|
| Pos. Moment | 15,329 ft-lbs | 36,222 ft-lbs | 42.3% | 1 | 06-01-04 |
| End Shear | 4,639 lbs | 17,356 lbs | 26.7% | 1 | 01-01-00 |
| Total Load Deflection | L/382 (0.387") | n/a | 62.9% | 4 | 06-05-04 |
| Live Load Deflection | L/538 (0.275") | n/a | 66.9% | 5 | 06-05-04 |
| Max Defl. | 0.387" | n/a | n/a | 4 | 06-05-04 |
| Span / Depth | 15.6 | | | | |

| Bearing Supports | Dim. (LxW) | Demand | Demand/ Resistance Support | Demand/ Resistance Member | Material |
|------------------|----------------------------|-----------|----------------------------------|---------------------------------|-------------|
| B0 | Wall/Plate 3-1/2" x 5-1/4" | 5,077 lbs | 64.7% | 22.6% | Unspecified |
| B1 | Wall/Plate 4-3/8" x 5-1/4" | 4,345 lbs | 44.3% | 15.5% | Unspecified |

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
CONFORMS TO OBC 2012
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Nailing schedule applies to both sides of the member.



BC CALC® Design Report
Build 6215

1st Floor\Flush Beams\B10(i2159)

Dry | 1 span | No cant.

January 20, 2018 10:23:52

Job name:

File name: HOLLAND 8E.mmdl

Address:

Description: 1st Floor\Flush Beams\B10(i2159)

City, Province, Postal Code: EAS...URY

Specifier:

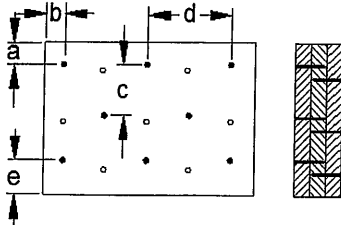
Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Connection Diagram



a minimum = 2"
b minimum = 3"

c = 2-1/4"
d = 4"
e minimum = 3"

Calculated Side Load = 441.9 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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



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

DWG NO. TAM 5396-18 P02
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i1980)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:05

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

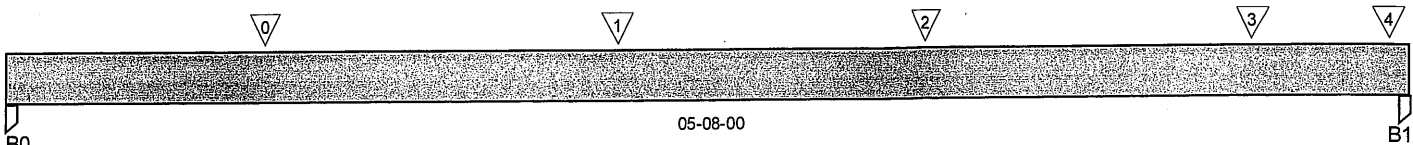
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1980)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B0, 1-3/4" | 684 / 0 | 368 / 0 | | |
| B1, 3-1/2" | 855 / 0 | 468 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|-------------|-----------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | J2(i1963) | Conc. Pt. (lbs) | L | 01-00-08 | 01-00-08 | 378 | 189 | | | n/a |
| 1 | J2DJ(i2037) | Conc. Pt. (lbs) | L | 02-05-08 | 02-05-08 | 405 | 202 | | | n/a |
| 2 | J2(i2147) | Conc. Pt. (lbs) | L | 03-08-08 | 03-08-08 | 372 | 186 | | | n/a |
| 3 | J2(i2072) | Conc. Pt. (lbs) | L | 05-00-08 | 05-00-08 | 384 | 192 | | | n/a |
| 4 | E1(i510) | Conc. Pt. (lbs) | L | 05-07-00 | 05-07-00 | | 13 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 2,357 ft-lbs | 25,408 ft-lbs | 9.3% | 1 | 02-05-08 |
| End Shear | 1,476 lbs | 11,571 lbs | 12.8% | 1 | 00-11-04 |
| Total Load Defl. | L/999 (0.017") | n/a | n/a | 4 | 02-09-04 |
| Live Load Defl. | L/999 (0.011") | n/a | n/a | 5 | 02-09-04 |
| Max Defl. | 0.017" | n/a | n/a | 4 | 02-09-04 |
| Span / Depth | 6.8 | n/a | n/a | | 00-00-00 |

Bearing Supports

| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|---------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Post | 1-3/4" x 3-1/2" | 1,487 lbs | 29.9% | 19.9% | Unspecified |
| B1 Post | 3-1/2" x 3-1/2" | 1,867 lbs | 18.8% | 12.5% | Unspecified |

Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



P612



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i1980)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:05

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports:

CCMC 12472-R

File Name: HOLLAND 8E.mmdl

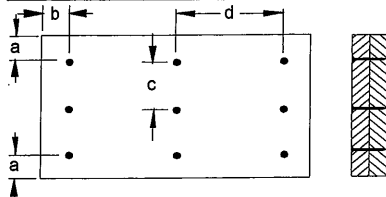
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i1980)

Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram

a minimum = 2" c = 2-3/4"
 b minimum = 3" d = 4"

Calculated Side Load = 577.0 lb/ft

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

Connectors are: 16d Nails

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

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B2(i2022)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:04

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports:

CCMC 12472-R

File Name: HOLLAND 8E.mmdl

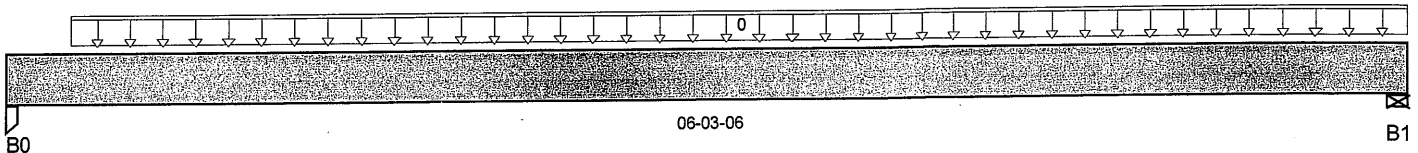
Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2022)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 06-03-06

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|--------|--------|------|------|
| B0, 3-1/2" | 21 / 0 | 26 / 0 | | |
| B1, 2-3/8" | 23 / 0 | 26 / 0 | | |

Load Summary

| Tag Description | Load Type | Ref. | Start | End | Live | Dead | Snow | Wind | Trib. |
|----------------------|-------------------|------|----------|----------|------|------|------|------|-------|
| 0 FC1 Floor Material | Unf. Lin. (lb/ft) | L | 00-03-08 | 06-03-06 | 7 | 4 | | | n/a |

| Controls Summary | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 94 ft-lbs | 12,704 ft-lbs | 0.7% | 1 | 03-02-04 |
| End Shear | 45 lbs | 5,785 lbs | 0.8% | 1 | 01-01-00 |
| Total Load Defl. | L/999 (0.002") | n/a | n/a | 4 | 03-02-04 |
| Live Load Defl. | L/999 (0.001") | n/a | n/a | 5 | 03-02-04 |
| Max Defl. | 0.002" | n/a | n/a | 4 | 03-02-04 |
| Span / Depth | 7.5 | n/a | n/a | | 00-00-00 |

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

| Bearing Supports | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|------------------|-----------------|--------|-----------------------------|----------------------------|-------------|
| B0 Post | 3-1/2" x 1-3/4" | 64 lbs | 1.3% | 0.9% | Unspecified |
| B1 Wall/Plate | 2-3/8" x 1-3/4" | 67 lbs | 3% | 1.3% | 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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B3(i2099)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:06

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

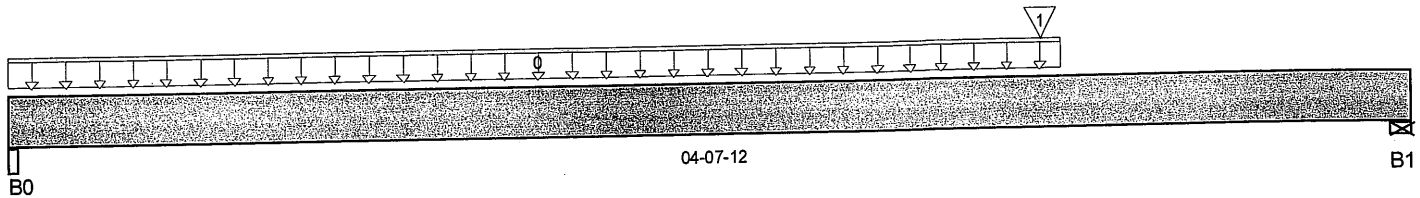
Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2099)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 04-07-12

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B0, 2-3/4" | 237 / 0 | 132 / 0 | | |
| B1, 3-1/2" | 466 / 0 | 251 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|--------------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | FC1 Floor Material | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-06-00 | 53 | 27 | | | n/a |
| 1 | B4(i1978) | Conc. Pt. (lbs) | L | 03-05-02 | 03-05-02 | 516 | 267 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 996 ft-lbs | 12,704 ft-lbs | 7.8% | 1 | 03-05-02 |
| End Shear | 1,006 lbs | 5,785 lbs | 17.4% | 1 | 03-06-12 |
| Total Load Defl. | L/999 (0.008") | n/a | n/a | 4 | 02-05-06 |
| Live Load Defl. | L/999 (0.005") | n/a | n/a | 5 | 02-05-06 |
| Max Defl. | 0.008" | n/a | n/a | 4 | 02-05-06 |
| Span / Depth | 5.4 | n/a | n/a | | 00-00-00 |

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

Bearing Supports

| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|---------------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Beam | 2-3/4" x 1-3/4" | 520 lbs | 20.2% | 8.9% | Unspecified |
| B1 Wall/Plate | 3-1/2" x 1-3/4" | 1,012 lbs | 31% | 13.5% | Unspecified |

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.





Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B4(i1978)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:05

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

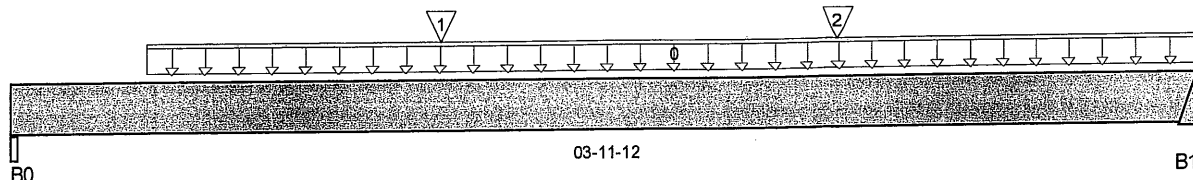
Description: Designs\Flush Beams\Basement\Flush Beams\B4(i1978)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 03-11-12

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B0, 5-1/2" | 495 / 0 | 258 / 0 | | |
| B1 | 531 / 0 | 275 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|-------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | STAIR | Unf. Lin. (lb/ft) | L | 00-05-08 | 03-11-12 | 240 | 120 | | | n/a |
| 1 | J6(i2152) | Conc. Pt. (lbs) | L | 01-05-04 | 01-05-04 | 87 | 44 | | | n/a |
| 2 | J6(i2108) | Conc. Pt. (lbs) | L | 02-09-04 | 02-09-04 | 91 | 46 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 986 ft-lbs | 12,704 ft-lbs | 7.8% | 1 | 02-01-12 |
| End Shear | 649 lbs | 5,785 lbs | 11.2% | 1 | 01-03-00 |
| Total Load Defl. | L/999 (0.006") | n/a | n/a | 4 | 02-01-12 |
| Live Load Defl. | L/999 (0.004") | n/a | n/a | 5 | 02-01-12 |
| Max Defl. | 0.006" | n/a | n/a | 4 | 02-01-12 |
| Span / Depth | 4.4 | n/a | n/a | | 00-00-00 |

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

Bearing Supports

| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|-----------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Beam | 5-1/2" x 1-3/4" | 1,065 lbs | 20.7% | 9.1% | Unspecified |
| B1 Hanger | 2" x 1-3/4" | 1,140 lbs | n/a | 26.7% | HUS1.81/10 |

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWG NO. TAM 5400-18
STRUCTURAL
COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B5(i1996)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:06

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports:

CCMC 12472-R

File Name: HOLLAND 8E.mmdl

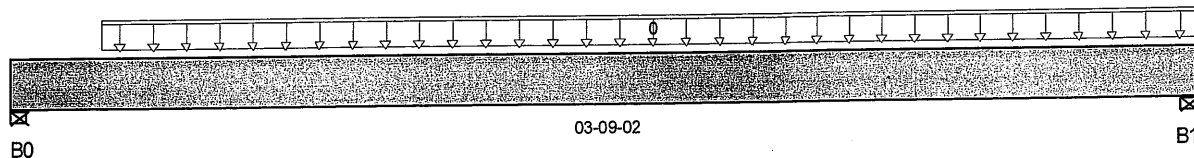
Description: Designs\Flush Beams\Basement\Flush Beams\B5(i1996)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 03-09-02

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|--------|--------|------|------|
| B0, 3-1/2" | 14 / 0 | 16 / 0 | | |
| B1, 2-3/8" | 16 / 0 | 17 / 0 | | |

Load Summary

| Tag Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|----------------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 FC1 Floor Material | Unf. Lin. (lb/ft) | L | 00-03-08 | 03-09-02 | 9 | 4 | | | n/a |

| Controls Summary | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 35 ft-lbs | 12,704 ft-lbs | 0.3% | 1 | 01-11-02 |
| End Shear | 21 lbs | 5,785 lbs | 0.4% | 1 | 01-01-00 |
| Total Load Defl. | L/999 (0") | n/a | n/a | 4 | 01-11-02 |
| Live Load Defl. | L/999 (0") | n/a | n/a | 5 | 01-11-02 |
| Max Defl. | 0" | n/a | n/a | 4 | 01-11-02 |
| Span / Depth | 4.3 | n/a | n/a | | 00-00-00 |

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

| Bearing Supports | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|------------------|-----------------|--------|-----------------------------|----------------------------|-------------|
| B0 Wall/Plate | 3-1/2" x 1-3/4" | 42 lbs | 1.3% | 0.6% | Unspecified |
| B1 Wall/Plate | 2-3/8" x 1-3/4" | 45 lbs | 2% | 0.9% | Unspecified |

Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

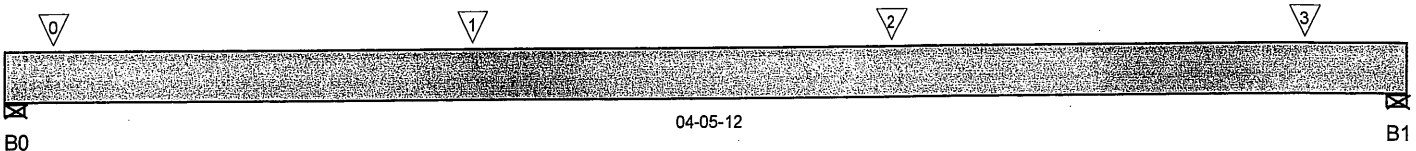


BC CALC® Design Report



Build 5033
Job Name:
Address:
City, Province, Postal Code: EAST GWILLIMBURY,
Customer:
Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl
Description: Designs\Flush Beams\Basement\Flush Beams\B6(i2151)
Specifier:
Designer: AJ
Company:
Misc:



Total Horizontal Product Length = 04-05-12

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|-----------|---------|------|------|
| B0, 2-3/8" | 1,114 / 0 | 582 / 0 | | |
| B1, 2-3/8" | 721 / 0 | 382 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|-------------|-----------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | J2(i2077) | Conc. Pt. (lbs) | L | 00-01-14 | 00-01-14 | 627 | 317 | | | n/a |
| 1 | - | Conc. Pt. (lbs) | L | 01-05-14 | 01-05-14 | 452 | 226 | | | n/a |
| 2 | - | Conc. Pt. (lbs) | L | 02-09-14 | 02-09-14 | 452 | 226 | | | n/a |
| 3 | - | Conc. Pt. (lbs) | L | 04-01-14 | 04-01-14 | 297 | 148 | | | n/a |

Controls Summary

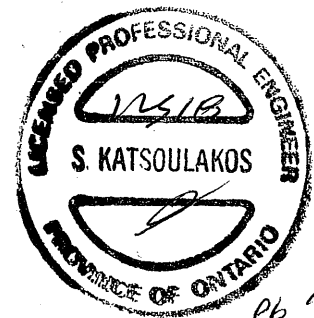
| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 1,513 ft-lbs | 25,408 ft-lbs | 6% | 1 | 02-09-14 |
| End Shear | 1,035 lbs | 11,571 lbs | 8.9% | 1 | 00-11-14 |
| Total Load Defl. | L/999 (0.007") | n/a | n/a | 4 | 02-02-14 |
| Live Load Defl. | L/999 (0.004") | n/a | n/a | 5 | 02-02-14 |
| Max Defl. | 0.007" | n/a | n/a | 4 | 02-02-14 |
| Span / Depth | 5.3 | n/a | n/a | | 00-00-00 |

| Bearing Supports | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|------------------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Wall/Plate | 2-3/8" x 3-1/2" | 2,399 lbs | 54% | 23.7% | Unspecified |
| B1 Wall/Plate | 2-3/8" x 3-1/2" | 1,558 lbs | 35.1% | 15.4% | Unspecified |

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



P6 1/2



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B6(i2151)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:06

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

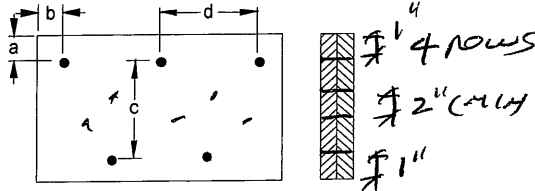
Description: Designs\Flush Beams\Basement\Flush Beams\B6(i215

Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram

a minimum = 0" c = 1-1/2"
 b minimum = 3" d = 4"

Calculated Side Load = 724.5 lb/ft

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

Connectors are: 16d ^{common} Nails**3-1/2" ARDOX SPIRAL****Disclosure**

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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DWG NO. TAM 5402-18
 STRUCTURAL
 COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP Basement\...\B6DR(i2157)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 10:15:58

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

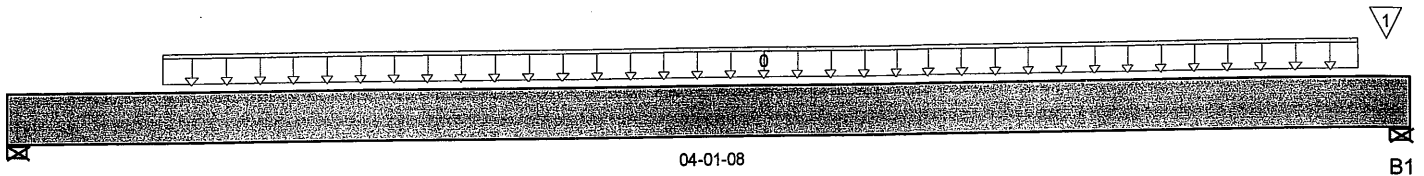
Description: Designs\Dropped Beams\Basement\Dropped Beams\B6D

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 04-01-08

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B0, 5-1/2" | 423 / 0 | 222 / 0 | | |
| B1, 1-3/4" | 874 / 0 | 464 / 0 | | |

Load Summary

| Tag Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 STAIR | Unf. Lin. (lb/ft) | L | 00-05-08 | 03-11-12 | 240 | 120 | | | n/a |
| 1 B3(i2155) | Conc. Pt. (lbs) | L | 04-00-10 | 04-00-10 | 452 | 244 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 856 ft-lbs | 10,549 ft-lbs | 8.1% | 1 | 02-02-10 |
| End Shear | 500 lbs | 5,785 lbs | 8.6% | 1 | 01-03-00 |
| Total Load Defl. | L/999 (0.006") | n/a | n/a | 4 | 02-02-10 |
| Live Load Defl. | L/999 (0.004") | n/a | n/a | 5 | 02-02-10 |
| Max Defl. | 0.006" | n/a | n/a | 4 | 02-02-10 |
| Span / Depth | 4.6 | n/a | n/a | | 00-00-00 |

Disclosure

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Bearing Supports

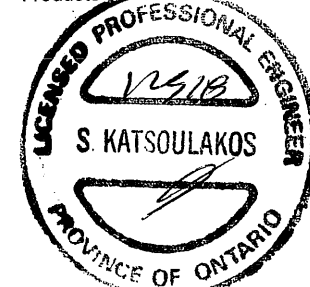
| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|---------------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Wall/Plate | 5-1/2" x 1-3/4" | 911 lbs | 11.7% | 7.8% | Unspecified |
| B1 Wall/Plate | 1-3/4" x 1-3/4" | 1,892 lbs | 76.1% | 50.6% | Unspecified |

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 03-06-04, Bottom: 03-06-04.
 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 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWG NO. TAM5403-18
 STRUCTURAL
 COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B7(i2015)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:03:51

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

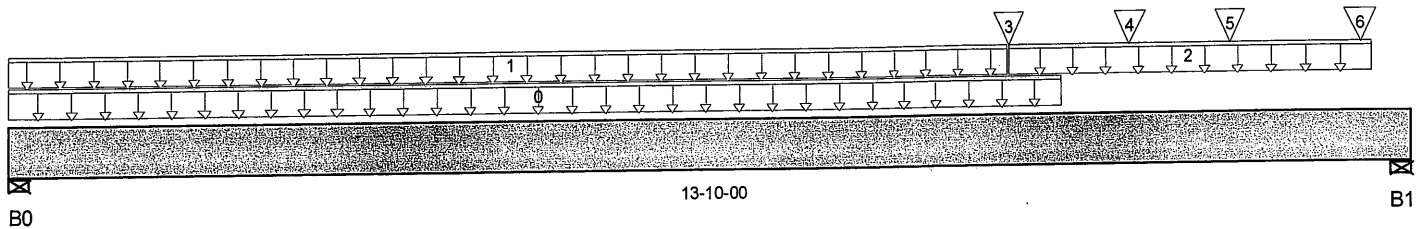
Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i2015)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 13-10-00

