

Installation Guide

Vinyl Standard Stair Railing

Tools Required

- Protective eye glasses
- Tape measure
- Variable speed drill/screwdriver
- Rotary hammer or hammer drill and masonry percussion bit recommended by concrete anchors purchased. (for concrete installations)
- Drill bits 3/32", 1/8", 3/16", 3/8", 1/2" and 1/4" masonry bit
- 3/8" x 3" Concrete Anchors/Fasteners (for concrete installations)
- Philips Driver and #2 Square Driver
- Wrench and 3/4" deep socket
- Level (min 24") and small torpedo level
- Miter Saw
- Snap Line
- Quick Clamp
- (Christy's™) PVC Glue

The following instructions will guide you through the installation of your new vinyl railing stair kit.

This installation guide is a recommendation for meeting most code requirements. Always check your local building codes before starting a project and for determining the acceptable installation practices of your area. Please read assembly instructions completely before beginning construction. Always wear protective goggles & gloves when installing a vinyl railing system.

Remember to register your Limited Lifetime Warranty at the website listed on the product box label.

Installation Steps

Layout railing and position posts

The Vinyl Stair Rail Systems are designed for posts sets that are 62" between posts and/or a rail length of 72" between the posts. Stair systems are based off a standard 7-11 pitch. The vinyl rail and aluminum inserts can be trimmed to shorter lengths using a miter saw. When trimming of the rails is necessary, equal amounts should be cut from both ends of the rails in order to maintain equal spacing from the outer picket and the adjacent posts.

Determine ahead of time where the posts will be anchored at the top and bottom of the stair system. It is best to do a sketch of the general layout in order to plan for post locations and any adjustments to rail lengths. Check measurements for accuracy prior to beginning the project. Remember that the outside dimensions of the vinyl posts are 4", unlike wood, which could be 3 1/2" to 3 5/8". Also check the structural members below the deck and stair system to be sure there is no interference with the mounting brackets. If necessary, adjust the post locations. Stair post instructions are to be used for installing posts on the stairs, not horizontal landing areas. ***(If the top post of the stair system is mounted to the deck surface/substructure please refer to the vinyl horizontal post and railing instructions.)***

Install posts

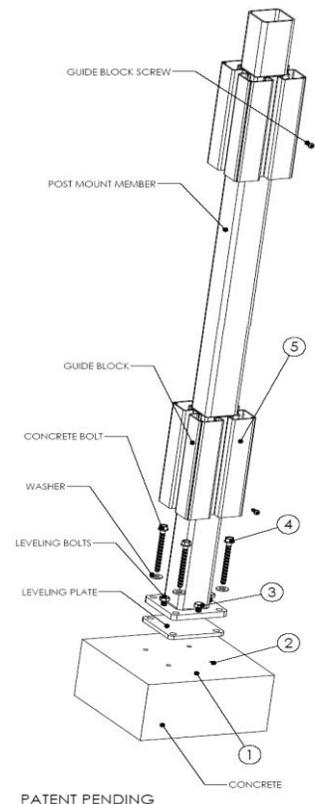
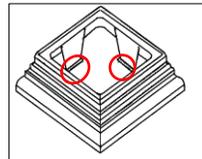
Vinyl railing stair kit posts can be installed using the following methods.

Post Tower (Concrete and Wooden Stair Systems)

The surface mount tower system is designed for 4" x 4" vinyl posts in railing applications where the posts need to be mounted to a hard surface such as concrete or this tower system can be used on wood stair systems when the substructure is modified as detailed at the end of this section. When installed as detailed below, vinyl posts using the post tower can meet post requirements for 36" and 42" high stair rail systems in one and two family dwelling residential applications. Vinyl stair railing can also be used in all other 42" high stair railing applications.

