

CERTAINTEED

RAILING AND DECKING

INSTALLATION INSTRUCTIONS GUIDE

Kingston Vinyl Railing
and Vinyl Decking

CertainTeed
SAINT-GOBAIN

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Before You Begin

IMPORTANT

Always wear safety glasses when cutting and drilling railing or decking products.

HELPFUL HINTS

- Use carbide-tipped, multi-purpose blade for cutting.
- Do not lay components on abrasive surfaces.
- Do not use excessive force while assembling components.
- If any components are missing or defective, please call us at 800-233-8990.

TIPS

- Make sure you have all the pieces you need to complete the job.
- Separate your flat and stair pieces to avoid using the wrong ones.

IMPORTANT FIRE INFORMATION

Rigid vinyl decking and railing are made from organic materials that will not burn on their own but melt or burn when exposed to a significant source of flame or heat. Consequently, owners and installers should take a few simple steps to protect vinyl building materials from fire. Building owners, occupants and outside maintenance personnel should always take normal precautions to keep sources of fire, such as barbecues, and combustible materials like dry leaves, mulch and trash, away from vinyl decking and railing.

TOOLS REQUIRED FOR ALL INSTALLATIONS

- Chop/mitre saw (with carbide-tipped, multi-purpose blade or non-ferrous blade)
- Power drill and bits
- Tape measure
- Pencil
- Level
- Safety glasses and equipment (as identified by tool manufacturers)
- #2 square drive
- Phillips screwdriver or bit

ADDITIONAL TOOLS REQUIRED FOR SPECIFIC JOBS

- **Certa-Snap® Post Wrap**
 - Hammer
 - Siding snips
- **Gates**
 - 1/8" drill bit
 - 3/16" drill bit
 - 1/4" drill bit
 - 5/32" drill bit
 - 11/64" drill bit
 - 7/16" wrench
 - #3 square drive bit
- **Handrail Component System**
 - 3/8" masonry drill bit (for concrete installation)
 - 3/4" drill bit
 - Angle finder
 - Quick-clamps
 - Adhesive
 - Recommended adhesives:
 - Aluminum bonding-
 - Loctite® Metal/Concrete Epoxy™
 - Gorilla™ Epoxy-Impact Tough®
 - J-B Weld®-2-Part Epoxy
 - Loctite® Extra Time Epoxy
- **Mount Post Support Wood Surface**
 - 2" x 6" or 2" x 8" blocking
 - Wood screws to attach blocking to deck
 - 3/8" drill bit
 - 1/8" drill bit
 - 1/2" wrench or socket
- **Panorama®**
 - 1/4" drive socket, extension and 7/16" socket
 - Jigsaw/coping saw (optional)
 - Utility knife (optional)
 - File (optional)
 - Box-end wrenches (optional)
 - Chalk line (optional)
 - Silicone caulk and caulk gun (optional)
 - Angle finder (optional)
 - Extension bit for crush block (optional)
- **Porch Columns**
 - Saber saw with a fine-tooth blade
 - Hammer drill with 1/4" and 1/2" drill bits
 - T-square
- **UnderShield® Water Diversion**
 - Gloves
 - Step ladder
 - Snips
 - Utility knife
 - Chalk line
 - 12" speed square
 - Vinyl snap lock punch
 - Cordless drill/driver
 - 1-inch "J" channel
 - Flashing
 - Gutter and Downspout
 - Fascia boards
- **Vinyl Decking and Oxford T-Rail**
 - 2" hole saw
 - Circular saw
 - Drop cloth
 - Screwdrivers
 - Phillips and flat-bladed
 - Wood clamps
 - Wrenches (sockets)
 - 3/4" (post support)
 - 7/16" (E-Z Set bracket)
 - 3/8" (rail plate)
 - Bevel guide (optional)
 - Chalk line (optional)
 - File (optional)
 - Jigsaw/hacksaw (optional)
 - Rotary hammer drill (optional)
 - Utility knife (optional)

TIP: Stainless steel fasteners are recommended to prevent future rust streaking.

STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR POST SUPPORT KITS FOR BRACKETED VINYL RAILING

The Mount for Wood and Concrete

IMPORTANT

Installer must consult local code officials for compliance to building code requirements.

WOOD POST MOUNT INSTALLATION INSTRUCTIONS

Step 1: Lay out the location of the post.

- Install at least 3" of blocking under the mounting location. Securely attach the blocking using reinforcement screws.

Step 2: Using the leveling plate as a template, mark the location of the four mounting holes to be drilled.

- Drill four holes through the decking and blocking using a 3/8" diameter drill bit.

Step 3: Install the four leveling bolts into the post mount member.

- Place the leveling plate on the decking 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.

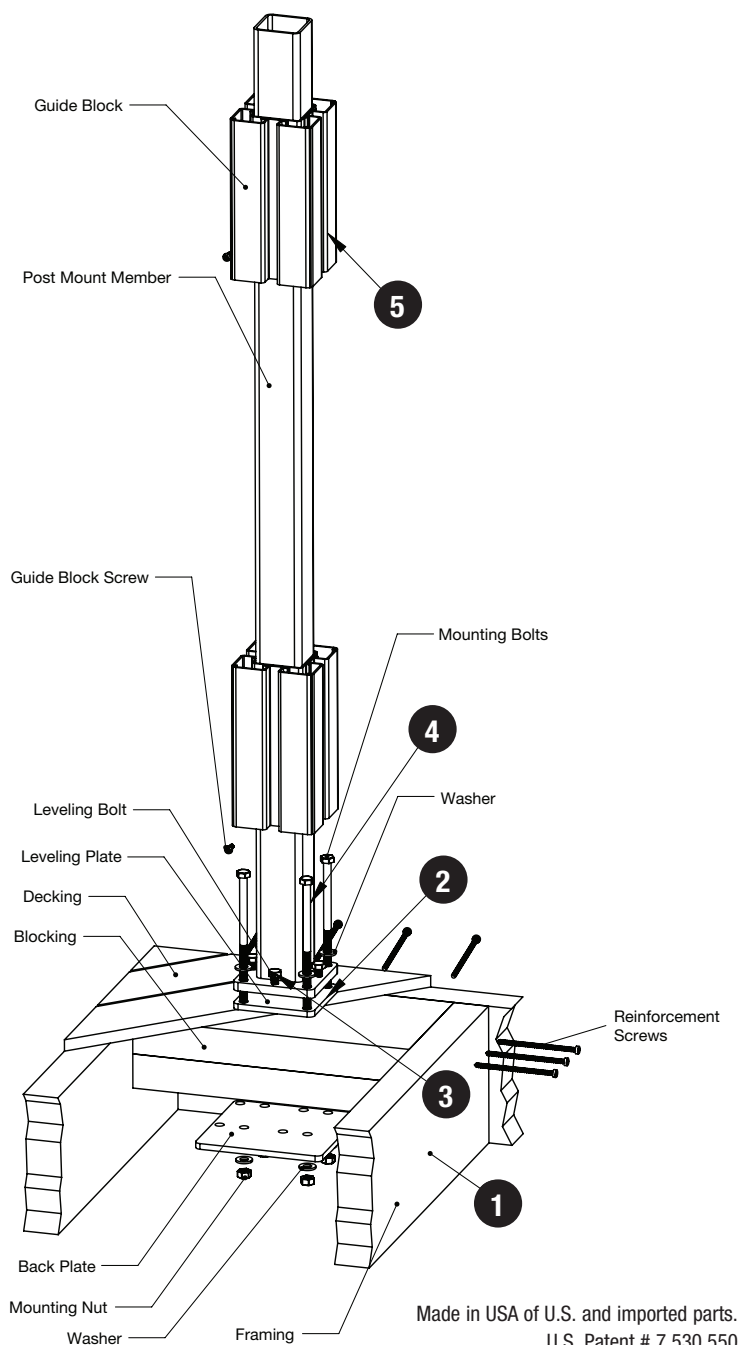
Step 4: Install the four mounting bolts with washers as shown.

- 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.

Step 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 1/8" diameter hole through both the guide block and the post mount member. Install the supplied guide block screws to hold the guide blocks in place.

Step 6: Install the post profile and rail brackets according to manufacturer specifications.



Made in USA of U.S. and imported parts.
U.S. Patent # 7,530,550

CONCRETE POST MOUNT INSTALLATION INSTRUCTIONS

Step 1: Lay out the location of the post.

Step 2: Using the leveling plate as a template, mark the location of 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.

Step 3: Install the four leveling bolts into the post mount member.

- Place the leveling plate on the concrete 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.

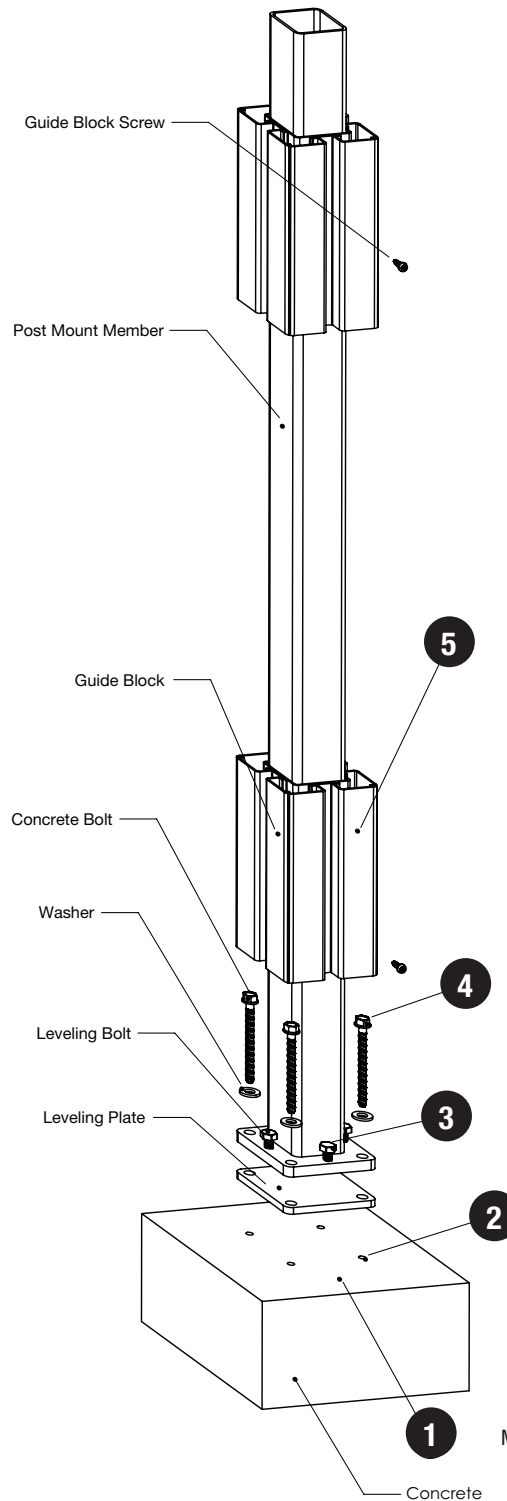
Step 4: Install the four concrete bolts with washers as shown by applying downward pressure while turning in a clockwise direction.

- Continue to tighten the bolts until the heads are firmly seated. (Do not over-tighten.)

Step 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 1/8" diameter hole through both the guide block and the post mount member. Install the supplied guide block screws to hold the guide blocks in place.

Step 6: Install the post profile and rail brackets according to manufacturer specifications.



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STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR

POST SUPPORT KITS FOR BRACKETED VINYL RAILING

E-Z Set Bracketed Post Support Kit for Concrete

BRACKETED POST SUPPORT KIT (CONCRETE): E-Z SET INSTALLATION INSTRUCTIONS

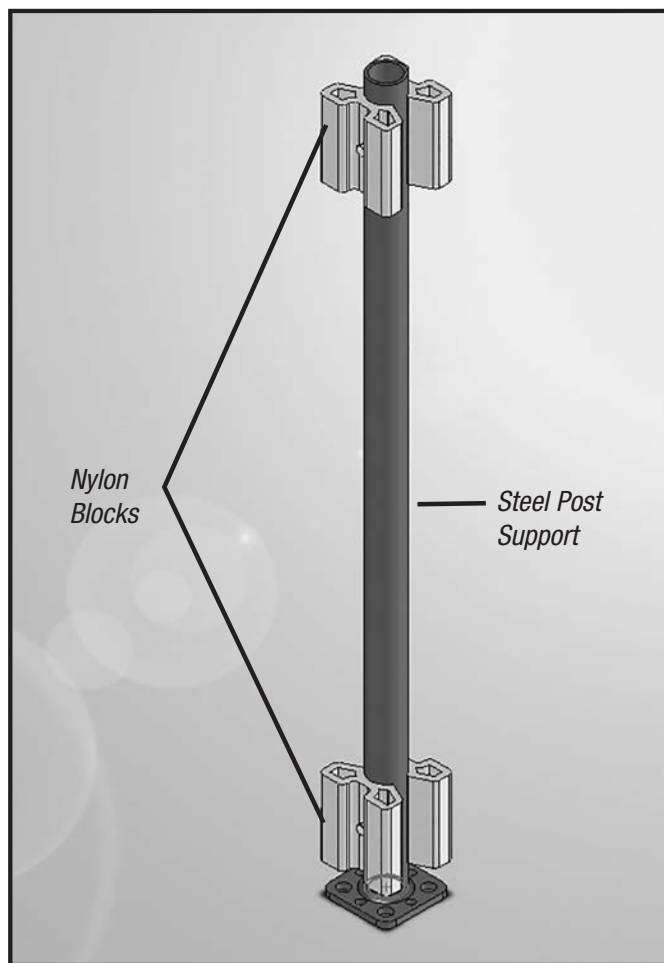
Vinyl posts alone do not provide adequate fastener retention. The E-Z Set kit provides easy-bracketed system installation on concrete surfaces.

This post support is designed to install with all CertainTeed bracketed vinyl railing systems and is compatible with CertainTeed's Self-Leveling Kit.

TIP: Install railing brackets by driving screws as perpendicular to the post as possible.

Step 1: To install the posts on concrete, use the concrete mounting plate as a guide to mark holes.

Step 2: Drill four 1/2" holes, 3-1/4" deep.



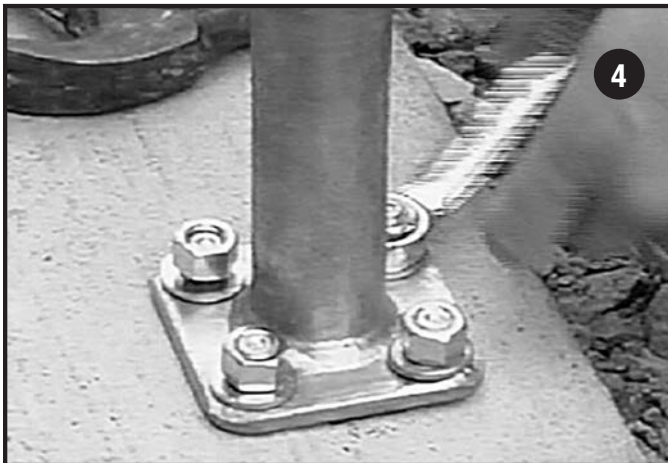
BRACKETED POST SUPPORT KIT (CONCRETE) CONTINUED

Step 3: Attach a nut to the top of the anchor to protect the threads and hammer it into the concrete. Leave approximately 3/4" of the thread above the ground.

Step 4: After all anchors are in place, replace the post support and tighten the nuts. Recheck that the post is level. If not, shim the base.

Step 5: Insert two pairs of blocks with nut and bolt into predrilled holes on post support and tighten.

Step 6: Install sleeve over vinyl post.



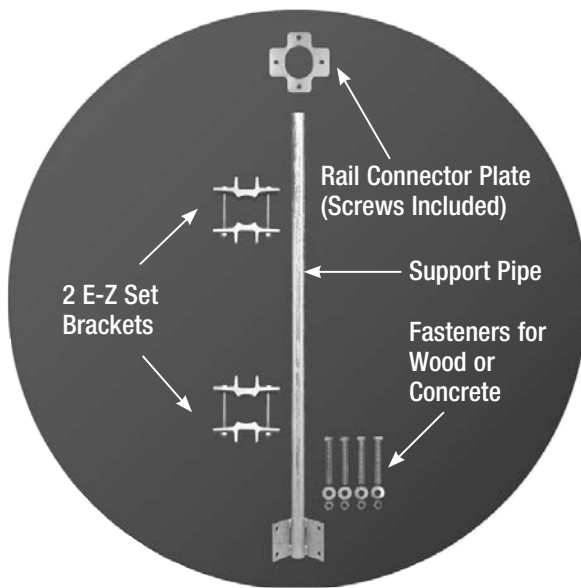
STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR

OXFORD T-RAIL RAILING ASSEMBLY

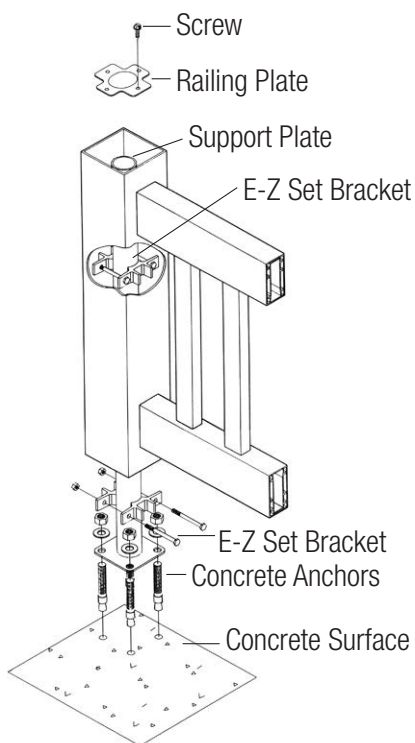
Flat, 8" Column, 45°, 22-1/2°, Stair

POST SUPPORT KITS, ROUTED POSTS OXFORD RAILING (WOOD & CONCRETE)

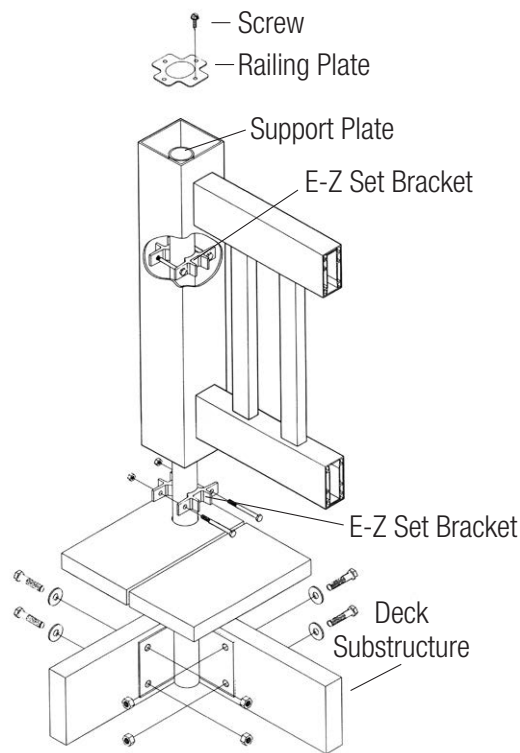
Your post support kit should include:



NOTE: Wood Support Kit shown



CONCRETE



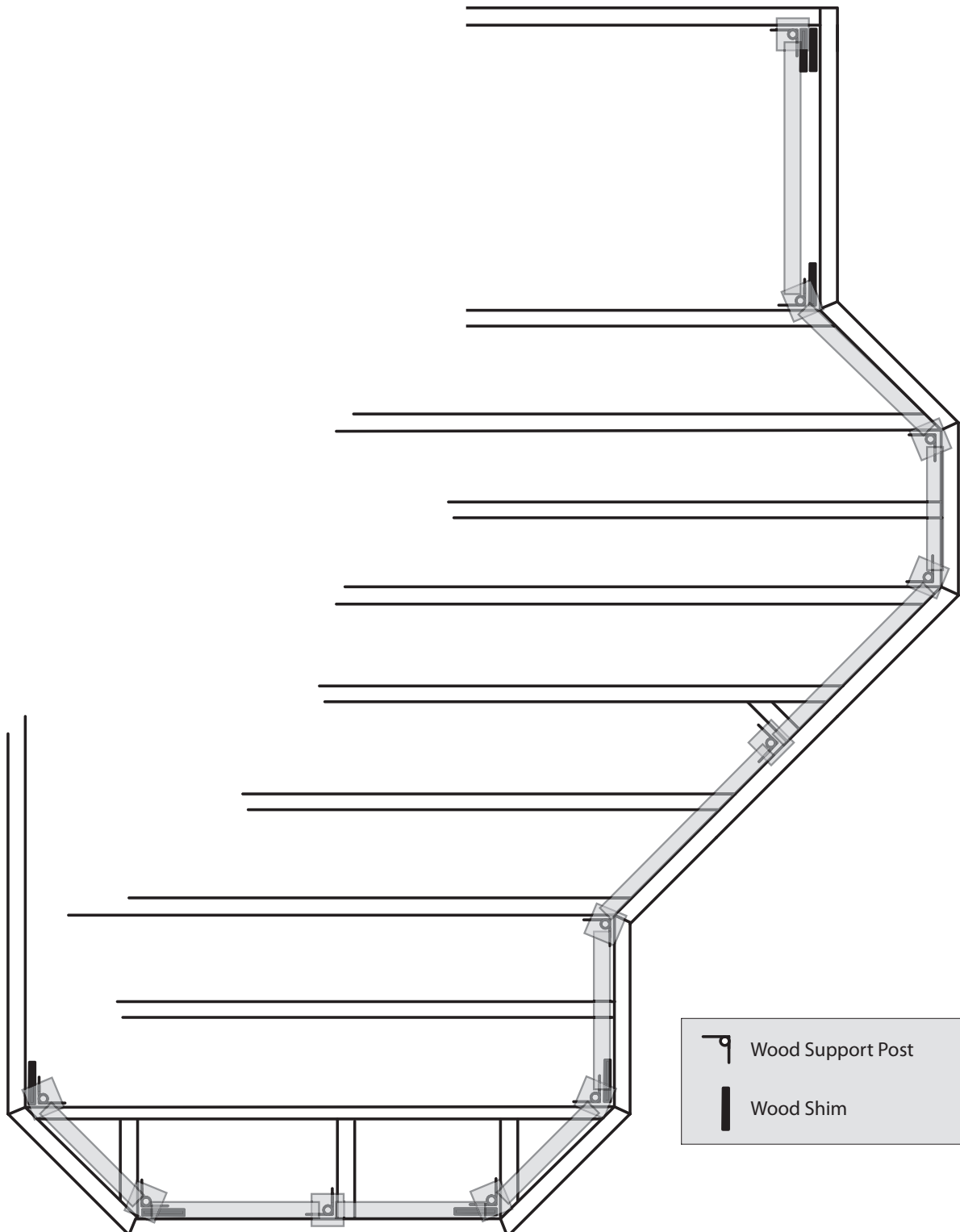
WOOD

MULTI 45° ANGLE – DECK FRAME AND POST LAYOUT

Proper deck frame and post layout is critical for proper railing installation. When using 45° line posts, the use of a pressure-treated 1" x 6" x 6" shim at different post locations will be required. This will keep the railing parallel to the outside rim joist. Location of the joist at the angle will determine the amount of shimming necessary.

Each layout may vary. Additional shims typically are not required for standard flat and stair applications.

If your installation requires solutions different from those in this guide, please contact our Installation Support team at 800-233-8990.



LOCATE AND INSTALL POST SUPPORTS

LOCATE THE POST SUPPORTS

Step 1: Locate and mark the post centers. For flat sections, posts should be installed no more than 72", 96" or 120" on center. For stair sections, determine if the rail will reach the bottom of the steps (or the landing).

Step 2: Place a rail on the stringer (make sure the rail extends beyond the top post support). If the rail does not reach the end of the stairs, you will need to use an intermediate post (see illustrations at right). Center the top stair post within 3-1/4" of the edge of the deck.

Railings can also be mounted to walls or structural columns with wall mount brackets.

Post Center Spacing On Diagonal

6' Section Covers 68" at 32°

8' Section Covers 90" at 32°

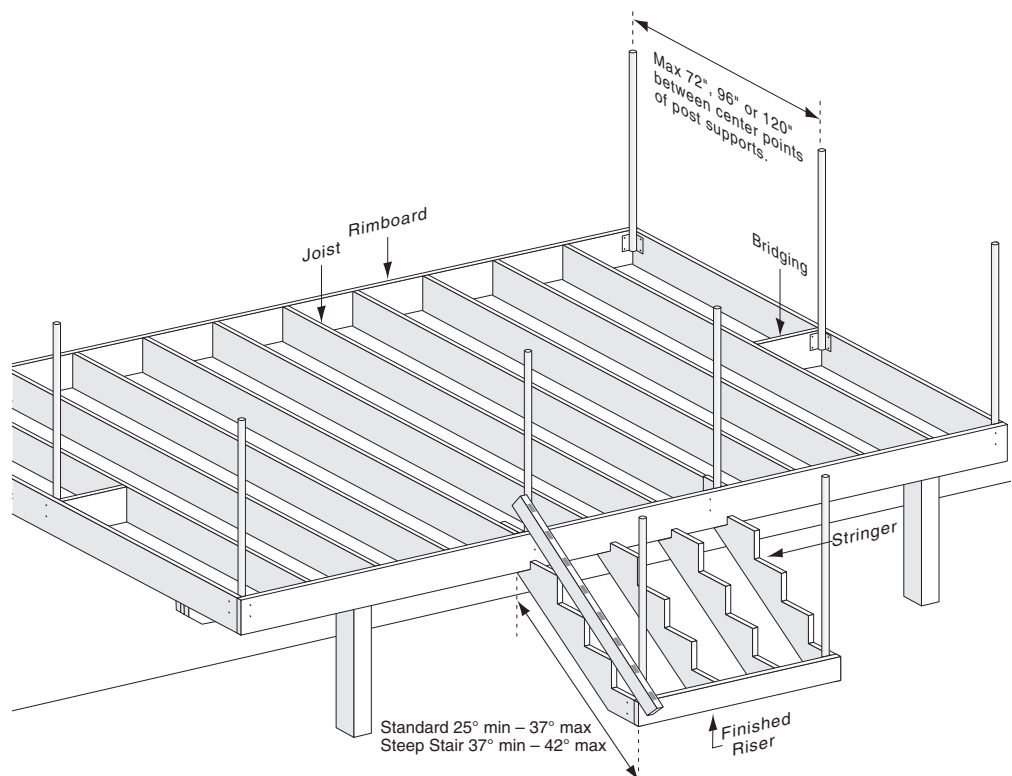
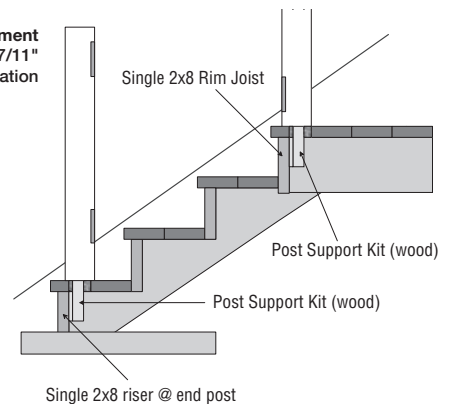
10' Section Covers 117" at 32°

6' Section Covers 71" at 42°

8' Section Covers 96" at 42°

TIP: When cutting metal post supports for stair sections, cut away from vinyl decking to avoid metal particles from embedding into deck surface.

Single Rim Joist Attachment
Standard 7/11"
Rise and Run Installation



CHECK THE SUBSTRUCTURE

Step 1: Once you have laid out the location of the posts, check the substructure to make sure there are two surfaces available to mount the post support. For example, if you run along the length of a 12' deck and put a post in the middle, attach a

bridgeboard in the middle of that run from the rim joist to the inner joist. Attach one side of the post support L-shaped bracket to the outside face; attach the other to the bridge.

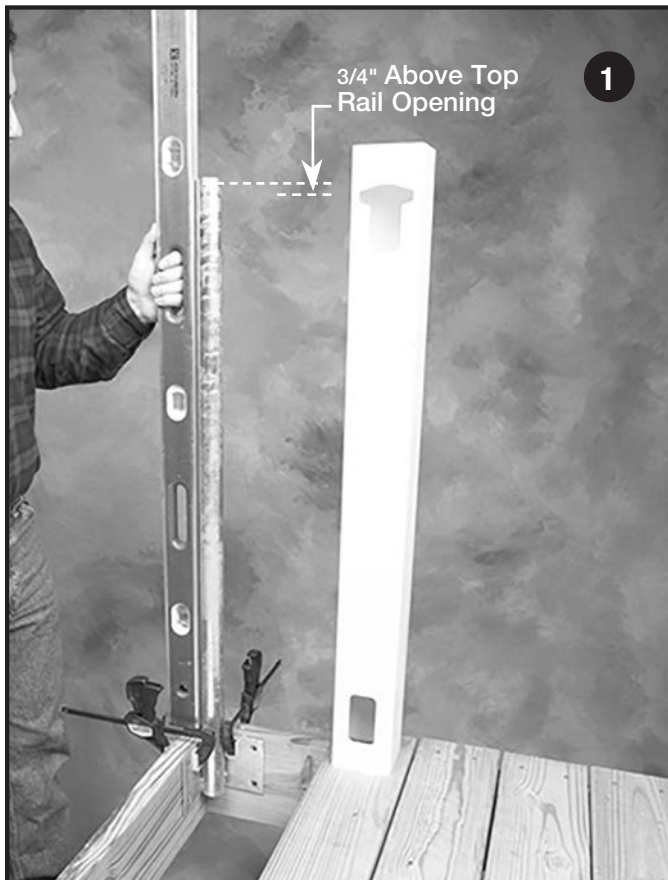
DETERMINE POST HEIGHT

Step 1: Posts are supplied in two standard heights, 38" (3' railing) and 44" (3-1/2' railing). Stair post supports are purposely supplied longer than needed to accommodate various post positions.

INSTALL POST SUPPORTS – WOOD

For all post supports, the top of the L-shaped plate must be LEVEL WITH THE TOP OF THE JOISTS. If you mount them at the bottom, the pipe may not extend far enough to attach the rail lock plate later in the installation.

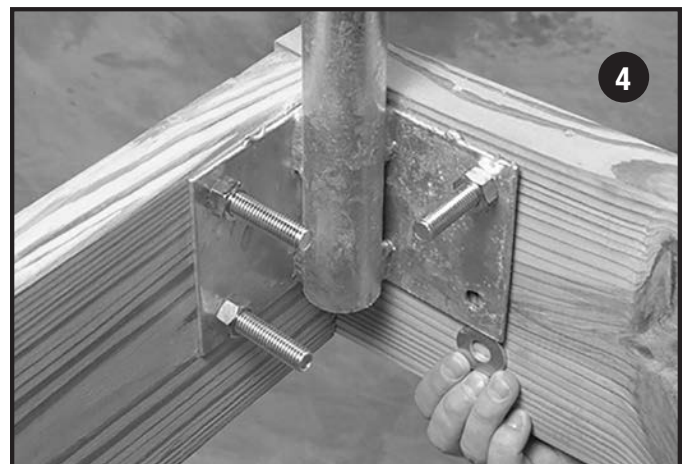
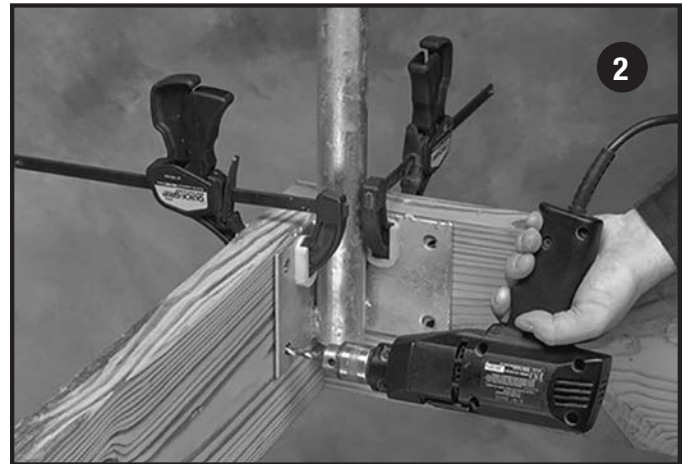
Step 1: Clamp the post support in place. Make sure it's level. Check its height relative to the vinyl post. It must rise approximately 3/4" above the routed opening of the top rail. Remember to allow for the thickness of the deck plank.



Step 2: Use the post support as a guide and drill four 1/2" holes through the joists.

Step 3: Insert all four fasteners. Tighten.

Step 4: Recheck level; if the joists are not plumb, use a washer as a shim to level the post support.



