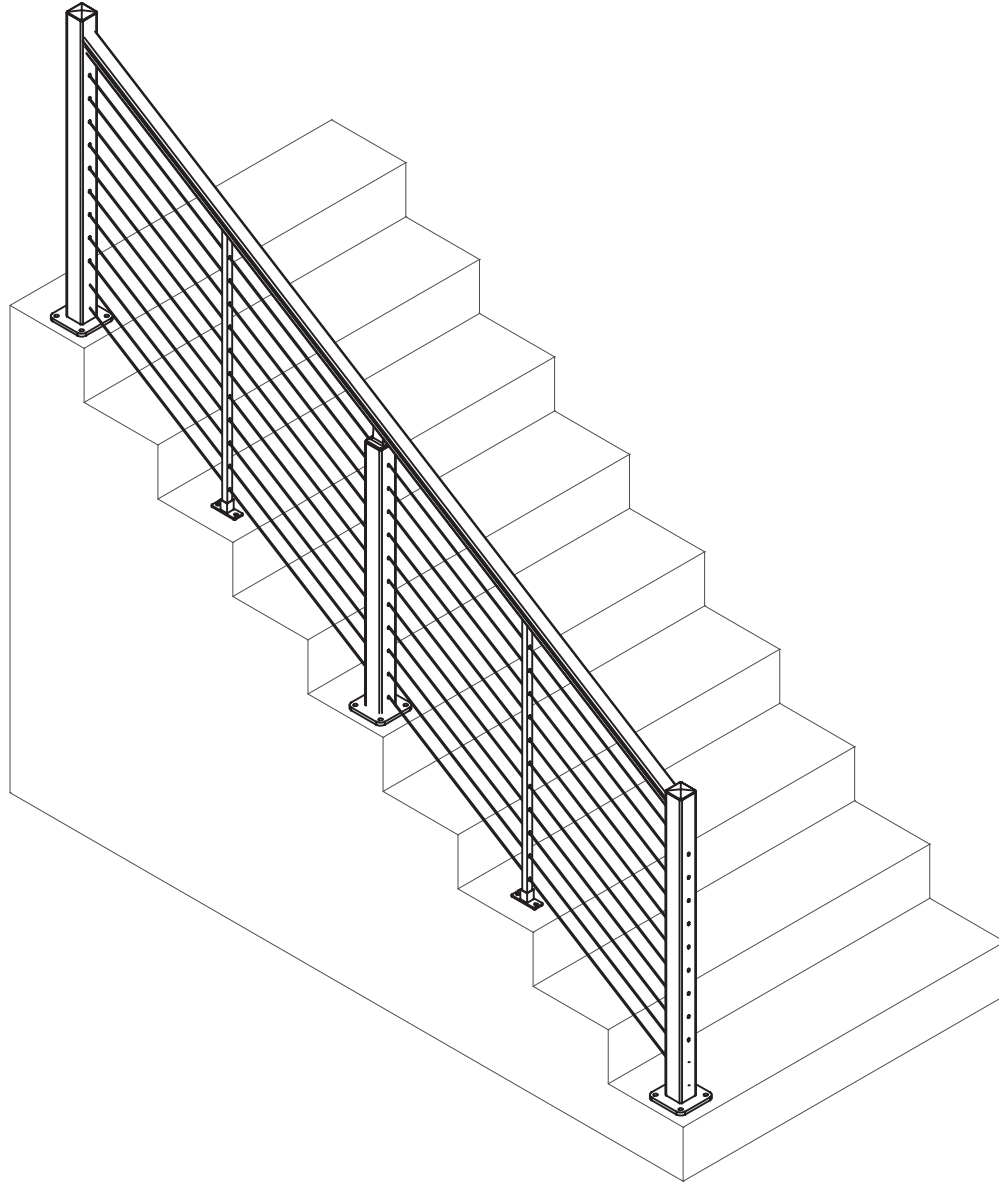


DesignRail with CableRail® Infill

Residential Stairs using Series 150 Top Rail

Installation Instructions



Notes:

- 1) Prior to beginning installation, verify that all parts have arrived and that they match the packing list, and thoroughly review all of the installation instructions.
- 2) Consult local building code for all railing construction requirements in your area.
- 3) For projects with multiple infill options refer to additional installation instructions and documents, as needed.
- 4) For complete information on installation, care & maintenance, warranty, and product registration, visit feeneyinc.com

Installation Preparation

Prior to beginning DesignRail Installation, the following steps should be taken:

1) Review Package Contents

Prior to beginning construction of the railing system, it is important to review the Picking Ticket and verify that all materials and components are on site. The installation document package includes a copy of the Picking Ticket. This can be cross-referenced with the Post Layout and the Component List at the end of this document, which has a visual reference of each extrusion and hardware type. Each bag of hardware should be clearly labeled for easy identification.

Component List

EXTRUSIONS

TOP RAILS: SERIES 150, SERIES 200, SERIES 300, SERIES 350, SERIES 450

BOTTOM RAIL, RAIL INSERTS

BOTTOM RAIL FOR HORIZONTAL CABLE, TOP RAIL INSERT FOR HORIZONTAL CABLE, STANDARD BOTTOM RAIL INSERT, SNAP CAP

MOUNTING HARDWARE

LAG SCREWS: 7277, 4545, 7280, 7278, 7209, 7248

WEDGES: 7070, 7060, 7050, 7040

THRU-BOLTS: 8017, 8056, 8004, 7225, 7224, 8015, 7366, 7388, 7384

HARDWARE: 7017, 8024, 7294, 7289, 7273, 7265, 7537, 7226, 7270, 7285, 7285, 7271, 7267, 7802

Picking Ticket
#173366
3/10/2021

PO #	Primary Order Taker	Brand	Address
05		EA.	
05		EA.	
05		EA.	
05		EA.	
05		EA.	
05		EA.	
05		EA.	
05		EA.	
05		EA.	
05		EA.	

