

Genthane Installation of Balustrade Systems

IMPORTANT: Be sure to mark the center point of each newel post's location prior to installation to insure proper spacing. All product interfaces must use PL Premium Adhesive (read directions before use) for warrantee purposes and ensure lasting installation.

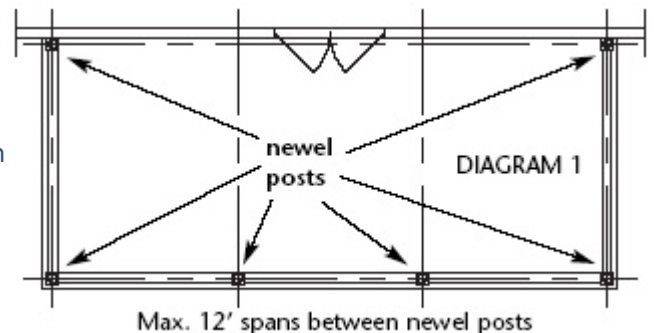
Genthane makes no guarantee as to the suitability of our rail systems, or any other product we sell, on any specific project or application. Before any balustrade, or any other product, is ordered and installed, Genthane recommends checking with local building code authorities to ensure relevant building code requirements are met. Most building codes dictate that the balustrade must be installed in accordance with the "4 inch ball rule". Further, most building codes specify top railing height be no lower than 36" on decks lower than 3' from grade, and 42" where the railing is to act as a guard rail. Usually, where the railing is to be purely decorative, there are no limitations.

All Genthane railing systems are designed for termination at newel posts, walls, or some other load-supporting member. They cannot be joined to each other. Any installation where a railing section not installed as recommended will void Genthane's warranty.

The following steps outline the procedure for installing Genthane's balustrade system. It may be necessary to modify this procedure for circumstances relevant to an individual installation.

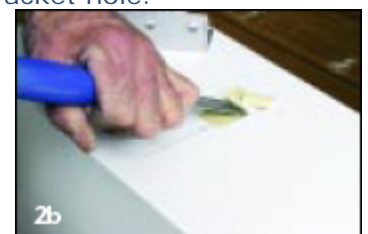
1. Determine location of newels:

- Before any work can begin, it is necessary to determine the exact layout of railing.
- When determining layout, use 12' as a maximum railing length and keep all railing lengths on a run equal. (See Diagram 1)
- Mark the center locations of all newel posts.



2. Install top angle brackets to newels

- Before installing the newels, it is necessary to install the top angle brackets to each newel post. (The bottom brackets are fastened to the bottom rails)
- Measure the combined heights of the bottom rail and baluster; this is the distance between angle brackets used to fasten railings to newels. Call this total measurement "X" inches.
- Determine and mark on the newel post the height, which the bottom rail will be located off the deck. This will be the location of the bottom rail bracket.
- Offset the top rail bracket "X" inches from the bottom bracket (See Photo 2a), mark and pre-drill a hole in the newel post for the center bracket hole.
- Install the top bracket at the location determined above using a bolt through the center hole of the angle bracket. (Use adhesive between bracket and newel)
- Install wood screws through the 2 outboard holes in the bracket. (If present)
- Note the top railing bracket can be mortised into the newel post for a cleaner installation. (See Photo 2b)



3. Installing Newel posts To Wood Decking

- a. Install blocking if required beneath the center of each newel post, fastening with screws or nails to deck joists. (Minimum requirement: 2" X 6" CCA treated Southern Pine)
- b. Center floor flange on top of center-mark of post location found in Step 1 and secure to decking and blocking with 3" lag screws. (See Photo 3a)
- c. Thread 1/2" rod into welded nut on floor flange and tighten with vise grips. (See Photo 3b)



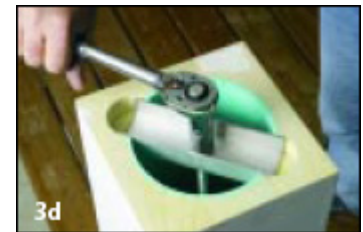
4. Installing Newel posts To Concrete

- a. Drill 5/8" hole to minimum depth of 2 1/4" at center positions of newels determined in Step 1.
- b. Clear and insert anchors into holes, tapping the anchor in until flush with surface of concrete. Using a setting pin (metal pin or punch) strike with sharp blows until anchors are set. (See Photo 3c)
- c. Thread rod into anchor and tighten with vise grips.