Posts on Concrete Stairs

- 1) Lay out your post positions according to your stair rail design. Make sure to mark all post positions at least 5" from the edge of the concrete to reduce the chances of cracking the concrete when drilling holes for the concrete anchors.
- 2) Using the leveling plate as a template, mark the locations on the four mounting holes to be drilled. Drill four holes into the concrete using a 1/4" diameter masonry drill bit. The hole must be drilled to a minimum depth of 3 1/2". Clean out the holes of all dust and debris.
- 3) Install the four leveling screws into the post mount member. Place the leveling plate on the concrete surface and align over the four holes. Place the post mount member on top of the leveling plate and align the four holes. Adjust the leveling screws to ensure the post mount member is level.
- 4) Install the four concrete bolts with washers as shown by applying downward pressure while turning in a clockwise direction. Continue to tighten the bolts until the heads are firmly seated. (Do not over tighten.)
- 5) Install the two guide blocks onto the post mount member. They should be positioned so that the screws from the railing brackets will screw into the guide blocks. Once the proper heights are established, drill a 3/16" diameter hole through the guide block and the post mount member. Install the supplied guide block screws to hold the guide blocks in place.
- 6) Slide your posts over the tower and install the railing sections (Note: If using post trims cut the plastic tabs at the 90 degree bend and slide the trim pieces over the posts)

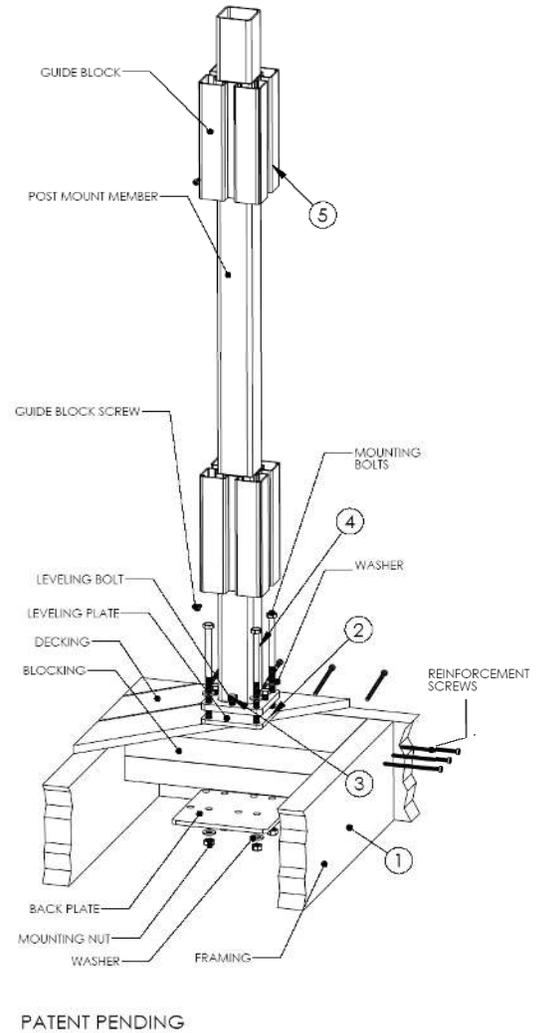


Posts on Wood Stairs

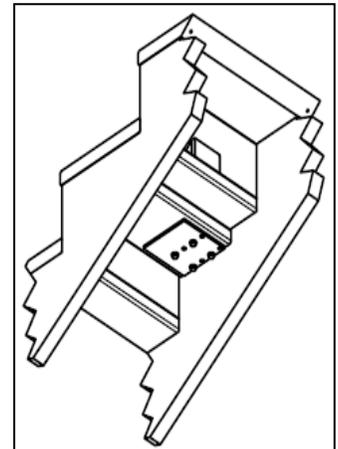
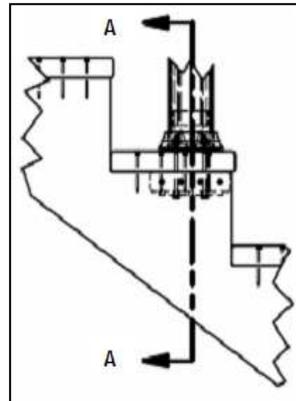
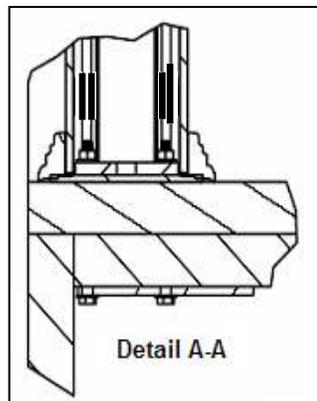
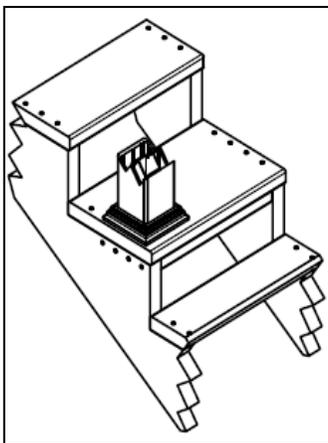
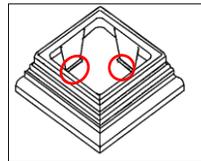
- 1) Lay out your post positions according to your stair rail design. Make sure to mark the post center line position at least 3 1/4" from the edge of the outside rim joist/ stair stringers. The top plate must be a minimum of 3/4" from the stair stringer so the bolts will clear the rim joist/ stair stringer on the underside. Install a piece of 2 x 8 treated lumber between the stringers, under the stair boards

