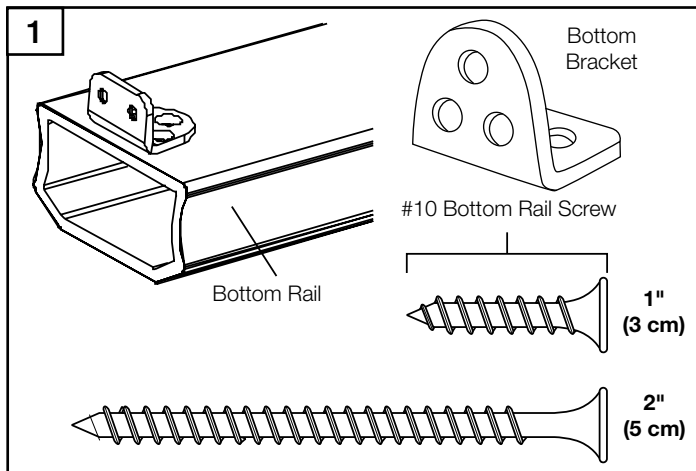


Line Rail Installation

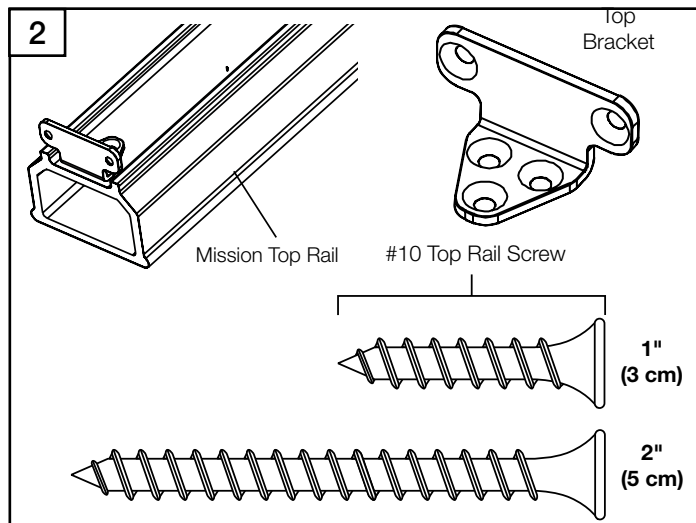
1. Measure the distance between properly installed, plumb posts.
2. Mark the top rail for the inside distance between the posts. The distance from the end of the rail to the first baluster slots should be equal on both ends of the rail. Ensure that the bracket screws will fasten into the top rail and that none fall into the routed baluster slots.

Note: Minimum distance from post to first baluster slot on top rail is 2 - 1/8" (5 cm).

3. Place the bottom rail next to the top rail so that the top and bottom baluster slots are aligned. Mark the bottom rail for the inside distance between the posts.
4. Cut the top and bottom rails to fit tightly between the posts.
5. Center the bottom bracket on the underside of the bottom rail (Figure 1). Inset the bottom bracket 1/16" (2 mm) from the end of the rail. Mark the three hole locations on the rail. Pre-drill 1/8" (3 mm) holes at the desired locations. Repeat for opposite end.



6. Secure the bottom bracket to the bottom rail using three #10 x 1" (3 cm) long screws. Repeat for opposite end. Do not over-tighten screws.
7. Center the top bracket on the underside of the top rail (Figure 2). Inset the top bracket 1/16" (2 mm) from the end of the rail. Mark the three hole locations on the rail. Pre-drill 5/32" (4 mm) holes at the desired locations. Repeat for opposite end.