INSTALL POST SUPPORTS – CONCRETE

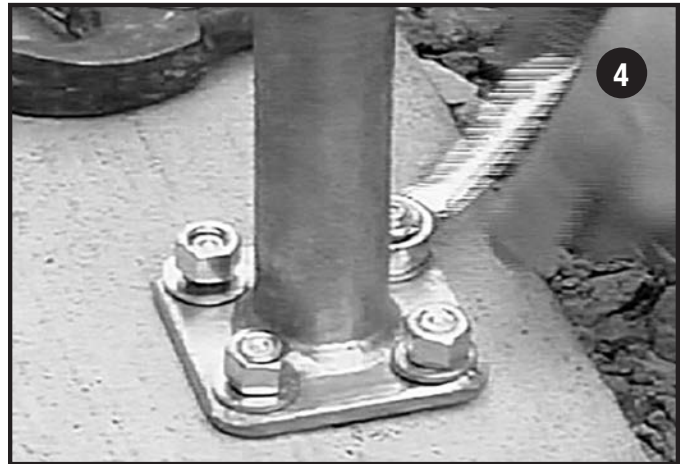
You can also attach railing to a concrete surface using the concrete post mount system. Concrete post supports have a flat bottom plate. Position them a minimum of 3-1/2" on center from the edge of the concrete pad.

Step 1: To install the posts on concrete, use the concrete mounting plate as a guide to mark holes.

Step 2: Drill the four 1/2" holes 3-1/4" deep.

Step 3: Attach a nut to the top of the anchor and hammer it into the concrete. Leave approximately 3/4" of the thread above the ground.

Step 4: After all anchors are in place, replace the post support and tighten the nuts. Recheck that the post is level. If not, shim the base.



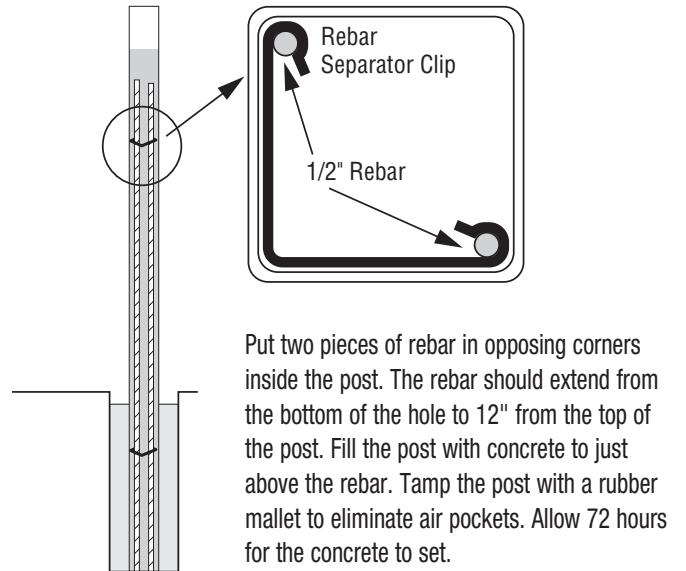
INSTALL POST SUPPORTS – IN GROUND

For a 3' rail, use a 72" ground mount stair post. For a 3-1/2' rail, use a 76" post.

Step 1: Dig a 10" diameter hole approximately 30" deep or to the frost line in your area.

Step 2: Position the post support in the hole. Install the stair rail section.

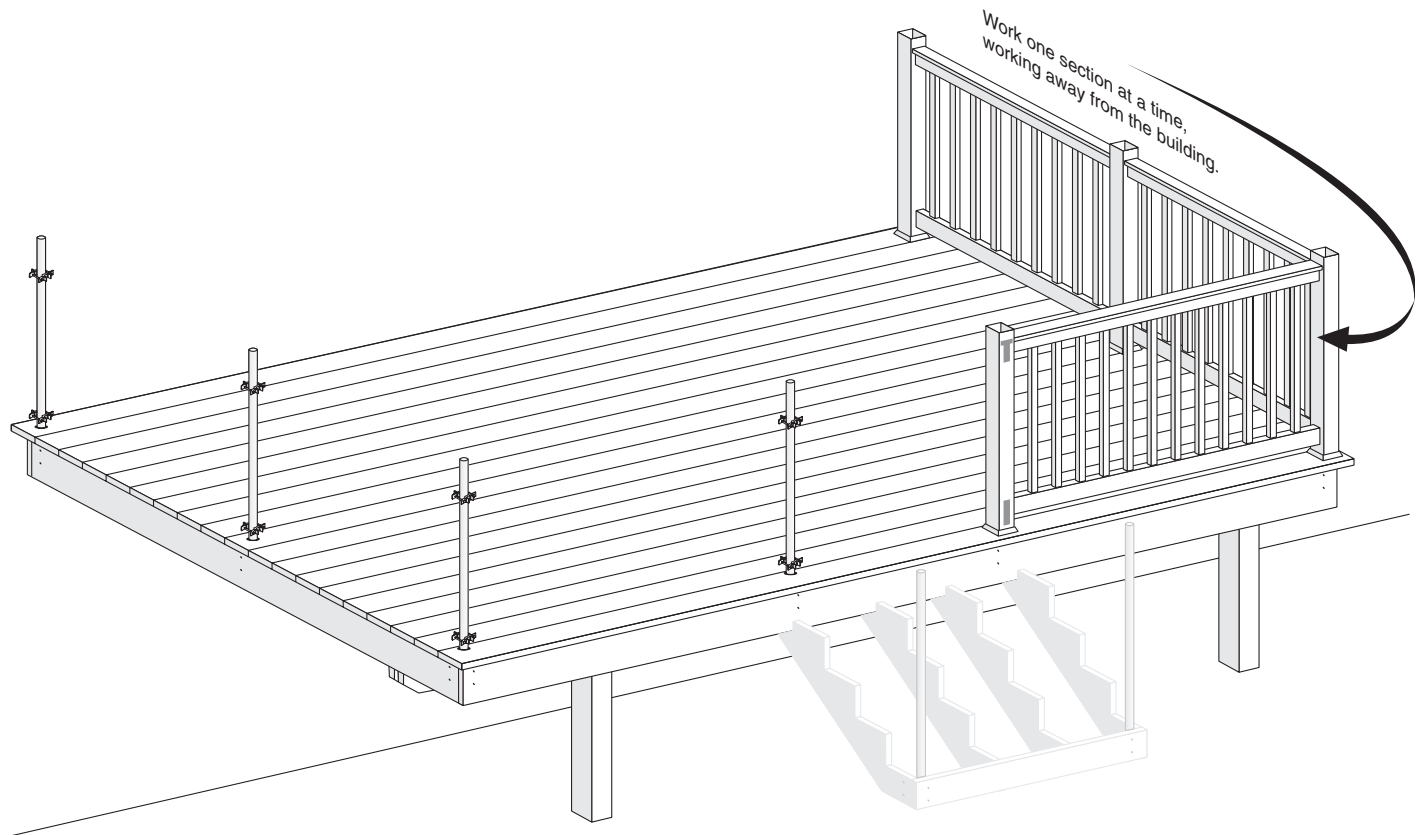
Step 3: Check the height and fill the hole with concrete until it is approximately 2" from the top of the hole. Check that the post is square and level.



INSTALL RAILING SECTIONS

APPLICATION TECHNIQUES

Begin the railing project by first installing the flat sections. Complete one section at a time, working your way away from the building. The post centers may vary slightly, so cut the rails **ONLY** for the section you are working on. Do not fasten the rail connector plates until the entire job (flat and stair sections) is installed.



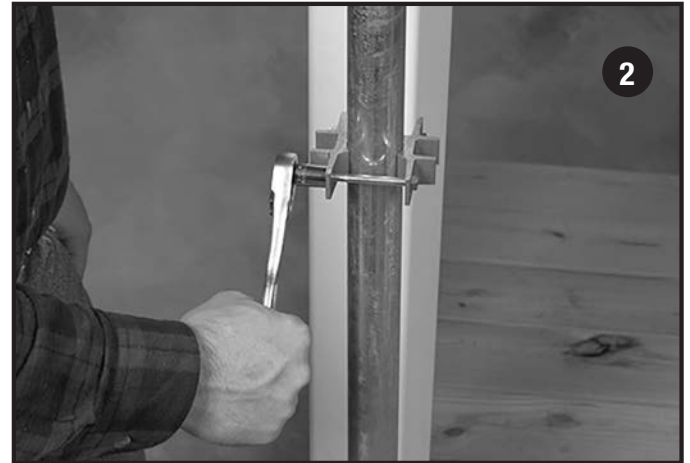
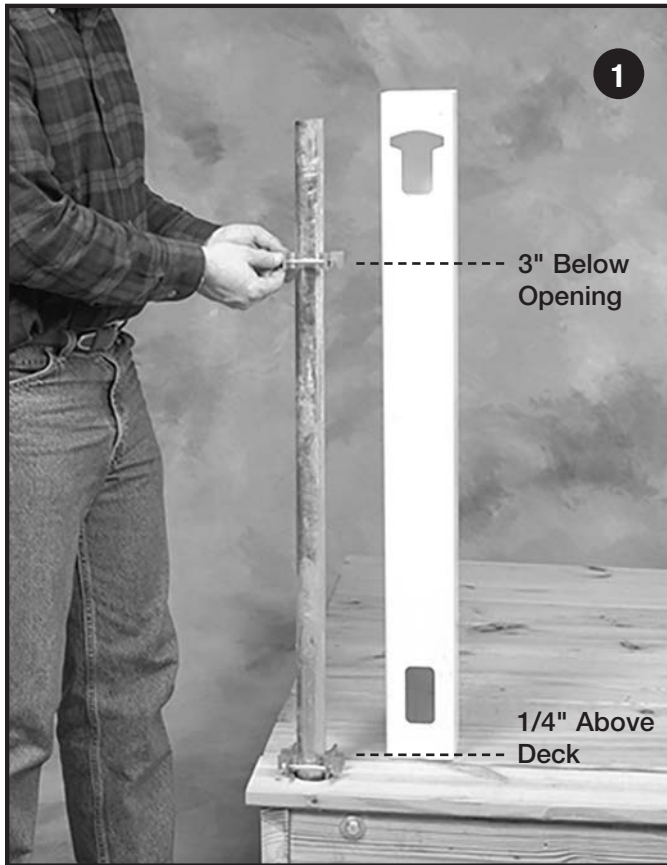
INSTALL E-Z SET BRACKETS

Step 1: Assemble the E-Z Set brackets with the nuts and bolts provided. Stand the vinyl post up against the post support. Using the vinyl post as a guide, position one E-Z Set bracket 1/4" above the deck and the second 3" below the upper routed opening of the vinyl post. Hand tighten the brackets on the post support.

Step 2: Pressing the post against the side of the brackets will help make sure they are square relative to the deck. Tighten the brackets with a wrench.

Step 3: Slide the vinyl post over the brackets. If you intend to use the post-trim pieces at the bottom of the post, install them now. Snap them together and slide the assembled trim down the post to the deck.

TIP: If not a stair transition post, wait to position second E-Z Set bracket on top of the rail lock plate and top rail after the entire railing section has been assembled.



INSTALL RAILING SECTIONS

Step 1: Measure the rail by laying the bottom rail between the posts with both end holes clear of the posts and equally spaced. Mark the rail 1" longer than the points where the rail and post meet.



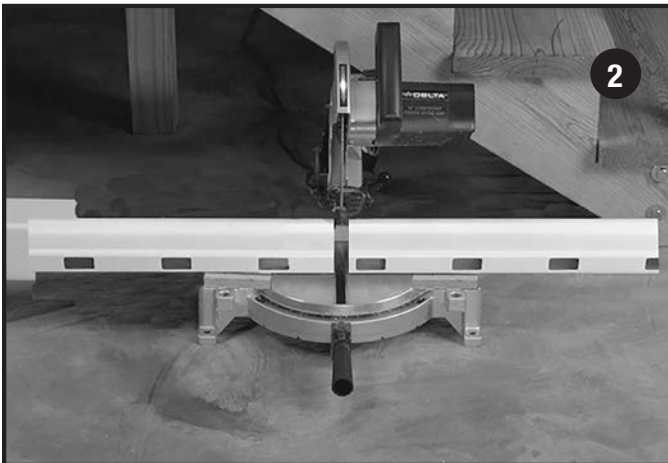
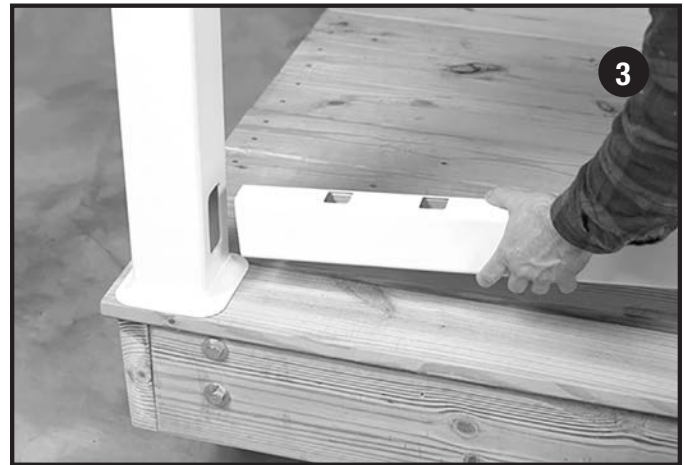
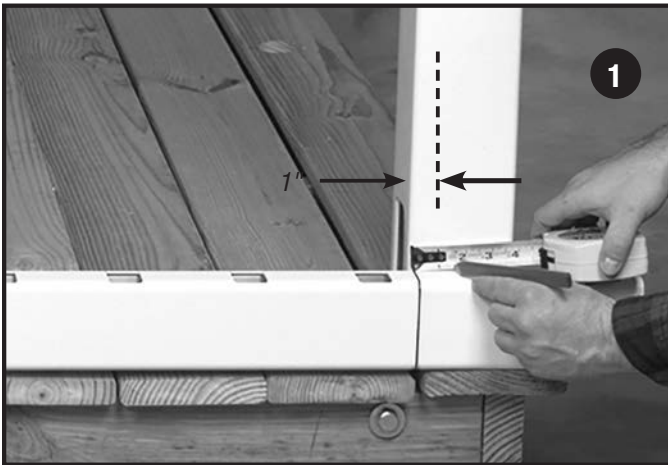
TIP: When measuring rails, mark one end of both top and bottom rails to keep them organized.

Step 2: Cut the bottom rail, keeping the aluminum approximately 1/4" shorter than the vinyl. Use the bottom rail as a guide to cut the top rail.

Step 3: To prevent interference when installing T-rail top rails on a corner post, cut off 3/4" at a 45° angle on the inside corner of each rail. Cut only the vinyl "T" portion of the rail.

Step 4: Insert the bottom rail into the post.

Step 5: Lift the next post and insert the rail into the opening. Push the post and rail down to the deck.



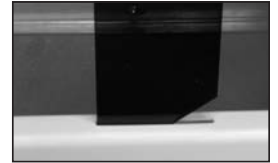
INSTALL RAILING SECTIONS CONTINUED

Step 6: Pull up on the first few balusters and insert them into the top rail holes. Push down on the top rail and position it next to the opening in the post. The rail may not easily push into the post opening until you have inserted several balusters.

Step 7: Once all balusters are inserted, lift the partially assembled section and insert the top rail into the post opening. Push the completed section down to the deck.

Repeat this step for all flat rail sections.

TIP: Use care when installing glass balusters. Install glass balusters the same way.



INSTALLING RAILING SECTIONS AT A 45° ANGLE

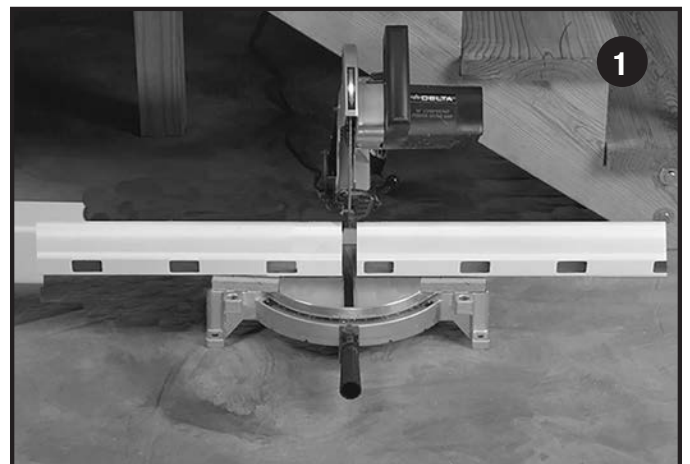
Place the E-Z Set brackets over the post supports as described earlier. To accommodate the 45° angle cut of the deck, a bevel guide may be useful because each bracket will need to be rotated to a 22.5° angle on the post support. Place the vinyl post over the post support (and attach

the trim pieces if you're using them). Verify the alignment. Measure and then cut the bottom rail on a 22.5° angle at each end. Use the bottom rail as a template and cut the top rail. Assemble the railing section as described earlier.

INSTALL STAIR RAILING

INSTALL BOTTOM POST SUPPORT AND POST

Step 1: Begin the stair section by installing the stair post support and E-Z Set brackets. Do not cut the support posts yet.



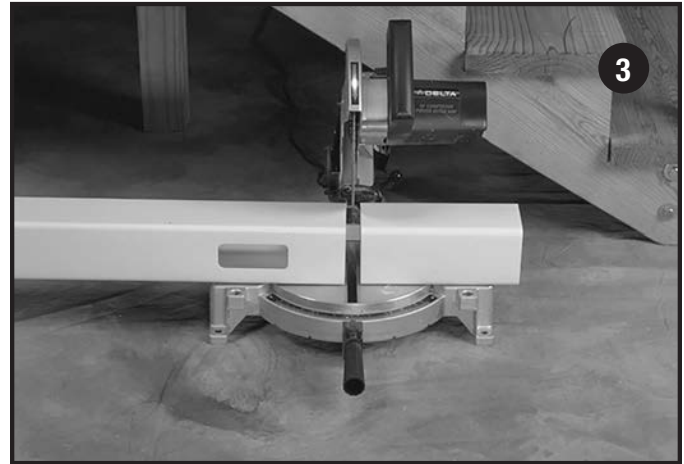
CUT BOTTOM STAIR POST AND POST SUPPORT

Step 1: Insert the bottom rail into the upper post. Clamp the rail to the lower post at the desired height and angle. Measure the distance from the point where the rail and post meet to the stair tread.

Step 2: Remove the lower post and transfer your previous measurement as shown.

Step 3: Cut the post along your mark.

Use the previously cut stair post as a guide to determine the post support height. Place the stair post on the step next to the steel post support. Mark the support at $\frac{3}{4}$ " above the top rail opening. Cut off the post support at your mark. Cover any exposed vinyl components that could be damaged by falling cut-offs.

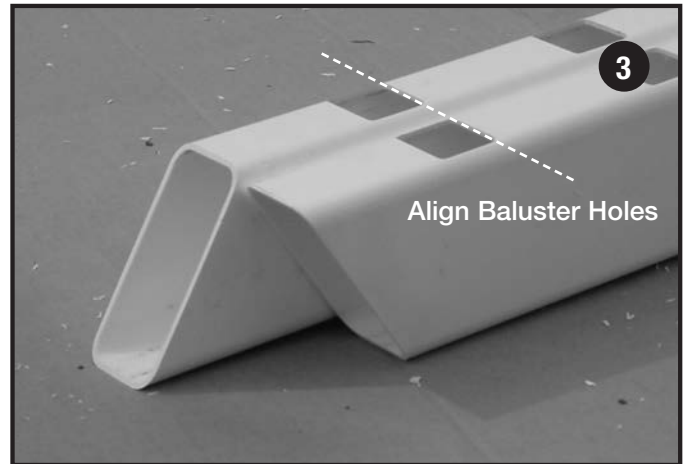
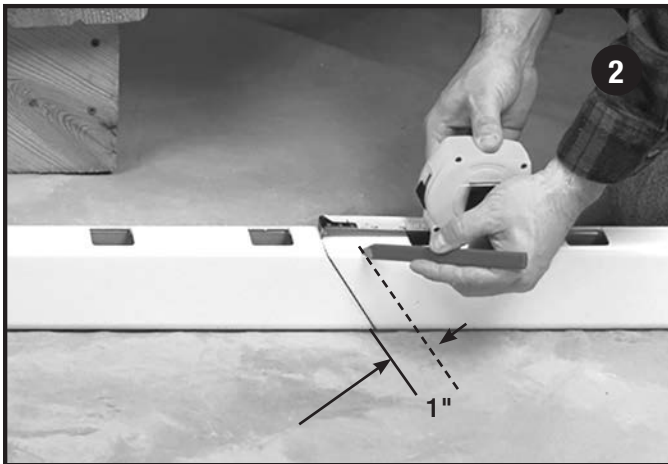


CUT THE RAIL-TO-STAIR ANGLE AND LENGTH

Step 1: Lay the bottom rail between the posts, with the end holes clear of the posts and equally spaced. Align the rail with the top of the rail on each post. Measure the rail.

Step 2: Mark vertical lines on both ends of the rail where it meets the posts. Measure over 1" along the angle on both ends of the rail to allow for the extra length inserted into the post. Remark the rail for the cut line.

Step 3: Cut the stair rail to the exact angle that you traced. Make sure the aluminum rail insert is 1/4" shorter than the end of the vinyl rail. Use bottom rail as a guide and line up baluster holes to top rail. Mark degree of stair angle to top rail, in the opposite direction of the bottom rail, and cut.



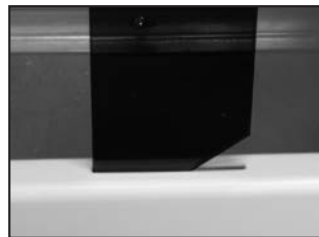
ASSEMBLE STAIR RAIL SECTION

Step 1: To assemble the rail sections, slide the post over the post support. Insert the bottom rail into the lower post. You may find it easier to lift the lower post, insert the bottom rail, and then lower the post.

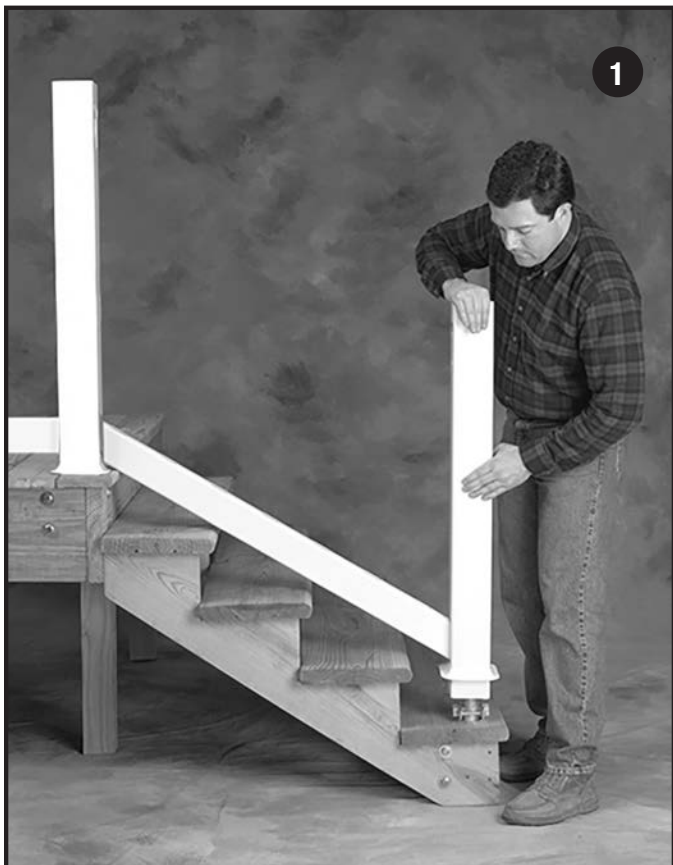
Step 2: Lift the upper post 3" to 4" until you can insert the bottom rail. Then slide the post and rail back down.

Step 3: Insert the balusters into the bottom rail. Insert the balusters into the top rail; then insert the top rail into the lower post. You may find it easier to work from the bottom stair up to the top.

TIP: Use care when installing glass balusters. Insert glass balusters the same way. To fit properly, the angle cut on the glass baluster needs to be installed in the same direction as the stair angle.



Step 4: Lift the partially assembled section and insert the top rail into the opening. Push the section down to the deck.



FINISH UP

APPLICATION TECHNIQUES

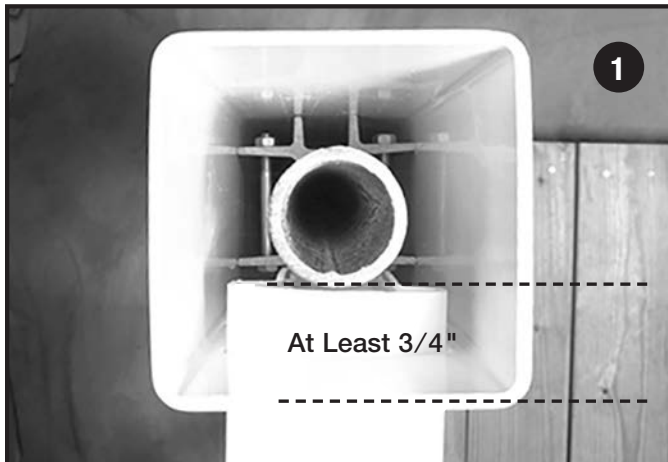
The rails are connected to post supports only after all posts and railings have been installed. Before you connect rails to corner posts, cut 3/4" off the inside corner of each rail at a 45° angle. When connecting a stair rail to a flat section, bend the rail connector plate with pliers to accommodate the angle of the stairs. You may prefer to install the top E-Z bracket after the connector plate has been installed.

INSTALL RAIL CONNECTORS

Step 1: Make sure the vinyl rail and aluminum insert project 3/4" inside the post.

Step 2: Insert the rail connector plate over the steel post support as shown. Drill a 3/16" hole through the rail and the aluminum insert. Attach the plate to the rails using the hex head screws provided in the post support kit.

TIP: If not a stair transition post, wait to position second E-Z Set bracket on top of the rail lock plate and top rail after the entire railing section has been assembled.



CORNER APPLICATION

Step 1: To install a rail connector on a corner post with T-rail, cut off 3/4" at a 45° angle on the inside corner of each rail. You need only cut the vinyl portion of the rail.



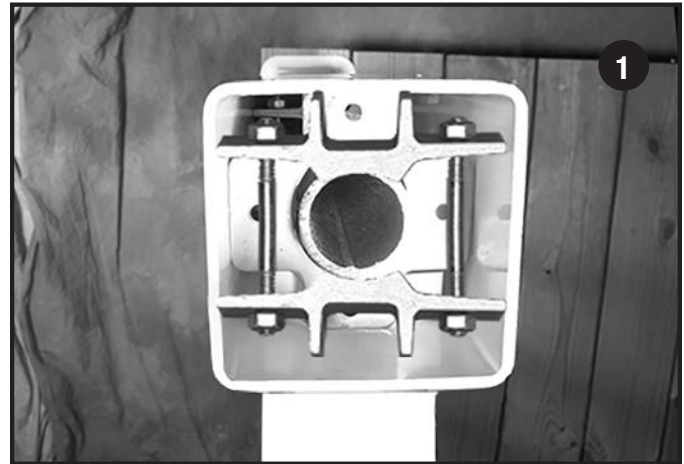
STAIR APPLICATION

Step 1: The plate has an oval cutout, so it adapts for stair angles. When moving from a flat section to a stair section, bend the plate with pliers to accommodate the angle.



INSTALL RAIL SYSTEM ANCHOR

Step 1: For added security or when using newel posts, install the top E-Z Set bracket after the rail plate, unless at a transition post.



INSTALL POST CAPS

Step 1: The internal flat cap simply snaps into the post. To install the external caps use vinyl adhesive.



BRACKET AND RAILING INSTALLATION

Installing the Bracketed Railing System

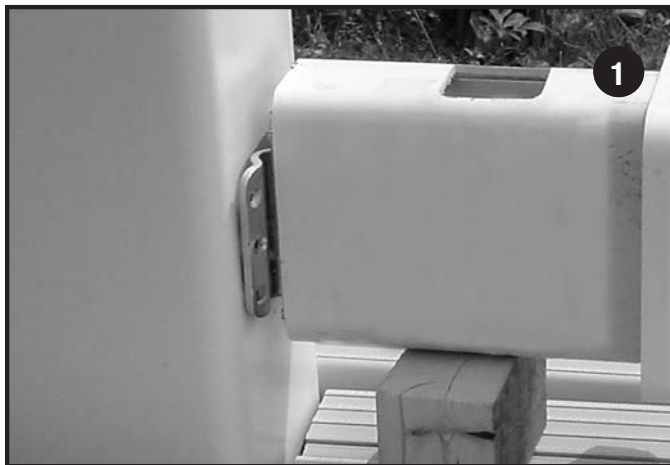
Brackets can be used on existing posts and columns directly, with a vinyl post sleeve over a 4x4 wood post or using The Mount or E-Z Set bracketed post support. Brackets should never be connected to a hollow vinyl sleeve without an internal shim in the post. To ensure a safe installation, rail mount brackets must be anchored securely. Before mounting the railing, determine that the structure is solid and that the fasteners appropriate for the structure are used.

When using the vinyl sleeve-over installation, the 4x4 wood posts must meet local building code requirements. CertainTeed is not responsible for the structural integrity of these posts.

IMPORTANT: To ensure meeting code requirements, be sure that the space between the last baluster and the wall or post is not more than 4". Be sure the top of the top rail is positioned 36" (for 3') or 42" (for 3-1/2') from the surface. Also, the measurement between the bottom rail and the surface should not exceed 4".

BRACKET INSTALLATION

Step 1: Measure rails for proper length and mark. Measure 1/4" back from both end marks and cut rails. Place cover over rail ends, insert brackets and slide rail into place between posts.



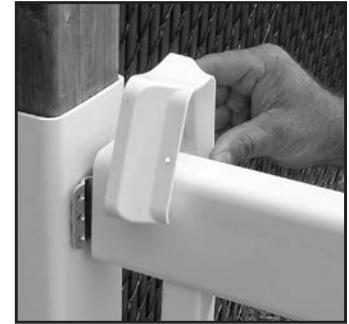
Step 2: Drill pilot hole with a 9/64" drill bit for bracket attachment screw. Attach bracket to post with screw provided. Use four screws per bracket.



Step 3: Pre-drill 9/64" hole for rail attachment screw. Attach rail to bracket with 3/4" screw.

Step 4: Slide cover in place, pre-drill 9/64" hole to expedite cover attachment. Attach cover to rail with 3/4" screw provided.

TIP: If baluster interferes with bracket cover, slit the underside of the cover. Spread open and slide over railing and attach. Vinyl adhesive or clear silicone adhesive can be used to attach cover to rail.



45° BRACKET INSTALLATION

Step 1: Measure rails for proper length, mark and cut rails. Place cover over rail ends, insert brackets and slide rail down from the top of the post into place.

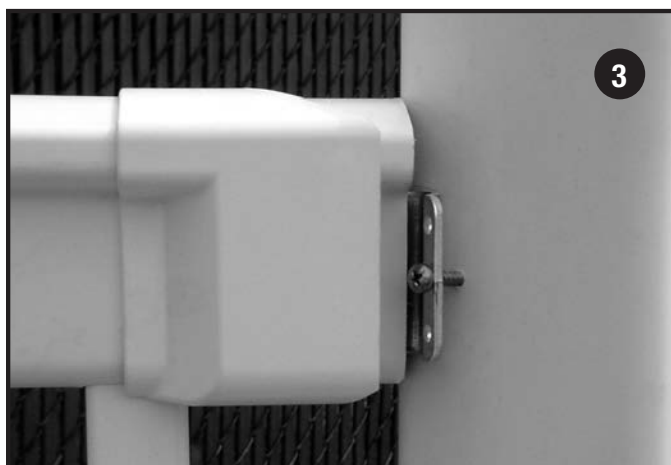
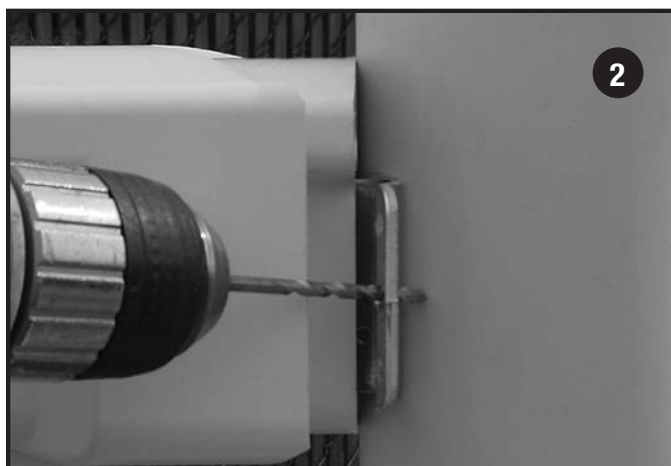
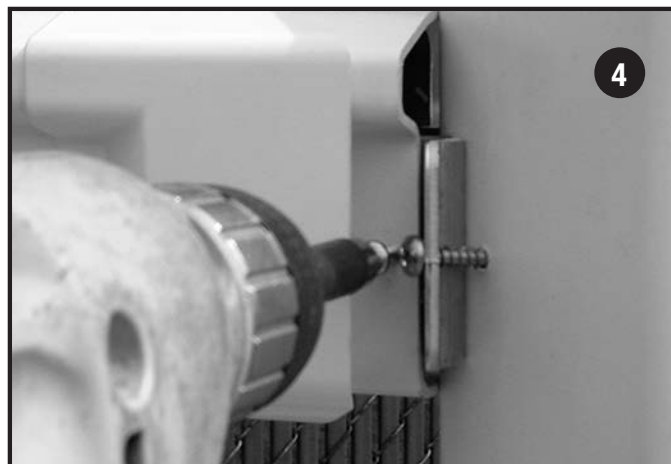
Step 2: Drill pilot hole for bracket attachment screw.