where the tower is to be installed. Attach this reinforcement board to the stair stringers. (Three to four #10 x 4" screws should be used on each end.) Thickness of the deck board and reinforcement board underneath should be a minimum of 3 inches actual thickness.

- 2) Using the leveling plate as a template, mark the locations of the four mounting holes to be drilled. Drill four holes through the decking and blocking using a 3/8" diameter drill bit.
- 3) Install the four leveling screws into the post mount member. Place the leveling plate on the wood deck surface and align over the four drilled holes. Place the post mount member on top of the leveling plate and align the four holes. Adjust the leveling screws to ensure the post mount member is level.
- 4) Install the four mounting bolts with washers as shown. On the underside, place the back plate over the exposed mounting bolts. (Use the centered holes for in-line applications and the offset holes for corner applications.) Secure the back plate by using the supplied mounting nuts and washers.
- 5) Install the two guide blocks onto the post mount member. They should be positioned so that the screws from the railing brackets will screw into the guide blocks. Once the proper heights are established, drill a 3/16" diameter hole through the guide block and the post mount member. Install the supplied guide block screws to hold the guide blocks in place.
- 6) Slide your posts over the tower and install the railing sections.



(Note: If using post trims cut the plastic tabs at the 90 degree bend and slide the trim pieces over the posts)



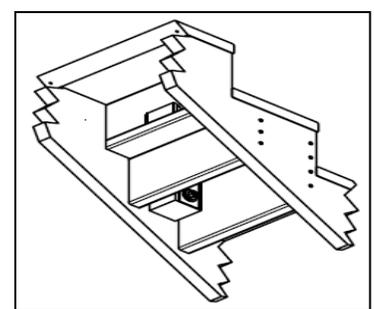
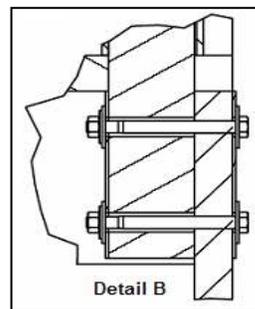
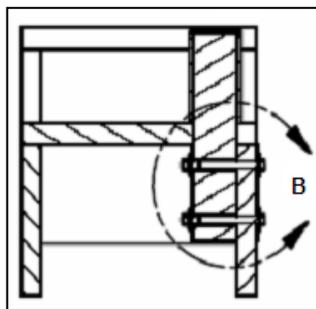
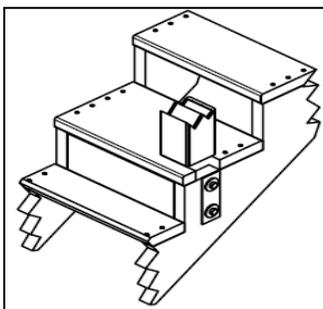
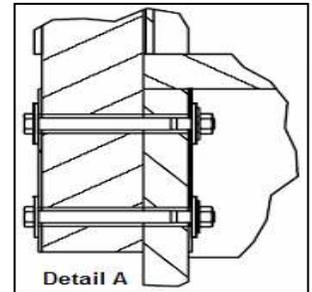
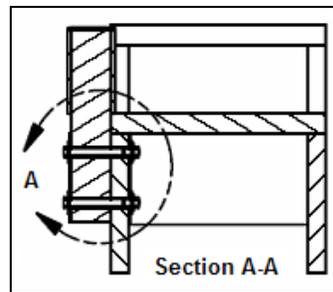
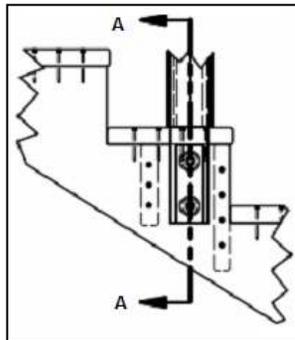
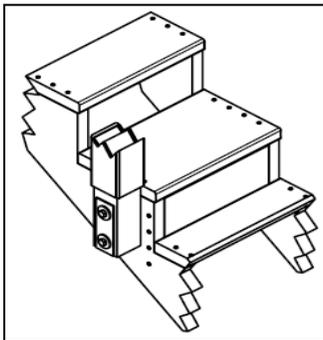
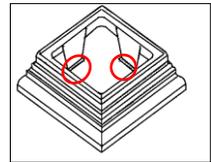
Sleeving a Wood 4 x 4 Post

