EVOLUTION™

STEEL DECK FRAMING

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TABLE OF CONTENTS

INTRODUCTION

READ INSTRUCTIONS COMPLETELY BEFORE STARTING INSTALLATION

General Guidelines

It is the responsibility of the installer to meet all code and safety requirements, and to obtain all required building permits. The framing installer should determine and implement appropriate installation techniques for each installation situation. Fortress Building Products nor its distributors shall **NOT** be held liable for improper or unsafe installations.

Reference https://bpdirectory.intertek.com/ for span charts. Search for CCRR #0313. It is critical to **NOT** exceed defined allowable maximum spans.

Personal Protection Equipment (PPE) must be worn anytime you're using power tools and working with Evolution framing. Eye protection, hearing protection, closed-toe shoes, gloves, long sleeves, and pants must be worn to keep yourself safe.

The installer holds primary responsibility for implementing all necessary safety measures.

As the steel framing parts are cut, all metal shavings and/or chips must be removed from inside the Evolution Framing parts. At the end of a work period, all steel shavings and/or chips must be cleaned off the jobsite. Not doing so could result in the staining of surrounding surfaces.

As the steel framing parts are cut, **DO NOT** allow metal shavings and/or chips to get dropped or blown into a pool, hot tub, or any other body of water. Staining could occur if this were to happen.

Fortress Building Products **DOES NOT** cover all possible installation scenarios within these instructions. In some cases, it may be necessary for you to consult a professional engineer, building code official, or local dealer. In addition, it may become necessary to use brackets other than Fortress' when more complex installations take place.

Required Tools

Goggles

Safety Gloves

Tape Measurer

Speed Square

Level Tool

Pencil

Ear Protector

Close-Toed Shoes

Touch-Up Paint

Bit Extender

Drill

Clamps

Concrete Drill Bit: 3/8" [10mm]

Hex Head Nut Driver Bits: 3/8", 5/16" [10mm, 8mm]

Metal Cutting Circular Saw

Ground Stakes

Wrench: 9/16" [14mm]

Ratchet Wrench: 9/16" [14mm]

Saw Horses

Step Bit

File

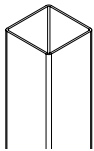**Locking Pliers**

Post Hole Digger
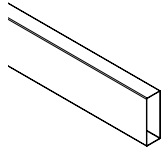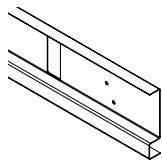
3-4 LB. Hammer

String

Components

Post
3-1/2" x 3-1/2" x 10',
5-1/2" x 5-1/2" x 20'
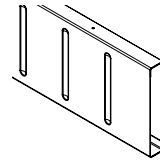[89mm x 89mm x 3048mm,
140mm x 140mm x 6096mm]

Joist
2" x 6" x 12',
14', 16', 18', 20'
[51mm x 152mm x 3658mm,
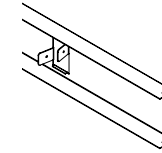4267mm, 4877mm, 5486mm,
6096mm]

S-Ledger
2" x 8" x 8',
12', 20'
[51mm x 203mm x 2438mm,
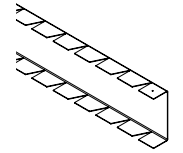3658mm, 6096mm]

Beam
2" x 11" x 8',
12', 16', 20'
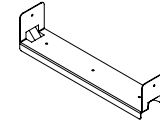[51mm x 279mm x 2438mm,
3658mm, 4877mm, 6096mm]

**U-Rim Joist
(Pre-Punched & Blank)**
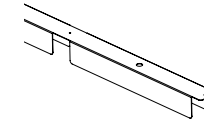2" x 6" x 8'
[51mm x 156mm x 2438mm]

**U-Rim Joist
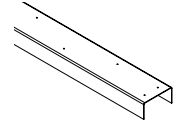(Curved)**
2" x 6" x 8'
[51mm x 156mm x 2438mm]

**Beam Blocking
(12" OC or 16" OC)**
2" x 2-1/2" x 10", 14"
[51mm x 64mm x 254mm, 356mm]

**Evolution Strap
(12" OC or 16" OC)**
2" x 2" x 48"
[51mm x 51mm x 1219mm]

Double Beam Track
2" x 4" x 48"
[51mm x 102mm x 1219mm]

Concrete Anchor
3/8" x 3" [10mm x 76mm]
(NOT PROVIDED BY FORTRESS)

Evolution Self-drilling Screw
3/4" [19mm] #12

Joist/Beam Cap
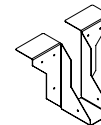
Single Hanger Bracket

Double Hanger Bracket
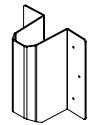
Ledger Bracket
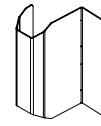
Rim Joist Bracket

F-50 Bracket
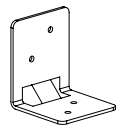
F-10 Bracket

Post to Pier Bracket
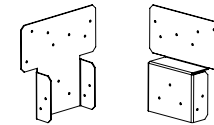
Single Beam To Post Bracket
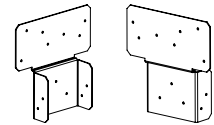
Double Beam To Post Bracket

Dimensions of Components:
The dimensions shown with the components are rounded and **NOT** actual size.

INSTALLATION OVERVIEW
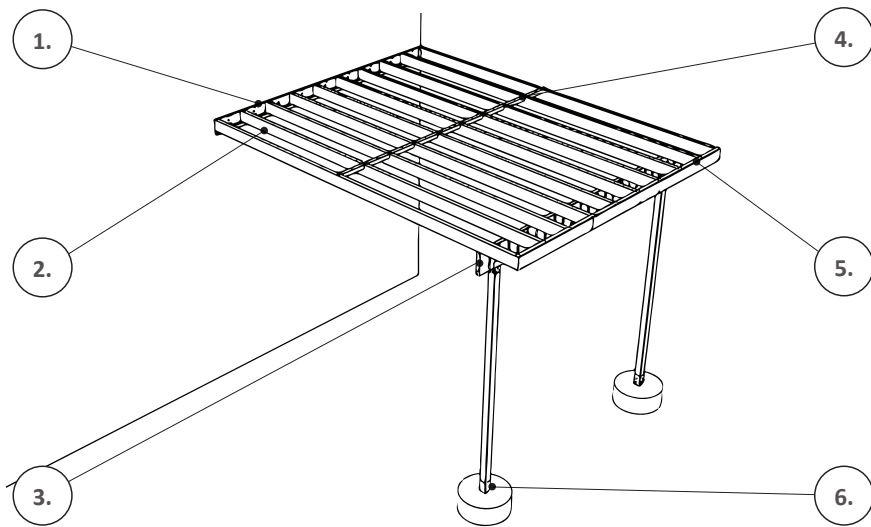
Evolution Framing Connections
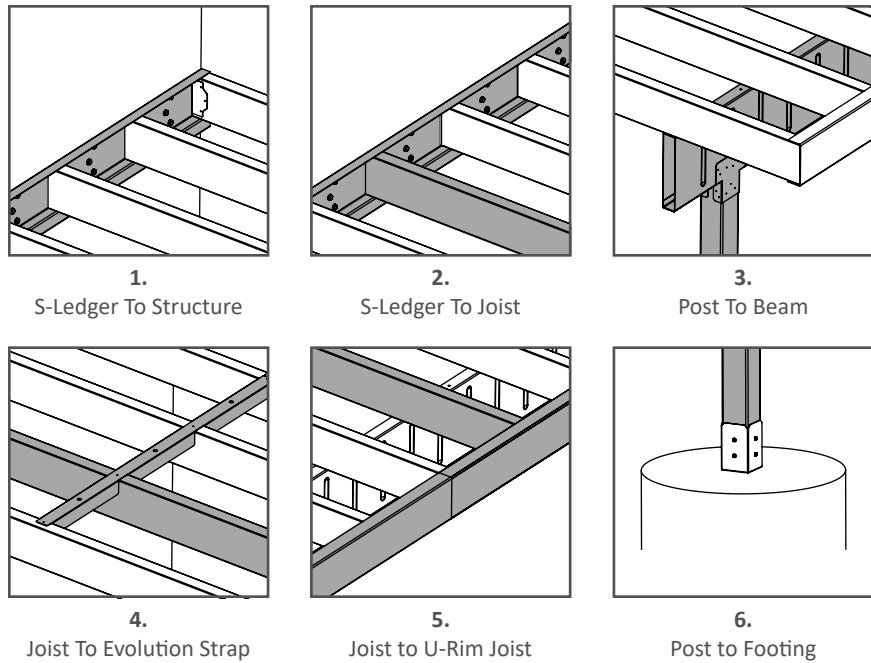
1.
S-Ledger To Structure

2.
S-Ledger To Joist

3.
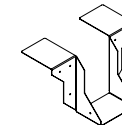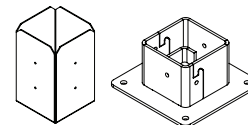Post To Beam

4.
Joist To Evolution Strap

5.
Joist to U-Rim Joist

6.
Post to Footing

Note:
Construction methodologies are always improving. Please visit
FortressBP.com for the most up-to-date Installation Instructions.

Evolution Framing Installation Process (Overview)

1.
Mount S-Ledger
Onto Structure

2.
Mount Posts To
Footing and Brace

3.
Install Beam
(Single or Double Beam)

4.
Install End Joists

5.
Install Joists

6.
Install Beam Blocking

7.
Install Evolution Strap

8.
Install U-Rim Joist
(Pre-Punched, Blank,
Curved or Joist as U-Rim)

9.
Install Joist or
Beam Caps

Note:
Construction methodologies are always improving. Please visit
FortressBP.com for the most up-to-date Installation Instructions.

