

# Installation Instructions for Fortress Al<sup>13</sup> Traditional Railing Panels with Evolve Angle Brackets, P2 Brackets, and Al<sup>13</sup> Posts

It is the responsibility of the installer to meet all code and safety requirements, and to obtain all required building permits. The deck and railing installer should determine and implement appropriate installation techniques for each installation situation. Fortress Railing Products and its distributors shall not be held liable for improper or unsafe installations.

Fortress Al<sup>13</sup> Posts must always be secured to the deck framing. Fortress Al<sup>13</sup> Posts should never be attached to only the deck boards.

## Read Instructions Completely Before Starting Installation

### Note

When cutting Fortress railing, it is very important to complete the following at cut points. Not following the below steps will result in corrosion at the cut areas:

- Remove all metal shavings from the cut area
- File any sharp edges left by cutting. Thoroughly wipe and remove any filings, grime, or dirt from the railing.
- Paint all cut ends with touch-up paint.
- Be sure to remove any metal shavings from the surface of deck, patio, or balcony to prevent rust on the surface.

### Torx Bits Tips

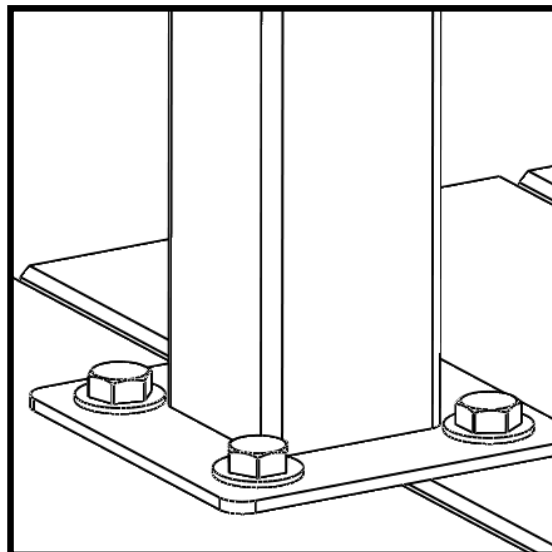
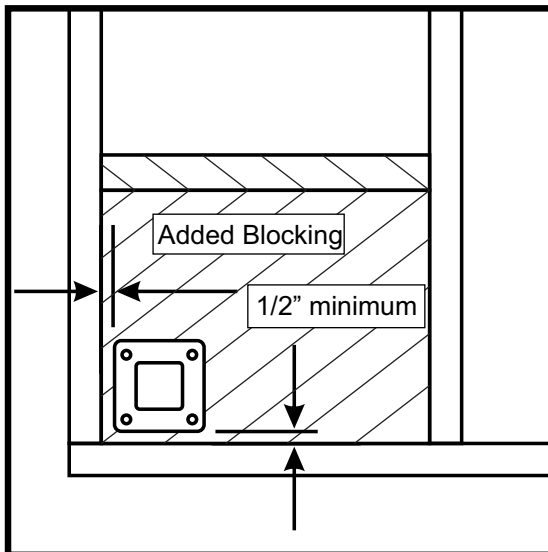
- Have several bits on hand before starting your installation.
- Always pre-drill holes with a 3/16" drill bit.
- Use the lowest possible torque setting on drill. This will help to minimize breakage and twisting of Torx Bits.

### Required Materials

Drill, 3/16 Drill Bit, T-25 Driver Bit, Drill Bit Extender, Tape Measure, 2.5mm Allen Wrench, Wrenches, Speed Square, Center Punch, Combination Square, Eye Protection, Hammer, Double Sided Foam Tape, Caulking Gun and Fortress 300 Fast Epoxy

