



Apex
PVC DECKING



ALUMINUM RAILING

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About California Proposition 65:

<https://fortressbp.com/about/californiaproposition65>

INTRODUCTION

READ INSTRUCTIONS COMPLETELY BEFORE STARTING INSTALLATION

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 Building Products and its distributors shall not be held liable for improper or unsafe installations.

Fortress Posts must always be secured to the deck framing and should never be attached to only the deck boards.

Note

- When cutting Fortress Railing, it is very important to complete the following at cut points:
- 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.
- Apply two coats of Fortress zinc based touch-up paint to the cut area. If touch up is at rail ends, allow paint to dry before connecting bracket to post.
- Be sure to remove any metal shavings from the surface of deck, patio, or balcony to prevent stains on the deck surface.

Torx Safety Tips

- Always use the lowest speed setting on drill.
- To reduce chance of bit breakage, start tightening with drill on low torque setting and work up until screw is secured.

Tip:

Pre-drill railing bracket holes with a 3/16" [5mm] drill bit.

Apex Deck Board Pre-Construction Checklist

- Store Apex boards on a flat surface, supported every 2' [610mm]. Improper storage from supports >2' [610mm] O.C. can result in a waviness that will be visible when installed.
- Apex boards are pre-finished. As with any pre-finished product, care must be taken prior to installation.
- Keep Apex boards covered and protected from dirt, debris, mortar and cementitious material.
- Fortress **WILL NOT** be responsible for installation of blemished or damage product.
- We recommend testing the fasteners to gain understanding of their use and installed aesthetic.

Apex Deck Board Design Checklist

- ✓ Verify that Apex boards meet all applicable Codes, Zoning, Associations, Fire and Wind performance requirements.
- ✓ Extreme heat conditions resulting from reflected/ concentrated sunlight from Low-E glass, cooking grills, fire features, and high intensity lighting may damage Infinity boards. Consult the manufacturers of these products/ assemblies regarding how to mitigate risk.
- ✓ Apex boards contract and expand in dimension in response to temperature changes. This dynamic must be understood, and its implications considered prior to and during installation. Refer to the Tables section to address these concerns proactively.
- ✓ The material and placement of furring materials to create the drainage plane can affect the speed and aesthetic of the finished project. Time spent planning this part of the assembly will result in best results.
- ✓ Laying out, or racking, Apex boards to acclimatize in advance of installation, will result in more consistent gapping and better aesthetics.

Tables

Table 1: Gapping

	If < 30°F (-1°C)	If > 30°F (-1°C) & < 50°F (10°C)	If > 50°F (11°C) & < 70°F (21°C)	If > 70°F (22°C) & < 90°F (32°C)	If > 90°F (32°C)
End-To-End & Butt Joints (Minimum Allowed)	5/16" [8mm]	1/4" [6mm]	3/16" [5mm]	1/8" [3mm]	1/16" [2mm]
Edge-To-Edge When Face Fastened (Minimum Allowed)	1/8" [3mm]	1/8" [3mm]	1/8" [3mm]	1/8" [3mm]	1/8" [3mm]
Edge-To-Edge With HULK HFS (Minimum Allowed)	3/16" [5mm]	3/16" [5mm]	3/16" [5mm]	3/16" [5mm]	3/16" [5mm]

Table 2: Recommended Fasteners

	Fastener Type
Face Fastening	HULK Metal Composite Deck Screw
Hidden Fastening	HULK Hidden Clip with Metal Screw

Note:

- All conditions anticipate temperatures are the temperature of the board at time of installation. Racking boards in the shade for a minimum of 30 minutes will help acclimatize boards.
- If a different fastener is used and a condition arises attributable to that fastener, such condition shall not be covered by the Fortress Building Products Warranty.
- Face Fasteners must be located 1-3/16" [30mm] from board edges and ends.
- Ensure all installers are aware of and comply with all gapping and fastener setback requirements.

Required Tools & Material (Not Provided By Fortress)



Goggles



Safety
Gloves



Tape
Measurer



Speed
Square



Level
Tool



Touch-Up
Paint



T-25, T-20 &
T-15 Driver Bit



Metal Cutting Drill Bits:
1/16", 1/8", 3/16", 3/8", 7/16", 9/16"
[2mm, 3mm, 5mm, 10mm, 11mm, 14mm]



Bit
Extender



Drill



Metal Cutting
Miter Saw



Rubber
Mallet



Spring
Punch



Wood Block 2" x 4" (actual
1-1/2" x 3-1/2" [38mm x 89mm])



Table
Saw



Circular
Saw



Dust
Mask



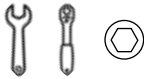
Hard-Bristled
Broom



Pencil



File



Wrenches & Socket Set



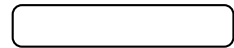
Clamps

Components: Apex Decking (Provided By Fortress)



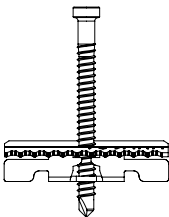
Grooved Deck Board

5-1/2" x 1" x 12'
[140mm x 25mm x 3658mm]



Square Edge Board

5-1/2" x 1"
[140mm x 25mm]

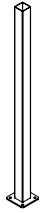


HULK Hidden Clip with Metal Screw



HULK Metal Composite Deck Screw

Components: AI¹³ PLUS Railing (Provided By Fortress)

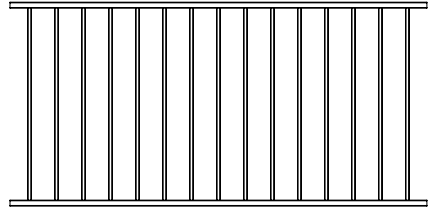


Post
Level:

3" x 3" 39-1/2" [76mm x 76mm x 1003mm]

Stair:

3" x 3" 45-1/2" [76mm x 76mm x 1156mm]

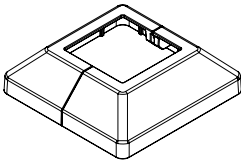


Panel
Level:

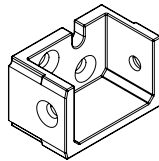
34" x 6' [864mm x 1829mm]

Stair:

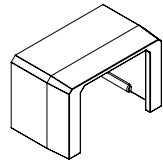
34" x 6' or 8' [864mm x 1829mm or 2438mm]



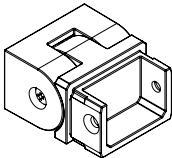
Post Base Cover



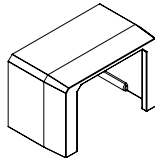
Evolve External Bracket



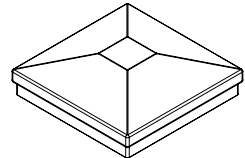
Evolve External Bracket Cap



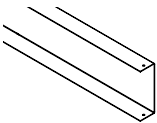
Evolve Stair Bracket



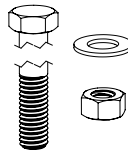
Evolve Stair Bracket Cap



Pressed Dome Cap



U-Rim Joist



Bolt, Washer & Nut

3/8" x 4" and or 8-1/2" [10mm x 102mm or 216mm]

Note:

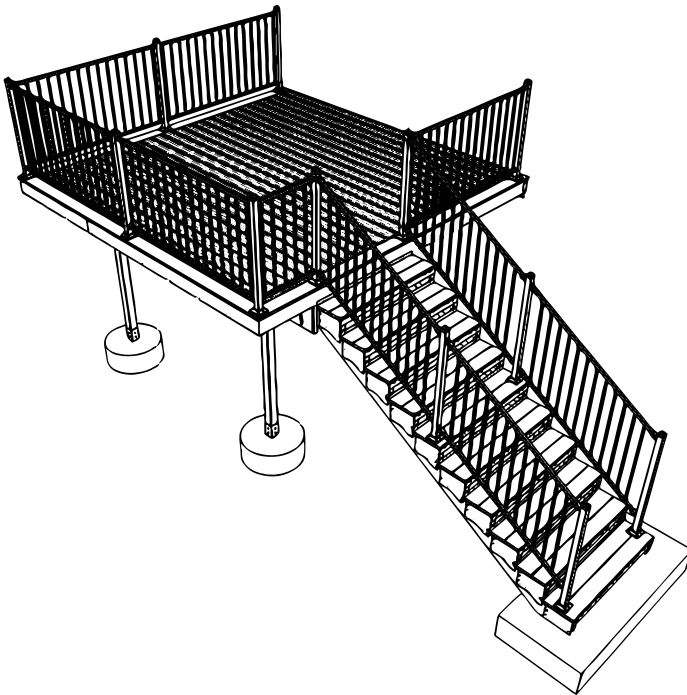
- Components **ARE NOT** shown to scale.

INSTALLATION OVERVIEW

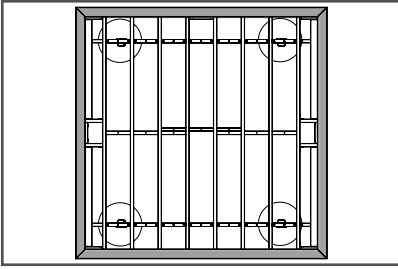
Apex Decking & AI¹³ PLUS Railing Without Stair Kit



Apex Decking & AI¹³ PLUS Railing With Stair Kit

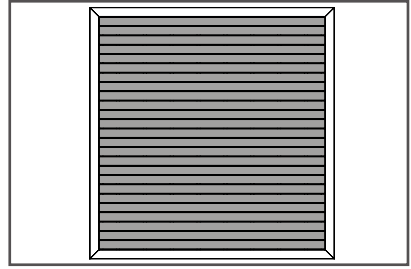


Apex Decking & AI¹³ PLUS Railing Installation Process (Overview)



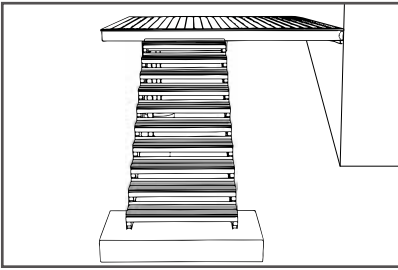
1.

Mount Picture Frame Deck Boards



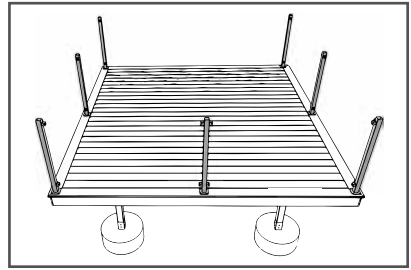
2.

Mount Infill Deck Boards



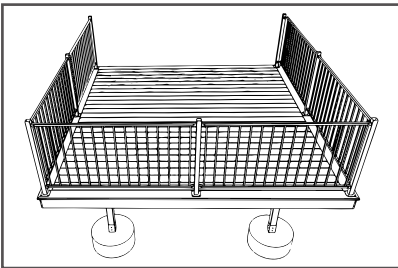
3.

Mount Stair Deck Boards (**Optional**)



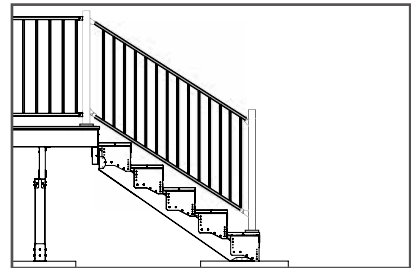
4.

Install Railing Post & Brackets



5.

Install Railing Panels



6.

Mount Stair Posts & Panels (**Optional**)

Note:

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

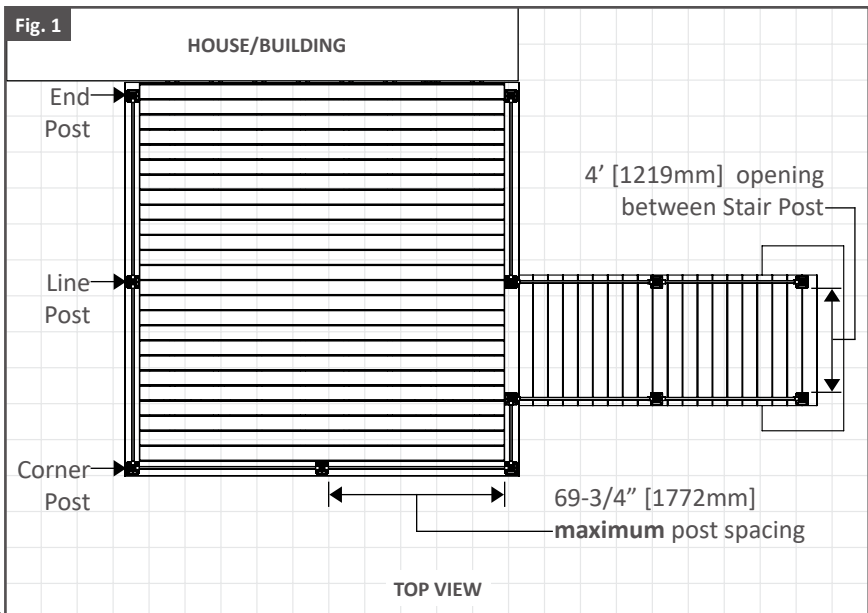
PROJECT PLANNING

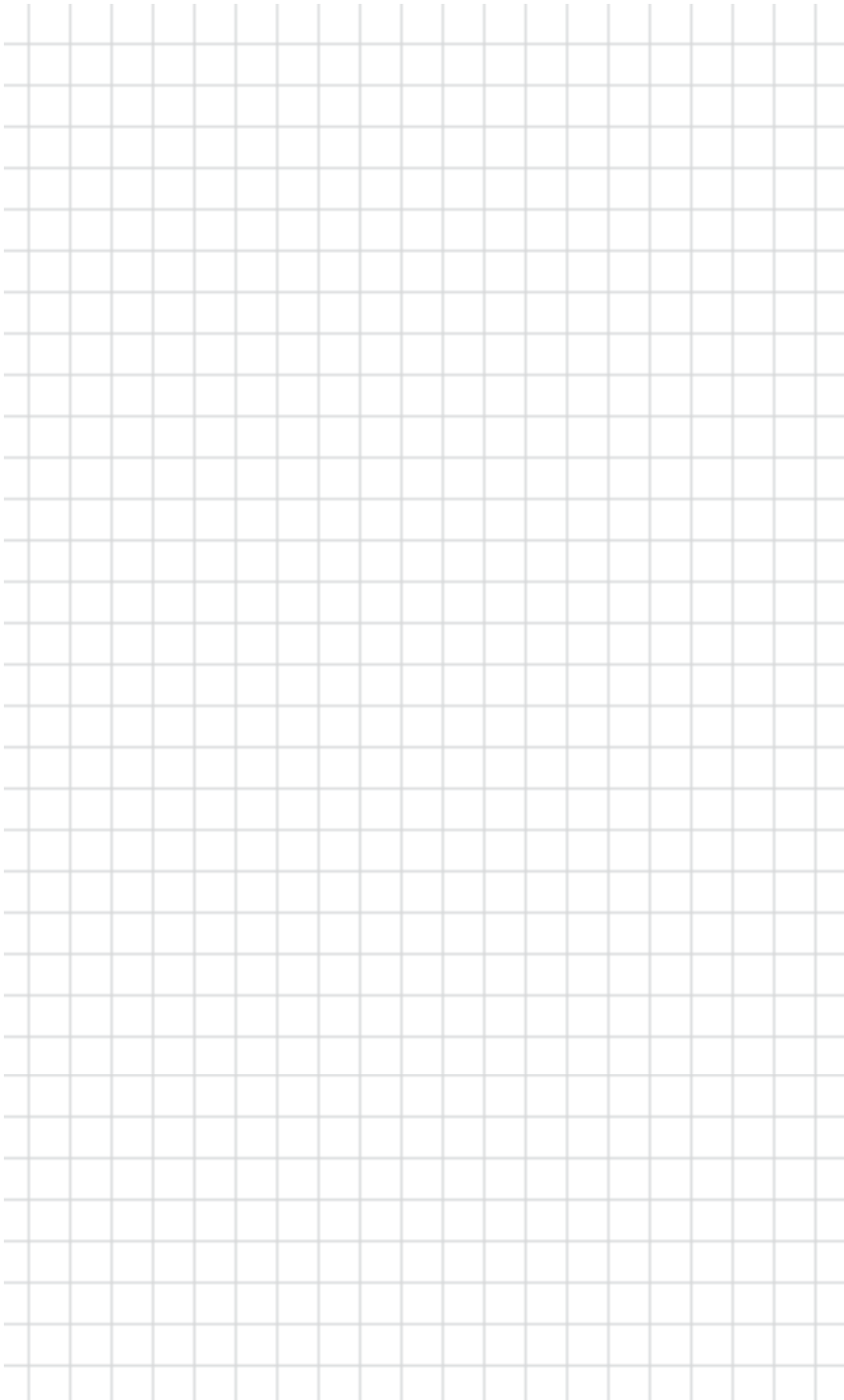
Step 1: Sketch Railing Post Layout

1. Determine desired post locations. Include stair posts if completing stair installation.
2. Using a tape measure, determine the required spacing between each post. Provided 6' [1829mm] panel **maximum** post spacing is 69-3/4" [1772mm]. It is recommended to layout post to allow for minimal railing panel cuts.
3. For attached deck installation, End Posts closest to wall should be positioned 4" [102mm] from outside face of S-Ledger.
4. Sketch the desired post layout. **Confirm spacing and measurements are correct before beginning installation.**

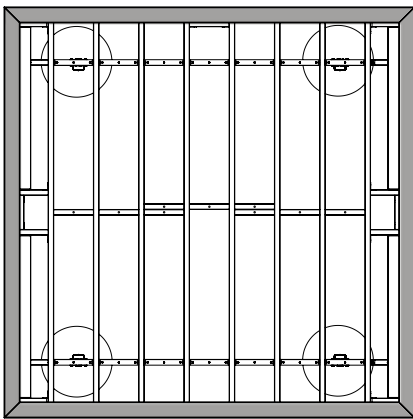
Note:

- All Posts should be positioned to allow for each post base through bolt to penetrate Post Blocking, Joist or U-Rim. Reference deck kit framing instructions. Adjust post positioning if needed.
- Opening between stair posts should be 4' [1219mm].

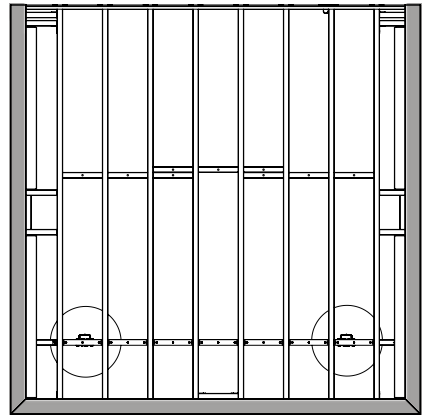




INSTALLATION: PICTURE FRAME DECK BOARDS



Free-standing Installation



Attached Installation

Step 1: Cut Square Edge Deck Boards Deck Boards to Length

1. **For Free-standing Deck installation:** Cut four square edge deck boards to desired length. Measure edge to edge distance of each end of frame. Be sure cut lengths account for 1/2" [13mm] overhang on both ends when mounted. As shown in Fig. 2 & 3. Reference Table 1: gapping on page 5 to account for weather condition impact on boards.
2. **For Attached Deck installation:** Cut three square edge deck boards to desired length. Measure edge to edge distance of each end of frame. Be sure cut lengths account for 1/2" [13mm] overhang on both ends when mounted. As shown in Fig. 2 & 3. Reference Table 1: gapping on page 5 to account for weather condition impact on boards.

Note:

- Cut lengths are set to square frame.
- Boards should always have minimum 1/8" [3mm] gap to structure.
- Use a Wood Cutting Miter Saw to cut boards.
- It is recommended to wear a dust mask when cutting.

Fig. 2

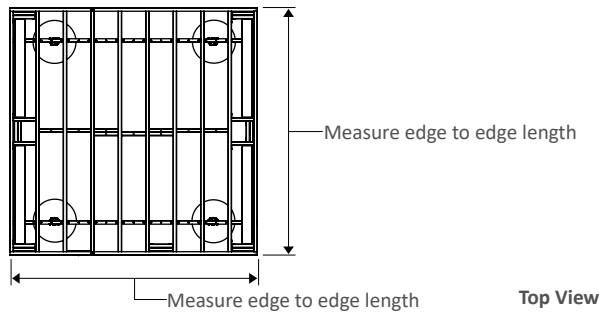
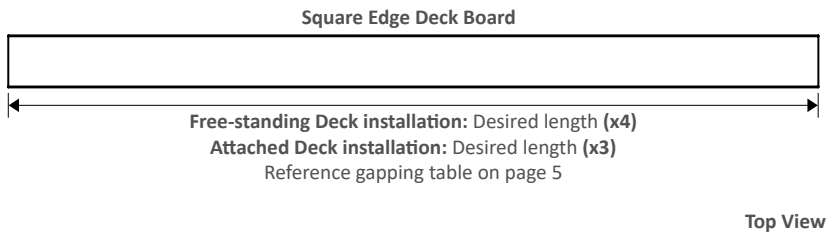


Fig. 3



Step 2: Miter Cut Square Edge Deck Boards

1. **For Free-standing Deck installation:** Cut both ends of all four boards at 45° angles. As shown in Fig. 4.
2. **For Attached Deck installation:** Cut both ends of the board to be mounted as the front Picture Frame board at a 45° angle. As shown in Fig. 5.
Cut one end of each board to be mounted as the two side Picture Frame boards at 45° angles. As shown in Fig. 5.

Note:

- Use a Wood Cutting Miter Saw to cut boards.
- It is recommended to wear a dust mask when cutting.

Fig. 4

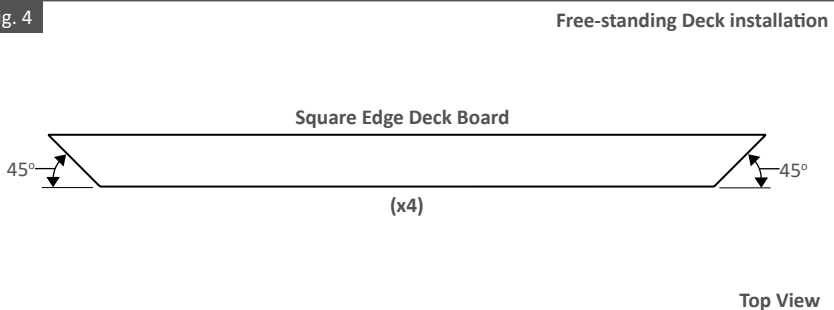
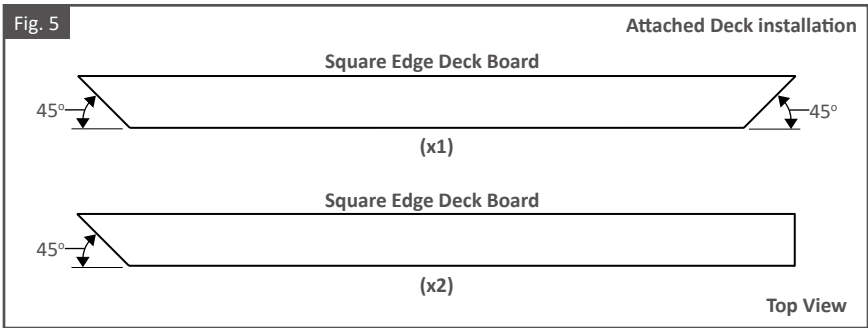


Fig. 5

Attached Deck installation



Step 3: Mount Cut Square Edge Deck Boards as Picture Frame

1. **For Free-standing Deck installation:** Position cut Square Edge Deck Boards onto top face of four ends of deck frame. As shown in Fig. 6.
2. **For Attached Deck installation:** Position cut Square Edge Deck Boards onto top face of front and each side of the deck framing. As shown in Fig. 6.
3. Over hang each end and side face of each deck board 1/2" [13mm] from the frame. As shown in Fig. 7 & 8.
4. Create a gap between deck board edges. As shown in Fig. 9. Gapping is temperature dependent. Reference End-To-End row of table 1 on page 5.
 - **For Attached Deck installation,** the edges of the deck boards facing the wall should also have a gapping of 1/8" [3mm] between edge of board and wall.
5. Clamp each deck board onto framing once in desired position. As shown in Fig. 10.
6. Use HULK Metal Composite Deck Screws to face fasten deck boards onto top face of framing. Reference Fig. 11 for recommended fastener spacing.

Tip:

- Square Edge Boards mounted on the U-Rim Joist will require hollowed holes to allow the board to avoid the Evolution Self-drilling Screw heads and seat flush on the Joist when mounted. Reference step 1: 3 - 5 of stair deck board installation on pages 23 - 25.
- Use spacers like aluminum bar stock to facilitate installation with proper and consistent gapping.

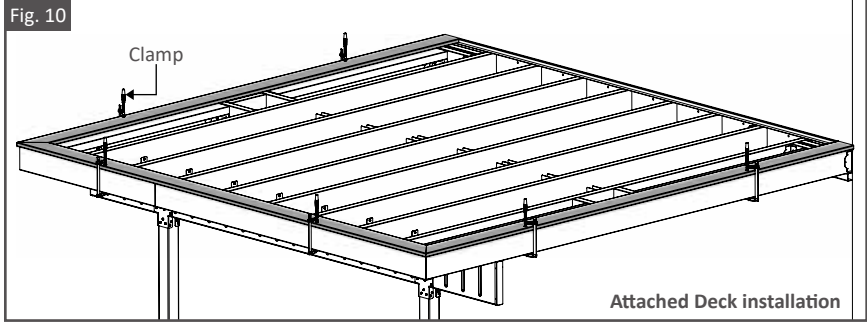
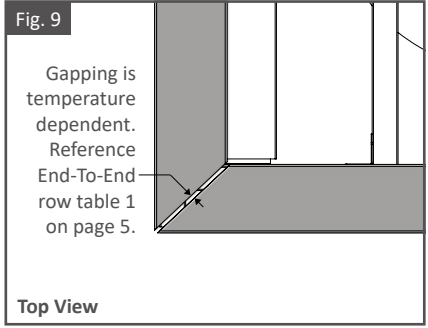
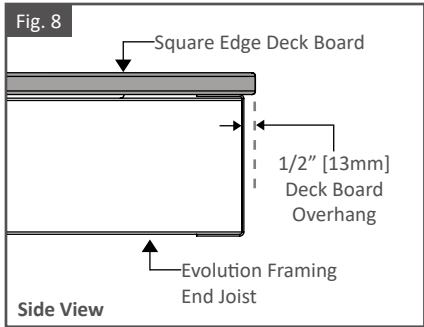
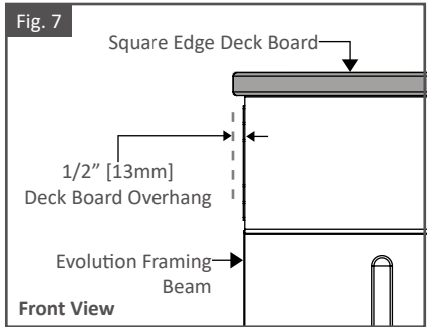
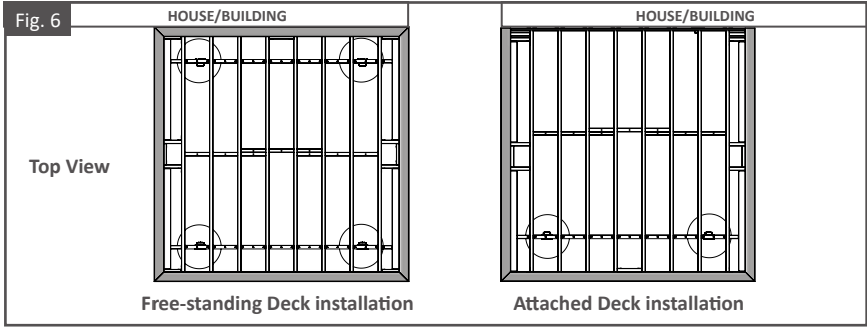


Fig. 11

Gapping is temperature dependent. Reference table 1 on page 5.

