

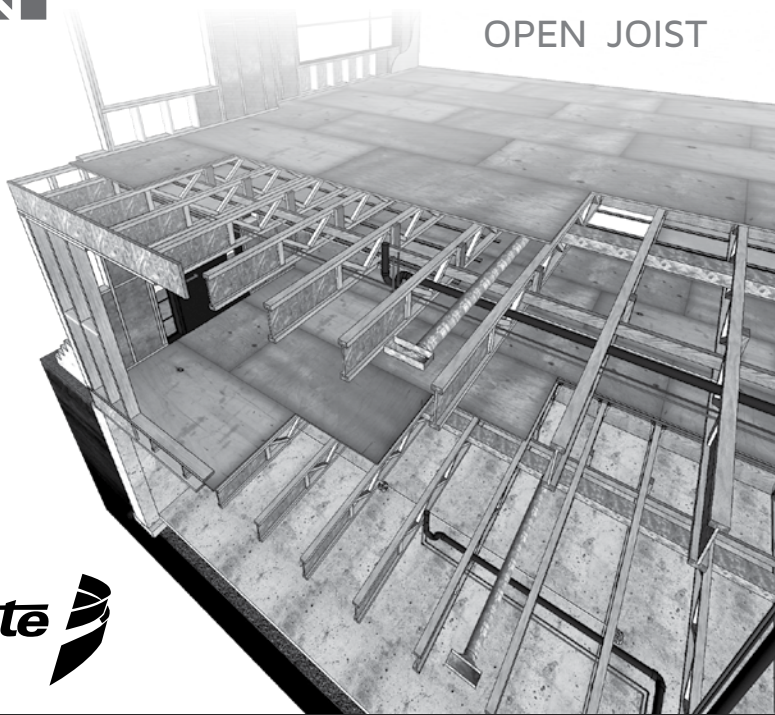


# Installation Guide



# TRIFORCE®

## OPEN JOIST



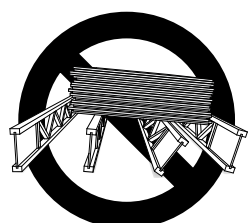
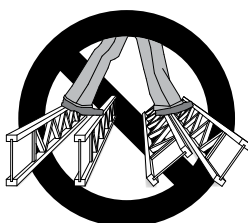
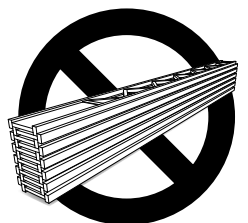
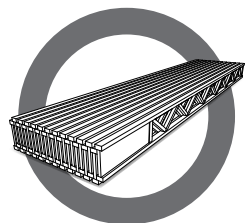
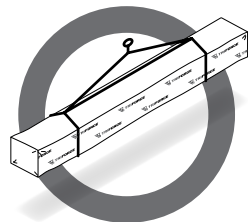
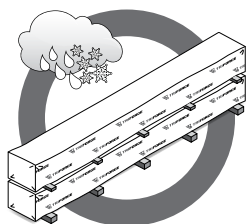
BUILT BY  
**Barrette** 

This Installation Guide is intended to provide general information for a proper **TRIFORCE®** open joist installation. This Installation Guide must be used in conjunction with the manufacturer's Specifier Guide or Placement Guide. For further information or assistance, contact a Barrette Structural Distribution representative.

In keeping with its ongoing commitment to product development, Barrette Structural Distribution periodically updates its literature. Please visit our website ([www.openjoisttriforce.com](http://www.openjoisttriforce.com)) to confirm that this version is the most recent.

Peace of mind underfoot™

[www.openjoisttriforce.com](http://www.openjoisttriforce.com)



## Storage and Handling

1. Keep **TRIFORCE**® open joist bundles wrapped until the time of installation to protect them from bad weather.
2. Use wood filler to separate bundles.
3. Always store, stack and handle **TRIFORCE**® open joist vertically and level—never flat.
4. Do not store **TRIFORCE**® open joist in direct contact with the ground.
5. Be cautious when using forklift to avoid damage. If the ground is uneven in the storage area, reduce forklift speed to avoid "bouncing" the load.
6. When handling with a crane, use a spreader to pick up the load, if necessary, to minimize handling stresses. Keep **TRIFORCE**® open joist vertical.
7. Maintain stack height within safe limits.
8. Handling of **TRIFORCE**® open joists with a crane or forklift should be done by lifting from below the bottom of the bundle.
9. Do not stack other material on top of **TRIFORCE**® open joist bundles.
10. Bundle wrap can be slippery, especially when wet or icy. Avoid walking on material.