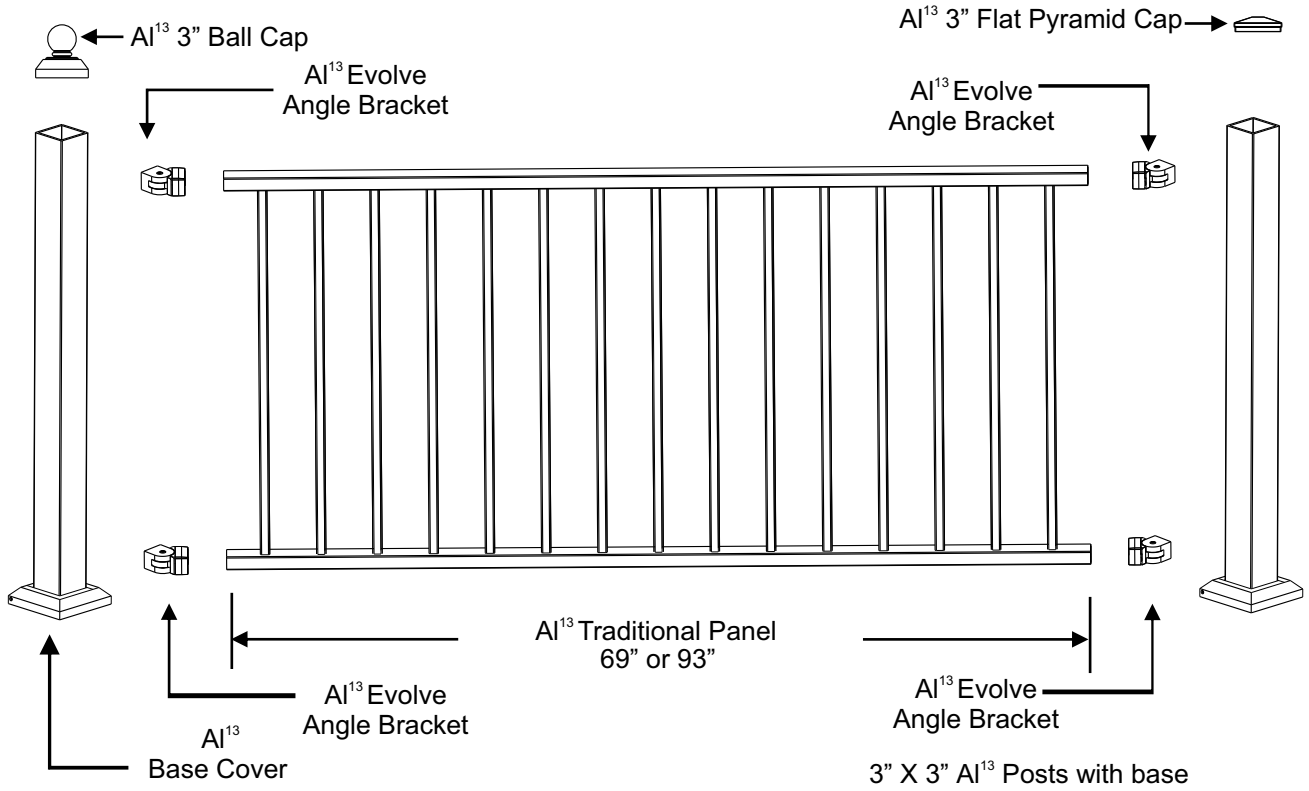
### Mount Al<sup>13</sup> Posts\*

- Wood Blocking tied to deck frame must be installed and constructed with treated dimensional lumber with a minimum thickness of 1-1/2".
- Position the edge of Al<sup>13</sup> Post base plate a minimum of 1/2" from the inside edge of rim joist.
- Mount Al<sup>13</sup> Posts at appropriate points based on panel length.
- Attach Al<sup>13</sup> Posts with 3/8" X 3-1/2" Hex Head Galvanized Bolts.