The vinyl post can be used to sleeve 4 x 4 wooden posts. When installed as detailed below, vinyl posts used as a sleeve can meet post requirements for 36" high and 42" high stair rail systems in one and two family dwelling residential applications.

Note: The instructions reflect how the wood posts were installed during testing to ensure the post attachment and substructure would meet the same load requirements as the railing system. Check with your local code official for other acceptable attachment methods. (Please refer to the vinyl horizontal post and railing instruction when mounting to the deck surface/substructure.)

- 1) Lay out your post positions according to your stair rail design.
- 2) Temporarily attach the wood post in place.
- 3) Drill two 1/2" holes through the outside stair stringer, wood post, and galvanized steel plate. These holes should be approximately 4" apart. Enlarge the two holes on the galvanized steel plate to 11/16". The galvanized steel plate is 2 1/2" x 7" x 1/8". This galvanized steel plate will need to be purchased from your local metal shop or hardware store.
- 4) Insert two 1/2" x 6" carriage bolts and place a 5/8" washer under the head of each bolt. At the free end of the bolt use a 5/8" and 1/2" washer before the nut. Tighten all bolts. **For ACQ lumber, all bolts, washers, and nuts must be galvanized.** Please see the drawings below for assistance and always check with your local code officials for requirements in your area.
- 5) Slide your vinyl posts over the wood posts and install the stair rail sections. (Note: If using a post trim, slide the trim piece over the wood post, then slide the vinyl post over the wood post and into the trim piece.)

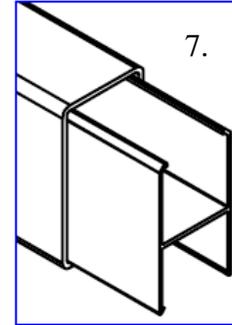
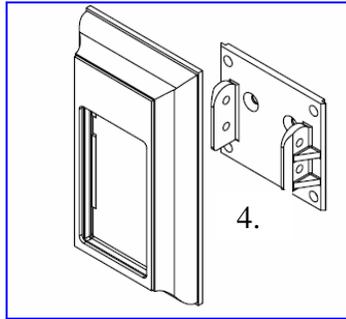
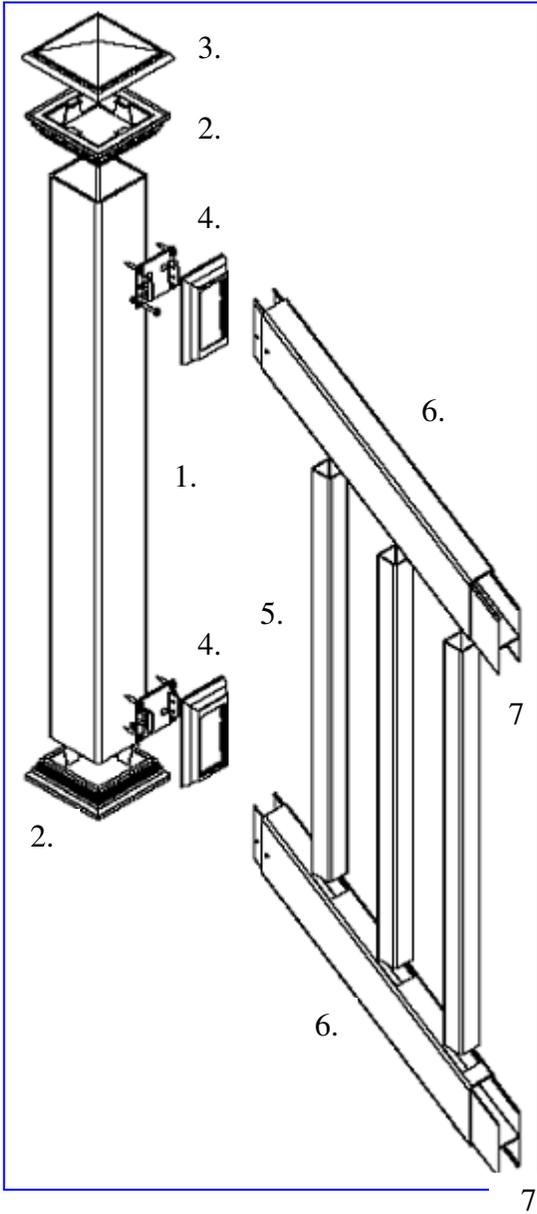
(Note: If using post trims cut the plastic tabs at the 90 degree bend and slide the trim pieces over the posts.)



