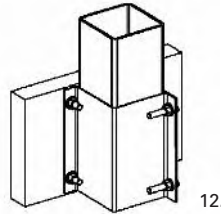
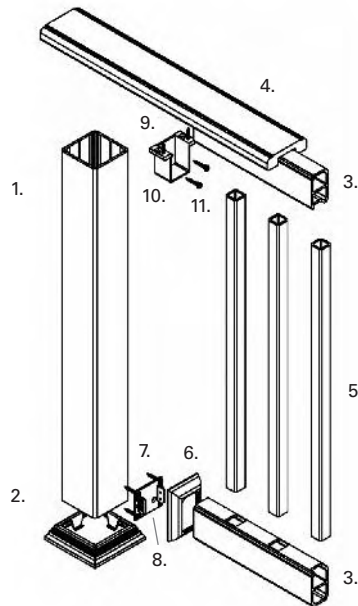


REGAL RAIL ALEXANDRIA COMPOSITE RAIL

COMPONENTS



1. 4" x 4" Composite Post
2. 4" x 4" Trim
3. 2" x 3-1/2" Rail
4. 1-1/4" x 4-1/2" Alexandria Cap Rail
5. 1-1/4" x 1-1/4" Pickets
6. 2" x 3-1/2" Trim
7. #10 x 3/4" Phillips Pan Head Screw
8. 2" Bracket
9. #10 x 3/4" Phillips Pan Head Screw
10. Alexandria Rail Straight Bracket
11. #10 x 3/4" Phillips Pan Head Screw
12. Side Mount Post Bracket

(Kit Contains Top Rail, Bottom Rail, Pickets, Brackets, Screws, and Foot Block)

LAYOUT

Crown's Alexandria Regal Rail System is designed for posts set at a maximum of 96" (8 feet) between posts and for residential applications where the rail height must be 36" above the deck/porch surface. **Remember to check local building codes for rail height requirements in your area.** The 1-1/4" x 4-1/2" top cap rail is designed for installation on top of the post (Figure 1). The bottom of the railing section is designed to be 2-1/2" above the surface. This can be lowered, but the base trim must be notched to accommodate the rail trim. A foot block is required for the sections longer than 6ft. The foot block is a 1-1/4" x 1-1/4" picket that is inserted into a hole routed through the bottom side of rail.

Measure each side of the deck so that line posts are spaced as evenly as possible between the corner posts. Remember that the outside dimensions of the PVC post sleeves (if sleeving existing wood posts) and the Regal Rail posts are 4", unlike wood, which could be 3-1/2" to 3-5/8". Also check the structural members below the deck to be sure there is no interference with the mounting brackets. If necessary, adjust the post locations. After determining the location of the posts, install the corner posts first.

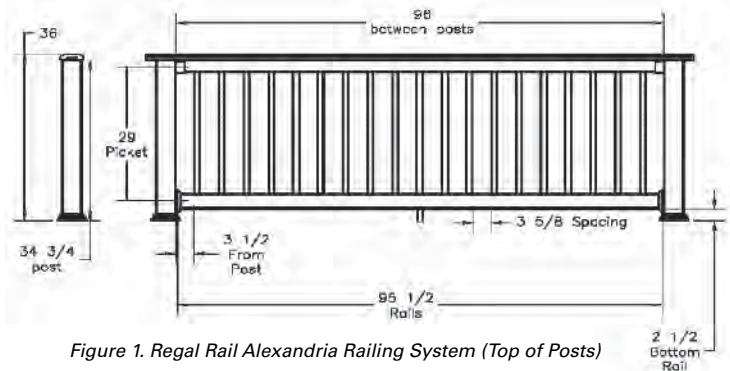
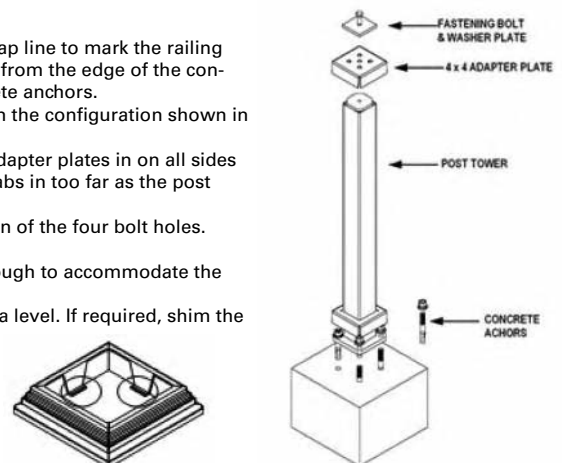


Figure 1. Regal Rail Alexandria Railing System (Top of Posts)

