



Installation Instructions

Balustrade Systems (Straight Rail)

General & Safety Information

- Wear proper personal protective equipment (PPE).
- Operate all tools per manufacturer guidelines.
- Standard woodworking saws and blades can be used for cutting Fypon® polyurethane (PUR) products, except in cases where there is metal reinforcement.
- Fypon PUR parts are NOT load bearing.
- For best results, finish and allow to dry prior to installation. Refer to Fypon General Finishing Instructions, which can be found at [fypon.com/install](https://www.fypon.com/install).
- All Fypon products must be installed per the following instructions and finished within 90 days of installation to maintain warranty coverage

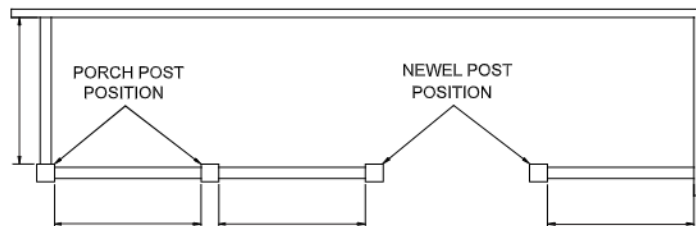
Tools / Materials

- Pencil
- Tape Measure
- Level
- Square
- Hammer or pneumatic nailer
- Nail Countersink
- Drill / driver (if using screws)
- 1/8" drill bit
- 3/4" or 1-1/8" drill bit (for baluster holes)
- 3/4" open-end or adjustable wrench
- Putty knife
- Hand saw or reciprocating saw
- Miter saw
- Sandpaper (220-grit recommended)
- Caulk gun
- Exterior-grade polyurethane-compatible sealant and / or filler
- Exterior-grade polyurethane-compatible adhesive (Loctite® PL Premium® recommended)
- Exterior-grade fasteners (trim-head screws recommended)

Installation Instructions

1) Identify post locations.

Mark locations on the floor where all balustrade support posts will be located.



2) Install posts.

If installing Fypon® porch posts or structural posts with column wraps, refer to their respective installation instructions. Ensure there is blocking at the locations where the rail will attach, if installed over a column wrap.

If installing Fypon newel posts, position the steel base mounting plates per the locations marked in step 1 and secure them to the floor with exterior-grade fasteners. Mark the hole locations and pre-drill them if fastening to concrete (Figure 2A).

Note: If trimming newel posts, measure from the top and cut to length at the bottom (Figure 2B). Add a centered saw kerf at the bottom for drainage, if desired (Figure 2C).

Cut the 3/8"-16 x 50 threaded rods (provided with newel post installation kit) to lengths that are 1/4" shorter than the newel posts (Figure 2D). Then install and tighten a threaded rod into each mounting plate (Figure 2E).

Align the post over the threaded rod and install the galvanized C-channel over the threaded rod and into the recessed cavity on top of the newel post. Then install 3/8" flat and lock washers and tighten a 3/8" nut to a torque of 100 in-lbs (Figure 2F).

If installing trim collars, slide them over the top of the newel post and secure at the bottom using exterior-grade fasteners (Figure 2G).

Apply a 1/4" bead of adhesive to the top of the newel post and install the newel post top (Figure 2H). Secure with exterior-grade fasteners if desired. Remove any excess adhesive with a putty knife and damp cloth before the adhesive sets.

Figure 2A

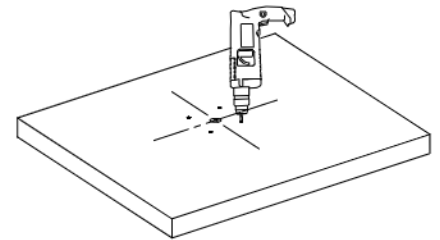
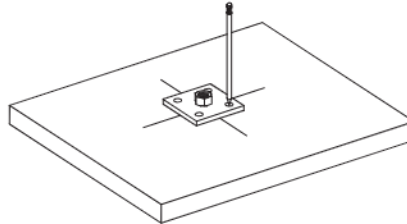