By returning for or at management approved returns. All returned or exchanged Buyer is responsible for the final shipping charges to product vendor(s). Which is known to the State of California to cause go to www.P68Warnings.ca.gov

2) Review Posts and Layout

Each post will be packaged in a protective packaging sleeve, which has a label that identifies the post type and part number. It is recommended to leave the protective packaging sleeve on each post, until it is time to install that specific post. The installation document package includes a layout drawing, indicating the post locations, specified during the project quoting phase. This layout should be used to locate the respective locations of each post type.

Please Note: Stair posts are provided with extra length material on the top and bottom. In addition, base mounted posts will have loose base plates and fascia mounted posts will not have the hardware mounting holes pre-drilled. Posts are provided in this manner to allow for installation flexibility, based on project variables and exact post placement requirements.

POST QUANTITIES:

361	BASE MOUNT - 360 TOP RAIL WITH BOTTOM RAIL	
IN	INTERMEDIATE POST	x2
TT	THREADED TERMINAL POST	x1
OC	QUICK CONNECT POST	x2
SC	SINGLE CORNER POST	x1
PK	INTERMEDIATE PICKET	x5
INS	INTERMEDIATE STAIR POST	x2
TTS	THREADED TERMINAL STAIR POST	x1
PKS	INTERMEDIATE STAIR PICKET	x2

CABLE RUNS:

- 6215
- 6220

DESIGN-RAIL GUARDRAIL LAYOUT
SHEET: L-5

TOOLS NEEDED:

- Safety glasses
- Ear protection
- Gloves
- Measuring tape
- Felt tip marker
- Miter saw with fine-tooth blade for non-ferrous metals
- String
- Level
- Small file
- Electric drill
- #2 square-drive bits
- Drill bits, assorted sizes
- 9/16" socket wrench

(Additional sizes may be needed depending on mounting hardware used)

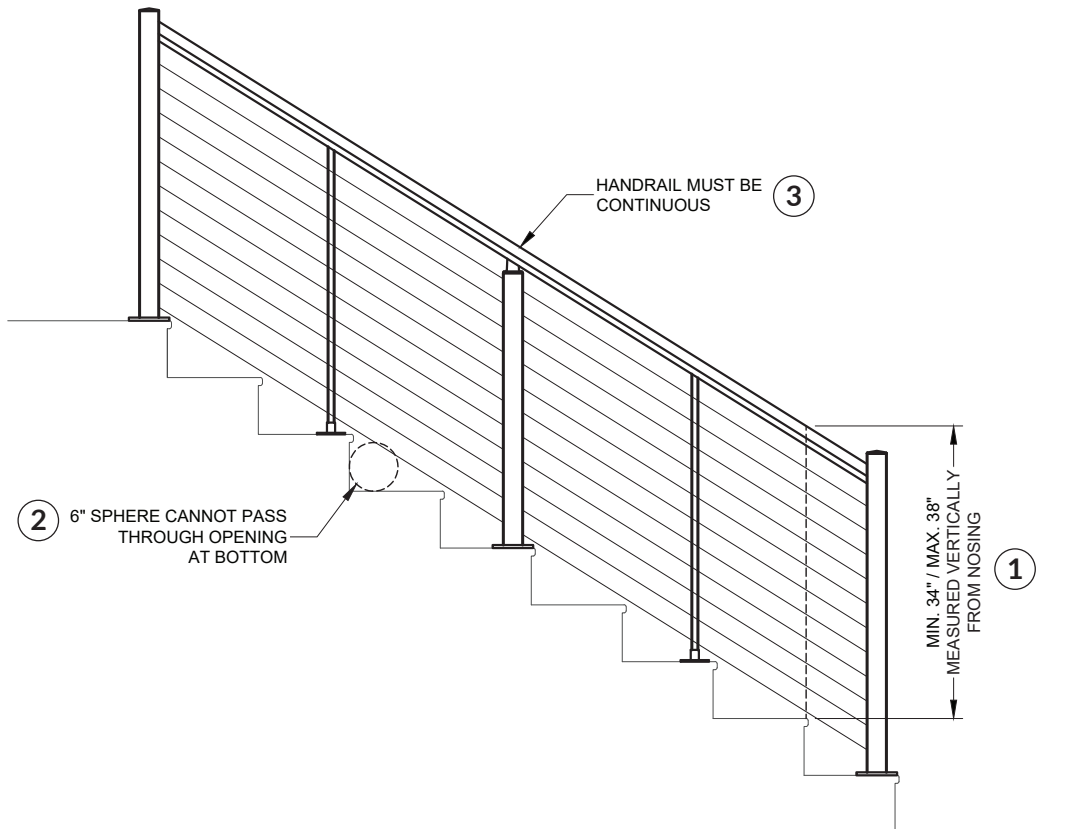
(See CableRail instructions for information on tools required for CableRail Installation.)

Building Code Overview for Residential Stair Railings

These installation guidelines are based on typical national model code requirements, as published by the ICC (International Code Council). Always check with your local building AHJ (Authority Having Jurisdiction) to ensure that requirements are met for your specific project location.

In addition to the standard building code requirements for railing, including load resistance requirements, there are 3 additional requirements that are specific to stair railing. The requirements are summarized below:

- ① Maintain a 34" minimum to a 38" maximum height to the top of the handrail, measured vertically from the tread nosing. In residential applications the stair top rail and the handrail can be combined, as long as the top rail profile meets graspability requirements. For the purposes of these installation instructions we will use the Series 150 top rail profile, which meets graspability requirements. If the top rail profile does not meet graspability requirements, then a separate handrail can be installed to meet the handrail requirement, the 34" minimum height requirement still applies for the top rail (see IRC 2015/2018/2021 R311.7.8.1).
- ② Ensure that a 6" diameter sphere cannot pass through the triangular opening space created by the riser, tread and bottom rail or bottom cable (see IRC 2015/2018/2021 R312.1.3).
- ③ Keep handrail continuous from top to bottom of each stair flight. Handrail is allowed to be interrupted by newel posts at landings (see IRC 2015 R311.7.8.2, IRC 2018/2021 R311.7.8.4).



Step 1 - Post Installation

STEP 1A - DETERMINE POST LOCATIONS

Using the provided post layout drawing from the Installation Document package, determine where the posts will be located.

