All information in this document is general and is given as general information to an informed tradesman, that must have all the proper qualifications and knowledge for installing floor joists properly as per manufacturers specifications and as per local code.

The warranty shall not extend to products misused, neglected, subjected to abnormal storage, use or exposure or which have been altered in any manner or not maintained in accordance with published instructions. The products must be handled and installed in accordance with the manufacturer's published instructions.
Identification

14" OJ318

Grades: 14 = 1.4E
15 = 1.5E
18 = 1.8E
20 = 2.0E

Depths: 9 ½"
11 ⅞"
14"
16"

Flange: 2X3"
2X4"

Safety Precautions

1. Except for cutting length, TRIFORCE® flanges should never be cut, drilled or notched.

2. Install TRIFORCE® joists so that top and bottom flanges are within ½" of true vertical alignment.

3. At the ends, joists must be restrained to prevent rollover. Use rim board or blocking panels.

4. For Cantilevered TRIFORCE® joists, brace top and bottom flanges, and brace ends with closure panels, rim board.

5. Apply concentrated loads only on the top flange. Concentrated loads shall not be suspended from the bottom flange with the exception of light loads, such as ceiling fans or light fixtures.

6. TRIFORCE® must be protected from weather prior to installation.

Not Permitted

Joist flanges shall not be notched, cut or drilled to allow piping.
7. Joists are to be used in dry conditions only.

8. Never install a damaged TRIFORCE® joist.

9. When strongbacks are installed, the strongbacks must be of dry lumber.

10. When a joist interferes with a plumbing pipe, the joist may be moved up to 3” to allow piping. OSB Panel End openings are allowed per the Allowable Hole through the OSB Panel End chart. When moving a joist, check subfloor thickness with code requirements when joist spacing exceeds 19.2” o.c.

11. End bearing length must be at least 1 ½”.

12. To transfer loads from above, rim boards, squash blocks or blocking panels shall be used at exterior walls and interior bearing walls.

13. Joists shall not be in direct contact with masonry or concrete.

14. Install all bracing and sheathing to each TRIFORCE® joist before applying any construction loads on the floor system. Stack building material over beams or bearing walls only, otherwise additional shoring material may be needed.

15. Nails installed perpendicular to the wide face of the flange shall be spaced not be closer than 3 inches o.c. for 8d common nails.

16. Details on the following pages show only TRIFORCE® specific fastener requirements. For other fastener requirements, see applicable building code.

Storage & Handling

Storage Notes:

1. Keep TRIFORCE® bundles wrapped to protect from weather.

2. Use wood stickers to separate bundles under each automatically inserted stickers.

3. Always store, stack and handle TRIFORCE® vertically and level – never flat/horizontal.

4. Do not store TRIFORCE® in direct contact with the ground.

5. Store longest material lowest to the ground.

6. For optimal moisture protection, keep TRIFORCE® at least 6 inches up off the ground.

7. To protect from dirt and weather, delay unwrapping the TRIFORCE® bundles until the time of installation and delivery.

8. Take care to avoid forklift damage. If the ground is unlevel in the storage area, reduce forklift speed to avoid “bouncing” the load.

9. When handling with a crane, pick up the load using a spreader if necessary to minimize handling stresses. Keep TRIFORCE® vertical.

10. Maintain stack height within safe limits.

11. Do not lift TRIFORCE® joist by top flange.

12. Do not stack other material on top of TRIFORCE® bundles.

13. Bundle wrap can be slippery, especially when wet. Avoid walking on material.
Typical Details

Detail N15EP
Steel Beam With Solid Wood Filler. Hanger required
Page 7

Detail N8PB
Reinforcement For Cantilevered Joist
Page 7

Detail N5
Strongback
Page 11

Detail N11VS
Reinforcement Under Concentrated Load
Page 10

Detail N3P1B
End To End Joist
Page 6

Detail N12P
Cantilevered Balcony
Page 7

Detail N17
Mechanical Clearances
Page 10

Detail N10V11P
Reinforcement Under Concentrated Load
Page 9

Detail N2
Rim To Joist
Page 5

Detail N13
Solid Lumber Cantilever Perpendicular To Open Joist
Page 7

Detail N11VS
Reinforcement Under Concentrated Load
Page 10
Rim Board Connection

Standard Sizes
For Performance Rated Rim Boards

<table>
<thead>
<tr>
<th>Standard Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (inches)</td>
</tr>
<tr>
<td>Depth (inches)</td>
</tr>
<tr>
<td>Length (feet)</td>
</tr>
</tbody>
</table>