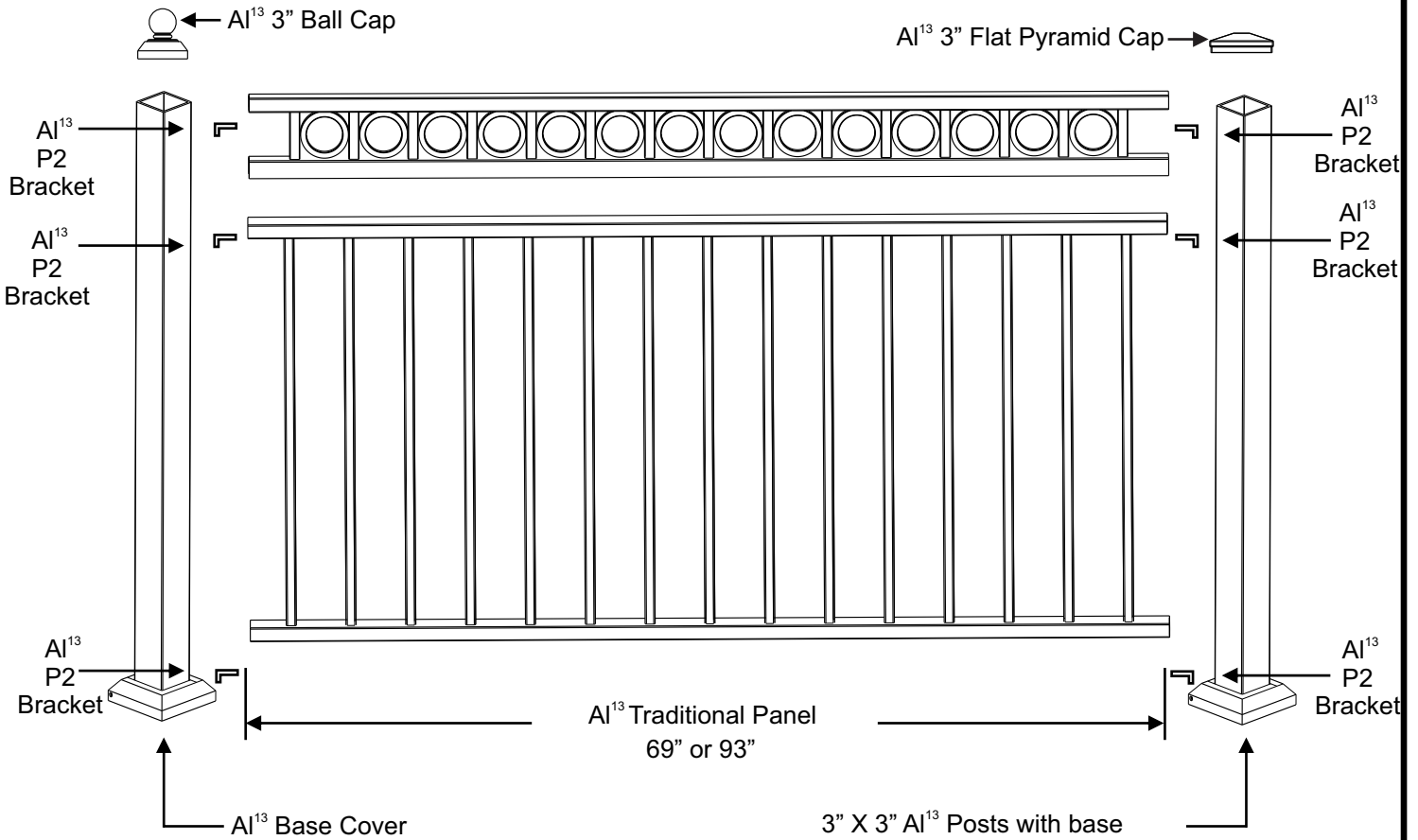


\*Reference Fortress Al<sup>13</sup> Post mounting instructions

## Al<sup>13</sup> Traditional Panel Miter Installation Options



## Al<sup>13</sup> Traditional Panel with Accent Top Panel Miter Installation Options



## AI<sup>13</sup> Traditional Panel and AI<sup>13</sup> Post Configurations

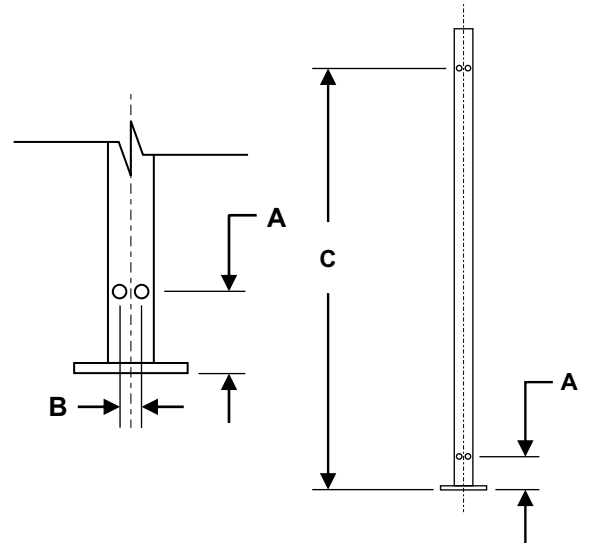
Rail Panel Height	Rail Panel Only		Railing Panel with Accent Top Panel	
	Installed Panel Height*	Required Post	Installed Panel Height with ATP*	Required Post
34"	37-1/2"	39-1/2"	42-1/2"	45-1/2"
40"	43-1/2"	45-1/2"	X	X

\*Heights include a 3-1/2" space between deck surface and bottom edge of bottom rail.

## Angle Bracket Hole Locations for AI<sup>13</sup> Traditional Panel Installations Without AI<sup>13</sup> Accent Top Panel

Pre-Drilling with a 3/16" drill bit is required.

Rail Panel Height	Pre-Drill Dimensions		
	A*	B	C
34"	4-1/16"	1"	36-15/16"
40"	4-1/16"	1"	42-15/16"