Typically, there will be a Quick-Connect Stair (QCS) Post at the top of the stairs, and a Threaded Terminal Stair (TTS) Post at the bottom of the stairs. Depending on the length of the stairs there may be Intermediate Stair (INS) Posts. There will also be Intermediate Stair Pickets (PKS) between each set of posts (See Figure 1.1).

The project may also call for other stair post types and/or have the posts in different positions than outlined above.

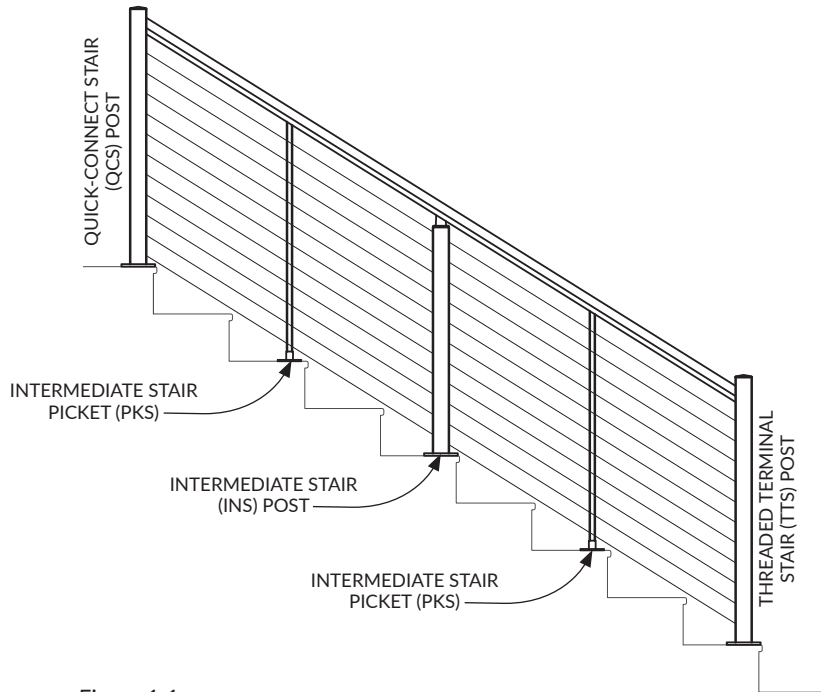


Figure 1.1

STEP 1B - TRIM BOTTOM OF POSTS

Once the posts are in their respective locations, the amount to be trimmed off the top and bottom must be determined. This is done by carefully analyzing the post placement relative to the tread nosing and balancing the ultimate location of the bottom cable or Bottom Rail with the Top Rail finishing height requirements. Refer to the Building Code Overview (page 3), for a summary of the building code requirements specific to stair railings.

Adjusting the exact post placement relative to the tread nosing must be done carefully and will allow for meeting the requirements mentioned above. Placing the post too far back can create a challenge with the Top Rail being too low and not meeting the minimum 34-inch height requirement. Placing the post too far forward can cause the bottom cable or Bottom Rail to end up too high off the nosing and not meeting the 6-inch sphere requirement (See Figure 1.2).

Starting with the post at the top of the stair, place it in the desired location. Once all of the dimensional considerations have been made, mark the post where it needs to be trimmed.

Repeat this process for the remaining stair posts. Placing all of the posts the same distance back from the nosing will allow the same amount of post material to be trimmed from the bottom.

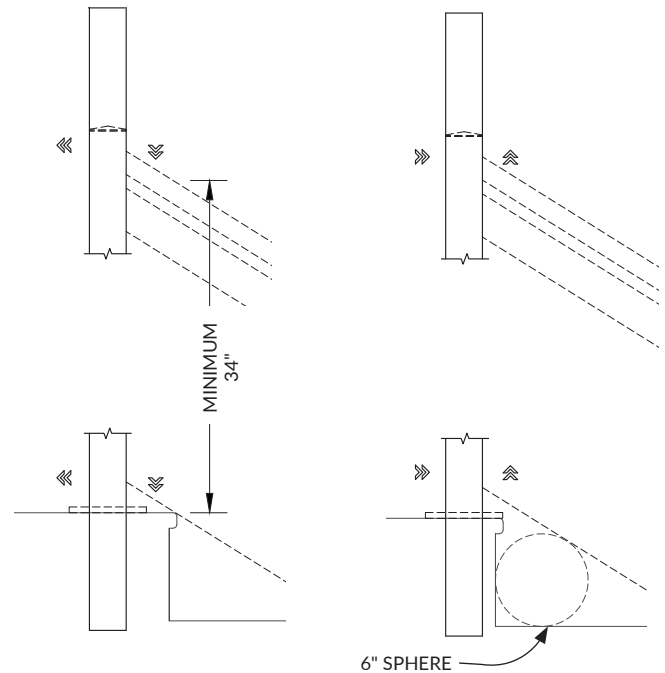


Figure 1.2

STEP 1C – PREPARE POSTS FOR MOUNTING

Preparing the posts to be mounted varies depending on the specific mounting method.

Base Mounted Posts: attach the loose base plates using the supplied #14 x 2" torx drive screws. There may be 4 or 6 screws, depending on the specific post application and post profile used (See Figure 1.3).

Fascia Mounted Posts: predrill holes in the bottom of the posts for the mounting hardware. These will typically be 7/16-inch diameter holes for 3/8-inch diameter hardware (or 11/16-inch holes for 5/8-inch diameter hardware in specific systems). Match the hole pattern of the level posts, or drill based on the specific fascia mount drill hole patterns provided (See Figure 1.4).

Stanchion Mounted Posts: install stanchions at post locations and use the top of the finished surface to determine the trim length for the bottom of the post (See Figure 1.5).

Fascia Bracket Mounted Posts: install fascia brackets at post locations. Install bottom plate after using the bottom of the bracket to determine the trim length for the bottom of the post (See Figure 1.6).