Design Capacities
For Performance Rated Rim Board

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance Category</th>
<th>H (lbf/ft)</th>
<th>V (lbf/ft)</th>
<th>Z (lbf)</th>
<th>P (lbf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depth Limitation (in.)</td>
<td>d(\leq24)</td>
<td>d(\leq16)</td>
<td>16&lt; d(\leq24)</td>
<td>d(\leq24)</td>
</tr>
<tr>
<td>Rim Board</td>
<td>(C1)</td>
<td>1(\frac{1}{8})</td>
<td>180</td>
<td>4,400</td>
<td>3,000</td>
</tr>
<tr>
<td>Rim Board Plus (B2)</td>
<td>1(\frac{1}{8})</td>
<td>200</td>
<td>4,850</td>
<td>3,200</td>
<td>350</td>
</tr>
</tbody>
</table>

- These design values are applicable only to Rim Board applications in compliance with the connection requirements given in this document and shall not be used in the design of a bending member, such as joist, header, rafter, or ledger. All design values are applicable to the normal load duration. Design values may be adjusted for other load durations in accordance with the applicable code except that the bearing (vertical) load capacity (V) and concentrated vertical load capacity (P) are not permitted to be increased for any load durations shorter than the normal load duration. Toe-nailed connections are not limited by the 150 lbf/ft lateral load capacity noted for Seismic Design Categories D, E and F in Section 2305.1.4 of the IBC.

- The performance categories for these rim boards refers to the minimum thickness of the rim board.
- H = The horizontal (shear) load transfer capacity.
- V = The bearing (vertical) load capacity, which shall not be adjusted for load durations in accordance with the applicable code.
- Z = The lateral resistance of a ½-inch-diameter log screw.
- P = The concentrated vertical load capacity based on 4-½-inch bearing length.

Detail N2
Rim to Joist

Attach Rim Board to End of Open Joist With (1) 8d Nail at Each Flange and (1) 8d Nail Centered at End Block.

Toe-Nail Connection
At Rim Board

A Structural Rim Board is recommended when the open joist TRIFORCE® Floor Joists are installed perpendicular or parallel on exterior bearing walls.

It is not recommended to use open joist TRIFORCE® Floor Joists as solo starter joists on exterior bearing walls.
Perpendicular Blocking

Perpendicular I-Joist Blocking:

I-Joist perpendicular blocking or equivalent @ 24” on center. Attaching the Wood-I or I-Joist blocking with (2) 3 ½” (16d) nails to the top and bottom chords of the open joist TRIFORCE® and (1) 2 ½” (8d) nails through the Rimboard into the top and bottom chord of the I-Joist blocking. Secure the I-Joist blocking to the sole plate with (1) 3 ½” (10d) nails each side of the bottom chord.

Interior Bearing Wall Blocking

Detail N3EP1M
OFFSET BEARING WALL

Detail N3EP2M
OFFSET BEARING WALL

Detail N3P1B
END-TO-END JOIST

Detail N3P2B
END-TO-END JOIST
Cantilevers

**Detail N8PB**
REINFORCEMENT FOR CANTILEVERED JOIST

**Detail N12P**
CANTILEVERED BALCONY

**Detail N2B**
MULTIPLE LEVEL BRICK AT LOWER LEVEL

**Detail N2BP**
MULTIPLE LEVEL BRICK AT LOWER LEVEL

**Detail 13**
SOLID LUMBER CANTILEVER PERPENDICULAR TO OPEN JOIST

Steel Beam Connections with Hangers

**Detail 15**
STEEL BEAM WITH SOLID WOOD FILLER HANGER REQUIRED

**Detail N15EP**
STEEL BEAM WITH SOLID WOOD FILLER HANGER REQUIRED
Steel Beam Connections without Hangers

**Detail 14T**
STEEL BEAM BOTTOM FLANGE BEARING HANGER NOT REQUIRED

**Detail N14P**
STEEL BEAM BOTTOM FLANGE BEARING HANGER NOT REQUIRED

---

**Multiple Joist Connectors (MJC)**
For Concentrated Side Load

**Detail MJC2**
DOUBLE JOIST LOAD TRANSFER
Load sharing clip center on point load, fixed to joist with 1 1/2" nails (10d).