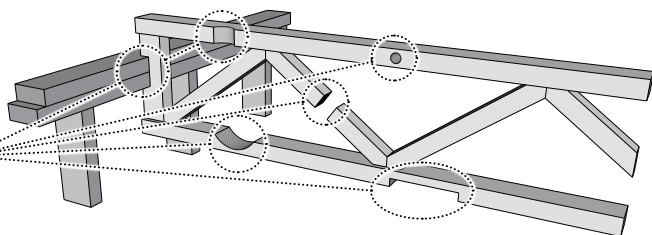
## Installation Instructions

1. Except for trimming the joist length on the OSB end panel, chords should never be cut, drilled or notched.
2. Install **TRIFORCE**® open joist so that top and bottom flanges are within 1/2" of true vertical alignment.
3. Joists must be restrained at the ends to prevent rollover.
4. Apply concentrated loads only on top flanges. Do not suspend concentrated loads from bottom flanges, except for light loads such as ceiling fans or light fixtures.
5. **TRIFORCE**® open joists must be protected from bad weather prior to installation.
6. Joists should be used in dry conditions only.
7. Never install a damaged **TRIFORCE**® open joist.
8. If optional strongbacks are installed, they must be made of dry lumber.
9. End bearing must be a minimum of 1 1/2". Placement Guide may specify longer bearings.
10. To transfer a vertical load applied above the joist to a bearing, it may be necessary to add a rim board, squash blocks or blocking panels.
11. Joists must not be in direct contact with masonry or concrete.
12. **DO NOT WALK ON JOISTS** until properly braced. Serious injury may occur.
13. **DO NOT PILE** construction materials on joists until they are fully installed, braced and have subfloor installed.
14. When nailing into the joist flange, nails must be spaced at least 2 1/2" o.c.
15. Details on the following pages show only the installation requirements specific to **TRIFORCE**® open joists. For other installation requirements, refer to the building code or manufacturers' instructions.
16. Adhesives used for floor systems should comply with ASTM D3498-03 Standard Specification for Field-Gluing Plywood to Lumber Framing for Floor Systems. When gluing the subfloor to the joists, follow the instructions of the adhesive manufacturer.

# Not permitted

Never notch, cut or drill a joist member.

Not Permitted



## Joist Identification and Orientation



**Bottom - Bas  
Abajo**

**OJ418**

### Joist Orientation

Each TRIFORCE® open joist is marked to indicate a bottom flange. In order to achieve maximum shear capacity, the joist should be installed with proper orientation.

