



## Post Installation

### 1.

#### LAG BOLT APPLICATION

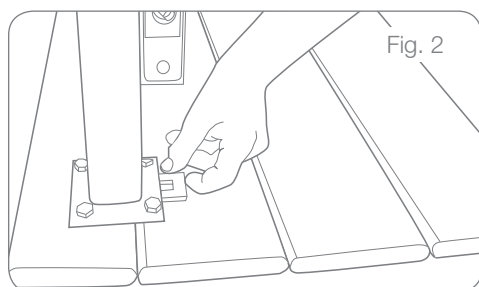
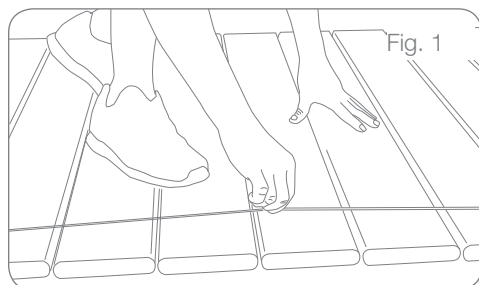
Determine the desired rail placement and snap a line on to the deck to ensure that all posts are aligned properly (Fig. 1). Ensure sufficient mounting structure exists in the areas to receive posts and install blocking if necessary. Plumb the posts using the shims provided, secure the posts in place (Fig. 2), and install trim ring on each post.

#### THROUGH BOLT APPLICATIONS

For through bolt applications, use the provided secondary mounting plate when securing posts in place. Drill through the mounting surface using a  $\frac{3}{8}$ " drill bit. Using appropriate hardware (sold separately), align bolts through the post mounting flange and secondary mounting plate. Tighten bolts, secure in place, and install trim ring on each post.

*NOTE: Post kits include leveling shims, post cap, 1 piece trim ring, and secondary mounting plate. Posts are designed and manufactured to accept 5/16" fasteners. Post mounting hardware is sold separately. Be sure to use appropriate fasteners for your installation. For commercial use, Avalon Heavy Duty posts are required. Check local building codes for load requirements.*

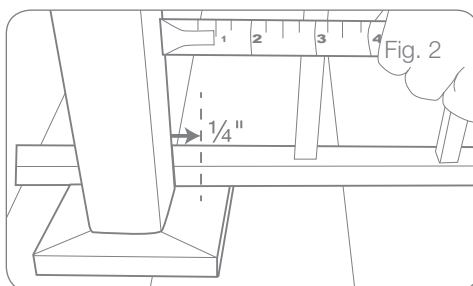
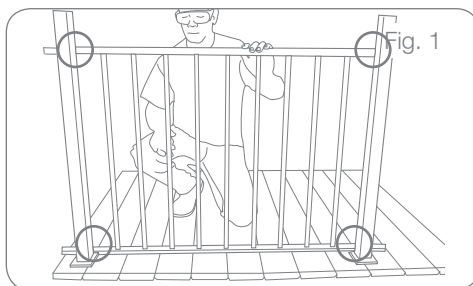
**Tip:** Leveling shims can be easily cut using a wood chisel or utility knife. Please keep safety in mind during installation and ALWAYS wear safety goggles.



## Level Rail

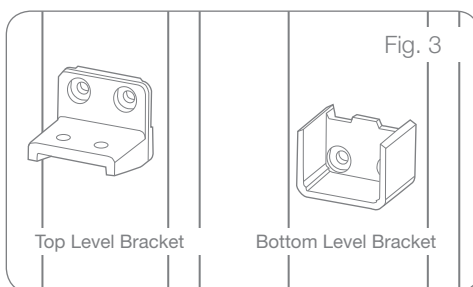
### 1.

Place rail panel across the opening and adjust to ensure equal baluster spacing on each end (Fig. 1). Mark the rail panel at the post face at all four locations shown in Figure 1. Measure  $\frac{1}{4}$ " from the marks towards the center of the panel (to allow for bracket clearance, Fig. 2) and cut the panel at this location on all four ends using a carbide tip blade of at least 60 teeth.