NEW DECK POST INSTALLATION

Post Tower on Concrete

- 1) Lay out your post positions according to your railing design. You can use a chalk snap line to mark the railing line and centers of the post locations. Make sure to mark all post positions at least 5" from the edge of the concrete to reduce the chances of cracking the concrete when drilling holes for the concrete anchors.
- 2) Remove the tower assembly and bolt the top adapter plate to the top of the tower in the configuration shown in the assembly drawing.
- 3) Using an adjustable wrench or vice grips, bend the flanges of the top and bottom adapter plates in on all sides so that the post will slide over the tower without damaging the post. Don't bend the tabs in too far as the post should not be able to slide off the tower.
- 4) Place the tower in the designated area on the concrete surface and mark the location of the four bolt holes. Make sure tower is centered over your post location marks.
- 5) Remove the tower. Using a masonry bit, drill four holes deep enough and large enough to accommodate the fasteners that you have chosen. Install concrete anchors.
- 6) Place the tower back into the desired position. Make sure the tower is plumb using a level. If required, shim the tower base with stainless steel washers. Once level, secure to the concrete anchors.
- 7) Slide your posts over the tower and install the railing sections. (Note: If using a post trim, cut the plastic tabs at the 90 degree bend and slide the trim pieces over the post tower. Next slide the post over the tower and into the trim piece.)



Post Trim

Post Tower on Concrete Decks

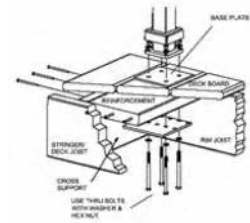
regal composite rail system installation

21

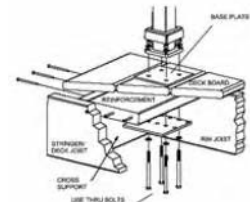
REGAL RAIL ALEXANDRIA COMPOSITE RAIL (CONTINUED)

Post Tower on Wooden Decks

- 1) Lay out your post positions according to your railing design. You can use a chalk snap line to mark the railing line and centers of the post locations. Make sure to mark the post center line position at least 3-1/2" from the edge of the rim joist. The top plate must be a minimum of 1" from the rim joist so the bolts will clear the rim joist on the underside of the deck.
- 2) Install a piece of 2" x 8" treated lumber between the joists, under the deck boards where the tower is to be installed. Attach this reinforcement board to the rim joist and stringers. (Three screws should be used on each end.)
- 3) Thickness of the deck board and reinforcement board underneath should be a minimum of 2-1/2" actual thickness.
- 4) Take surface plate and use as a template. Mark the four corner holes for the four 5/16" x 4-1/2" threaded bolts.
- 5) Pre-drill four 5/16" holes through the marked holes, drilling through the deck board and the reinforcement board.
- 6) Align the surface plate over the holes.
- 7) Take the second plate for underneath and drive the bolts up through the bottom plate, reinforcement board, deck board, surface plate, and tower mount.
- 8) Apply the washers and nuts. Tighten the bolts.
- 9) Bolt the top adapter plate to the top of the tower in the configuration shown in the Post Tower on Wooden Decks - assembly drawing. For Corner Post
- 10) Using an adjustable wrench or vice grips, bend the flanges of the top and bottom adapter plates in on all sides so that the post will slide over the tower without damaging the post. Don't bend the tabs in too far as the post should not be able to slide off the tower.
- 11) Slide your posts over the tower and install the railing sections. (Note: If using a post trim, cut the plastic tabs at the 90 degree bend and slide the trim pieces over the post tower.) Next slide the post over the tower and into the trim piece.)



Post Tower on Wooden Decks for Line Post



Post Tower on Wooden Decks for Corner Post

POST INSTALLATION

The Regal Rail metal mounting bracket is designed for both the corner post and line post installations. The line post mounting bracket requires both the LEFT and RIGHT parts. For the corner posts, use the LEFT part only.

1. To install a corner post, attach the metal mounting bracket with the tab stop at the bottom to the rim joist at the corner of the deck. Pre-drill using a 1/2-inch drill bit. Use 1/2" carriage bolts and a socket wrench to attach the brackets to the inside of the rim joist. Do not tighten bolts completely at this point. Note: Use large washers against the wood for a secure installation. The bracket should be flush with the top of rim joist.
2. Insert the corner posts into the brackets and make sure they are level, plumb, and square. Verify that all the corner posts are the same height from the top of the deck surface and at least 34-3/4" for the top-of-rail installation or 38" for the post-to-post installation. Tighten all bolts and check again to be sure posts are level.
3. Once the corner posts are in place, string a line from the top of one corner post to the next. Install the line post bracket, using the entire mounting bracket as provided, but do not tighten. Next, set the line posts in place and mark where the string line crosses the post. Remove the posts and cut along the line you just marked. Replace the cut line posts and tighten the brackets using the same method.