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|-----------|-----------|------|------|
| B0, 5-1/2" | 2,248 / 0 | 957 / 0 | | |
| B1, 4-1/2" | 3,853 / 0 | 1,694 / 0 | | |

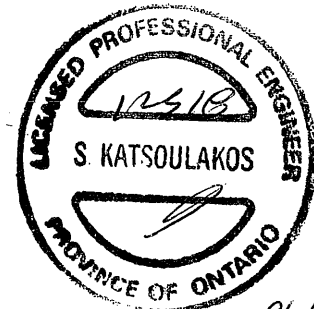
Load Summary

| Tag Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|----------------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 Smoothed Load | Unf. Lin. (lb/ft) | L | 00-00-00 | 10-05-00 | 253 | 95 | | | n/a |
| 1 FC2 Floor Material | Unf. Lin. (lb/ft) | L | 00-00-00 | 09-10-08 | 11 | 4 | | | n/a |
| 2 FC2 Floor Material | Unf. Lin. (lb/ft) | L | 09-10-08 | 13-05-08 | 24 | 9 | | | n/a |
| 3 B11(i2000) | Conc. Pt. (lbs) | L | 09-10-08 | 09-10-08 | 1,323 | 537 | | | n/a |
| 4 J1(i2027) | Conc. Pt. (lbs) | L | 11-01-00 | 11-01-00 | 289 | 108 | | | n/a |
| 5 J1(i2048) | Conc. Pt. (lbs) | L | 12-01-00 | 12-01-00 | 247 | 93 | | | n/a |
| 6 - | Conc. Pt. (lbs) | L | 13-04-00 | 13-04-00 | 1,405 | 648 | | | n/a |

| Controls Summary | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 17,051 ft-lbs | 39,636 ft-lbs | 43% | 1 | 08-05-00 |
| End Shear | 5,370 lbs | 17,356 lbs | 30.9% | 1 | 12-08-00 |
| Total Load Defl. | L/323 (0.488") | 0.656" | 74.4% | 4 | 07-01-00 |
| Live Load Defl. | L/460 (0.343") | 0.438" | 78.3% | 5 | 07-01-00 |
| Max Defl. | 0.488" | n/a | n/a | 4 | 07-01-00 |
| Span / Depth | 16.6 | n/a | n/a | | 00-00-00 |

| Bearing Supports | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|------------------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Wall/Plate | 5-1/2" x 5-1/4" | 4,568 lbs | 29.6% | 13% | Unspecified |
| B1 Wall/Plate | 4-1/2" x 5-1/4" | 7,898 lbs | 62.6% | 27.4% | Unspecified |

Notes



DWG NO. TAM 5404-18
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B7(i2015)

Dry | 1 span | No cantilevers | 0/12 slope(deg)

November 24, 2017 09:03:51

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i2015

Specifier:

Designer: AJ

Company:

Misc:

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.

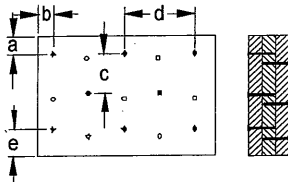
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 2" c = 2-1/4"
b minimum = 3" d = 6"
e minimum = 3"

Calculated Side Load = 487.5 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails



3-1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALO®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWG NO. TAM 5404-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B9DR(i2080)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:04:01

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

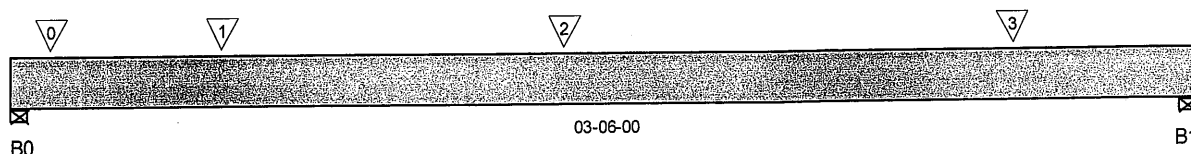
Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9D

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 03-06-00

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|---------|-----------|---------|------|------|
| B0, 6" | 1,072 / 0 | 465 / 0 | | |
| B1, 4" | 705 / 0 | 281 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|-------------|-----------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | - | Conc. Pt. (lbs) | L | 00-01-08 | 00-01-08 | 515 | 239 | | | n/a |
| 1 | J1 (i2059) | Conc. Pt. (lbs) | L | 00-07-08 | 00-07-08 | 238 | 89 | | | n/a |
| 2 | - | Conc. Pt. (lbs) | L | 01-07-08 | 01-07-08 | 492 | 185 | | | n/a |
| 3 | - | Conc. Pt. (lbs) | L | 02-11-08 | 02-11-08 | 532 | 200 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 844 ft-lbs | 25,408 ft-lbs | 3.3% | 1 | 01-07-08 |
| End Shear | 708 lbs | 11,571 lbs | 6.1% | 1 | 01-03-08 |
| Total Load Defl. | L/999 (0.001") | n/a | n/a | 4 | 01-09-12 |
| Live Load Defl. | L/999 (0.001") | n/a | n/a | 5 | 01-09-12 |
| Max Defl. | 0.001" | n/a | n/a | 4 | 01-09-12 |
| Span / Depth | 3.5 | n/a | n/a | | 00-00-00 |

Bearing Supports

| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|---------------|--------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Wall/Plate | 6" x 3-1/2" | 2,189 lbs | 12.8% | 8.5% | Unspecified |
| B1 Wall/Plate | 4" x 3-1/2" | 1,410 lbs | 12.4% | 8.3% | Unspecified |

Notes

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

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

Calculations assume unbraced length of Top: 00-02-09, Bottom: 00-02-09.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012





BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

Description: Designs\Dropped Beams\1st Floor\Dropped Beams\B9

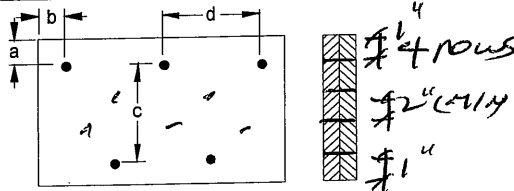
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



a minimum = 4" c = 3-1/2"
b minimum = 3" d = 4"

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

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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per

DWG NO. TAM 5405-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i2000)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:03:54

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

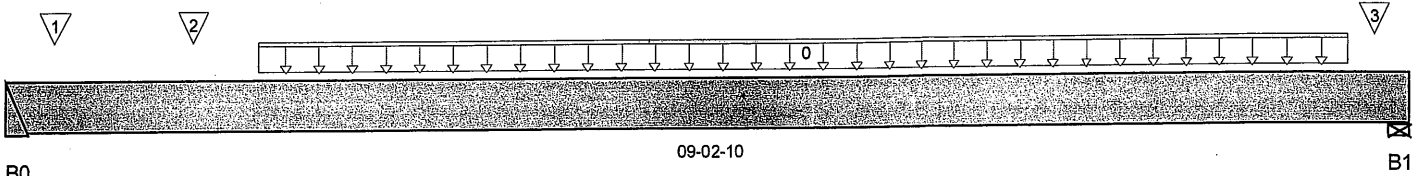
Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2000)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 09-02-10

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|-----------|---------|------|------|
| B0 | 1,336 / 0 | 543 / 0 | | |
| B1, 6-1/4" | 1,419 / 0 | 577 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|---------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | Smoothed Load | Unf. Lin. (lb/ft) | L | 01-07-14 | 08-09-14 | 299 | 112 | | | n/a |
| 1 | J2(i1987) | Conc. Pt. (lbs) | L | 00-03-14 | 00-03-14 | 184 | 69 | | | n/a |
| 2 | - | Conc. Pt. (lbs) | L | 01-02-12 | 01-02-12 | 329 | 123 | | | n/a |
| 3 | J5(i1957) | Conc. Pt. (lbs) | L | 08-11-14 | 08-11-14 | 96 | 36 | | | n/a |

| Controls Summary | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 5,846 ft-lbs | 25,408 ft-lbs | 23% | 1 | 04-03-14 |
| End Shear | 2,398 lbs | 11,571 lbs | 20.7% | 1 | 07-10-14 |
| Total Load Defl. | L/999 (0.11") | n/a | n/a | 4 | 04-05-14 |
| Live Load Defl. | L/999 (0.078") | n/a | n/a | 5 | 04-05-14 |
| Max Defl. | 0.11" | n/a | n/a | 4 | 04-05-14 |
| Span / Depth | 10.9 | n/a | n/a | | 00-00-00 |

| Bearing Supports | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|------------------|-----------------|-----------|-----------------------------|----------------------------|-------------|
| B0 Hanger | 2" x 3-1/2" | 2,683 lbs | n/a | 31.4% | HGUS410 |
| B1 Wall/Plate | 6-1/4" x 3-1/2" | 2,849 lbs | 24.4% | 10.7% | Unspecified |

Notes

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

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

Calculations assume member is fully braced.

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 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012



pg 1/2



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\...\B11(i2000)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:03:54

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B11(i2000)

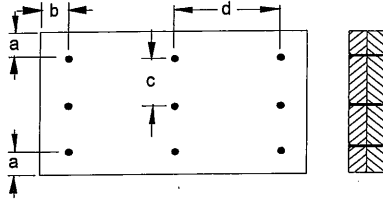
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



a minimum = 2" c = 2-3/4"
b minimum = 3" d = 6"

Calculated Side Load = 445.6 lb/ft

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

Connectors are: 16d Box Nails

3-1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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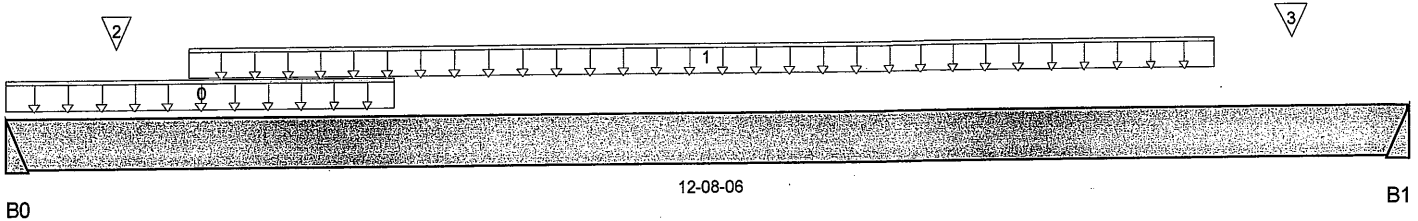
DWG NO. TAM 5406-13
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033
Job Name:
Address:
City, Province, Postal Code: EAST GWILLIMBURY,
Customer:
Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl
Description: Designs\Flush Beams\1st Floor\Flush Beams\B12(i2139)
Specifier:
Designer: AJ
Company:
Misc:



Total Horizontal Product Length = 12-08-06

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|---------|-----------|---------|------|------|
| B0 | 1,163 / 0 | 559 / 0 | | |
| B1 | 535 / 0 | 245 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|---------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | STAIR | Unf. Lin. (lb/ft) | L | 00-00-00 | 03-06-06 | 240 | 120 | | | n/a |
| 1 | Smoothed Load | Unf. Lin. (lb/ft) | L | 01-07-14 | 10-11-14 | 72 | 27 | | | n/a |
| 2 | J5(i2079) | Conc. Pt. (lbs) | L | 00-11-14 | 00-11-14 | 91 | 34 | | | n/a |
| 3 | J5(i1984) | Conc. Pt. (lbs) | L | 11-07-14 | 11-07-14 | 88 | 33 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 4,586 ft-lbs | 12,704 ft-lbs | 36.1% | 1 | 04-11-14 |
| End Shear | 1,949 lbs | 5,785 lbs | 33.7% | 1 | 00-11-08 |
| Total Load Defl. | L/413 (0.363") | 0.624" | 58.1% | 4 | 05-11-14 |
| Live Load Defl. | L/604 (0.248") | 0.416" | 59.6% | 5 | 05-11-14 |
| Max Defl. | 0.363" | n/a | n/a | 4 | 05-11-14 |
| Span / Depth | 15.8 | n/a | n/a | | 00-00-00 |

Bearing Supports

| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|-----------|--------------|-----------|-----------------------------|----------------------------|------------|
| B0 Hanger | 2" x 1-3/4" | 2,444 lbs | n/a | 57.2% | HUS1.81/10 |
| B1 Hanger | 2" x 1-3/4" | 1,110 lbs | n/a | 26% | HUS1.81/10 |

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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Boise Cascade

Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B13(i2082)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 24, 2017 10:02:13

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: EAST GWILLIMBURY,

Customer:

Code reports: CCMC 12472-R

File Name: HOLLAND 8E.mmdl

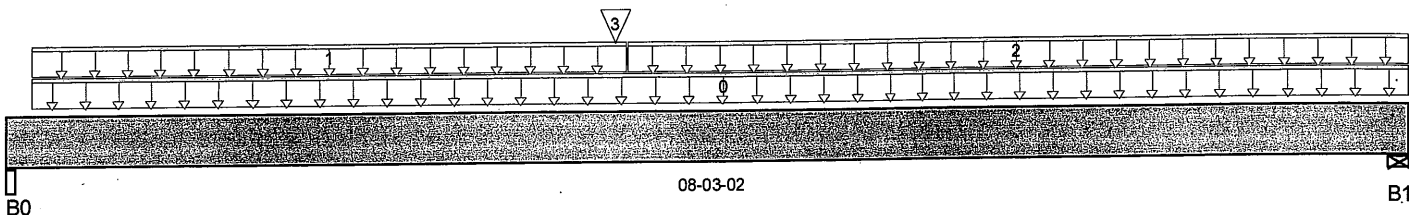
Description: Designs\Flush Beams\1st Floor\Flush Beams\B13(i2082)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 08-03-02

Reaction Summary (Down / Uplift) (lbs)

| Bearing | Live | Dead | Snow | Wind |
|------------|---------|---------|------|------|
| B0, 3-1/2" | 395 / 0 | 195 / 0 | | |
| B1, 2-3/8" | 274 / 0 | 142 / 0 | | |

Load Summary

| Tag | Description | Load Type | Ref. | Start | End | Live 1.00 | Dead 0.65 | Snow 1.00 | Wind 1.15 | Trib. |
|-----|--------------------|-------------------|------|----------|----------|--------------|--------------|--------------|--------------|-------|
| 0 | FC2 Floor Material | Unf. Lin. (lb/ft) | L | 00-01-12 | 08-03-02 | 4 | 2 | | | n/a |
| 1 | FC2 Floor Material | Unf. Lin. (lb/ft) | L | 00-01-12 | 03-07-12 | 22 | 8 | | | n/a |
| 2 | FC2 Floor Material | Unf. Lin. (lb/ft) | L | 03-07-12 | 08-03-02 | 3 | 1 | | | n/a |
| 3 | B12(i2139) | Conc. Pt. (lbs) | L | 03-06-14 | 03-06-14 | 542 | 249 | | | n/a |

Controls Summary

| | Factored Demand | Factored Resistance | Demand / Resistance | Load Case | Location |
|------------------|-----------------|---------------------|---------------------|-----------|----------|
| Pos. Moment | 2,450 ft-lbs | 12,704 ft-lbs | 19.3% | 1 | 03-06-14 |
| End Shear | 781 lbs | 5,785 lbs | 13.5% | 1 | 01-01-00 |
| Total Load Defl. | L/999 (0.063") | n/a | n/a | 4 | 03-11-13 |
| Live Load Defl. | L/999 (0.042") | n/a | n/a | 5 | 03-11-13 |
| Max Defl. | 0.063" | n/a | n/a | 4 | 03-11-13 |
| Span / Depth | 10 | n/a | n/a | | 00-00-00 |

Bearing Supports

| | Dim. (L x W) | Demand | Demand / Resistance Support | Demand / Resistance Member | Material |
|---------------|-----------------|---------|-----------------------------|----------------------------|-------------|
| B0 Beam | 3-1/2" x 1-3/4" | 837 lbs | 12.5% | 11.2% | Unspecified |
| B1 Wall/Plate | 2-3/8" x 1-3/4" | 587 lbs | 26.5% | 11.6% | Unspecified |

Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

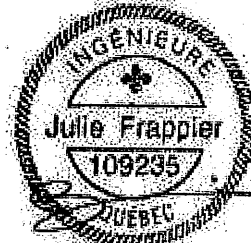
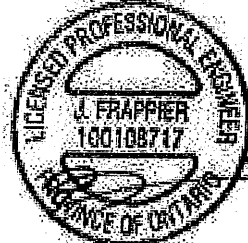
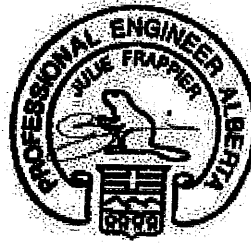
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Maximum Floor Spans

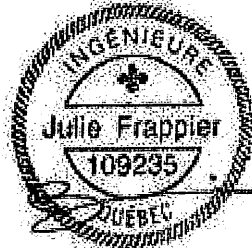
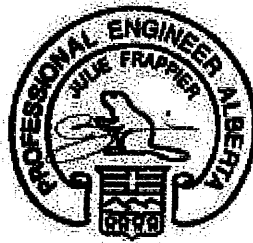
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



| 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.



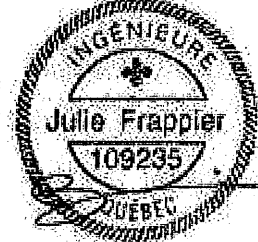
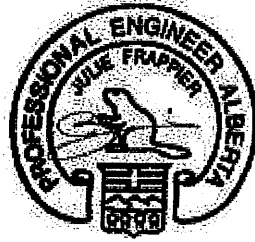
Maximum Floor Spans

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" |
| | NI-90x | 21'-8" | 20'-0" | 19'-1" | 18'-0" | 22'-2" | 20'-6" | 19'-6" | 18'-6" |
| 14" | 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" |
| | NI-90x | 24'-1" | 22'-3" | 21'-2" | 20'-0" | 24'-8" | 22'-10" | 21'-9" | 20'-7" |
| 16" | NI-60 | 23'-9" | 22'-0" | 20'-11" | 19'-10" | 24'-6" | 22'-9" | 21'-8" | 20'-6" |
| | NI-70 | 25'-1" | 23'-2" | 22'-0" | 20'-10" | 25'-9" | 23'-10" | 22'-9" | 21'-6" |
| | NI-80 | 25'-6" | 23'-6" | 22'-4" | 21'-2" | 26'-1" | 24'-2" | 23'-1" | 21'-10" |
| | NI-90x | 26'-4" | 24'-3" | 23'-1" | 21'-10" | 26'-11" | 24'-11" | 23'-8" | 22'-5" |

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



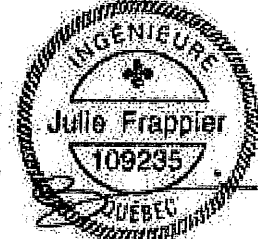
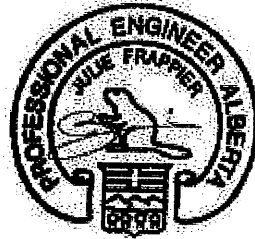
Maximum Floor Spans

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.



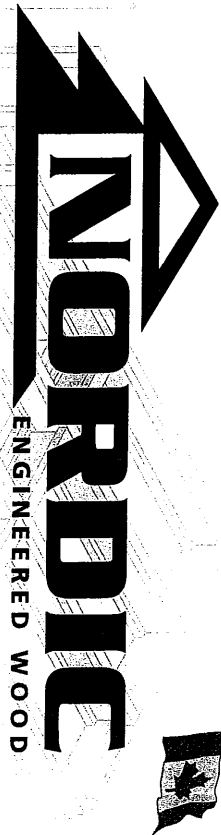
Maximum Floor Spans

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

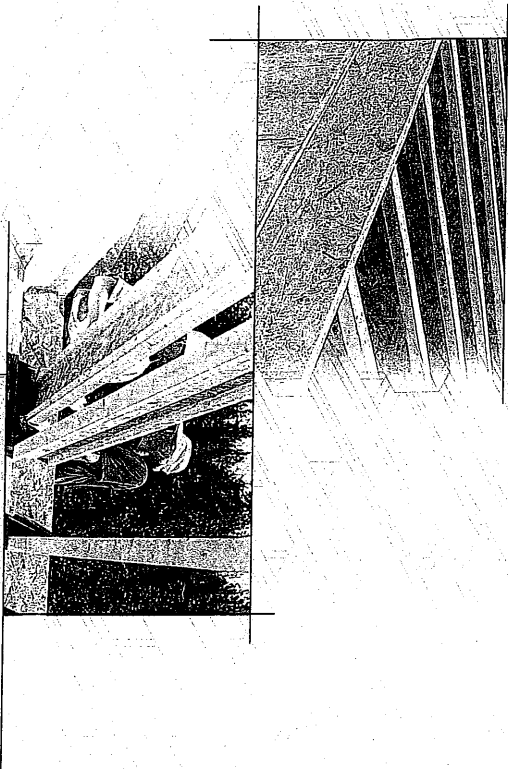
| Depth | Series | Bare | | | | 1/2" Gypsum Ceiling | | | |
|---------|--------|-------------------|---------|---------|---------|---------------------|---------|---------|---------|
| | | On Centre Spacing | | | | On Centre Spacing | | | |
| | | 12" | 16" | 19.2" | 24" | 12" | 16" | 19.2" | 24" |
| 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" |
| | NI-90x | 21'-8" | 20'-0" | 19'-1" | 18'-0" | 22'-2" | 20'-6" | 19'-6" | 18'-6" |
| 14" | 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" |
| | NI-90x | 24'-1" | 22'-3" | 21'-2" | 20'-0" | 24'-8" | 22'-10" | 21'-9" | 20'-7" |
| 16" | 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" |
| | NI-90x | 24'-3" | 22'-6" | 21'-3" | 19'-7" | 24'-8" | 22'-7" | 21'-3" | 19'-7" |
| 14" | 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" |
| | NI-90x | 27'-3" | 25'-4" | 24'-1" | 22'-4" | 27'-9" | 25'-10" | 24'-3" | 22'-4" |
| 16" | 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" |

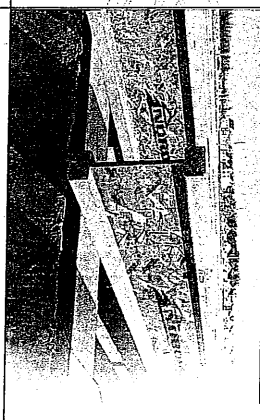
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- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 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.