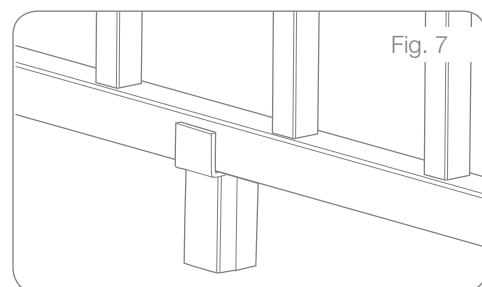
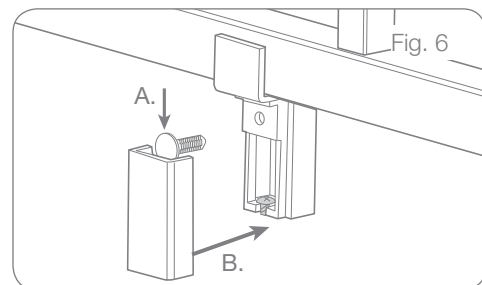
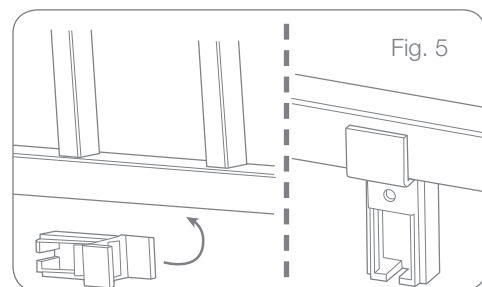
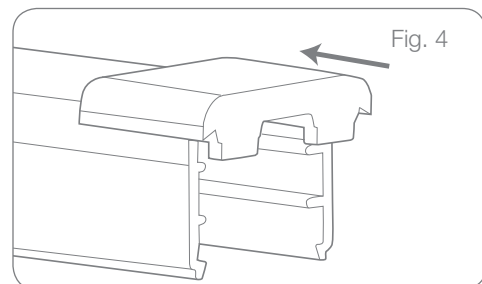
### 2.

Open the paper bracket mounting template (included with brackets), align base trim with appropriate guide on template, and secure template in place using a piece of tape. Pre-drill through the desired marked locations on the template using a  $\frac{1}{8}$ " drill bit. Remove template, align brackets (Fig. 3) with the holes ensuring that brackets are square, and fasten brackets in place using the  $1\frac{1}{2}$ " screws provided.



### 3.

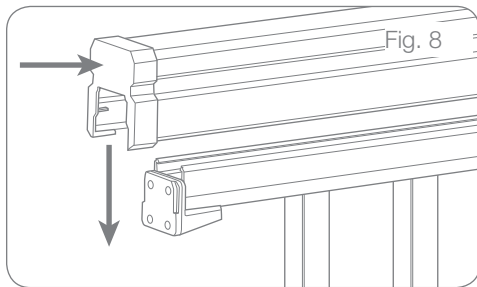
Test fit the rail panel. Once proper fit is ensured, press bottom bracket covers onto the ends of the bottom rail (Fig. 4), and set panel in place. Pivot support foot in place under the rail as shown (Fig. 5). Secure support foot to the mounting surface using the  $1\frac{1}{2}$ " screw(s) provided and press fit cover into place using plastic plug(s) as shown (Fig. 6 & 7).



# Stair Rail

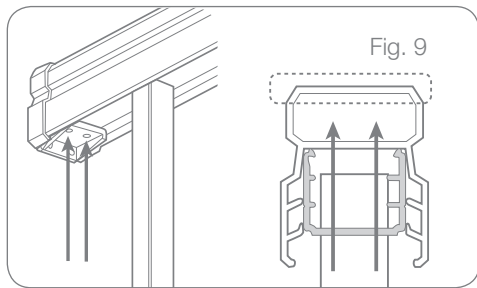
## 4.

Measure the length of the rail panel and cut the top rail (sold separately) to same length. This should match the cuts in Step 1. Press top rail end covers onto the top rail and set in place on top of the panel (Fig. 8). Press down on the top rail to ensure that it fits snugly onto the panel and ensure that top rail end covers are being held in place by the mounting bracket.