**Detail MJC4**
DOUBLE JOIST LOAD TRANSFER
Load sharing clips on each side of the point load, fixed to joist with 1 1/2" nails (10d).

**Detail MJC6**
DOUBLE JOIST LOAD TRANSFER
Agrafes de répartition de la charge de chaque côté du point de charge, fixées à la solive à l'aide de clous de 1 1/2" (10d).

**Detail MJC8**
DOUBLE JOIST LOAD TRANSFER
Load sharing clips on each side of the point load, fixed to joist with 1 1/2" nails (10d).
Reinforcement for Concentrated Side Load

**Detail N10V11P**  
**ONE SIDE REINFORCEMENT SINGLE JOIST**

- Filler 24” of length, center on, 1/2” Plywood or OSB, to the diagonals or OSB panel with adhesives and 2” nails at 2” o.c.
- For 2x3 Joist: 1 ply if fixed to the diagonals or 2 plies if fixed to OSB end panel,
- For 2x4 Joist: 2 plies if fixed to the diagonals or 3 plies if fixed to si OSB end panel,
- Reinforcement fixed to filler with adhesives, and fixed to the top and bottom chord with adhesives and 3” nails at 2 1/2” o.c.

**Detail N10V12P**  
**TWO SIDES REINFORCEMENT SINGLE JOIST**

- Filler 24” of length, center on, 1/2” Plywood or OSB, to the diagonals or OSB panel with adhesives and 2” nails at 2” o.c.
- For 2x3 Joist: 1 ply if fixed to the diagonals or 2 plies if fixed to OSB end panel,
- For 2x4 Joist: 2 plies if fixed to the diagonals or 3 plies if fixed to si OSB end panel,
- Reinforcement fixed to filler with adhesives, and fixed to the top and bottom chord with adhesives and 3” nails at 5” o.c.

**Detail N10V21P**  
**ONE SIDE REINFORCEMENT DOUBLE JOISTS**

- Filler 24” of length, center on, 1/2” Plywood or OSB, to the diagonals or OSB panel with adhesives and 2” nails at 2” o.c.
- For 2x3 Joist: 1 ply if fixed to the diagonals or 2 plies if fixed to OSB end panel,
- For 2x4 Joist: 2 plies if fixed to the diagonals or 3 plies if fixed to si OSB end panel,
- Reinforcement fixed to filler with adhesives, and fixed to the top and bottom chord with adhesives and 3” nails at 2 1/2” o.c.

**Detail N10V22P**  
**TWO SIDES REINFORCEMENT DOUBLE JOISTS**

- Filler 24” of length, center on, 1/2” Plywood or OSB, to the diagonals or OSB panel with adhesives and 2” nails at 2” o.c.
- For 2x3 Joist: 1 ply if fixed to the diagonals or 2 plies if fixed to OSB end panel,
- For 2x4 Joist: 2 plies if fixed to the diagonals or 3 plies if fixed to si OSB end panel,
- Reinforcement fixed to filler with adhesives, and fixed to the top and bottom chord with adhesives and 3” nails at 2 1/2” o.c.
Reinforcement for Concentrated Top Load

**Detail N11VS4**
REINFORCEMENT UNDER CONCENTRATED LOAD

Reinforcement fixed to each side of the top and bottom chord with adhesives and 3” nails at 5” o.c.

**Detail N11V**
REINFORCEMENT UNDER CONCENTRATED LOAD

Reinforcement fixed to each side of the top and bottom chord with adhesives and 3” nails at 5” o.c.

**Detail N11VS**
REINFORCEMENT UNDER CONCENTRATED LOAD

Reinforcement fixed to each side of the top and bottom chord with adhesives and 3” nails at 5” o.c.