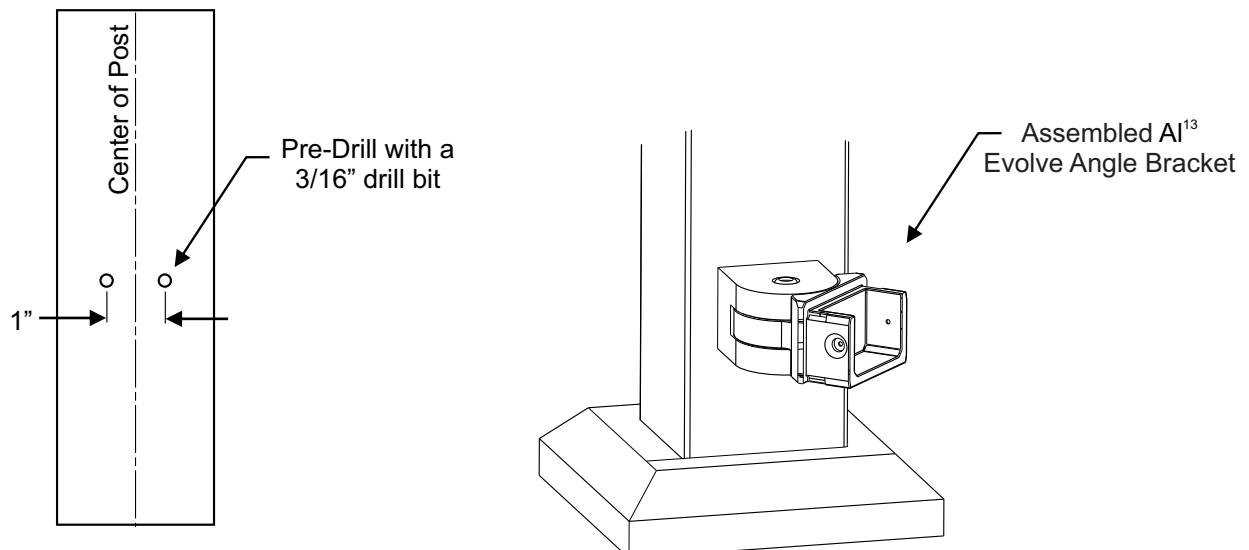
\*Dimension A positions bottom edge of rail 3-1/2" above deck surface.

\*Dimension A is measured from the bottom surface of post base.

Remove all metal shavings from deck, post base cover, post, and panel before bracket is screwed to post to prevent rust stains.

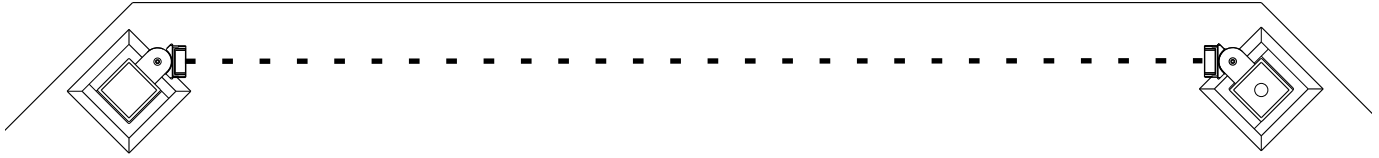
## Pre-Drill and Install AI<sup>13</sup> Evolve Angle Brackets to AI<sup>13</sup> Posts

- Install AI<sup>13</sup> Post Base Cover by sliding over the top of AI<sup>13</sup> Post.
- Mark the centerline of each post with a pencil.
- Mark hole locations defined in the previous step with a pencil, then pre-drill with a 3/16" drill bit, ensuring that the holes are spaced evenly from the centerline.
- Remove the bolt from the AI<sup>13</sup> Evolve Angle Bracket Assembly.
- Attach AI<sup>13</sup> Evolve Angle Bracket Base piece to the posts with supplied T-25 thread-cutting screws. Use two screws per bracket. Use low speed setting on drill. The side of the base with two holes should be facing downwards.
- Reassemble the AI<sup>13</sup> Evolve Angle Brackets, but **do not install the AI<sup>13</sup> Evolve Angle Bracket Cap at this time.**
- **Remove all metal shavings from deck, post base cover, post, and panel before bracket is screwed to post.**