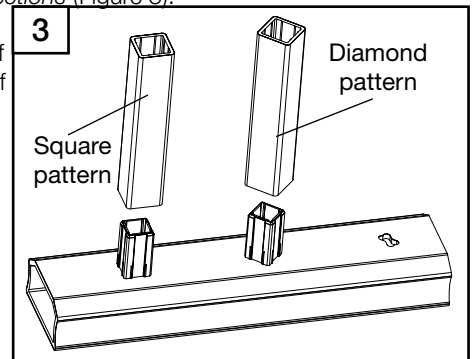


8. Secure the top bracket to the top rail using three #10 x 1" (3 cm) long screws. Repeat for opposite end. Do not over-tighten screws.
9. Ensure that the Post Sleeve Molding is in place at the bottom of the posts.
10. Secure crush block support with supplied screw to 1/3 points of underside of bottom rail. Slide crush blocks onto supports.
11. Place the bottom rail and crush blocks between the posts and on the crush block. Ensure that the bottom rail is level and that the ends of the rail are centered on the post.
12. Mark on the post the two bottom bracket hole locations. Pre-drill 1/8" (3 mm) holes at desired locations. Repeat for opposite end.
13. Secure the bottom rail to the post using two #10 x 2" (5 cm) long screws. Repeat for opposite end. Do not over-tighten screws.

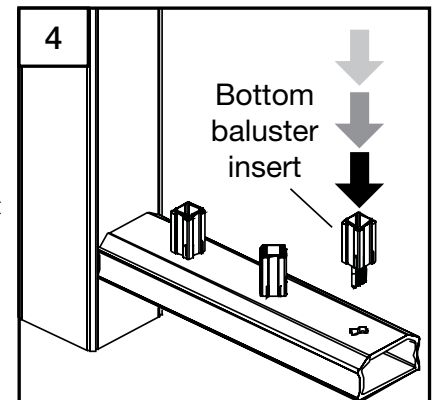
Note: A flexible shaft or extended bit holder (not included) is helpful during this step.

14. Determine the desired baluster design (squared look, diamond look or a mixed pattern of the two). *Note: Diamond pattern is not possible on stair sections (Figure 3).*

15. Ensure that all of the balusters are of equal length. Trim if necessary.

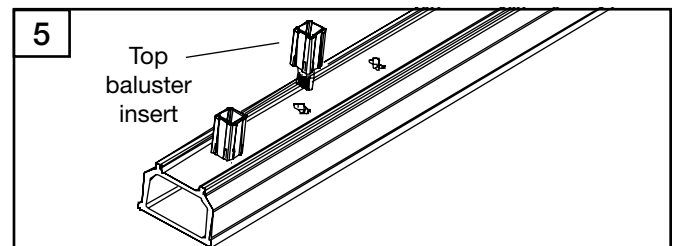


16. Fully engage the bottom baluster dagger (Figure 4) into each baluster slot in the bottom rail. Orient the bottom baluster dagger to achieve the desired look (Figure 3).



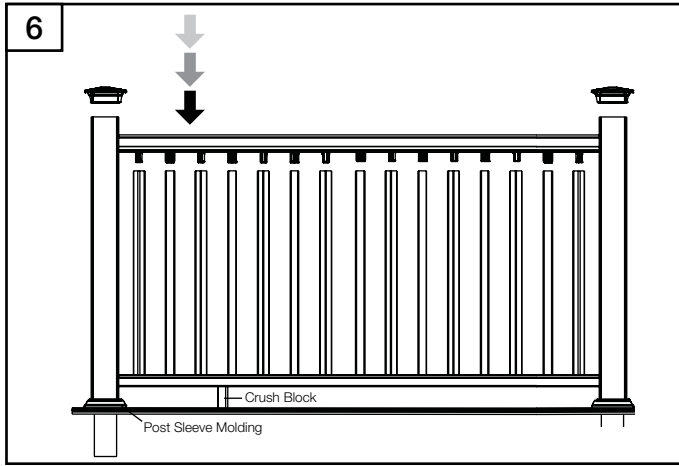
17. Fully engage a baluster over each bottom baluster dagger.
18. Fully engage the top baluster dagger (Figure 5) into each baluster slot in the top rail. Ensure that the top baluster dagger is oriented the same as the corresponding bottom baluster dagger.

19. Place the top rail between the post and above the top end of the balusters. Starting at one end of the rail, reposition top end of the baluster to allow the top baluster dagger to engage. Repeat for each



baluster.