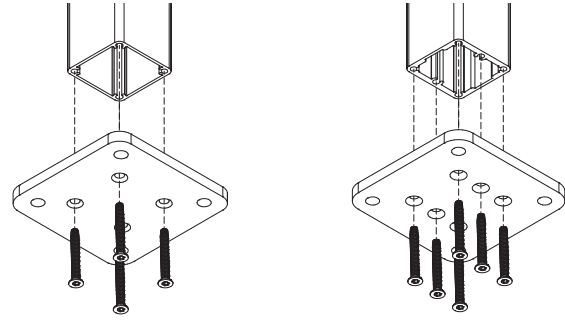


Figure 1.3
Base Mounted Posts - Base Plate Attachment

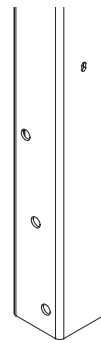


Figure 1.4
Fascia Mounted Posts -
Mounting Hole Drilling

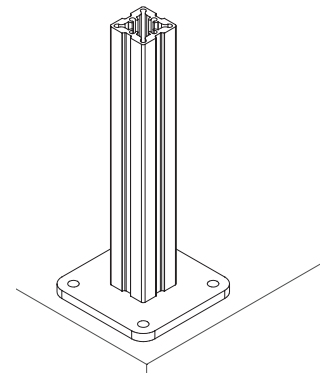


Figure 1.5
Stanchion Mounted Posts -
Stanchion Mounting

STEP 1D – MOUNT POSTS

Temporarily attach the posts to the structure using specified mounting hardware. The posts will eventually need to be removed in order to trim the tops in the following steps, so do not completely tighten mounting hardware or attach finishing caps at this time. However, it is important that the posts are mounted plumb.

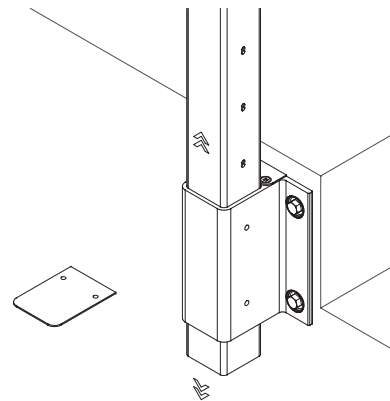


Figure 1.6
Fascia Bracket Mounted Posts -
Bracket Mounting

STEP 1E - DETERMINE TOP RAIL LOCATION

Once the posts are in place the top trimming location can be determined. Use string line to represent the highest cable location, by running it through the top cable holes. This will aid in determining the Top Rail location relative to the highest cable.

Determine the location of the Top Rail by either clamping a straight 2-inch wide board to the top and bottom stair posts or by running a pair of string lines from top to bottom of stair, 2 inches apart (one string to represent the top of the Top Rail and one to represent the bottom). Move the board or strings up or down to find the desired Top Rail placement.

The ideal Top Rail location is found when the bottom of the profile is approximately 3-inches away from the highest cable, to maintain a consistent spacing. The top of the Top Rail must fall between the 34" minimum height and 38" maximum height code requirement.

Once top of rail is determined, mark the location where the top of the posts will be trimmed. Typically, this will be 1/2-inch to 1-inch above top of Top Rail, depending on desired reveal. In addition, make a small mark on the top and bottom stair posts where the bottom of the Top Rail will be, as this will determine where to place the top rail RCBs (See Figure 1.7).

For Intermediate Stair Posts: Intermediate Stair Posts must be trimmed to accommodate the Stair Post Adapter. Measuring from the center of the post, mark the post 3-3/4" below the top of the top rail location. Make sure this mark is above the highest cable location. If it is not, then the top rail must be lifted higher, requiring them to be re-positioned at the top and bottom stair posts. Alternatively, the "stem" of the Stair Post Adapter can be trimmed down so as not to protrude as far into the Top Rail (See Figure 1.8).

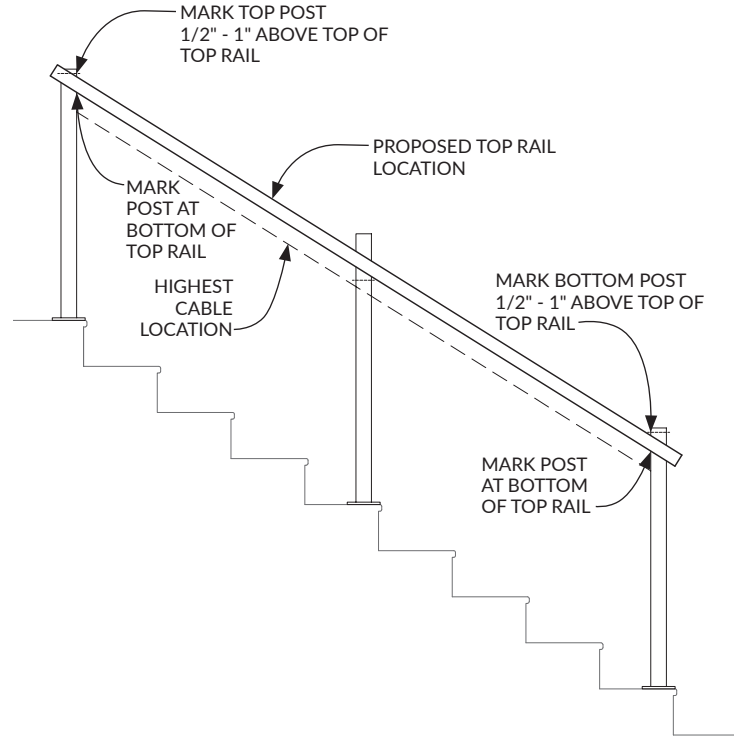


Figure 1.7

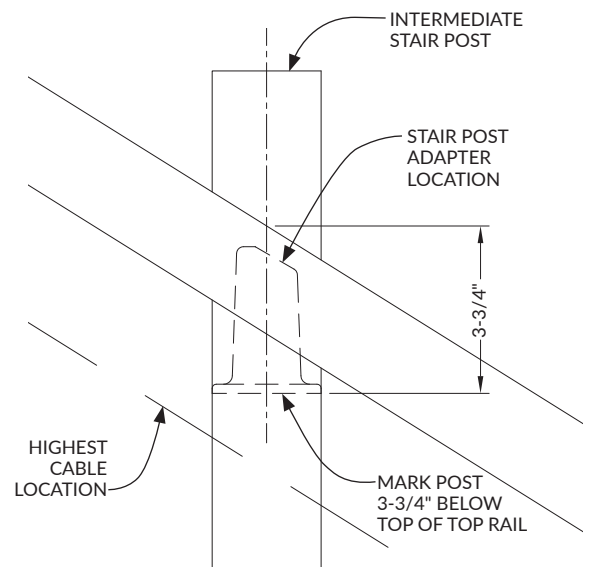


Figure 1.8

STEP 1F – TRIM TOP OF POSTS

Remove the posts and trim them to their final height, based on the markings made in the previous steps.