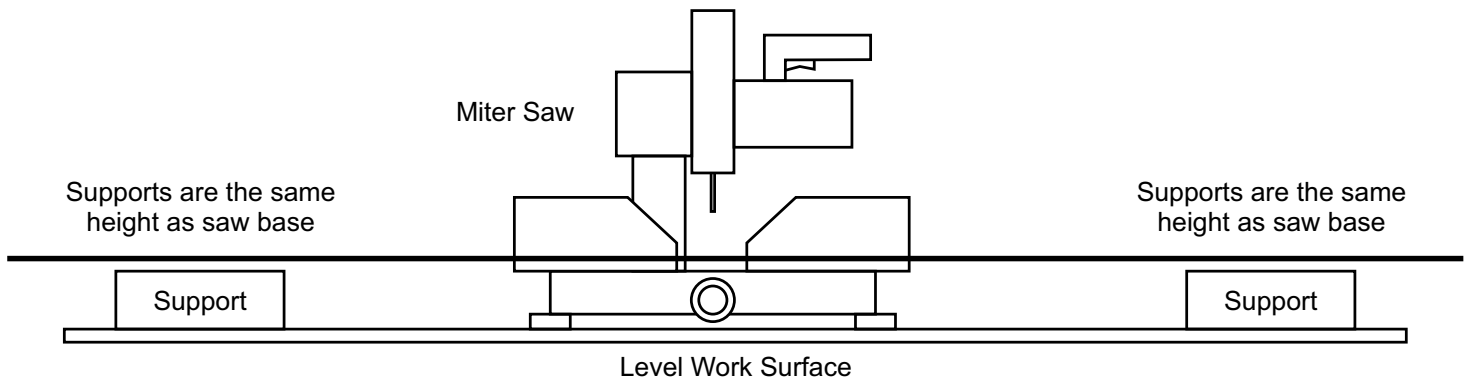
## Determine Panel Length

- Check to ensure that all posts are square and straight. Shim posts as required.
- Ensure that the Al<sup>13</sup> Angle Bracket Cups are approximately aligned.
- With another person's help, measure the distance from the inside back of one cup to the inside back of the other cup. This will be the panel length.
- Mark the panel such that equal lengths will be cut off each side to shorten it to the desired panel length.
- Before cutting, note that the minimum distance between the end of the rail and the end baluster is 1-11/16", and the maximum distance between post and baluster is 3-15/16".



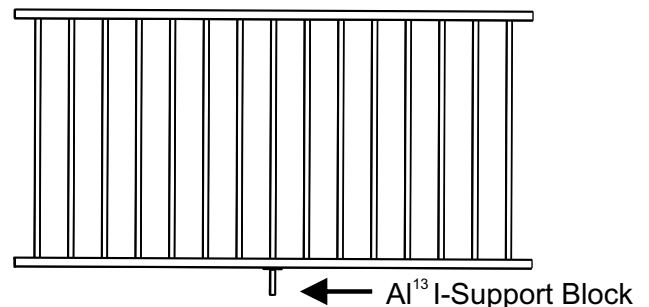
## Cutting Al<sup>13</sup> Traditional Panels

- The best way to cut Al<sup>13</sup> Traditional Panels is to use a miter saw.
- A fine tooth carbide tipped blade designed to cut non-ferrous materials is recommended.
- Set up a work surface that is level and large enough to support all four corners of the Al<sup>13</sup> Traditional Panel.
- Supports should be the same height as saw base to keep Al<sup>13</sup> Traditional Panel straight and level when cutting.
- With Panels completely supported, make cuts at the marked locations from previous step.
- Remove any burrs or shavings from cut edges. File cut edges.
- Coat ends of cut rails with two coats of Fortress spray paint.
- Check the fit of Al<sup>13</sup> Traditional Panel between posts. **Be careful not to scratch posts with end cuts.**



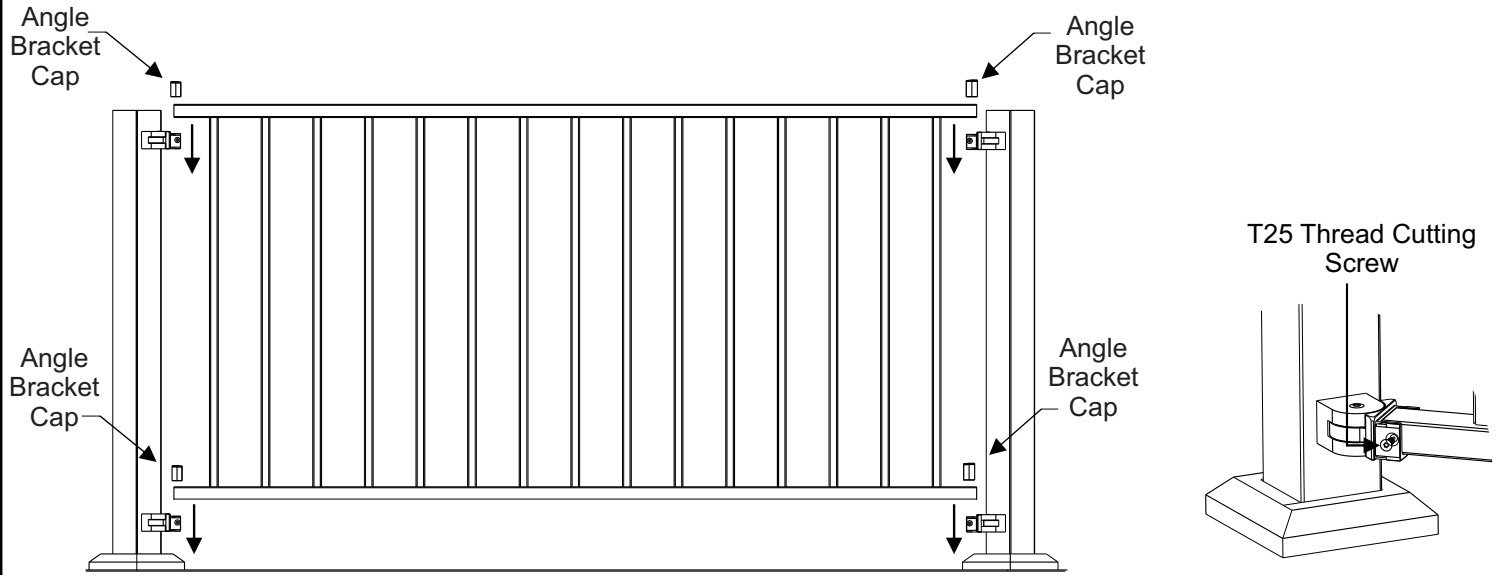
## Al<sup>13</sup> Support Block Installation