Mechanical Clearances

<table>
<thead>
<tr>
<th>Depth</th>
<th>Round</th>
<th>Square</th>
<th>Rectangular</th>
</tr>
</thead>
<tbody>
<tr>
<td>9½”</td>
<td>5”</td>
<td>4” x 6”</td>
<td>3” x 9”</td>
</tr>
<tr>
<td>11½”</td>
<td>7½”</td>
<td>5¼” x 5¼”</td>
<td>3” x 13”</td>
</tr>
<tr>
<td>14”</td>
<td>8½”</td>
<td>6½” x 6½”</td>
<td>3” x 14”, 6” x 8”</td>
</tr>
<tr>
<td>16”</td>
<td>9½”</td>
<td>7½” x 7½”</td>
<td>3” x 15”</td>
</tr>
</tbody>
</table>
Strongbacks

Strongbacks must be of dry lumber and secured with 2 spiral or resined 3” nails or 2 - 3” screws at mid-span, to a vertical brace or diagonal web.

Strongback can be cut between 2 joists for ducts, pipes and wires if needed, but at least 3 consecutive joists must remain attached together.

Strongback (at mid span)

Option #1

2x3 flanges: 1 - 3” (10d) through bottom flange and 1 - 3” (10d) through the diagonal, adding adhesive will insure long term performance

2x4 flanges: 2 - 3” (10d) through bottom flange and 1 - 3” (10d) through the diagonal.

Adding adhesive will ensure long term performance

Option #2 (suggested)

Secure vertical side block (2x4) as per detail, with 2 nails* to both chords and strongback to vertical with 2 nails*. *(gun nails 0.122” x 3 1/4”)

Adding adhesive will provide an ultimate connection for high floor performance.

Strongback Overlap

Joint cover of 32”, center on splice
(same height as strongback 1 and 2)
Allowable OSB Panel End Hole Penetrations

Holes sizes and locations - Simple span

<table>
<thead>
<tr>
<th>Joist Depth</th>
<th>Joist Series</th>
<th>Round hole diameter only (in)</th>
<th>Minimum distance from inside face of support to beginning of hole (ft-in)</th>
<th>Max Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5&quot;</td>
<td>OJ314</td>
<td>0' 5&quot; 0' 5&quot; 0' 5&quot; 1' 6&quot;</td>
<td>16' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>0' 5&quot; 0' 6&quot; 2' 0&quot;</td>
<td>20' 0&quot;</td>
<td></td>
</tr>
<tr>
<td>11.875&quot;</td>
<td>OJ314</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 2&quot;</td>
<td>16' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ315</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 0&quot; 2' 0&quot;</td>
<td>18' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ415</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 0&quot; 2' 0&quot;</td>
<td>20' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>0' 6&quot; 0' 6&quot; 1' 0&quot; 2' 0&quot;</td>
<td>22' 0&quot;</td>
<td></td>
</tr>
<tr>
<td>14&quot;</td>
<td>OJ314</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 9&quot; 1' 10&quot;</td>
<td>16' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ315</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 6&quot;</td>
<td>20' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ415</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 6&quot; 2' 0&quot;</td>
<td>22' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>0' 6&quot; 0' 6&quot; 0' 9&quot; 1' 6&quot; 2' 2&quot;</td>
<td>26' 0&quot;</td>
<td></td>
</tr>
<tr>
<td>16&quot;</td>
<td>OJ314</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 9&quot; 1' 6&quot; 2' 0&quot;</td>
<td>16' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ315</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 0&quot; 1' 8&quot;</td>
<td>20' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ415</td>
<td>0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 0' 6&quot; 1' 0&quot; 1' 8&quot;</td>
<td>26' 0&quot;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>0' 6&quot; 0' 6&quot; 0' 9&quot; 1' 6&quot; 2' 0&quot;</td>
<td>30' 0&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Notes
1) This table is based on uniformly loaded floor with a design live load of 40 psf dead load of 15 psf and a deflection limit of L/360. For other applications contact your TRIFORCE® representative.
2) This table may be used for floor joist spacing of 24 inches on center or less.
3) Residential design with simple span only. No cantilever
4) Do not cut first vertical web. Distance base on a full length panel