Step 3: Attach bracket to post with screw provided. Use four screws per bracket.

Step 4: Attach rail to bracket with 3/4" screw. Pre-drill 9/64" hole to expedite installation.

Step 5: Slide cover in place and attach cover to rail with 3/4" screw provided. Pre-drill 9/64" hole to expedite installation.

Step 6: Finish post with choice of post cap. Use vinyl adhesive for cap attachment.



22-1/2° BRACKET INSTALLATION

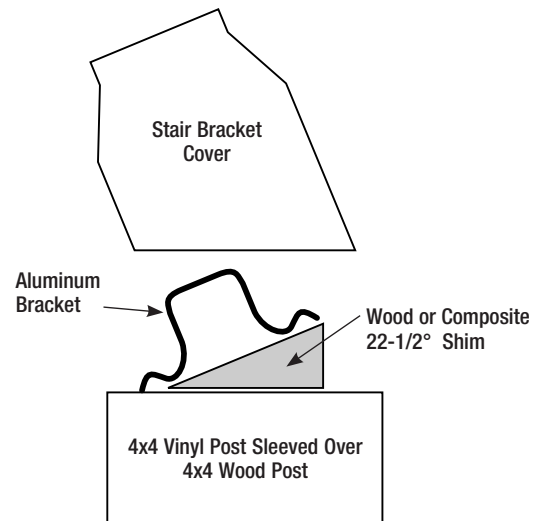
Step 1: Use stair bracket kit.

Step 2: Cut four 22-1/2° shims from a wood or composite 4x4 post.

Step 3: Cut rails to length.

Step 4: Cut stair covers at 22-1/2°.

Step 5: Place shims between post/brackets and install bottom rail. Before securing bracket in post, always check the alignment of cover for possible adjustments.



STAIR BRACKET INSTALLATION

APPLICATION TECHNIQUES

Railings can be mounted to walls or columns using rail mount brackets. To ensure a safe installation, rail mount brackets must be anchored securely. Before mounting the railing, determine that the structure is solid and that the fasteners appropriate for the structure are used.

IMPORTANT: To ensure meeting code requirements, be sure that the space between the last baluster and the wall or post is not more than 4".

Step 1: Check for equal end baluster spacing on both sides. Mark rail where it intersects post. Measure back 1/4" from lines and cut railing.

Step 2: Foam is included to secure cover while cutting. Slide covers over scrap piece of rail and hold in place by inserting foam blocks. Do not attempt to cut covers without placing on a rail. Cut vinyl covers to stair angle and then slide over both ends of rail.

Step 3: Insert aluminum bracket into both ends of rail. Check correct position by sliding vinyl cover over bracket for fit.

Step 4: Secure rail and bracket to post with four 2" screws (included). Fasten screws in each corner of the bracket flange.

TIP: When securing bracket to post, drill pilot hole with a 9/64" drill bit to prevent bracket from sliding.

COLUMN BRACKET INSTALLATION

- Step 1:** Rail length should be measured to fit from outside edge of column. Measure and check for equal end baluster spacing between columns, at both ends of rail. Mark top/bottom rails and cut.
- Step 2:** Slide vinyl bracket covers over both ends of bottom rail and insert aluminum brackets into both ends of rail.
- Step 3:** Install bottom rail in between columns, sliding from top down to bottom of column, spacing bottom rail 2" off floor.
- Step 4:** Secure aluminum brackets to column with four 2" screws (included). Fasten screws in each corner of the bracket flange.

- Step 5:** Double check for equal end baluster spacing at columns. Secure rail to brackets with two 3/4" screws, through rail sides.
- Step 6:** Slide vinyl cover along rail to columns and insert set screw.
- Step 7:** To finish the section installation, insert balusters into bottom rail and then insert top rail over balusters. Repeat steps above for top rail bracket installation.

COLUMN STAIR BRACKET INSTALLATION

- Step 1:** Use stair bracket kit.
- Step 2:** Cut degree of angle of stairway to cover.
- Step 3:** Place cover against column. Trace radius to top and bottom of cover.
- Step 4:** Cut and install rail and then insert top rail over balusters. Repeat steps above for top rail bracket installation.



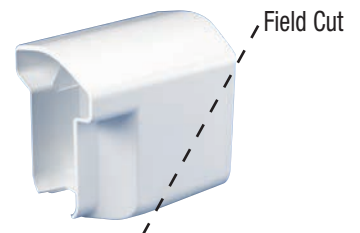
Oxford Flat



Oxford Column
(minimum 8"
round column)



Oxford 45°



Oxford Stair

STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR

KINGSTON RAILING ASSEMBLY

Flat, Column, 45°, 22-1/2°, Stair, Steep Stair

IMPORTANT

Before installing posts, note rail lengths are nominal. Actual rail lengths are:

6' Rail = 68-1/2"

8' Rail = 92-1/2"

10' Rail = 116-1/2"

To ensure meeting code requirements, be sure that the space between the last baluster and the wall or post is not more than 4".

ASSEMBLY FOR FLAT AND COLUMN

Step 1: Check for equal baluster spacing at posts. For flat and columns, mark rail where it meets the post. Measure back 1/4" from mark.

Step 2: Square rails and cut. Install crush block to bottom rail.

Step 3: Slide vinyl covers over ends of rails. Insert aluminum brackets into both ends of rails.

NOTE: Vinyl cover can be field cut to avoid baluster interference.

Step 4: Position bottom rail between posts.

Step 5: To secure aluminum bracket to posts with screws provided (two screws per aluminum bracket), on the TOP rail, place screws in the bottom holes of the bracket. On the BOTTOM rail, place screws in the top holes of the bracket. Slide vinyl covers to posts.

Step 6: Fasten cover and rail to aluminum bracket with 1" screws (provided) through flat sides of vinyl covers.

NOTE: Pre-drilling rail and bracket will enhance application.
Use a 9/64" drill bit.

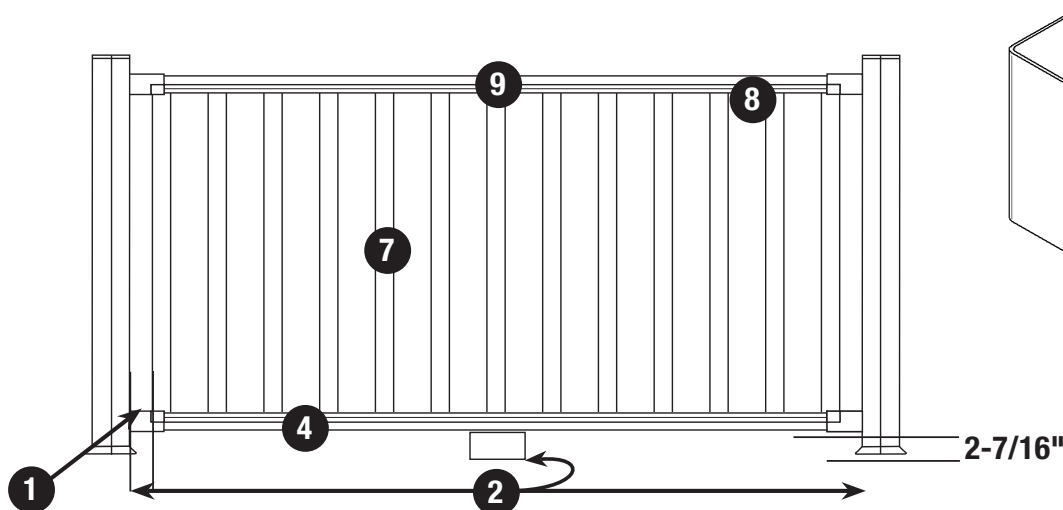
Alternative Flat Installation: Secure rail to aluminum bracket first and then slide vinyl cover to post. Secure cover in place with vinyl adhesive.

Step 7: Insert balusters into bottom rail.

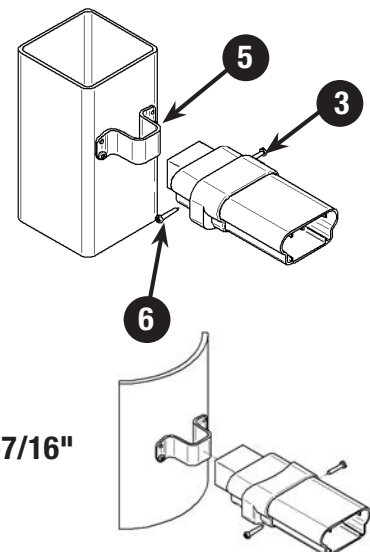
Step 8: Install top rail and repeat steps 5-6.

NOTE: Aluminum brackets can be inserted into top rail after balusters are installed.

Step 9: For 10' railing, insert provided screws through flat side of top and bottom rails into middle baluster to secure midpoint of railing.



NOTE: Two brackets are required per section end.



NOTE: Column bracket cover is cut to work with an 8" round column

ASSEMBLY FOR 45° AND 22-1/2°

Step 1: Check for equal baluster spacing at posts. For 22-1/2° and 45°, mark rail where it meets post. Do not measure back.

Step 2: Square rails and cut. Install crush block to bottom rail.

Step 3: Slide vinyl covers over ends of rails. Insert aluminum brackets into both ends of rails.

NOTE: Vinyl cover can be field cut to avoid baluster interference.

Step 4: Position bottom rail between posts. For 22-1/2° and 45°, slide rail down inside corner of post.

Step 5: To secure aluminum bracket to posts with screws provided (two screws per aluminum bracket), on the TOP rail, place screws in the bottom holes of the bracket. On the BOTTOM rail, place screws in the top holes of the bracket. Slide vinyl covers to posts.

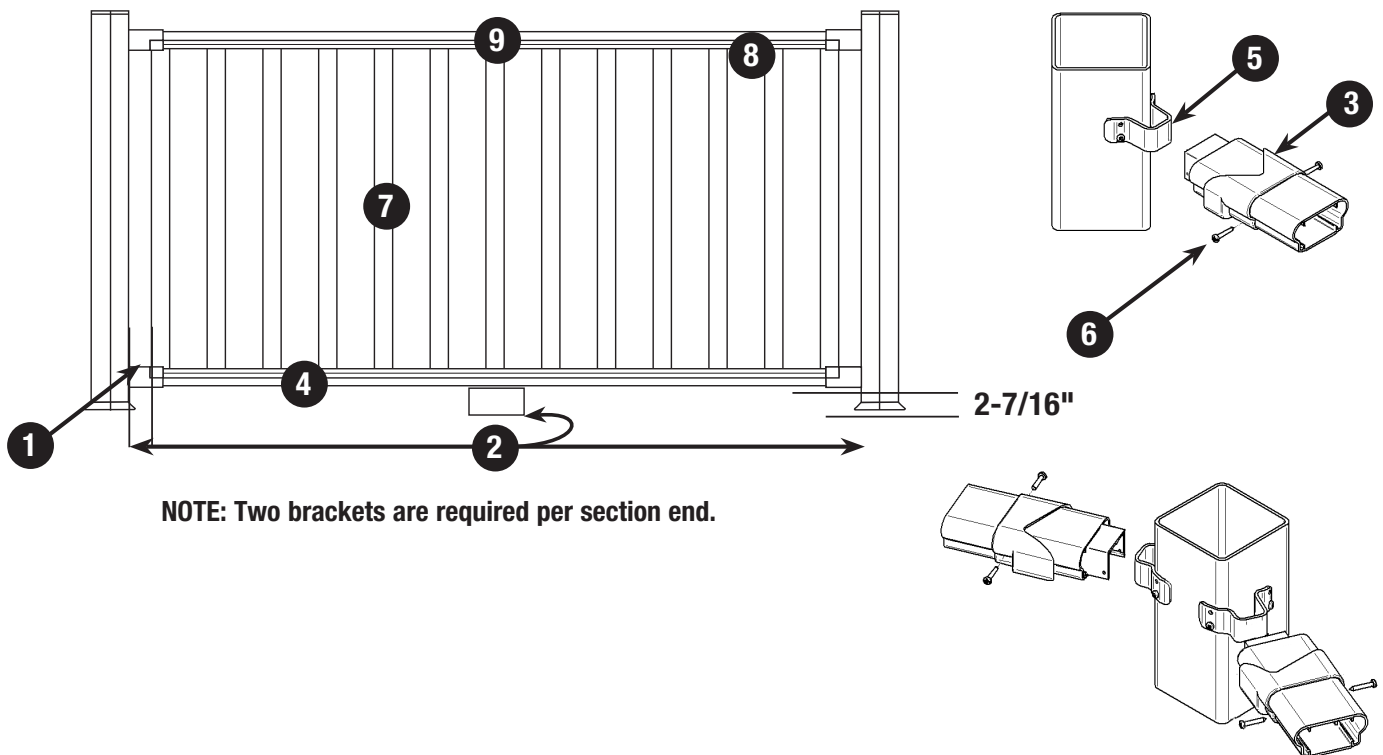
Step 6: Fasten cover and rail to aluminum bracket with 1" screws (provided) through flat sides of vinyl covers.

NOTE: Pre-drilling rail and bracket will enhance application. Use a 9/64" drill bit.

Step 7: Insert balusters into bottom rail.

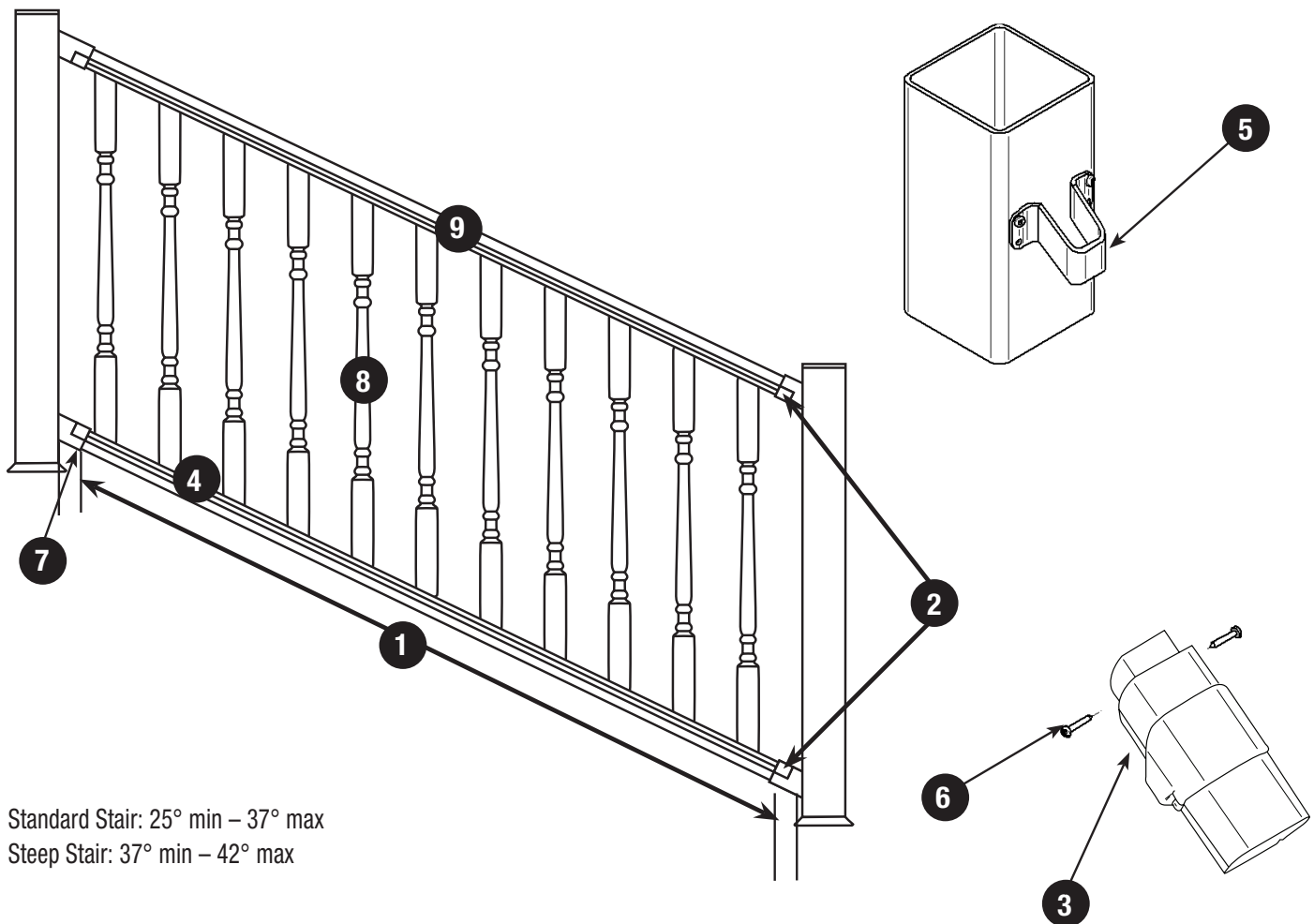
Step 8: Install top rail and repeat steps 5-6.

Step 9: For 10' railing, insert provided screws through flat side of top and bottom rails into middle baluster to secure midpoint of railing.



ASSEMBLY FOR STAIR

- Step 1:** Check for equal baluster spacing at posts.
- Step 2:** Mark rail for stair angle where it meets the post. Square top rail to bottom rail, measure back 1/4" from mark and cut rails.
- Step 3:** Transfer stair angles to covers and cut. Place covers over a scrap piece of rail when cutting to required angle. To hold rail level place cover on both ends. Attach covers to scrap rail with tape or plastic wrap to hold in place while cutting. Do not attempt to cut covers without placing on a rail. Slide vinyl covers over ends of bottom rail. Insert aluminum brackets into both ends of rail.
- Step 4:** Position bottom rail between posts.
- Step 5:** To secure aluminum bracket to posts with screws provided (two screws per aluminum bracket), on the TOP rail, place screws in the bottom holes of the bracket. In the BOTTOM rail, place screws in the top holes of the bracket. Slide vinyl covers to posts.
- Step 6:** Secure rail to aluminum brackets with 1" screw (provided) through flat side of rail.
- Step 7:** Slide vinyl cover to post and fasten to rail with set screw provided.
- Step 8:** Insert baluster into bottom rail.
- Step 9:** Install top rail and repeat steps 5-7.



NOTE: The 1-1/2" x 1-1/2" Kingston square baluster must measure 32-1/2" for stair applications. You can field cut a 1-1/2" x 1-1/2" x 33-1/4" square baluster to 32-1/2" (cut 3/4" from end) for this use. The 1-1/2" x 1-1/2" x 33-1/4" Kingston traditional baluster works for both flat and stair applications.

STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR VINYL GATES

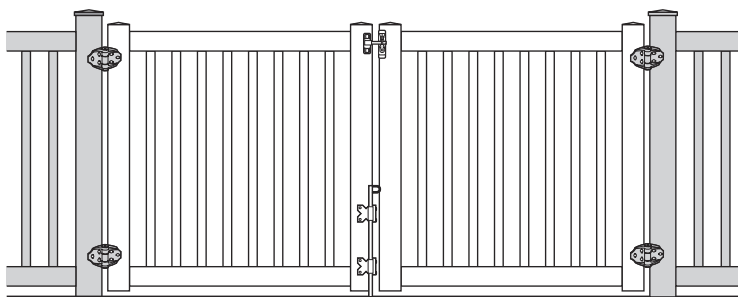
IMPORTANT

Please read these instructions thoroughly before beginning the assembly.

- Use extreme care when applying PVC cement as it dries quickly.
- During assembly, lay PVC components on a non-abrasive surface (such as a drop cloth) to avoid scratching.
- Clean PVC with a mild detergent and plastic scouring pad.
- Assemble PVC components without using excessive force to avoid breakage.
- Aluminum framed gate may be racked if needed.
- Gate must be assembled prior to railing to accurately locate hinge and latch post.
- Gate horizontal rails will line up with railing horizontal rails.
- Gate requires 2" clearance under bottom rail on level ground.
- Gate hardware requires 1" gap for hinge and 3/4" gap for latch.
- Gate hardware must be mounted on two sides of post.
- **INSTALLING RAILING GATES:** Post should be reinforced with post support kit or sleeved over wood post.

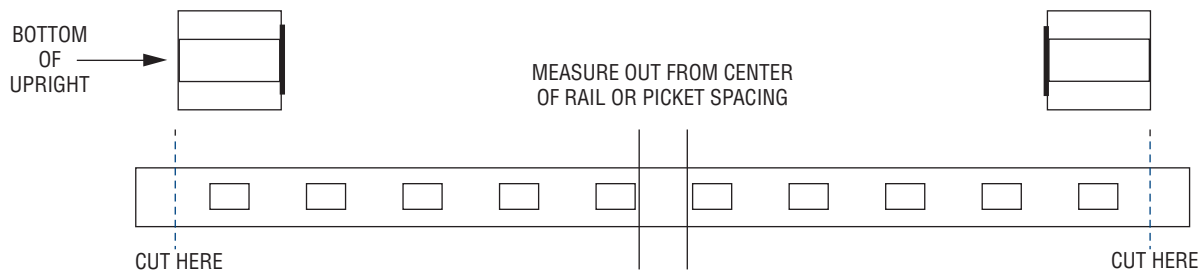
DOUBLE DRIVE GATES

For aluminum frame gates, order two standard gates.



BEFORE YOU BEGIN

DETERMINE WIDTH OF GATE



- Width of gate will be determined by length of horizontal rails.
- Rails must bottom out inside uprights.
- Cut rails to achieve equal picket spacing. Measure out from center of hole cut-out or center of picket spacing.
- Single gates should be made 1-3/4" smaller than the gate opening to allow for hardware.
- Double drive gates require an allowance of 2-3/4" between hinge posts for hardware and drop pin kit.
- When cutting rails, be certain to drill 1/4" holes in bottom rails for water drainage.

ALUMINUM FRAME ASSEMBLY

THE VINYL GATE KIT

The Vinyl Gate Kit is designed to build one (1) vinyl gate at the width of the standard walk gate.

Box Contains:

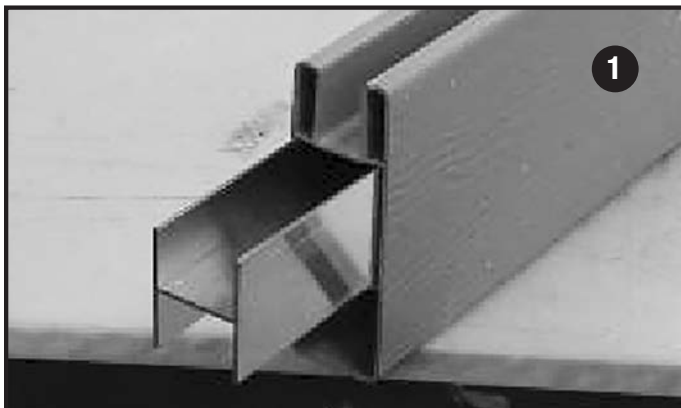
- Vinyl Gate Uprights with Aluminum "U" Channel Inserts
- Aluminum Channel Rail Inserts
- Hardware Bag
- Upright Caps

NOTE: Railing gates include vinyl rails, balusters and gate hardware.

Step 1: Cut rails to length – cut rail 1/2" shorter than desired final gate width.

Step 2: Insert aluminum channel into rails.

- Aluminum will also need to be cut to match vinyl rail length (fig. 1).
- For fence styles with ribbed rails, insert channel in center chamber of rail.

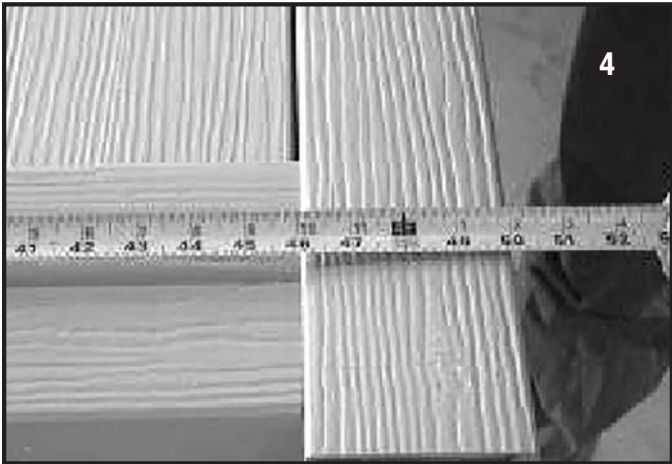
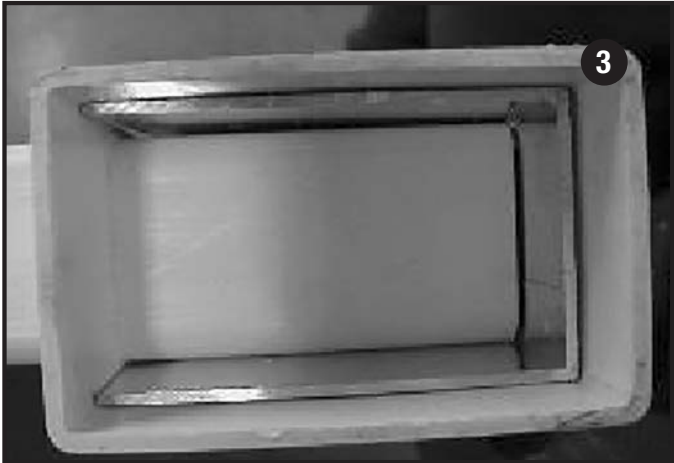
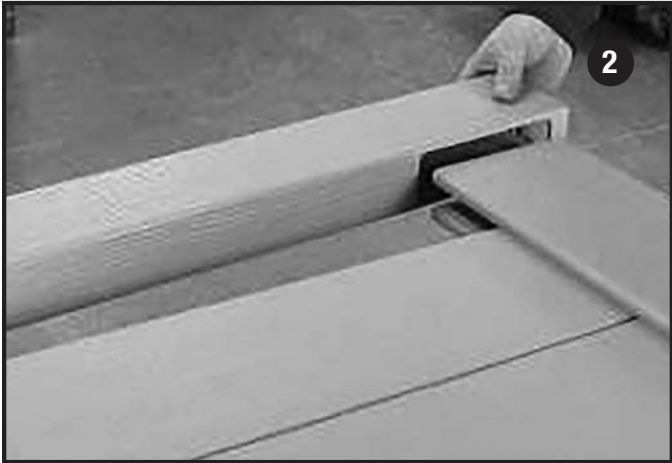


- Step 3:** Drill 1/4" holes in bottom rail for water drainage.
- Step 4:** For all standard gates:
- Insert pickets/balusters into rails. (For railing gates, refer to the chart on right for baluster lengths.)
 - Insert rails into one of the uprights.
 - Slide second gate upright over rails. (fig. 2)
- Step 5:** Ensure rails are inserted all the way into upright and pickets are flush against uprights (fig. 3).

Oxford*	Kingston
3' high = 33-1/4"	3' high = 31-1/4"
3-1/2' high = 39-1/4"	3-1/2' high = 37-1/4"

**does not require cutting*

Step 6: Check overall width of gate to ensure it meets desired target (fig. 4)

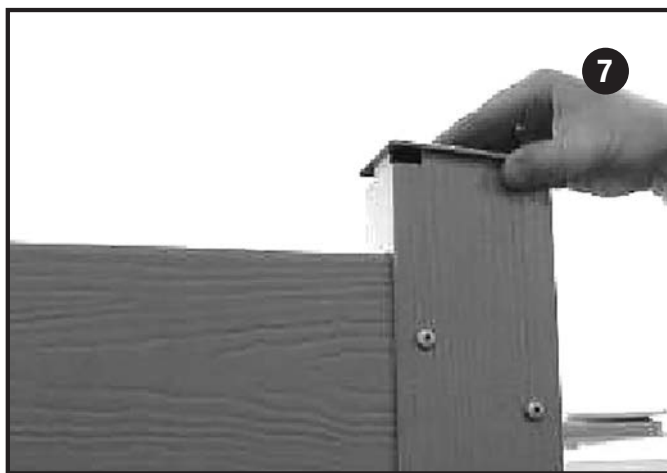
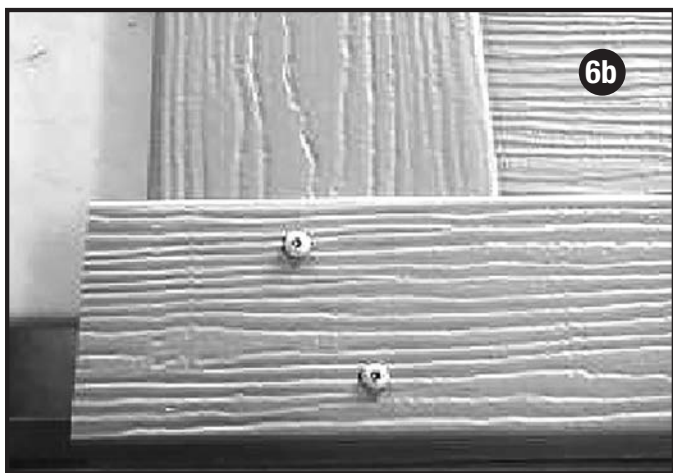
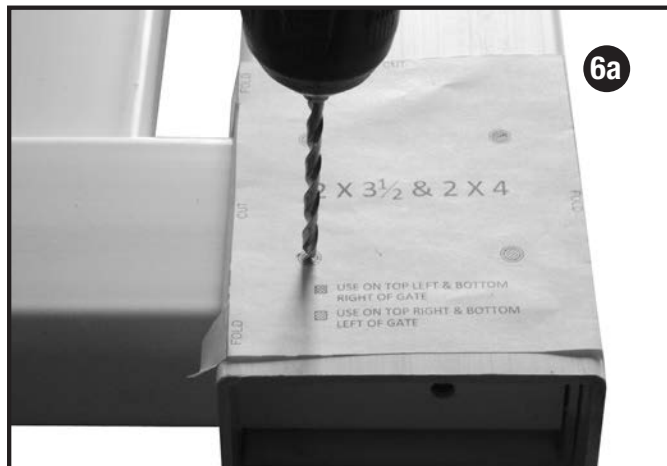


Step 7: Square gate by measuring diagonally from one upright to the other in both directions (fig. 5).

Step 8: Drill $1\frac{1}{64}$ " holes and insert 2 screws in each corner of the gate. (Use templates on the following pages for screw placement.)
Screws should be inserted through rail to ensure connection with aluminum channel inside rail (fig. 6a and fig. 6b)

Step 9: Flip over the gate assembly and repeat screw insertion for each corner.

Step 10: Attach gate upright caps with silicone caulk or PVC cement (fig. 7).



TEMPLATES

Use the templates on the following pages for proper screw placement.

- Screw template for 2x3-½ and 2x4 on page 38
- Screw template for Kingston Rails on page 39



INSTALLING GATE

POSITION GATE/LOCATE HINGE

Step 1: Position gate between railing posts. Allow 1" gap on hinge side and ¾" gap on latch side of the assembled gate for hardware and gate swing.

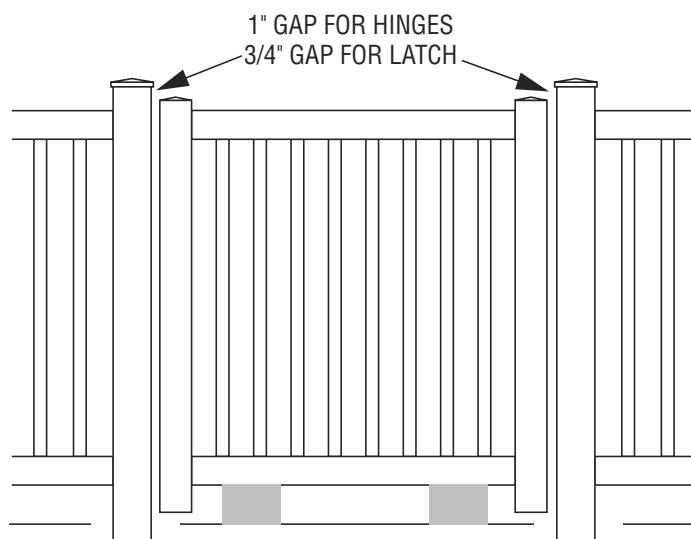
Step 2: Use leveling blocks under gate to square gate with railing posts. Railing and gate horizontal rails should be level.

Step 3: Gate hardware must be mounted on two sides of post.

Step 4: Locate hinge position on gate upright and hinge post. Top of top hinge is in line with bottom of top rail. Bottom of bottom hinge is in line with top of bottom rail.

Step 5: Hinges should be installed as far apart as is practical, for optimal performance.

Step 6: To mount the hinges, drill 5/32" pilot holes to accept screws when attaching to vinyl with aluminum inserts.



INSTALLING HINGES

Installation may vary based on gate hardware kit ordered. Refer to manufacturer's recommended installation instructions.