Figure 2B

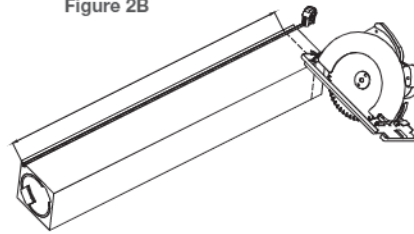


Figure 2C

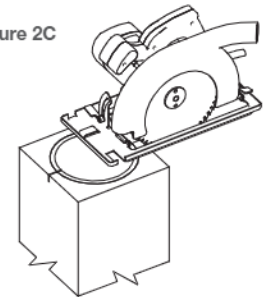


Figure 2D

Newel post - 1/4" =
Rod length

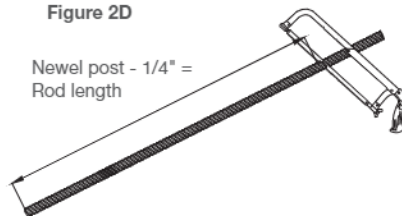


Figure 2E

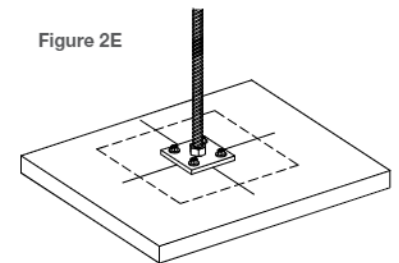


Figure 2F

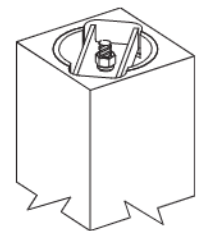
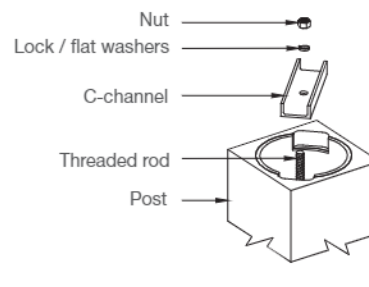


Figure 2G

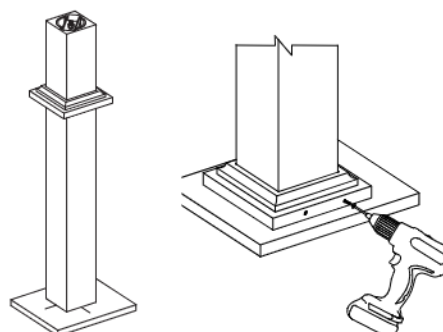
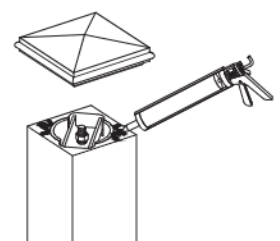


Figure 2H



3) Assemble rail sections (if not pre-assembled).

Measure the distance between posts at the heights where the top and bottom rails will attach (Figure 3A). Cut the top and bottom rails to length for that section.

Note: The top and bottom rails may be different lengths.

Lay out and mark center lines on each rail where balusters will attach (Figure 3B). Refer to maximum spacing for baluster type (Figure 3C). Per code requirements, spacing cannot exceed 4" between balusters. Drill appropriate size holes to accept baluster pipe (Figure 3D).

Note: A drill press works well for this, if available.

Apply a 1/4" bead of adhesive on the bottom end of each baluster around the pipe (Figure 3E) and insert all of the balusters for that section into the holes in the bottom rail. Repeat this step to insert the balusters into the top rail.

Lay the rail assembly on a flat surface using three or more strap clamps, making sure the assembly is square and all balusters are oriented correctly (Figure 3F). Remove any excess adhesive with a putty knife and damp cloth and allow at least 12 hours for the adhesive to cure.

Painting of the rail sections can be done at this time if desired.