- Once all of the balusters are engaged, gently push down on the top rail until the bottom end of the balusters contacts the bottom rail (Figure 6). The top baluster insert should be tightly



secured between baluster and the underside of the top rail.

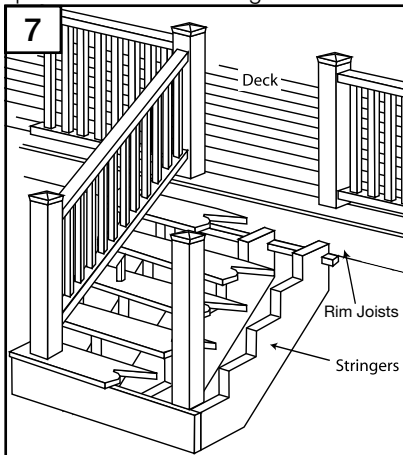
- Ensure that the top rail is level and that the rail ends are centered on each post.
- Mark on the post the two top bracket hole locations. Pre-drill 5/32" (4 mm) holes at the desired locations. Repeat for opposite end.
- Secure the top rail to the post using two #10 x 2" (5 cm) long screws. Repeat for opposite end. Do not over-tighten.

Note: A flexible shaft bit holder (not included) is helpful during this step.

- Mount and glue Post Caps after all rail sections are installed.

Stair Rail Installation (Requires Stair Rail Kit)

Note: The stair angle is a 32° angle which is equal to a 7" (18 cm) rise and an 11" (28 cm) run. Baluster daggers included in stair rail kit will allow only for 30-34° angles. Building codes are very specific on allowable angles and widths. It is very important to

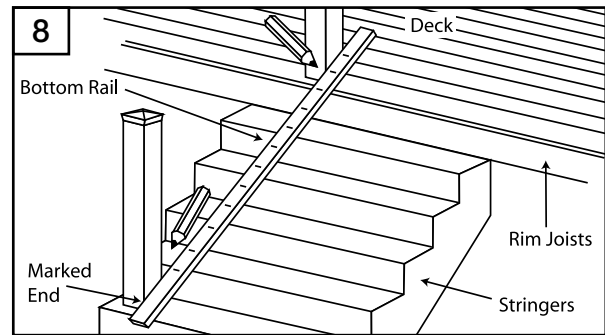


consult with your local building code officials and plan your stair layout accordingly. Ensure that you leave adequate space for graspable hand rail if applicable. "Dry fitting" intermediate post placement will result in easier and better looking installations and may avoid placement of post mounting brackets in areas where screws cannot attach to the guardrail.

- Position two line posts at top of stairway with the desired spacing and secure each post with the appropriate installation method (Figure 7).
- Install the outside stringers just wider than the post's location.

The posts mounted at the bottom of the stairs will be on the inside of the stringer and must line up directly with the posts at the top of the stairs.

Note: For stairs longer than 6' (1.8 m), it will be necessary to use multiple stair sections. The distance between posts, measured at an angle should not exceed 70" (1.7 m). Ensure all posts are plumb prior to final mounting. Minimum distance from post to first baluster slot on top rail is 2 7/8" (7 cm).

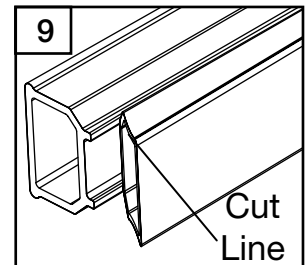


- Mark angles on the bottom rail (Figure 8).

- Cut the bottom rail to length.

Ensure that the rail fits tightly between the posts.