- Al<sup>13</sup> Support Block is recommended for rail spans over 72"
- Mark the center of Al<sup>13</sup> Traditional Panel Bottom Rail.
- Position Al<sup>13</sup> Support Block and mark hole locations.
- Pre-drill with a 3/16" Drill Bit
- Secure Al<sup>13</sup> Support Block with supplied screws.



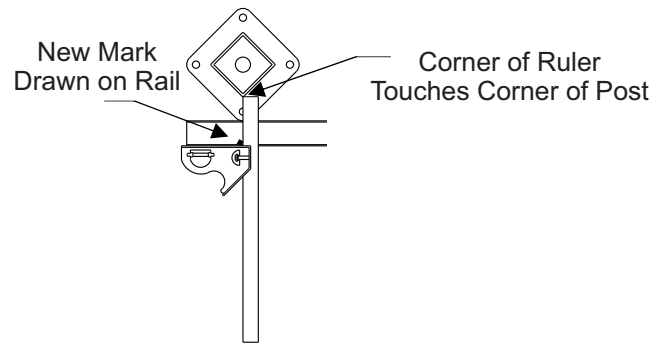
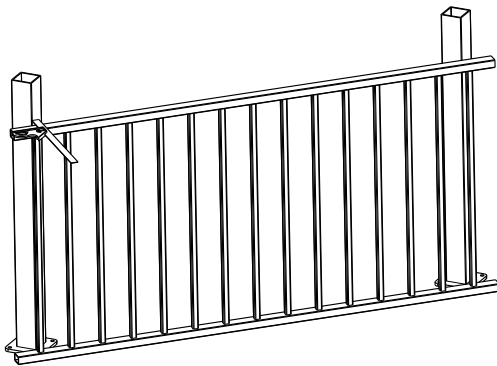
## AI<sup>13</sup> Traditional Panel Installation with Evolve Angle Brackets

- Drop AI<sup>13</sup> Panel into installed AI13 Evolve Angle Bracket Cups. Tighten the set screw in the bottom of the brackets.
- Secure rails with provided T25 thread-cutting screws at each Angle bracket. **Only one screw should be used per bracket.**
- Install bracket caps by sliding the cap over the bracket cup. Cap will snap into place.



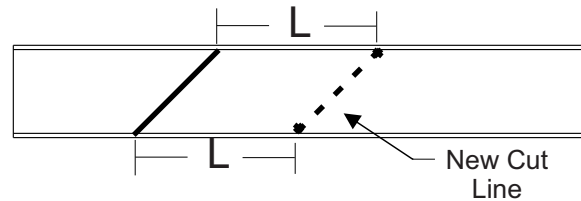
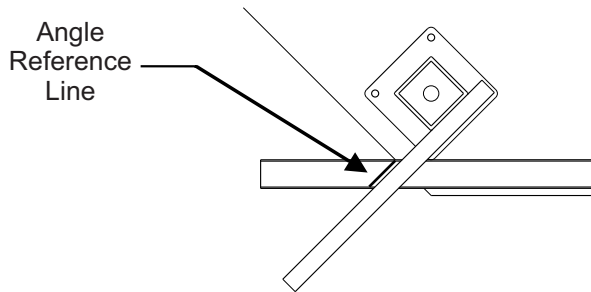
## Installation of AI<sup>13</sup> Traditional Panel with AI<sup>13</sup> Accent Top Panel with Evolve P2 Brackets

- **Center** the panel directly next to the posts on the side that the rail will be attached to.
- Using a combination square, align the ruler square with the rail to the corner of the post that the rail will be aligned with.
- Draw a mark on the rail directly next to the ruler, closest to the end of the panel, and on the side of the rail farthest from the post.