The posts can now be re-attached to the structure for final mounting.

STEP 1G – DETERMINE BOTTOM RAIL LOCATION (IF APPLICABLE)

Similar to determining the Top Rail location, the Bottom Rail location must be determined at this time. The ideal Bottom Rail location is approximately 3-inches away from the lowest cable to maintain a consistent spacing. The Bottom Rail must be placed so that a 6-inch sphere cannot pass through the opening below it.

In addition, if the posts are base or stanchion mounted on the treads, the bottom of the Bottom Rail will be limited by the nosing.

Use string or twine to represent the lowest cable location, by running it through the cable slots of the stair posts. This will aid in determining the Bottom Rail location relative to the lowest cable.

Determine the location of the Bottom Rail by either clamping a straight 1-3/4-inch wide board to the top and bottom stair posts or by running a pair of string lines from top to bottom of stair (one string to represent the top of the top rail and one to represent the bottom). Move the board or strings up or down to find the desired Bottom Rail placement (See Figure 1.9).

Make a small mark on the posts at the top and bottom of the stairs where the bottom of the Top Rail will be, as this will determine where to place the top rail RCB in the following steps.

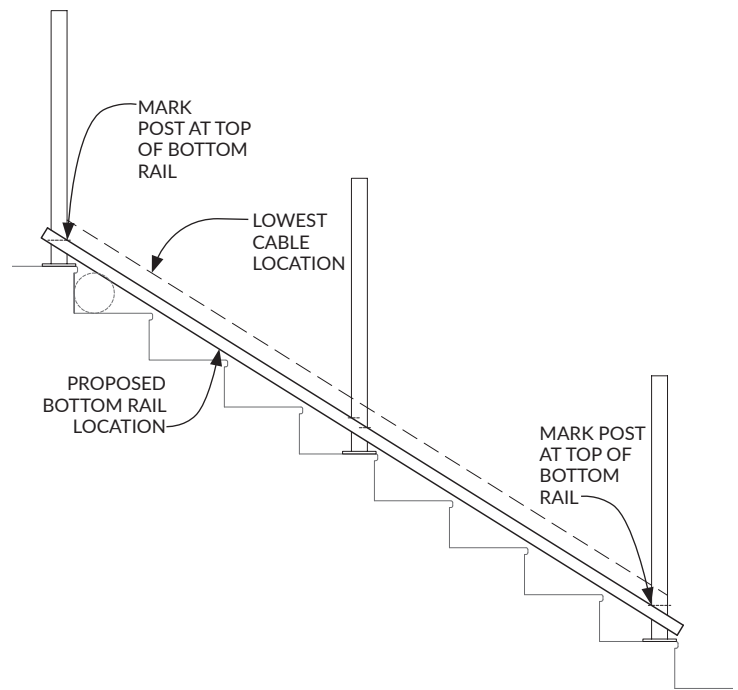


Figure 1.9

Step 2 - Rail and Picket Installation

STEP 2A - CUT RCBs AT STAIR ANGLE

DesignRail projects with stairs will include 24" long pieces of RCBs (Rail Connection Brackets). These are to be cut to size at the appropriate stair angle in the field.

Note: 24" length is provided in an effort to offer enough material to safely hold while cutting. Never cut too short of a piece in order to avoid saw kickback or potential injury.

Cut the RCB in half at the stair angle first, then cut a square end with the longest dimension at 1-1/4-inch, yielding two RCBs. Repeat until enough RCBs are cut at the necessary length (See Figure 2.1).

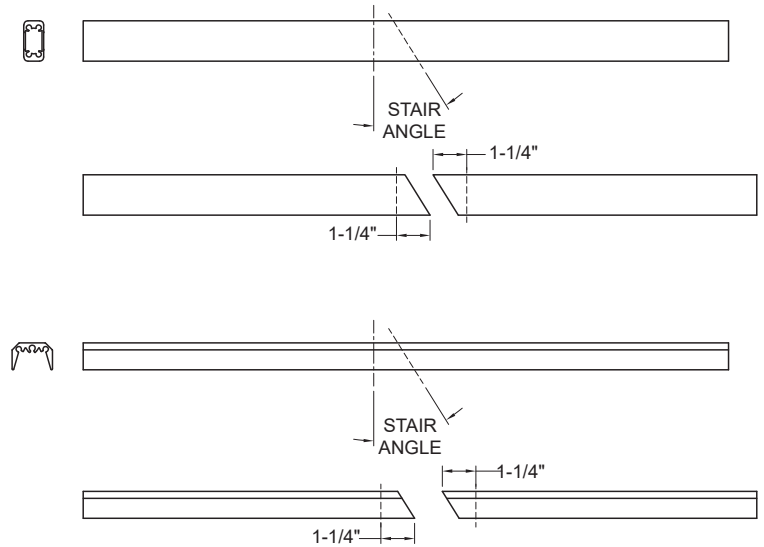


Figure 2.1

STEP 2B - PREDRILL POSTS AND ATTACH RCBs

Using the mark made at the bottom of the Top Rail (Step 1E), center the Top Rail RCB on the post and mark the predrill locations through two of the screw chases, diagonal to each other. Predrill the post with a 1/8-inch drill bit.

If installing bottom rail: using the mark made at the top of the Bottom Rail (Step 1G), center the Bottom Rail RCB on the post 1/8" below the mark and mark the predrill locations through the two outside screw chases. Predrill the post with a 1/8-inch drill bit.