PROJECT PLANNING

Step 1: Sketch Layout of Framing Project
1. Sketch the top and side of the house/building profile.
2. Identify the desired location of your framing project.
3. Using a tape measure determine the required length, width and height of the framing project.
4. Determine desired post locations and post height.
5. Determine required spacing between joists (on center or non-standard).
6. Determine number of joists required.
7. Mark critical dimensions onto the previously sketched top and side views of house/building for future reference.
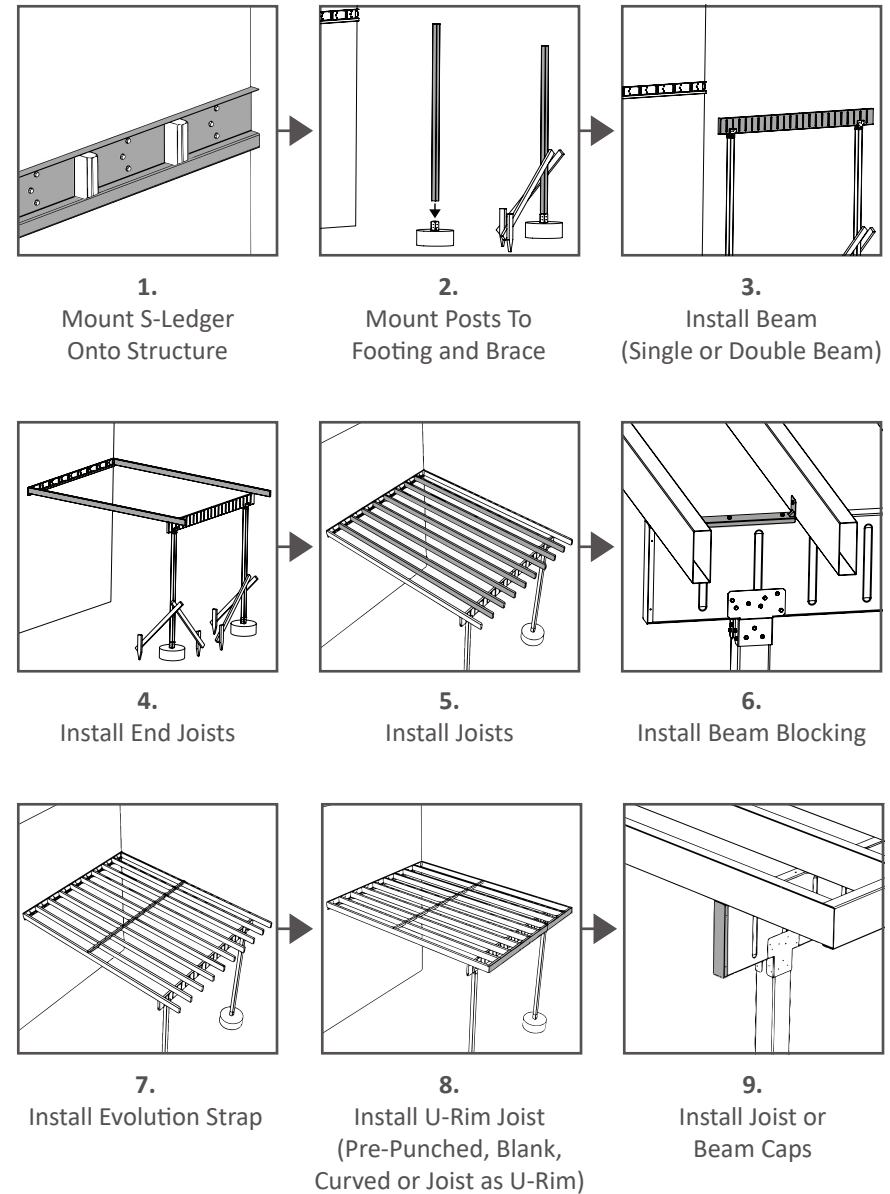
Note:
- **Standard spacing between joists:** 12" [305mm] on center or 16" [406mm] on center.
- Reference https://bpdirectory.intertek.com/ for span charts. Search for CCRR #0313. It is critical to **NOT** exceed defined allowable maximum spans.

Fig. 1

HOUSE/BUILDING

Joists

16' [4877mm]

16" [406mm] On Center Spacing

11' [3353mm]

10' [3048mm]

Post

12' [3658mm]

14' [4267mm]

16' [4877mm]

TOP VIEW

SIDE VIEW
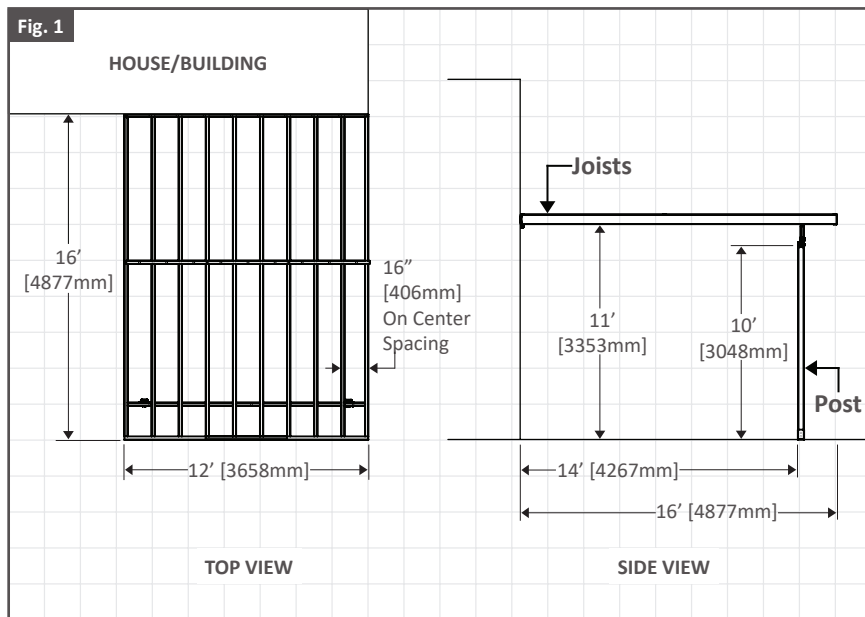
Step 2: Create a Perimeter For The Framing Project

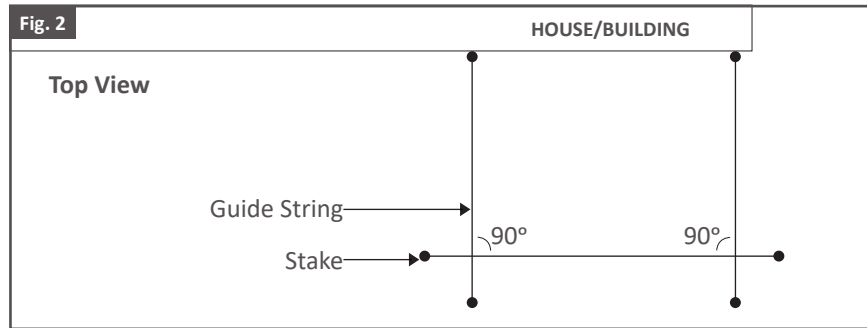1. Using Stakes and Guide String, create a perimeter for the framing project. As shown in Fig. 2.

Tip:

- Be sure corners are set at 90° angles.

Fig. 2
HOUSE/BUILDING
Top View
Guide String
Stake
90°   90°

Step 3: Mark & Dig Footing Hole Locations

1. Using spray paint, mark the center of the desired footing hole locations. As shown in Fig. 3.
2. Consult local code requirements for exact footing hole width and depth requirements. As shown in Fig. 4.
3. Dig the footing holes using a Post Hole Digger.
4. Be sure to keep the Post Hole Digger straight and plumb when digging.
5. **DO NOT POUR CONCRETE IN THIS STEP.**

Note:

- Call 811 before you dig the footing holes to locate and identify any buried utilities.

Fig. 3
HOUSE/BUILDING
Spray paint center of desired footing location
Top View

Fig. 4
Consult local code requirements
Consult local code requirements
Side View
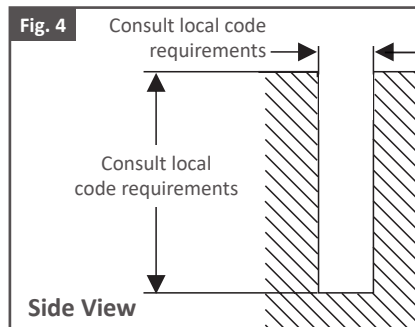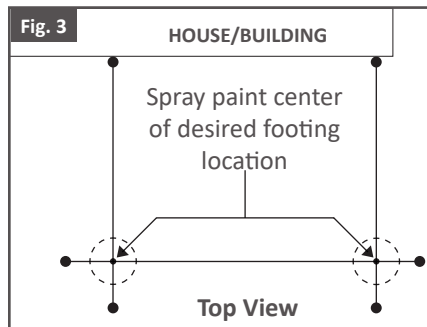
CUTTING & PAINTING

Step 1: Mark Cut Points

1. Position the material to be cut on a flat surface, preferably Saw Horses.
2. Using a pencil, mark desired cut length onto material.
3. Using a speed square, straighten cut point markings on top and side faces. As shown in Fig. 5.

Tip:

- Before making cuts, confirm cut length is correct.

Fig. 5
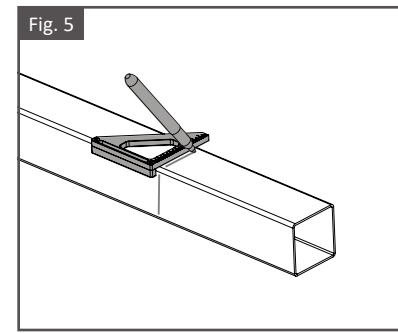
Step 2: Cut Material To Length

1. Cut the material using a metal cutting circular saw or grinder with a cutoff disc. As shown in Fig. 6. Be sure to follow cut marks on top and side faces.

Tip:

- **Be sure to use a saw and blade designed to cut metal. Metal cutting saws rotate a lower RPM. Using a standard wood saw will lead to premature wearing of the blade.**
- Be sure to support product to prevent bending during cutting.
- Be sure to not over heat the material when making cuts with a grinder.

Fig. 6
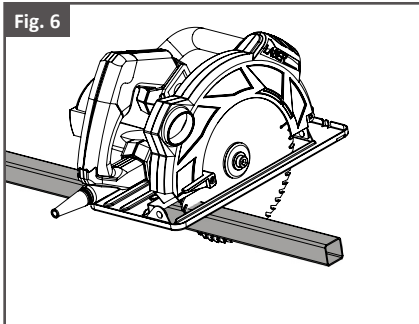
Step 3: Clean Cut Areas
1. Use a file to smooth cut edges. As shown in Fig. 7.
2. Remove any metal shavings and dust with a brush or rag.
3. Make sure surfaces to be painted are clean. **DO NOT** cut product over concrete. Be sure to remove any metal shavings to avoid stains.