Figure 3A

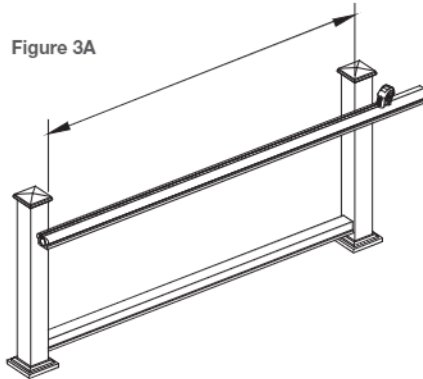


Figure 3B



Figure 3C

Maximum Baluster Spacing (Horizontal Center to Center)		
Style	Size	
	5"	7"
Woodruff	5-1/8"	7-1/8"
Square	5-3/4"	
Rosedale		6-5/8"
Logan	5-1/2"	
Classic (CC)	5"	7-1/2"
Classic (CCOB)		5-3/4"
Beaumont		6-1/4"
Ashley	5-3/8"	7-3/8"

Figure 3D

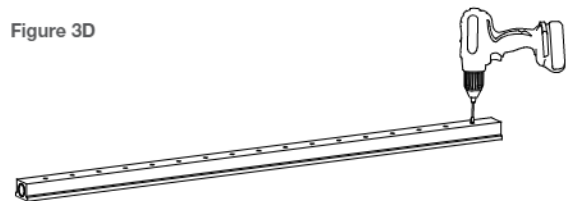


Figure 3E

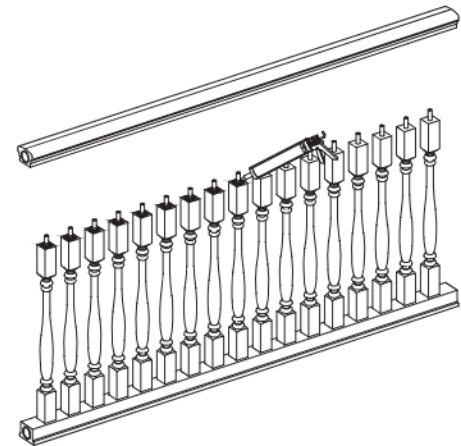
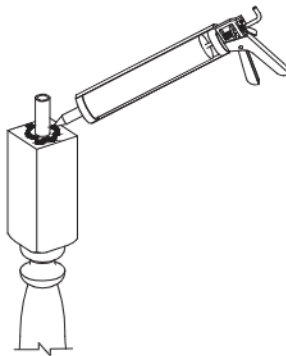
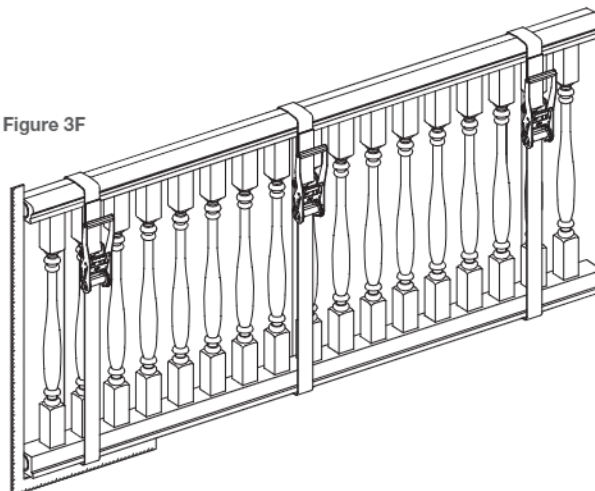


Figure 3F



4) Install rail sections.

Fasten angle brackets to the bottom rails as shown (Figure 4A), using the #14 x 2-1/2" stainless steel flathead screws provided with the bracket kit.

Identify the desired height of the railing and fasten angle brackets to the posts as shown (Figure 4B), using the #14 x 2-1/2" stainless steel flathead screws provided with the bracket kit. The top rail will rest on them when installed.