- Works with both left-hand and right-hand gates
- Hinges must be mounted on 2 sides of the post

INSTALLING LATCH

Installation may vary based on gate hardware kit ordered. Refer to manufacturer's recommended installation instructions.

IMPORTANT

The use and placement of rebar is critical for the strength and quality of the railing installation.

CAUTION: In climates that experience freeze-thaw cycles, this installation method could result in post cracking. This would not be covered by the warranty.

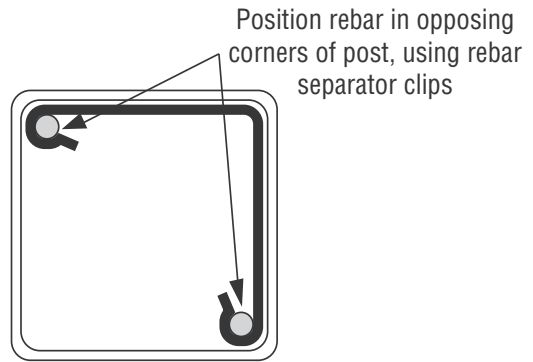
Step 1: Connect two pieces of ½" rebar together with rebar separator clips. Length of rebar should extend from bottom of hole to 12" from top of post.

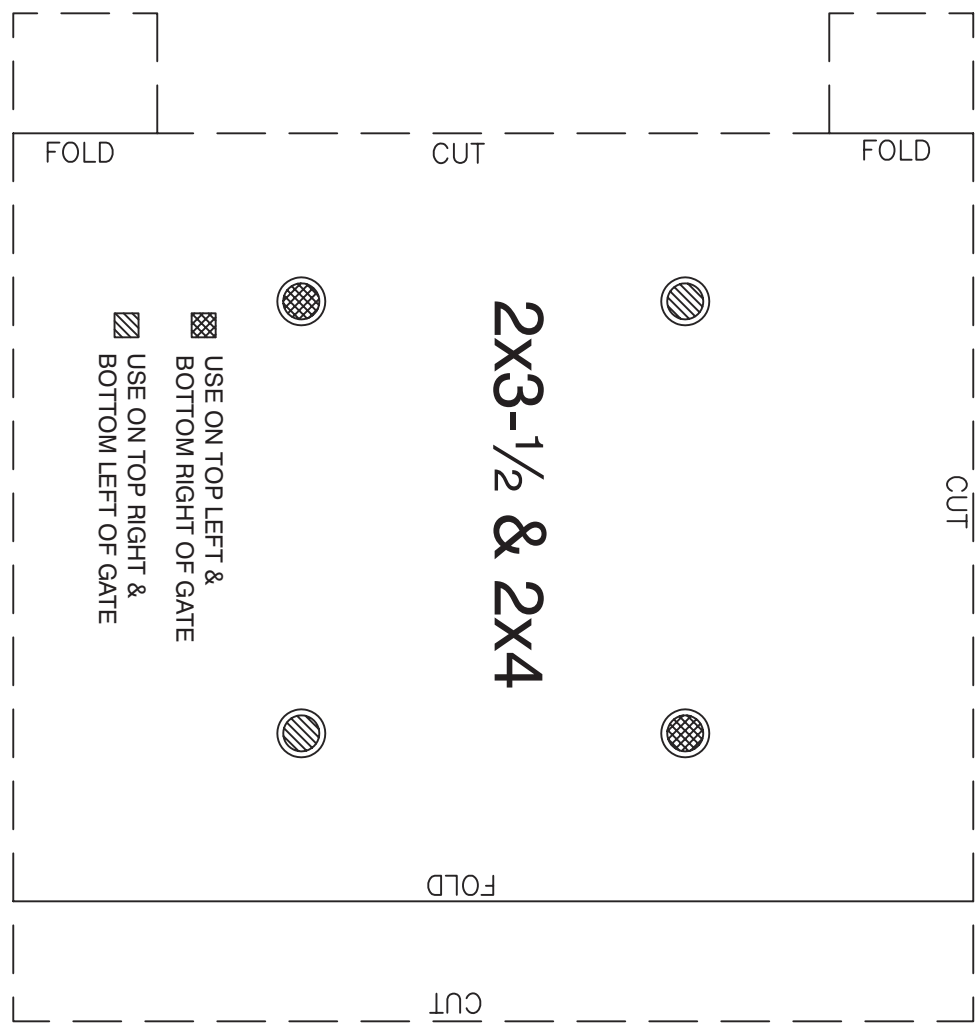
Step 2: Insert rebar in opposing corners of all hinge, latch and end posts.

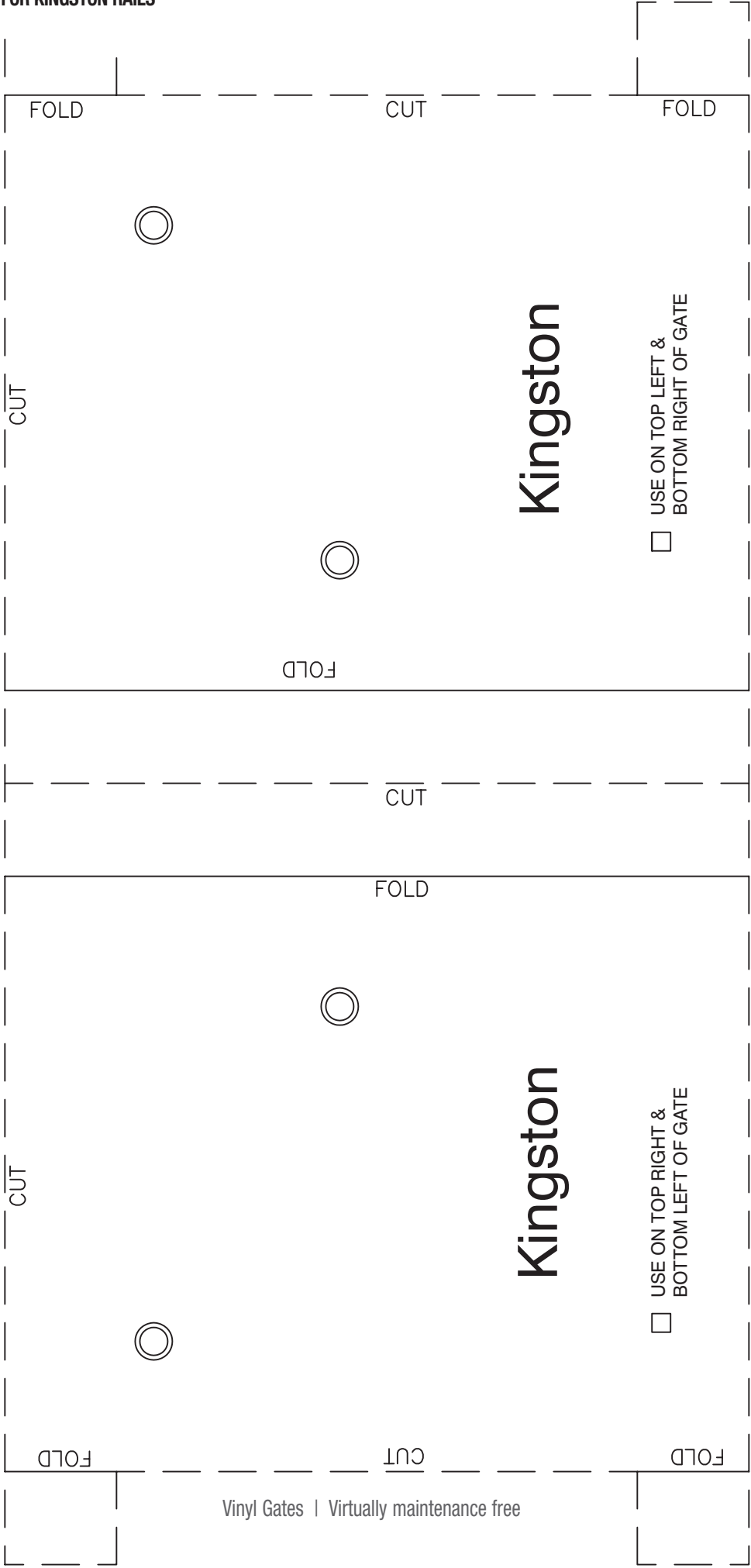
Step 3: Fill railing posts with concrete mix to cover rebar and gate hardware fasteners.

Step 4: Tamp out any air pockets with a rubber mallet

Step 5: Leave gate on blocks for concrete to set up. Remove blocks after 72 hours.





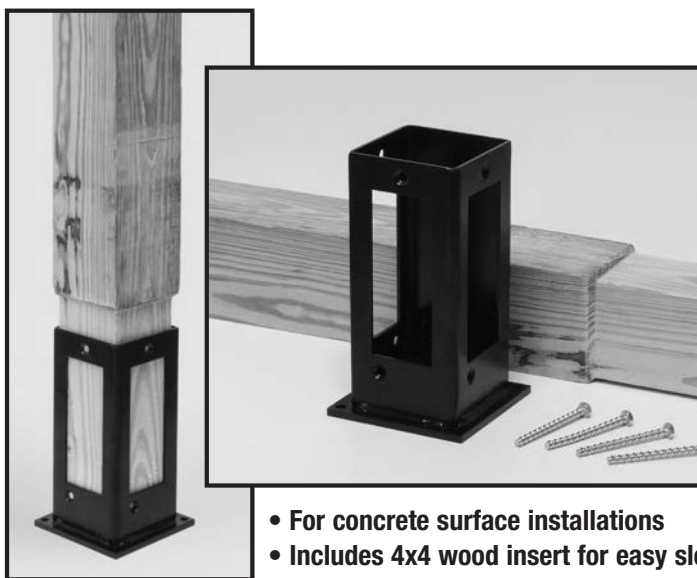


STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR

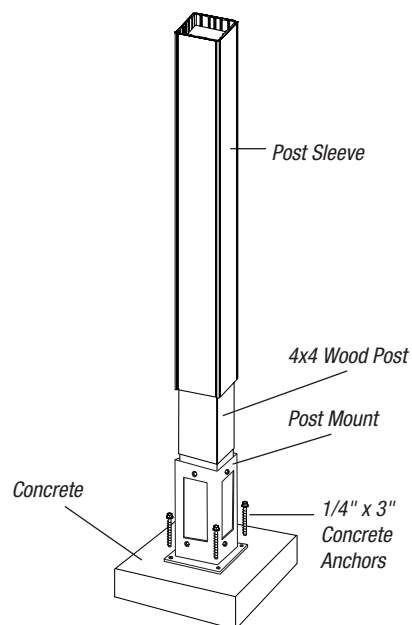
POST SUPPORT KITS FOR PANORAMA® COMPOSITE RAILING

Use the Post Sleeve Mount to install post sleeves directly onto the deck or porch surface. Post sleeve mounts are available for concrete or wood/composite surfaces. When installing a post sleeve mount on a concrete surface, the support system is anchored into the concrete. When installed on a wood or composite deck, the support system is installed after the deck surface has been attached. Follow these guidelines to complete the post installation.

POST SURFACE MOUNT WITH WOOD INSERT FOR CONCRETE



- For concrete surface installations
- Includes 4x4 wood insert for easy sleeve-over applications



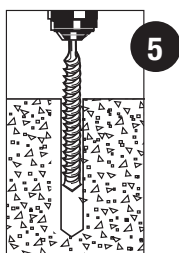
Step 1: Determine the desired location(s) and finished height of the post sleeve from the deck surface.

Step 2: Trim the post sleeve to the desired length.

Step 3: Trim the length of the 4x4 wood post. The wood post length is typically 1" shorter than the post sleeve length.

Step 4: The base of the mount should be positioned a minimum of 3" on center from the edge of the concrete pad. Use the base of the mount as a template and mark the four corner holes for the concrete anchors (included in kit).

Step 5: Drill the marked holes using a 1/4" masonry drill bit. Drill the holes into the concrete base to a depth of at least 1/2" deeper than the length of the 1/4" x 3" anchors. Blow the hole clean of dust and debris.

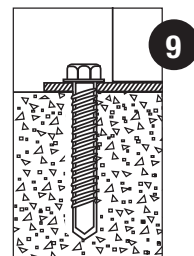


Step 6: Locate the mount by aligning the mount corner holes over the drilled holes.

Step 7: Insert the trimmed end of the 4x4 wood post into the mount. Ensure that the post is plumb and true.

Step 8: If necessary, place a shim under the mount to make the post plumb and true. Attach wood post to the base.

Step 9: Insert the four concrete anchors into the corner holes of the mount. Begin tightening the anchor by rotating clockwise and applying pressure in toward the base. This will engage the first few threads as the anchor begins to advance. Continue to tighten until the head of the anchor is firmly seated against the post mount. Repeat for the remaining anchors.



Step 10: Slide the post sleeve over the 4x4 treated wood post until it contacts the base of the mount.

POST SURFACE MOUNT WITH WOOD INSERT FOR WOOD

Step 1: Determine the desired location(s) and finished height of the post sleeve from the deck surface.

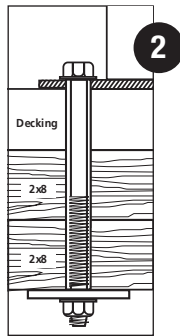
Step 2: The thickness of the wood/composite deck and reinforcement boards underneath the deck should be a minimum of 4" (two treated and structurally sound 2" x 8" lumber under the deck board).

Step 3: Fasten the reinforcement boards with 3" stainless steel fasteners as shown.

Step 4: Trim the post sleeve to the desired length.

Step 5: Trim the length of the 4x4 wood post. The wood post length is typically 1" shorter than the post sleeve length.

Step 6: Use the base of the mount as a template and mark the four corner holes on the deck surface. Mark inside square of bracket on deck surface.



Step 7: Drill four 3/8" holes at the marked locations, drilling through the deck board and the reinforcement boards. Drill a 3/8" drainage hole in square through deck board and reinforcement boards for drainage.

Step 8: Locate the mount by aligning the mount corner holes over the drilled holes.

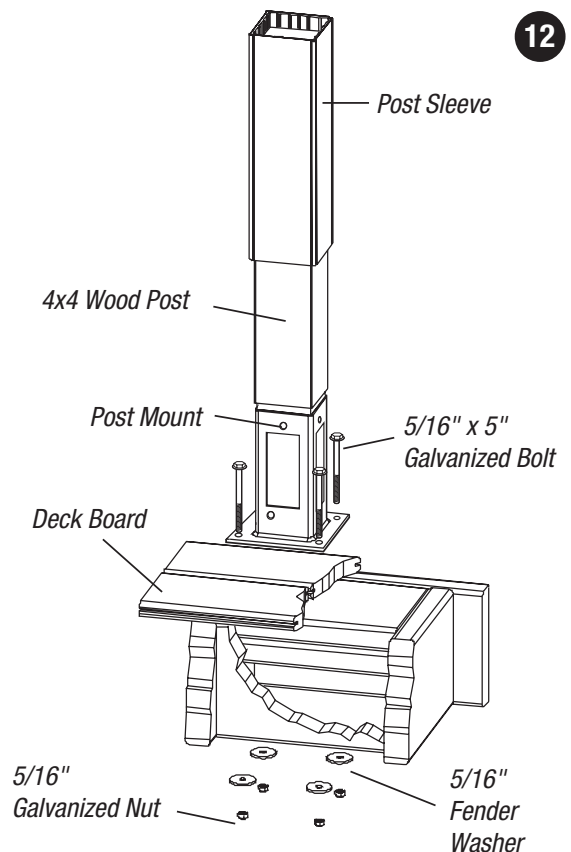
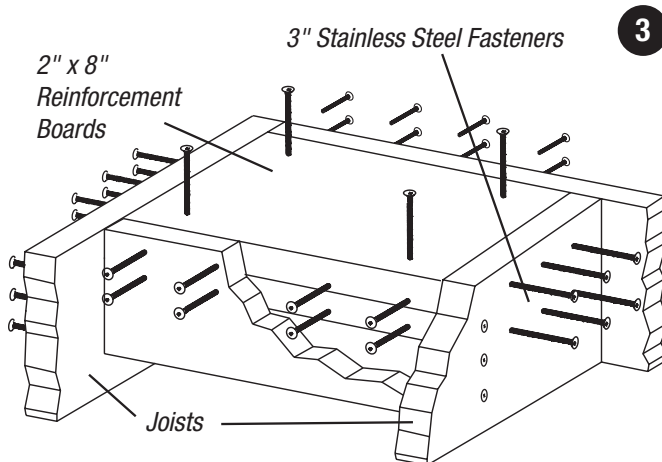
Step 9: Insert the trimmed end of the 4x4 wood post into the mount. Ensure that the post is plumb and true. Attach wood post to the base.

Step 10: If necessary, place a shim under the mount to make the post plumb and true.

Step 11: Insert the 5/16" x 5" galvanized hex bolts into the mount holes and the drilled holes. (Galvanized bolts, nuts and washers not included.)

Step 12: Fasten the four bolts underneath the reinforcement boards with the 5/16" Fender washer (included in kit) and 5/16" galvanized hex nuts.

Step 13: Slide the post sleeve over the 4x4 treated wood post until it contacts the base of the mount.



STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR

PANORAMA® COMPOSITE RAILING SYSTEM ASSEMBLY

Square or Steel Balusters

INSTALLATION OVERVIEW

Step 1: Install Post Sleeves

Be sure posts are plumb. Cut post sleeve to length. Slide the post sleeve over the post to rest on the deck surface. Slide post trim ring (1a) over the post sleeve to also rest on the deck surface.

Step 2: Assemble Railing Section

Measure the distance between post sleeves. Lay universal rails side-by-side, aligning pre-drilled holes, not the rail ends. Calculate the center of the universal rails and assign the center either directly to a pre-drilled baluster hole or the space centered between two baluster holes. Measure and cut rails from the calculated center. Attach the balusters to the top and bottom universal rails (2a). Then attach the crush block to bottom universal rail (2b). Place and secure rail brackets.

Step 3: Install Railing Section

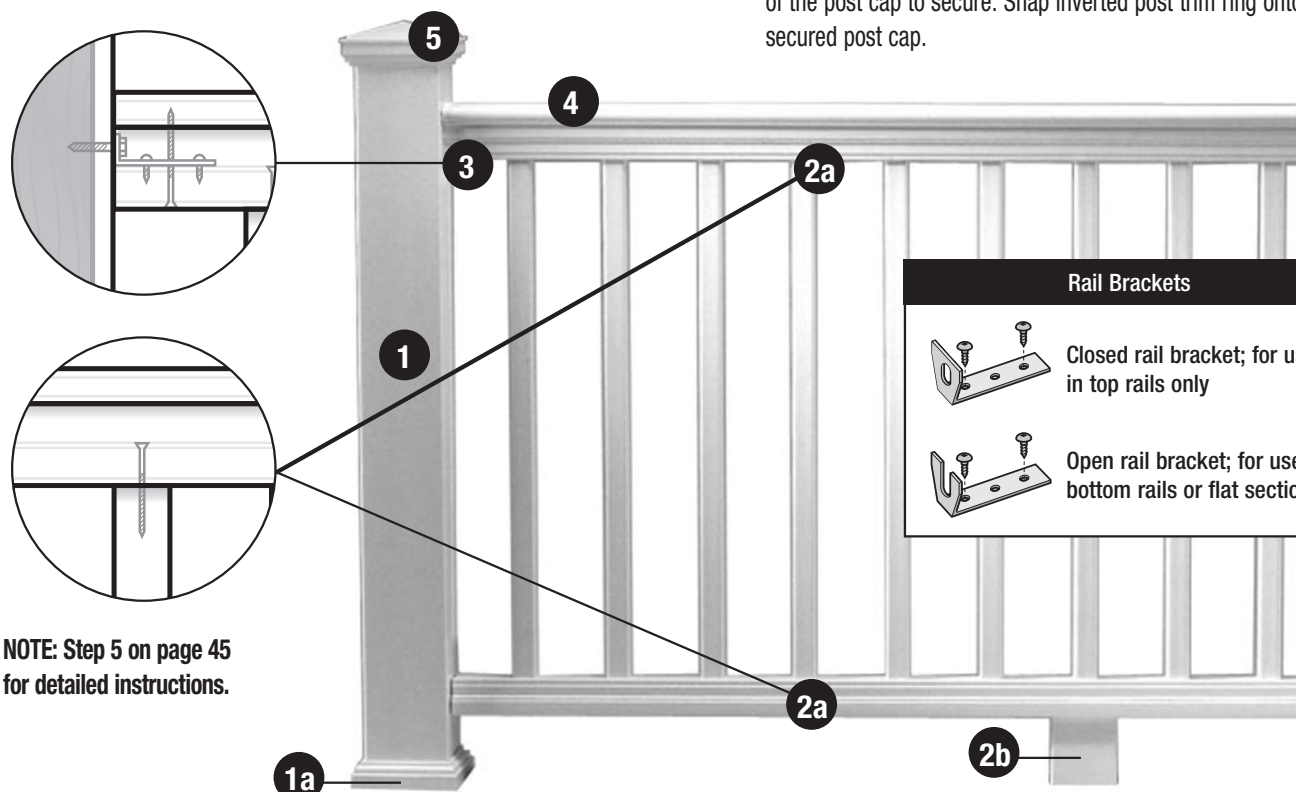
Drive lag bolts into posts leaving approximately 1/2" gap from lag bolt head to post sleeve surface. Place railing assembly over bottom lag bolts. Mark the position for the top lag bolts using the top rail bracket's position as a guide. Use a 1/4" drive socket with an extension to tighten lag bolts to the posts.

Step 4: Install Top Rail

Measure the distance between post sleeves. Cut the top rail to length. Secure from underneath with supplied color matched head screws.

Step 5: Install Post Caps

Slide inverted post trim ring over top of the post sleeve. Place post cap over top of the post sleeve. Screw through side holes of the post cap to secure. Snap inverted post trim ring onto secured post cap.



NOTE: Step 5 on page 45 for detailed instructions.

Panorama boxed kits are available in 6' and 8' lengths. Measurements are from post center to post center. Panorama 6' and 8' products are designed not to exceed 6' or 8' from center of post to center of post, respectively. Actual rail lengths are 67-1/2" (6') and 92-1/2" (8').

RAILING INSTALLATION

INSTALL POST SLEEVES

Sleeve Mount (Over existing 4x4 posts)

Step 1: Plumb 4x4 posts.

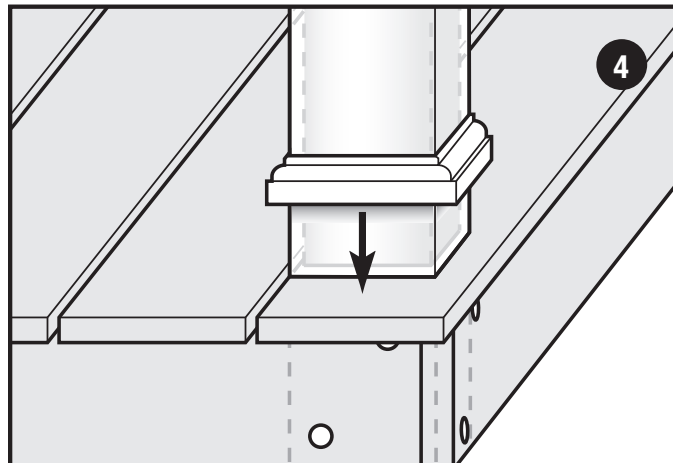
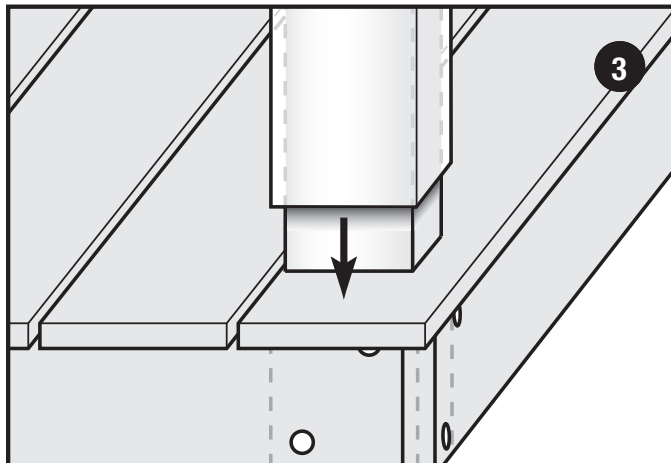
Step 2: Cut post and post sleeve to required length.

- 40 inches minimum for 36" rail height
- 46 inches minimum for 42" rail height

Step 3: Slide post sleeve down over the post to the deck surface.

Step 4: Slide post trim ring over the post sleeve to the deck surface.

NOTE: If structural post is slightly twisted or warped, shim stock can be used between the post and inside of post sleeve so that the post sleeve is oriented properly. Otherwise, replace wood post.

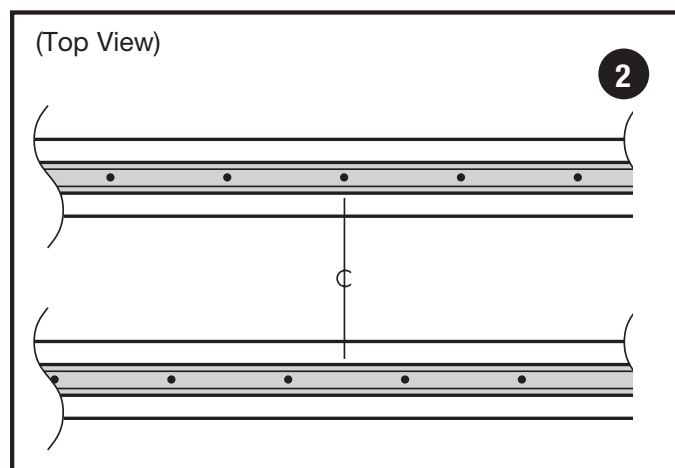


ASSEMBLE RAILING SECTIONS

There are two types of balusters available for the Panorama® Composite Railing System: square and steel. Though most of the installation steps are the same for both, there are a couple of steps unique to steel balusters. These steps are designated by adding the letter S (for steel) to the numbered steps below. Steps common to steel balusters are designated by adding the letter to the numbered steps (e.g., 3S).

Step 1: Measure the distance between the post sleeves at the top and bottom (**NOTE: These two measurements may be slightly different.**) It's important that the posts are plumb.

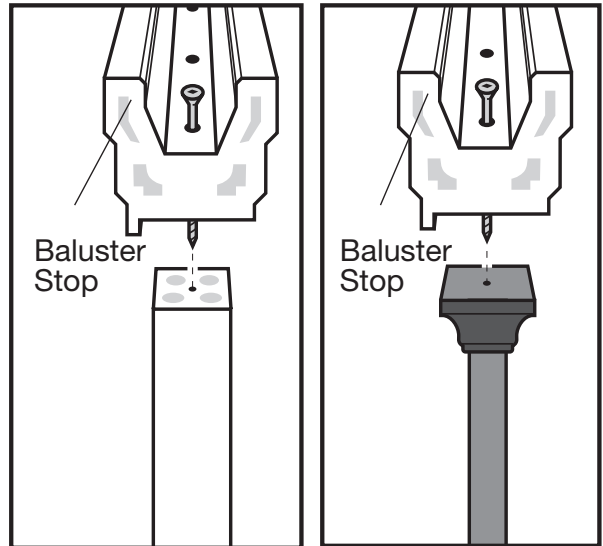
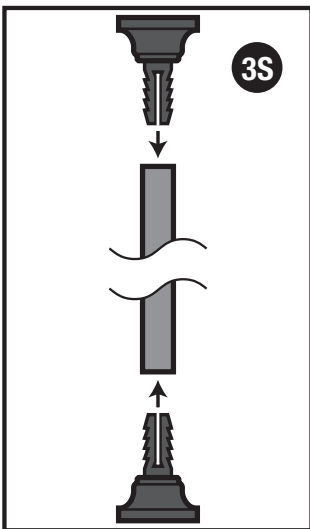
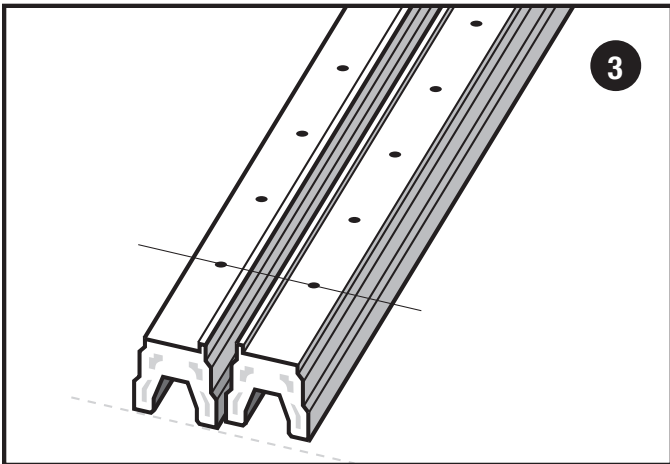
Step 2: Establish the center of the universal rails by applying the measurement between the post sleeves. You may choose to base the center of the universal rail on a pre-drilled hole OR exactly between two pre-drilled holes. This decision will affect the spacing between the post sleeve and adjacent baluster on each side of the railing assembly. Arrange the rail so you do not end at a post with a portion of a baluster (square) or steel baluster shoe.



Step 3: To ensure that the balusters will be installed plumb, place the two universal rails side-by-side on a flat surface, baluster stops both on the inside, aligning them according to the pre-drilled baluster holes, NOT the ends. Now, measure and cut each universal rail carefully to minimize gaps. Measure from the established center (see step 2) of the universal rails, trimming the proper amounts from each end to achieve rail lengths.

Step 3S: Insert one black baluster shoe completely into each end of every steel baluster.

TIP: For the opposite universal rail, direct a 2-1/2" baluster screw (or 3" baluster screw for steel balusters) into the channel of the universal rail, through the pre-drilled hole and into the center pilot hole in the end of a baluster or into the pilot hole of the black baluster shoe (steel). Start the screw into the baluster or shoe but do not tighten. This will provide space between the universal rail and the baluster end or baluster shoe to allow you to locate the remaining pilot holes in the baluster, black baluster shoe or baluster shoe. Repeat for the remaining balusters. When all balusters have been started, return to each baluster and tighten.

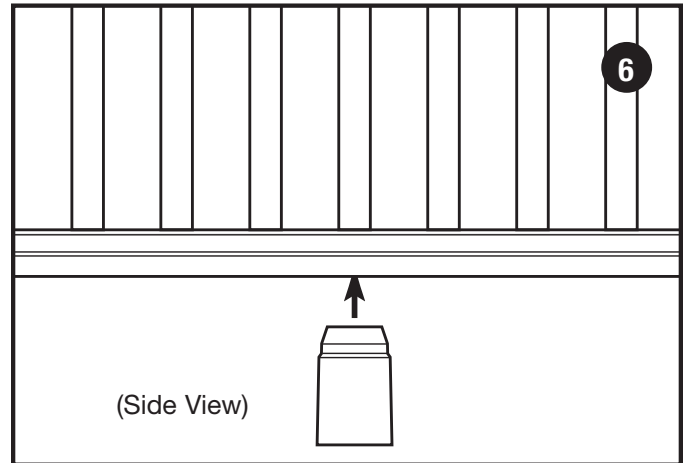
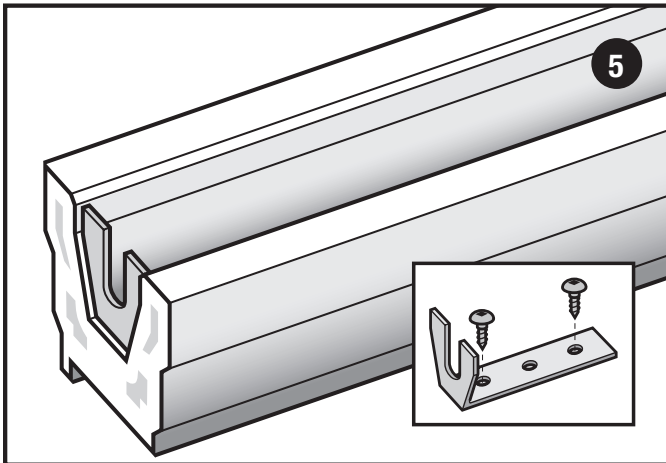
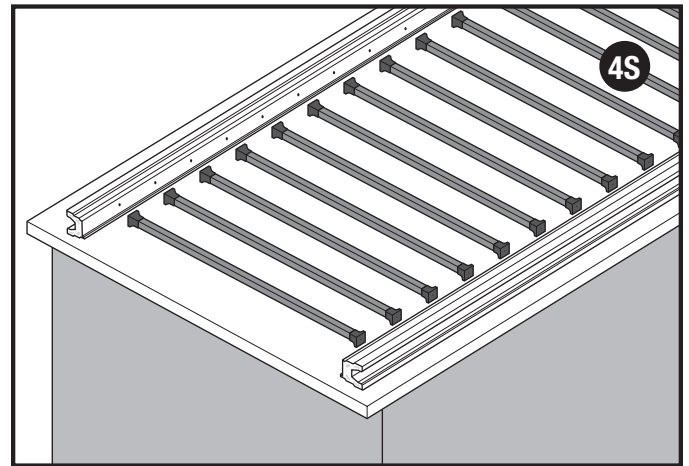
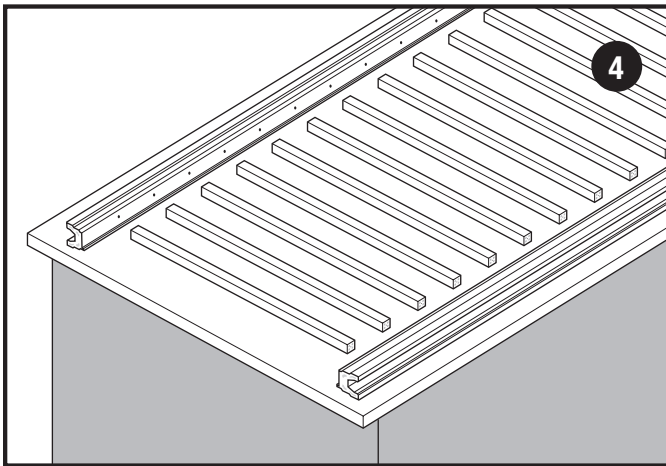


Step 4: Lay out the components of the railing section on a flat work surface, roughly in the final, assembled position. Make sure the baluster stops are on the same side of the railing assembly. Direct a 2-1/2" baluster screw – or a 3" baluster screw for steel balusters – into the channel of a universal rail, through the pre-drilled hole and into the center pilot hole in the end of a baluster (square) or into the pilot hole of the black baluster shoe (steel), which were already inserted in the steel baluster. Make sure baluster, black baluster shoe or baluster shoe is installed square and does not overlap the baluster stop on the universal rail. Repeat for the remaining balusters.