## 5.

Using the holes in the bracket as a guide, pre-drill two 1/8" holes from under the bottom of the rail up through the top rail as shown in Figure 9. Drive two 1 1/2" screws up through the hole locking the bracket, panel, and top rail together, being careful not to drill through the top of the top rail (circled with dotted line).



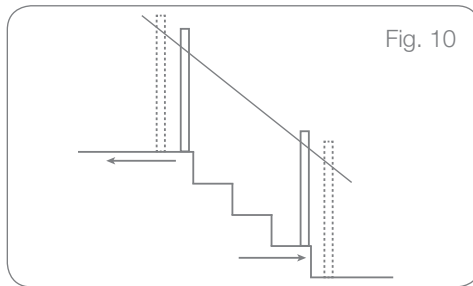
## 6.

Install pyramid post top onto each post. Note: A rubber mallet may be needed for proper fit.

## 1.

Required Avalon aluminum post height will vary based on post location and stair angle. Typically, the post at the bottom of the stairs will need to be taller than the post at the top of the stairs. However, posts at the top of the stairs may require a taller post depending on how far the top post is mounted from the nose of the top stair (See Figure 10). Always make sure that the posts are mounted to the stairs so that there is sufficient blocking under the stair post to securely anchor it.

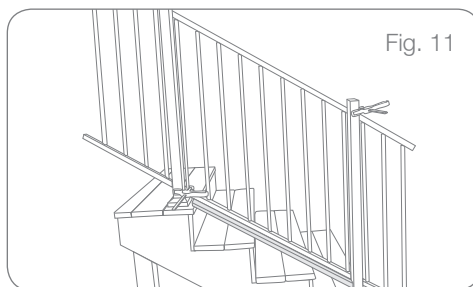
Tip: Be sure to check local building codes and ensure blocking can withstand required loading.



## 2.

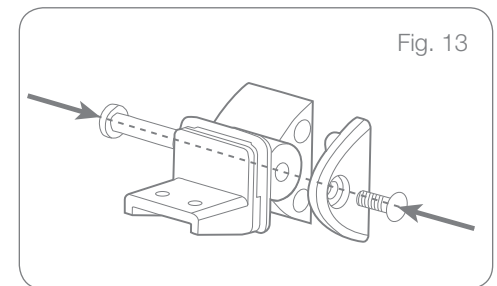
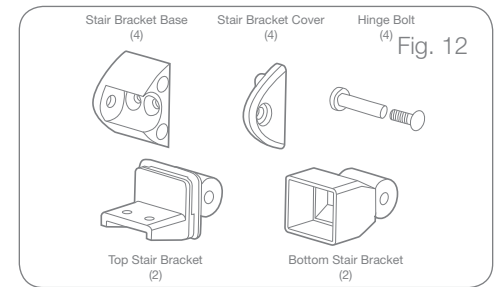
Place a plank on the stair noses spanning from post to post. Place the stair panel on the plank across the opening and adjust balusters for plumb while ensuring equal baluster spacing on each end. Clamp the panel in place at this location (Fig. 11).

*NOTE: Use the proper plank thickness to result in the desired finished rail height. Check local building codes for stair height requirements.*



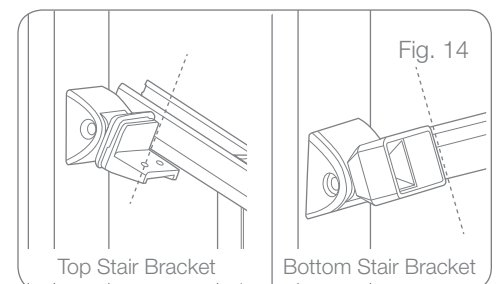
## 3.

Temporarily assemble top and bottom stair mounting brackets. Bracket components are shown in Figure 12. Brackets slide into bracket bases, bracket cover is aligned, and the bracket is fastened together using the hinge bolt provided (Fig. 13).