### Identification

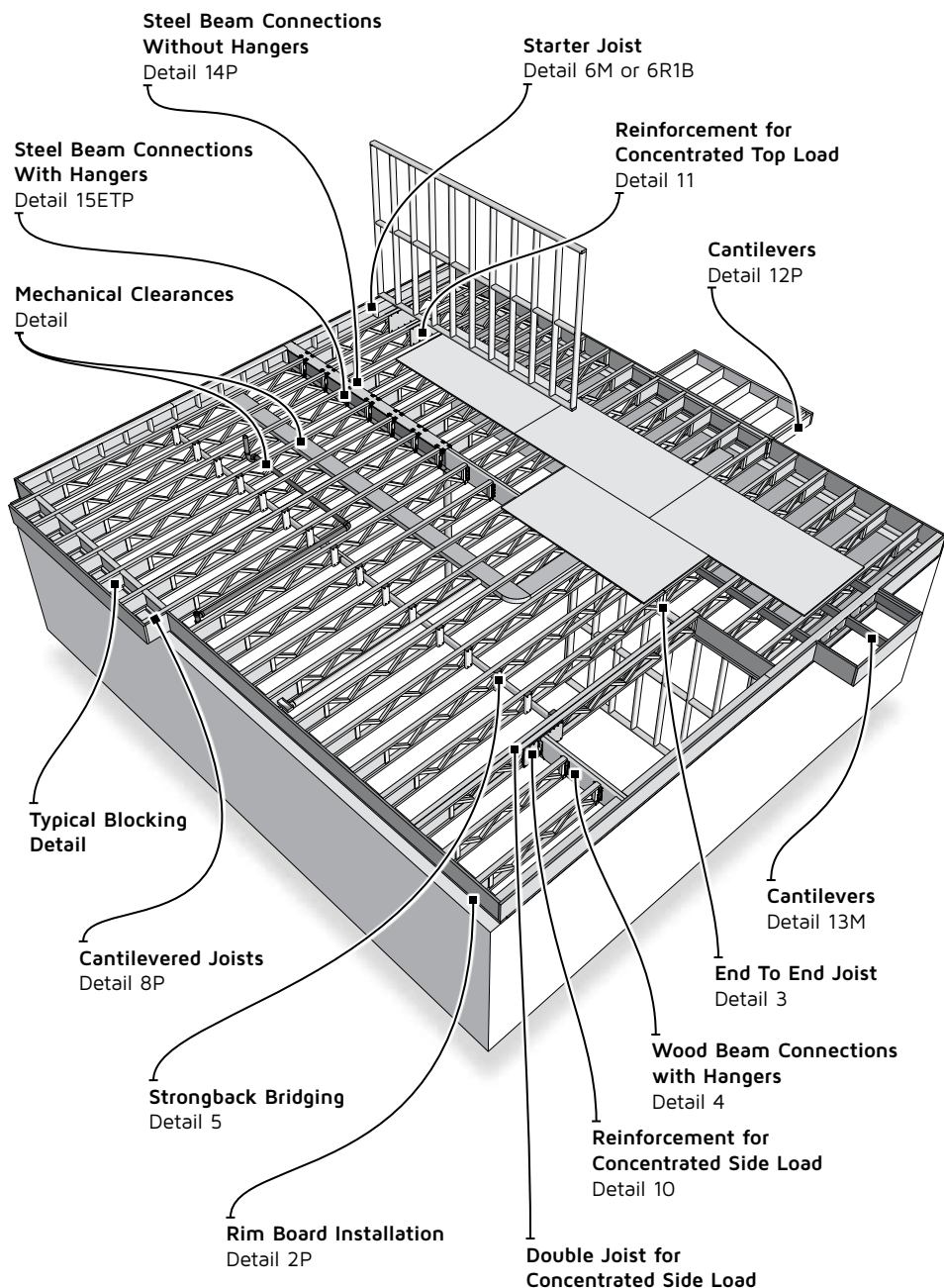
**OJ418**

Grades : 14 = 1.4E  
15 = 1.5E  
18 = 1.8E  
20 = 2.0E  
Flange : 3 = 2x3  
4 = 2x4

# Standard Details

This section provides standard details for normal framing situations. For loads that are not uniformly distributed and/or for joists supported by bearings other than end bearings, joist capacity must be verified using the manufacturer's Analyzer software.

The project designer and/or general contractor is responsible for determining if standard details apply.



# Rim Board Installation

## Standard Rim Board Sizes

Depth (inches): 9 ½, 11 ⅞, 14, 16.

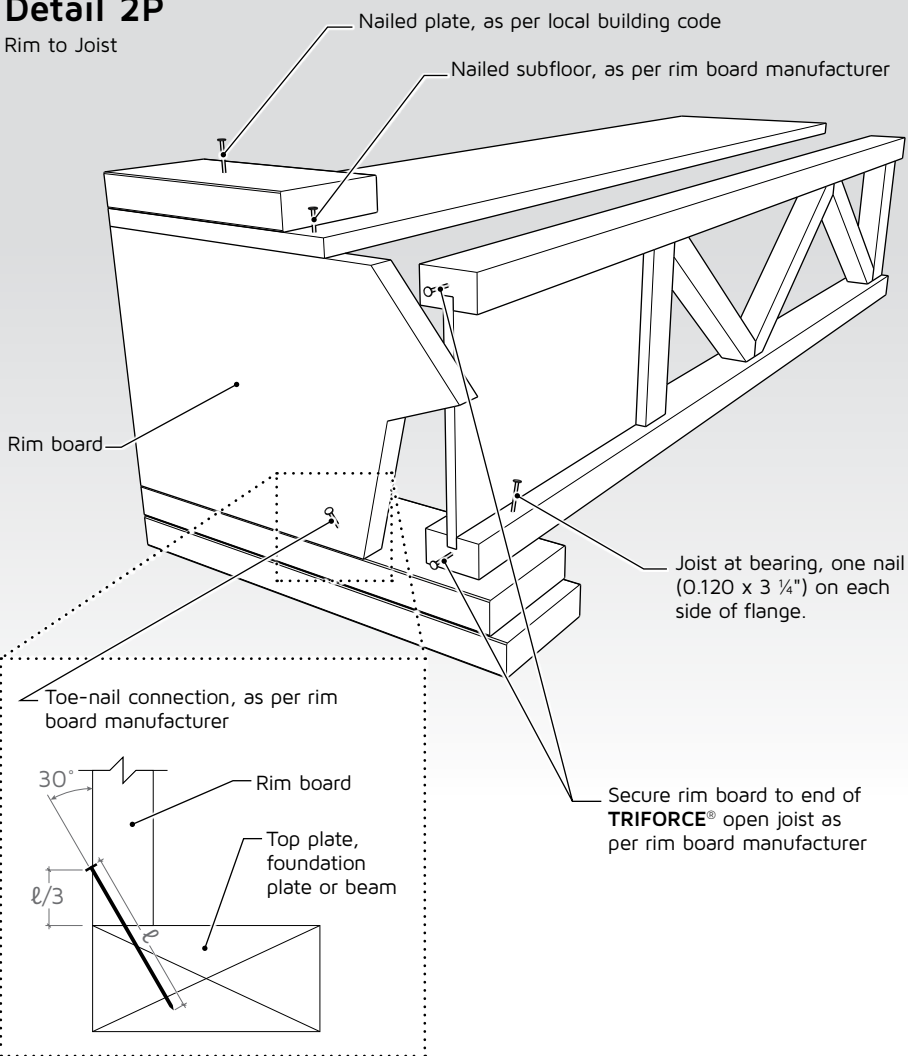
A structural rim board is required when **TRIFORCE**® open joists are installed perpendicular to bearing walls.