Dry fit the rail assembly to make sure it will fit tightly. Then remove the rail assembly and apply a 1/4" bead of adhesive to the ends of the rails (Figure 4C) and reposition the rail assembly between the posts with the top rail resting on the top brackets.

Fasten the top brackets to the top rail and the bottom brackets to the post, using the #14 x 2-1/2" stainless steel flathead screws provided with the bracket kit.

Remove any excess adhesive.

5) Install rail support blocks (if necessary).

If the rail section is more than 4" long, support blocks should be installed under the bottom rail so there is no unsupported section over 48" (Figure 5). Trim the block to height if necessary and apply a 1/4" bead of adhesive to the top of the block before sliding it under the bottom rail at the desired location.

6) Fill and sand fastener holes.

Fill fastener holes with filler and sand to match surrounding area, if needed, but be careful not to remove the primer.

7) Touch up or finish.

Refer to *Fypon® General Finishing Instructions*. If part was finished prior to installation, touch up filled fastener holes with color-matched finish. Caulk joints if desired for smooth appearance.

Figure 4A

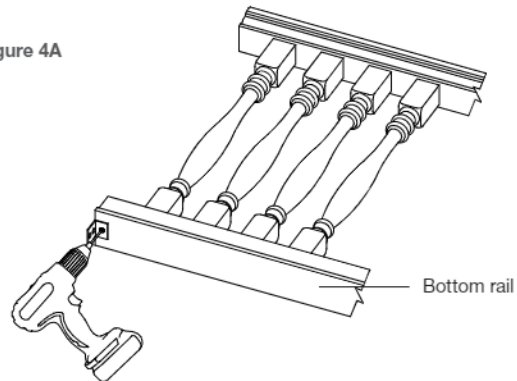


Figure 4B

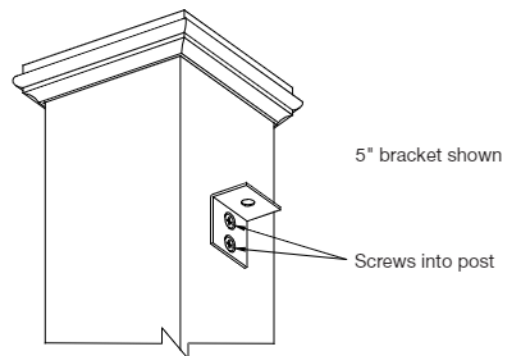


Figure 4C

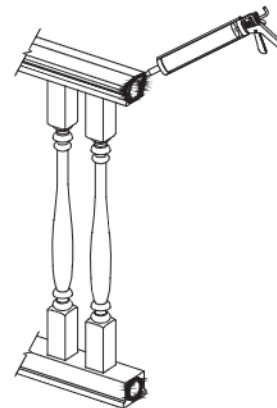
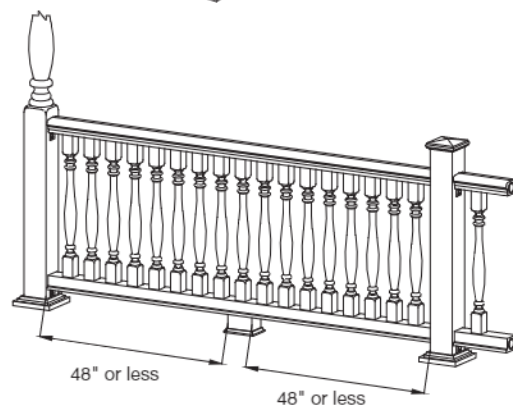