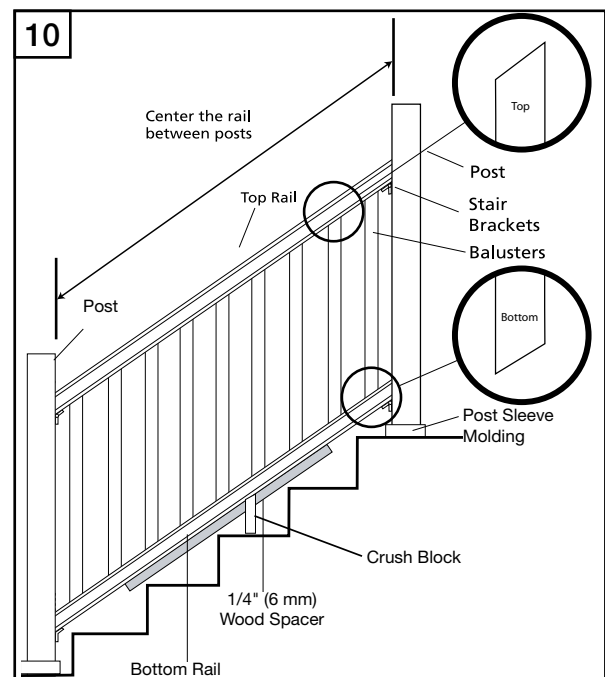
- Place the top rail next to the bottom rail with the marked ends together. Using the bottom rail as a guide, center the routed holes in the top rail with the routed holes in the bottom rail. Mark the cut lines on the top rail (Figure 9).



- Cut the top rail to length.

- Ensure that the Post Sleeve Molding is in place at the bottom of the posts (Figure 10).

- Lay bottom rail on stair with marked end at lower post and routed holes facing up. Place rail onto a 1/4" wood spacer located between the posts. Center the rail between the

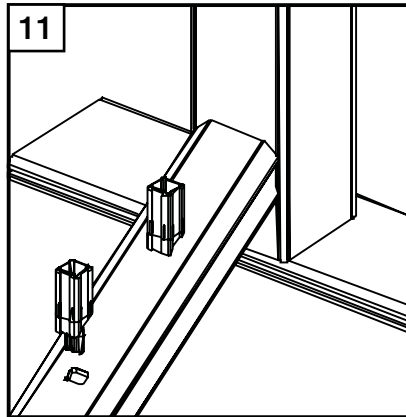


posts so that the distance from the post to the first routed hole is equal on both ends.

9. Center the hinged bracket on the underside of the bottom rail. Inset the hinged bracket 1/16" (2 mm) from the end of the rail. Mark the three bracket hole locations on the rail. Pre-drill 1/8" (4 mm) hole at the desired locations. Repeat for opposite end.
10. Secure the hinged bracket to the bottom rail using three #10 x 1" (3 cm) long screws. Repeat for opposite end. **DO NOT OVER-TIGHTEN SCREWS.**

Note: For easier access to securing the fasteners in a stair assembly, a hinge bracket with side wings (currently used for securing the top rail) may be substituted for the bottom hinge bracket without the side wings.

11. Repeat steps 9-10 for the top rail.
12. Lay the bottom rail, with the routed holes upward, onto a 1/4" (6 mm) wood spacer located between the posts (Figure 10). This provides the rail spacing between the rail and stair treads and helps to stabilize the setup.
13. Using the hinged bracket as a template, swing the unsecured leg of the bracket downward so that it touches the post. Mark the two hole locations on the post. Repeat for opposite end.
14. Remove the bottom rail from between the posts.
15. Cut crush blocks from a baluster to the desired height. (Consult local building official for the proper spacing between the deck and the railing). Place crush blocks on the stair tread surface midway between the posts (Figure 10).
16. Pre-drill 5/32" (4 mm) holes at desired bracket hole locations.
17. Secure bottom rail between the posts. Secure the bottom rail to the post using two #10 x 2" (5 cm) long screws. Repeat for opposite end. **DO NOT OVER-TIGHTEN.**