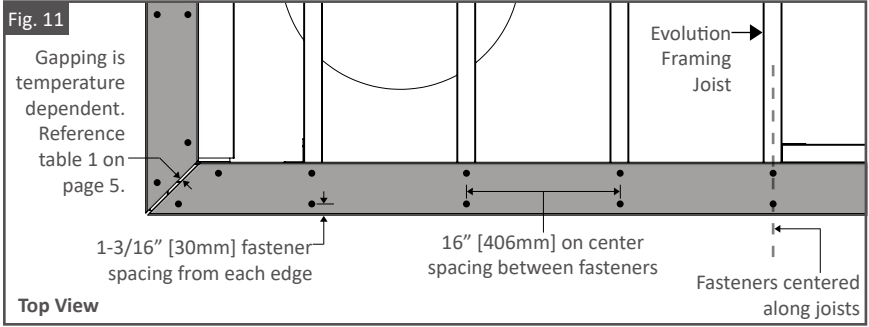
1-3/16" [30mm] fastener spacing from each edge

16" [406mm] on center spacing between fasteners

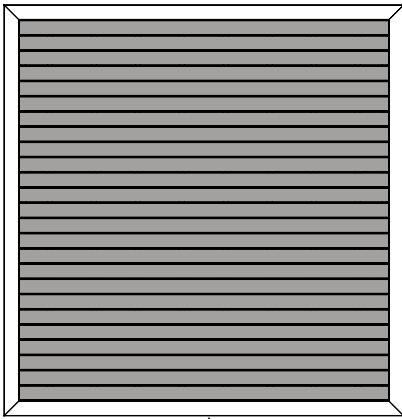
Fasteners centered along joists

Evolution Framing Joist

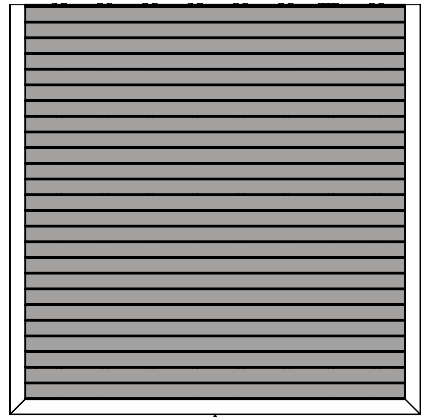
Top View



INSTALLATION: INFILL DECK BOARDS



Free-standing Deck Installation



Attached Deck Installation

Step 1: Cut Infill Grooved Deck Boards

1. Measure opening between internal faces of the two side Picture Frame deck boards. As shown in Fig. 12. Be sure to account for required gapping between ends of Infill Boards and side of Picture Frame boards. Gapping is temperature dependent. Reference End-To-End and Butt Joints row of table 1 on page 5.
2. Cut Grooved Deck Boards to determined Length. As shown in Fig. 13.

Note:

- Cut lengths are set to square frame.
- Use a Wood Cutting Miter Saw to cut boards.
- It is recommended to wear a dust mask when cutting.

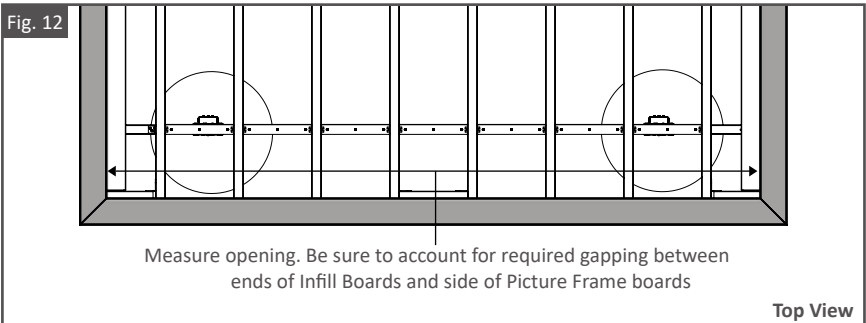
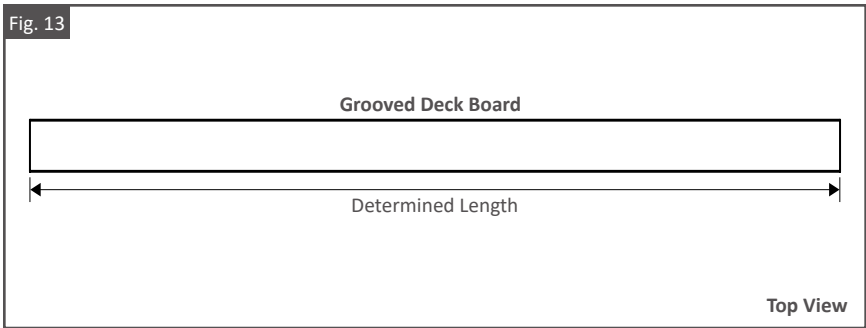


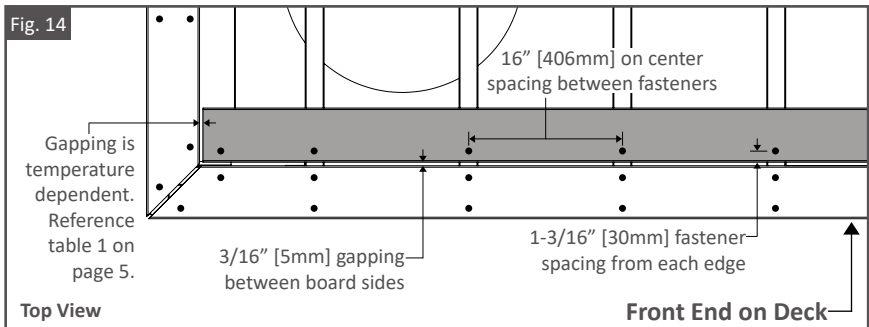
Fig. 13



Step 2: Mount First Infill Grooved Deck Board

1. Position first Infill Grooved Deck Board so that it has equal gapping at both ends and a 3/16" [5mm] gap between front Picture Frame Board and Infill Grooved Deck Board. As shown in Fig. 14.
2. Face fasten first Infill Grooved Deck Board along its length on edge closest to front Picture Frame Board using HULK Metal Composite Deck screws. As shown in Fig. 14.

Fig. 14



Step 3: Mount Additional Infill Grooved Deck Boards

1. Insert HULK Hidden Clips with Metal Screws into the exposed groove in the first Grooved Deck Board. Position each clip onto the top face of each Joist or Picture Frame Blocking. Be sure the jagged edge of the clip is facing the grooved board. As shown in Fig. 15 & 16.
2. Fasten Metal Screws on HULK Hidden Clips into joists or Picture Frame Blocking. As shown in Fig. 17. Be sure to keep both boards engaged with the HULK Hidden Clips as you fasten.

- HULK hidden Clip screw should be driven into cavity of the clip until tensioned against clip body. **DO NOT** over drive screw past this point. As Shown In Fig. 18.
3. Insert the second cut Infill Grooved Board at an angle allowing it to engage with the exposed end of the HULK Hidden Clips with Metal Screws. As shown in Fig. 19.
 4. While pressing down, push the second Board towards the first board with HULK Hidden Clips engaged with both boards. As shown in Fig. 20. **Be sure gapping at ends of second board is consistent with gapping at ends of first board.**
 5. Repeat Step 3: 1 - 4 until the second to last Infill Grooved board.

Note:

- Use a Wood Cutting Miter Saw to cut boards.
- It is recommended to wear a dust mask when cutting.

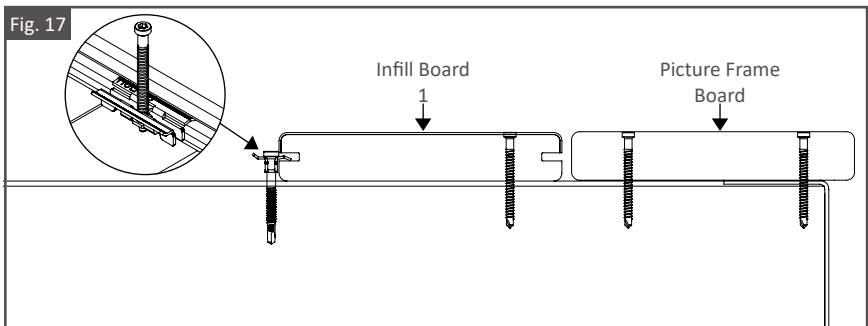
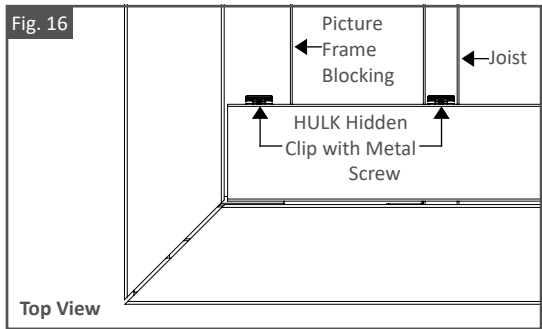
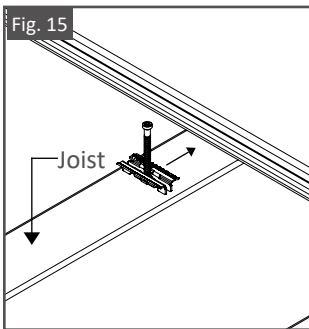


Fig. 18

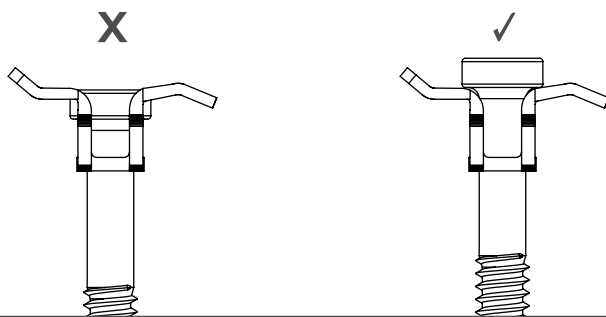


Fig. 19

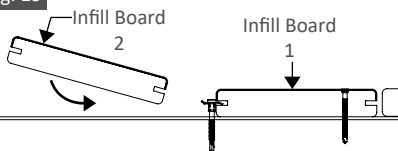
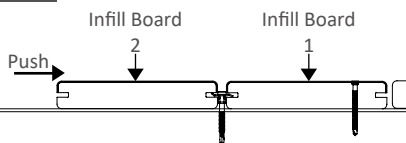


Fig. 20



Step 4: Mount Final Infill Deck Board

Free-Standing Deck installation:

1. Measure remaining opening. As shown in Fig. 21.
2. Minus 3/8" [10mm] from measured opening to account for required 3/16" [5mm] gapping on each side of board once mounted.
3. Rip final Grooved Deck Board (cut along its length) to determined width.
4. Reference step 3: 1 - 4 on pages 18 - 20 for mounting final Infill Grooved Board and HULK Hidden Clips into remaining opening of deck. Position ripped side of board (now with out a groove) toward back of deck/picture frame board.
5. Reference step 2: 2 on page 18 for face fastening ripped side of final Infill Grooved Board.

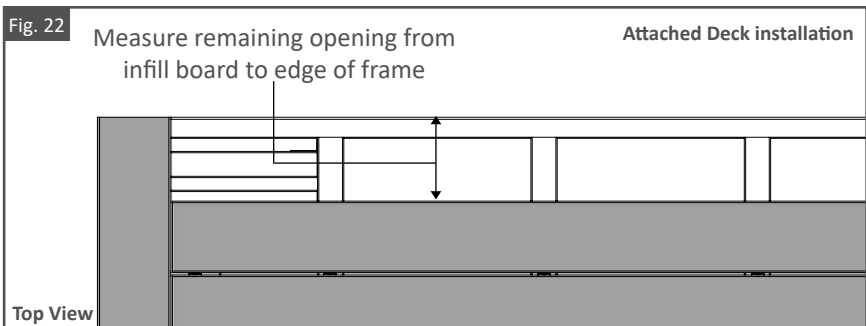
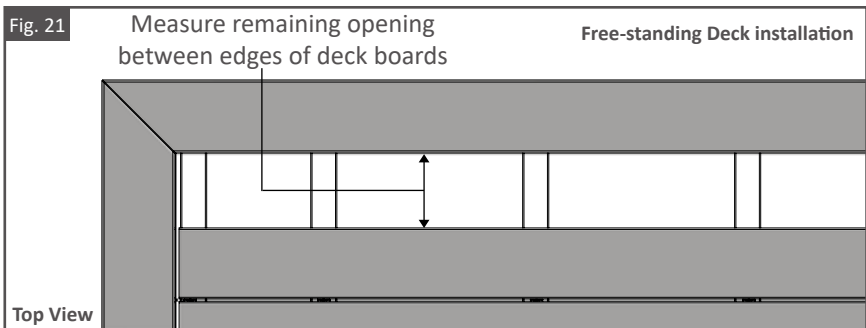
Attached Deck installation:

1. Measure remaining opening. As shown in Fig. 22.
2. Minus 3/8" [10mm] from measured opening to account for required 3/16" [5mm] gapping on each side of board once mounted.

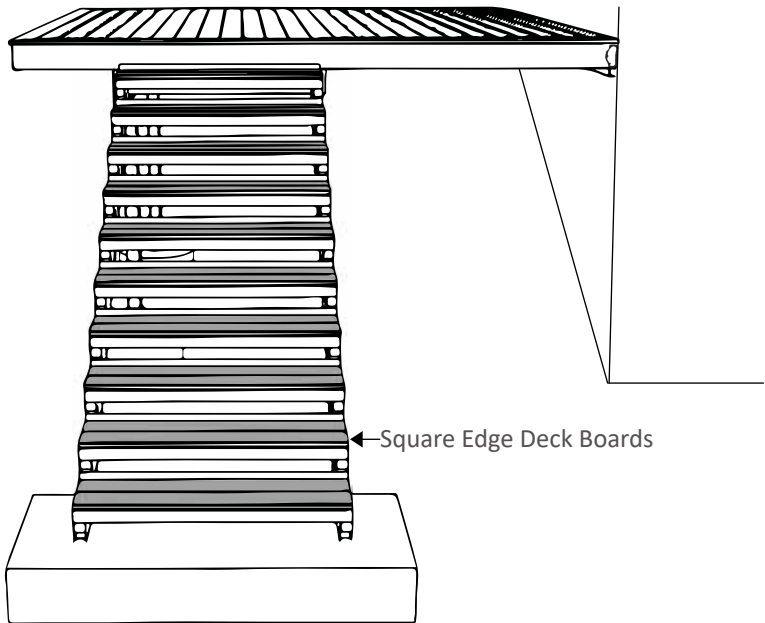
3. Rip final Square Edge Deck Board (cut along its length) to determined width.
4. Reference step 3: 6 on page 14 for face fastening final Infill Square Edge Board.

Note:

- **Be sure gapping at ends of final board is consistent with gapping at ends of previous boards.**
- Use a Table Saw to rip cut final board.
- It is recommended to wear a dust mask when cutting.



INSTALLATION: STAIR DECK BOARDS



Step 1: Mount Stair Deck Boards

1. Cut the required amount of Square Edge Deck Board to 47-7/8" [1216mm] lengths. As shown in Fig. 23. Each Stair Tray requires two deck boards.
2. Position first cut Square Edge Deck Board against the back lip of the Stair Tray and center across the width of the Stair Tray. As shown in Fig. 24.
3. With the Stair Tray in position, place a wood block on top of the Square Edge Deck Board and strike it with a hammer to mark the stair tray screw locations. As shown in Fig. 25 & 26.
4. Turn the Square Edge Deck Board over and use a 1/2" [13mm] drill bit to drill 1/8" [3mm] deep holes at each screw location. This allows the Square Edge Deck Board to lay flat on the Stair Tray. As shown in Fig. 27.
5. Confirm the fit of the Square Edge Deck Board on the Stair Tray. Adjust as required.