VINYL STANDARD STAIR RAIL INSTALLATION

Always check your local building codes before starting a project. Please read assembly instructions completely before beginning construction. Always wear protective goggles & gloves when installing a vinyl railing system.

Vinyl Standard Stair Rail Components



1. 4" x 4" Vinyl Post (Sold Separately)
2. 4" x 4" Post Trim (Sold Separately)
3. 4" x 4" Post Cap (Sold Separately)
4. 2" x 3 1/2" Standard Rail Stair Bracket Kit
5. 1 3/8" x 1 3/8" Vinyl Picket (Spindles also available)
6. 2" x 3 1/2" Vinyl Rail
7. 2" x 3 1/2" Aluminum H-Channel Insert (Required in top & bottom rails)

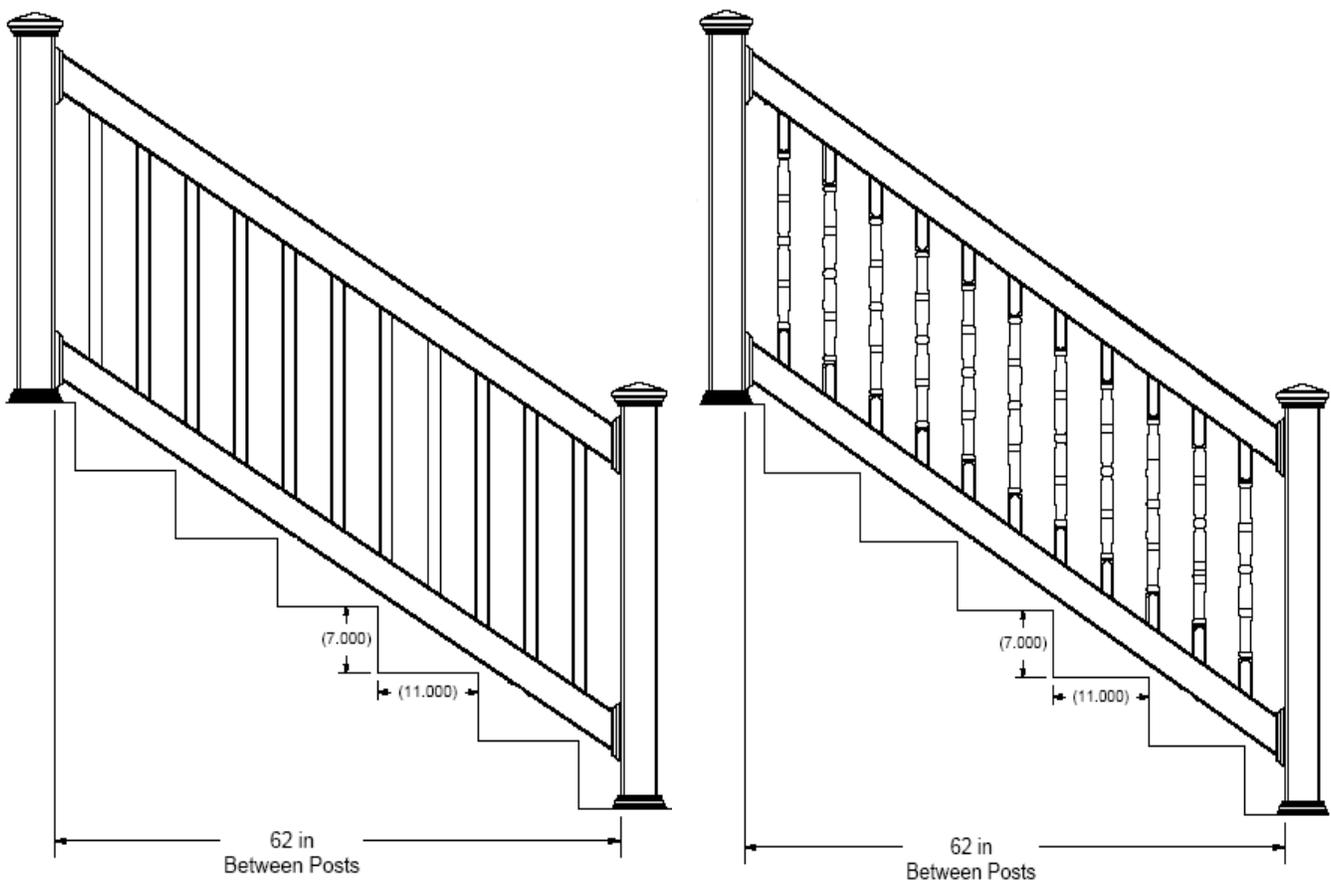
Railing Layout

Remember to check local building codes for rail height requirements in your area. The vinyl railing systems are designed to meet requirements for 36" and 42" high stair rail systems in one and two family dwelling residential applications. Vinyl stair railing can also be used in other 42" high stair railing applications. This is dependent on the stair post installation methods detailed in the preceding post installation instructions section.