**TRIFORCE**® open joists should not be used as solo starter joists on exterior walls.

The vertical and/or horizontal loads to be transferred must be verified using the manufacturer's proprietary capacities.

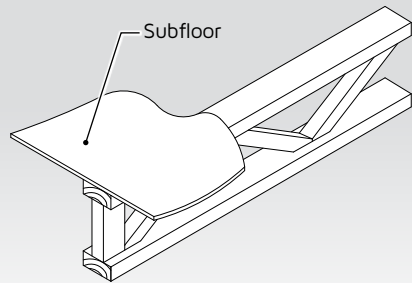
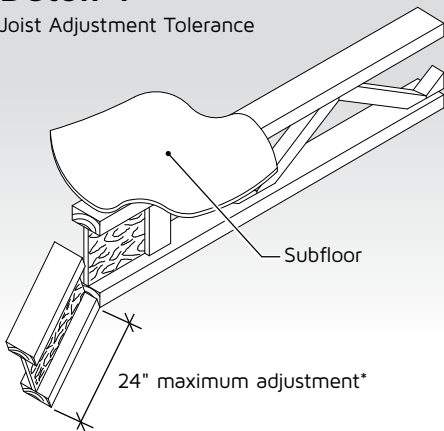
## Detail 2P

Rim to Joist



## Detail 1

### Joist Adjustment Tolerance

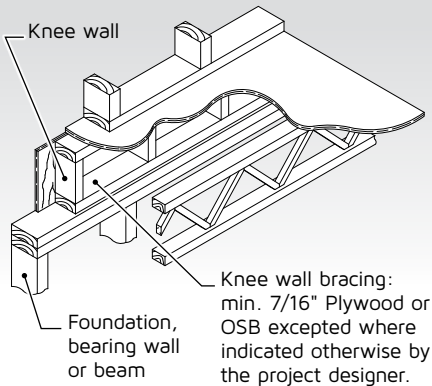


### 1 1/2" minimum BEARING REQUIRED

\*It may be possible to trim the OSB end panel of the joist between 24" and 31-5/8." However, the joist capacity **MUST** be analyzed using the **TRIFORCE®** Analyzer software to confirm.  
**All 2x3 posts must ALWAYS REMAIN INTACT.**

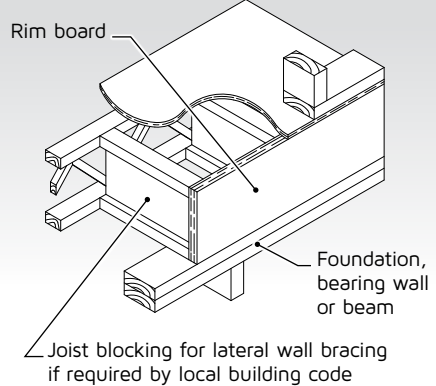
## Detail 6M

### Knee Wall



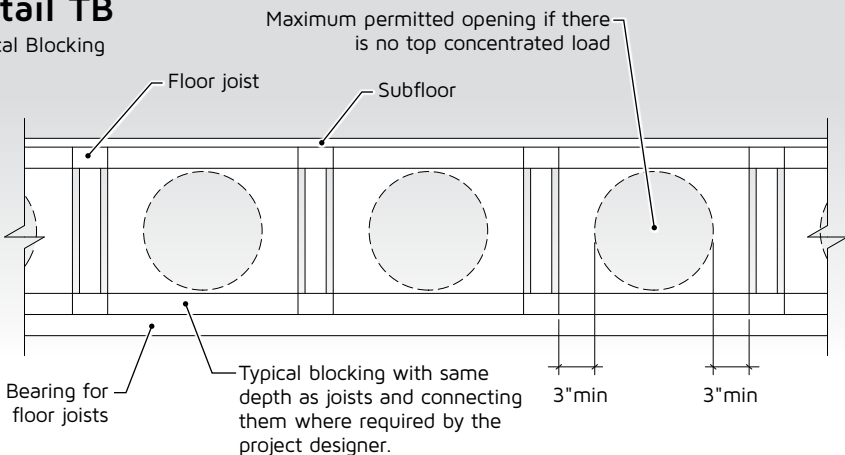
## Detail 6R1B

### Rim Board and Blocking at Exterior Wall



## Detail TB

### Typical Blocking

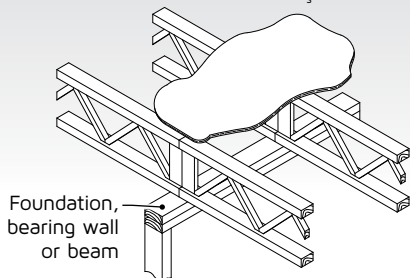




## Detail 3

### End To End Joist

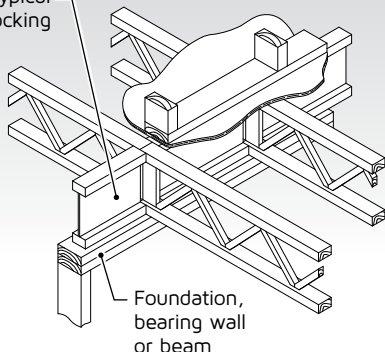
Blocking not required between joists for detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C or located where the mapped  $S_s < 0.4g$