Tip:
- **DO NOT** allow metal shavings and/or chips to get dropped or blown into a pool, hot tub, or any other body of water.
- **Be sure to remove metal shavings and/or chips from inside the cut material. Not doing so may result in rust and staining of ground surfaces after installation.**


Fig. 7
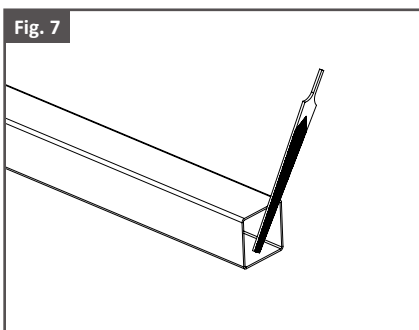
Step 4: Apply Spray Paint To Cut Areas
1. Using a piece of cardboard as a mask, apply the 1st coat of Fortress zinc based touch-up paint.
2. Allow to dry before applying second coat.
3. Apply the 2nd coat of Fortress zinc based touch-up paint.
4. Allow to dry and install.

Tip:
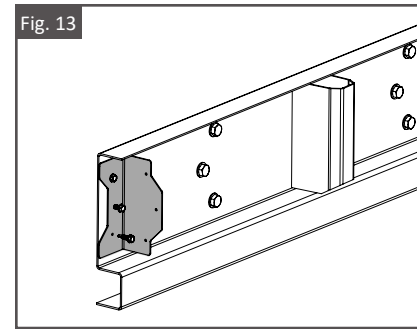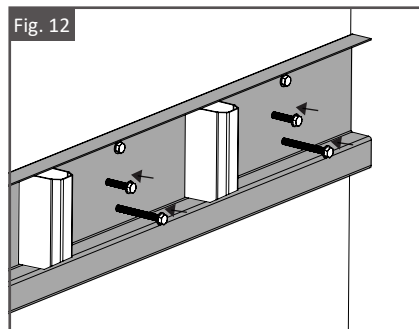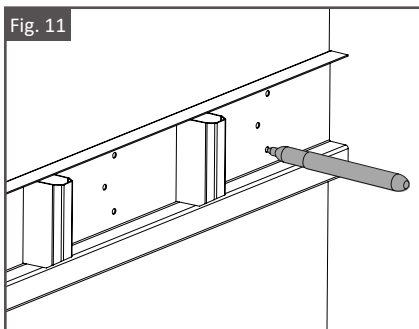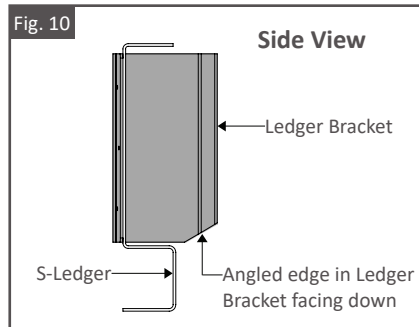- Apply 2 coats of spray paint in non-salt water environments and 3 coats in salt-water environments.
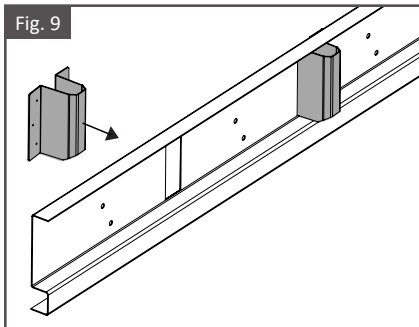

Fig. 8
2X
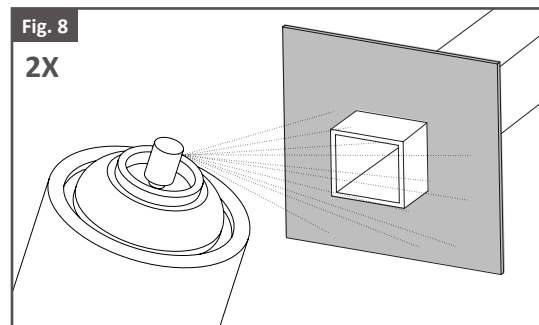
FRAMING CONNECTIONS

Connection 1: S-Ledger To Structure
1. Insert Ledger Brackets into S-Ledger openings. As shown in Fig. 9. Ledger Brackets are press fit into place.
2. Be sure angle cut edge in Ledger Bracket is facing down once installed. As shown in Fig. 10. Adjust if needed.
3. Place S-Ledger in desired position onto structure.
4. Mark screw hole locations onto structure. As shown in Fig. 11.
5. Using a 3/8" [10mm] bit, Pre-drill screw holes into structure. Attachment to the structure will vary depending on the attachment material and geographical region. Consult your local building code official or structural engineer to determine the proper size and type of bolt/screw to use to attach the S-ledger to the structure.
6. Position S-Ledger over pre-drilled holes then, using 3/8" [10mm] bolt and washers, fasten S-Ledger to structure. As shown in Fig. 12. **All pre-drilled holes should be used when securing the S-Ledger to the structure.**
7. Attach F-50 Brackets to the outside edges of the S-Ledger with Evolution Self-Drilling Screws. As shown in Fig. 13. The notched side of the F-50 Bracket is designed to line up flush with the edge of the S-Ledger.

Note:

- The F-50 Bracket is also used anytime there's a joist attachment to the S-Ledger that requires non-standard spacing. This could occur if you're adding joists for blocking or adding additional support.
- If local building code requires connectors larger than 3/8" [10mm], the factory sized holes can be drilled out using a metal cutting drill bit.
- Flashing/Water Management requirements will vary from region to region. Consult your local building code official or structural engineer for proper flashing/water management treatment.
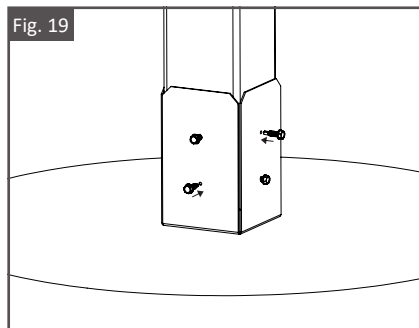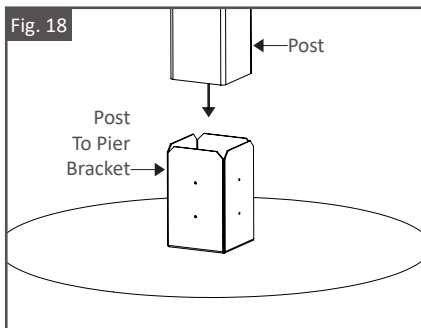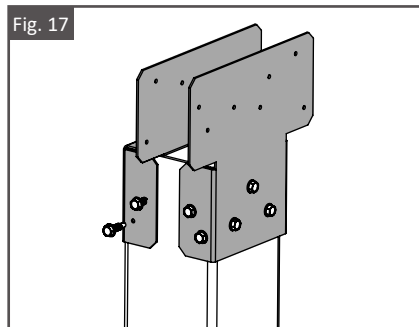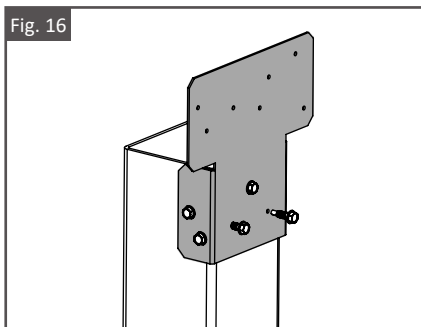

Fig. 9

Fig. 10

Side View

Ledger Bracket

S-Ledger

Angled edge in Ledger Bracket facing down

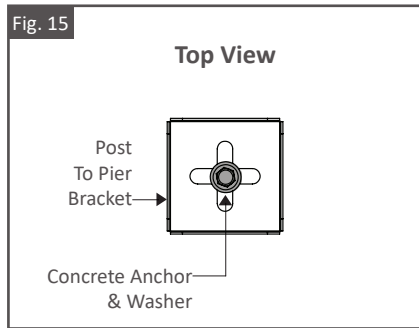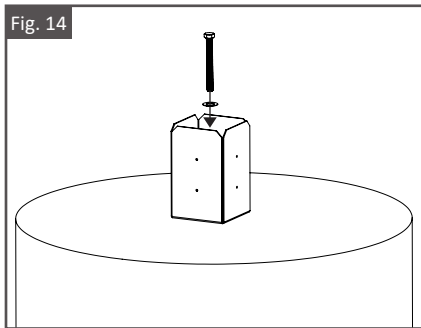
Fig. 11

Fig. 12

Fig. 13

Connection 2: Post Onto Concrete Footing

1. Fill footing holes (Page 10, step 3) with concrete. The concrete can be **at most** 1" [25mm] below the ground surface.
2. Be sure top surface of concrete is level once fully cured.
3. Cut posts to desired height. Reference cutting and painting instructions on pages 11 - 13.
4. Pre-drill concrete footing, then mount Post to Pier Brackets onto surface using 3/8" x 3" [10mm x 76mm] Concrete Anchors. As shown in Fig. 14 & 15. Use the string (page 10, step 2) as a guide when positioning the Post To Pier Brackets.
5. Using Evolution Self-Drilling Screws, fasten Beam to Post Brackets (Single Beam or Double Beam) onto top edge of post. As shown in Fig. 16 & 17.
6. Insert Posts into Post to Pier Brackets. As shown in Fig. 18. Be sure to have Beam to Post Brackets orientated in desired direction to allow for the Beam to be mounted correctly.
7. Confirm that the post is level and plumb.
8. Fasten Posts onto Post to Pier Brackets using Evolution Self-Drilling Screws. As shown in Fig. 19. Continuously check if post is level and plumb.

Note:

- Allow the concrete to cure for a minimum of 24 hours before installing Posts.
- Post installation requirements will vary in different geographical regions. Consult with your local building code officials for requirements.