NOTE: Set clutch on drill to avoid over-tightening screws.

Step 5: Using (two) #10 x 3/4" screws, secure each rail bracket into the channels of the universal rails by aligning the rail brackets flush or slightly recessed inside each end cut. Make sure not to let the rail bracket face extend beyond the universal rail end cut. Secure the rail bracket through the two screw holes at each end of the rail bracket, leaving the center screw hole empty.

Step 6: Fit the beveled end of the crush block up into the channel of the bottom universal rail on the railing assembly, centered between the two cut ends. Using (two) #10 x 3/4" screws, secure the crush block from underneath, up into the channel of the bottom universal rail.



INSTALL RAILING SECTIONS

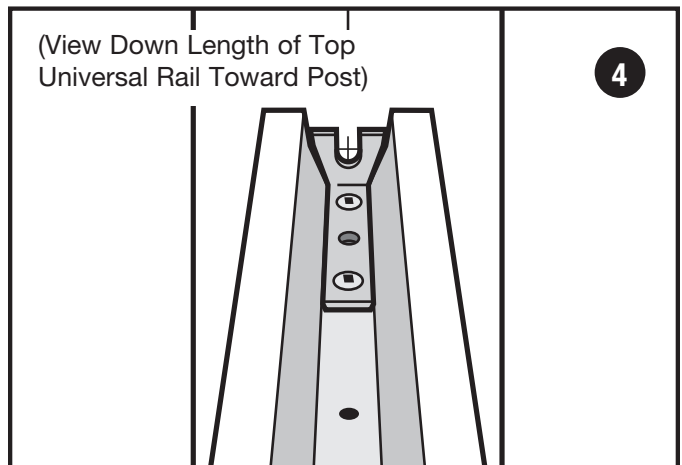
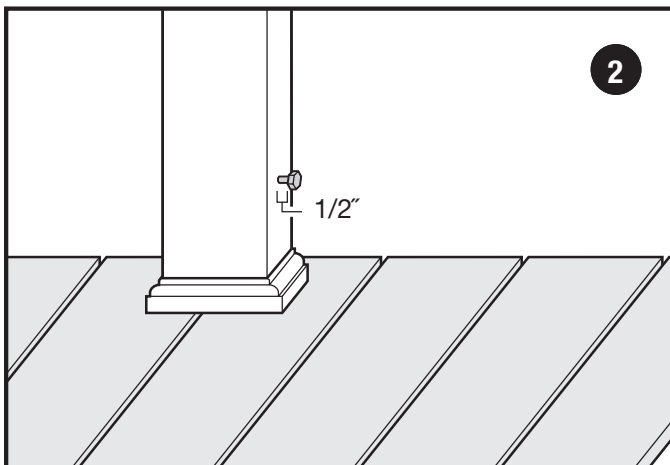
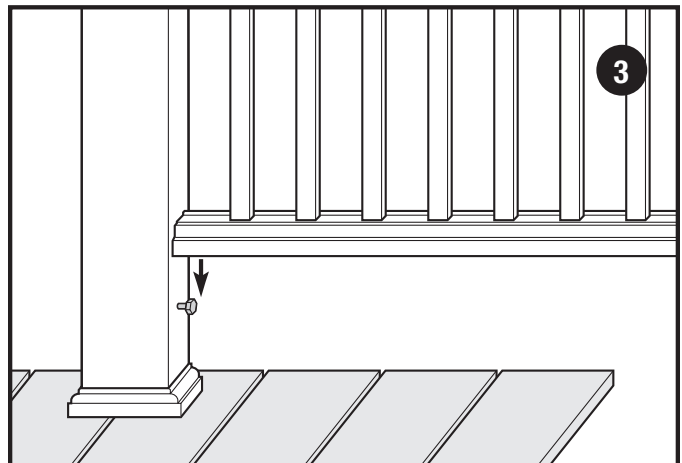
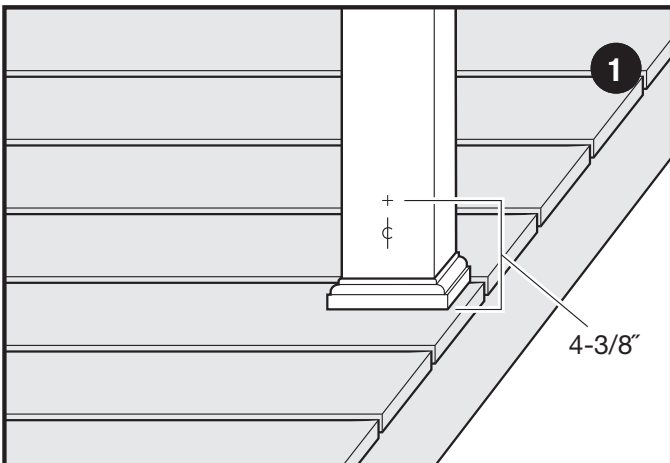
It is critical that posts are plumb. Double-check posts to ensure proper fit of completed railing assemblies.

Step 1: At 4-3/8" above the deck surface and centered on the post sleeve, drill a 1/8" pilot hole through the post sleeve and into the post. Then drill a 3/8" clearance hole through the post sleeve ONLY for the bottom lag bolts. Do not drill holes for the top lag bolts.

Step 2: Thread bottom lag bolt into post sleeve, leaving approximately 1/2" of the lag bolt shaft exposed. Repeat for opposite post.

Step 3: Place railing assembly over bottom lag bolts with universal rail baluster stop on the outward side of rail, making sure the rail brackets seat properly over the lag bolt heads.

Step 4: Center and plumb the top of the railing assembly to the post sleeve. Mark the position for the top lag bolts on the post sleeve using the top rail bracket's position as a guide.



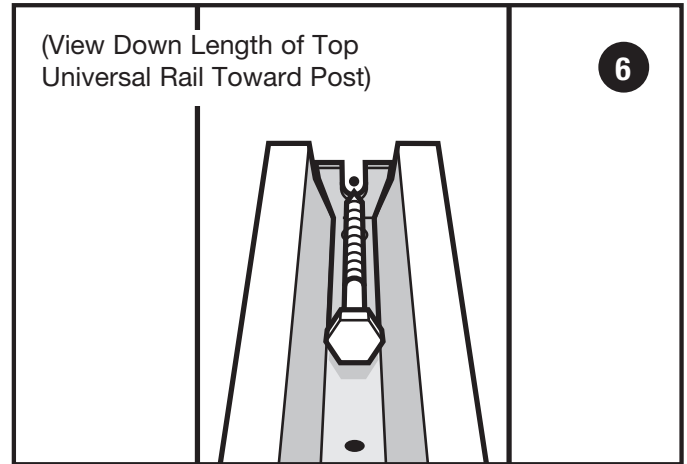
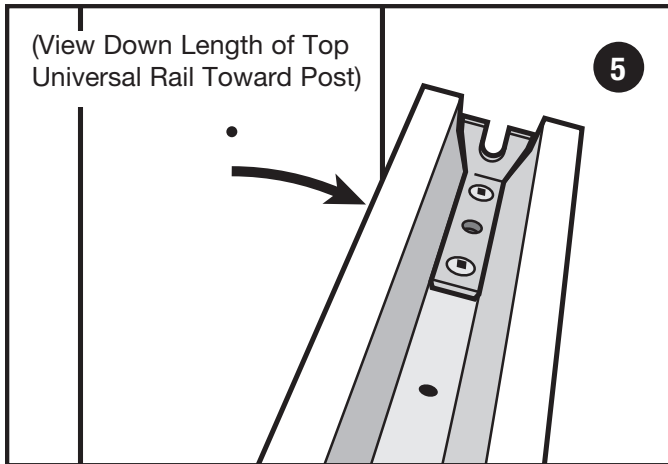
INSTALL RAILING SECTIONS CONTINUED

Step 5: Rotate the top of the railing assembly out of the way. Drill a 1/8" pilot hole through the sleeve and into the post. Then drill a 3/8" clearance hole through the post sleeve ONLY for the top lag bolt. Repeat for opposite post (other side of railing assembly).

Step 6: Rotate the top of the railing assembly back into the proper position and thread the top lag bolts through the rail brackets and into the holes in the post sleeves. With the lag bolt heads

now located in the channels of the universal rails, a 1/4" drive socket with three inches or greater extension and a 7/16" socket is needed to sufficiently tighten the lag bolts. Repeat for opposite post.

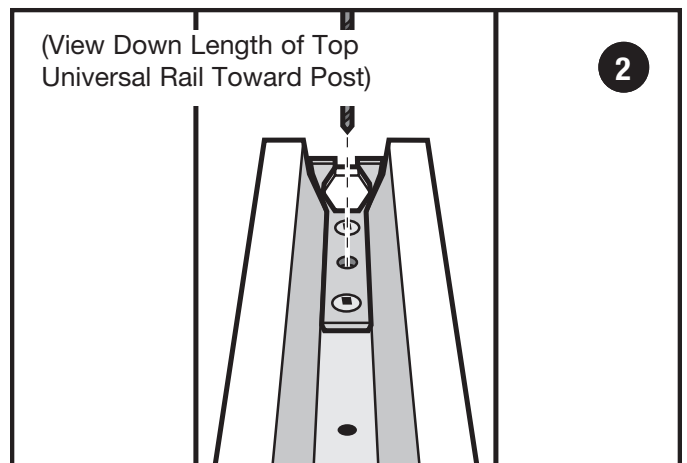
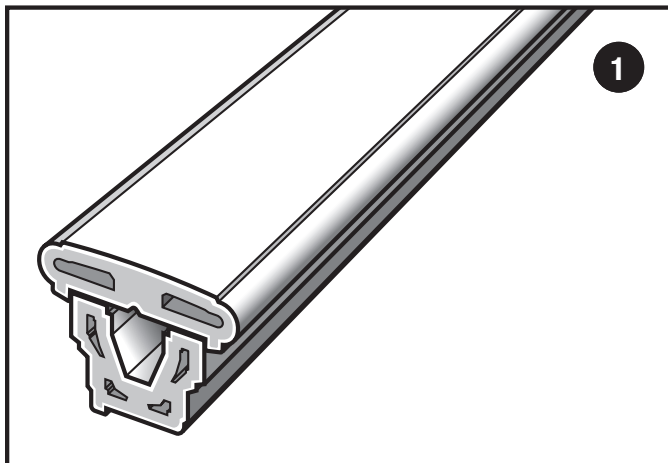
Step 7: Return to bottom lag bolts and tighten.



INSTALL TOP RAILS

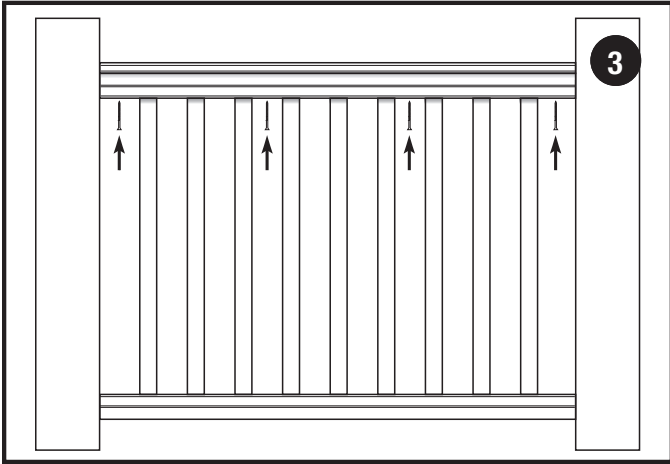
Step 1: Measure the distance between post sleeves. Cut the top rail to length. The top rail's bottom channel fits over the top edges of the top universal rail.

Step 2: Drill a 3/16" clearance hole down through middle (empty) hole in top rail bracket, completely through top universal rail. Repeat for opposite top rail bracket.

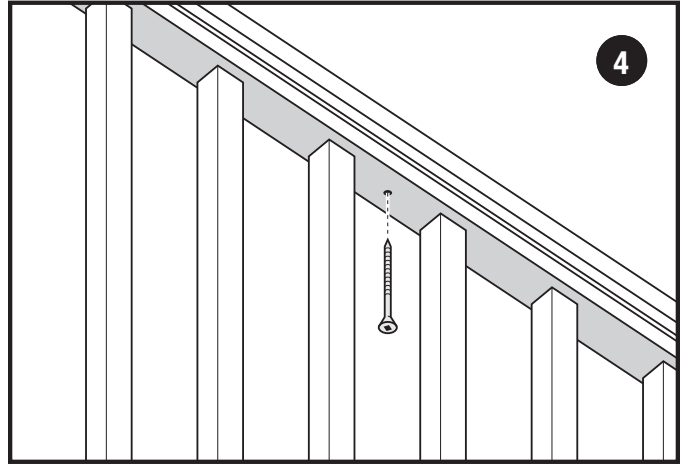


INSTALL TOP RAILS CONTINUED

Step 3: Roughly divide the railing assembly into three equal sections by counting balusters or baluster spaces. Drill 3/16" clearance holes between the balusters at these points.



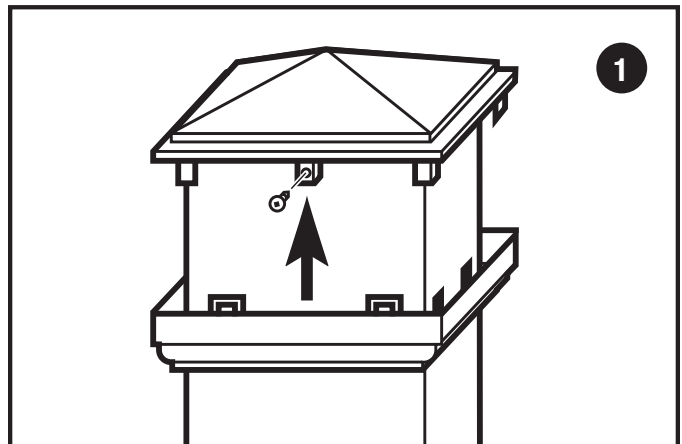
Step 4: Place top rail over top universal rail and drive the 2-1/2" top rail screws (with color matched heads) up through the four clearance holes in the bottom of the top universal rail, into the top rail to secure. Be sure not to over-tighten the screws.



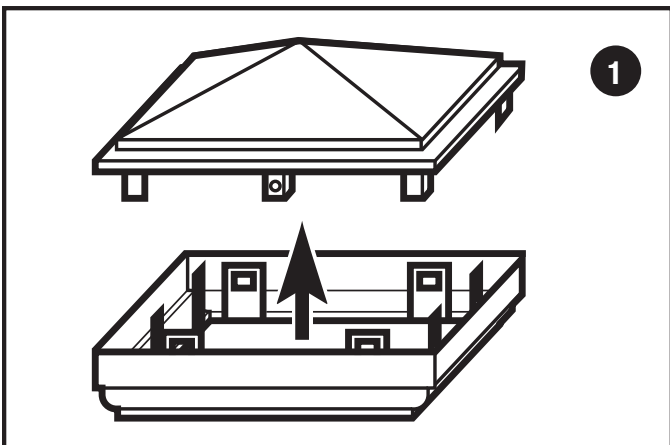
INSTALL POST CAPS

Step 1: Invert post trim ring and slide over the top of the post sleeve. Position post cap over the top of the post sleeve and secure with (two) 10 x 3/4" screws through tabs. Slide inverted post trim ring up and snap together with secured post cap.

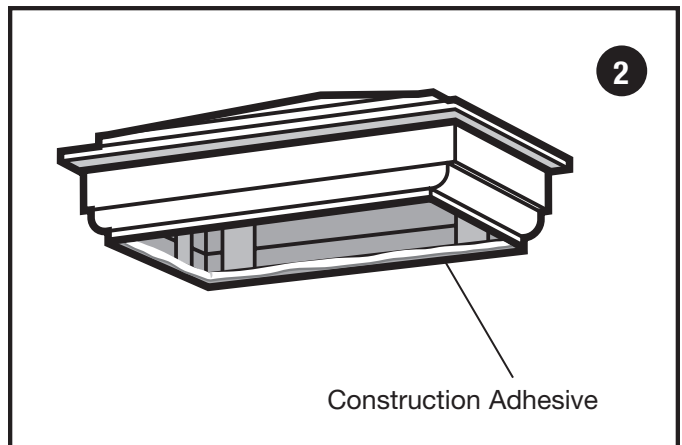
OR



Step 1: Snap together a cap and inverted post trim ring to create a complete post cap.



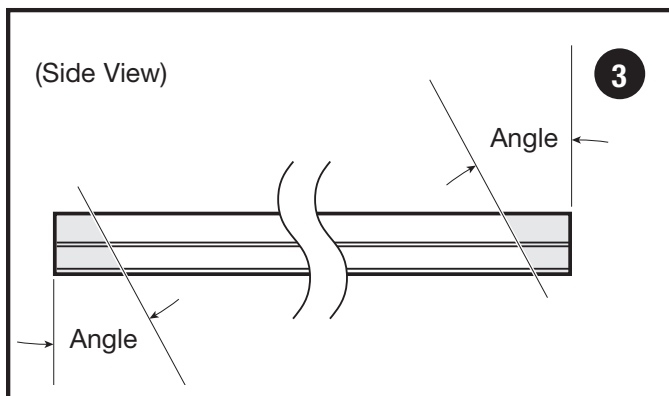
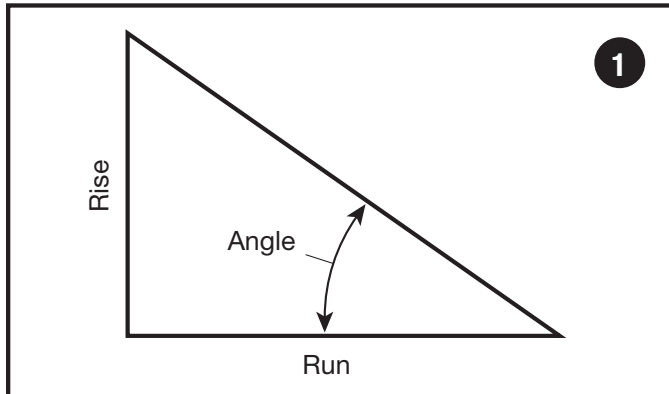
Step 2: Apply a small bead of construction adhesive to the inside lower lip of the post cap and slide it over the top of the post sleeve.



STAIR RAILING INSTALLATION

ASSEMBLE STAIR RAILING SECTIONS

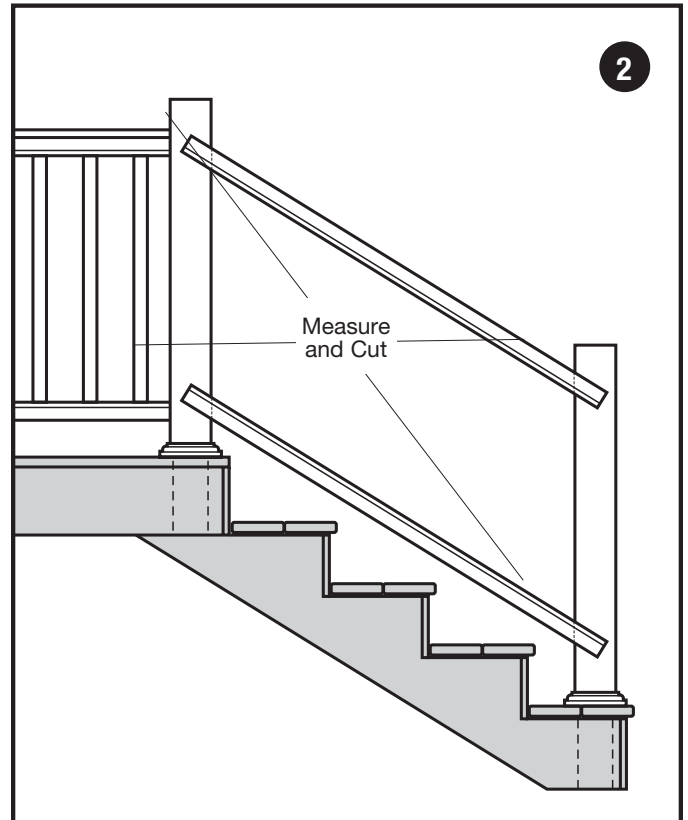
Step 1: Make sure post sleeves are installed and plumb. Evaluate the rise and run of the stairs to determine the proper stair angle. Be as accurate evaluating the stair angle as possible — every cut you make from this point forward will depend upon this angle.



Step 2: Measure the distance between the post sleeves at the top and bottom

NOTE: These two measurements may be slightly different.

Step 3: Cut each universal rail to the proper length and angle, making sure that the baluster stop will be on the same side (yard side) of the finished railing assembly.



Composite Balusters

STAIR RAILING TABLE	RISE % RUN	STAIR ANGLE	BALUSTER SPACING O.C.
	.36	20°	5-5/16"
	.40	22°	5-3/8"
	.45	24°	5-1/2"
	.49	26°	5-9/16"
	.53	28°	5-11/16"
	.58	30°	5-3/4"
	.62	32°	5-7/8"
	.64	32.5°	5-15/16"
	.67	34°	6"
	.73	36°	6-3/16"
	.78	38°	6-3/8"

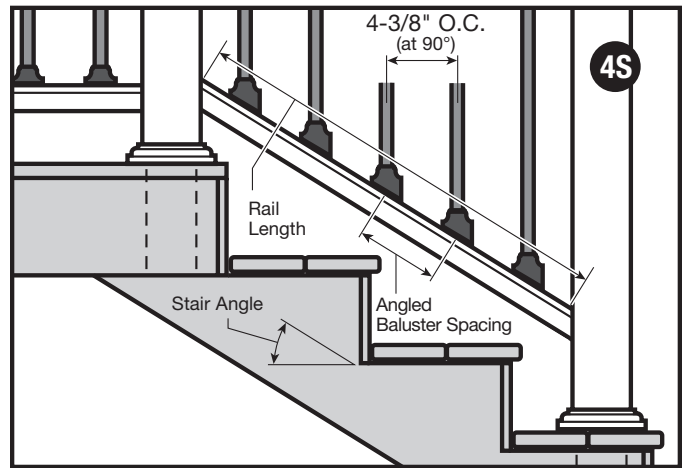
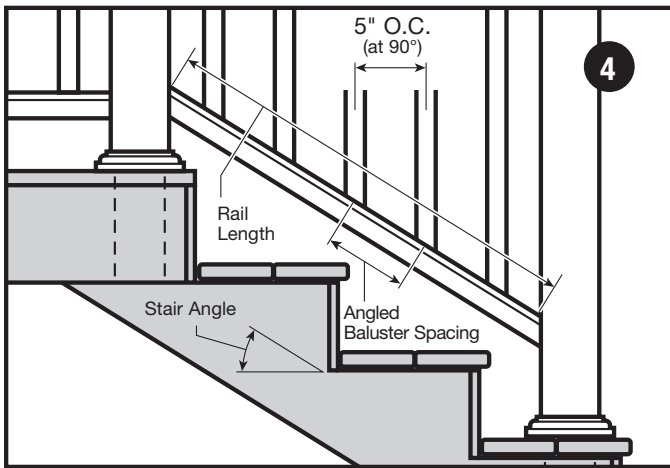
Steel Balusters

STAIR RAILING TABLE	RISE % RUN	STAIR ANGLE	BALUSTER SPACING O.C.
	.36	20°	4-21/32"
	.40	22°	4-23/32"
	.45	24°	4-25/32"
	.49	26°	4-7/8"
	.53	28°	4-31/32"
	.58	30°	5-1/16"
	.62	32°	5-5/32"
	.64	32.5°	5-3/16"
	.67	34°	5-9/32"
	.73	36°	5-13/32"
	.78	38°	5-9/16"

Step 4: Determine number of balusters needed on stair railing assembly to maintain approximately the same baluster spacing as the deck railing. (Deck railing baluster spacing is 5", on center for standard balusters, and 4-3/8", on center, for steel balusters.) Multiply number of balusters needed by two to determine number of black baluster shoes required for steel balusters. (Refer to stair railing tables on facing page.)

Step 4S: Cut each stair baluster shoe at the proper angle. To safely cut the stair baluster shoes, insert a stair baluster shoe into each end of the supplied 8" steel tube (included in the stair baluster shoe package to prevent hands from getting close to the saw blade). Rotate the stair baluster shoe so that the "raised dot" is in the upward position (the raised dot is a bisecting point for the saw blade to cut through). Proceed to cut the stair baluster shoe at the determined angle.

TIP: If using a chop saw with a rotating table, clamp a piece of lumber to the back fence of the saw. This will close the gap on each side of the blade. Set the saw to the correct angle and make a cut through the lumber. Lay the steel tube holder with the two stair baluster shoes on the saw table and make the first cut, bisecting the raised dot. Use the cut stair baluster shoe to mark another stair baluster shoe across the raised dot, then insert it into the steel tube holder. Set up a wood block on the lumber fence that will act as a stop and position the marked line of the uncut stair baluster shoe. Cut the stair baluster shoe. Repeat this procedure until all stair baluster shoes are cut.



Step 5: Measure and mark for the baluster screw holes on the universal rails. Use the stair railing table to determine angled baluster spacing for layout. (See table on page 49.)

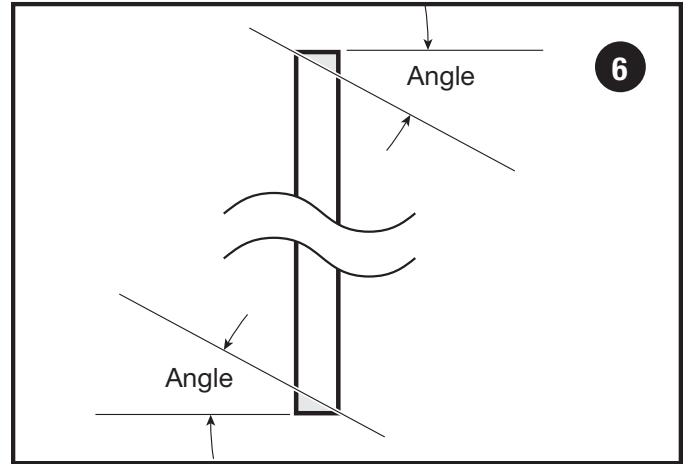
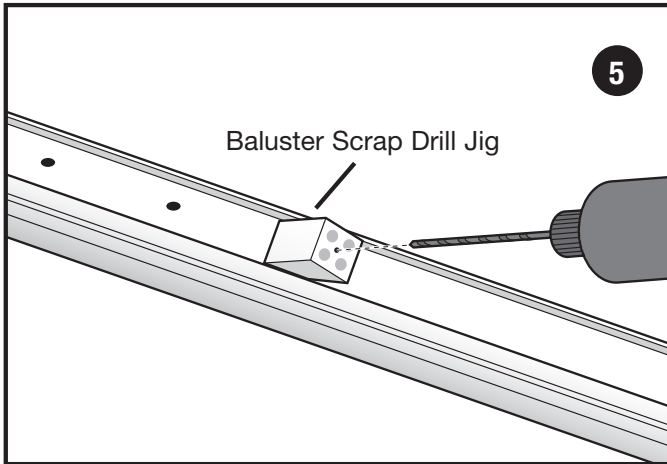
Drill 3/16" holes at the proper angle. Use the baluster-scrap drill jig (see tip below) to assist in aligning the drill to the proper angle. For steel balusters, use the stair baluster shoe cut to the stair angle to assist in aligning the drill to the proper angle.

TIP: If you have an extra scrap baluster, cut a small piece of that baluster to be used as a drill jig for drilling the baluster screw holes through the universal rails.

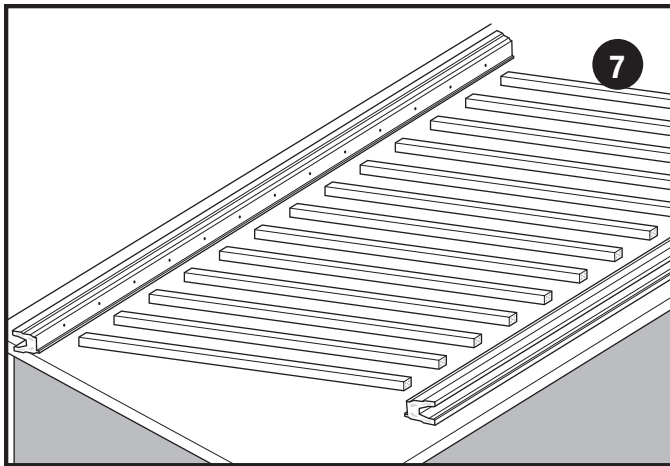
Step 6: Determine required baluster length to maintain rail height at stair nose. Cut balusters to length with angled cuts, top and bottom. Make sure all balusters are the same length.

Step 6S: Insert one black stair baluster shoe (steel) into each end of every baluster, making sure the baluster shoes are positioned properly before inserting them completely. Now insert them completely into the balusters.

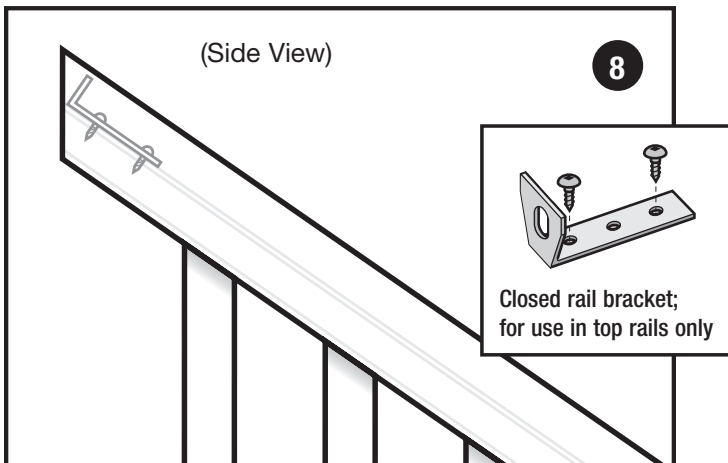
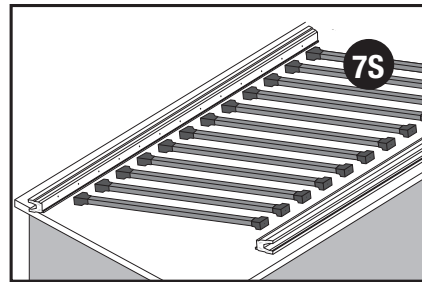
TIP: For the opposite universal rail, direct a 2-1/2" baluster screw into the channel of the universal rail, through the pre-drilled hole and into the center pilot hole in the end of a baluster. Start the screw into the baluster but do not tighten. This will provide space between the universal rail and the baluster end to allow you to locate the remaining balusters' pilot holes. Repeat for the remaining balusters. When all balusters have been started, return to each baluster and tighten.



Step 7: Lay out the components of the stair railing section on a flat work surface, roughly in the final, assembled position. Make sure the baluster stops are on the same side of the railing assembly. Direct a 2-1/2" baluster screw (3" baluster screw for steel balusters) into the channel of a universal rail, through the pre-drilled hole and into the center pilot hole in the end of a baluster, or the center pilot hole of the stair baluster shoe for steel balusters. Make sure the baluster or stair baluster shoe is installed square, at the proper angle, and does not overlap the baluster stop on the universal rail. Repeat for the remaining balusters.



Step 8: Using (two) #10 x 3/4" screws, secure each rail bracket into the channels of the universal rails by aligning the rail brackets just inside each end cut. Make sure that no part of the rail bracket extends beyond the universal rail end cut. Do not bend the rail brackets. Secure the rail bracket through the two screw holes at each end of the rail bracket, leaving the center screw hole empty.