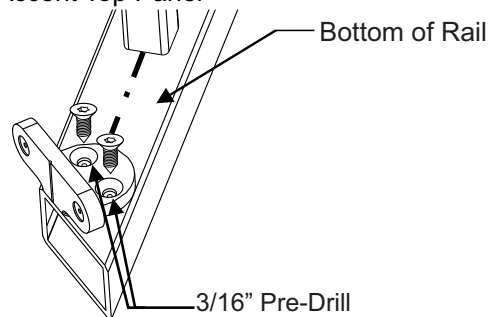
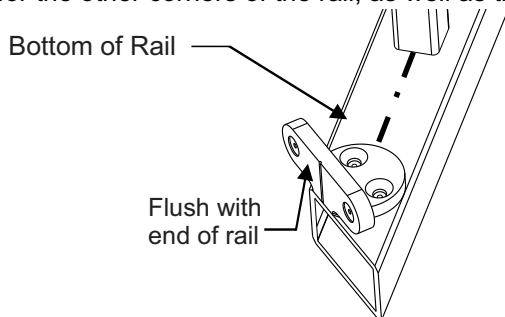
## Mark Cut Line on Al<sup>13</sup> Aluminum Rail

- Lay a straight edge flat on top of the rail, and line it up with the side of the post that the vertical line was drawn on. The panel may have to be moved over for the straight edge to lay on it, as it will be at a diagonal.
- Using a pencil, mark the diagonal line made by the ruler onto the rail. This will be the angle of the cut.
- Measure the shortest distance from the diagonal line to the mark previously made. Measure this same distance out from the line on the other edge of the rail and make a new mark. Connect these marks with a straight edge. This new line is the cut line.
- Repeat the previous steps for the other three corners of the panel. Check the fit of the panel before proceeding with cutting.
- Before cutting, note: the minimum distance between the end of the rail and the end baluster is 1-11/16", and the maximum distance between post and picket is 3-15/16".
- Cut using the procedure earlier described for panels without an Al<sup>13</sup> Accent Top Panel. Leave some clearance on either side when cutting to ensure that the panel is not cut too short. Re-check the fit of the panel before cutting down to size. Make the same cuts on the Al<sup>13</sup> Accent Top Panel as on the Al<sup>13</sup> Traditional Panel to ensure the balusters line up when it is attached.
- If desired, install I-Support using the method previously described.



## Install Al<sup>13</sup> Evolve P2 Brackets onto Al<sup>13</sup> Aluminum Rails

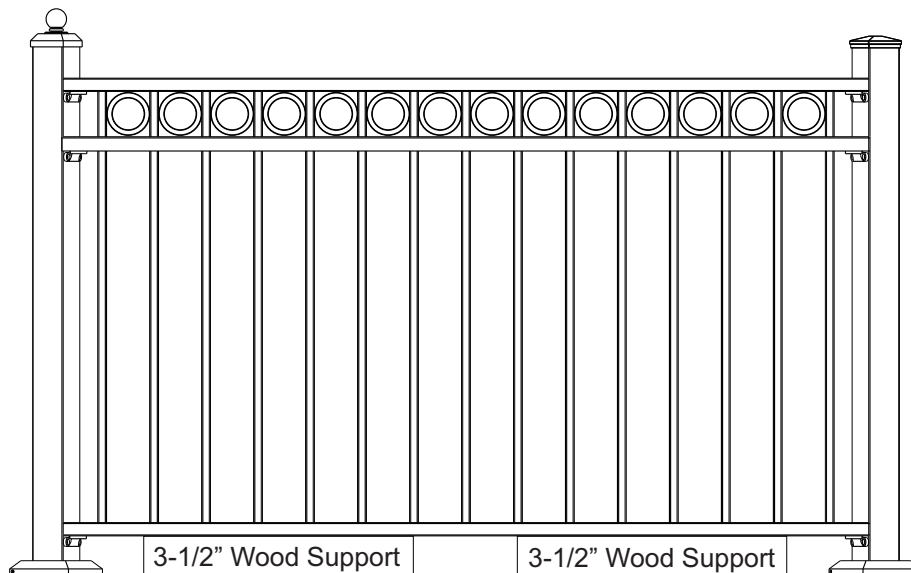
- Align flat back of Al<sup>13</sup> Evolve P2 Bracket flush with the end of the rail
- Center the circular portion of the Al<sup>13</sup> Evolve P2 Bracket on the rail. Note: For higher angled miter installations, bracket may have to be installed slightly off center on the rail. Fit on the post should be checked in all cases before pre-drilling.  
**In no situations should the bracket be installed where one of the screws cannot be fastened correctly.**
- Mark the center points of the holes with a pencil. Use a center punch to mark the hole locations.
- Pre-drill screw locations with a 3/16" drill bit.
- Secure Al<sup>13</sup> Evolve P2 Bracket to Al<sup>13</sup> Traditional Panel with supplied T-25 thread cutting screws.
- Repeat for the other corners of the rail, as well as the top rail of the Al<sup>13</sup> Accent Top Panel