6. Use HULK Metal Composite Deck Screws to fasten each end of the deck board onto top face of stair frame. Reference Fig. 28 & 29 for recommended fastener spacing.
7. Position second cut Square Edge Deck Board flush with the side face of the stair tray and spaced 1/8" [3mm] from the first board. As shown in Fig. 30.
8. Repeat Step 1: 3 - 6. As shown in Fig. 31 - 35.
9. Repeat Step 1: 1 - 8 to install Square Edge Deck Boards onto remaining steps in stair frame. As shown in Fig. 36.

Note:

- It is recommended to mark 47-7/8" [1216mm] on Square Edge Deck Board prior to cutting. Be sure to cut along the cut line to prevent tolerance stack from blade thickness, leaving the last board short. Length of stair tread is actually to be 47-7/8" [1216mm].
- Mounted Square Edge Deck Board overhang will vary based on rise/run of stair frame.

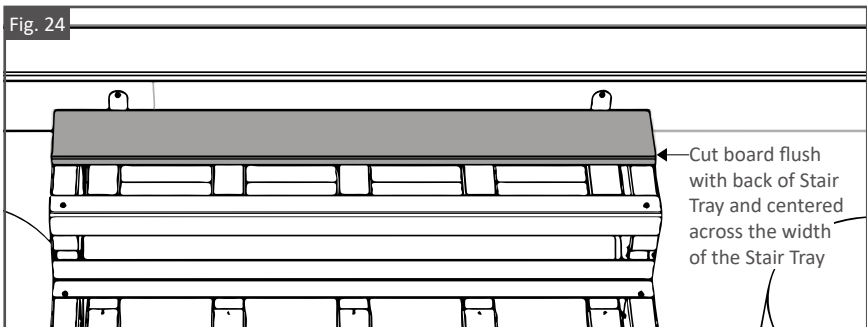
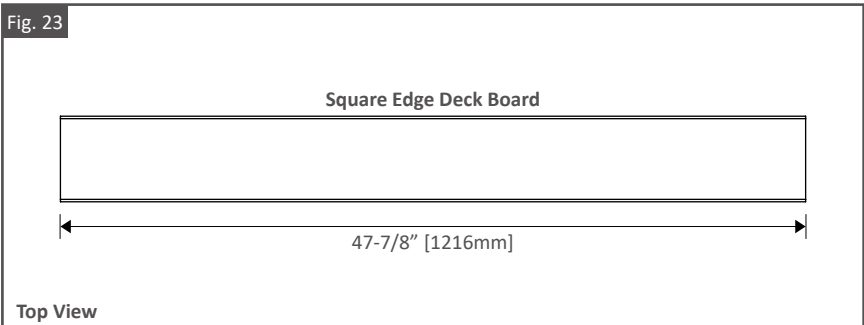


Fig. 25

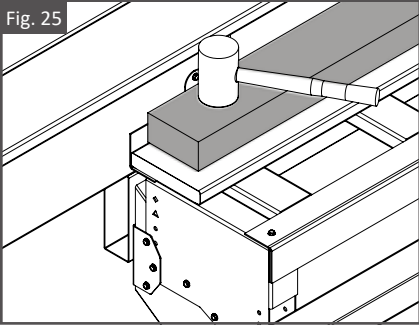


Fig. 26

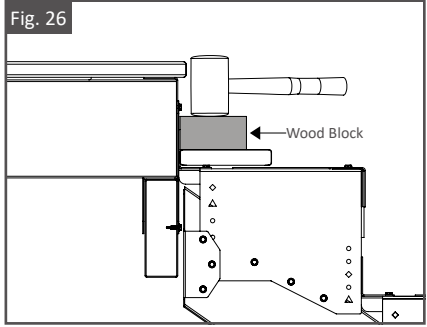


Fig. 27

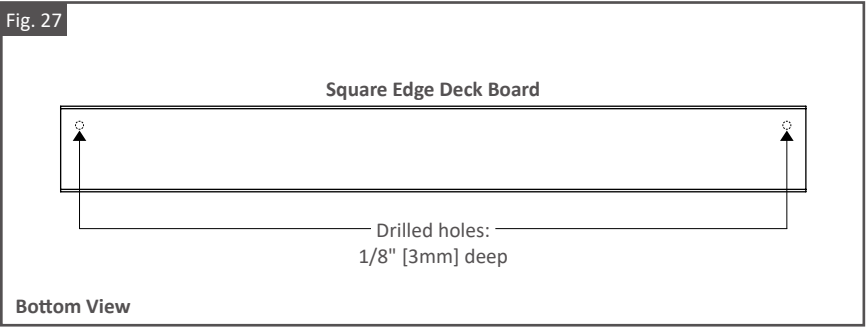


Fig. 28

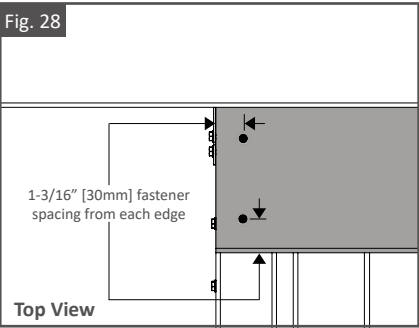


Fig. 29

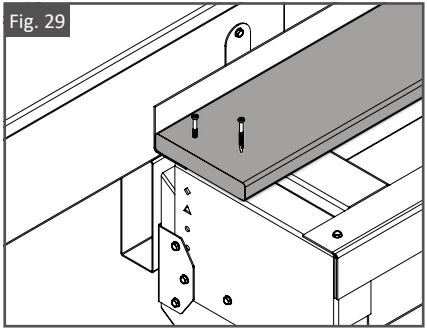
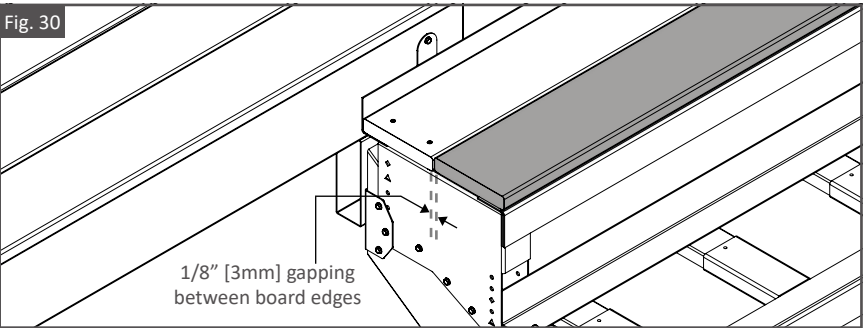
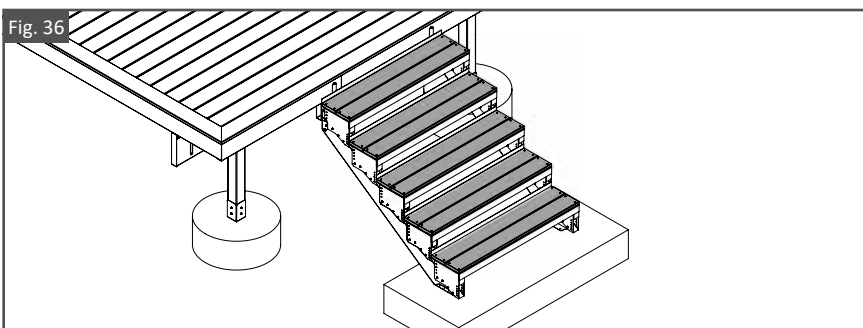
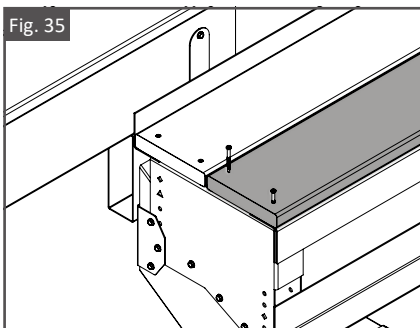
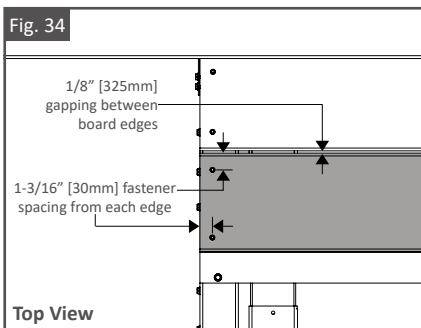
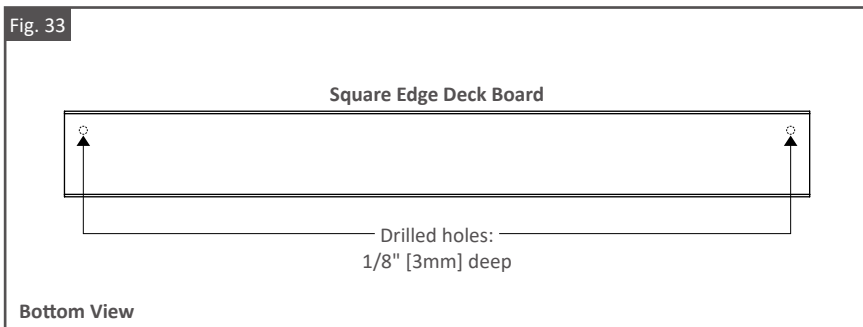
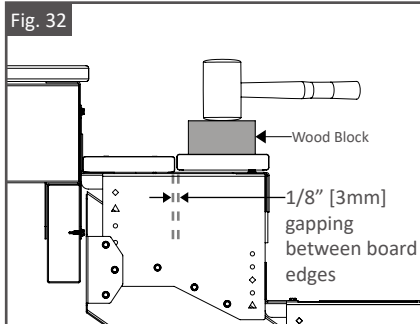
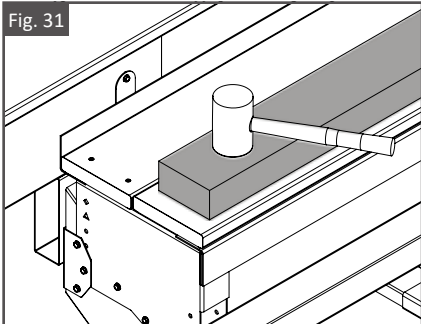
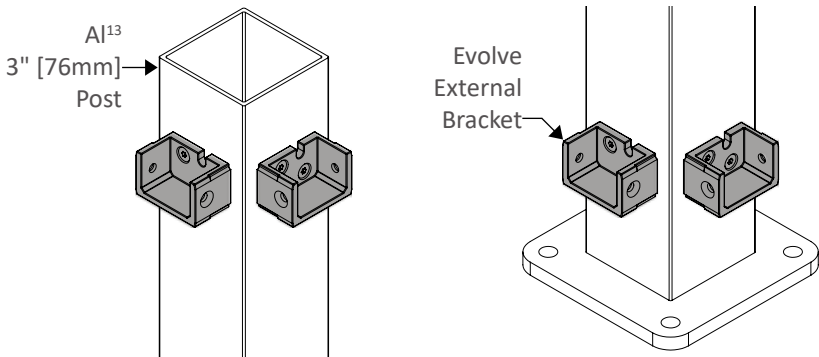


Fig. 30





INSTALLATION: EVOLVE EXTERNAL BRACKET

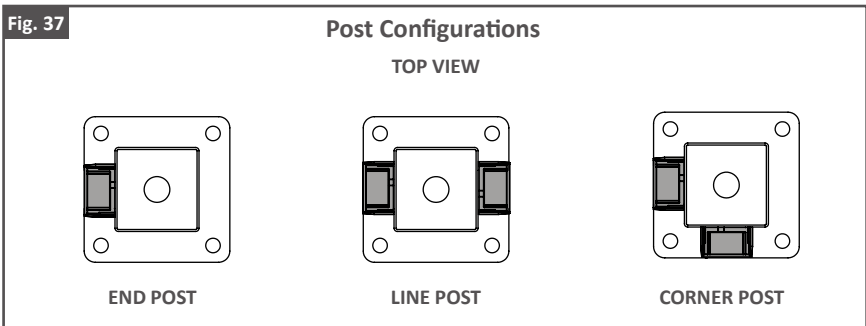


Step 1: Identify Required Post & Bracket Configurations

1. Based on your post layout, determine required bracket configurations for each post. Reference Fig. 37 below.

Note:

- Reference project planning steps on pages 10 & 11 for post layout.



Step 2: Mark Bracket Hole Locations onto Posts

1. Mark the centerline of each post with a pencil.
2. Take measurements used in Fig. 38 & 39 to mark bottom and top bracket hole locations onto posts.

Tip:

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

Fig. 38**Evolve External Bracket Hole Locations:**

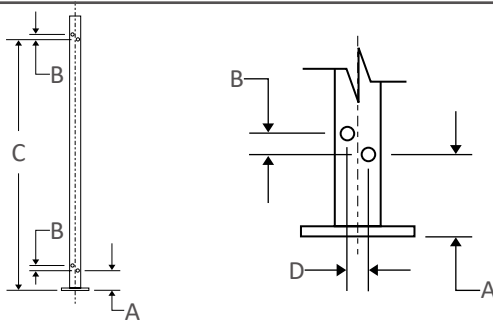
Pre-drill Dimensions: Pre-drilling with a 3/16" [5mm] drill bit is required

34" [864mm] Panel

A*	B	C	D
3-13/16" [97mm]	1/2" [13mm]	36-11/16" [932mm]	13/16" [21mm]

*Dimension A positions bottom edge of rail 3-1/2" [89mm] above deck surface.

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

Fig. 39**Step 3: Pre-Drill and Install Brackets****Tip:**

- **It's important to double check dimensions to confirm accuracy of bracket hole locations before drilling.**
1. Use Spring Punch to mark the holes. As shown in Fig. 40.
 2. Pre-drill bracket holes with a 3/16" [5mm] drill bit. As shown in Fig. 41.
 3. Attach Bracket to the posts with supplied T-25 Thread-Cutting Screws. Use two screws per bracket. Use low speed setting on drill. As shown in Fig. 42.
 4. Once top and bottom brackets are installed, remeasure bracket spacing to confirm dimensions used in Fig. 38 & 39 of step 2. As shown in Fig. 43.
 5. Remove all metal shavings from deck, post base cover, outside and inside of post, and panel before bracket is screwed to post to prevent corrosion.