## 4.

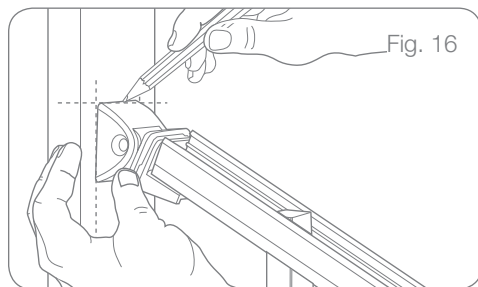
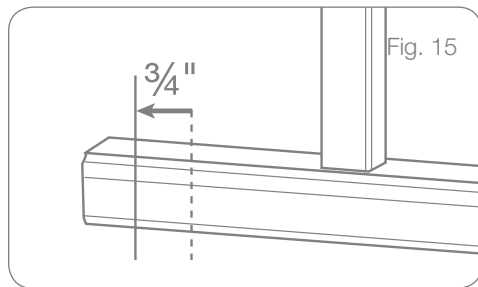
Hold each respective bracket (angled) against the post face, align bracket with the stair panel, and mark all four ends of the rail panel as shown (Fig. 14). Repeat this on the other side of the panel and be sure to label the top rail to simplify placement after cutting.



# Stair Rail Cont'd.

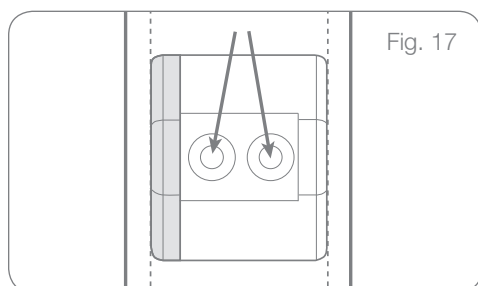
## 5.

For the bottom rail only, add  $\frac{3}{4}$ " (toward the rail end or post) to the marks made on the panel in Step 3 (Fig. 15) and cut the panel at these marks. For the top rail, cut the panel directly on the marks made in Step 3. Insert the bottom brackets onto bottom rail, align top brackets (temporarily secure brackets in place with tape), and test the panel for proper fit. Once proper fit is ensured, mark the bracket positions at all 4 locations (Fig. 16), and remove brackets from the rail panel.



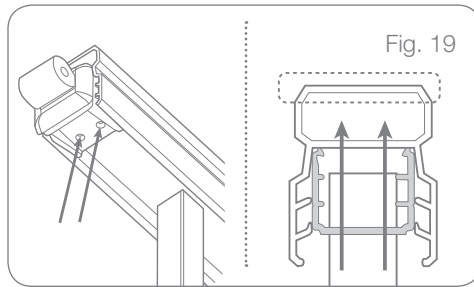
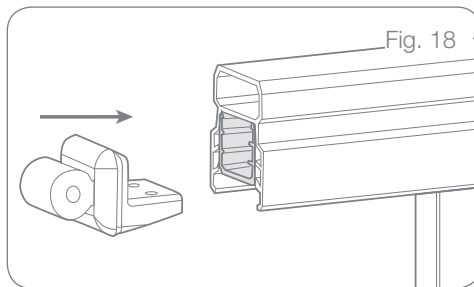
## 6.

Loosely assemble the mounting base and cover and use it as a template to mark locations for pre-drilling. (Note: If base is centered without bracket cover, rail will NOT be centered). Place the bracket mounting base on the post aligned with the marks made in Step 4 (Fig. 16) ensuring that brackets are properly oriented. Mark the two hole locations shown (Fig. 17) for each bracket and pre-drill using a  $\frac{1}{8}$ " bit. Secure brackets to post using the non-painted flat-head  $1\frac{1}{2}$ " screws provided.



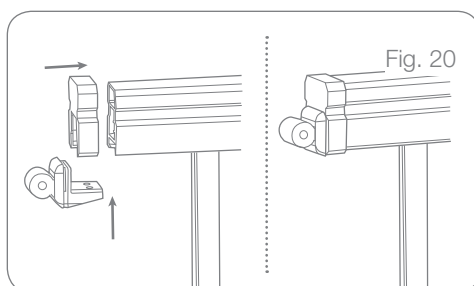
## 7.