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

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:

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



1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.

2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.

■ Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.

■ Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.

3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.

4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.

5. Never install a damaged I-joist.

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



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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.

2. Store, stack, and handle I-joists vertically and level only.

3. Always stack and handle I-joists in the upright position only.

4. Do not store I-joists in direct contact with the ground and/or flatwise.

5. Protect I-joists from weather, and use spacers to separate bundles.

6. Bundled units should be kept intact until time of installation.

7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.

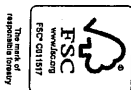
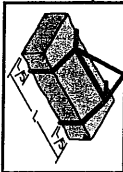
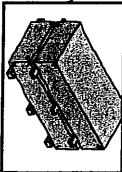
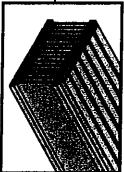
■ Pick I-joists in bundles as shipped by the supplier.

■ Orient the bundles so that the webs of the I-joists are vertical.

■ Pick the bundles at the 5th points, using a spreader bar if necessary.

8. Do not handle I-joists in a horizontal orientation.

9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-rolled oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

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

| Joist Depth | Joist Series | Simple spans | | | | Multiple spans | | | |
|-------------|--------------|--------------|--------|--------|--------|----------------|--------|--------|--------|
| | | 12" | 16" | 19.2" | 24" | 12" | 16" | 19.2" | 24" |
| 12" | NI-20 | 15.1' | 14.2' | 13.9' | 13.5' | 13.1' | 12.5' | 12.1' | 11.7' |
| 12" | NI-25 | 15.2' | 14.3' | 14.0' | 13.6' | 13.2' | 12.6' | 12.2' | 11.8' |
| 12" | NI-30 | 16.3' | 15.4' | 15.1' | 14.7' | 14.3' | 13.7' | 13.3' | 12.9' |
| 12" | NI-35 | 17.4' | 16.5' | 16.2' | 15.8' | 15.4' | 14.8' | 14.4' | 14.0' |
| 12" | NI-40 | 18.5' | 17.6' | 17.3' | 16.9' | 16.5' | 15.9' | 15.5' | 15.1' |
| 12" | NI-45 | 19.6' | 18.7' | 18.4' | 18.0' | 17.6' | 17.0' | 16.6' | 16.2' |
| 12" | NI-50 | 20.7' | 19.8' | 19.5' | 19.1' | 18.7' | 18.1' | 17.7' | 17.3' |
| 12" | NI-55 | 21.8' | 20.9' | 20.6' | 20.2' | 19.8' | 19.2' | 18.8' | 18.4' |
| 12" | NI-60 | 22.9' | 22.0' | 21.7' | 21.3' | 20.9' | 20.3' | 19.9' | 19.5' |
| 12" | NI-65 | 24.0' | 23.1' | 22.8' | 22.4' | 22.0' | 21.4' | 21.0' | 20.6' |
| 12" | NI-70 | 25.1' | 24.2' | 23.9' | 23.5' | 23.1' | 22.5' | 22.1' | 21.7' |
| 12" | NI-75 | 26.2' | 25.3' | 25.0' | 24.6' | 24.2' | 23.6' | 23.2' | 22.8' |
| 12" | NI-80 | 27.3' | 26.4' | 26.1' | 25.7' | 25.3' | 24.7' | 24.3' | 23.9' |
| 12" | NI-85 | 28.4' | 27.5' | 27.2' | 26.8' | 26.4' | 25.8' | 25.4' | 25.0' |
| 12" | NI-90 | 29.5' | 28.6' | 28.3' | 27.9' | 27.5' | 26.9' | 26.5' | 26.1' |
| 12" | NI-95 | 30.6' | 29.7' | 29.4' | 29.0' | 28.6' | 28.0' | 27.6' | 27.2' |
| 12" | NI-100 | 31.7' | 30.8' | 30.5' | 30.1' | 29.7' | 29.1' | 28.7' | 28.3' |
| 12" | NI-105 | 32.8' | 31.9' | 31.6' | 31.2' | 30.8' | 30.2' | 29.8' | 29.4' |
| 12" | NI-110 | 33.9' | 33.0' | 32.7' | 32.3' | 31.9' | 31.3' | 30.9' | 30.5' |
| 12" | NI-115 | 35.0' | 34.1' | 33.8' | 33.4' | 33.0' | 32.4' | 32.0' | 31.6' |
| 12" | NI-120 | 36.1' | 35.2' | 34.9' | 34.5' | 34.1' | 33.5' | 33.1' | 32.7' |
| 12" | NI-125 | 37.2' | 36.3' | 36.0' | 35.6' | 35.2' | 34.6' | 34.2' | 33.8' |
| 12" | NI-130 | 38.3' | 37.4' | 37.1' | 36.7' | 36.3' | 35.7' | 35.3' | 34.9' |
| 12" | NI-135 | 39.4' | 38.5' | 38.2' | 37.8' | 37.4' | 36.8' | 36.4' | 36.0' |
| 12" | NI-140 | 40.5' | 39.6' | 39.3' | 38.9' | 38.5' | 37.9' | 37.5' | 37.1' |
| 12" | NI-145 | 41.6' | 40.7' | 40.4' | 40.0' | 39.6' | 39.0' | 38.6' | 38.2' |
| 12" | NI-150 | 42.7' | 41.8' | 41.5' | 41.1' | 40.7' | 40.1' | 39.7' | 39.3' |
| 12" | NI-155 | 43.8' | 42.9' | 42.6' | 42.2' | 41.8' | 41.2' | 40.8' | 40.4' |
| 12" | NI-160 | 44.9' | 44.0' | 43.7' | 43.3' | 42.9' | 42.3' | 41.9' | 41.5' |
| 12" | NI-165 | 46.0' | 45.1' | 44.8' | 44.4' | 44.0' | 43.4' | 43.0' | 42.6' |
| 12" | NI-170 | 47.1' | 46.2' | 45.9' | 45.5' | 45.1' | 44.5' | 44.1' | 43.7' |
| 12" | NI-175 | 48.2' | 47.3' | 47.0' | 46.6' | 46.2' | 45.6' | 45.2' | 44.8' |
| 12" | NI-180 | 49.3' | 48.4' | 48.1' | 47.7' | 47.3' | 46.7' | 46.3' | 45.9' |
| 12" | NI-185 | 50.4' | 49.5' | 49.2' | 48.8' | 48.4' | 47.8' | 47.4' | 47.0' |
| 12" | NI-190 | 51.5' | 50.6' | 50.3' | 49.9' | 49.5' | 48.9' | 48.5' | 48.1' |
| 12" | NI-195 | 52.6' | 51.7' | 51.4' | 51.0' | 50.6' | 50.0' | 49.6' | 49.2' |
| 12" | NI-200 | 53.7' | 52.8' | 52.5' | 52.1' | 51.7' | 51.1' | 50.7' | 50.3' |
| 12" | NI-205 | 54.8' | 53.9' | 53.6' | 53.2' | 52.8' | 52.2' | 51.8' | 51.4' |
| 12" | NI-210 | 55.9' | 55.0' | 54.7' | 54.3' | 53.9' | 53.3' | 52.9' | 52.5' |
| 12" | NI-215 | 57.0' | 56.1' | 55.8' | 55.4' | 55.0' | 54.4' | 54.0' | 53.6' |
| 12" | NI-220 | 58.1' | 57.2' | 56.9' | 56.5' | 56.1' | 55.5' | 55.1' | 54.7' |
| 12" | NI-225 | 59.2' | 58.3' | 58.0' | 57.6' | 57.2' | 56.6' | 56.2' | 55.8' |
| 12" | NI-230 | 60.3' | 59.4' | 59.1' | 58.7' | 58.3' | 57.7' | 57.3' | 56.9' |
| 12" | NI-235 | 61.4' | 60.5' | 60.2' | 59.8' | 59.4' | 58.8' | 58.4' | 58.0' |
| 12" | NI-240 | 62.5' | 61.6' | 61.3' | 60.9' | 60.5' | 59.9' | 59.5' | 59.1' |
| 12" | NI-245 | 63.6' | 62.7' | 62.4' | 62.0' | 61.6' | 61.0' | 60.6' | 60.2' |
| 12" | NI-250 | 64.7' | 63.8' | 63.5' | 63.1' | 62.7' | 62.1' | 61.7' | 61.3' |
| 12" | NI-255 | 65.8' | 64.9' | 64.6' | 64.2' | 63.8' | 63.2' | 62.8' | 62.4' |
| 12" | NI-260 | 66.9' | 66.0' | 65.7' | 65.3' | 64.9' | 64.3' | 63.9' | 63.5' |
| 12" | NI-265 | 68.0' | 67.1' | 66.8' | 66.4' | 66.0' | 65.4' | 65.0' | 64.6' |
| 12" | NI-270 | 69.1' | 68.2' | 67.9' | 67.5' | 67.1' | 66.5' | 66.1' | 65.7' |
| 12" | NI-275 | 70.2' | 69.3' | 69.0' | 68.6' | 68.2' | 67.6' | 67.2' | 66.8' |
| 12" | NI-280 | 71.3' | 70.4' | 70.1' | 69.7' | 69.3' | 68.7' | 68.3' | 67.9' |
| 12" | NI-285 | 72.4' | 71.5' | 71.2' | 70.8' | 70.4' | 69.8' | 69.4' | 69.0' |
| 12" | NI-290 | 73.5' | 72.6' | 72.3' | 71.9' | 71.5' | 70.9' | 70.5' | 70.1' |
| 12" | NI-295 | 74.6' | 73.7' | 73.4' | 73.0' | 72.6' | 72.0' | 71.6' | 71.2' |
| 12" | NI-300 | 75.7' | 74.8' | 74.5' | 74.1' | 73.7' | 73.1' | 72.7' | 72.3' |
| 12" | NI-305 | 76.8' | 75.9' | 75.6' | 75.2' | 74.8' | 74.2' | 73.8' | 73.4' |
| 12" | NI-310 | 77.9' | 77.0' | 76.7' | 76.3' | 75.9' | 75.3' | 74.9' | 74.5' |
| 12" | NI-315 | 79.0' | 78.1' | 77.8' | 77.4' | 77.0' | 76.4' | 76.0' | 75.6' |
| 12" | NI-320 | 80.1' | 79.2' | 78.9' | 78.5' | 78.1' | 77.5' | 77.1' | 76.7' |
| 12" | NI-325 | 81.2' | 80.3' | 80.0' | 79.6' | 79.2' | 78.6' | 78.2' | 77.8' |
| 12" | NI-330 | 82.3' | 81.4' | 81.1' | 80.7' | 80.3' | 79.7' | 79.3' | 78.9' |
| 12" | NI-335 | 83.4' | 82.5' | 82.2' | 81.8' | 81.4' | 80.8' | 80.4' | 80.0' |
| 12" | NI-340 | 84.5' | 83.6' | 83.3' | 82.9' | 82.5' | 81.9' | 81.5' | 81.1' |
| 12" | NI-345 | 85.6' | 84.7' | 84.4' | 84.0' | 83.6' | 83.0' | 82.6' | 82.2' |
| 12" | NI-350 | 86.7' | 85.8' | 85.5' | 85.1' | 84.7' | 84.1' | 83.7' | 83.3' |
| 12" | NI-355 | 87.8' | 86.9' | 86.6' | 86.2' | 85.8' | 85.2' | 84.8' | 84.4' |
| 12" | NI-360 | 88.9' | 88.0' | 87.7' | 87.3' | 86.9' | 86.3' | 85.9' | 85.5' |
| 12" | NI-365 | 90.0' | 89.1' | 88.8' | 88.4' | 88.0' | 87.4' | 87.0' | 86.6' |
| 12" | NI-370 | 91.1' | 90.2' | 89.9' | 89.5' | 89.1' | 88.5' | 88.1' | 87.7' |
| 12" | NI-375 | 92.2' | 91.3' | 91.0' | 90.6' | 90.2' | 89.6' | 89.2' | 88.8' |
| 12" | NI-380 | 93.3' | 92.4' | 92.1' | 91.7' | 91.3' | 90.7' | 90.3' | 89.9' |
| 12" | NI-385 | 94.4' | 93.5' | 93.2' | 92.8' | 92.4' | 91.8' | 91.4' | 91.0' |
| 12" | NI-390 | 95.5' | 94.6' | 94.3' | 93.9' | 93.5' | 92.9' | 92.5' | 92.1' |
| 12" | NI-395 | 96.6' | 95.7' | 95.4' | 95.0' | 94.6' | 94.0' | 93.6' | 93.2' |
| 12" | NI-400 | 97.7' | 96.8' | 96.5' | 96.1' | 95.7' | 95.1' | 94.7' | 94.3' |
| 12" | NI-405 | 98.8' | 97.9' | 97.6' | 97.2' | 96.8' | 96.2' | 95.8' | 95.4' |
| 12" | NI-410 | 99.9' | 99.0' | 98.7' | 98.3' | 97.9' | 97.3' | 96.9' | 96.5' |
| 12" | NI-415 | 101.0' | 100.1' | 99.8' | 99.4' | 99.0' | 98.4' | 98.0' | 97.6' |
| 12" | NI-420 | 102.1' | 101.2' | 100.9' | 100.5' | 100.1' | 99.5' | 99.1' | 98.7' |
| 12" | NI-425 | 103.2' | 102.3' | 102.0' | 101.6' | 101.2' | 100.6' | 100.2' | 99.8' |
| 12" | NI-430 | 104.3' | 103.4' | 103.1' | 102.7' | 102.3' | 101.7' | 101.3' | 100.9' |
| 12" | NI-435 | 105.4' | 104.5' | 104.2' | 103.8' | 103.4' | 102.8' | 102.4' | 102.0' |
| 12" | NI-440 | 106.5' | 105.6' | 105.3' | 104.9' | 104.5' | 103.9' | 103.5' | 103.1' |
| 12" | NI-445 | 107.6' | 106.7' | 106.4' | 106.0' | 105.6' | 105.0' | 104.6' | 104.2' |
| 12" | NI-450 | 108.7' | 107.8' | 107.5' | 107.1' | 106.7' | 106.1' | 105.7' | 105.3' |
| 12" | NI-455 | 109.8' | 108.9' | 108.6' | 108.2' | 107.8' | 107.2' | 106.8' | 106.4' |
| 12" | NI-460 | 110.9' | 110.0' | 109.7' | 109.3' | 108.9' | 108.3' | 107.9' | 107.5' |
| 12" | NI-465 | 112.0' | 111.1' | 110.8' | 110.4' | 110.0' | 109.4' | 109.0' | 108.6' |
| 12" | NI-470 | 113.1' | 112.2' | 111.9' | 111.5' | 111.1' | 110.5' | 110.1' | 109.7' |
| 12" | NI-475 | 114.2' | 113.3' | 113.0' | 112.6' | 112.2' | 111.6' | 111.2' | 110.8' |
| 12" | NI-480 | 115.3' | 114.4' | 114.1' | 113.7' | 113.3' | 112.7' | 112.3' | 111.9' |
| 12" | NI-485 | 116.4' | 115.5' | 115.2' | 114.8' | 114.4' | 113.8' | 113.4' | 113.0' |
| 12" | NI-490 | 117.5' | 116.6' | 116.3' | 115.9' | 115.5' | 114.9' | 114.5' | 114.1' |
| 12" | NI-495 | 118.6' | 117.7' | 117.4' | 117.0' | 116.6' | 116.0' | 115.6' | 115.2' |
| 12" | NI-500 | 119.7' | 118.8' | 118.5' | 118.1' | 117.7' | 117.1' | 116.7' | 116.3' |
| 12" | NI-505 | 120.8' | 119.9' | 119.6' | 119.2' | 118.8' | 118.2' | 117.8' | 117.4' |
| 12" | NI-510 | 121.9' | 121.0' | 120.7' | 120.3' | 120.0' | 119.4' | 119.0' | 118.6' |
| 12" | NI-515 | 123.0' | 122.1' | 121.8' | 121.4' | 121.0' | 120.4' | 120.0' | 119.6' |
| 12" | NI-520 | 124.1' | 123.2' | 122.9' | 122.5' | 122.1' | 121.5' | 121.1' | 120.7' |
| 12" | NI-525 | 125.2' | 124.3' | 124.0' | 123.6' | 123.2' | 122.6' | 122.2' | 121.8' |
| 12" | NI-530 | 126.3' | 125.4' | 125.1' | 124.7' | 124.3' | 123.7' | 123.3' | 122.9' |
| 12" | NI-535 | 127.4' | 126.5' | 126.2' | 125.8' | 125.4' | 124.8' | 124.4' | 124.0' |
| 12" | NI-540 | 128.5' | 127.6' | 127.3' | 126.9' | 126.5' | 125.9' | 125.5' | 125.1' |
| 12" | NI-545 | 129.6' | 128.7' | 128.4' | 128.0' | 127.6' | 127.0' | 126.6' | 126.2' |
| 12" | NI-550 | 130.7' | 129.8' | 129.5' | 129.1' | 128.7' | 128.1' | 127.7' | 127.3' |
| 12" | NI-555 | 131.8' | 130.9' | 130.6' | 130.2' | 129.8' | 129.2' | 128.8' | 128.4' |
| 12" | NI-560 | 132.9' | 132.0' | 131.7' | 131.3' | 130.9' | 130.3' | 129.9' | 129.5' |
| 12" | NI-565 | 134.0' | 133.1' | 132.8' | 132.4' | 132.0' | 131.4' | 131.0' | 130.6' |
| 12" | NI-570 | 135.1' | 134.2' | 133.9' | 133.5' | 133.1' | 132.5' | 132.1' | 131.7' |
| 12" | NI-575 | 136.2' | 135.3' | 135.0' | 134.6' | 134.2' | 133.6' | 133.2' | 132.8' |
| 12" | NI-580 | 137.3' | 136.4' | 136.1' | 135.7' | 135.3' | 134.7' | 134.3' | 133.9' |
| 12" | NI-585 | 138.4' | 137.5' | 137.2' | 136.8' | 136.4' | 135.8' | 135.4' | 135.0' |
| 12" | NI-590 | 139.5' | 138.6' | 138.3' | 137.9' | 137.5' | 136.9' | 136.5' | 136.1' |
| 12" | NI-595 | 140.6' | 139.7' | 139.4' | 139.0' | 138.6' | 138.0' | 137.6' | 137.2' |
| 12" | NI-600 | 141.7' | 140.8' | 140.5' | 140.1' | 139.7' | 139.1' | 138.7' | 138.3' |
| 12" | NI-605 | 142.8' | 141.9' | 141.6' | 141.2' | 140.8' | 140.2' | 139.8' | 139.4' |
| 12" | NI-610 | 143.9' | 143.0' | 142.7' | 142.3' | 141.9' | 141.3' | 140.9' | 140.5' |