5. Securing Newel Post

- a. Place newel post over threaded rod and insert "C" channel (open side up) into mortised slot in the top of the newel post. (Be sure to use PL Premium between base of newel and deck material)
- b. Install lock washer and nut on to threaded rod.
- c. Orient newel post to final position and tighten up nut. (See Photo 3d)
- d. Cut excess threaded rod using reciprocating saw or cut off disk. (Rod can be no higher than top of newel)



6. Determine and cut railing lengths

- a. With the newel post installed, measure the spans between each set of newel posts and cut top/bottom rail sections to suit.
- b. Label each set of rails to their corresponding location.

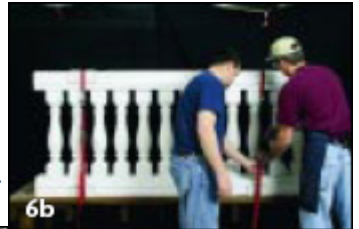
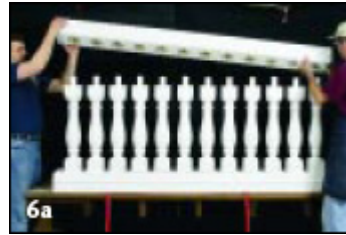
7. Determine balustrade spacing and drill holes

- a. Prior to drilling holes, check with local building code authorities for minimum spacing of balusters. Most building codes dictate that the balustrade must be installed in accordance of the "4 inch ball rule". (See Photo 4a)
- b. The maximum spacing of balusters which comply with the 4" ball rule can be found in the Gentane catalogue or website.
- c. With the maximum spacing as a guideline, determine the best configuration of balusters, which provides for both consistent end and balustrade spacing. Note: It will likely be necessary to vary spacing slightly between sections to achieve good results.
- d. Drill holes in centerline of railings at locations determined above. Drill holes 1/4" larger than the pipe in balusters. Holes need to be 1" deep to accommodate pipe. (See Photo 4b)



8. Pre-assemble railing sections

- Place bottom rail on flat surface and apply adhesive around each hole drilled above. (See Photo 5)
- Insert balusters in holes, twisting slightly to seat the adhesive.
- Apply adhesive around the tops of each baluster.
- Place top rail over ends of balusters, indexing each into the corresponding holes in top rail. Assistance will be needed to do this. (See Photo 6a)
- With all the baluster installed, loosely clamp the assembly together using load binding straps. (See Photo 6b)
- Once the assembly is loosely clamped, orient each baluster so it is sitting squarely and the spaces between each are consistent. (Using a spacer block as a guide is helpful)
- To ensure the balusters do not move while the adhesive cures, toe nail each into the bottom and/or top rail with brad nails. Tighten up clamps. (See Photo 6c)
- Set the entire assembly aside for 24 hours while the adhesive cures.
- Complete this procedure for the rest of the railing sections.



9. Install support blocks to bottom rails if necessary. (On spans over 8')

- Cut support blocks to the same height the bottom rail is to be located off the deck.
- Apply adhesive to the topside of support block and screw from the bottom side into the bottom rail. (See Photo 7)



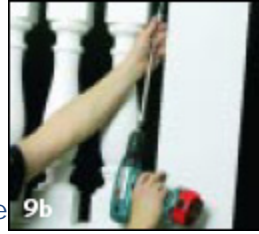
10. Install bottom rail support bracket.

- The bottom rail brackets are installed on the end of the bottom rail prior to setting the railing assembly into place due to space limitations.
- Locate the bracket on the end of the underside of the bottom rail.
- Install the bottom bracket (using adhesive) using the 5/16" bolts supplied in the hardware kit. (See Photo 8a and b)
- Mark and pre-drill a 5/16" hole in the end of the rail.
- Notch the underside of top rail to accommodate the fastening bracket hardware. (See Photo 8c)



11. Install railing sections

- a. Apply adhesive to the ends of the railings. (See Photo 9a)
- b. With assistance, place each entire railing assembly between the corresponding newel posts and rest on the top rail brackets installed in Step 2 above. (Use adhesive between brackets, railing, and newels)
- c. Center the railing section in place and using 2" wood screws; secure the top rail by screwing from beneath and into the bottom of the top rail. (See Photo 9b)
- d. Secure the bottom rail by screwing from the side into the newel post using 2" wood screws. (See Photo 9c) Note: Make sure the ends of the rail are tight to the newels before fastening.



12. Install newel caps

- a. Apply adhesive to the tops of newel posts.
- b. Center newel caps on posts and secure using brad nails. (See Photo 10)



13. Finish the completed railing as per the Finishing Instructions