Figure 5



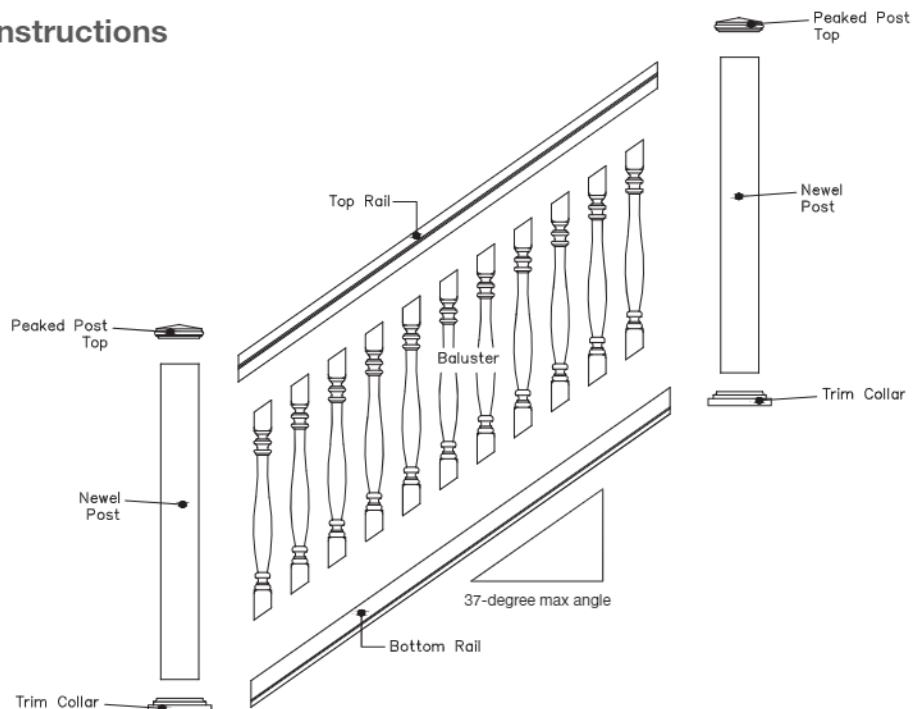
General & Safety Information

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Tools / Materials

- | | |
|--------------------------------------|--|
| • Pencil | • Putty knife |
| • Tape Measure | • Hand saw or reciprocating saw |
| • Level | • Miter saw |
| • Square | • Sandpaper (220-grit recommended) |
| • Hammer or pneumatic nailer | • Caulk gun |
| • Nail Countersink | • Exterior-grade polyurethane-compatible sealant and / or filler |
| • Drill / driver (if using screws) | • Exterior-grade polyurethane-compatible adhesive (Loctite® PL Premium® recommended) |
| • 1/8" drill bit | • Exterior-grade fasteners (trim-head screws recommended) |
| • 3/4" open-end or adjustable wrench | |

Installation Instructions



1) Identify post locations.

Mark locations on the floor where all balustrade support posts will be located.

2) Install posts.

If installing Fypon® newel posts, position the steel base mounting plates per the locations marked in step 1 and secure them to the floor with exterior-grade fasteners (not provided). It may be necessary to mark the hole locations and pre-drill them if fastening to concrete (Figure 2A).

Note: If trimming newel posts to a desired height, measure from the top and cut to length at the bottom (Figure 2B). Add a centered saw kerf at the bottom for drainage, if desired (Figure 2C).

Cut the 3/8"-16 x 50 threaded rods (provided with newel post installation kit) to lengths that are 1/4" shorter than the newel posts (Figure 2D). Then install and tighten a threaded rod into each mounting plate (Figure 2E).

Align the post over the threaded rod and install the galvanized C-channel over the threaded rod and into the recessed cavity on top of the newel post. Then install 3/8" flat and lock washer and tighten 3/8" nut to a torque of 100 in-lbs (Figure 2F).

If installing trim collars, slide them over the top of the newel post and secure at the bottom using exterior-grade fasteners (Figure 2G).

Apply a 1/4" bead of adhesive to the top of the newel post and install the newel post top (Figure 2H). Secure with exterior-grade fasteners if desired. Remove any excess adhesive with a putty knife and damp cloth before the adhesive sets.