INSTALLING NORDIC I-JOISTS

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

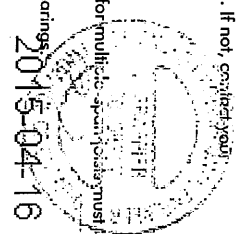
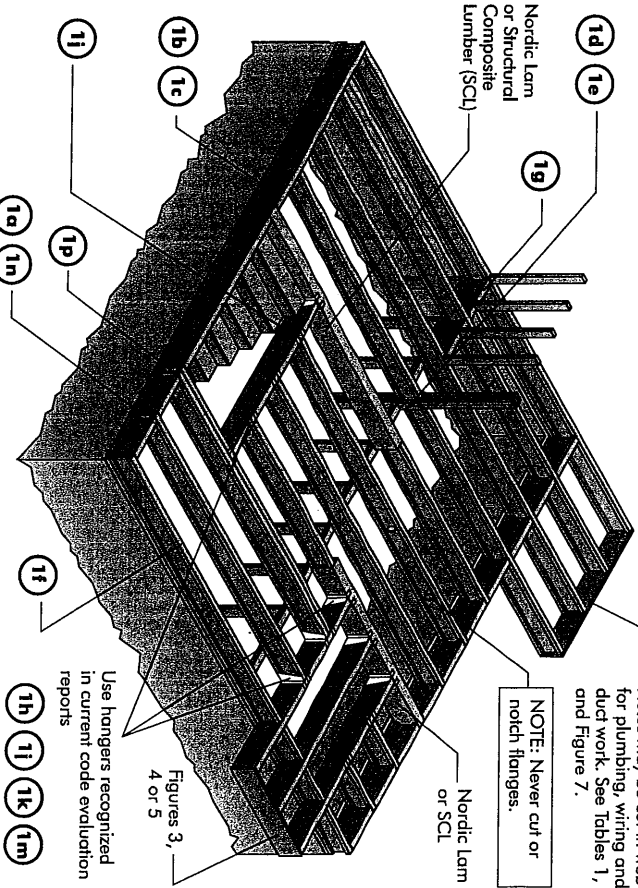


FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



Figures 3, 4 or 5
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

NOTE: Never cut or notch flanges.

Use hangers recognized in current code evaluation reports

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" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

1a

N-I blocking panel

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, not to bearing plate as required for decking)

| Blocking Panel or Rim Joist | Maximum Factored Uniform Vertical Load* (plf) |
|-----------------------------|---|
| N-I Joists | 3,300 |

1b

Rim board

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 of 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.

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

1c

Attach rim joist to floor joist with one nail at top and bottom. Nail penetration into floor joist. Toe-nailing may be used.