## AI<sup>13</sup> Traditional Panel Installation For AI<sup>13</sup> Accent Top Panels With AI<sup>13</sup> Evolve P2

### Brackets

- Install AI<sup>13</sup> Base Covers now by sliding over the top of AI<sup>13</sup> Post.
- Slide AI<sup>13</sup> Accent Top Panel over the top rail of the AI<sup>13</sup> Traditional Panel.
- Place a 3-1/2" wood support near each post.
- Place AI<sup>13</sup> Traditional Panel on the support blocks between the AI<sup>13</sup> Posts.
- Center AI<sup>13</sup> Traditional Panel on each AI<sup>13</sup> Post.
- With Panel in position, pre-drill screw locations with a 3/16" drill bit.
- Secure Evolve Brackets to AI<sup>13</sup> Post with supplied T-25 thread cutting screws.
- Install AI<sup>13</sup> Post Caps



## Cutting the Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover

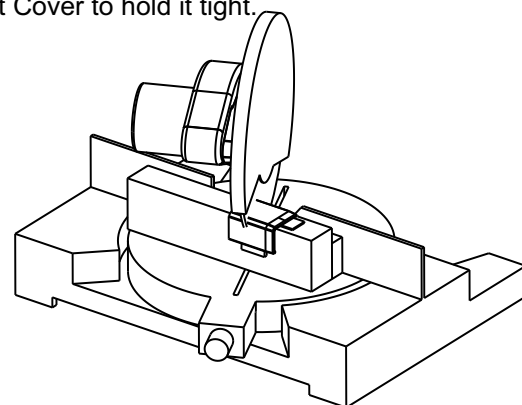
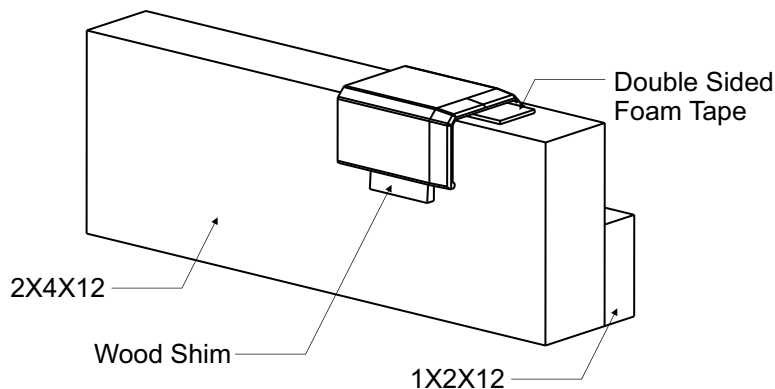
**Read and understand all instructions.** Failure to follow all instructions listed below, may result in serious personal injury.

**Never hold a workpiece that is too small.**

**Keep hands away from cutting area.** Do not reach underneath work or in blade cutting path with your hands and fingers for any reason.



- The AI<sup>13</sup> Angle Joint Cover can be used on the top and bottom rail of the AI<sup>13</sup> Traditional Panel with AI<sup>13</sup> Accent Top Panel. Not for use without AI<sup>13</sup> Accent Top Panel
- The Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover can be cut to fit angles from 0° to 45°.
- The best way to cut the Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover is to use a miter saw.
- A fine tooth carbide tipped blade designed to cut non-ferrous materials is recommended.
- Determine the required angle. Use a scrap piece of lumber to make a test cut at the required angle.
- Cut a 12" long block from a scrap piece of 2x4. This will support the Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover when making the cut.
- Cut a 12" long block from a scrap piece of 1x2. This is used to allow for clearance between the saw fence and the Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover.
- Use a piece of double sided foam tape to hold the Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover to the 2x4.
- Place a wood shim between the 2x4 and Fortress AI<sup>13</sup> Stair / Angle Rail Joint Cover to hold it tight.



**Keep hands away from cutting area**

## Fortress AI<sup>13</sup> Angle Rail Joint Cover Installation

The Fortress AI<sup>13</sup> Angle Rail Joint Cover is optional and it is used to cover gaps between the Fortress AI<sup>13</sup> Post and Fortress AI<sup>13</sup> Top and Bottom Rails on angle installations of Fortress AI<sup>13</sup> Traditional Rail Panels.

- The Fortress AI<sup>13</sup> Angle Rail Joint Cover snaps over the top and bottom rails and is held in place with Fortress 300 Fast Epoxy.
- After all Fortress AI<sup>13</sup> Traditional Rail Panels are installed, test fit the Fortress AI<sup>13</sup> Angle Rail Joint Covers.
- **Do Not Apply Epoxy Until All Fortress AI<sup>13</sup> Rail Joint Covers are test fit. Fortress Epoxy has a short working time.**
- Apply a pea size amount of Fortress 300 Fast Epoxy as shown.
- Install Fortress AI<sup>13</sup> Angle Rail Joint Covers by sliding over the Top and Bottom Rails.
- Immediately wipe any excess epoxy from the rail surface.