Fig. 40

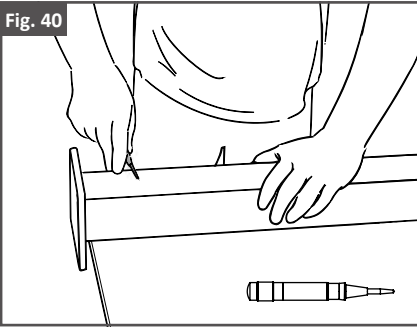


Fig. 41

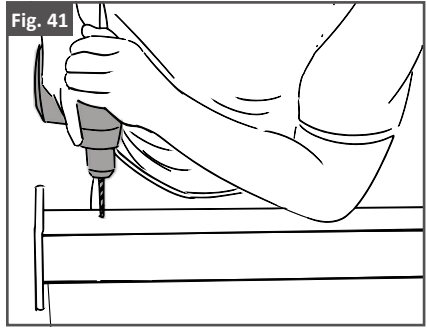


Fig. 42

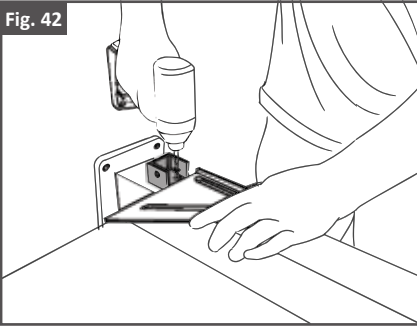
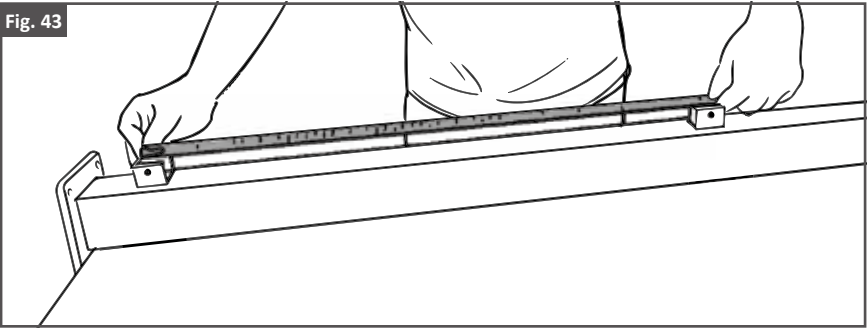
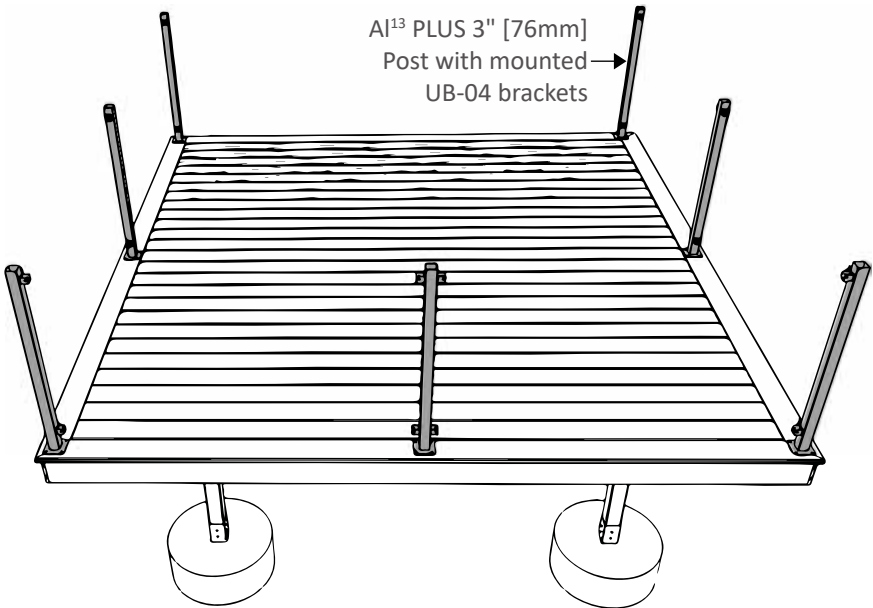


Fig. 43



INSTALLATION: AI¹³ PLUS RAILING POSTS



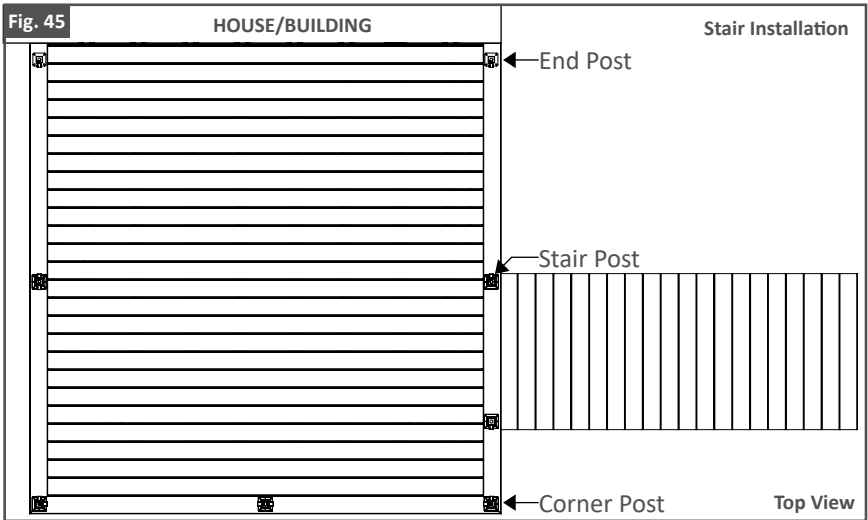
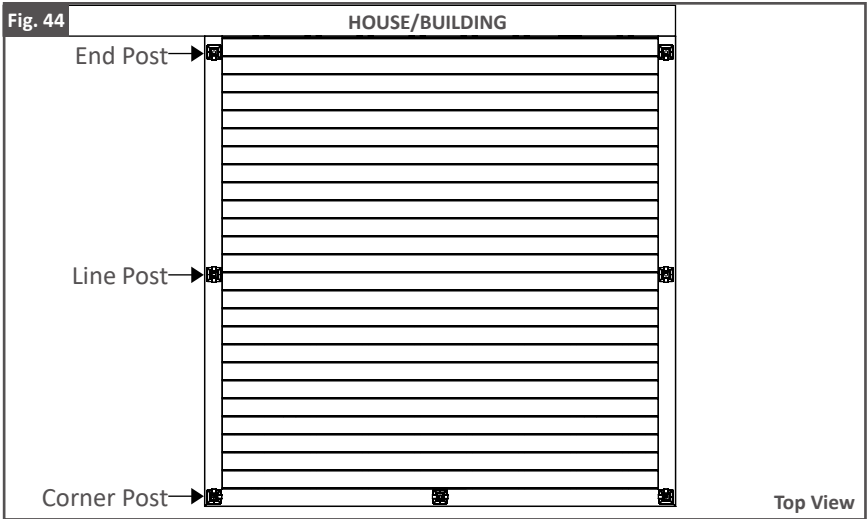
Step 1: Place Posts into Desired Position on Decking

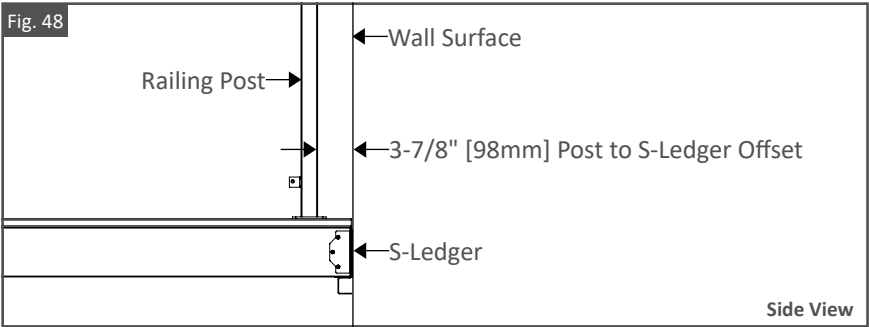
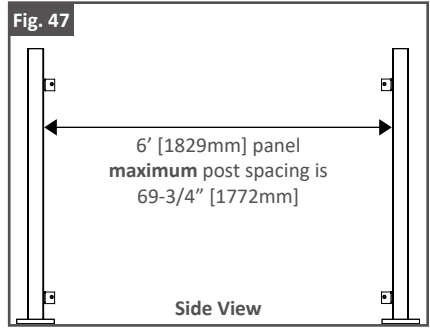
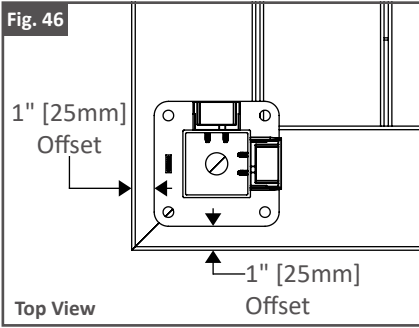
1. Position End, Line and Corner Posts in desired position on deck surface. As shown in Fig. 44 or 45. For stair installation, **ONLY** position posts to be used at top of stair, bottom stair posts will be mounted in later steps.
2. Position the edge of each post base plate 1" [25mm] from Picture Frame Deck Board edges. As shown in Fig. 46.
3. Confirm post spacing. 6' [1829mm] panel **maximum** post spacing is 69-3/4" [1772mm]. As shown in Fig. 47. **DO NOT** exceed the maximum post spacing. Adjust as needed.
4. For wall mounted installation, both End Posts should be positioned 3-7/8" [98mm] from S-Ledger. As shown in Fig. 48.

Note:

- Reference deck kit framing instructions for post blocking positioning. **For a successful installation, railing post through bolts should penetrate post blocking.**
- Reference deck kit framing instructions for post blocking instructions.

- Additional reference point if deck boards are not straight: the edge of post base should be positioned 1/2" [13mm] from a perimeter framing Joist.



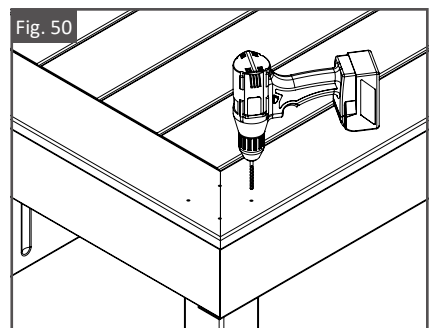
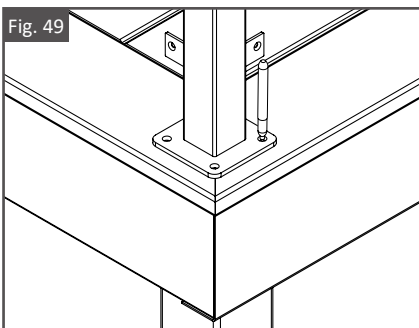


Step 2: Mark & Pre-Drill Bolt Holes

1. Mark bolt hole locations and drill a 7/16" [11mm] hole. As shown in Fig. 49 & 50.

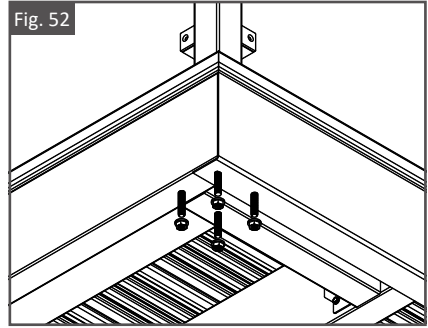
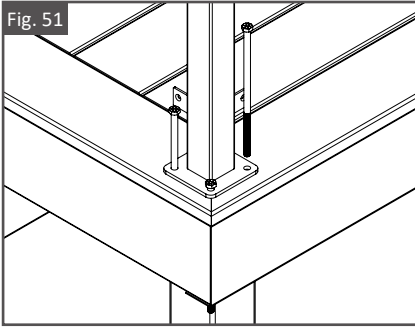
Tip:

- A 4" [102mm] drill bit is recommended for initial hole through framing member and 12" [305mm] is recommended for creating final hole.
- Be sure drill is plumb when drilling.
- Be sure drill bit penetrates through deck board and framing members (Post blocking, U-Rim, Joist).



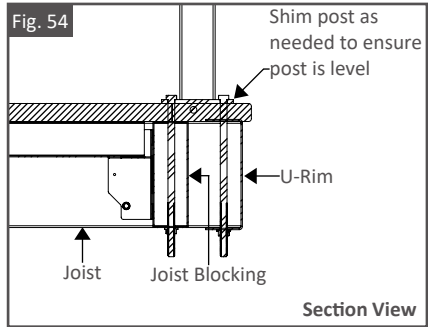
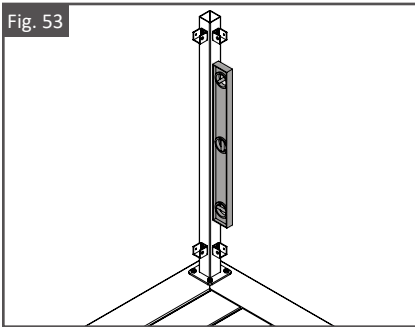
Step 3: Mount Posts

1. Insert 3/8" x 8-1/2" [10mm x 216mm] Hex Head bolts and washers through pre-drilled holes. As shown in Fig. 51.
2. Fasten nuts and washers onto bolts on bottom of framing. As shown in Fig. 52.