## Detail 3B

### End to End Joist with Bearing Wall Above

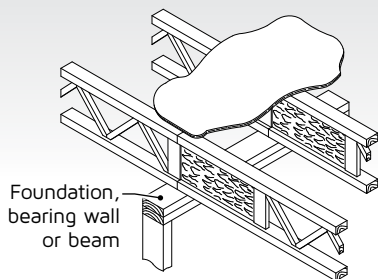
Typical  
Blocking



## Detail 3P1

### End To End Joist

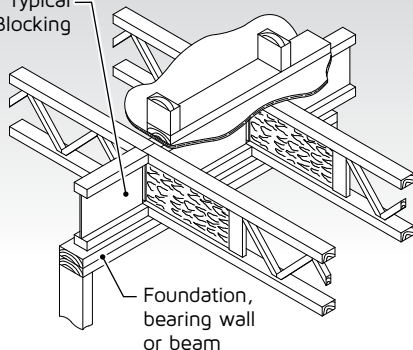
Blocking not required between joists for detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C or located where the mapped  $S_s < 0.4g$



## Detail 3P1B

### End to End Joist with Bearing Wall Above

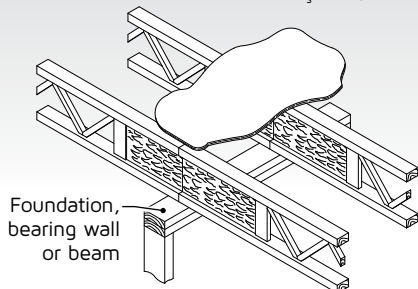
Typical  
Blocking



## Detail 3P2

### End To End Joist

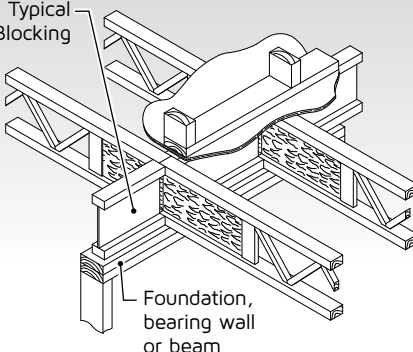
Blocking not required between joists for detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C or located where the mapped  $S_s < 0.4g$



## Detail 3P2B

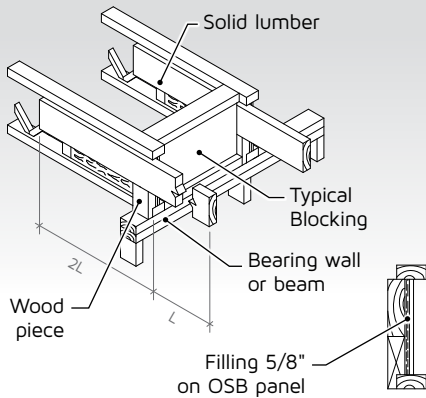
### End to End Joist with Bearing Wall Above