The 2" x 3 1/2" rails run in between the posts and are installed with brackets. The Stair Rail Systems are designed for posts set 62" apart and/or a rail length of 72" between posts. Kits are available with 1 3/8" x 1 3/8" pickets or spindles.

If the stair rail section to be installed is less than the standard rail kit length, you must cut equal amounts from each end of the two rails to make sure the gap between the first picket or spindle and the top post and the last picket or spindle and the bottom post are equal.

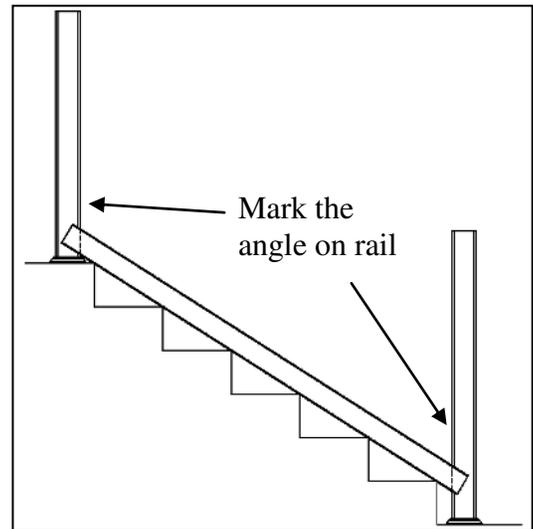
The two rails are pre-routed for the pickets/spindles and stairs based on a 32° stair angle. For stair installations with slopes greater than 32°, you will need to elongate the routed holes 1/16" for every 2° increase in slope. For example, the holes for a 36° stair rail slope would need to be elongated 1/8". A metal file can be used to elongate the routed holes in the rail. The elongation should always be made on the side of the hole facing the bottom of the stairs.



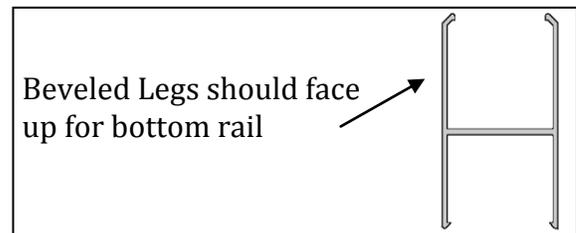
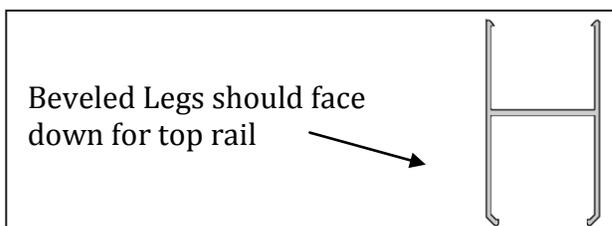
Rail Installation

1) Determine Cut Angle and Trim Bottom Rail to Length.