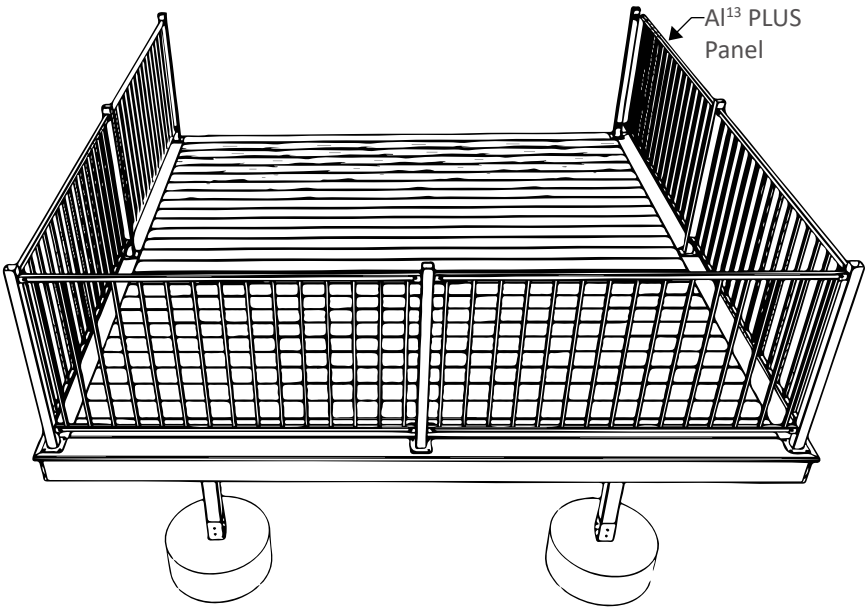


Step 4: Check Mounted Posts

1. Shim post as needed to ensure post is level.



INSTALLATION: AI¹³ PLUS RAILING PANELS

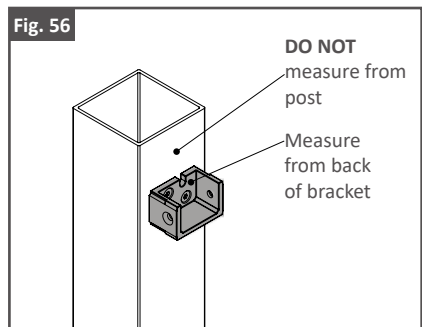
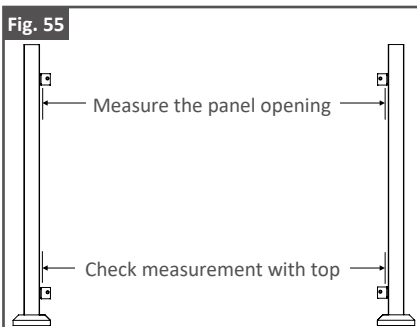


Step 1: Measure The Panel Opening Length

1. Measure the distance of the panel opening. As shown in Fig. 55. Confirm that the measurements for the top brackets are the same as the bottom brackets.

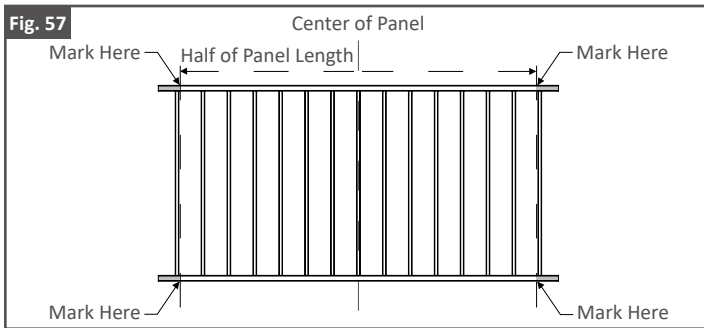
Tip:

- Measure from the back wall of the bracket to the back wall of the bracket on other post. As shown in Fig. 56.



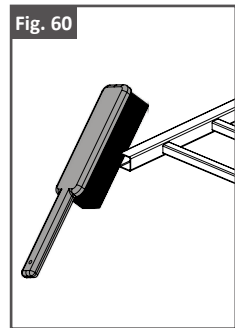
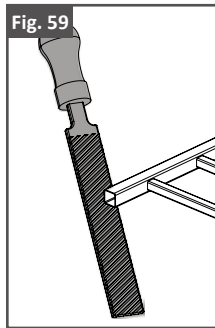
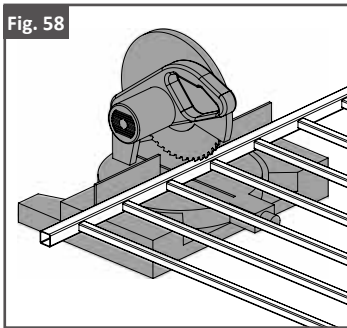
Step 2: Measure & Mark Panel Where Cuts Will Be Made

1. To ensure rails are symmetrical, take the measurement found in step 1 (Measure The Panel Opening Length), and divide it in half to determine the center point.
2. Find the center of the rails and measure out half of the length each direction. As shown in Fig. 57.
3. Mark these locations with a pencil on the top & bottom rail.



Step 3: Cut & Clean Panel

1. Cut the panel using a saw with a ferrous metal cutting blade.
2. Use file to smooth cut edges.
3. Remove any metal shavings and dust with a brush or rag. Be sure metal shavings inside of panel are also removed.
4. Make sure surfaces to be painted are clean.

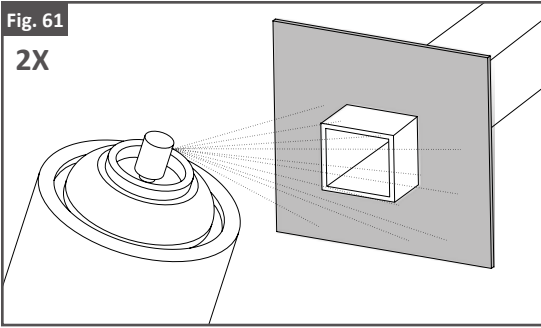


Step 4: Apply Spray Paint To Cut Areas

1. Using a piece of cardboard as a mask, apply the 1st coat of Fortress zinc based touch-up paint. As shown in Fig. 61.
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.

Fig. 61

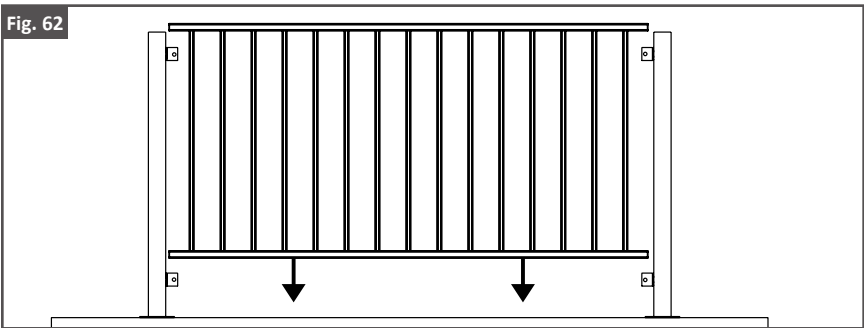
2X



Step 5: Install Panel

1. Install cut panel to ensure proper fit.

Fig. 62



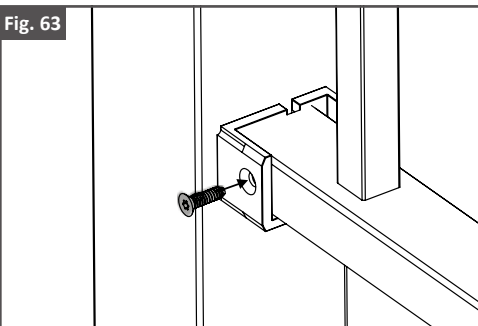
Step 6: Attach Panel To Bottom & Top Brackets

1. Pre-drill holes for screws using a 3/16" [5mm] drill bit.
2. Apply screws into bottom & top brackets. As shown in Fig. 63.

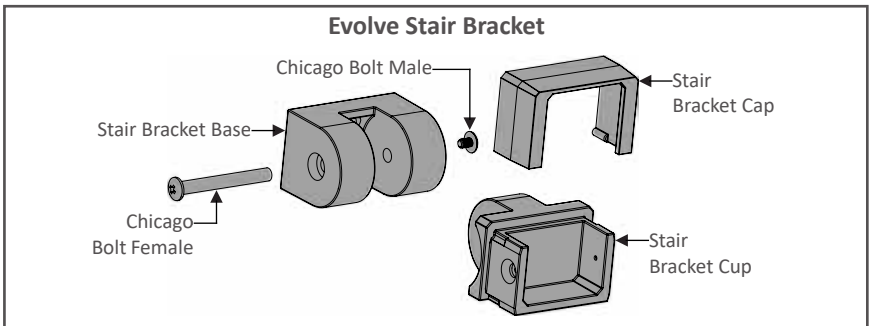
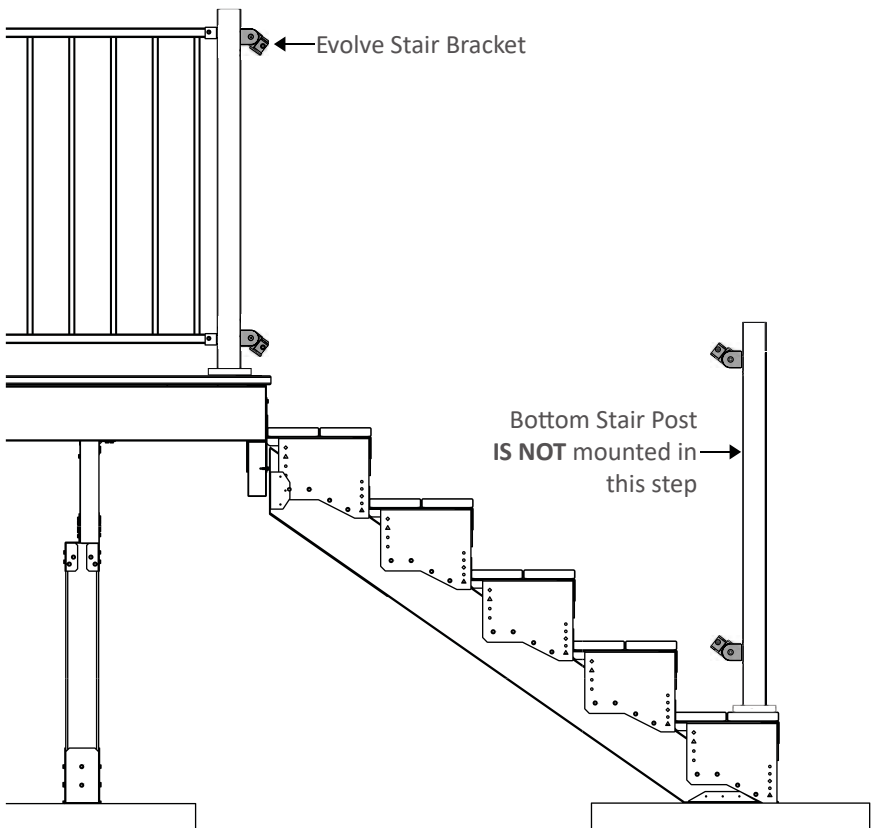
Note:

- Only one screw per bracket is needed to secure the bracket to the panel.
- Screws should be installed on the same side of brackets.

Fig. 63



INSTALLATION: EVOLVE STAIR RAILING BRACKET



- Available Lengths: 6' or 8' [1829mm or 2438mm].
- Available Heights: 34" [864mm].
- Adjustable Angle Range: 40° **maximum**.
- For installations with more than 7 stairs, mid-span posts will be required. Be sure to repeat stair bracket and bottom stair post installation as needed.

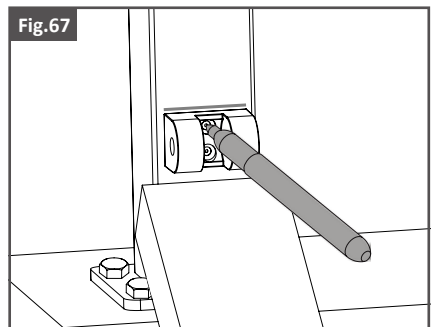
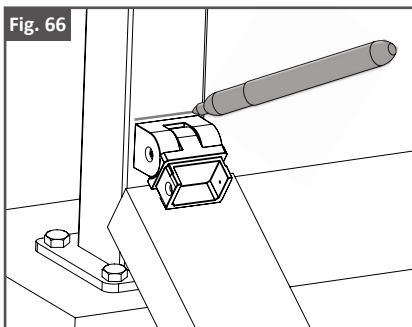
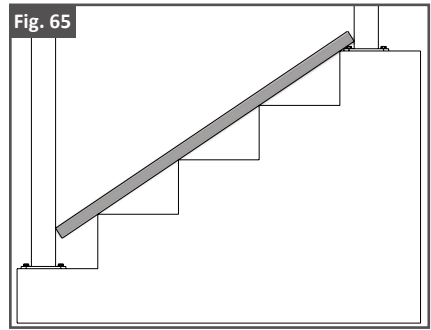
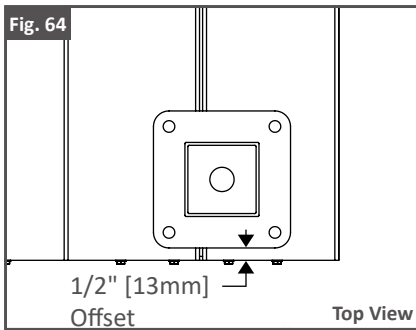
FOR A SUCCESSFUL INSTALLATION, IT IS REQUIRED TO MOUNT STAIR BRACKETS BEFORE MOUNTING BOTTOM STAIR POSTS

Step 1: Bottom Bracket of Top Post Installation

1. Position the edge of the bottom post base plate $1/2''$ [13mm] from edge of the stair frame. As shown in Fig. 64.
2. Position wood $2'' \times 4''$ (actual $1-1/2'' \times 3-1/2''$ [38mm x 89mm]) between posts. As shown in Fig. 65.
3. Position bottom bracket centered flat on post & wood $2'' \times 4''$ (actual $1-1/2'' \times 3-1/2''$ [38mm x 89mm]). Use pencil to mark top edge of bracket location on post. As shown in Fig. 66.
4. Disassemble the bracket by removing the barrel and screw. Reference the bracket assembly on page 36.
5. Place bracket base on previous top edge mark. Center the base on the post and use pencil to add marks for two screw hole locations. As shown in Fig. 66.

Note:

- Be sure bracket base is centered on post when marking hole locations.