Measure the length of the rail panel and cut the top rail (sold separately) to match. Press down on the top rail to ensure that it fits snugly onto the panel (Fig. 18). Align top stair bracket with the rail end only at the top of the stairs. Using the pre-drilled holes as a guide, drill through the railing using a  $\frac{1}{8}$ " bit as shown, being careful not to drill through the top of top rail (circled with dotted line) (Fig. 19). Do this for the top of the stairs only.



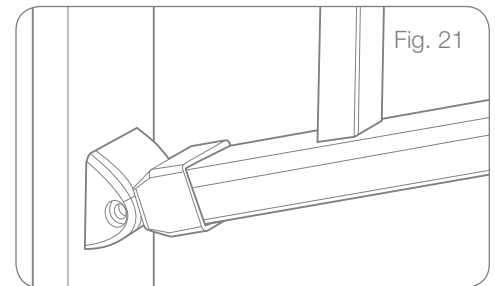
## 8.

Press top rail end covers onto both ends of the top rail. Slide top brackets in place on the rail ends, ensuring that the top rail end covers nest into the grooves of the brackets. Align the bracket, panel, and top rail as shown in Figure 20. Drive two  $1\frac{1}{2}$ " painted pan-head screws through the pre-drilled holes locking the assembly together at the top of the stair only.



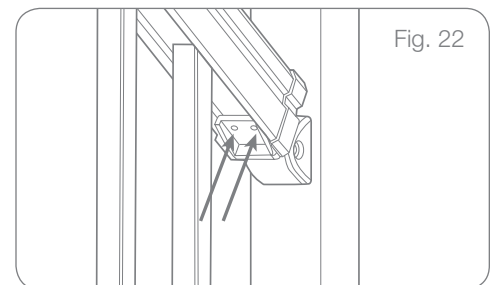
## 9.

Press bottom brackets onto the bottom rails. Slide all four brackets into bracket bases which are connected to the posts. Slide bracket covers onto the bases and loosely secure in place with hinge bolts (Fig. 21).



## 10.

Pre-drill the top rail at the bottom stair post using the bracket holes as a guide (Fig. 22). Drive two  $1\frac{1}{2}$ " painted pan-head screws up through the holes locking the bracket, panel, and top rail together. Once top rail is secured, tighten all four of the hinge bolts to lock stair panel in place.



## 11.

Install pyramid post top onto each post. Note: A rubber mallet may be needed for proper fit.

# Level Angle

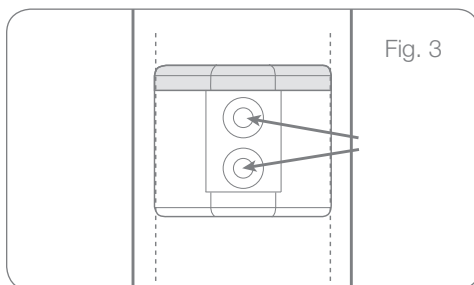
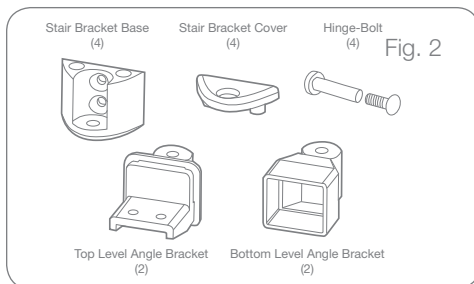
## 1.

Level angle rail installation uses a combination of features used in both the level and stair applications. This installation will use the same mounting base of the stair brackets and similar components, while using the preset layout on the installation template for quick and easy install. Level angle brackets must be purchased separately. Place rail panel across the opening and adjust to ensure equal baluster spacing on each end (Fig. 1). Level angle mounting varies greatly on each installation.