- When not mounting posts onto a footing, Fortress recommends the use of Helical Piers. The use of specialized equipment is required for Helical Pier installation, be sure to contact a building professional.
- **It is critical for posts and post brackets to maintain the 90° angles established in project planing instructions steps 2 & 3, on page 10.**
- **It is critical for post heights to be relatively even/coplanar once installed. This will help ensure the frame assembly is level once installed.**
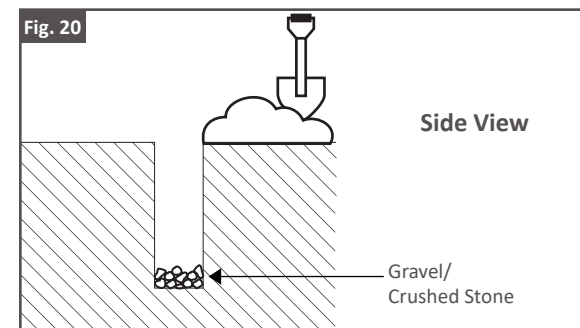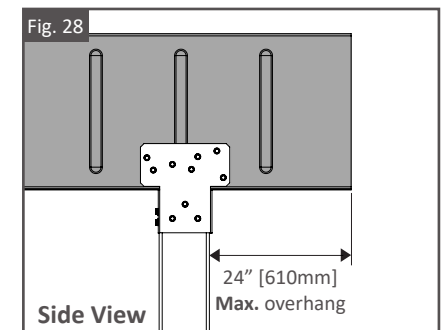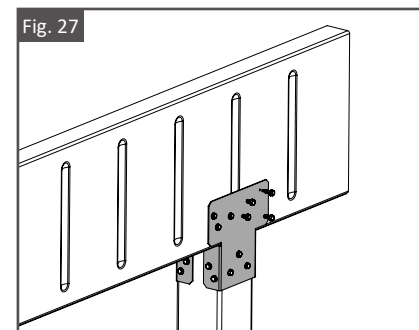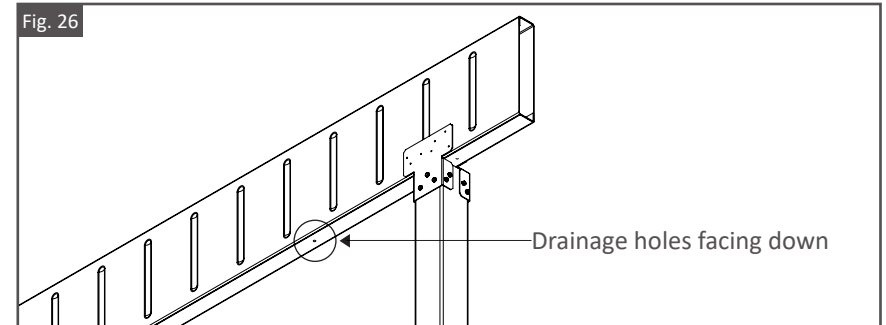

Fig. 14

Fig. 15
Top View
Post To Pier Bracket
Concrete Anchor & Washer

Fig. 16

Fig. 17

Fig. 18
Post
Post To Pier Bracket

Fig. 19

Connection 3: Bury Post Into Footing (Alternative to Connection 2)

1. Fill footing holes with 3" [72mm] of gravel or crushed stone to allow for drainage. As shown in Fig. 20.
2. Compact the gravel before setting the Posts.
3. Use tape measure to check depth. Evolution Posts are designed to be buried at **a minimum** of 36" [914mm] depth. As shown in Fig. 21.
4. Use the string (page 10, step 2) as a guide when positioning a Post into each hole. As shown in Fig. 22.
5. With Posts set, Fill Footings holes with concrete to within 1" [25mm] of the ground surface. As shown in Fig. 23.
6. Use a level to confirm that Posts are plumb and aligned with the Guide Strings. Adjust if needed.

Tip:

- Be sure to account for slopes in ground surface when setting Posts.
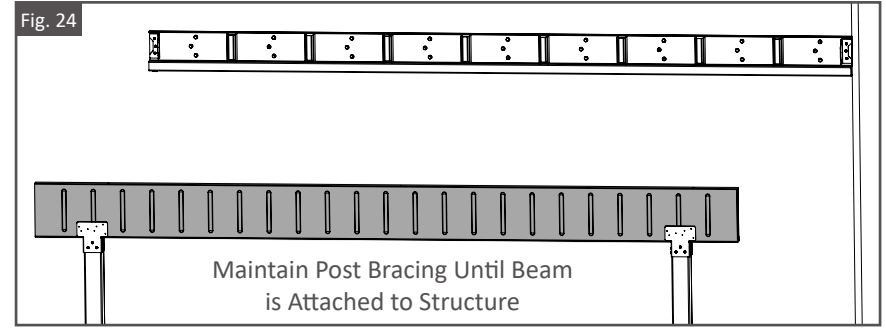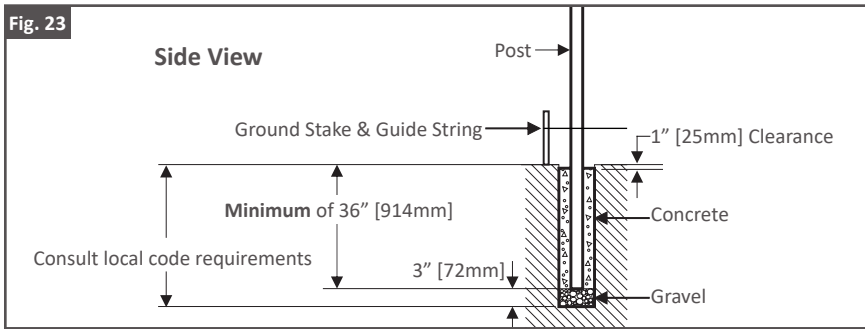- Allow concrete to cure for a minimum of 24 hours before installing brackets.
- As the concrete cures, be sure to keep posts placed along guide strings & continuously check that they are plumb as well as in line with the next post.

Fig. 20
Side View
Gravel/ Crushed Stone

Fig. 21

Side View

Minimum of 36" [914mm]

Fig. 22

Post

Ground Stake & Guide String

Side View

Fig. 23

Side View

Post

Ground Stake & Guide String

1" [25mm] Clearance

Minimum of 36" [914mm]

Concrete

Consult local code requirements

3" [72mm]

Gravel
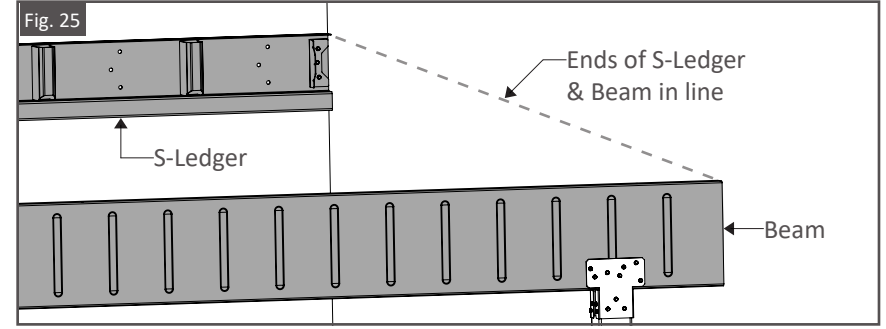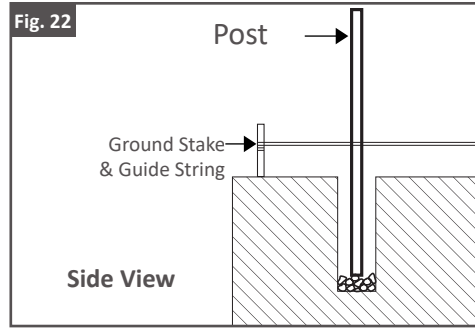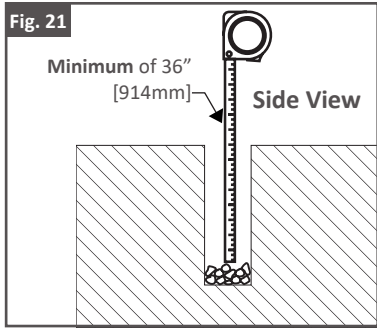
Connection 4A: Post To Single Beam

1. Position Beam into desired position. As shown in Fig. 24.
2. Confirm both ends of the Beam and S-Ledger are in Line. As shown in Fig. 25. Adjust if needed.
3. All Beams contain holes to allow for water drainage. Be sure drainage holes on Beam face down once installed. As shown in Fig. 26. Adjust if needed.
4. While keeping the Beam in position, use Evolution Self-Drilling Screws to fasten brackets onto the Beam. As shown in Fig. 27. The use of Clamps is recommended to keep Beam in desired position.

Note:

- The **maximum** Beam to Post overhang allowed is 24" [610mm]. As shown in Fig. 28.

Fig. 24

Maintain Post Bracing Until Beam
is Attached to Structure

Fig. 25

Ends of S-Ledger
& Beam in line

S-Ledger

Beam

Fig. 26

Drainage holes facing down

Fig. 27

Fig. 28

24" [610mm]
Max. overhang

Side View

Connection 4B: Post To Double Beam (Alternative To Connection 4A)

1. Using the Double Beam Track, couple two Beams together to create a Double Beam. As shown in Fig. 29. The Double Beam Track must be installed continuously across the length of the Double Beam and on both top and bottom faces of beam.
2. Fasten Double Beam Track to Double Beam using Evolution Self-drilling Screws. As shown in Fig. 30. Be sure to have ends of Double Beam flush before fastening.
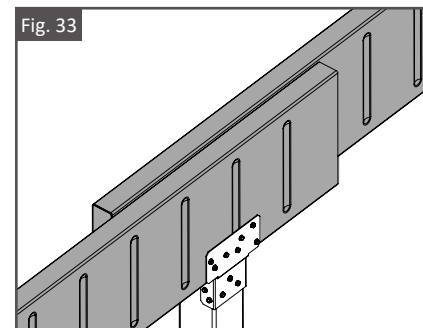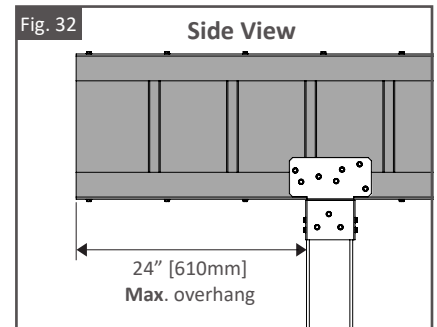3. Mount Double Beam in desired position onto Post and in between two Double Beam to Post Brackets.
4. Using Evolution Self-drilling Screws, fasten Double Beam to Post Brackets onto Double Beam. As shown in Fig. 31. Be sure Beam is parallel to and ends are in line with S-Ledger.