Typical  
Blocking



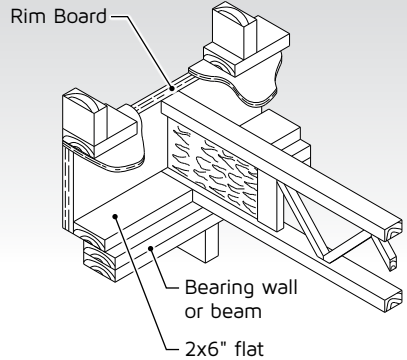
## Detail 12P

Cantilevered Balcony



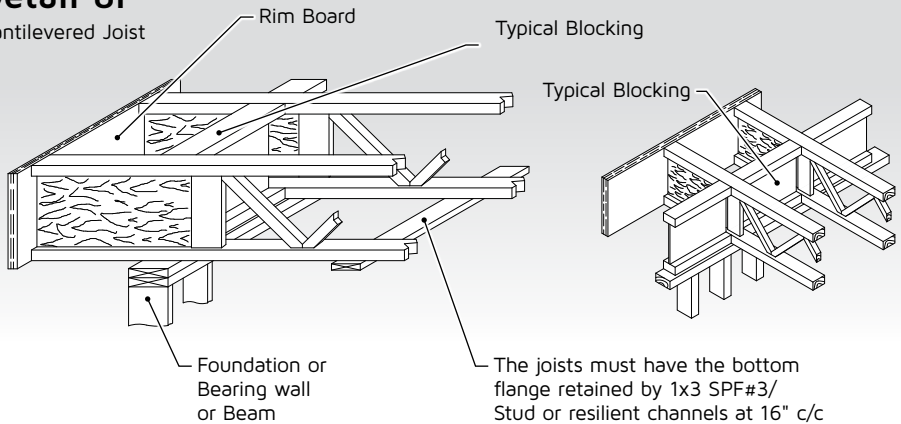
## Detail 8BD

Multiple Level  
Brick at Lower Level



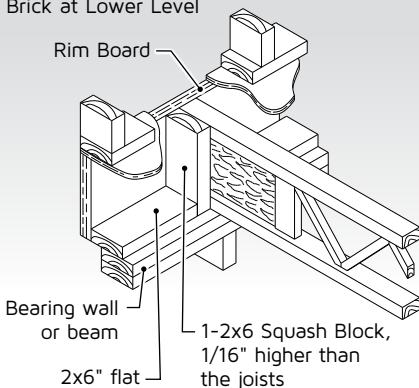
## Detail 8P

Cantilevered Joist



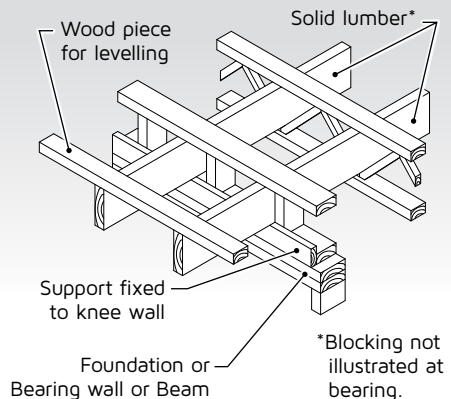
## Detail 8BDG

Multiple Level  
Brick at Lower Level



## Detail 13M

Cantilever Perpendicular to Open Joist

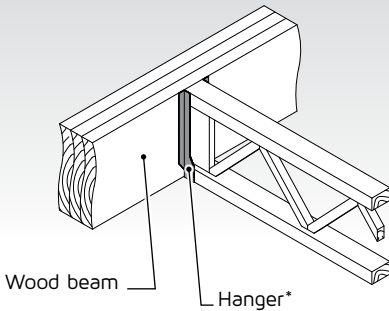




## Detail 4

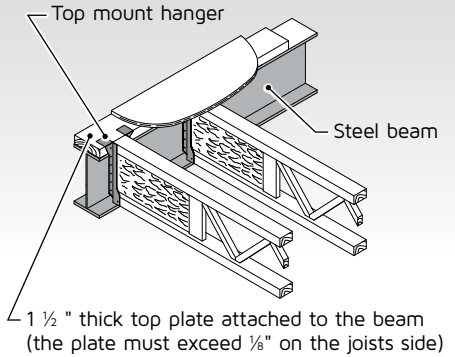
Wood Beam Connections with Hangers

\* top mount or face mount hangers



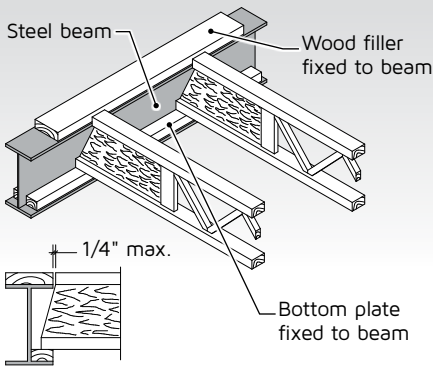
## Detail 15ETP

Steel Beam Connections With Top Plate and Hanger



## Detail 14P

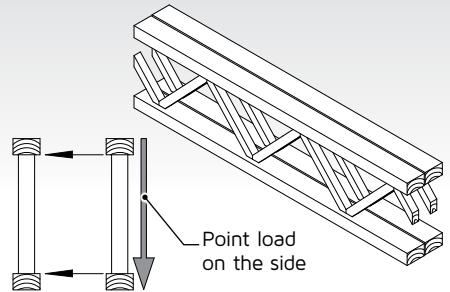
Steel Beam Bottom Flange Bearing



## Detail DJ

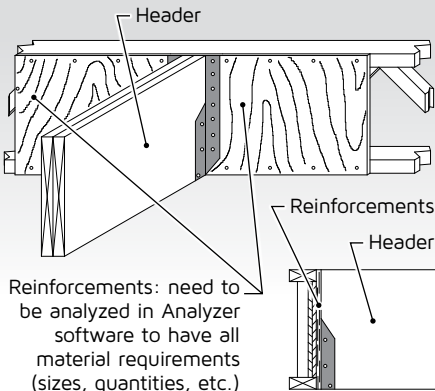
Doubled Joist Load Transfer

Use load distribution brackets (multi-joist connectors or the equivalent) having the capacity to transfer load as indicated in manufacturer's Analyzer software report.