18. Fully engage the baluster daggers into the routed holes of the bottom rail (Figure 11).
19. Mark the stair angle on one end of each baluster to be used.
20. Cut the composite square baluster at an angle on the top and bottom of each baluster (Figure 10). Ensure that all of the balusters are of equal length. Trim if necessary.
21. Fully engage the balusters onto the baluster daggers in the bottom rail. Fully engage baluster daggers into the top of each baluster. The angled cut of the baluster should be parallel with the length of the top rail.
22. Place the top rail between the post on top of the baluster daggers. Starting at one end of the rail, reposition top end of the baluster to allow the top baluster insert to fully engage. Repeat for each baluster until all daggers are fully engaged inside the top rail.
23. Gently push down on the top rail until the bottom end of the balusters contacts the bottom rail.
24. Ensure that the top rail ends are centered on each post.
25. Using the hinged bracket as a template, swing the unsecured leg of the bracket downward so that it touches the post. Mark the two hole locations on the post. Repeat for opposite end.
26. Slightly pull the top of the rail section toward the staircase to gain access to holes. Pre-drill 5/32" (4 mm) holes at desired locations. Repeat for opposite end.
27. Secure top rail to post using two #10 x 2" (5 cm) long screws. Repeat for opposite end. Do not over-tighten screws.

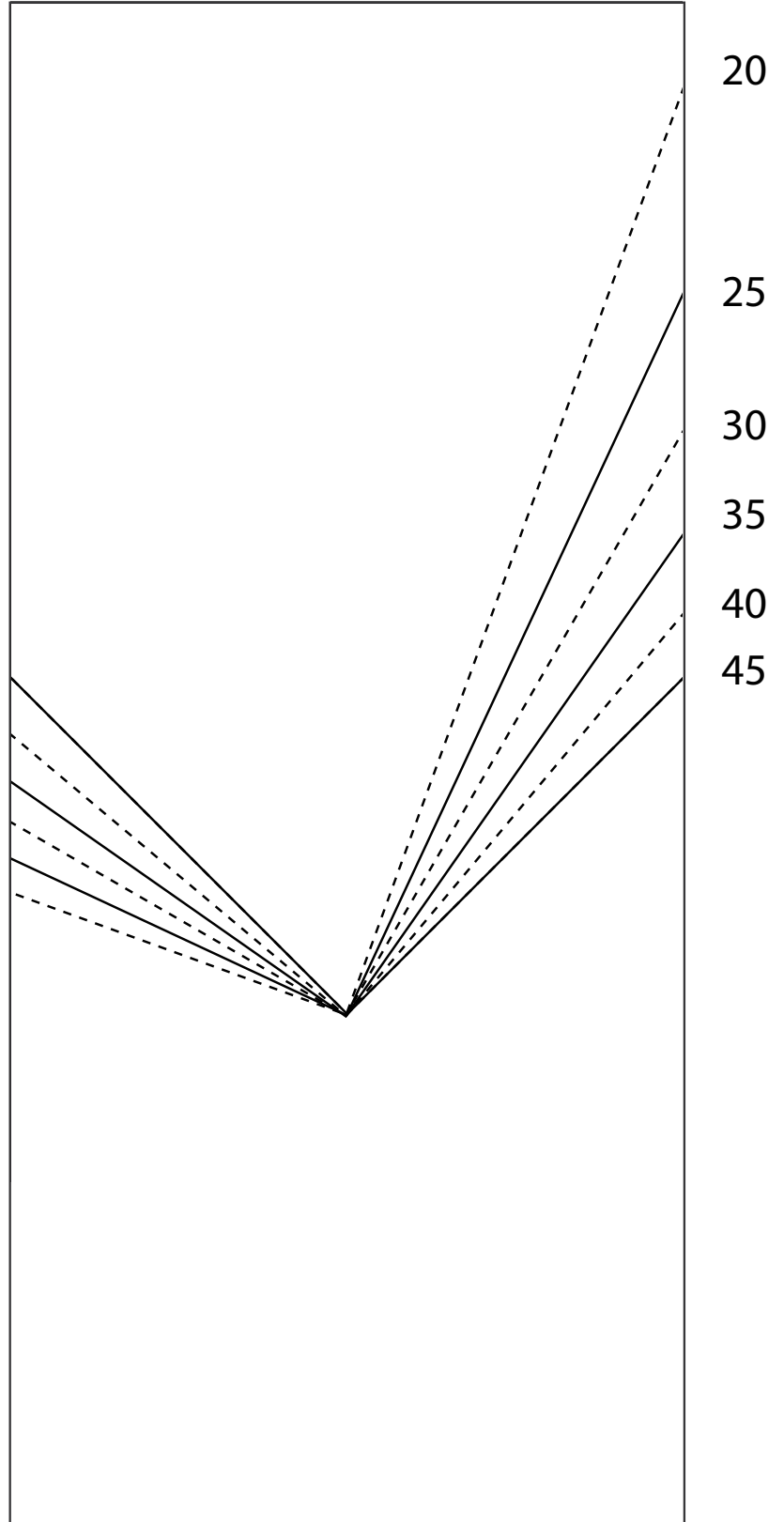
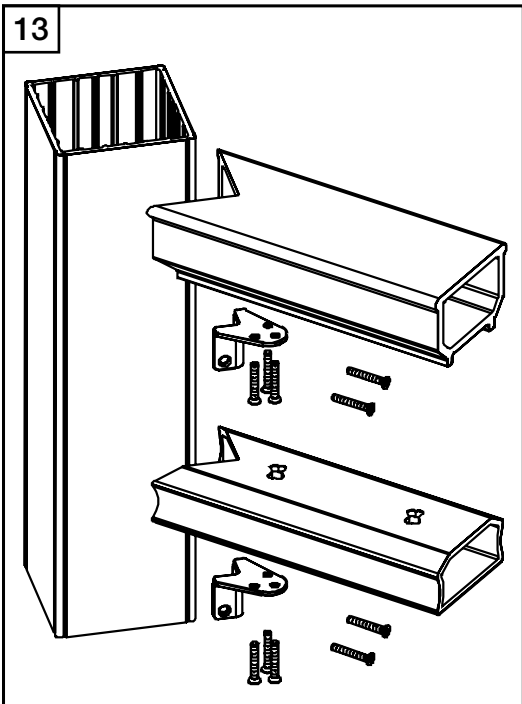
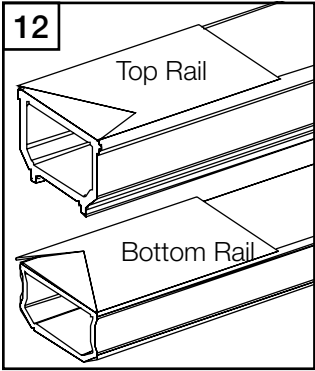
Angle Rail Installation