INSTALL STAIR RAILING SECTIONS

Step 1: Position stair railing assembly between post sleeves to determine bottom lag bolt positions. Railing assembly's bottom rail should be positioned so that the distance to tread or gap meets your local code requirement (typically, a 6" sphere cannot pass through the space created between the riser, stair tread and bottom of stair railing).

Step 2: Centered on the post sleeve at the proper height, drill a 1/8" pilot hole through the post sleeve and into the post, then drill a 3/8" clearance hole through the post sleeve only at the proper angle (in-line with the bottom universal rail) for both bottom lag bolts. Do not drill holes for the top lag bolts.

Step 3: Thread bottom lag bolt into the post at the proper angle, leaving approximately 1/2" of the lag bolt shaft exposed. Repeat for opposite post.

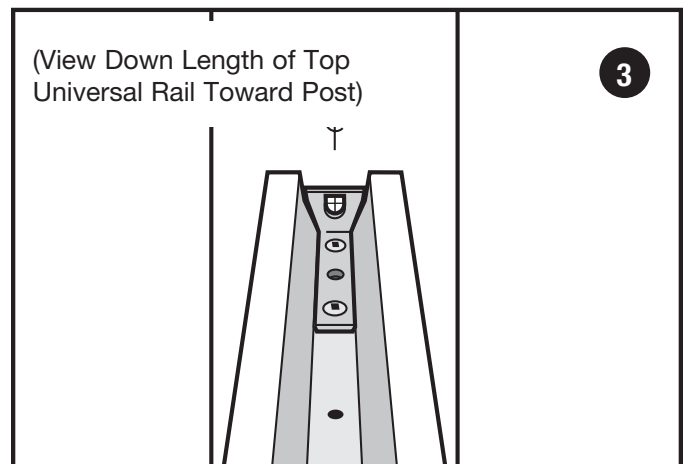
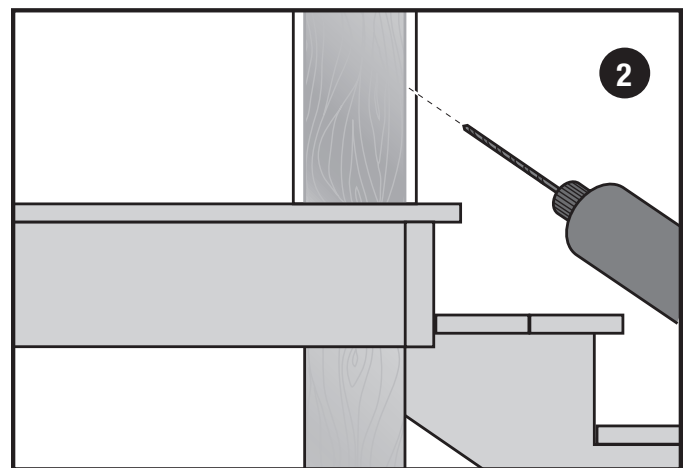
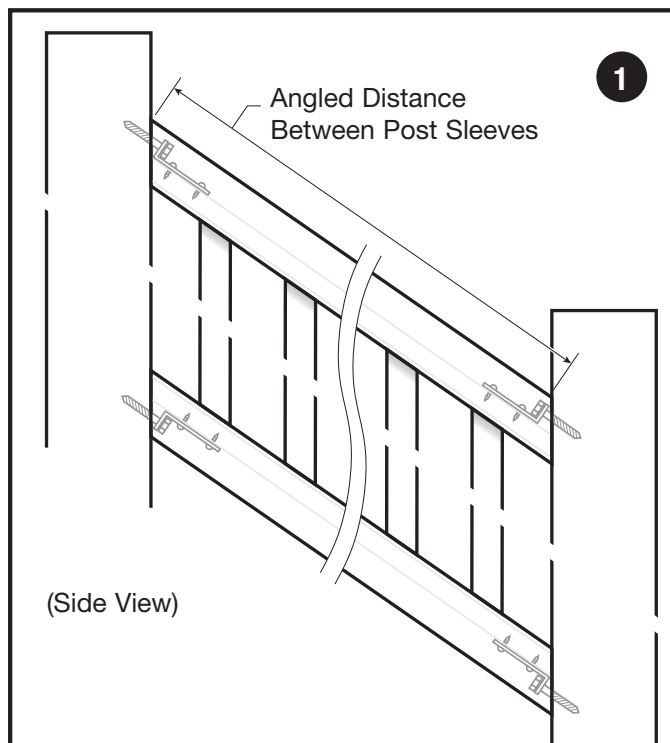
Step 4: Place stair railing assembly over bottom lag bolts with universal rail baluster stops facing yard side, making sure the rail brackets seat properly over the lag bolt heads.

Step 5: Center and plumb the top of the stair railing assembly to the post sleeve. Mark the position for the top lag bolts on the post sleeve using the top rail bracket's position as a guide.

Step 6: Lift the top of the stair railing assembly out of the way. Drill a 1/8" pilot hole through the sleeve and into the post at the proper angle. Then drill a 3/8" clearance hole through the post sleeve only for the top lag bolt at the proper angle. Repeat for opposite post.

Step 7: Place the top of the stair railing assembly back into the proper position and thread the top lag bolts through the rail brackets and into the holes in the post sleeves. With the lag bolt heads now located in the channels of the universal rails, a 1/4" drive socket with an extension and a 7/16" socket is needed to sufficiently tighten the lag bolts. Repeat for opposite post.

Step 8: Return to bottom lag bolts and tighten.



INSTALL STAIR TOP RAILS

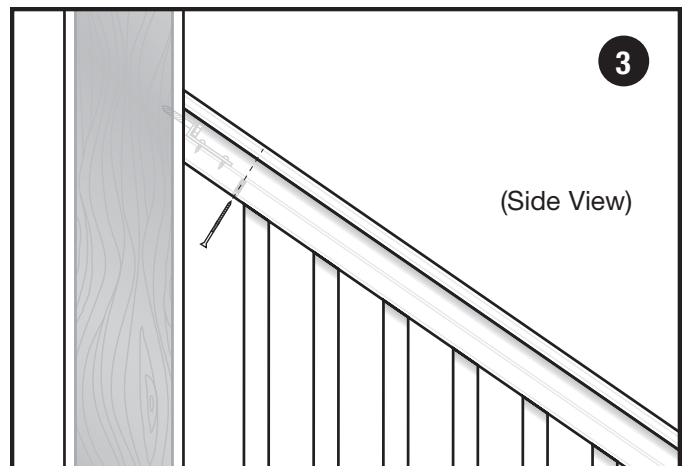
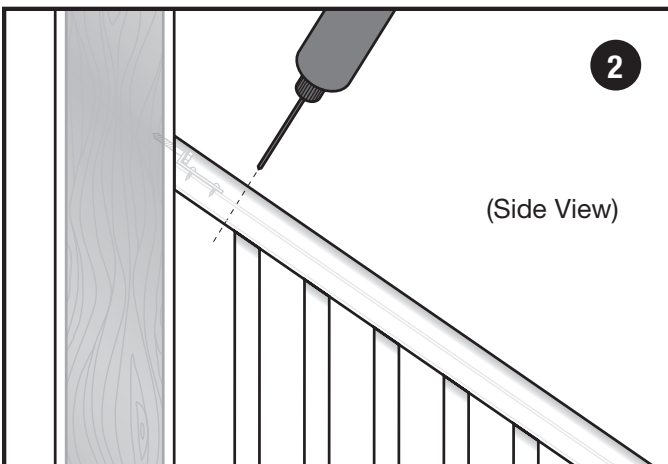
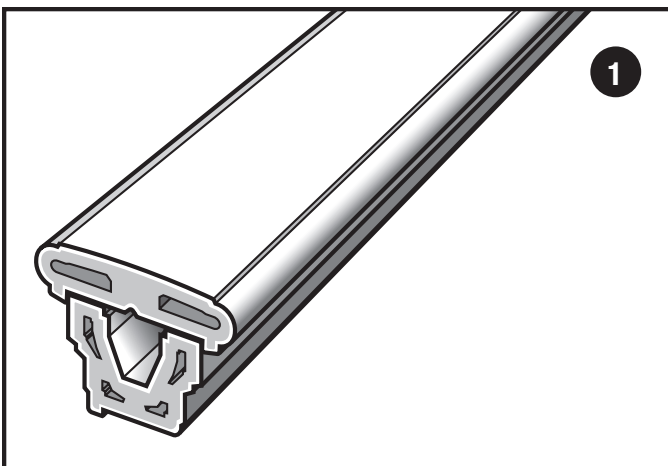
Step 1: Measure the distance between post sleeves. Cut the top rail to length and proper angle. The top rail's bottom channel fits over the top edges of the top universal rail.

Step 2: To secure the top rail to the stair railing assembly, the top rail screws must be driven through the bottom of the universal rail and into the top rail at a 90° angle, NOT parallel with the balusters. Two of the four top rail screws should secure the top rail nearest each post, with the other two screws spaced equally over the span of the rail, dividing the top rail into three equal sections. Clearance holes should be located where there is room between balusters to maneuver a tool. Drill 3/16" clearance holes down through the top universal rail, between the balusters, in the four calculated positions.

Step 3: Place the top rail over the top universal rail. Make sure that the top rail's bottom channel fits over the top edges of the universal rail. Attach the four 2-1/2" top rail screws (with color-matched heads) through the pilot holes in the bottom of the universal rail and into the top rail to secure. Be sure not to over-tighten the screws.

Step 4: Place top rail over top universal rail and drive the 2-1/2" top rail screws (with color-matched heads) up through the four clearance holes in the bottom of the top universal rail, into the top rail to secure. Be sure not to overdrive the screws.

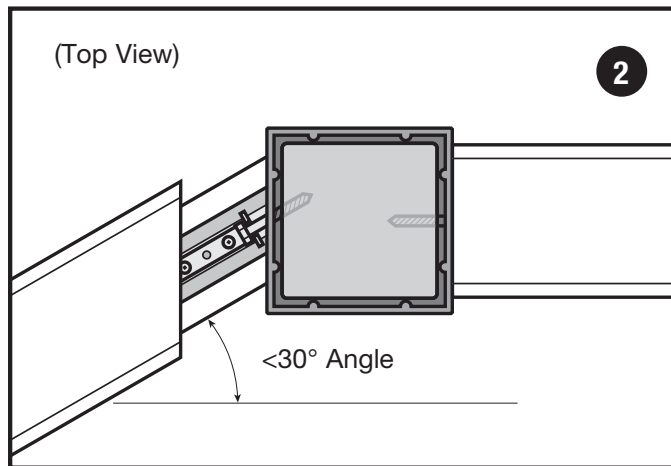
Step 5: Install post caps. Refer to page 48 for instructions.



Refer to page 43 - 48 for railing assembly and railing installation instructions.

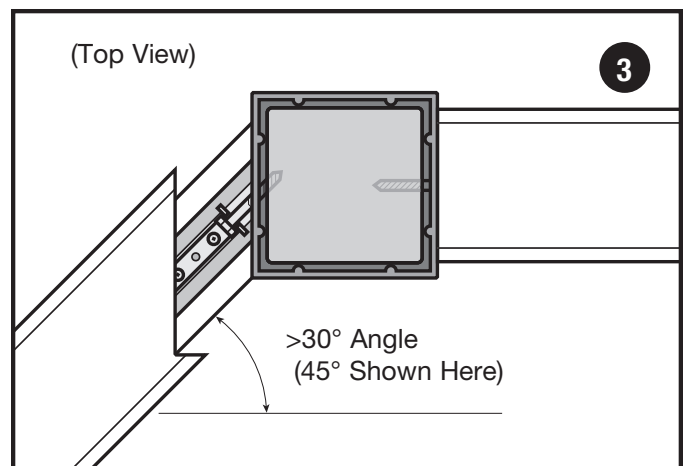
Step 1: For angled railing, determine the angle and type of cut needed to fit the universal rails and top rail to the post sleeve.

Step 2: For angles **LESS THAN OR EQUAL TO 30°**, the universal rail and top rail can be cut to the required angle. Secure rail brackets and railing assembly to the post as shown.



Step 3: For angles **MORE THAN 30°**, the universal rail can be cut to the required angle. The top rail will require a “birds mouth” cut to fit properly around the corner of the post sleeve as shown.

Step 4: For angles **MORE THAN 45°**, both the universal rail and top rail will require a “birds mouth” cut to fit properly around the corner of the post sleeve.



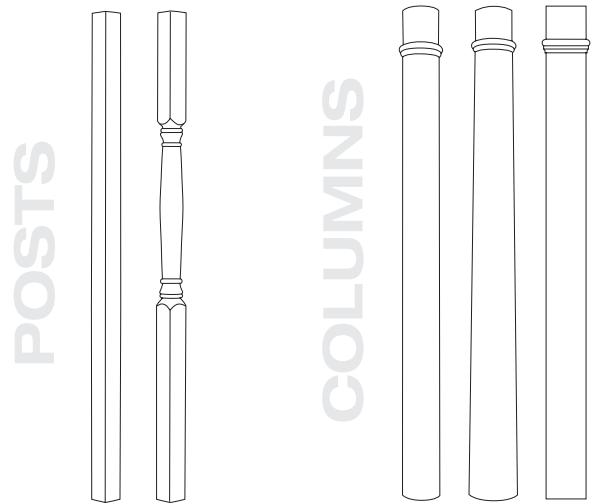
STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR STRUCTURAL PORCH POSTS AND COLUMNS

IMPORTANT

Not ACQ compatible. Use plastic between base plate and wood surface.

TIP: Before installing you will need to modify the height of the base trim to allow proper clearance between bottom rail and finished deck.

TIP: It is the responsibility of the owner 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.



INSTALLING PORCH POSTS

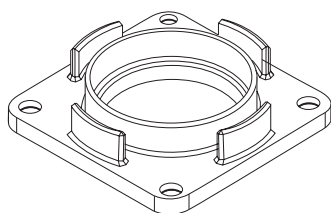
Step 1: Measure porch opening. Subtract 3/4" from measurement to account for tie-down plates.

Step 2: Measure and cut post to length.

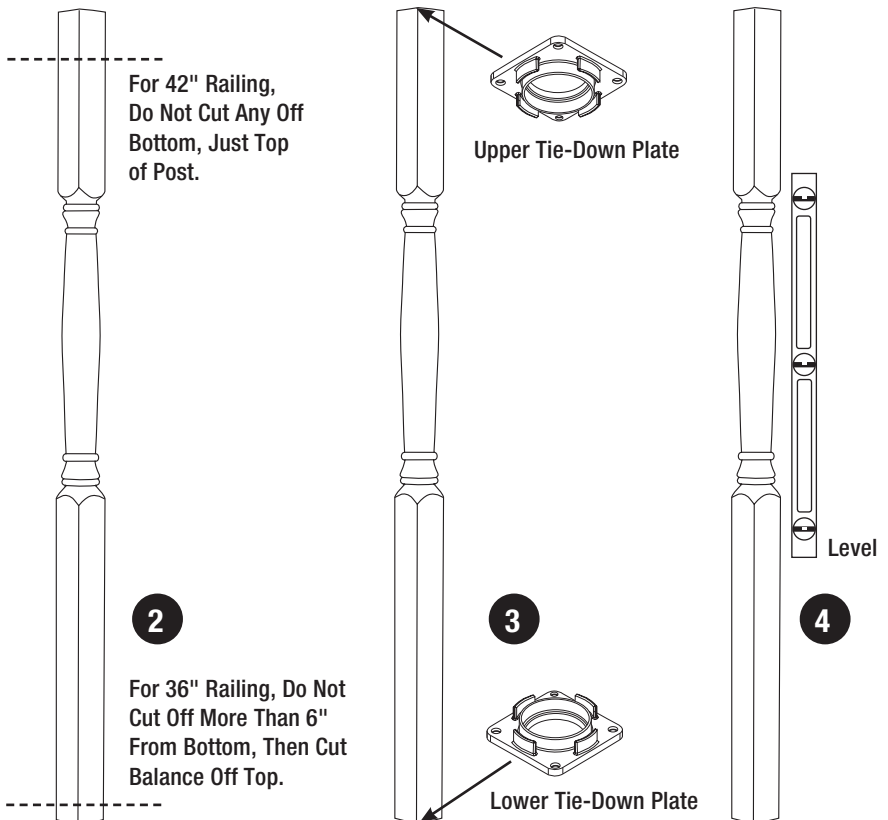
NOTE: For 42" railing, do not cut any off bottom, just top of post. For 36" railing, do not cut off more than six inches from bottom. Cut the balance off the top.

Step 3: Insert top and bottom tie-down plates into ends of post.

Step 4: Position post into place and plumb. Mark placement of tie-down plates.



Improved Tie-Down Plate



INSTALLING PORCH POSTS CONTINUED

Step 5: Turn post a quarter turn clockwise to expose tie-down attachment screw holes.

Step 6: Secure top and bottom tie-down plates to header and floor using screws provided.

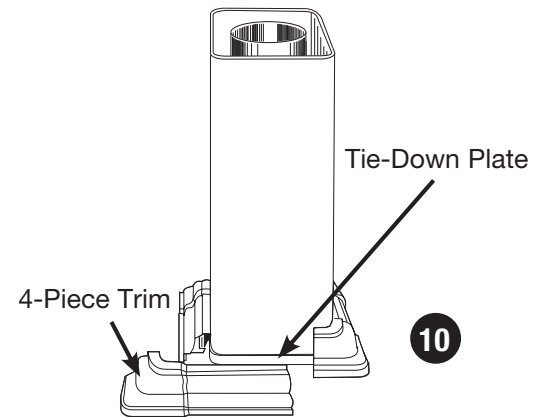
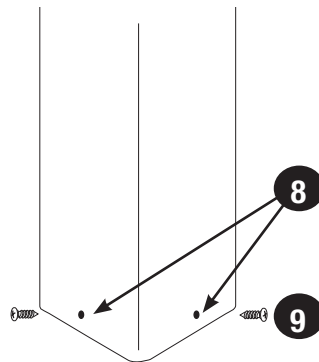
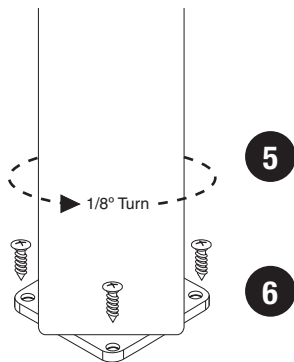
TIP: For concrete installation, Tapcon® anchors are recommended (not provided).

Step 7: Turn post back into position.

Step 8: At each end of the four sides of post, pre-drill attachment screw holes (11/64" bit) through post and reinforcement.

Step 9: Secure post to top and bottom tie-down plates with screws provided.

Step 10: Install trim pieces into place around top and bottom of the post to complete installation.



INSTALLING ROUND PORCH COLUMNS

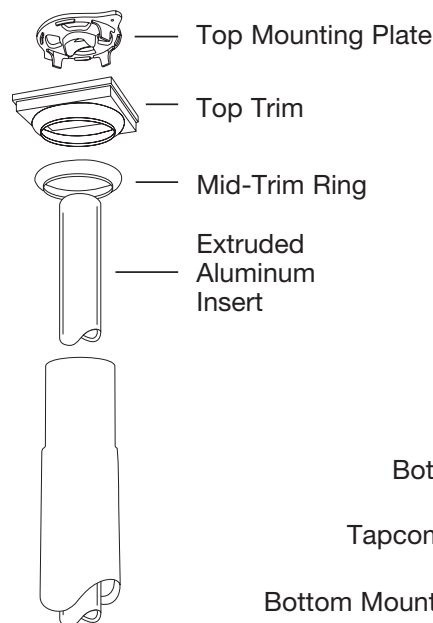
NOTE: The porch column includes column, top mounting plate and bottom mounting plate.

Column base/cap trim kit includes top trim, mid trim, bottom trim and hardware.

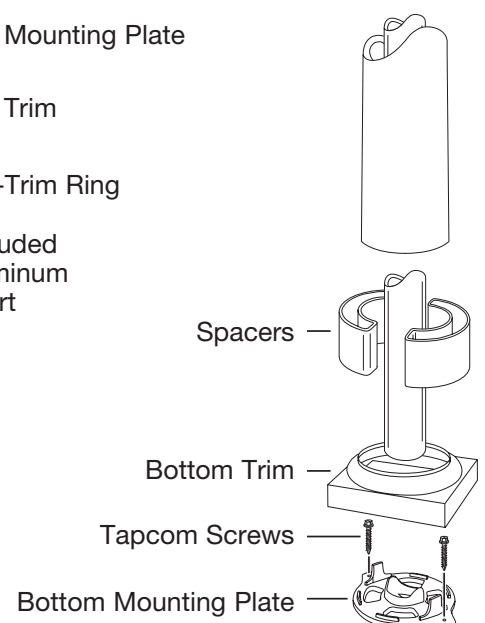
For complete system, order both porch column and column base/cap trim kit.

NOTE: If a railing system is being installed with the lower rail at less than 4-1/4" off of the deck, the base trim ring will need to be cut to provide for the lower rail mounting bracket. Trim ring must be cut before column is installed. Refer to modifying base trim on page 62.

Column Top



Column Bottom



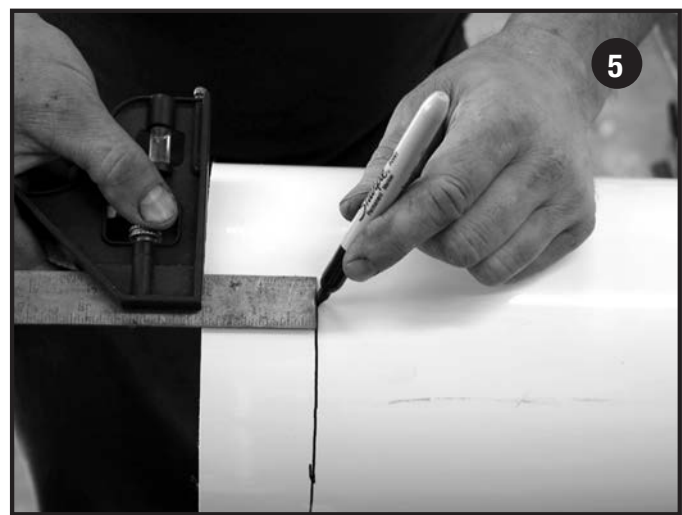
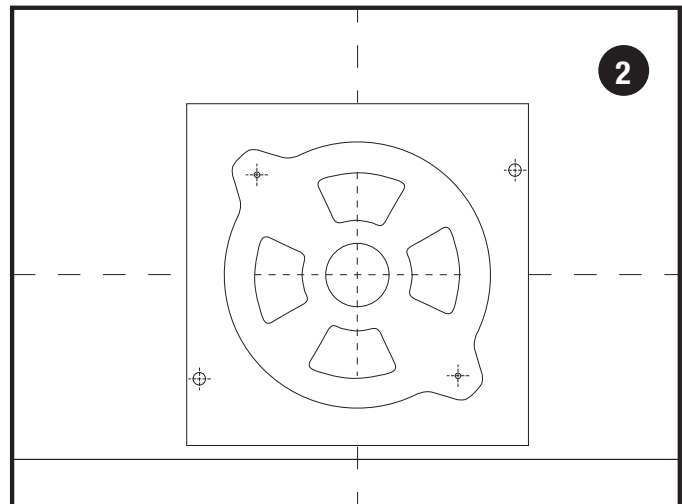
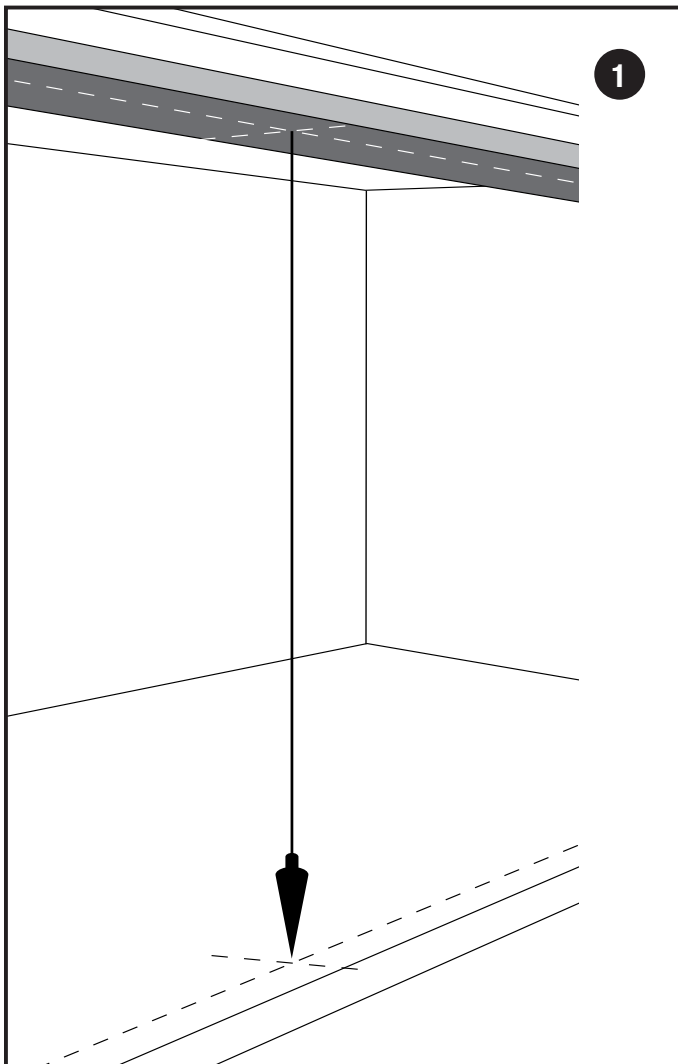
Step 1: Begin by laying out the placement of the columns. Typically, the center of the carrying beam is determined along with the location of each column on that line. Mark the location on the center of each column. Using a “plumb bob,” determine the center of the column at the floor level and mark that spot. With all column centers marked, snap a line the length of the project through the center marks.

Step 2: Using the template that is provided with the column trim, mark the center as established from the previous step. Align the centering marks of the template with the project centerline from the previous step. Mark the position of the holes for the bottom bracket and the trim locator pins (bottom side of trim ring). Likewise, mark the position of the top bracket mounting holes (there are no locator pins on the top). Care in establishing the top and bottom bracket locations will enable the column to be installed plumb. This is especially important when installing tapered columns.

Step 3: Using a hammer drill, pre-drill 1/4" holes for the bottom bracket at an angle that will be convenient to drive the screws into the concrete when the column assembly is placed (see Step 11). Drill 1/2" holes for the trim locator pins. These are drilled straight into the concrete. Typically, it is not necessary to pre-drill the top bracket holes. However, to ensure the most correct placement of the bracket, you may wish to provide pilot holes.

Step 4: If adjusting the length of the column is required, slide the inner column and spacers out of the column from the base (straight) end. Measure and mark the amount to be removed and cut the inner column with a fine-tooth carbide blade on a chop saw.

Step 5: Using a “T” square, mark the outer column (bottom straight end only).



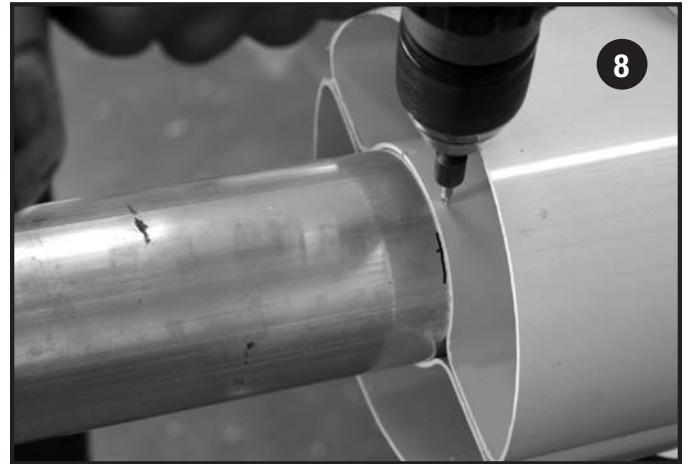
Step 6: Remove the unwanted amount using a saber saw with a fine-tooth blade.

Step 7: Pre-assemble each column to be installed by first determining the position of the inner column spacers (34" for 36" high railing, 36" for 42" high railing).

Step 8: Spacers need to be fixed in place using #8 x 2" self-drilling screws. Slide inner pipe with spacer into column. If a railing system is being installed with the lower rail at less than 4-1/4"

off of the deck, the base trim ring will need to be cut to provide for the lower rail mounting bracket. Refer to Modifying Base Trim on page 62.

Step 9: Slide the mid-trim ring onto the column, as shown. 8" and 10" tapered columns have an offset on which the ring rests. The location of the rings for straight columns should be pre-determined (typically, 8" from the top on the 8" post) and marked.



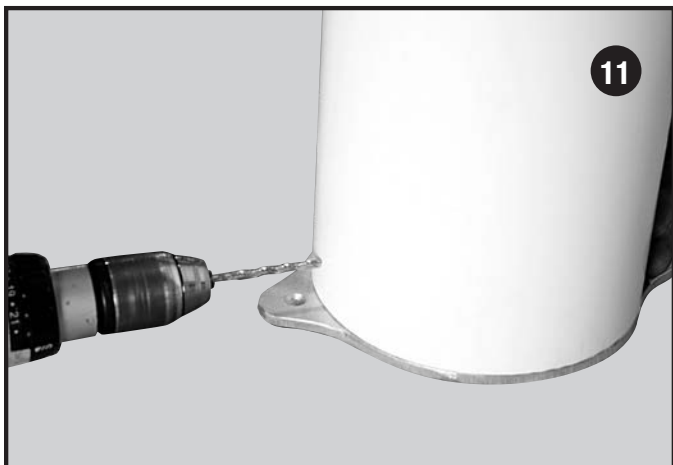
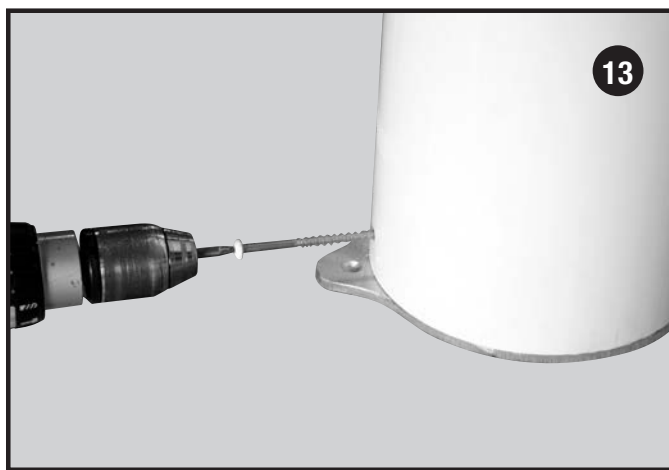
Step 10: With the rings properly positioned on the 8" straight column, drive #8 x 2" self-drilling screws into the column through the holes in the top of the ring, as shown. Slide the top and bottom trim over the column, followed by the top and bottom mounting brackets.

Step 11: Slide the assembly into position aligning the brackets with the holes drilled in Step 2. Using a hammer drill, drive the Tapcon® screws into the concrete deck. Likewise, affix the top bracket to the carrying timber.

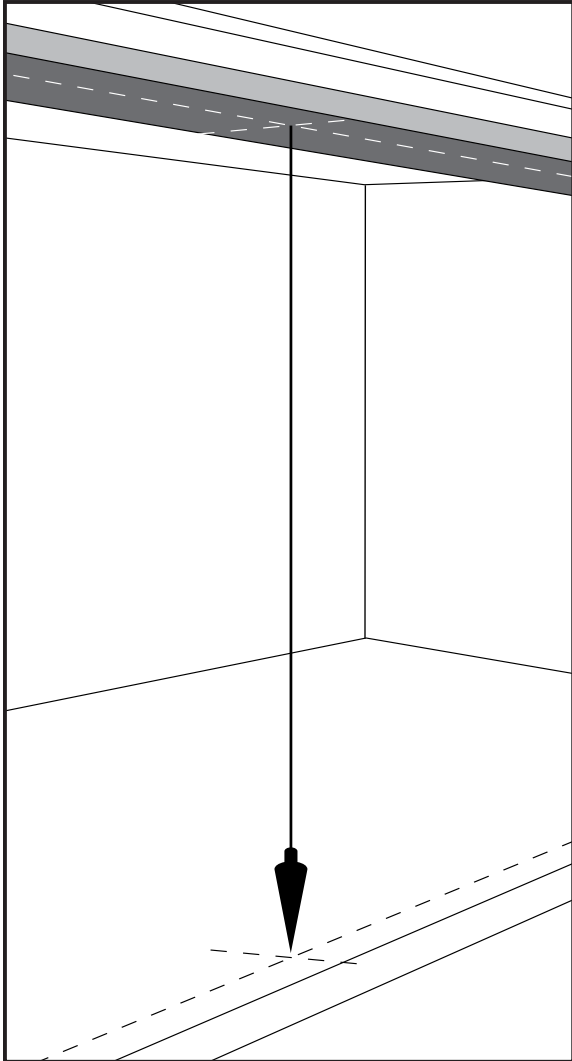
Step 12: In areas where uplift from high winds is considered a problem, pre-drill 15/64" holes through the column and bracket ears at the position of the bracket mounting tabs into the post approximately 1" from the bottom and 1" from the top.