Attach I-joist per detail 1b

Minimum 1-3/4" bearing required

1d

N-I or rim board blocking panel per detail 1a

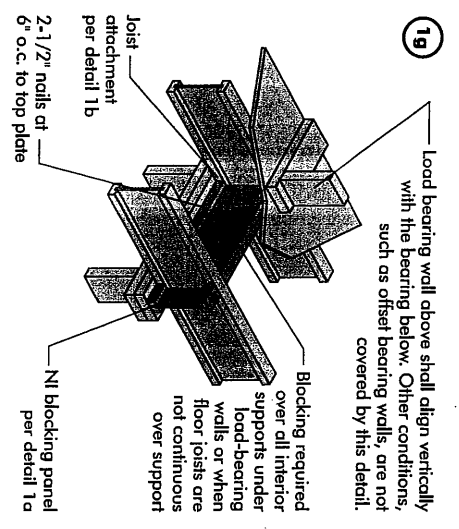
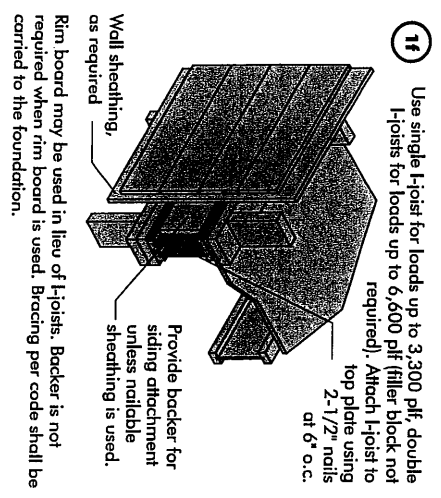
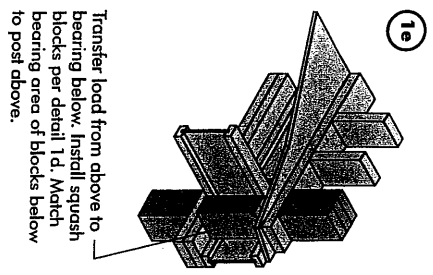
1/16" for squash blocks

| Pair of Squash Blocks | Maximum Factored Vertical per Pair of Squash Blocks (lbs) |
|-----------------------|---|
| 3-1/2" wide | 5,500 |
| 5-1/2" wide | 8,500 |
| 2x lumber | 5,500 |
| 1-1/8" Rim Board Plus | 4,300 |

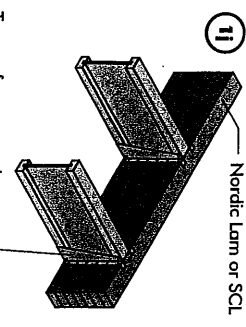
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

*The uniform vertical load is limited to a rim board depth of 1 1/4 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.

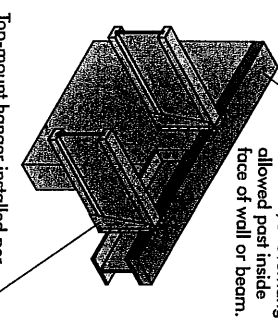
Provide lateral bracing per detail 1a, 1b, or 1c



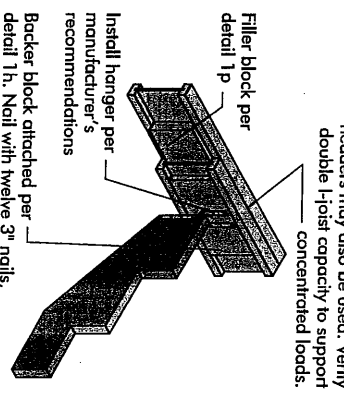
1i Nordic Lam or SCL



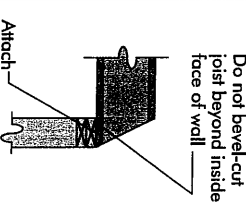
1k 2x plate flush with inside face of wall or beam, 1/8" overhang allowed post inside face of wall or beam.



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

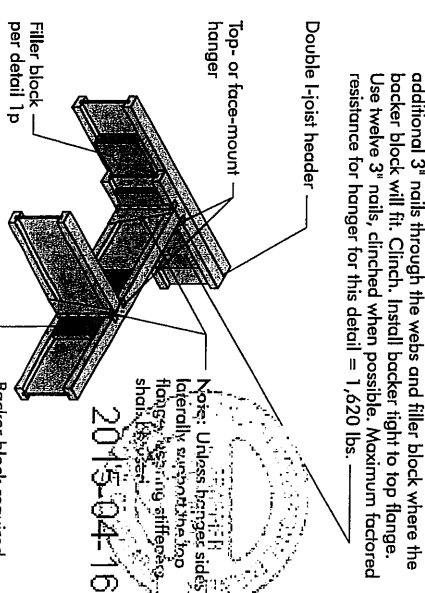


1n Do not bevel-cut joist beyond inside face of wall.



Note: Blocking required of bearing for lateral support, not shown for clarity.

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

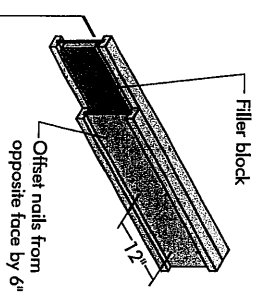


BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-Q325 or CAN/CSA-Q437 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".

1p



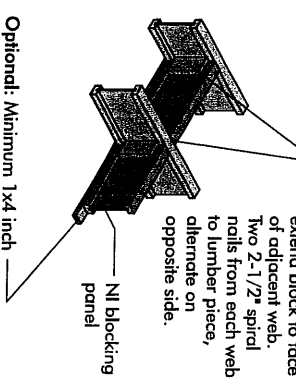
Notes:

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

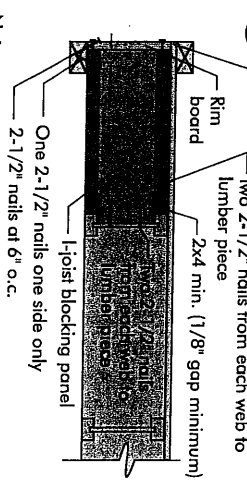
| Flange Size | Joist Depth | Filler Block Size |
|-----------------|------------------------|-------------------|
| 2-1/2" x 1-1/2" | 9-1/2" x 11-7/8" x 14" | 2-1/8" x 6" x 8" |
| 2-1/2" x 1-1/2" | 14" | 2-1/8" x 8" x 10" |
| 3-1/2" x 1-1/2" | 14" | 3" x 12" |
| 3-1/2" x 1-1/2" | 11-7/8" x 14" | 3"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

1r



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

1s

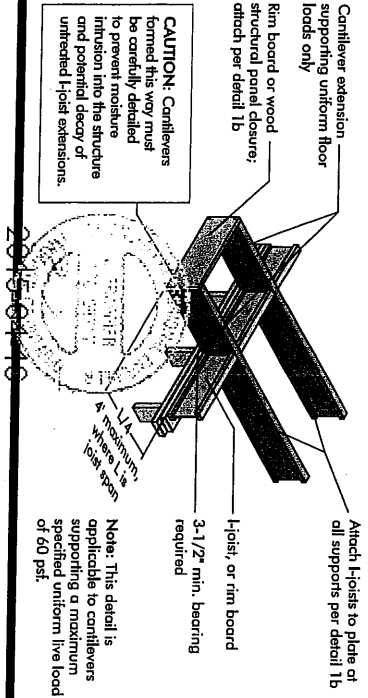


Notes:

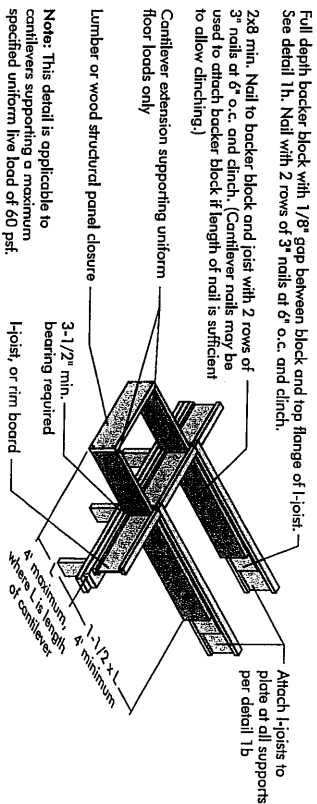
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

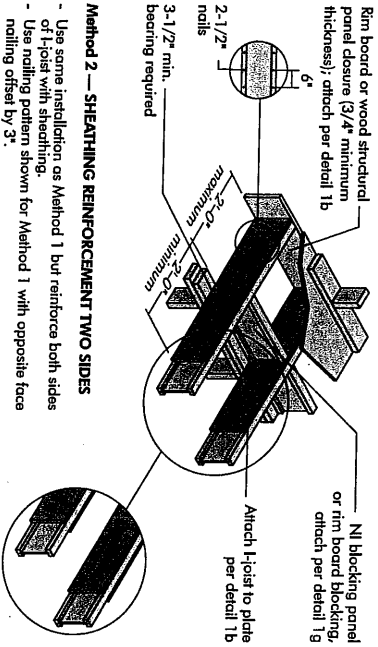


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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

4b Alternate Method 2 — DOUBLE I-JOIST

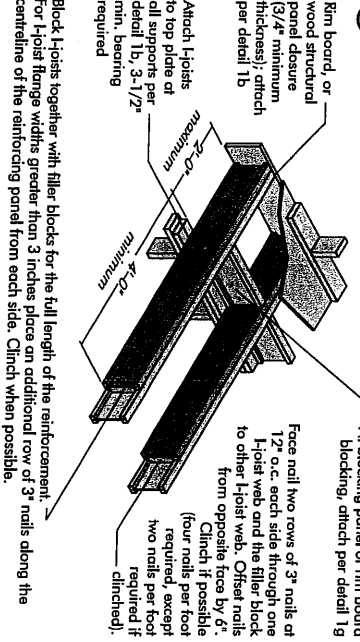
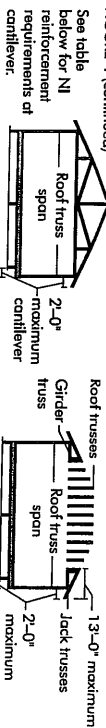


FIGURE 4 (continued)



For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

CANTILEVER REINFORCEMENT METHODS ALLOWED

| JOIST DEPTH (in.) | ROOF TRUSS SPAN (ft) | ROOF LOADING (UNFACTORED) | | | |
|-------------------|----------------------|---------------------------|--------------------------|--------------------------|--------------------------|
| | | LL = 30 psf, DL = 15 psf | LL = 40 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf | LL = 60 psf, DL = 15 psf |
| 24 | 12 | 1 | 1 | 1 | 1 |
| 24 | 16 | 1 | 1 | 1 | 1 |
| 24 | 19.2 | 1 | 1 | 1 | 1 |
| 24 | 24 | 1 | 1 | 1 | 1 |
| 30 | 12 | 1 | 1 | 1 | 1 |
| 30 | 16 | 1 | 1 | 1 | 1 |
| 30 | 19.2 | 1 | 1 | 1 | 1 |
| 30 | 24 | 1 | 1 | 1 | 1 |
| 36 | 12 | 1 | 1 | 1 | 1 |
| 36 | 16 | 1 | 1 | 1 | 1 |
| 36 | 19.2 | 1 | 1 | 1 | 1 |
| 36 | 24 | 1 | 1 | 1 | 1 |
| 42 | 12 | 1 | 1 | 1 | 1 |
| 42 | 16 | 1 | 1 | 1 | 1 |
| 42 | 19.2 | 1 | 1 | 1 | 1 |
| 42 | 24 | 1 | 1 | 1 | 1 |