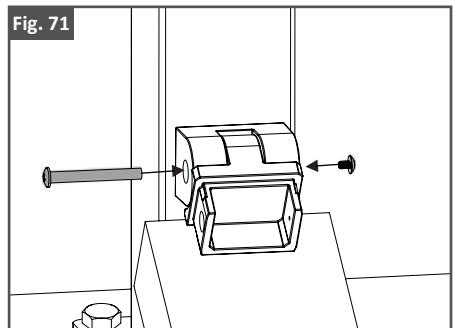
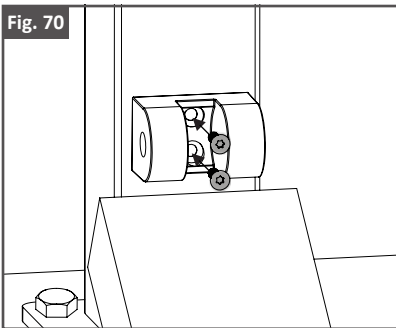
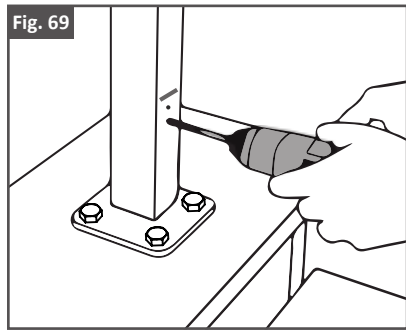
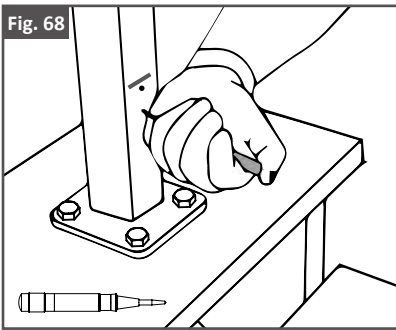


Step 2: Bottom Bracket of Top Post Installation Continued

1. Use Spring Punch to mark the holes. As shown in Fig. 68.
2. Drill out bracket hole with a 3/16" [5mm] drill bit. As shown in Fig. 69.
3. Use T-25 screws to attach the bracket base to the post. As shown in Fig. 70.
4. Keep bracket base centered as you install second screw.
5. Insert then tighten barrel & screw to re-assemble bracket. As shown in Fig. 71.

Tip:

- Depending on the version of the Evolve Stair Bracket used, the screw holes may need to be pre-drilled with a 1/4" [6mm] drill bit.

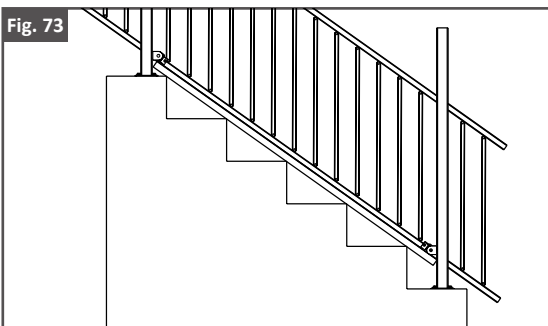
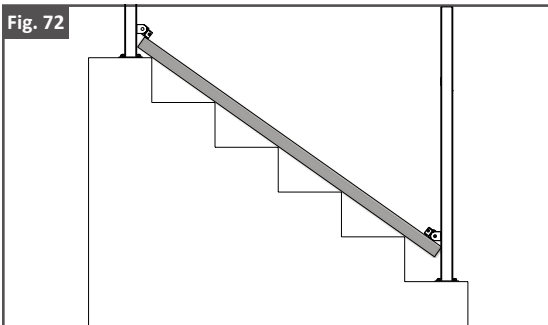


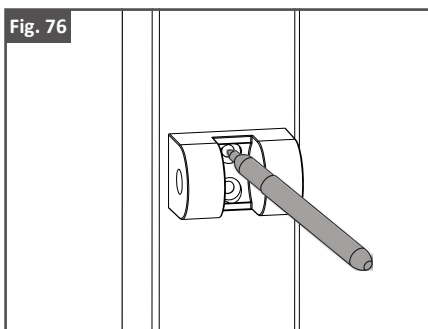
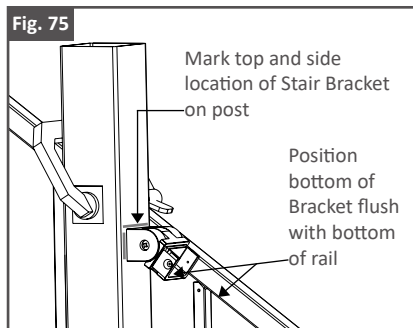
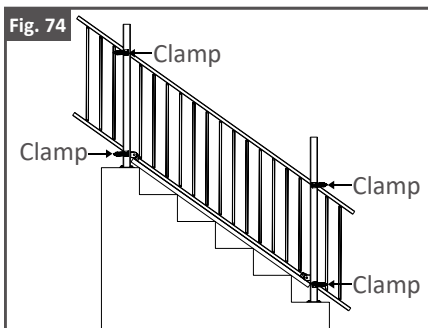
Step 3: Top Bracket of Top Post Installation

1. Position wood 2" x 4" (actual 1-1/2" x 3-1/2" [38mm x 89mm]) on stairs in line with bottom brackets. As shown in Fig. 72.
2. Place panel on top of wood 2" x 4" [60mm x 102mm] next to bottom brackets. As shown in Fig. 73.
3. Rake the panel until balusters are parallel to the posts.
4. Clamp the panel to the post. Be sure to clamp at four touch points to keep panel in position. As shown in Fig. 74.
5. Position top bracket centered and flat on post.
Make sure inside bottom of bracket is flush with bottom of rail. As shown in Fig. 75.
6. Use pencil to mark top edge of bracket location on post.
7. Disassemble the bracket by removing the barrel and screw.
8. Place bracket base on previous top edge mark. Center the base on the post and use pencil to add marks for two screw hole locations. As shown in Fig. 76.

Note:

- For best results, be sure bracket bases are centered on posts when making marks.

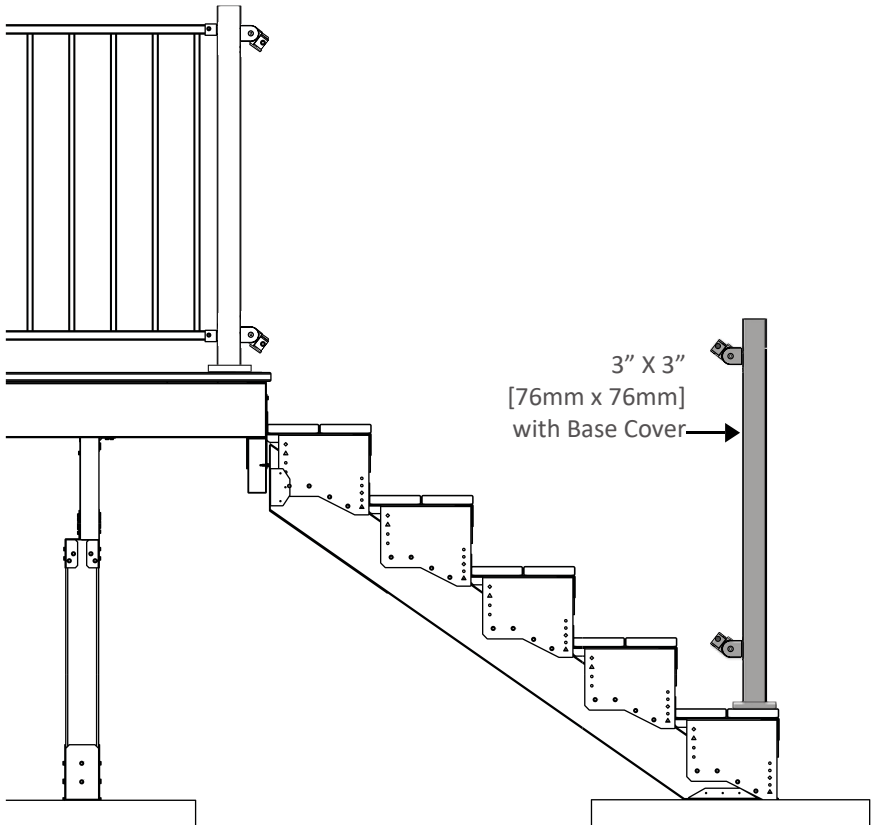




Step 4: Top Bracket of Top Post Installation Continued

- Reference bottom bracket of top post installation step 2 on page 38.

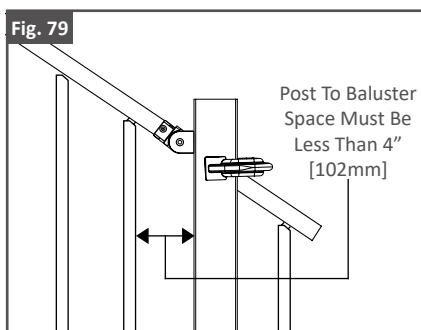
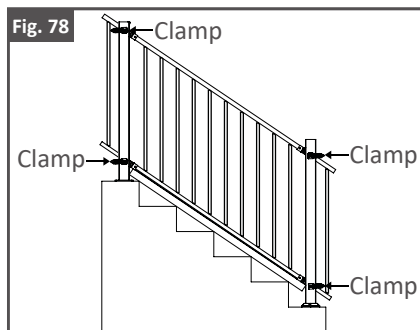
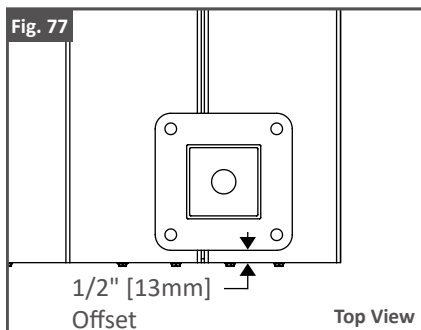
INSTALLATION: AI¹³ PLUS BOTTOM STAIR RAILING POSTS



Step 1: Position Bottom Stair Posts

1. Position the edge of the bottom post base plate 1/2" [13mm] from edge of the stair frame. As shown in Fig. 77.
2. Position wood 2" x 4" (actual 1-1/2" x 3-1/2" [38mm x 89mm]) on stairs in line with bottom brackets.
3. Place panel on top of wood 2" x 4" (actual 1-1/2" x 3-1/2" [38mm x 89mm]) next to top and bottom brackets.
4. Rake the panel until uprights are level and positioned as close to final installation position as possible.
5. Clamp panel onto posts to hold in place. As shown in Fig. 78.

- Place bottom post in desired position. Measure spacing from inside edge of post to the first picket in panel. Spacing **CANNOT** exceed 4" [102mm] on both top and bottom posts. As shown in Fig. 79. Adjust bottom post positioning as needed.



Step 2: Install Bottom Stair Posts

- Mark bolt hole locations and drill a 7/16" [11mm] hole through board and step assembly. As shown in Fig. 80 & 81.
- Dismount Stair step from Stair Kit assembly. As shown in Fig. 82.
- Measure internal opening between the Stair Brackets. As shown in Fig. 83.
- Cut U-Rim Joist to measured length.
- Insert cut U-Rim Joist in opening between Stair brackets then use C-Clamps to hold in place. As shown in Fig. 84 & 85.
- Extend pre-drilled holes through cut U-Rim Joist. As shown in Fig. 86.

7. Insert 3/8" x 4" [10mm x 102mm] Hex Head bolts and washers through pre-drilled holes. As shown in Fig. 87.
8. Fasten bolts onto bottom of Stair Step using nuts and washers. As shown in Fig. 88.
9. Re-Mount Stair Step onto Stair Kit. As shown in Fig. 89.

Tip:

- Be sure drill is plumb when drilling.
- Measured length of cut U-Rim Joist **IS NOT** critical. Joist can be cut 1/4" [6mm] - 3/8" [10mm] short for an easier fit into opening between Stair Brackets.
- It is recommended to use a drop piece of wood/joist under the clamp as to not damage the board.
- For installations with more than 7 stairs, mid-span posts will be required. Be sure to repeat stair bracket and bottom stair post installation as needed.

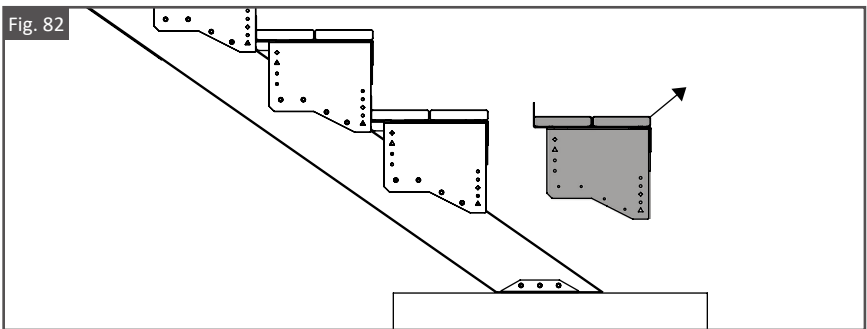
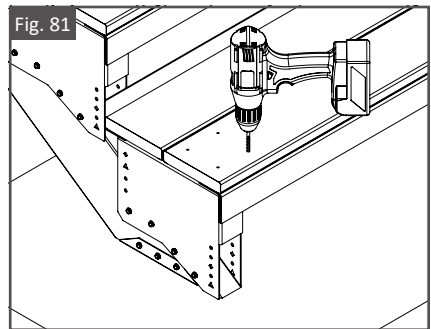
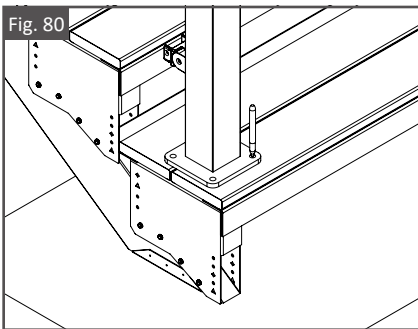