Step 13: Drive #14 x 4" screws into the column, securing the column to the bracket top and bottom. Placement of the top and bottom trim will hide the screws (two screws per bracket).

Step 14: Top trim is now fixed to the carrying beam as shown using #8 x 2" self-drilling screws.



INSTALLING SQUARE PORCH COLUMNS



NOTE: If a railing system is being installed with the lower rail at less than 4-1/4" off of the deck, the base trim ring will need to be cut to provide for the lower rail mounting bracket. Trim ring must be cut before column is installed. Refer to Modifying Base Trim on the next page.

Step 1: Begin by laying out the placement of the columns. Typically, the center of the carrying beam is determined along with the location of each column on that line. Mark the location of the center of each column. Using a "plumb bob," determine the center of the column at the floor level and mark that spot. With all column centers marked, snap a line the length of the project through the center marks.

Step 2: Using a hammer drill, pre-drill 1/4" holes for the bottom bracket at an angle that will be convenient to drive the screws into the concrete when the column assembly is placed. Typically, it is not necessary to pre-drill the top bracket holes. However, to ensure the most correct placement of the bracket, you may wish to provide pilot holes.

Step 3: Using a "T" square, mark the outer column.

Step 4: Remove the unwanted amount using a saber saw with a fine-tooth blade.

Step 5: Slide the mid-trim ring onto the column.

Step 6: With the ring properly positioned on the column, drive #8 x 2" self-drilling screws into the column through the holes in the top of the ring. Slide the top and bottom trim over the column, followed by the top and bottom mounting brackets. If a railing system is being installed with the lower rail at less than 4-1/4" off of the deck, the base trim ring will need to be cut to provide for the lower rail mounting bracket. Refer to Modifying Base Trim on the next page.

Step 7: Slide the assembly into position aligning the brackets with the holes drilled in Step 2. Using a hammer drill, drive the Tapcon® screws into the concrete deck. Likewise, affix the top bracket to the carrying timber.

Step 8: In areas where uplift from high winds is considered a problem, pre-drill 1/4" holes through the column and bracket ears at the position of the bracket mounting tabs into the post, approximately 1" from the bottom and 1" from the top.

Step 9: Drive #14 x 4" screws into the column, securing the column to the bracket top and bottom. Placement of the top and bottom trim will hide the screws (two screws per bracket).

Step 10: Top trim is now fixed to the carrying beam using #8 x 2" self-drilling screws.

MODIFYING BASE TRIM FOR PORCH COLUMNS WHEN INSTALLING RAILING SYSTEM

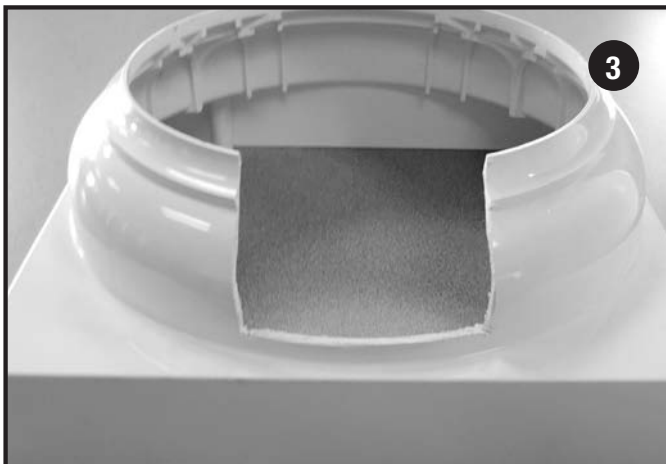
Step 1: Determine the height and placement of the bottom rail. You can use the bottom rail from the system you are installing to help. Be sure to check local codes for the maximum distance from the deck surface to the bottom of the railing.

Step 2: Mark the location where the rail will fall on the base trim. Include railing trim cover when marking for cutout.

Step 3: Cut out base trim where you marked.

Step 4: Continue with column installation.

Step 5: Follow the railing system instructions for the system you are using to complete the railing installation.



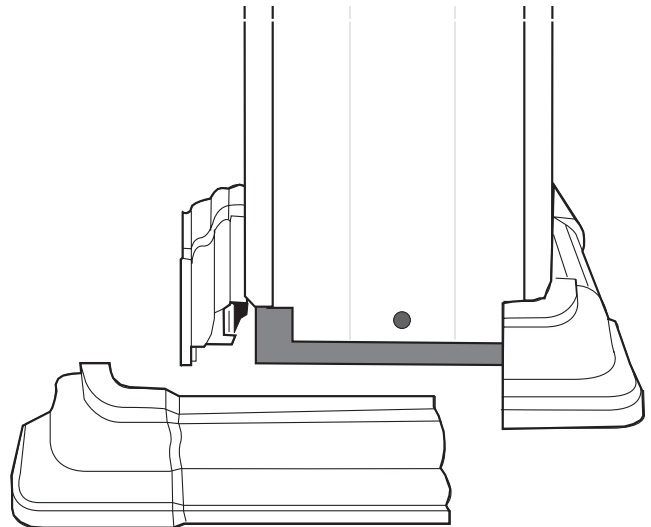
STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR

CERTA-SNAP® WRAP ASSEMBLY

4x4 and 6x6 Post Wraps

TIPS

- Don't forget—if using Certa-Snap® trim on the top and bottom of the post, notch out the Certa-Snap and shorten corner pieces.
- For undersized posts, screws are included to secure Certa-Snap panels to the post.
- Silicone adhesive may also be used to secure corners to the Certa-Snap panel with undersized posts and high wind conditions.



ASSEMBLING CERTA-SNAP®

Step 1: Measure the post to be wrapped.

Step 2: Measure the post wrap panels and cut to length; repeat step with corner pieces.

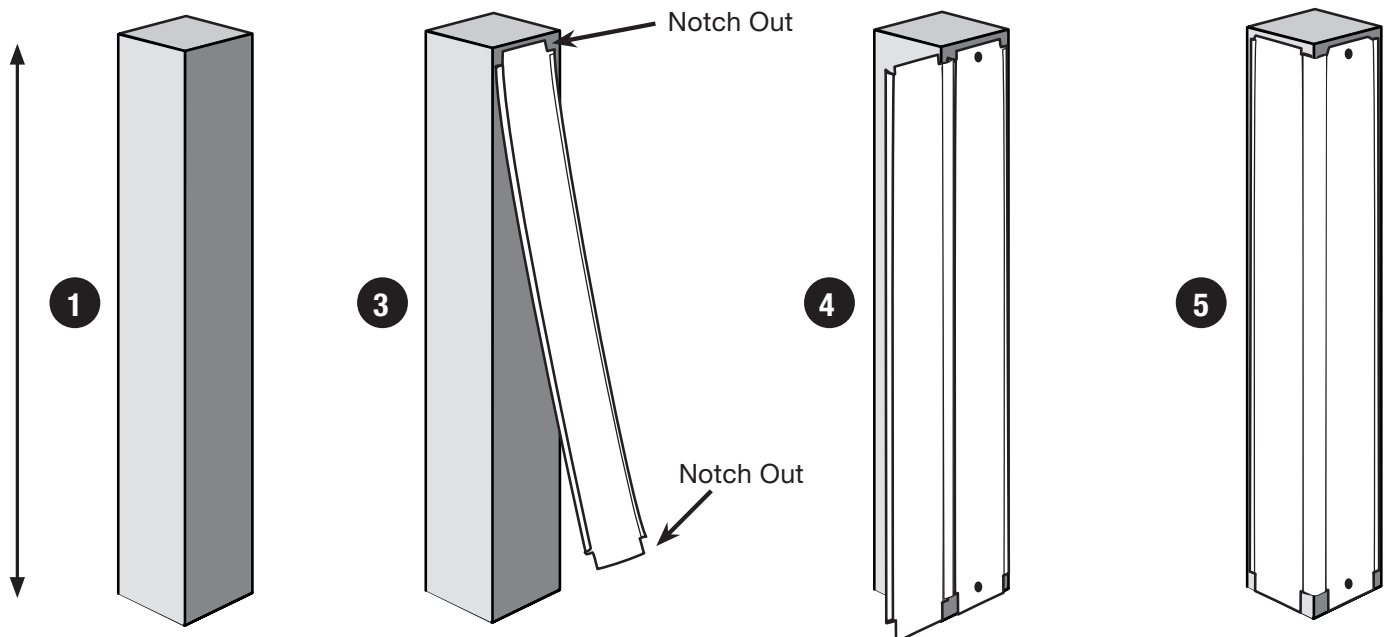
TIP: If using trims at top and bottom, notch out corners of Certa-Snap panels by removing 1-1/2" from the hook

of each side of the panel. The corner piece will need to be shortened to account for trim pieces.

Step 3: Place first post wrap panel against post.

Step 4: Place first corner piece over one corner of post wrap.

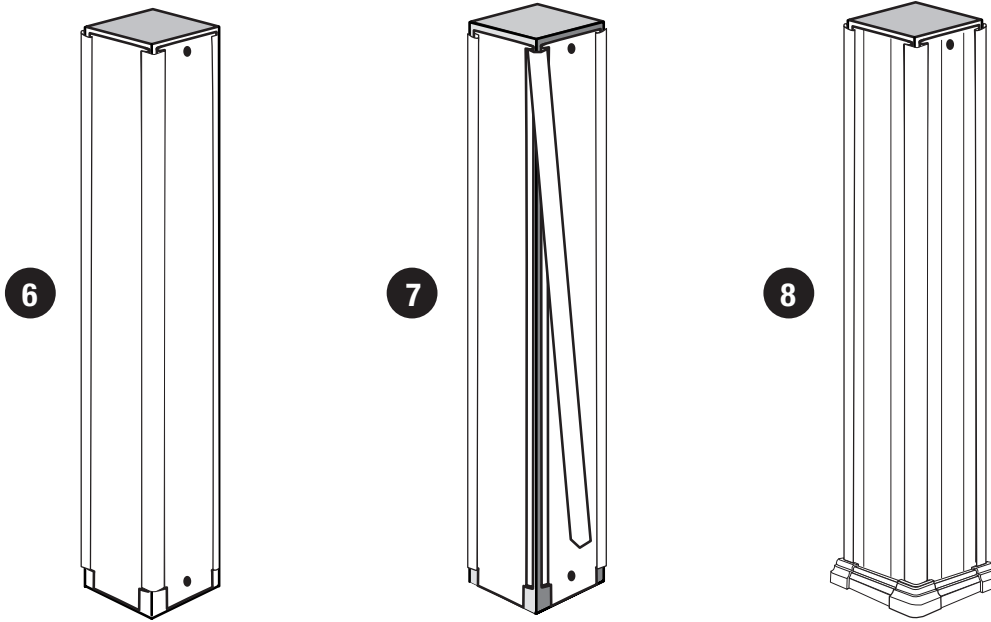
Step 5: Install second post wrap panel into first corner piece.



Step 6: Install third post wrap panel into second corner piece.

Step 7: Install fourth post wrap panel into third corner piece.

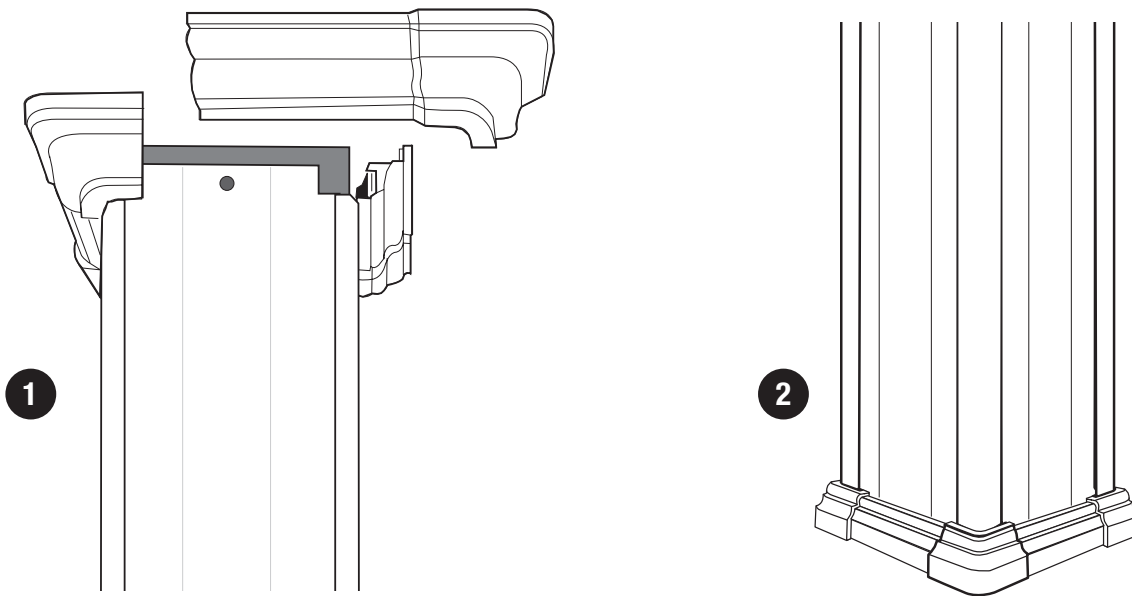
Step 8: Snap fourth corner piece over remaining corner of post.



ASSEMBLING CERTA-SNAP® TRIM ACCESSORY

Step 1: Assemble 4-piece post trim at top of post, snap together and position to ceiling.

Step 2: Assemble 4-piece post trim at bottom on floor and snap together.



STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR HANDRAIL COMPONENT SYSTEM

		Run in Inches														
		8	8.5	9	9.5	10	10.5	11	11.5	12	12.5	13	13.5	14	14.5	15
Rise in Inches	8.5	47	45	43	42	40	39	38	36	35	34	33	32	31	30	30
	8	45	43	42	40	39	37	36	35	34	33	32	31	30	29	28
	7.5	43	41	40	38	37	36	34	33	32	31	30	29	28	27	27
	7	41	39	38	36	35	34	32	31	30	29	28	27	27	26	25
	6.5	39	37	36	34	33	32	31	29	28	27	27	26	25	24	23
	6	37	35	34	32	31	30	29	28	27	26	25	24	23	22	22
Calculated Angle in Degrees																

HANDRAIL APPLICATIONS

Stringer Layout for Handrail Transition Bends

It is recommended that each of the handrail components be dry fit before final installation to eliminate cutting and gluing errors.

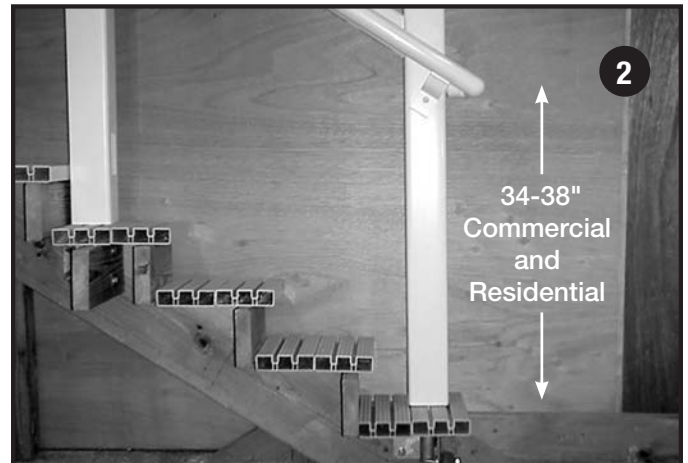
When cutting handrail lineals, always cut the aluminum using a miter saw with a carbide-tipped blade with at least 60 teeth.

Step 1: Determine layout of handrail and the requirements at termination points, transitional bends and/or returns to walls or posts. Spacing of brackets should be a maximum of 6' on center.

Step 2: Determine desired handrail height. Finished handrail height should be 34" to 38" for commercial and residential applications measured from the leading edge of the stair tread or landing to the top of the handrail.

The following instructions will position the handrail at approximately 35" above the landing or stair tread. You may need to make adjustments for your specific application or to meet local building codes.

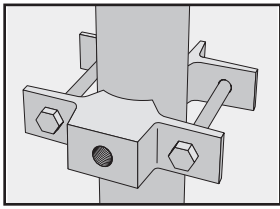
Refer to the "Suggested Layout" on page 70 for helpful information to get organized.



STANDARD INSTALLATION

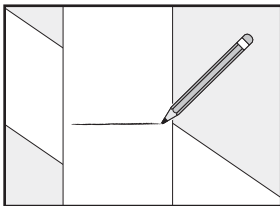
ATTACHMENT TO CERTAINTEED VINYL POST SUPPORT SYSTEM

For ramp applications, we recommend using CertainTeed FLAT post support kits and FLAT routed posts.



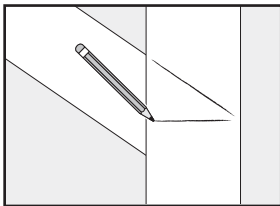
Once post supports are in place, replace one of the standard EZ Set brackets from the

upper location with a special handrail EZ Set bracket and attach at approximate height position. Install as a minimum the posts and top rail(s) guardrail system.



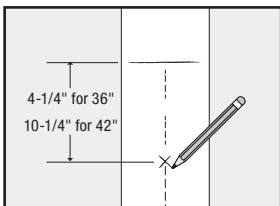
For each post, draw a horizontal pencil line across the post at the point on the downward

side where the (lower) rail meets the post.



For the bottom end post at the base of the stairs or ramp, you'll need to transfer the angle of the

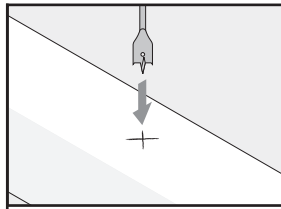
guardrail diagonally across the post and then connect with a horizontal line.



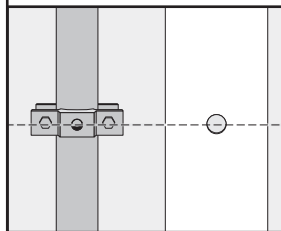
Mark bracket attachment point in center of each post downward from line. Location of handrail

bracket when used with 36" guardrailing is 4-1/4" below line; for 42" guardrailing, it is 10-1/4" below line.

NOTE: Vinyl posts alone do not provide adequate fastener retention. If not using a special EZ Set bracket, you must provide a wood or composite block inside post at bracket locations for proper fastening retention.

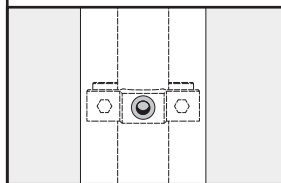


Remove post from assembly. Drill 3/4" hole through side of vinyl post at mark.

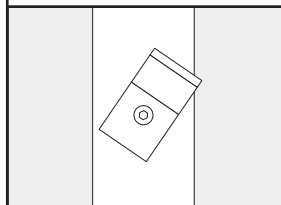


Place vinyl post next to steel pipe to transfer this height and position upper EZ Set bracket.

Repeat the above process for all remaining posts.

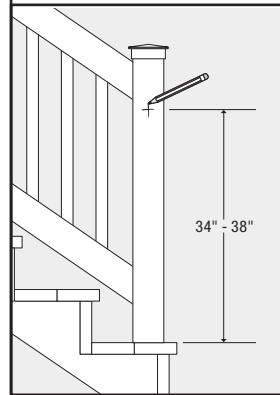


Replace post and guardrail section. (Ensure that 3/4" hole aligns with hole in center of handrail EZ Set bracket for each post.)

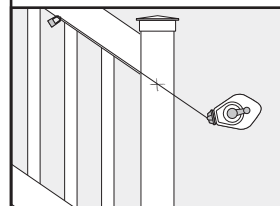


Attach handrail brackets with 3/8"-16 x 1-1/2" bolts. Do not tighten completely at this time to allow for adjustment.

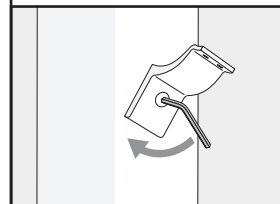
ATTACHMENT TO CERTAINTEED VINYL SLEEVE-OVER SYSTEM



Using a level and a tape measure, lightly mark the location of the top of the handrail onto the wall or post, at the mounting position and snap a chalk line from top to bottom.



Note: For most applications, the top of the handrail would be 34"-38" above the nose of the stair tread or standing surface.



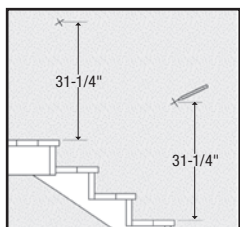
Mark the mounting locations for the brackets on the post at the appropriate height using

a scrap sample of handrail as a guide. Make the top of the handrail consistent at all locations marked above.

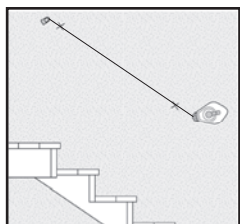
Install the mounting bracket to the post with fasteners best suited for your application.

ATTACHING HANDRAIL TO BRACKETS

ATTACHMENT TO CONCRETE WALL



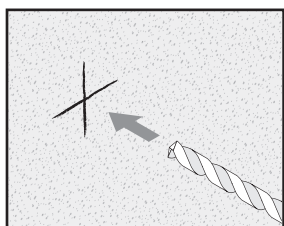
Mark a point 31-1/4" upward vertically from the leading edge of top and bottom stair tread.



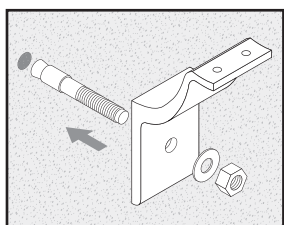
Snap a chalk line between marks.

Mark locations for brackets along line (6' maximum

spacing and 1' maximum overhang beyond last bracket).



Using a 3/8" masonry drill bit, drill holes 2-3/4" deep at each location.



Insert concrete wall anchors (not included) and attach handrail brackets (do not tighten

completely at this time to allow for adjustment).

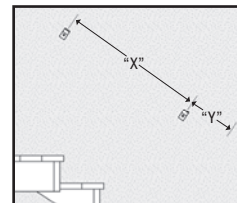
ATTACHMENT TO WOOD WALL

Ensure that wall is structurally sound.

Follow instructions for concrete wall except bracket attachment point(s) must be on a stud where the string line crosses. Mark bracket attachment locations (6' maximum spacing).

Substitute 3/8" x 2-1/2" long lag screw (not included) in place of the concrete anchor to attach handrail brackets.

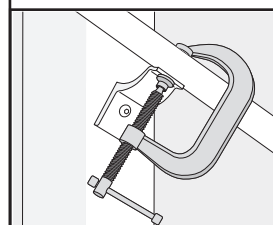
ATTACHING HANDRAIL TO BRACKETS



Measure the distance from center of top bracket to center of bottom bracket along angle (distance "X").

Add any needed additional length to this measurement for handrail extension beyond brackets or posts at both the top and bottom of the section (1 ft. maximum overhang per end; distance "Y").

Note: All splices of handrail must occur within 6" of brackets (no splices beyond the last bracket in a run).



Cut and fit the 1-1/2" handrail to follow your layout. Starting at the top of the handrail installation

and working towards the bottom, dry assemble the various handrail components according to your diagram. Components can be temporarily clamped in place to the mounting brackets installed to the post or wall, until all final adjustments are made. Mark and trim all handrail components to proper length and test for tight fit.

When cutting handrail lineals, always cut the aluminum using a miter saw with a carbide-tipped blade with at least 60 teeth.

COMPONENT INSTALLATION

POST RETURN

1. Align the post return according to the handrail layout line and mark attachment hole positions (Fig. 1).
2. Pre-drill and attach post return with three fasteners appropriate for the material to which it is being mounted.
3. Insert the provided joiner in the post return and dry fit the lineal in place.
4. After railing installation has been dry fit, disassemble and apply aluminum adhesive and permanently mount the handrail lineal (Fig. 2).

TIP: If your handrail is being mounted with a post return at each end, cut lineal to length and assemble before attaching post returns to mounting surface.

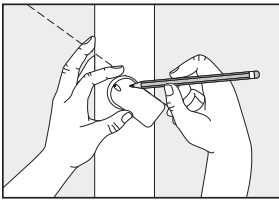


Fig. 1

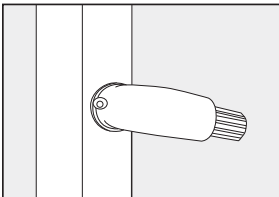


Fig. 2

STRAIGHT RETURN

1. Insert the straight return into the lineal, dry fit to determine the finished length and cut to fit.
2. Dry fit and check length.
3. Attach the assembly to the mounting surface using the appropriate fastener through middle of straight return.
4. Apply aluminum adhesive and insert the straight return into the handrail lineal (Fig. 3).

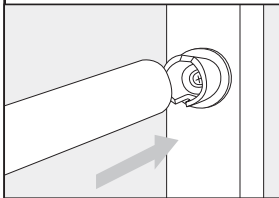


Fig. 3

STRAIGHT JOINER

NOTE: For maximum strength, all handrail joints should be supported by a handrail bracket at the joint or at the nearest possible location.

1. Cut handrail lineals to length.
2. Apply aluminum adhesive and slide the internal joiner half way into the aluminum lineal (Fig. 4).
3. Permanently attach the first handrail lineal to the nearest handrail bracket.

TIP: If the joint is not supported with a bracket, allow enough time for the aluminum adhesive to cure prior to installing the second lineal.

4. Apply aluminum adhesive to the second handrail lineal. Slide handrail lineal onto joiner. Mount in place. Clamp and allow to dry.

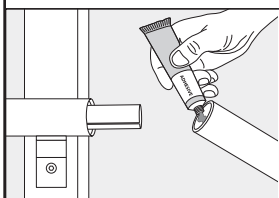


Fig. 4

INTERNAL ADJUSTABLE JOINER

NOTE: All adjustable joiners should be supported by a handrail bracket as closely as possible to each side of the joint.

1. Measure the angle of the joint and cut lineals accordingly. Dry fit both handrail lineals, making sure that the miter cuts match up properly.

TIP: While lineals are in place, reference marks can be made on the lineals and mounting hardware to ensure proper alignment during final installation.

2. Assemble and position the adjustable joiner on the outside of the handrail and tighten the bolt at the appropriate angle (Fig. 5).

3. Dry fit the assembly and adjust if necessary.

TIP: Use the joiner bolt as a reference to keep the lineals in proper alignment by aligning both mitered ends with the center of the bolt.

4. Apply aluminum adhesive and assemble the joint.

5. Permanently attach the handrail lineals to the mounting support.

NOTE: Joint should be clamped in place until adhesive has had time to cure.

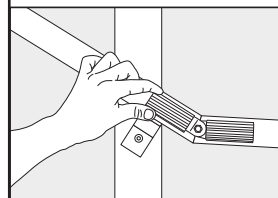


Fig. 5

COMPONENT INSTALLATION (CONTINUED)

EXTERNAL ADJUSTABLE JOINER

1. Measure the angle of the joint and cut lineals accordingly. Dry fit both handrail lineals, making sure that the lineals match up properly.

2. Assemble and position the adjustable joiner on the outside of the handrail and tighten the bolt at the appropriate angle (Fig. 6).

3. Dry fit the assembly and adjust if necessary.

4. Apply aluminum adhesive and assemble the joint.

5. Permanently attach the handrail lineals to the mounting support.

NOTE: Brackets are required on both sides of the adjustable joiner.

Joint should be clamped in place until adhesive has had time to cure.

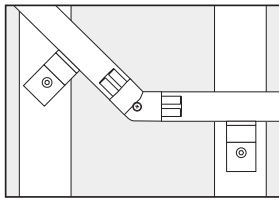


Fig. 6

90° CORNER

1. Dry fit the two handrail lineals. The handrail lineals to be joined should extend far enough to allow for scribing and final cutting (Fig. 7).

2. Place the corner in line with each lineal. Scribe and cut the lineals (Fig. 8).

3. Insert the joiners into the corner. Dry fit the assembled corner with the lineals. If all components are aligned properly, make reference marks (Fig. 9).

4. Disassemble the corner. Apply aluminum adhesive to the inside of the corner and the inside of the lineals. Reassemble the components using the reference marks from Step 3 as a guide. Clamp in place and allow to cure.

5. Permanently attach the lineals to the mounting brackets with the screws provided.

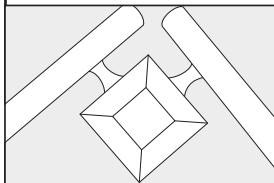


Fig. 7

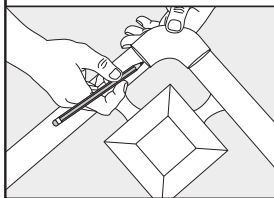


Fig. 8

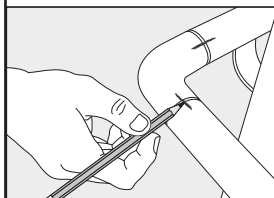


Fig. 9

180° RETURN LOOP

1. Position handrail loop in desired location. Dry fit the loop in place to make any necessary marks for cutting.

2. Once cuts have been completed and loop is ready to install, attach to handrail system using a straight or adjustable joiner following the instructions outlined in this guide.

3. Attach handrail loop to the mounting surface using two handrail brackets following the instructions in this guide (Fig. 10).

4. To complete the installation, mount a handrail end cap to the end of the handrail loop following the instructions in this guide for the handrail end cap.

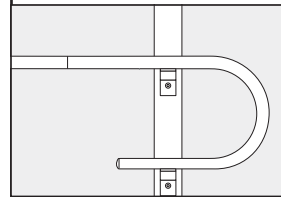


Fig. 10

INSIDE CORNER BRACKET

1. Place a mark 2-3/4" below the handrail layout line to establish placement of the inside corner bracket (Fig. 11).

2. Align the top surface of the bracket with the mark made in Step 1 and attach to the mounting surface using appropriate fasteners (Fig. 12).

3. Clamp the handrail corner assembly to the inside corner bracket. Using a 13/64" bit, pre-drill and attach the bracket using the provided screws.

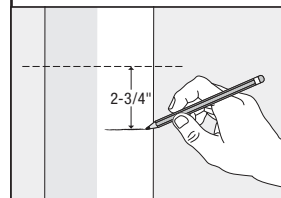


Fig. 11

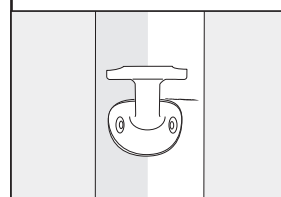
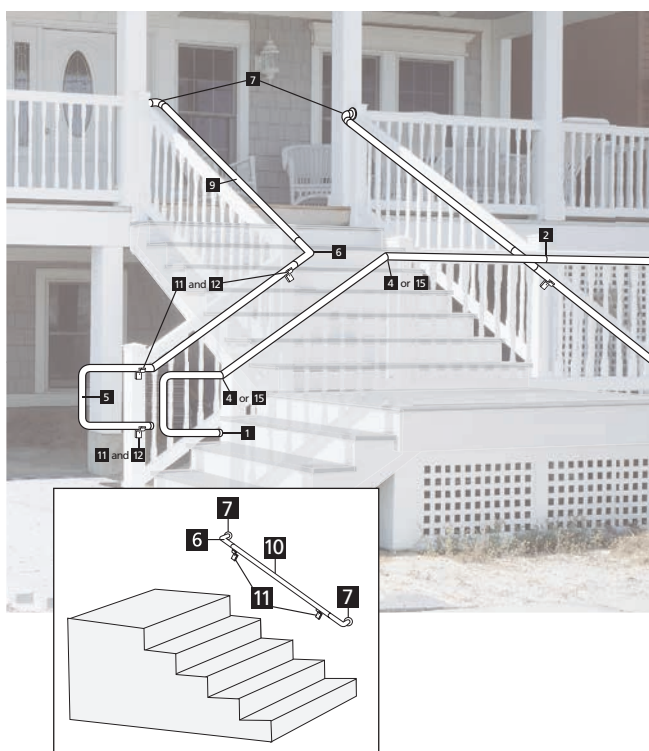
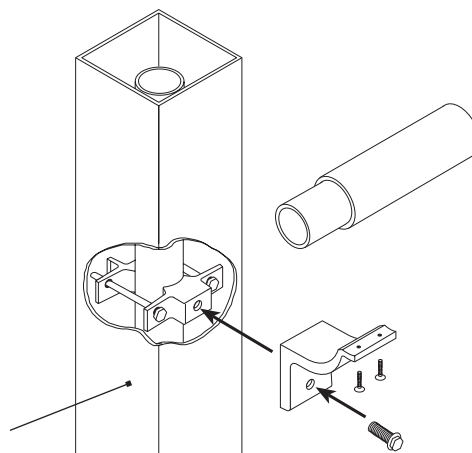


Fig. 12

SUGGESTED LAYOUT

HANDRAIL COMPONENT SYSTEM

- Complies with ADA (Americans with Disabilities Act) requirements for grippable handrails
- Aluminum construction reduces bowing and provides enduring strength
- 1-1/2" diameter gripping area
- Continuous handrail runs
- Safe for stair and ramp applications
- Functional finishing touches: post and wall returns, end caps, return loops and a convenient straight joiner
- Unique adjustable joiners accommodate any transition – 0° to 90° bends
- Installs easily on site with no preformed fittings
- Ideal for use with EverNew® railing systems
- Virtually maintenance free
- Lifetime limited warranty
- EZ Set bracket kit available for attachment to routed system



Note: Handrail depicted is not free standing and must be anchored to walls or guardrail using handrail bracket assembly. Space a maximum of 6' on center and as close as possible to both sides of any joint.