Note:

*   The Double Beam Tracks are packaged in pairs and come in 4' [1219mm] sections.
*   The **maximum** Double Beam to post overhang allowed is 24" [610mm]. As shown in Fig. 32.
*   **BEAM SPLICING:** When splicing two beams, there must be a **minimum** of 24" [610mm] of overlap between the two beams. As shown in Fig. 33 & 34. The splice must be supported by a post at any location within the beam overlap. The beam splice is connected with (4) 3/8" [10mm] diameter thru bolts, nuts, and washers. As shown in Fig. 35 & 36.
*   All Beams contain holes to allow for water drainage. Be sure drainage holes on Beam face down once installed. Reference Fig. 26 on page 19. Adjust if needed.
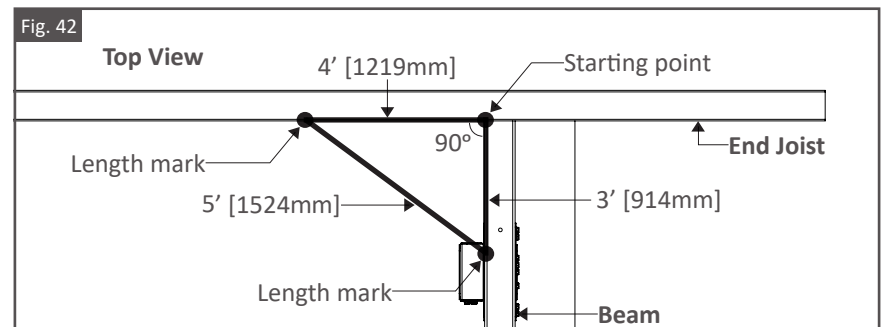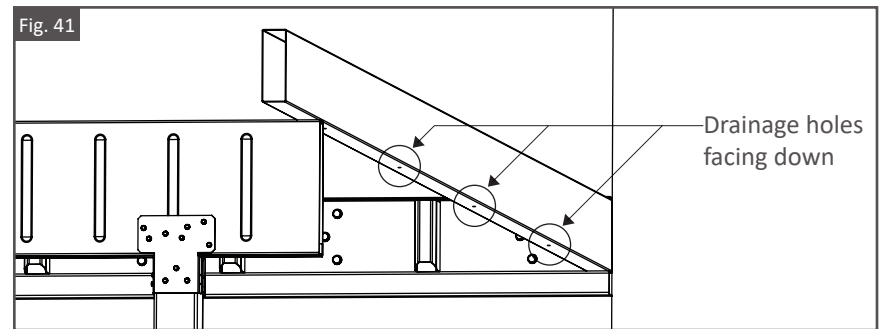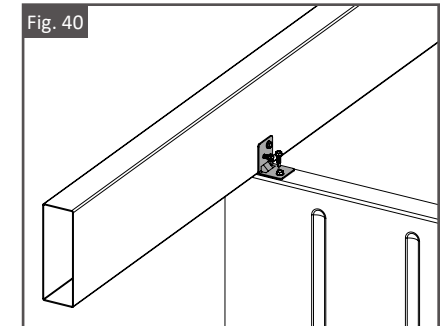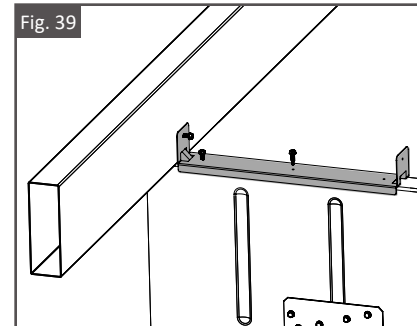
Fig. 29

Fig. 30
Ends of Beam & Beam Tracks flush

Fig. 31

Fig. 32   **Side View**
24" [610mm]
Max. overhang

Fig. 33

Fig. 34
Top View

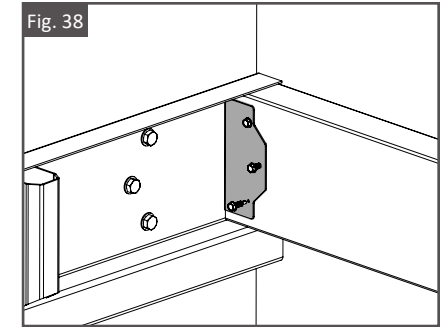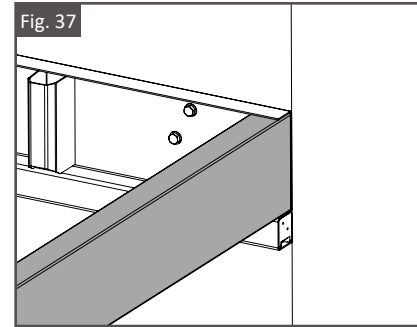**Minimum** of 24" [610mm] overlap

Fig. 35

Fig. 36
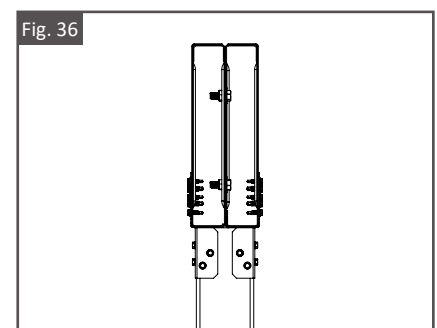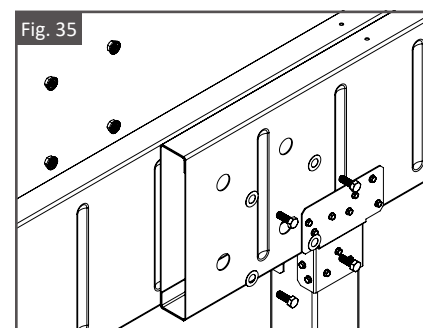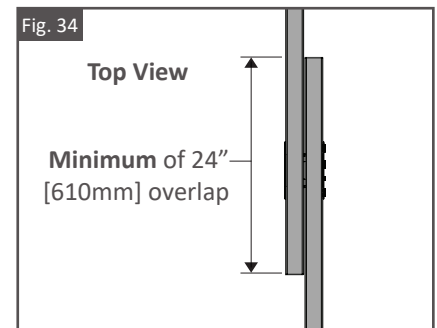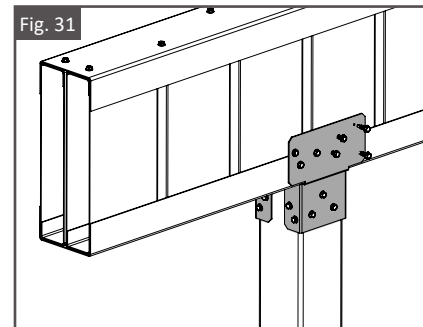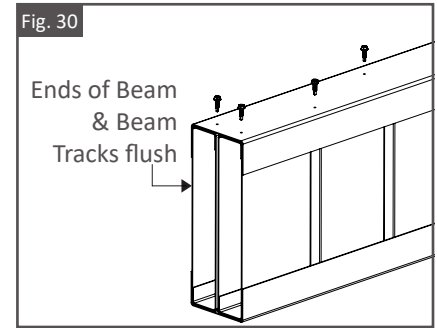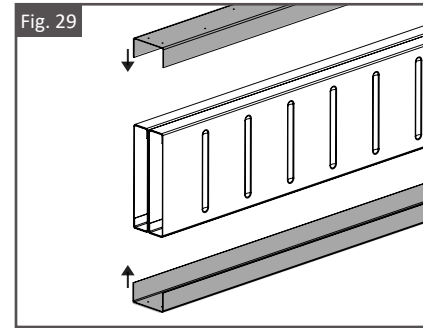
Connection 5A: End Joists To S-Ledger & Beam

1. If required, cut joists to desired length. Reference cutting and painting instructions on pages 11 - 13.
2. Mount End Joists flush onto both ends of the S-Ledger. As shown in Fig. 37.
3. Using Evolution Self-drilling Screws, fasten End Joists onto F-50 Brackets. As shown in Fig. 38.
4. Confirm the End Joists and Beam are square. Adjust if needed.
5. If using standard spacing between joists, use either 12" [305mm] O.C. or 16" [406mm] O.C. Beam Blocking to mount joists onto Beam. As shown in Fig. 39.
6. If using non-standard spacing between joists, Use F-10 Brackets to mount joists onto Beam. As shown in Fig. 40.

Note:

- On both ends of the S-Ledger, and anywhere there is non-standard spacing, the F-50 Bracket is used to attach the joist in place of the Ledger Bracket.
- All joists contain holes to allow for water drainage. **Be sure drainage holes on joists face down once installed.** As shown in Fig. 41.
- **How To Square Frame:** Fortress recommends using the 3-4-5 rule. Measure and mark 3' [914mm] from the edge of Beam, measure and mark 4' [1219mm] from outer beam edge along joist, then measure between two markings. Adjust until measurement between markings is exactly 5' [1524mm]. As shown in Fig. 42. Larger triangles, with sides of 6-8-10 and 9-12-15, allow for even more accurate results.


Fig. 37

Fig. 38

Fig. 39

Fig. 40

Fig. 41

Drainage holes facing down

Fig. 42

Top View

4' [1219mm]

Starting point

90°

End Joist

Length mark

5' [1524mm]

3' [914mm]

Length mark

Beam

Connection 5B: Joists To S-Ledger & Beam Continued
1. Slide Joists onto the Ledger Brackets. As shown in Fig. 43. Use a 3-4 lb. Hammer and a block of wood to fully seat joists into Ledger Brackets & S-Ledger.
2. Using Evolution Self-drilling Screws, fasten Joists onto Ledger Brackets. As shown in Fig. 44. It is required to apply a screw onto each sides of a joist.
3. Determine on center spacing between joists.
4. If using standard spacing between joists, use either 12" [305mm] O.C. or 16" [406mm] O.C. Beam Blocking to mount joists onto Beam. As shown in Fig. 45.
5. If using non-standard spacing between joists, Use F-10 Brackets to mount joists onto Beam. As shown in Fig. 46.

Note:
- **Standard spacing between joists:** 12" [305mm] on center or 16" [406mm] on center.
- Blocking is required between each joist throughout the entire length of a drop beam.
- On both ends of the S-Ledger, and anywhere there is non-standard spacing, the F-50 Bracket is used to attach the joist in place of the Ledger Bracket.
- All joists contain holes to allow for water drainage. **Be sure drainage holes on joists face down once installed.** As shown in Fig. 47.