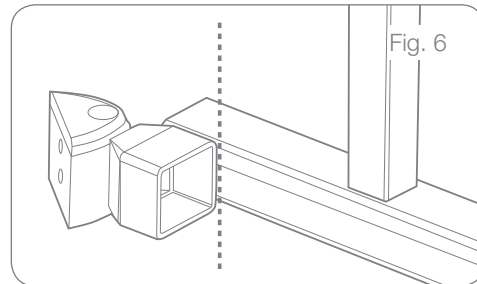
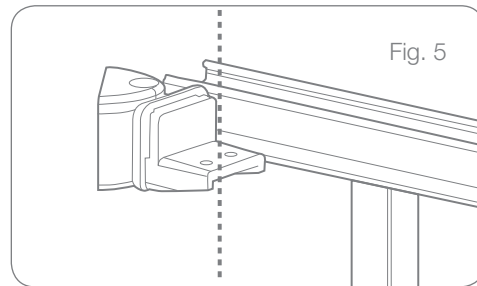
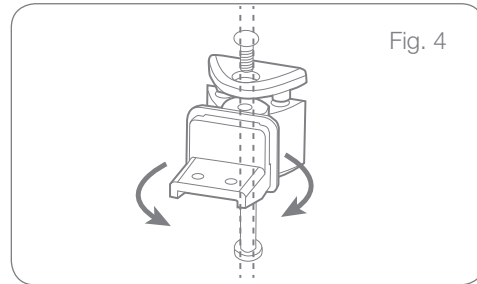
## 2.

Open the paper bracket mounting template (included with brackets). See Fig. 2 for level angle bracket components. Align bottom of template with top of the base trim, and secure template in place using a piece of tape. Follow instructions on template for pre-drill using a 1/8" drill bit. Remove template, align top and bottom bracket bases with covers attached (Fig. 3) with the holes ensuring that they are square, and fasten bracket bases in place using the non-painted flat-head 1 1/2" screws provided.



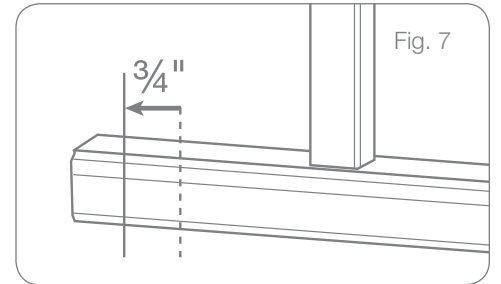
## 3.

Temporarily assemble top and bottom level angle brackets. (Bracket components are shown in Figure 2.) Mounting brackets slide into bracket base, bracket cover is aligned, and the bracket is fastened together using the hinge bolt provided (Fig. 4). Align panel on desired angle and mark the top (Fig. 5) and bottom (Fig. 6) rails as shown. Repeat this on the other side of the panel. Label the top of the rail panel to simplify installation.



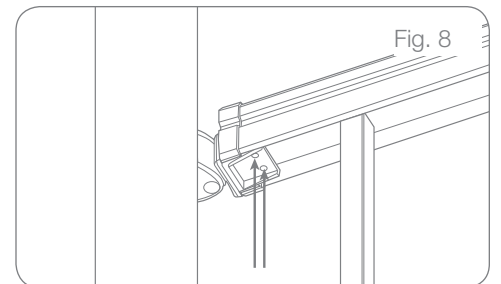
## 4.

For the bottom rail only, add 3/4" (toward the rail end or post, (Fig. 7) to the marks made on the panel in Step 3 (Fig. 6) and cut the panel at these marks. For the top rail, cut the panel directly on the marks made in Step 3 (Fig. 5.) Remove the hinge bolts from the brackets and remove the bottom brackets from the bracket bases, and insert onto bottom rails. Slide bracket into mounting bases and set top rail onto the top rail brackets. Align properly and test for fit.



## 5.

Measure the length of the rail panel and cut the top rail (sold separately) to match. Press top rail end covers into the top rail and place top rail over the rail panel. Press down on the top rail to ensure that it fits snugly onto the panel. Using the holes in the bracket as a guide, pre-drill through the railing using a 1/8" bit as shown (Fig. 8). Drive two 1 1/2" painted pan-head screws up through the holes locking the bracket, panel, and top rail together. Once top rail is secured, tighten all four of the hinge bolts to lock panel in place.



## 6.

Install pyramid post top onto each post. Note: A rubber mallet may be needed for proper fit.