1. 1-1/2" Diameter End Cap
Finishes open end of handrail
2. Handrail Straight Joiner
Connects straight runs of handrail
3. Handrail Straight Wall Return (not shown in illustration)
Terminates handrail straight into a wall or post
4. Handrail Adjustable Aluminum Joiner
Used for angles
5. 1-1/2" OD ADA 180° Return Loop
Finishes steps or handicap ramps
6. 1-1/2" OD - 90° Corner (includes two 3" aluminum joiners)
For inside or outside 90° corners
7. 1-1/2" OD - 90° Post/Wall Return (includes 3" aluminum joiner)
Terminates handrail into wall or post at 90°
8. 1-1/2" OD x 80" Aluminum Handrail - Straight run
9. 1-1/2" OD x 104" Aluminum Handrail - Straight run
10. 1-1/2" OD x 120" Aluminum Handrail - Straight run
11. Handrail Bracket Assembly
Connects handrail to wall or post
12. Handrail EZ Set Post Attachment
Connects handrail bracket to post when using EverNew post support kit
13. Handrail Joint Ring (not shown in illustration)
Used to finish the connection between pieces (optional)
14. Handrail Inside Corner Bracket (not shown in illustration)
Connects inside corners to post
15. Aluminum External Adjustable Joiner

STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR VINYL DECKING

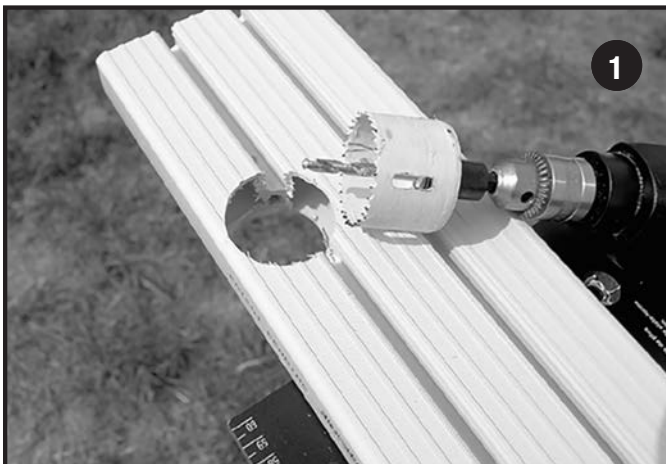
FASTENING TO THE SUBSTRUCTURE

For all but diagonal layouts and stairs, install vinyl deck planks on substructures built on 16" centers. The unsupported span of vinyl deck planks must not be more than 4" overhang from the edge.

Step 1: Align the first plank on the substructure. Overhang the substructure 1-1/2" on each end. Mark the board for the post supports. With a 2" hole saw, drill the deck board to accept the 1-5/8" post supports. Lay the board over the post supports. Square the board on the deck, and attach the first plank to the substructure.

Step 2: Boards must be fastened every 16". The deck boards are fastened directly to the substructure with #8 x 2" deck screws. Seat the screws in the channels of the plank and do not over-tighten the screws.

Step 3: After the first run has been installed, line up the next board. Gap it 1/8". Recheck the alignment and screw the board to the deck.



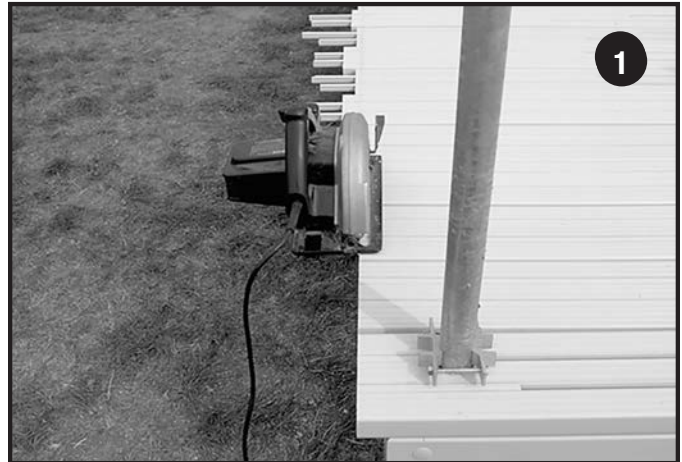
INSTALL FILL PIECES

Step 1: After all the boards have been installed, insert the fill pieces, several at a time, into the channels. Begin by pressing in the leading edge; then slide a block of wood along the length of the fill strips until they are pressed in place. Fill pieces should fill the entire channel but not overhang the vinyl deck. The ends of the fill pieces do not have to coincide with the plank ends. They can be spliced into the deck channel.



TRIM THE DECK

Step 1: Measure the edge of the deck. Leave 1-1/2" of overhang for the end cover. Snap a chalk line on the deck to mark your cut. Cut along the line with a circular saw. Make sure the edge of the deck is straight.



INSTALL "C" CHANNEL

To finish the deck, install vinyl "C" Channel over the open plank ends.

Step 1: Using a chop saw equipped with a fine tooth carbide blade, cut the length of "C" channel you need. Fit the channel onto the edge of the planks, ensuring that it is square.



Step 2: Drill 1/4" holes through the top of the "C" channel. Drill at 1' increments (in the center of every other plank). Press the end-cover fasteners through the holes into the deck.



Step 3: For concealed edges (along the house), or to cover ends of fascia, cut "C" channel into "L" channel with a utility knife and snap off. Install as described above.



STEP-BY-STEP INSTALLATION INSTRUCTIONS FOR UNDERSHIELD® WATER DIVERSION SYSTEM

BEFORE YOU BEGIN

Before installing UnderShield®, be sure to inspect the underside of the deck to ensure that all joists are structurally sound. Minor irregularities can be compensated using shims. Check the pitch of the deck to ensure you will get the proper pitch for UnderShield.

The UnderShield product is designed as a water diversion system under normal weather and rain conditions; however, it is not a waterproof roof system. Proper cleaning and flushing of debris by the property owner is important to allow the rain water to flow unobstructed to the exit point and to not create excess weight buildup on the surface of UnderShield. The system can temporarily experience minor drips. Occasional droplets on the underside also could result from normal condensation. Having a qualified professional install and follow the installation instructions carefully is necessary for best performance.

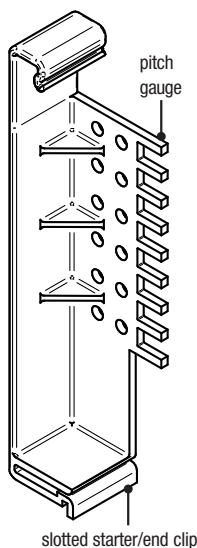
GLOSSARY

Grid bar – 1-1/2" x 1-1/2" x 97-1/2" PVC profile which is attached to underside of deck joist.

UnderShield® clip – PVC clip attached to grid bar. Clips are used for the installation of UnderShield panels and to achieve pitch.

UnderShield® starter/end clip – When clip is installed with slotted end of clip facing down.

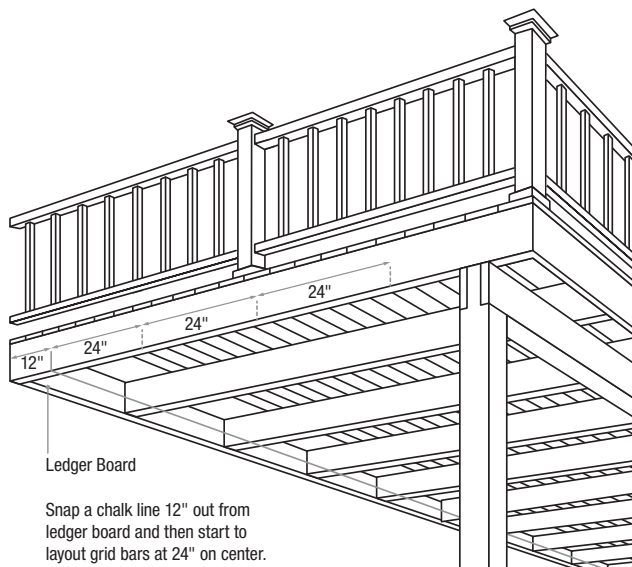
UnderShield® clip pitch gauge – Notched side of the grid clip.



NOTE: Locking the panels together creates a tight lock. Panels will not easily slide on each other. Be sure to line up panel ends before zipping over the hooks of the previous panel.

Ledger board – A ledger board is a horizontal lumber beam attached to an existing wall and used to tie in construction elements such as porch roofs and decks. A deck ledger is installed as part of the deck frame construction. The frame is then attached at either end, with the deck joists butting up to it. The last deck board against the house wall will be attached to the ledger's top edge in the case of a deck where it is parallel to the joists.

Divider board – 2" x 8" pressure treated board used to divide a deck into two smaller areas that will accommodate UnderShield.

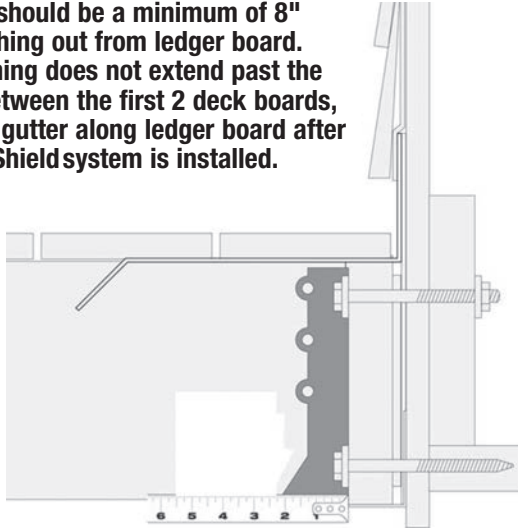


INSTALLATION

LAYOUT GRID BARS AND CLIPS

Step 1: Make sure your ledger board is properly secured and flashed. Install flashing along ledger board extending out a minimum of 8". Flashing should extend beyond the gap between the first and second deck boards.

NOTE: There should be a minimum of 8" of flashing out from ledger board. If flashing does not extend past the gap between the first 2 deck boards, install gutter along ledger board after UnderShield system is installed.



Step 2: Measure width of deck to determine number of panels required (convert width to inches). Divide width by six. Reduce number of panels by one. Multiply that number by six. Subtract from total width and divide by two. This

will give you the size for the first and last panel. The first and last panel can not be less than 2-1/4" (measurement does not include panel hook). Adjust if necessary. When using beaded panels you must have a minimum of 3/4" of material next to the bead of the panel.

Example: If deck width = 17'

$$17' = 204"$$

$$204" \div 6" = 34"$$

$$34" - 1" = 33"$$

$$33" \times 6" = 198"$$

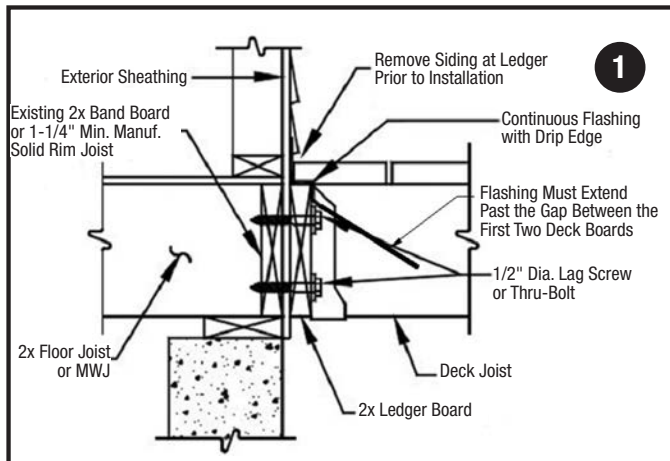
$$204" - 198" = 6"$$

$$6" \div 2" = 3"$$

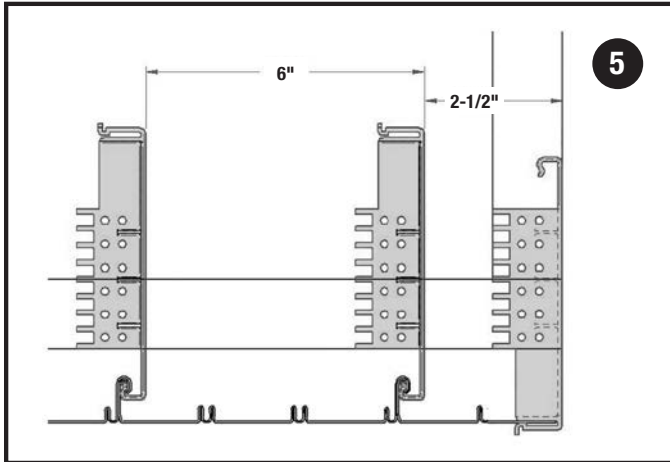
The first and last panel would be 3".

Step 3: Measure length of deck to determine number of grid bars required. UnderShield is designed for a maximum length of 16'. For runs longer than 16' a divider board will be required. The divider board will run across the deck, dividing the deck into two sections. Divider board will need to be strong enough to support the attachment of one or possibly two gutters.

Step 4: Determine number of grid bars. First grid will be installed 12" from ledger board. Last grid bar must be installed a maximum of 12" from outside edge (beam/gutter board). Intermediate grid bars are installed on 24" centers.

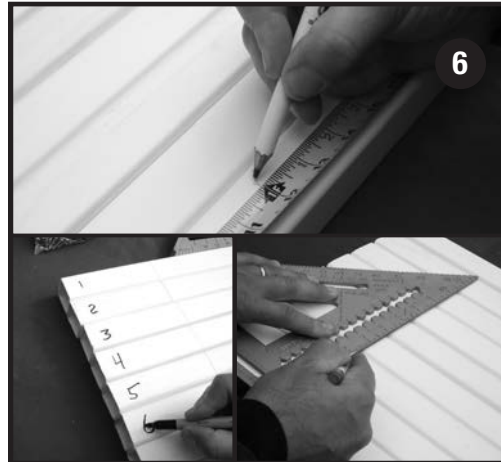


Step 5: Layout clip placement on grid bars. Starter/end clip will be installed at the end of grid bar. Placement of next clip will be determined by the size of your first panel. Subtract 1/2" from panel size. Now measure from the end of the grid bar for this clip location (based on our example it would be 2-1/2" from the end). All other clips will be spaced at 6" between clips.



Step 6: Mark location of joist for clip interference. Number and transfer marks to other grid bars.

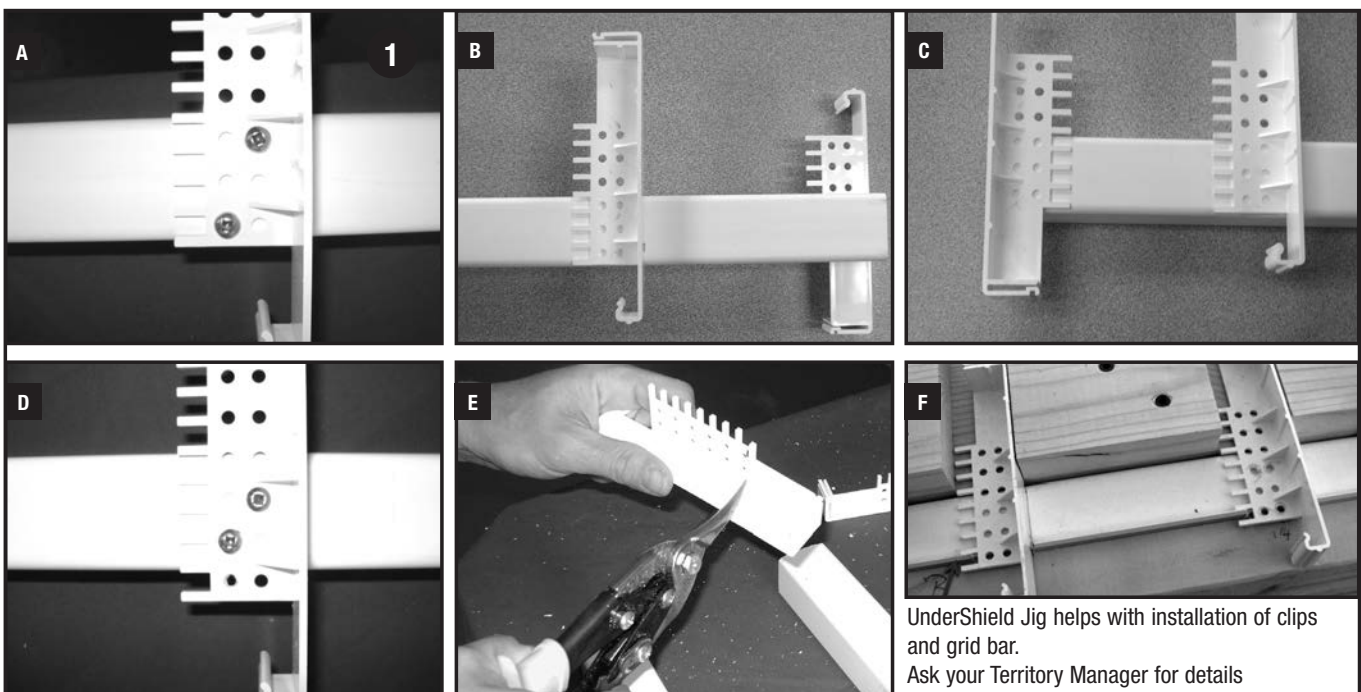
NOTE: Easier installation of clips use available template (Fig. F)



INSTALL CLIPS

Step 1: Install clips using two 3/4" stainless steel screws (Fig. A), on first grid bar pitch gauge is even with grid bar. Starter/end clip installs on the back side of the grid bar (Fig. B). All other clips will install on the front. When you reach the other side of the deck the starter/end clip

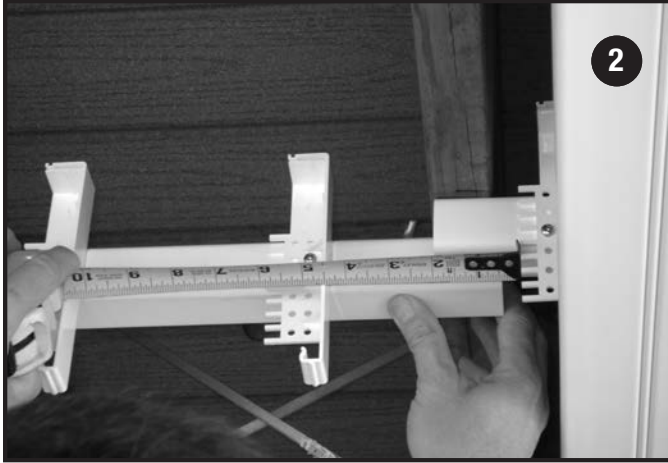
is installed facing the last clip (Fig. C). Install clips on each additional grid bar moving down one step on the pitch gauge (Fig. D) as you move towards the outer edge of the deck. Any clips that will interfere with joist can be trimmed down using snips (Fig. E).



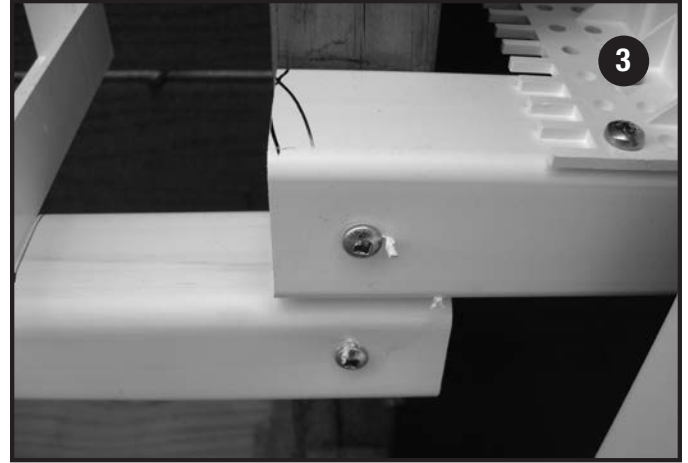
UnderShield Jig helps with installation of clips and grid bar.
Ask your Territory Manager for details

INSTALL CLIPS CONTINUED

Step 2: For decks wider than 8' additional grid bars will be required. Ensure that distance between last clip on previous grid bar and first clip on next grid bar is 6". Layout remaining clips spaced at 6".



Step 3: Grid bars ends can be overlapped. Grid bars are installed even with the outside edges.



ATTACH GRID BARS

Step 1: Layout grid bars on underside of deck. Measure 12" out from ledger board in two spots and snap a line using a chalk line.



Step 2: Layout additional grid bars at 24" on center. Last grid bar is installed a maximum of 12" from outer edge (beam/gutter board).



ATTACH GRID BARS CONTINUED

Step 3: Attach grid bars to underside of deck using 2-1/2" stainless steel screws. Use one screw per joist. End of grid bars will be even with outside joist.



Step 4: Level and shim grid bars as needed. If using a gutter system you may want to install gutter before installing last grid bar.



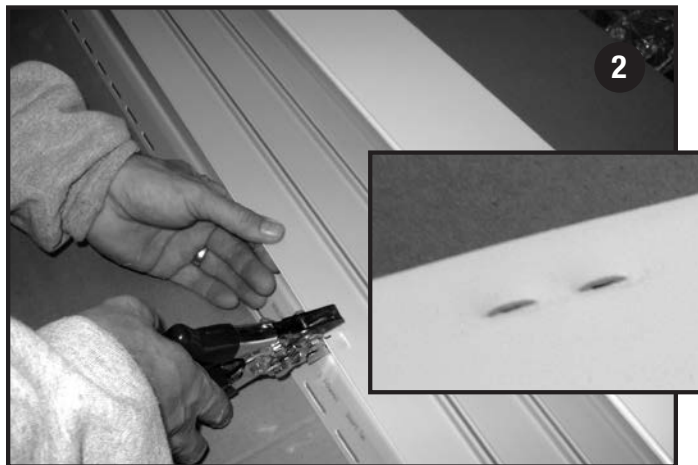
INSTALL PANELS

Step 1: To determine panel length, measure from ledger board to outer edge (beam/gutter board) (note-panels will be cut 2-1/2" shorter than this). Cut first panel to width using a utility knife (based on our example it would be 3"). Be sure to cut off from the panel side with the hook facing out. Remember when using beaded panels you must have a minimum of 3/4" of material next to the bead of the panel.



Step 2: Once cut to size, create tabs in panel at clip locations using snap lock punch. Be sure notches face down so they will lock into starter/end clip.

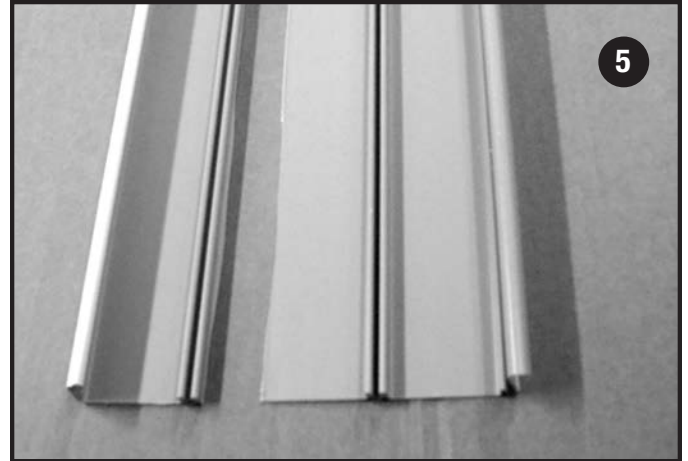
Optional gutter: If finishing end with a gutter system it is easier to install before installing panels. Be sure the panels will clear the gutter and any hardware used to install it.



Step 3: Insert first panel into starter/end clips then hook over next clip.

Step 4: Install panels leaving a 1/2" gap between the panel and ledger board. Next panel will install by starting at one end and then zipping over the hook of the previous panel. Be sure that you are connected for the entire length of the panel and that you are locked into the clip. Repeat this for each additional panel until you reach the other side of the deck.

Step 5: Cut last panel to size using a utility knife. Be sure to cut off side with hook facing in. Once cut to size, create tabs in panel at clip locations using a snap lock punch. Be sure notches face down so they will lock into clip. Zip panel over previous panel and then insert into starter/end clip.



Step 1: Finish the edge along ledger board by sliding 1" "J" channel over the end of the panels. "J" channel can be slid in from the side of deck.



Step 2: Finish exposed side edges with fascia panel. Measure and cut to length. Do not cut fascia 2-1/2" shorter like you did for panel. Attach fascia to center clip with 3/4" stainless screw. Finish sides by installing fascia boards. Remove center screw when using fascia boards. Fascia boards should extend a minimum of 1" over fascia panel.



For optional light/fan installation, refer to Light/Ceiling Fan Installation on following page.

LIGHT/CEILING FAN INSTALLATION

For complete installation instructions, please refer to 40-70-401.

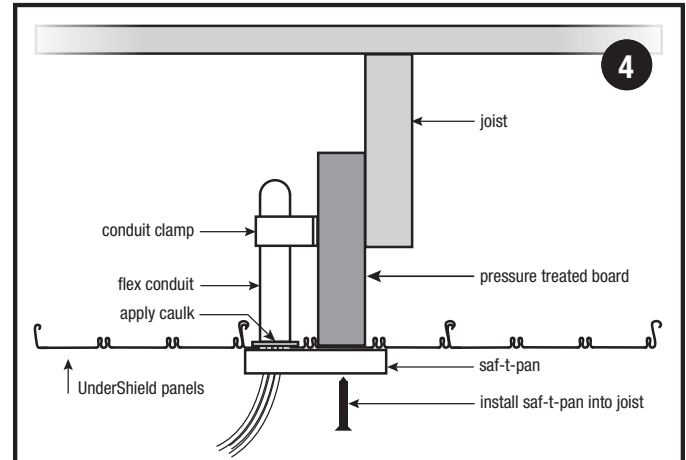
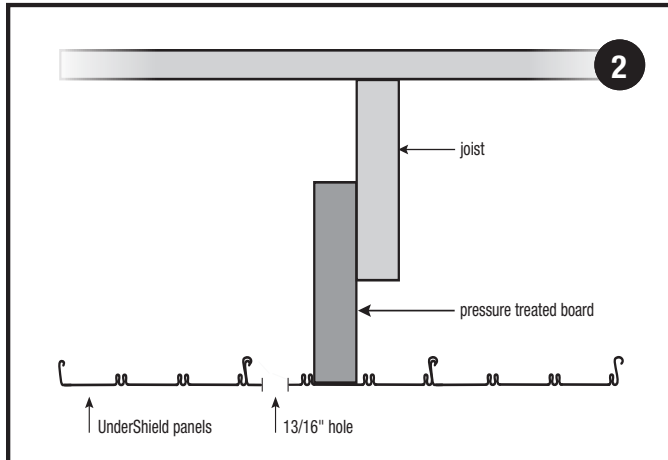
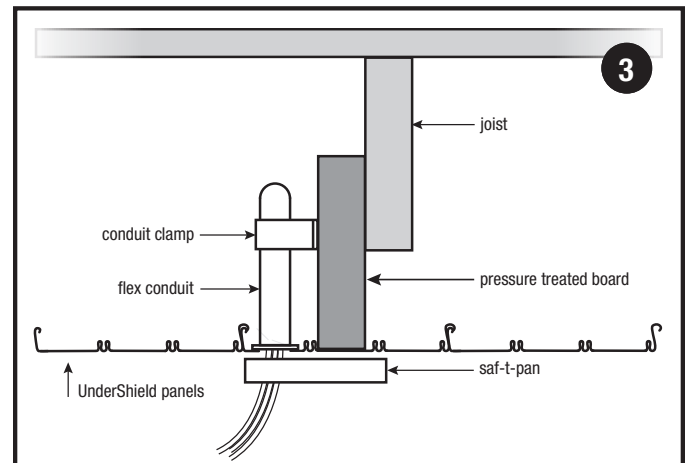
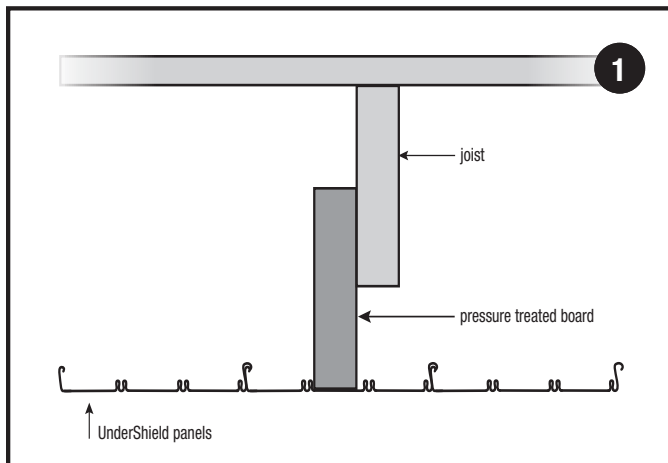
NOTE: Use approved outdoor fixtures only.

Step 1: Install pressure-treated board to existing joist flush with the top side of the panel.

Step 2: Drill 13/16" hole in panel next to the pressure-treated board.

Step 3: Install 1/2" flex conduit and clamp. Conduit should be flexed over and clamped to prevent water from entering open end. Install Saf-T-Pan.

Step 4: After installing Saf-T-Pan and 3/4" nut to lock down the conduit, apply caulk to prevent leakage. Install Saf-T-Pan into joist and install fan or light fixture.



CARE AND MAINTENANCE

CARE AND MAINTENANCE

Vinyl and composite building materials require very little maintenance. Nevertheless, common sense dictates that builders and suppliers of these products store, handle, and install materials in a manner that avoids damage to the product or structure.

CertainTeed decking and railing is not difficult to work with, but there are a few precautions you should take before you begin to unload and install the product. Always place planks, posts, rails and accessories on a non-abrasive surface, such as a drop cloth or cardboard, to avoid scratches. Protect all components during transport. Finally, when assembling the deck and railing, avoid over-tightening the screws.

CLEANING VINYL DECKING AND RAILING

CertainTeed vinyl decking and railing resists most common household stains, including oil and grease. But, like any other product, it will get dirty when it is exposed to the atmosphere. Chalk may also accumulate on the surface. This is a normal condition for all pigmented materials that are constantly exposed to sunlight and the elements. Soil, grime and chalk can be removed with a garden hose and a bucket of soapy water.

Mildew

Mildew may be a problem in some areas, especially warmer climates with consistently high humidity. Mildew appears as black spots on surface dirt and is usually first detected in areas not subjected to rainfall, such as eaves and porch enclosures. You can remove mildew from vinyl decking and railing with the following solution.

Mix together:

- 1/3 cup detergent (Tide, for example)
- 2/3 cup trisodium phosphate (e.g., Soilex)
- 1 qt. 5% sodium hypochlorite (e.g., Clorox)
- 3 qt. water

CAUTION: Cleaning solution mixed at greater concentrations may harm the vinyl.

If the above solution does not readily remove the mildew spots, purchase mildew cleaner from your local hardware store. Before you use any commercial cleaner, test it on an inconspicuous area.

The chemical agents mentioned above may be hazardous to the user or to the environment. Be sure to follow all precautions and warnings on the product label, particularly those that may be necessary to prevent personal injury. Please DISCARD these chemical agents in the manner

prescribed by the manufacturer. If you are unsure how to use or dispose of these chemical agents, contact the manufacturer.

CLEANING PANORAMA® COMPOSITE RAILING

Panorama® Composite Railing resists most common household stains, but it will become dirty like any product exposed to atmospheric conditions. Periodic washing with a soft bristle brush and clean water from a garden hose may be necessary to remove surface dirt which may accumulate on the surface. For best appearance, clean your Panorama Composite Railing at least once a year, unless local conditions require additional cleaning.

CLEANING UNDERSHIELD® WATER DIVERSION SYSTEM

UnderShield® resists most common household stains, but it will become dirty like any product exposed to atmospheric conditions. Periodic washing with a soft bristle brush and clean water from a garden hose may be necessary to remove surface dirt. Chalk may also accumulate on the surface. This is a normal condition for pigmented materials exposed to the elements. For the best appearance, clean UnderShield at least once a year. To remove soil, grime and chalk from UnderShield, use a garden hose, a soft bristle brush, and a bucket of soapy water. (You can also use the solution described in the section dealing with mildew.) Thoroughly rinse UnderShield with clean water from a garden hose. Avoid prolonged or high pressure rinsing of open ventilated areas. Keep cleaning solution off surrounding fixtures and surfaces not scheduled for washing.

If debris such as leaves gets in the system, you will need to periodically flush out the system with a garden hose. This can be done from above or possibly from access to the sides by removing the fascia panel.

NOTE: We do not recommend power washing UnderShield as it can cause moisture intrusion, damage, and/or discoloration.

Stubborn Stains

If you can't remove especially stubborn stains using normal household detergents, request a cleaner from your contractor or your local building materials retailer. Always test any cleaner on an inconspicuous area before full use.

CAUTION: Greater concentration may cause damage to UnderShield.

If the above solution does not readily remove mildew spots, ask your contractor or your local building materials retailer for a mildew cleaner.



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