Fig. 43

Fig. 44

Fig. 45

Fig. 46

Fig. 47
Drainage holes facing down
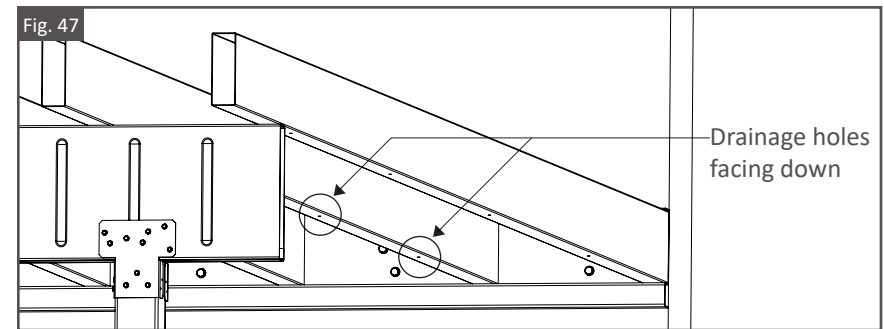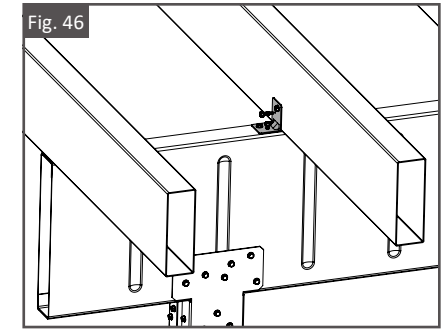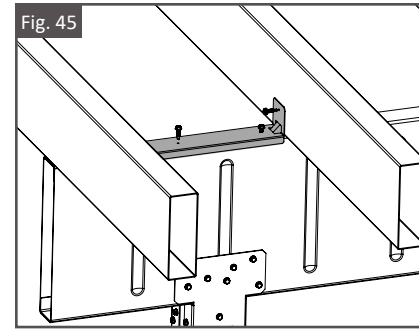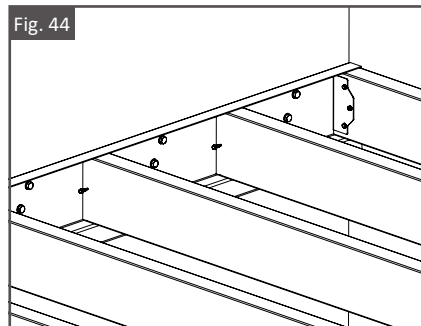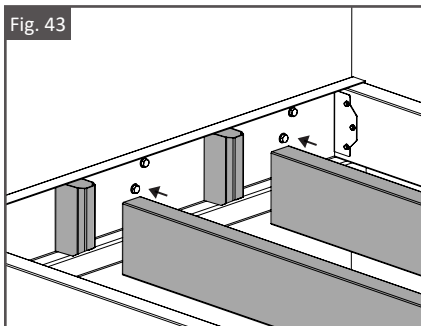
Connection 6A: End Joist To Beam & S-Ledger (Flush Mount - Alternative to Connection 5A)
1. Confirm both ends of the Beam and S-Ledger are in Line. As shown in Fig. 48. Adjust if needed.
2. Attach F-50 Brackets to the outside edges of the Beam with Evolution Self-drilling Screws. As shown in Fig. 49. The notched side of the F-50 Bracket is designed to line up flush with the edge of the Beam.
3. Reference End Joist to S-Ledger mounting steps on page 22, connection 5A: 2 & 3.
4. Using Evolution Self-drilling Screws, fasten End Joists onto F-50 Brackets on Beam Cap. As shown in Fig. 50.
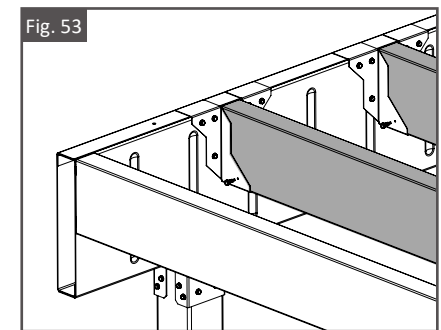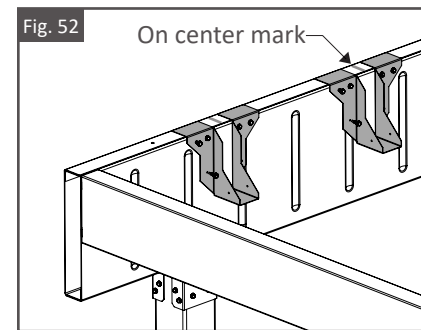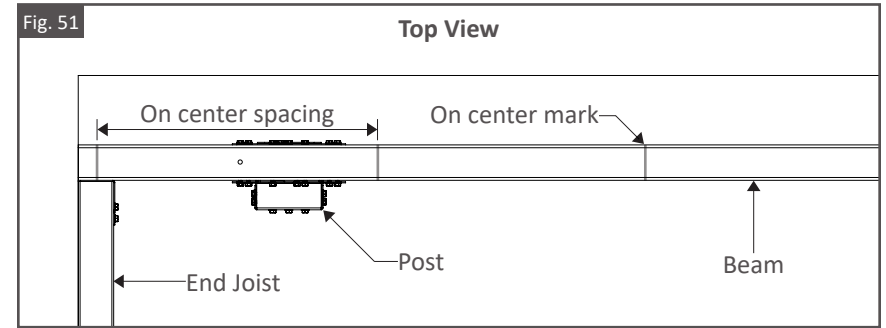
Fig. 48

Ends of S-Ledger & Beam in line

S-Ledger

Beam

Fig. 49

Fig. 50
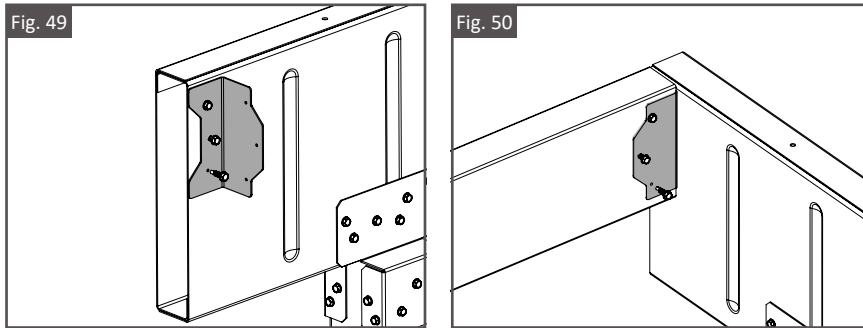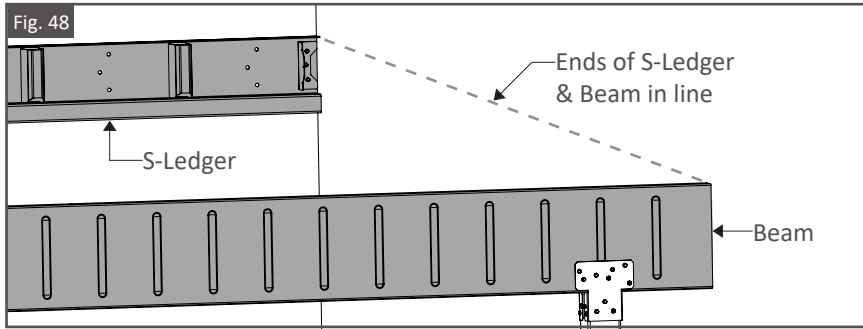
Connection 6B: Joist To Beam & S-Ledger Continued (Flush Mount - Alternative to Connection 5B)

1. Determine required on center spacing between Joists. Reference on center spacing of Ledger Brackets.
2. Once on center spacing is determined, measure and mark desired on center spacing onto top face of Beam. As shown in Fig. 51.
3. Position Single Hanger Brackets centered on previously marked on center markings then fasten the brackets onto the Beam using Evolution Self-drilling Screws. As shown in Fig. 52.
4. Measure opening between S-Ledger and Single Hanger Bracket. Cut joists to length, if required. Reference pages 11 - 13 for cutting and panting instructions.
5. Reference Joist to Ledger Bracket mounting steps on page 24, connection 5B: 1 & 2.
6. Slide Joists into the Single Hanger Brackets.

7. Using Evolution Self-Drilling Screws, fasten additional joists onto Single Hanger Brackets on Beam. As shown in Fig. 53.

Note:

- **Standard spacing between joists:** 12" [305mm] on center or 16" [406mm] on center.

Fig. 51

Top View

On center spacing   On center mark

Post

End Joist   Beam

Fig. 52   On center mark

Fig. 53

Connection 7A: Evolution Strap To Joist

1. **Ground Level Decks:** Place 12" [305mm] or 16" [406mm] O.C. Evolution Strap on the topside of the Joist. As shown in Fig. 54. No fasteners are required when installing Strap on the top-side.
2. **Elevated Decks:** Place 12" [305mm] or 16" [406mm] O.C. Evolution Strap on the underside of the Joist. As shown in Fig. 55. Fasten strap to joists using Evolution Self-drilling Screws. As shown in Fig. 56.

Note:

- For Joist Spans greater than 8' [2438mm], blocking is required mid-span at every bay.

- **Evolution Strap mounted to underside of joists is the preferred method for installation and should be used anytime there's access to the bottom of the deck.**
- The larger diameter holes in the strap are to allow water to escape when it's installed on the underside of the joist.
- The Evolution Strap is 4' [1219mm] long. The 12" [305mm] O.C. version and will cover 4 Joists. The 16" [406mm] O.C. version and will cover 3 Joists.


Fig. 54

Fig. 55

Fig. 56
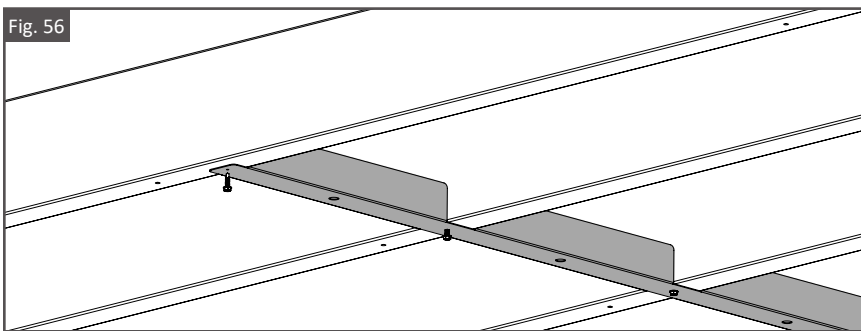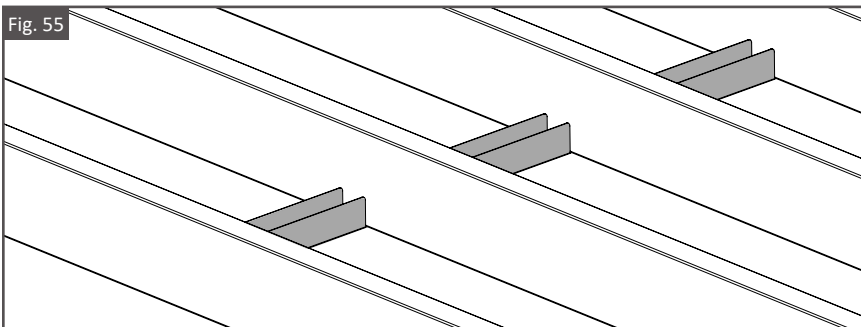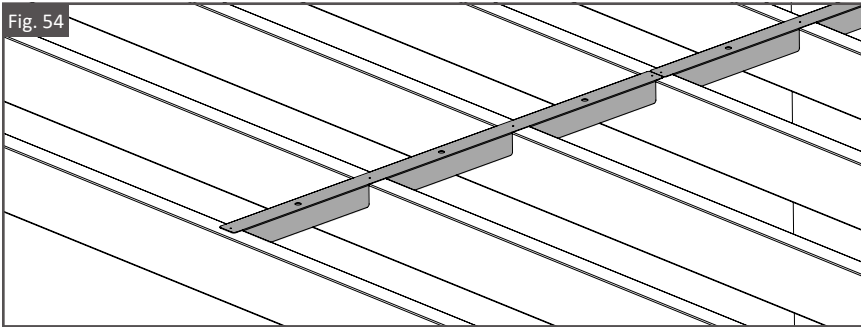
Connection 7B: Non-Standard Spacing at Mid-Span & General Blocking

1. Place two F-50 Brackets opposite of each other in desired position on Joists. As shown in Fig. 57. Be sure brackets are in line to allow for easy install of Blocking.
2. Using Evolution Self-drilling Screws, fasten the two F-50 Brackets onto joists.
3. Cut Joists, to be used as standard blocking, to the desired length. Reference pages 11 - 13 for cutting and panting instructions.
4. Using Evolution Self-drilling Screws, fasten cut Joist to two F-50 Brackets. As shown in Fig. 58.