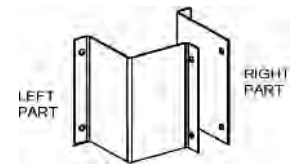


Figure 2. Post Bracket

HORIZONTAL RAIL INSTALLATION

1. **Cut 2" x 3 1/2" rails to length.** Measure distance between the inside of the top of the posts and subtract 1/2" to allow room for brackets and screw heads. This is the length of the top rail. Measure the distance between the posts close to the bottom and subtract 1/2" to allow room for the bottom brackets. This is the length of your bottom rail. Mark the rails to the calculated length using a square. Using a table saw, trim both ends of the rails to maintain the uniform picket spacing, with pickets equally spaced between posts. Do not leave an open picket insert hole at the bracket.
2. **Install Trim Base:** Be sure you install the trim base section over the posts before you start attaching the stair rail sections to the posts.
3. **Install Brackets:** Align the bracket with the top of the post and center the bracket using the centering template as shown in Figure 3.

Pre-drill two 1/8" holes into the post through the holes in the bracket or remove the bracket and use the marks made through the bracket holes. Attach brackets to post with two #10 x 3/4" Philips pan head screws.

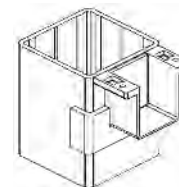


Figure 3. Top-of-Post

4. **Assemble Rail Section with the 2" x 3 1/2" rails and pickets.** Lay rails and pickets out on a clean, non-abrasive surface and assemble section. Strap section together using bungee cords or strapping to keep section tightly assembled. Do not cover the bottom foot-block hole.

REGAL RAIL ALEXANDRIA COMPOSITE RAIL (CONTINUED)

5. Determine Bottom Brackets and Foot-Block Length. Hang assembled railing section in brackets and mark post underneath the bottom rail as shown in Figure 4. Measure distance from the top of the deck to bottom of the bottom rail at the center of the section. Add 1-5/8" to this measurement and cut the foot block to the resultant length. **EXAMPLE:** If the distance from the bottom of the rail to the deck surface is 2-1/2" then the foot-block length = 2-1/2" + 1-5/8" = 4-1/8".

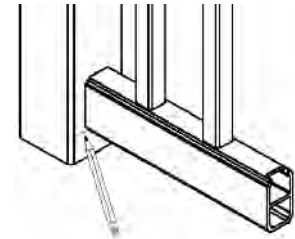


Figure 4. Marking Location of Bottom Bracket

6. Attach Foot-Block and Drill Weep Holes. Remove the assembled section and place on a non-abrasive surface. Apply a bead of PVC glue on the inside rim of the bottom hole and insert the foot-block. Drill two or three evenly spaced 1/4" weep holes through the bottom of the bottom rail and middle rib. These holes will allow for proper water drainage.

7. Install bottom brackets. Align the bottom of the 2" bracket with the line that was marked in Step 5 (Figure 4). Center the bracket on the post and pre-drill the post through the four outside holes with a 1/8" bit. Secure the bracket in place using the #10 x 3/4" Philips pan head screws provided.

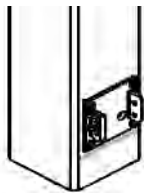


Figure 5. Installation of Bottom Bracket



Figure 6. Placement of Screw to Secure Bottom Rail

8. Install Railing Section. Slide on trim covers to bottom rail. Then, re-hang the assembled railing section into the brackets. Pre-drill a 3/32" hole in bottom rail through the top hole of the bottom bracket that is on the side of the railing that faces away from the deck. Insert a #8 x 3/4" screw to secure the rail in the bracket and slide over and snap on trim piece. Repeat this step on the remaining bottom bracket.

9. Install Top Cap Rail.

Top of Post Installation: The top cap rail should be installed only after **all** of the 2" x 3-1/2" rail sections have been installed.

Measure and plan out how the top cap rails will be installed. We recommend 45° lap joints when joining rails together. All joints should occur on top of the posts. Joints should be sealed with glue or caulk and touch up paint can be used to cover any exposed material.

For end posts you can leave the rail open and paint the exposed end with matching touch-up paint or you can miter the end with a short piece of the top rail. The short piece can be fastened with glue and a tapered head #10 screw or an angle bracket on the inside channels. *Remember to pre-drill to prevent splitting.*

Lay out all the rails on top of the post to verify fit and make adjustments as required. Make sure that the top cap rails are centered on the post tops so as not to expose the top edge of the post.

Remove rails one at a time and apply a 1/8" bead of PVC glue down the center of the inside channel of the top cap rail. Place the rail on the top 2" x 3 1/2" rail. Press down and slide rail back and forth slightly to distribute the glue and set it into the correct position.

Clamp top rail to 2" x 3-1/2" rail with quick-clamps in two places for at least three minutes to allow glue to set up.

Next pre-drill 1/8" x 1/4" deep holes through the counter bored holes in the top of the saddle bracket into the top rail. Be careful not to drill through the top of the rail. Secure the top rail to the bracket using the #10 x 3/4" Philips pan head screws.

Continue this process until all the rails are installed.