Attach the RCBs to the posts using #10 x 2" self-tapping screws, each RCB requires two screws (See Figure 2.2).

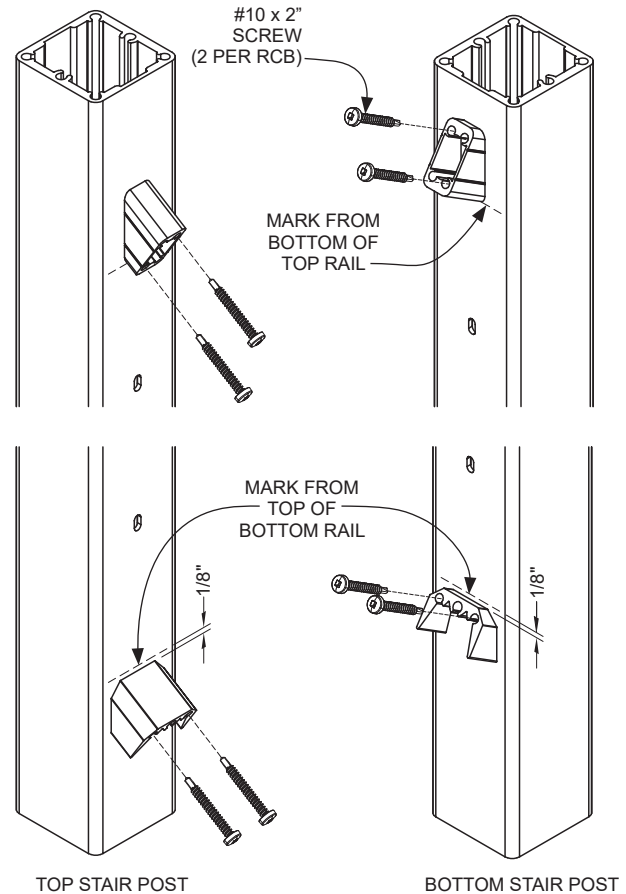


Figure 2.2

STEP 2C- ATTACH STAIR POST ADAPTERS

Attach a Stair Post Adapter to each Intermediate Stair Post. Secure Stair Post Adapters to posts using four #8 x 3/4" screws. Drill 1/8" pilot holes for the screws (See Figure 2.3).

Note: Ensure that the angled top of the Stair Post Adapter follows the slope direction of the stairs.

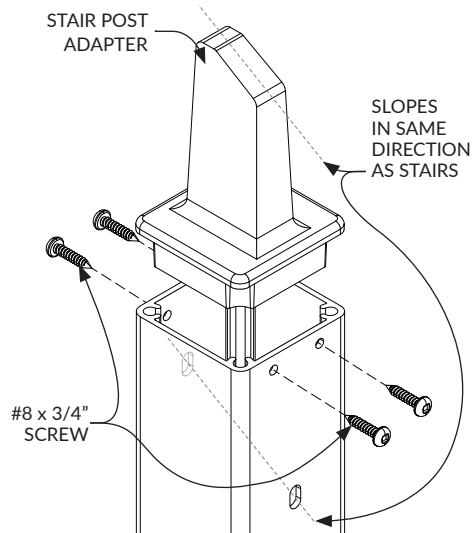


Figure 2.3

STEP 2D - MEASURE AND CUT RAILS

Measure distance from inside face of top post to inside face of bottom post, just above the top rail RCBs (See Figure 2.4).

If installing bottom rail: measure the open width between each set of posts, just above the bottom RCBs (See Figure 2.4).

Note: Ensure that posts are plumb when taking measurements.

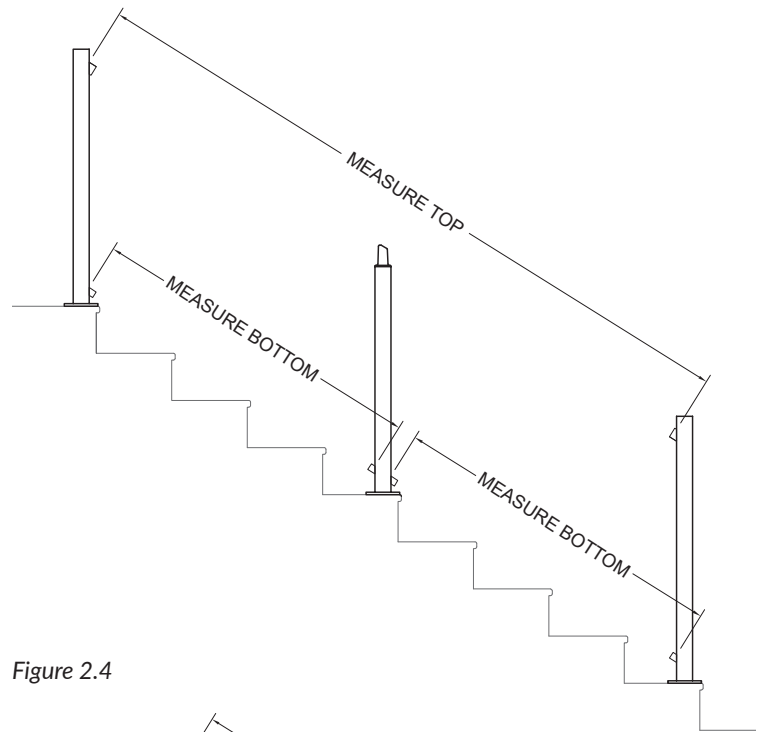


Figure 2.4

Trim the Top Rail and Bottom Rail (if applicable) to match the corresponding measurements. Be sure to miter the cuts on both ends of the Top and Bottom Rails to accommodate stair angle (See Figure 2.5).

Note: The rails can be trimmed 1/16" short to prevent damage to the posts when the rails are installed.

Apply touch-up paint to the cut ends of the rails and let them dry, prior to the next step.