Figure 2A

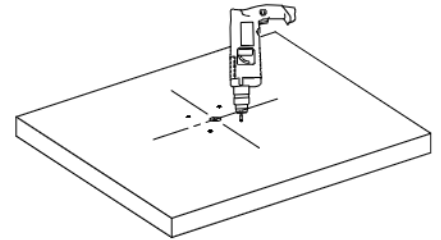
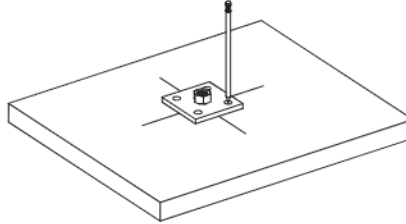


Figure 2B

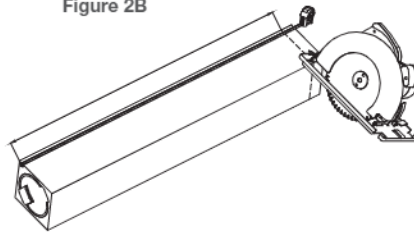


Figure 2C

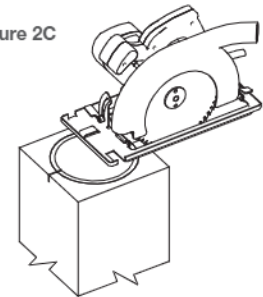


Figure 2D

Newel post - 1/4" =
Rod length

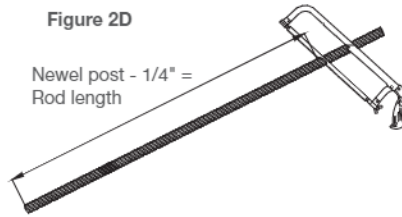


Figure 2E

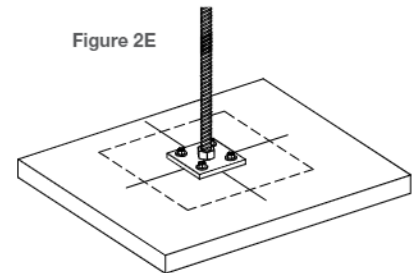


Figure 2F

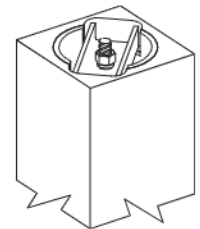
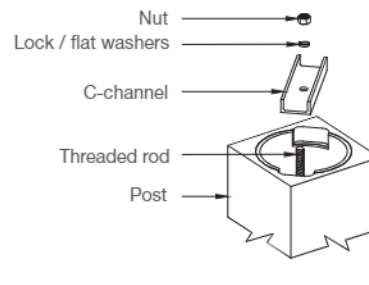


Figure 2G

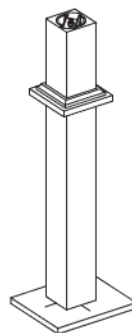
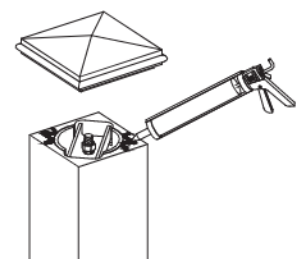
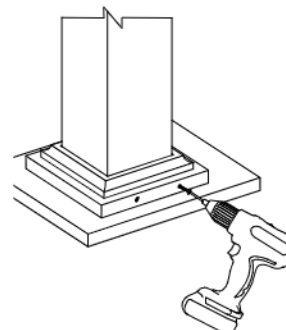


Figure 2H



3) Measure and cut rails.

Lay the bottom rail on the stair treads next to the mounting posts and mark lines on the rail to align with the mounting surfaces (Figure 3A).

Cut the bottom rail to length along the marked lines.

If the top rail will be mounted to the same surfaces as the bottom rail, position the rails next to each other and trace the cut lines of the bottom rail onto the top rail (Figure 3B).

If the top and bottom rails will be attached to different mounting surfaces, adjust marks as needed, maintaining the proper angle.

Cut the top rail to length along the marked lines.