Fig. 83

Back View

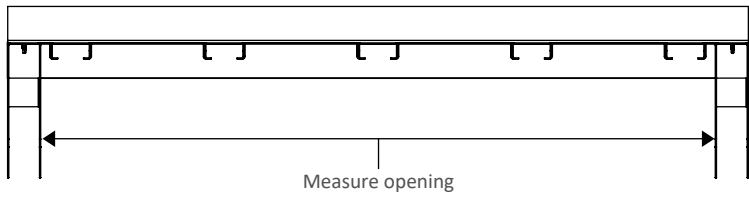


Fig. 84

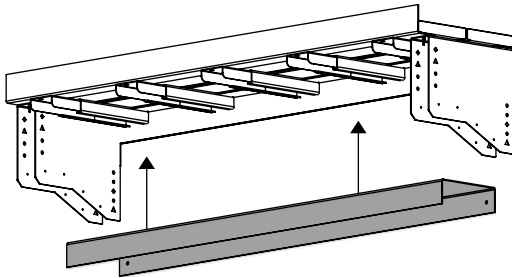


Fig. 85

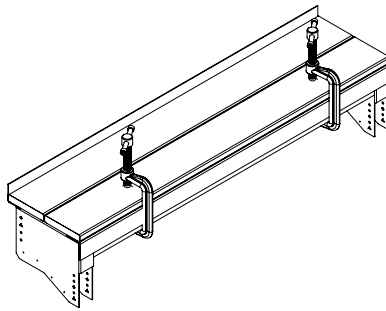


Fig. 86

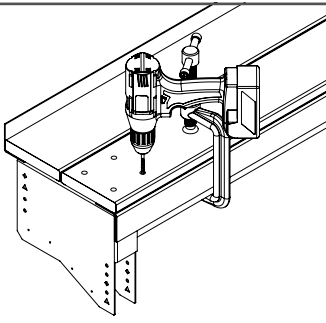


Fig. 87

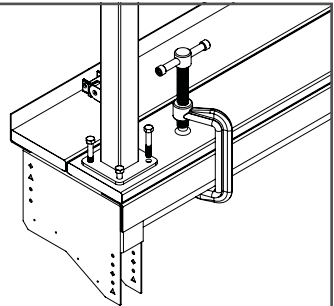


Fig. 88

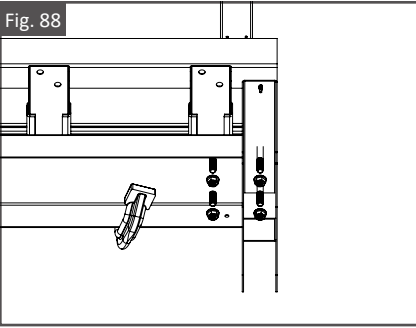
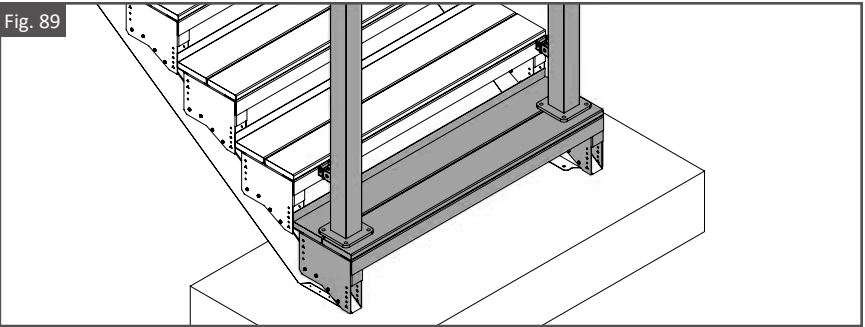
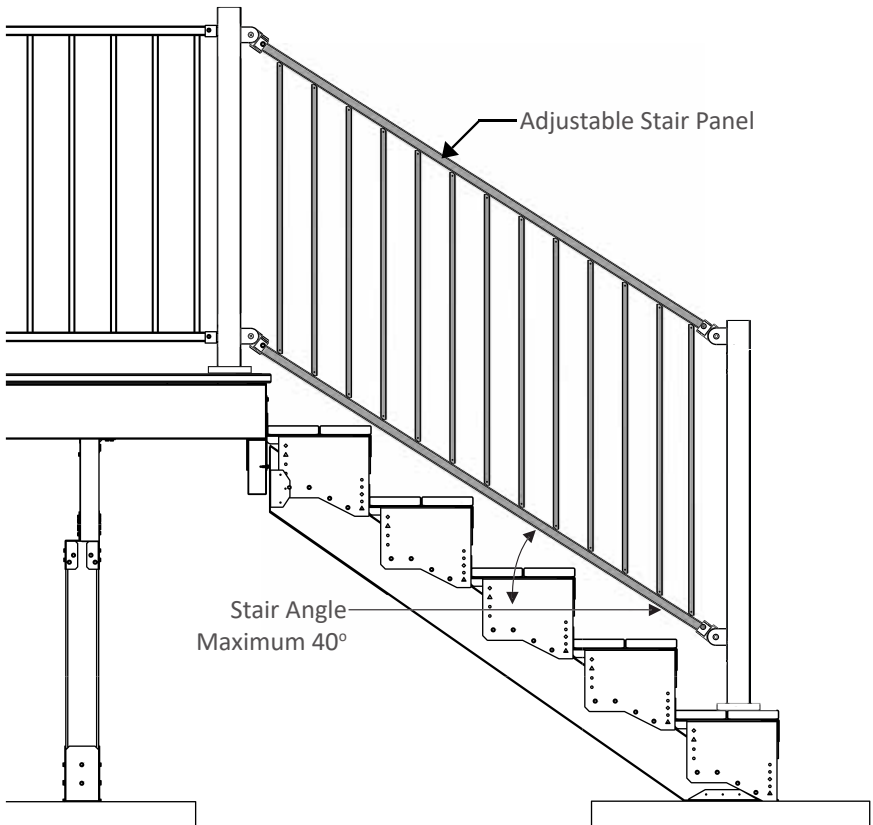


Fig. 89

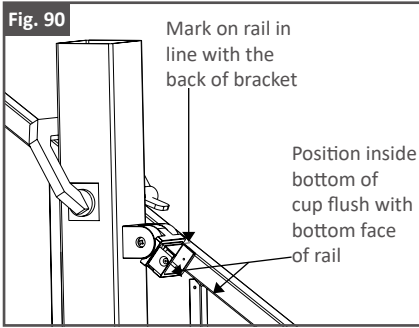


INSTALLATION: AI¹³ PLUS STAIR RAILING PANEL



Step 1: Measure & Mark Panels Where Cuts Will Be Made

1. Position wood 2" x 4" (actual 1-1/2" x 3-1/2" [38mm x 89mm]) on stairs in line with bottom and top brackets.
2. Place the panel on top of wood 2" x 4" (actual 1-1/2" x 3-1/2" [38mm x 89mm]) next to bottom brackets.
3. Have the panel raked and as close to final installation position as possible.
4. Confirm that panel is level.
5. Place cut marking on rails in line with the back of bracket opening. Be sure bottom of bracket and bottom of rail are flush. As shown in Fig. 90.
6. Use speed square to ensure markings are perpendicular to panel.

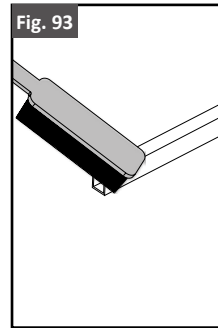
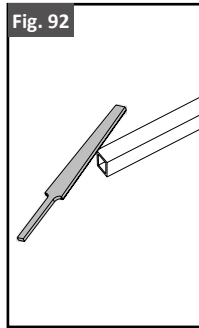
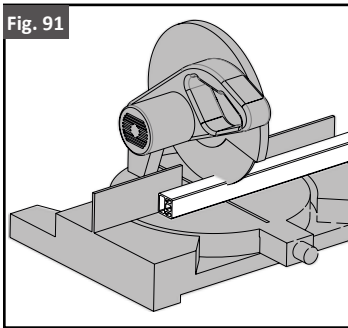


Step 2: Cut & Clean Panel

1. Cut panel using a saw with a ferrous metal cutting blade.
2. Use file to smooth cut edges.
3. Remove any metal shavings and dust with a brush or rag.
4. Make sure surfaces to be painted are clean.

Tip:

- Be sure to also remove shavings from inside of panel.

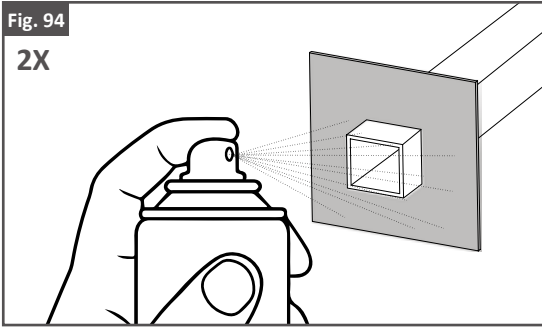


Step 3: Apply Spray Paint To Cut Areas

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.

Fig. 94

2X



Step 4: Install Stair Panel

- Reference panel installation steps 5 & 6 on page 35.

Tip:

- Be sure to confirm that the raked panel is level.

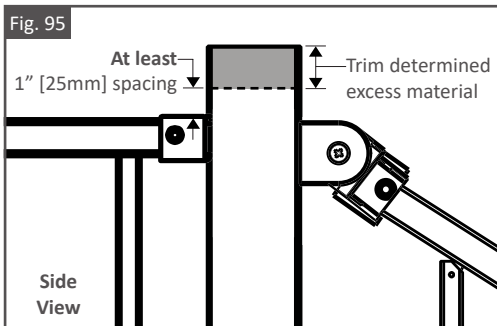
Step 5: Cut Stair Posts to Length (Optional)

1. Use a metal cutting saw to trim determined excess material from stair posts. As shown in Fig. 95.

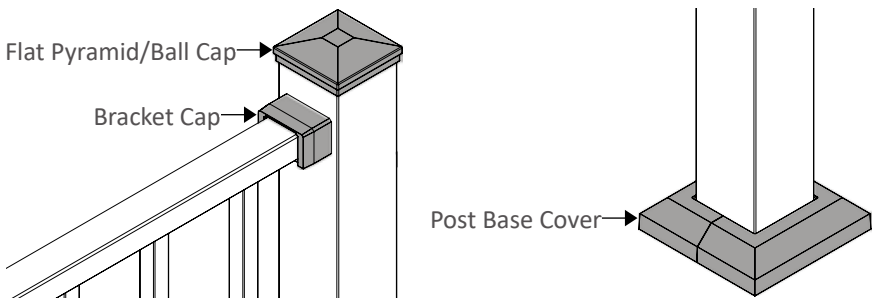
Note:

- Stair posts required **at least 1" [25mm]** space from top face of highest bracket to account for Flat Pyramid/Ball Cap installation.

Fig. 95

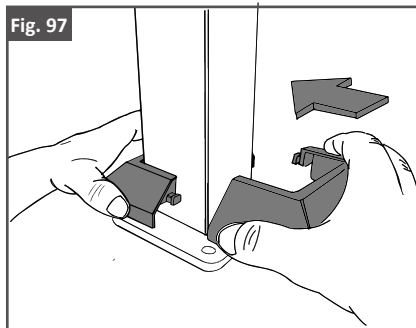
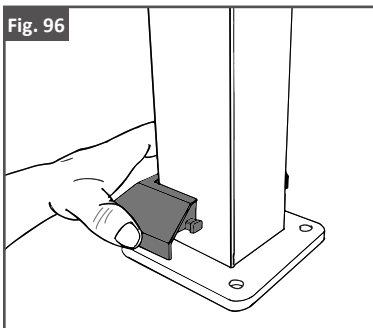


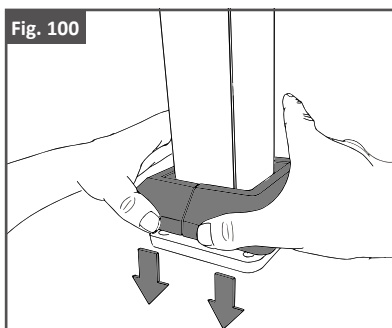
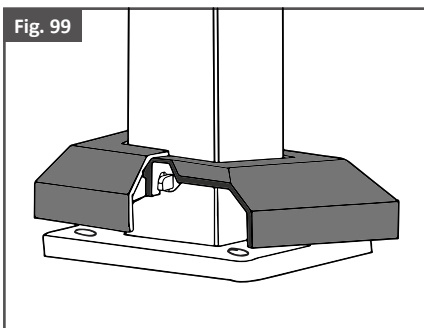
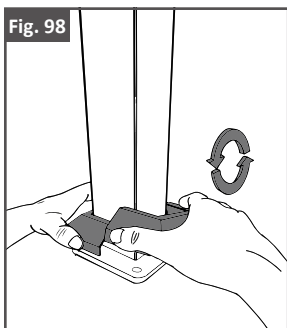
INSTALLATION: AI¹³ PLUS RAILING ACCESSORIES



Step 1: Install Post Base Cover

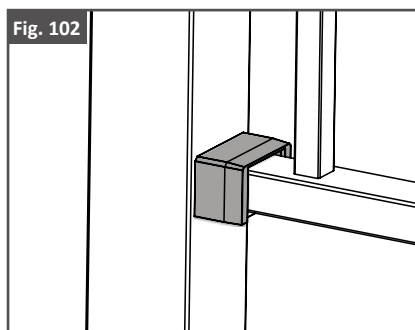
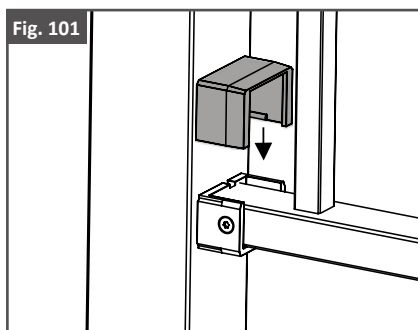
1. Separate the two-piece base plate cover. Hold one side parallel to the post base plate. As shown in Fig. 96.
2. Place 2nd half of the post base cover on the opposite side of the post. Hold 2nd piece slightly under the 1st piece. As shown in Fig. 97.
3. Twist the 2nd cover $\frac{1}{4}$ turn and move piece until both halves touch. As shown in Fig. 98.
4. Make sure one of the locking pins on the 2nd cover engage with the proper slot on the 1st cover piece. As shown in Fig. 99.
5. Once the first locking pin is started, turn the 2nd cover piece back parallel to the post base plate. One you have confirmed both locking pins have engaged with the opposing slots lower both halves over the post base plate. As shown in Fig. 100.





Step 2: Install Bracket Caps

1. Bracket Caps snap over Bracket Cups. As shown in Fig. 101 & 102.



Step 3: Install Flat Pyramid/Ball Cap

1. Flat Pyramid & Ball Caps are press fit into place. As shown in Fig. 103 & 104.
2. Use a broom or compressor to remove debris from railing and deck surface.

Fig. 103

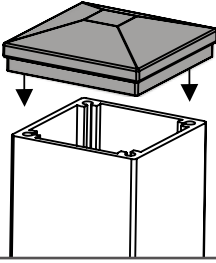
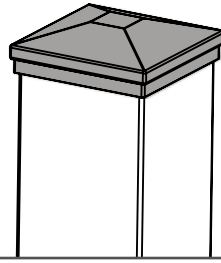


Fig. 104



CARE & MAINTENANCE

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

- After installation of your Fortress Building Product, 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. Examples of acceptable cleaners are Simple Green, dish soap and warm water.
- 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.
- 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 all products and powder-coated surfaces. In areas where higher traffic, increased atmospheric substances, or other effects may occur, the time period between cleanings should be increased to 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.**

Cleaning Your Decking Boards

What you will need



Soap



Water



Bucket



Sponge



Hard-Bristled
Broom



High Pressure Hose
With Fan Tip

STEP 1: Apply soapy water to your profile with a sponge.

STEP 2: Sweep the liquid over your profile using the hard-bristled broom, making sure to remove all dirt and residue from the gaps between the decking boards. Sweeping in the direction of the grain is best.

STEP 3: If residue and/or dirt are still evident, a high pressure hose is very effective in removing stubborn and unavoidable organic waste.

***DO NOT** use standard composite decking cleaners on Apex.

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.



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