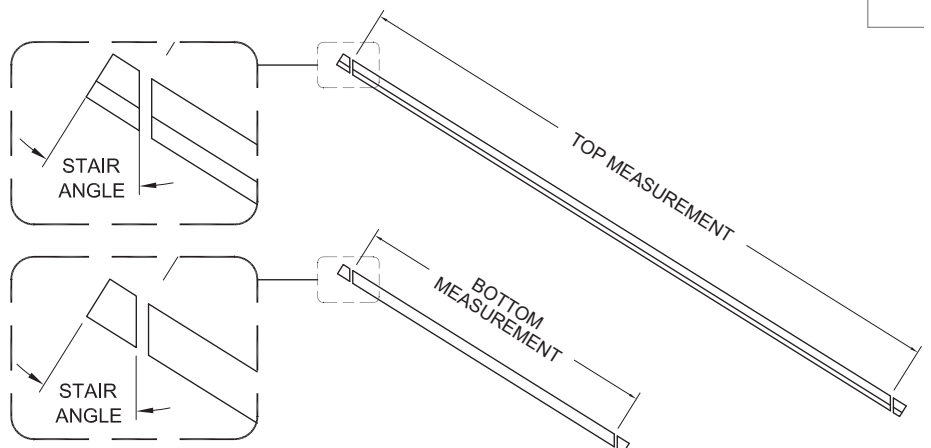


Figure 2.5

STEP 2E (SYSTEMS WITH BOTTOM RAIL) – ATTACH RAILS AND PREPARE PICKETS

Place the Top Rail over the RCBs and Stair Post Adapter, seating it fully down, do not secure it with screws yet.

Place the Bottom Rails on top of the RCBs, but do not secure them with screws yet (See Figure 2.6).

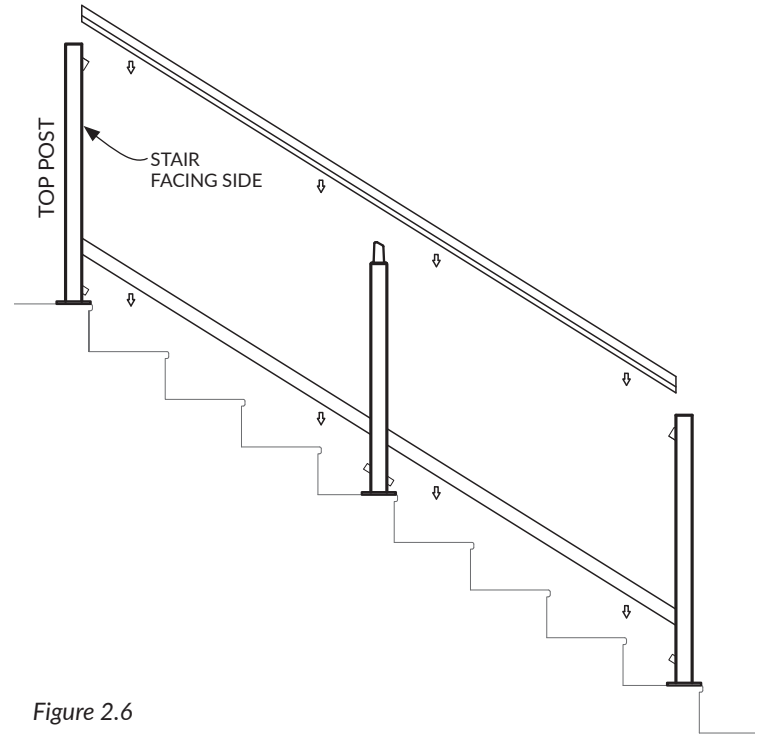


Figure 2.6

At the stair facing side of the top post measure from the top of the Bottom Rail up to the bottom of the lowest cable slot. Trim the bottom of the Intermediate Picket at the stair angle, so that the dimension from the lowest cable slot to the bottom of the Intermediate Picket is the same dimension as measured from the post.

Note: There is more 'extra' material at the top of the Intermediate Picket. Be sure to trim the bottom of the picket where there is less material below the lowest slot.

Be sure to cut the angle so that the slope direction matches the slope of the cables. The slots are offset from one side to the other, with the higher slots facing up the stair.

At the stair facing side of the top post measure the opening height from the top of the bottom rail to the underside of the Top Rail. Trim the top of the Intermediate Picket to the measured dimension plus 3/4-inch, with a straight cut (See Figure 2.7).

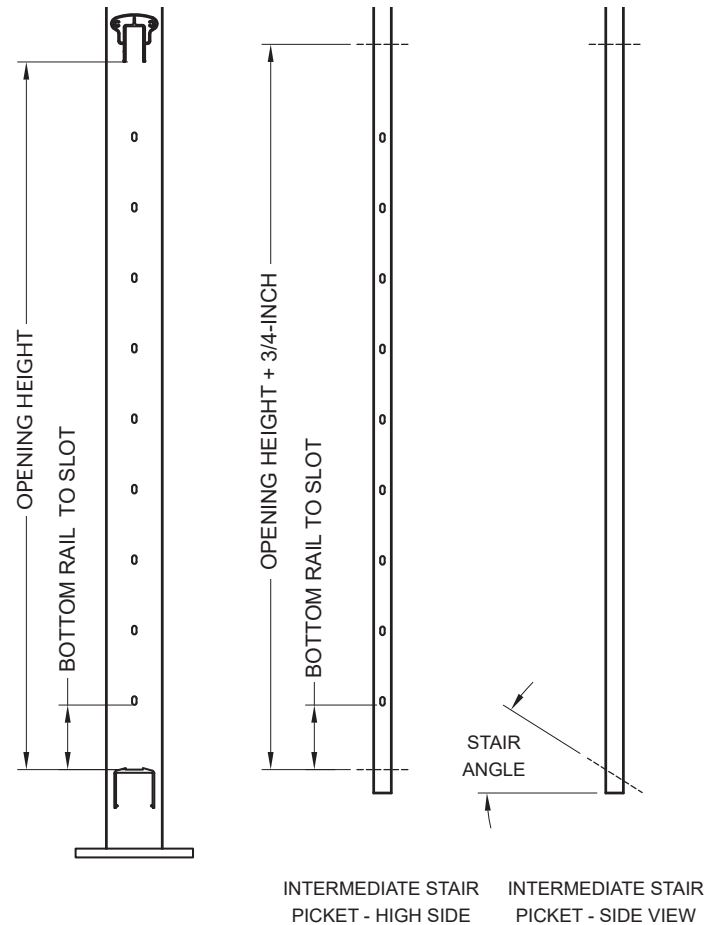


Figure 2.7

Remove the Bottom Rail one section at a time, in order to attach the Intermediate Picket. Roll the Bottom Rail profile slightly to disengage it from the Bottom Rail RCBs.