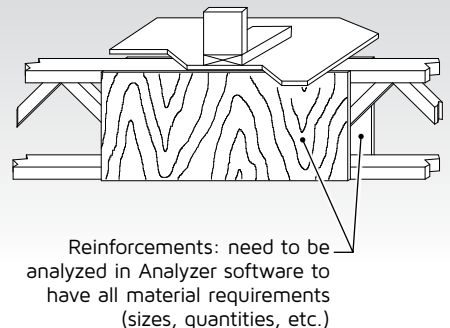
## Detail 10

Reinforcement for a Concentrated Side Load



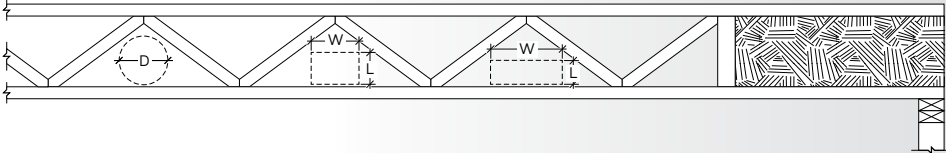
## Detail 11

Reinforcement for a Concentrated Top Load



# Mechanical Clearances

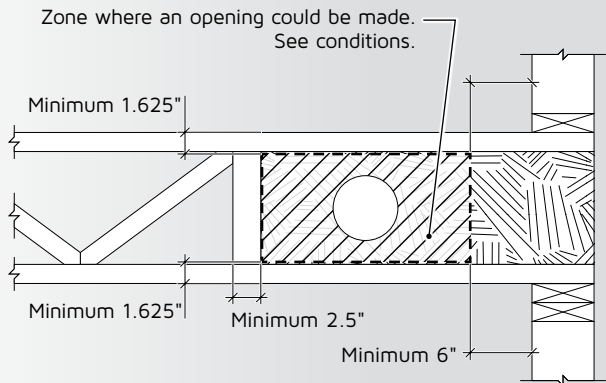
Maximum Size of Pipes, Ducts and Cable Trays Through Diagonal Web Members			
Depth	Round D	Square W x H	Rectangular W x L
9½"	5"	4" x 6"	3" x 9"
11⅞"	7¼"	5¾" x 5¾"	3" x 13"
14"	8½"	6½" x 6½"	3" x 14", 6" X 8"
16"	9½"	7½" x 7½"	3" x 15"



## Openings in the OSB End Panel of a Joist

### Conditions:

- One (1) round hole of 1.5" or less diameter can be made in this zone without any adjustment of the joist capacity.
- For any other quantity or type of hole, the joist capacity has to be analyzed using **TRIFORCE®** Analyzer software.

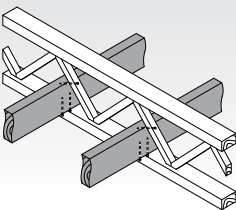


## Detail 5

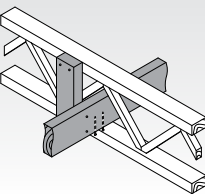
### Strongback Bridging

Use gun nails 0.122"x3.25" or 3" screws to secure strongback at mid span of joist.

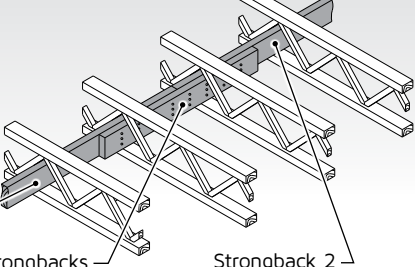
#### Option #1 (Good)



#### Option #2 (Better)



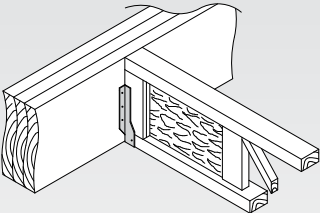
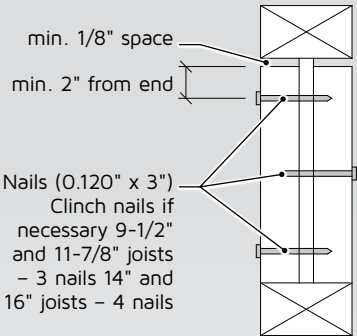
#### Strongback Overlap



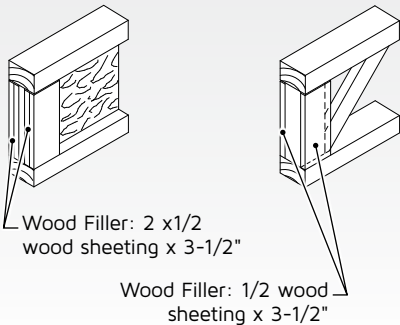
32" joint cover (same depth as strongbacks 1 and 2) centered on splice.

# Lateral Bracing for a Single Joist with Hanger

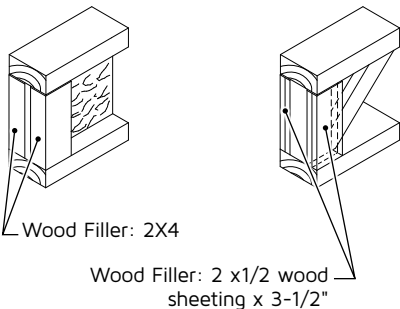
Only required if the hanger does not provide lateral support for the joist's top chord.