Figure 3A

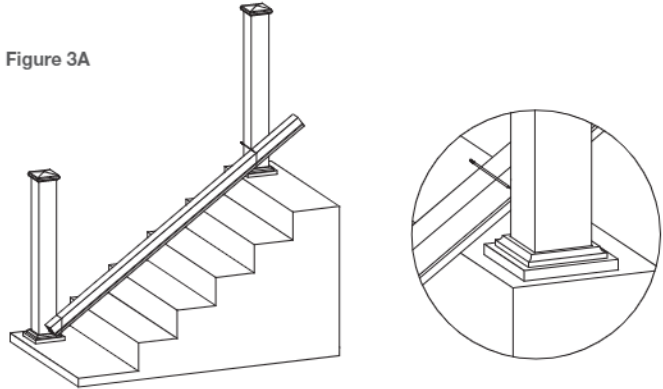
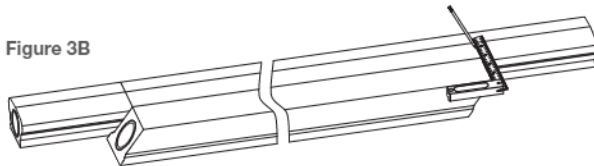


Figure 3B



4) Mark baluster locations.

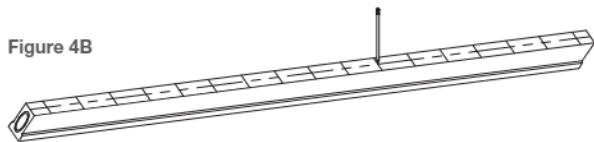
Refer to the maximum baluster spacing in the table on the right (Figure 4A). The spacing shown is based on a straight rail application and refers to the center-to-center horizontal distance between balusters to maintain proper clearance for code requirements.*

Mark the baluster center locations along the entire rail and equally spaced from each end (Figure 4B).

Figure 4A

Maximum Baluster Spacing (Horizontal Center to Center)		
Style	Size	
	5"	7"
Woodruff	5-1/8"	7-1/8"
Square	5-3/4"	
Rosedale		6-5/8"
Logan	5-1/2"	
Classic (CC)	5"	7-1/2"
Classic (CCOB)		5-3/4"
Ashley	5-3/8"	7-3/8"

Figure 4B



5) Install bottom rail.

Lay the bottom rail on the stair treads, confirm it fits tightly to each mounting surface, and pre-drill two angled holes (in toe-nail fashion) into both sides of the rail, through the internal pipe, and into the mounting surface at each end (Figure 5A).

Apply a 1/4" bead of adhesive to the ends of the bottom rail (Figure 5B) and fasten it to the mounting surfaces with exterior-grade fasteners into the pre-drilled holes (Figure 5C). Make sure the fasteners are long enough to penetrate the mounting surface and internal pipe. Countersink the heads.

Figure 5A

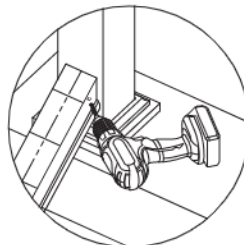
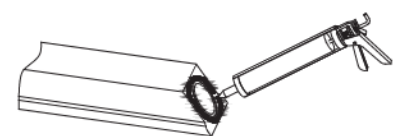


Figure 5B



6) Cut balusters.

Cut balusters to desired height and angle, so they will be plumb when installed (Figure 6). All balusters should be cut to the same size.

Figure 5C

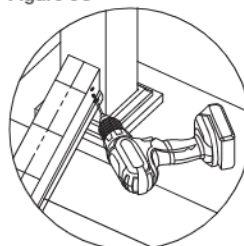
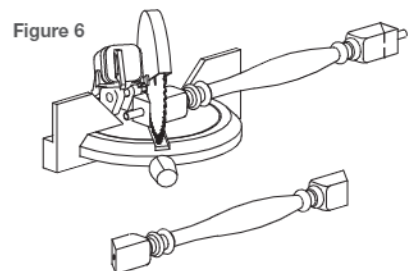


Figure 6



*For stair applications, code requires that a 4-3/8" sphere cannot fit through the infill at any point.