Note:
- This method can be used for blocking in cases when there's non-standard spacing and the pre-engineered mid-span strap and beam blocking cannot be used.
- This method can be used in general applications when extra blocking is needed for more structure and support. This can be the case when railing or stairs are being installed, extra framing for deck board picture framing, etc.

Fig. 57 — F-50 Brackets — Joists

Fig. 58
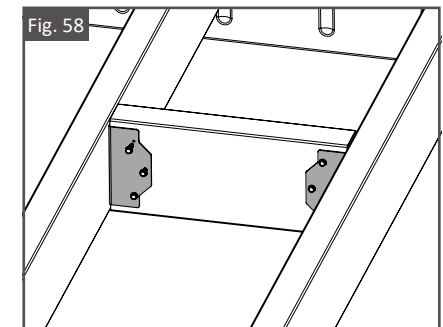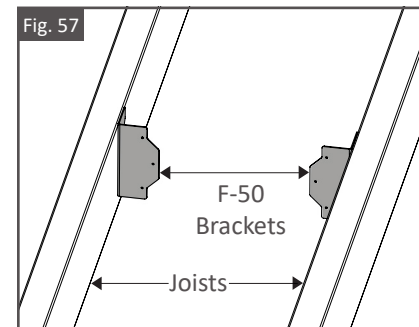
Connection 8A: Pre-Punched U-Rim Joist To Joists

1. Mount pre-punched U-Rim Joist onto exposed ends of Joists. As shown inf Fig. 59. Be sure pre-punched slots on U-Rim Joist cover Joist holes with tabs exposed.
2. Using Evolution Self-drilling Screws, fasten U-Rim Joist onto Joists. As shown in Fig. 60.

3. Using Evolution Self-drilling Screws, fasten ends of U-Rim joist onto top face of End Joists. As shown in Fig. 61. Be sure edge of the Pre-punched U-Rim is flush with outside edge of the Joist.

Note:
- The pre-punched U-Rim Joist should **ONLY** be used when fascia will mount on the Rim of the deck. Not having fascia will result in exposed openings that may be unsightly.
- The pre-punched U-Rim Joist is designed to provide a completely flat surface for fascia mounting.


Fig. 59

Fig. 60

Fig. 61
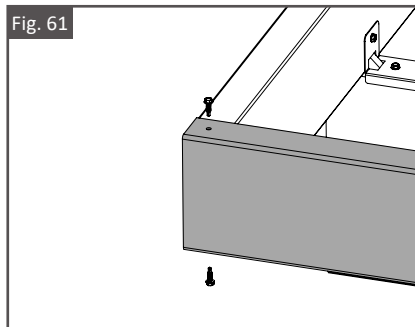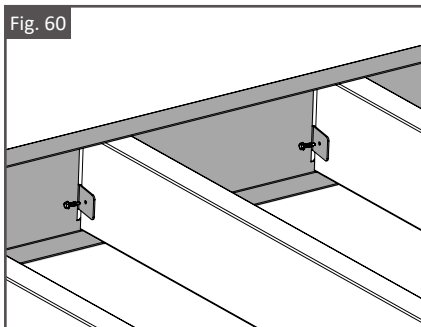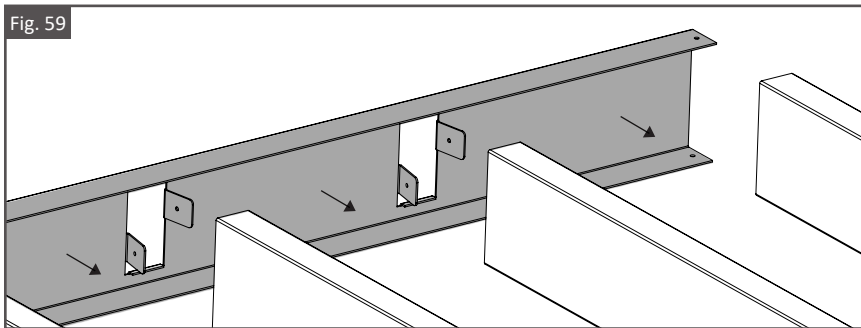
Connection 8B: Blank U-Rim Joist To Joists
1. Mount Blank U-Rim Joist onto exposed ends of Joists. As shown inf Fig. 62.
2. Using Evolution Self-drilling Screws, fasten on top and bottom faces of the Blank U-Rim Joist. As shown in Fig. 63. Be sure edge of the Blank U-Rim Joist is flush with outside edge of the End Joist.

Note:
- The Blank U-Rim Joist is used anytime there's non-standard Joist spacing or no fascia will be used on the rim of the deck.


Fig. 62

Fig. 63
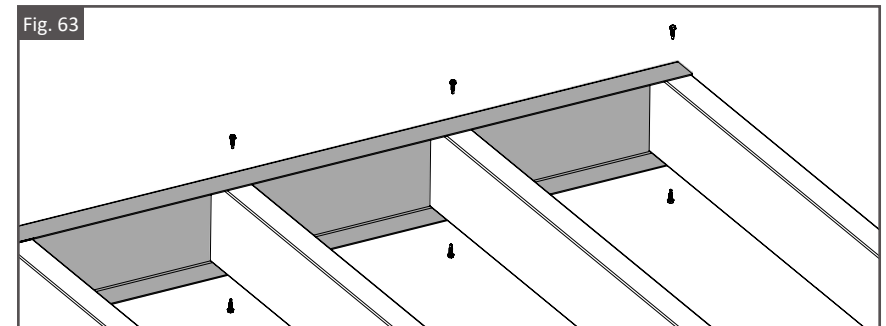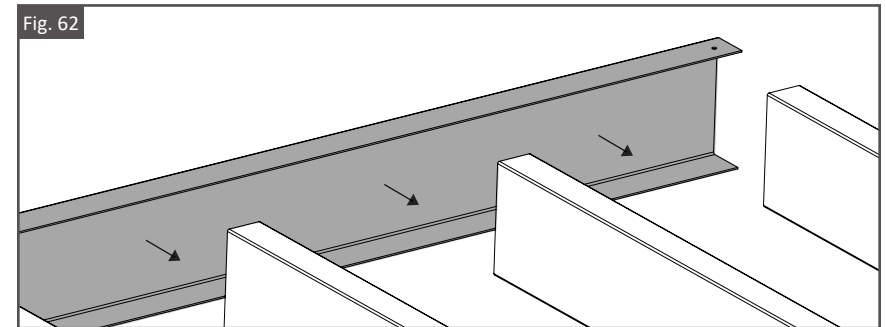
Connection 8C: Curved U-Rim Joist To Joists
1. Insert Rim Joist Brackets in exposed ends of Joists. As shown in Fig. 64.
2. Using Evolution Self-Drilling Screws, fasten Rim Joist Brackets onto Joists. As shown in Fig. 65. **It is required for a screw to be applied onto each sides of a Joist.**
3. Bend the Curved U-Rim Joist by hand and fit it to the angle of the mounted Rim Joist Brackets. As shown in Fig. 66. Be sure edge of the Curved U-Rim is flush with outside edge of the end Joist.
4. On external face of the Curved U-Rim, determine and mark the position of the Rim Joist Bracket tab.
5. Use locking pliers to bend the Rim Joist Bracket tab to the desired angle.

6. Using Evolution Self-drilling Screws, fasten the Curved U-Rim onto the Rim Joist Bracket tab. As shown in Fig. 67.
7. Using Evolution Self-drilling Screws, fasten ends of the Curved U-Rim Joist onto top and bottom face of End Joists. Reference Fig. 61 on page 30 of Pre-punched U-Rim Joist installation (Connection 8A).

Note:
- The Curved Rim Joist is used anytime there's a radius on the rim of a deck.
- There's no need to angle cut the joists at the rim when you use the Curved U-Rim Joist and the Rim Joist Bracket.