## Joists with 3X2 chords

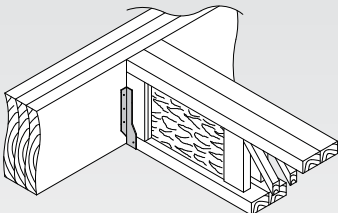
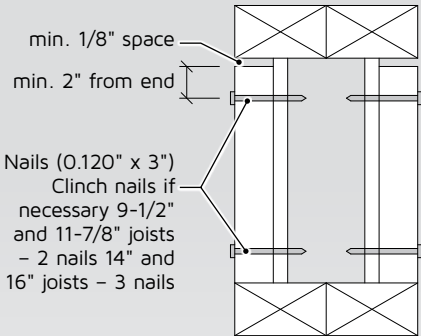


## Joists with 4X2 chords

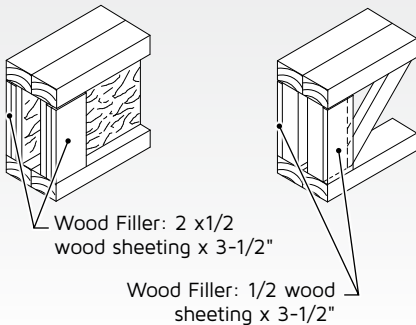


# Lateral Bracing for a Double Joist with Hanger

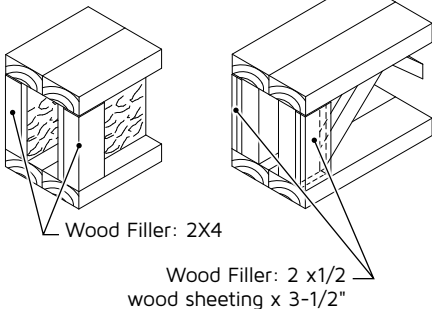
Only required if the hanger does not provide lateral support for the joist's top chord.



## Joists with 3X2 chords



## Joists with 4X2 chords





## **Barrette Structural Distribution Inc. Manufacturer's Product Warranty**

Products manufactured by Barrette Structural Distribution Inc. (hereafter: "Barrette Structural Distribution") are guaranteed for the life of the structure against all manufacturing defects and faulty materials, for which manufacturer's original warranty applies.

This limited lifetime warranty is applicable if the products manufactured by Barrette Structural Distribution have been correctly stored, protected from climatic conditions such as sunlight, humidity, rain or wind, installed and used in accordance with the relevant product manufacturer's guidelines and applicable standards and codes, 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, including but not limited to, fire, flooding, natural disasters or any other cause beyond the control of Barrette Structural Distribution;
- defective structure due to several factors, including but not limited to, poor construction practices, and incorrect installation methods;
- damage to the structure before, during or after installation;
- failure to respect installation instructions, current building codes and norms, and best practices installation techniques;
- the modification of joists or roof trusses after the proposed original 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 Distribution;
- defective ventilation, repeated exposure to water or humid conditions;
- excessive loads or tension not allowed for by Barrette Structural Distribution or abnormal or non-compliant use of the product contrary to the use to which it was intended or use contrary to Barrette Structural Distribution's guidance and/or instructions, or under abnormal conditions of use or under unforeseeable conditions by Barrette Structural Distribution.

IN THE CASE OF PROBLEMS WITH MANUFACTURING FAULTS COVERED BY THIS WARRANTY, BARRETTE STRUCTURAL DISTRIBUTION WILL PAY REASONABLE COSTS FOR LABOUR AND MATERIALS TO REPAIR OR REPLACE ONLY THE PRODUCT UNDER ITS WARRANTY. THESE COSTS MUST NOT EXCEED BY MORE THAN THREE TIMES THE INITIAL PURCHASE COST OF THE PRODUCT INVOLVED IN THE CLAIM. THESE REMEDIES ARE THE SOLE AND EXCLUSIVE REMEDIES FOR ANY BREACH OF WARRANTY. TO THE MAXIMUM EXTENT PERMITTED BY LAW, BARRETTE STRUCTURAL DISTRIBUTION IS NOT RESPONSIBLE FOR ANY DIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY.

IN THE EVENT OF A CLAIM, THE RESPONSIBILITY OF BARRETTE STRUCTURAL DISTRIBUTION IS LIMITED TO THAT WHICH HAS BEEN OUTLINED IN THIS WARRANTY. BARRETTE STRUCTURAL DISTRIBUTION MAY NOT BE HELD RESPONSIBLE FOR ANY OTHER DAMAGE WHATSOEVER. THIS WARRANTY SUPERSEDES ALL OTHER WARRANTIES AND REPRESENTATIONS ABOUT THE PRODUCT.

Warranty claims must be made in writing as soon as the manufacturing defect is discovered and in any case not more than thirty (30) days after such discovery.

**BARRETTE STRUCTURAL DISTRIBUTION INC.**

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

To obtain further information, please contact your representative.