7) Install balusters and top rail.

Apply a 1/4" bead of adhesive to the bottom end of a baluster (Figure 7A) and position it on the upper end of the bottom rail per the marks made in Step 4 (Figure 7B). Pre-drill and install a fastener by "toe-nailing" it through the baluster and its internal pipe, and into the bottom rail and its internal pipe (Figure 7C) so the baluster is plumb. Countersink the fastener heads.

Working down the bottom rail, repeat and install the other balusters on the bottom rail, making sure they are plumb (Figure 7D).

Dry fit the top rail on top of the installed balusters, confirm it fits tightly to each mounting surface, and pre-drill holes through the rail and its internal pipe, into the mounting surfaces, as was done for the bottom rail.

Remove the top rail and apply a 1/4" bead of adhesive to the tops of all the balusters (Figure 7E) and to the ends of the top rail, as was done for the bottom rail.

Fasten the top rail to the mounting surfaces and the top ends of the balusters to the top rail with exterior-grade fasteners, making sure the balusters are plumb (Figure 7F). Make sure the fasteners are long enough to penetrate the mounting surface and internal pipe. Countersink the heads.

8) Fill and sand fastener holes.

Fill fastener holes with filler and sand to match surrounding area but be careful not to remove the primer.

9) Touch up or finish.

Refer to *Fypon® General Finishing Instructions*. If part was finished prior to installation, touch up filled fastener holes with color-matched finish. Caulk joints if desired for smooth appearance.

Figure 7A

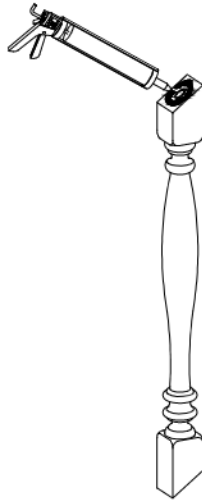


Figure 7B

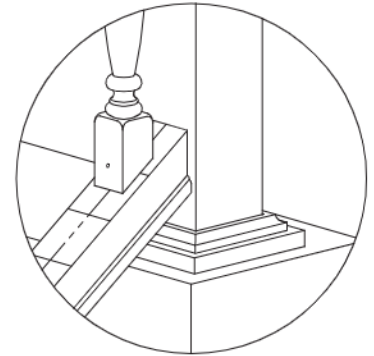


Figure 7C

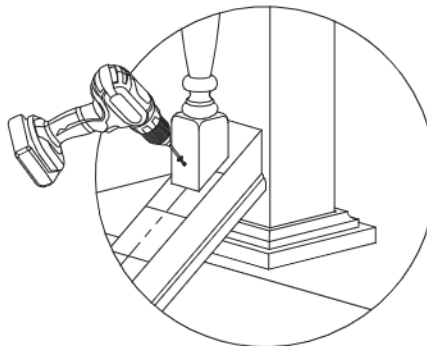


Figure 7D

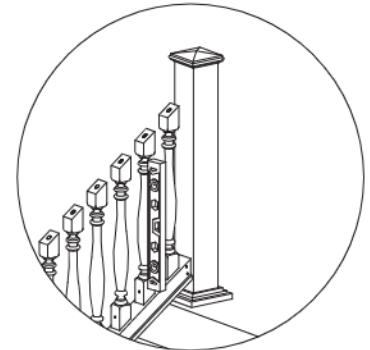


Figure 7E

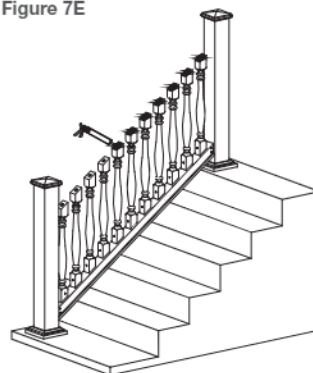


Figure 7F