Available Stocking Lengths

<table>
<thead>
<tr>
<th>Depth</th>
<th>Series</th>
<th>Weight lbs/ft</th>
<th>Stock Lengths (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 ½&quot;</td>
<td>OJ314</td>
<td>2.70</td>
<td>✗ ✗ ✗ ✗ ✗ ✗ ✗ ✗ ✗</td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>3.25</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td>11 ¼&quot;</td>
<td>OJ314</td>
<td>2.80</td>
<td>✗ ✗ ✗ ✗ ✗ ✗ ✗ ✗ ✗</td>
</tr>
<tr>
<td></td>
<td>OJ315</td>
<td>2.80</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td></td>
<td>OJ415</td>
<td>3.35</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>3.35</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td>14&quot;</td>
<td>OJ314</td>
<td>2.85</td>
<td>✗ ✗ ✗ ✗ ✗ ✗ ✗ ✗ ✗</td>
</tr>
<tr>
<td></td>
<td>OJ315</td>
<td>2.85</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td></td>
<td>OJ415</td>
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<tr>
<td></td>
<td>OJ315</td>
<td>2.95</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td></td>
<td>OJ418</td>
<td>3.55</td>
<td>✗ ✗ ✗洿</td>
</tr>
<tr>
<td></td>
<td>OJ420</td>
<td>3.55</td>
<td>✗ ✗ ✗洿</td>
</tr>
</tbody>
</table>
Single Framing Connectors

**ITS** – 18 gauge
**IUS** – 18 gauge
**SUR/L** – 16 gauge
**HU** – 14 gauge

Double Framing Connectors

**B** – 12 gauge
**LVB** – 14 gauge
**MIT** – 16 gauge
**MIU** – 16 gauge
**HSUR/L** – 14 gauge

**LSSU, LSSUI** – 18 gauge
**LSSU210-2, LSSU410 and LSSUH310** – 16 gauge
**LSU** – 14 gauge

Avoid A Misinstallation

Do not make your own holes.
Do not nail the bottom flange.

General Connector Installation Sequence

**STEP 1**
Attach the ITS to the header

**STEP 2**
Slide the joist downward into the ITS until it rests above the Strong-Grip™ seat.

**STEP 3**
Firmly push or snap joist fully into the seat of the ITS.
Products manufactured by Barrette Structural Inc. (hereafter: “Barrette Structural”) are guaranteed against manufacturing and material faults for the life of the structure.

This limited lifetime warranty is applicable if the products manufactured by Barrette Structural have been correctly stored, protected from climatic conditions such as sunlight, humidity, rain or wind, and installed in conformity with the guidelines and instructions supplied, either as floor joists or roof trusses, whichever is the case.

This warranty does not cover perceived problems of design or defects caused by:

- prolonged exposure to water or climatic conditions (in particular following construction work or due to construction delays), fire, flooding, natural disasters or any other cause beyond the control of Barrette Structural;
- faults in the structure following poor construction, installation or assembly practices;
- damage to the structure before, during or after installation;
- failure to respect installation instructions, current building code norms or generally accepted practices in the construction industry;
- the transformation of joists or roof trusses after their initial installation;
- the presence of mold, spore, rot or termites or any other element likely to degrade the installed product;
- the application of a preservative treatment or any other coating not approved by Barrette Structural;
- defective ventilation, repeated exposure to water or humid conditions;
- excessive loads or tension not allowed for by Barrette Structural or usage that does not comply with the type for which the product was designed.

IN THE CASE OF PROBLEMS WITH MANUFACTURING FAULTS COVERED BY THIS WARRANTY, BARRETTE STRUCTURAL WILL PAY REASONABLE COSTS FOR LABOR AND MATERIALS TO REPAIR OR REPLACE ONLY THE JOISTS OR ROOF TRUSSES UNDER WARRANTY. THESE COSTS MUST NOT EXCEED BY MORE THAN THREE TIMES THE INITIAL PURCHASE COST OF THE JOISTS OR ROOF TRUSSES INVOLVED IN THE CLAIM.

IN THE EVENT OF A CLAIM, THE RESPONSIBILITY OF BARRETTE STRUCTURAL IS LIMITED TO THAT WHICH HAS BEEN OUTLINED IN THIS WARRANTY. BARRETTE STRUCTURAL MAY NOT BE HELD RESPONSIBLE FOR ANY OTHER DAMAGE WHATSOEVER.

All claims must be communicated to Barrette Structural within 30 days of the discovery of any anomaly or problem covered by this warranty, at the following address:

BARRETTE STRUCTURAL
555, rang Saint-Malo, Trois-Rivières (Québec) G8V 0A8 CANADA

To obtain further information, please contact your representative.