(Angle Bracket Kit Available by Special Order)

Rails up to 20° may be mounted to the post face by using the In Line "L" Bracket (Figure 1). Rails should be cut at the appropriate angle to fit tight against post. Cutting rails greater than 20° will result in a rail that does not fully fit on post. Angles greater than 20° require the use of the Angle Mount Bracket.

Note: Minimum distance from post corner to first baluster hole 2-1/4" (6 cm).

1. Determine the angle of your installation by using the supplied template (page 20).
2. Cut the template out along the appropriate marked lines. (You may want to photocopy the template as a backup prior to cutting).
3. Position the template on the non-routed flat side of the top rail. Mark the proper cutting angle (Figure 12).
4. Position the template on the non-routed bottom surface of the bottom rail (Figure 12). Mark the proper cutting angle. Template will be reversed from top rail.
5. Ensure baluster holes are equidistant from the end of rail to ensure proper vertical alignment.
6. Make angle cuts in top and bottom rails.
7. Align the angled brackets with the cut in the railing. Inset the bracket 1/16" (2 mm) from rails end. Mark the three screw hole locations on both rails. Repeat at opposite end. Pre-drill 1/8" (3 mm) holes at desired locations (Figure 13).
8. After fitting angles to posts, follow the line rail installation instructions (Steps 5 through 23) to complete the rail section installation.



ANGLE RAIL CUTTING TEMPLATE