Fig. 64

Fig. 65

Fig. 66

Fig. 67

Determined position of Rim Joist Tab
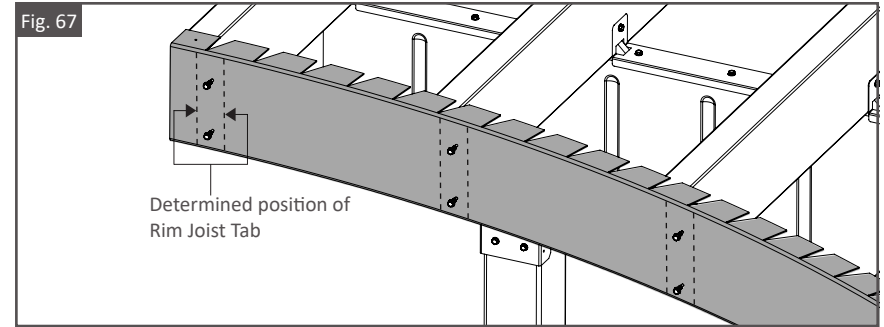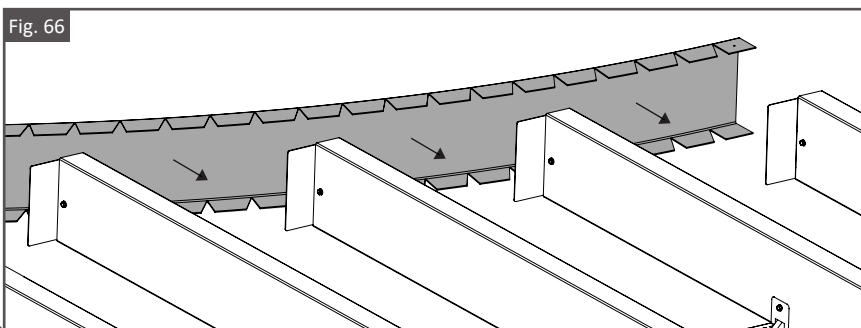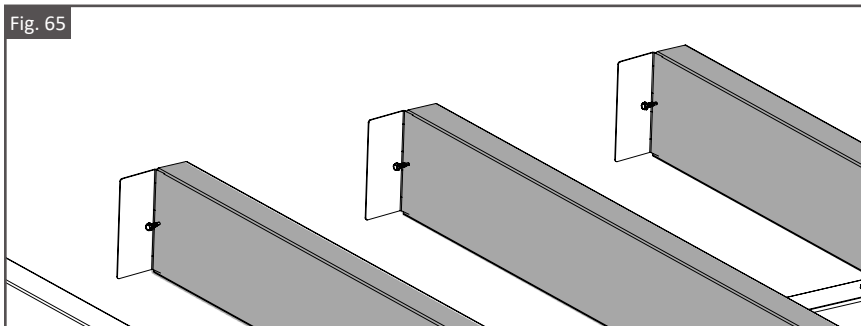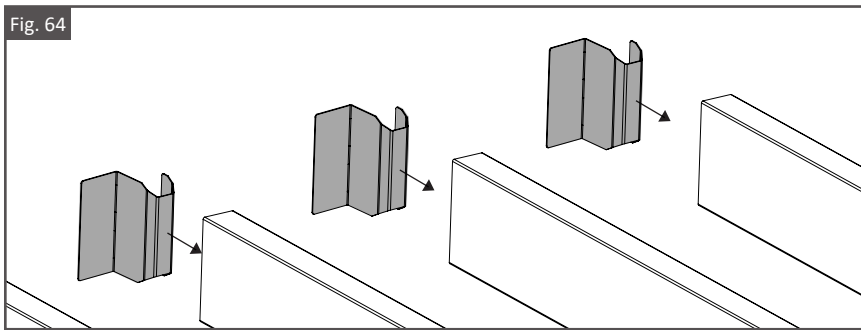
Connection 8D: Joist As Rim Joist (Alternative to Connections 8A & 8B)
1. Mount F-50 Brackets in desired position onto exposed ends of frame joists.
2. Using Evolution Self-drilling Screws, fasten the F-50 Bracket onto the End Joist. As shown in Fig. 68. Be sure back face of bracket is flush with open edge of Joist.
3. Insert Ledger Brackets into the ends of all the Joists. As shown in Fig. 69.
4. Using Evolution Self-drilling Screws, fasten Ledger Brackets onto inside face of Joists.
5. Mount Joist onto exposed ends of Joists. As shown in Fig. 70.
6. Using Evolution Self-drilling Screws, fasten Ledger Brackets & F-50 Brackets onto Joist. As shown in Fig. 71. Be sure edge of the Joist is flush with outside edge of the End Joist.
7. Install Joist Caps to exposed ends of Joist. Reference Joist Cap installation steps on page 35.

Note:
- The "Joist as Rim Joist" option can be used with or without fascia and leave a completely flat surface on the rim.
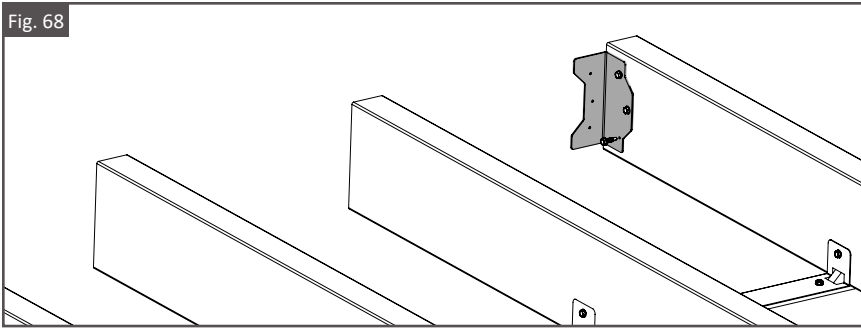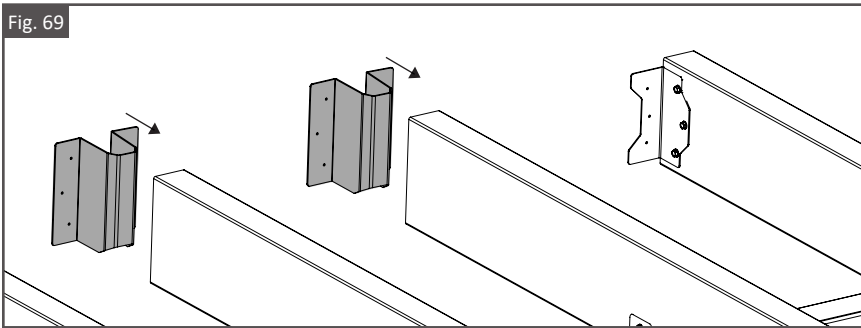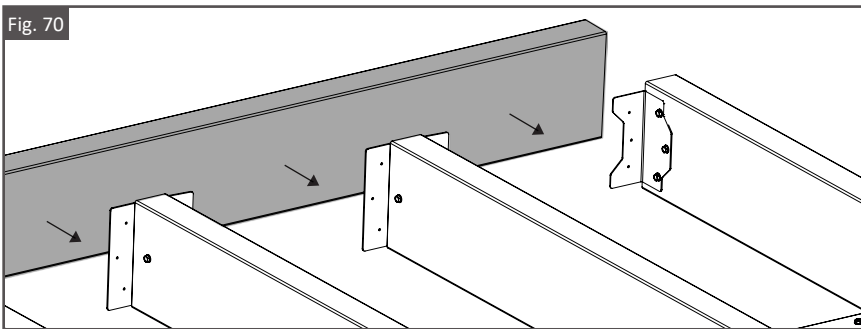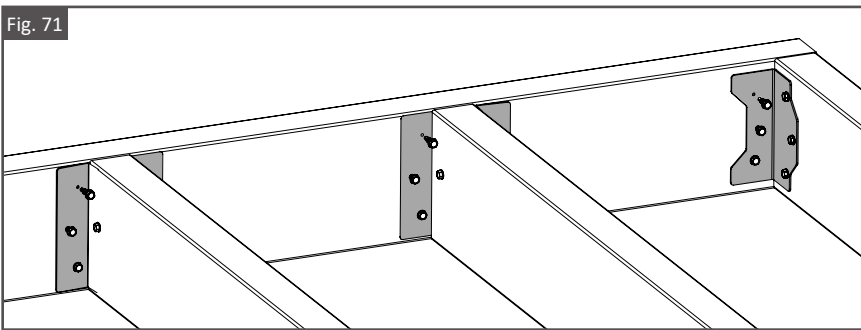
Fig. 68

Fig. 69

Fig. 70

Fig. 71

Connection 9: Joist & Beam Cap

1. Position the Joist or Beam Cap on end of Joist or Beam. As shown in Fig. 72.
2. Using Evolution self-drilling screws, fasten Joist or Beam Cap onto Joist or Beam. As shown in Fig. 73.

Note:

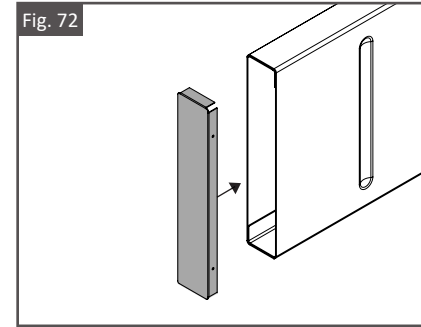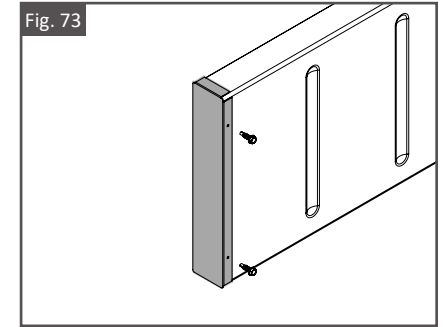- Use the Evolution Joist or Beam Caps to cover the open ends of the joists or beams.

Fig. 72

Fig. 73

CARE & MAINTENANCE

Care And Maintenance Of Fortress Building Products Powder-Coated Products And Surfaces:

- Immediately after installation of your Fortress Building Products, clean powder-coated products and surfaces with a solution of warm water and non-abrasive, pH neutral detergent solution. Surfaces should be thoroughly rinsed after cleaning to remove all residues. All surfaces should be cleaned using a soft cloth or sponge.
- Ensure construction materials such as concrete, plaster, and paint splashes are removed immediately before they have a chance to dry. Failure to remove these materials may cause damage to the powder-coated surfaces.
- **DO NOT** allow metal shavings and/or chips to get dropped or blown into a pool, hot tub, or any other body of water. Staining could occur if this were to happen.
- The frequency of cleaning depends in part on the standard of appearance and also the requirements to remove deposits that may cause damage to the powder coating after prolonged exposure. Fortress recommends cleaning in three to four monthly intervals.
- **WARNING: Do not use strong solvents such as thinners, or solutions containing chlorinated hydrocarbons, esters, or ketones. Abrasive cleaners or cutting compounds should not be used.**

SPAN CHARTS

Reference https://bpdirectory.intertek.com/ for span charts. Search for CCRR #0313. It is critical to **NOT** exceed defined allowable maximum spans.

POST TO FRAME CONNECTIONS

Reference https://fortressbp.com/Documents/install-guide-post-to-evolution-steel-framing-0.pdf for the Post To Frame Connections.

FRAME INSPECTION CHECKLIST

Reference https://fortressbp.com/Documents/fbp-new-evolution-framing-form-final-0.pdf for the frame inspection checklist.

WARRANTY

To obtain and review a copy of the warranty, please go to: https://Fortressbp.com/warranties. You can also contact: (844) 909-1999 or write to: Fortress Building Products Warranty, 1720 N 1st St, Garland, TX 75040 to obtain a copy of the warranty.

Note:
- On the fortress website there are two warranties for framing - standard warranty and salt water proximity warranty. Be sure to reference the appropriate warranty.

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