To determine the cut angle at each end of bottom rail, remove the aluminum insert and lay the rail on top of the stair steps. Make certain the bottom rail is oriented with the routed holes facing up and centered between the posts. The space between the picket hole and post on both ends should be equal. ***It is imperative the posts are square and level.*** Next, mark the angle on each end of the rail using the post and a square as a guide. Subtract 3/16" from each mark on each end to allow for the thickness of the mounting bracket and cut the rails at each end.

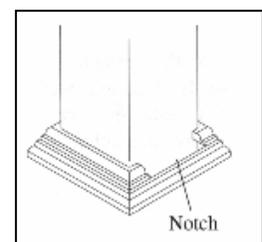


- 2) **Cut Bottom Aluminum Insert to Length.** The ends of the bottom aluminum insert also need to be cut to length to match the angle of the stairs. Slide the aluminum insert into the rail previously cut. Ensure the bottom rail and insert are in the right orientation (***routed holes and the insert's beveled legs are facing up***) Next mark the angle on each end of the insert using the ends of the rail as a guide. Cut the ends of the insert as marked. ***Note: The insert and rail can be cut at the same time but make sure the insert is facing the proper direct for installation.***

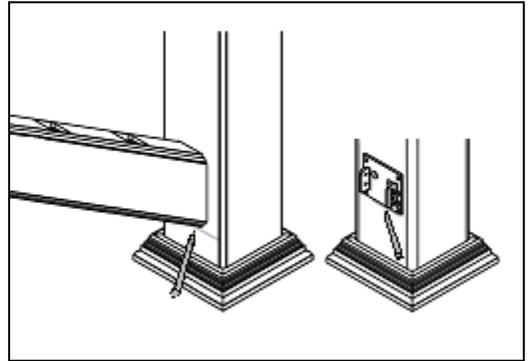


- 3) **Determine Cut Angle and Trim Top Rail to Length.** Follow Step 1, ***but make sure the picket holes are facing down.***
- 4) **Cut Top Aluminum Insert to Length.** Cut insert in the same method as the bottom rail in Step 2, ***except make sure the H-Channel and rail is oriented correctly. (Picket holes and beveled legs down.)***

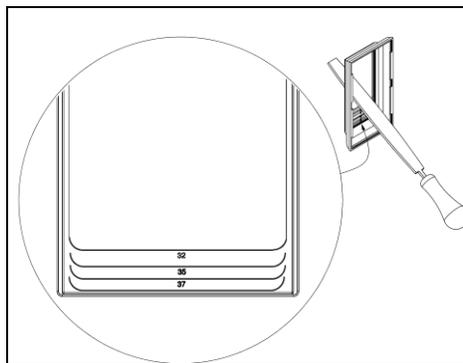
- 5) **Install Post Trim.** Be sure you install the post trim over the posts before you start attaching the stair rail sections to the posts. (Note: You may need to remove the four tabs on the bottom of the trim to allow a snug fit against the post and can notch the post trim if necessary.)



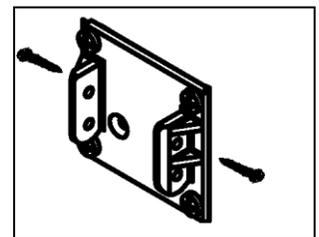
- 6) **Install Bottom Brackets:** Determine placement of bottom rail making sure the rail is at the same angle as the stairs mark the posts under the rail with a pencil. **Check with local building codes with for proper spacing between the bottom rail and stair tread.** This will be the location of the bottom of the bracket. Center the brackets and pre-drill the post through the four outside holes with a 1/8" drill bit and attach bracket to the post using four of the #12 x 1 1/4" screws provided for each bracket.



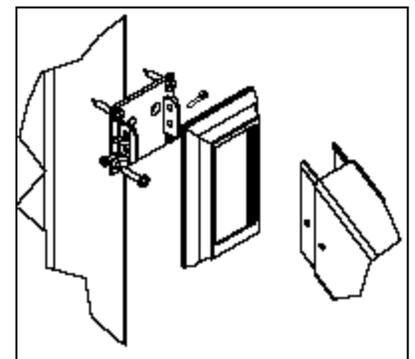
- 7) **Adjust Bracket Trims (if required):** The bracket trims are designed for a standard 7/11 stair tread or 32°. If your stair system is steeper you will need to cut or file out the trim opening using the marked lines shown on the inside of the trim.