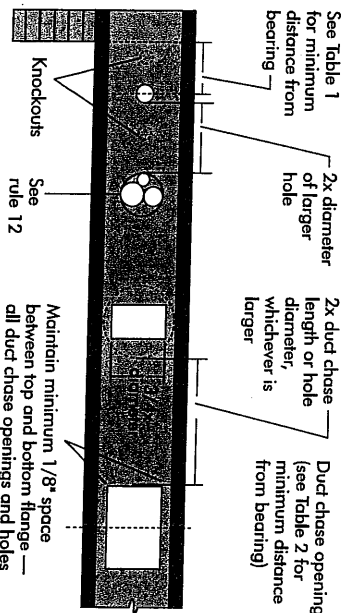
1. N = No reinforcement required.
2. N1 = N1 reinforced with 3/4" wood structural panel on one side only.
3. N2 = N2 reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. For hip roofs, the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
6. 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 centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the 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 at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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 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 | 2 | 3 | 4 | 5 | 6 | 6-1/4 | 7 | 8 | 8-5/8 | 9 | 10 | 10-3/4 | 11 | 12 | 12-3/4 | Span adjustment factor |
|-------------|--------------|-----|-----|-----|-----|-----|-------|-----|-----|-------|-----|-----|--------|-----|-----|--------|------------------------|
| 10 | 10 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 12 | 12 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 14 | 14 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 16 | 16 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 18 | 18 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 20 | 20 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 22 | 22 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 24 | 24 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 26 | 26 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 28 | 28 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 30 | 30 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 32 | 32 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 34 | 34 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 36 | 36 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 38 | 38 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |
| 40 | 40 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 1.0 |

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

OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Span), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$D_{\text{reduced}} = \frac{D_{\text{actual}} \times D}{D_{\text{actual}}}$$

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

2015-04-16

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

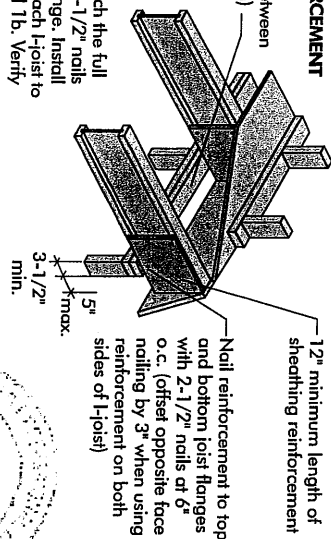
| Joist Depth | Joist Series | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
|-------------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 10 | 10 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 12 | 12 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 14 | 14 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 16 | 16 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 18 | 18 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 20 | 20 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 22 | 22 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 24 | 24 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 26 | 26 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 28 | 28 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 30 | 30 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 32 | 32 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 34 | 34 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 36 | 36 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 38 | 38 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 40 | 40 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

5d SHEATHING REINFORCEMENT

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, inboard with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

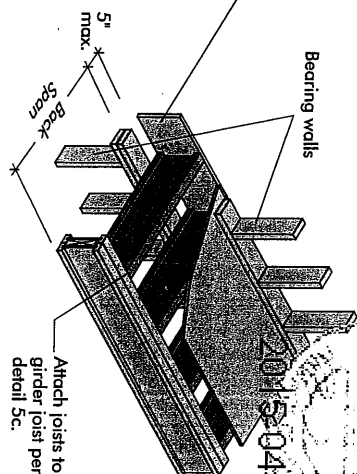
3/4"
5"
2-1/2"
6" o.c.
3-1/2"
max.



5b SET-BACK DETAIL

Notes:

- Provide full depth blocking between joists over support (not shown for clarity)
- Attach I-joist to plate at all supports per detail 1b.
- 3-1/2" minimum I-joist bearing required.



5c SET-BACK CONNECTION

- Verify girder joist capacity if the back span exceeds the joist spacing.
- Attach double I-joist per detail 1p, if required

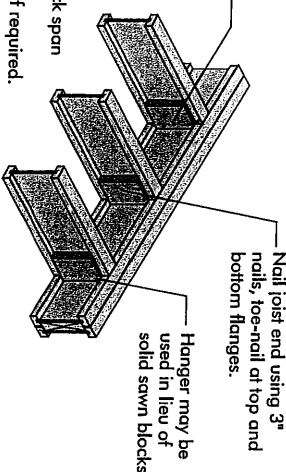


FIGURE 5 (continued)

Diagram illustrating the placement of roof trusses and girders on jack trusses. The left side shows a cross-section of a roof truss with a 2'-0" maximum cantilever and a 5" maximum overhang. The right side shows a side view of a girder supported by jack trusses, with a 13'-0" maximum span and a 2'-0" maximum cantilever.

For hip roofs with the jack trusses running parallel to the cantilevered floor joists the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

| JOIST DEPTH (in.) | ROOF TRUSS SPAN (ft) | LL = 30 psf, DL = 15 psf JOIST SPACING (in.) | | | | ROOF LOADING (UNFACTORED) LL = 40 psf, DL = 15 psf JOIST SPACING (in.) | | | | LL = 50 psf, DL = 15 psf JOIST SPACING (in.) | | | |
|-------------------|----------------------|---|----|------|----|--|----|------|----|---|----|------|----|
| | | 12 | 16 | 19.2 | 24 | 12 | 16 | 19.2 | 24 | 12 | 16 | 19.2 | 24 |
| 12 | 26 | 1 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 30 | 1 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 32 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 34 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 36 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 38 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 40 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| 14 | 26 | 1 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 28 | 1 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 30 | 1 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 32 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 34 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 36 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 38 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| 16 | 26 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 28 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 30 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 32 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 34 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 36 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |
| | 38 | 2 | X | X | X | 2 | X | X | X | 2 | X | X | X |

1. $N = N$ reinforced with $3/4"$ wood structural panel on one side only.
2. $N = N$ reinforced with $3/4"$ wood structural panel on both sides, or double H-joist.

$X =$ Try a deeper joist or closer spacing.

2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.

For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's crepples studs may be required.

3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.

4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting gable trusses or roof beams may require additional reinforcing

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 topped 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 line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Top the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

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

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

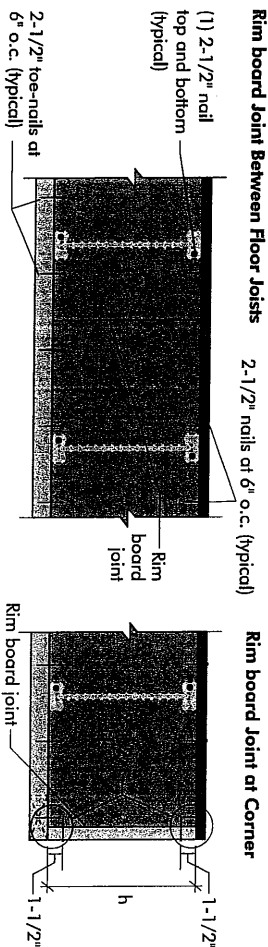
Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

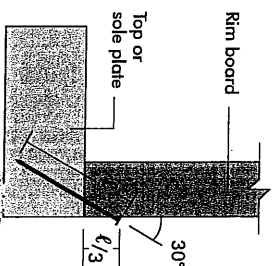
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

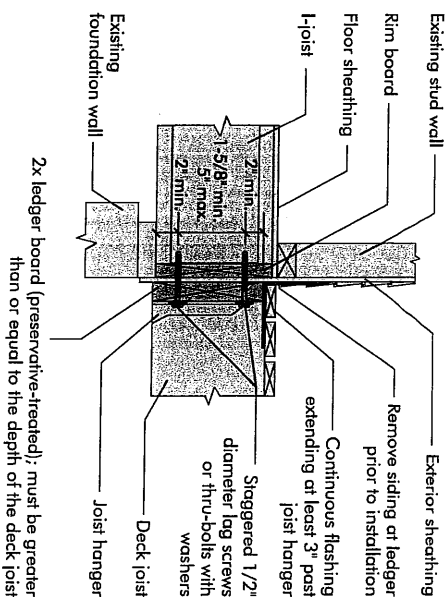
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



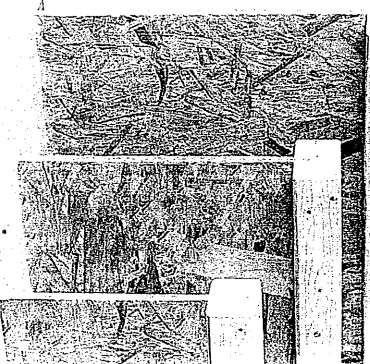
8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



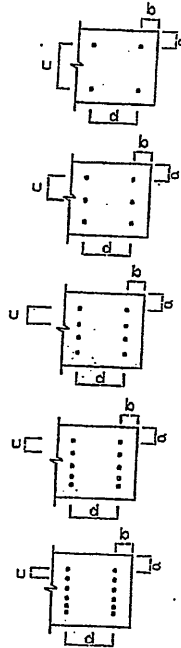
2015-04-16

PRODUCT WARRANTY

Customer Obligations: Customer agrees to use the product in accordance with the manufacturer's instructions. The manufacturer's instructions are the sole basis for the product's use. The manufacturer's instructions are the sole basis for the product's use. The manufacturer's instructions are the sole basis for the product's use.



| LVL HEADER AND CONVENTIONAL LUMBER NAILING DETAILS | | |
|--|----------------|-----------------------------|
| DETAIL NUMBER | NUMBER OF ROWS | SPACING (INCHES o/c) "d" |
| A | 2 | 12 |
| B | 2 | 8 |
| C | 2 | 6 |
| D | 2 | 4 |
| 1A | 3 | 12 |
| 1B | 3 | 8 |
| 1C | 3 | 6 |
| 1D | 3 | 4 |
| 2A | 4 | 12 |
| 2B | 4 | 8 |
| 2C | 4 | 6 |
| 2D | 4 | 4 |
| 3A | 5 | 12 |
| 3B | 5 | 8 |
| 3C | 5 | 6 |
| 3D | 5 | 4 |
| 4A | 6 | 12 |
| 4B | 6 | 8 |
| 4C | 6 | 6 |
| 4D | 6 | 4 |



NOTES:

- (1) MINIMUM LUMBER EDGE DISTANCE "a" = 1"
- (2) MINIMUM LUMBER END DISTANCE "b" = 2"
- (3) MINIMUM NAIL ROW SPACING "c" = 2"
- (4) STAGGER NAILS "d/2" BETWEEN PLYS FOR MULTI-PLY MEMBERS (3 PLY OR MORE)
- (5) ALL NAILS ARE 3-1/2" ARDOX SPIRAL NAILS
- (6) DO NOT USE AIR-DRIVEN NAILS



DWG NO TAMN1001-14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING
DETAIL NO X SEE
DWG #TAMN1001-14