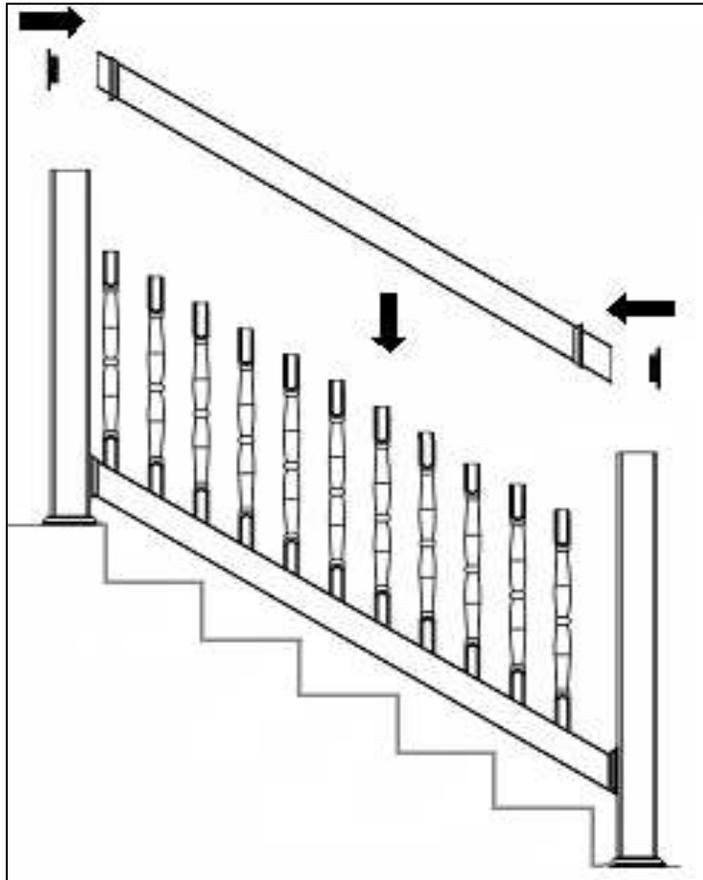


- 8) **Install Bottom Rail:** Slide the trim pieces onto the bottom rail such that the finished trim faces towards the center of the rail. After making certain that the aluminum insert is positioned with the shorter legs facing the holes, lower bottom rail into position between the brackets. After making sure the rail is at the parallel angle to the stairs, drive two (one on each side) #8 x 3/4" screws provided through the bracket holes and into the vinyl rail and insert. (Pre-drill with a 3/32" drill.) This will provide the mechanical attachment of the rail to the bracket. Snap trim in place. Repeat for the other bracket.



- 9) **Install Top Rail.** Insert all the pickets or spindles into the bottom rail. Starting at the bottom end of the rail begin feeding the rail with aluminum insert down onto the pickets or spindles. Once the top of the rail has been seated onto all the pickets and the top and bottom rails are parallel, slide the trims and stair brackets onto the end of the rail and verify that your pickets are plumb and square. Center the brackets and pre-drill the post through the four outside holes with a 1/8" drill bit and attach bracket to the post using four of the #12 x 1 1/4" screws provided for each bracket. After making sure the rail is at the parallel angle to the stairs, drive two (one on each side) #8 x 3/4" screws provided through the bracket holes and into the vinyl rail and insert. (Pre-drill with a 3/32" drill.) This will provide the mechanical attachment of the rail to the bracket. Snap trim in place. Repeat for the other bracket.





10) **Install Post Cap.** Place a 1" x 1/4" wide bead of glue on inside of cap along the center of all four sides. Slide cap onto top of post. The glue will smear as the cap is slid on the post and a permanent bond will take effect after a few minutes. Be careful not to drip glue on the outside of a post or cap or it will cause a "scar".

Cleaning

If cleaning becomes necessary, use a mild detergent or household cleaner. If stains or scuff marks appear, use a fiberglass cleaner/glaze or #0000 steel wool and Simple Green™. The surface can be sanded, and a fine sand paper (such as 200 grit) should be used, followed by 400 or 600 grit to polish and restore it to its original finish.

Important

It is the responsibility of the contractor to meet or exceed all code and safety requirements, and to obtain all required building permits. These instructions are only a guide, and may not address every circumstance. The deck and railing installer should determine and implement appropriate installation techniques for each situation. Manufacturer shall not be held liable for improper or unsafe installations.