Attach the Intermediate Picket to the center of the Bottom Rail using a #10 x 3/4" Pan Head Screw and a 1/2" Beveled Washer. Drill a 1/4" pilot hole through the Bottom Rail for the #10 screw; the 1/4" hole must be drilled slightly off center to align with the Intermediate Picket screw chase (See Figure 2.8).

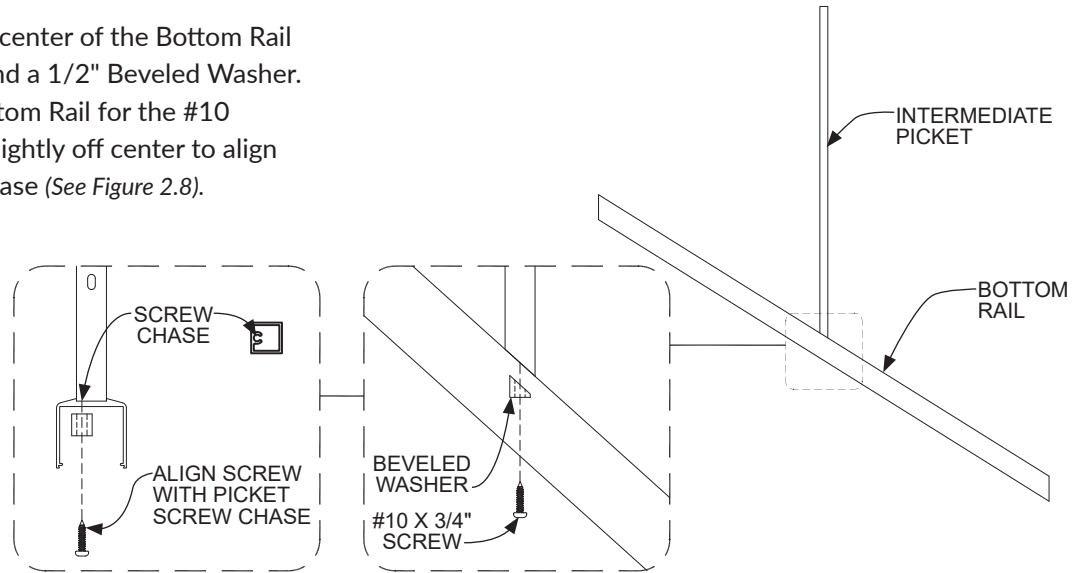


Figure 2.8

With the Intermediate Pickets attached, place the Bottom Rails over the RCBs (See Figure 2.9). The Top Rail will need to be temporarily removed or lifted out of the way, allowing the Intermediate Picket to fit underneath.

Once the Bottom Rail is seated onto the RCBs the Top Rail can be replaced (See Figure 2.10). Ensure that the top of the Intermediate Pickets and the Stair Post Adapters are inserted into the channel of the Top Rail profile (See Figure 2.11).

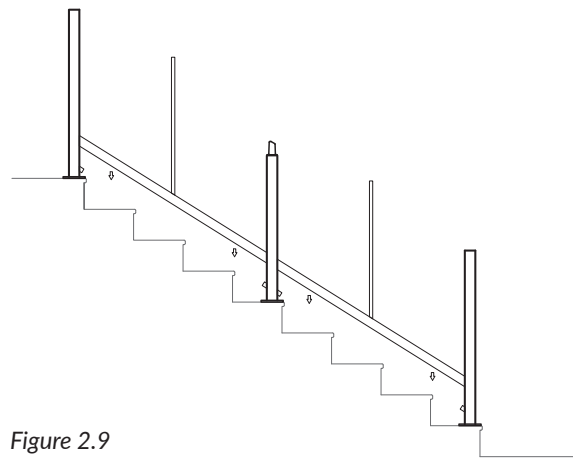


Figure 2.9

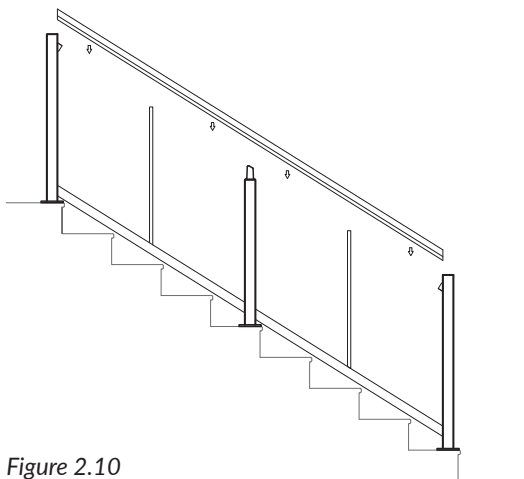


Figure 2.10

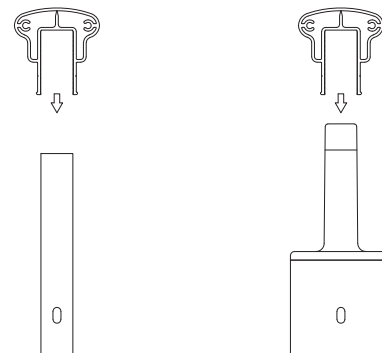


Figure 2.11

STEP 2E (SYSTEMS WITH NO BOTTOM RAIL) – ATTACH TOP RAIL AND PREPARE PICKETS

Place the top rail over the RCBs and Stair Post Adapter, seating it fully down, do not secure it with screws yet (See Figure 2.12).

At the stair facing side of the top post measure from the bottom of the Top Rail to the highest cable slot (See Figure 2.14). Trim the top of the Intermediate Picket measured from the highest cable slot to the measured dimension plus 3/4-inch.

Note: For Base and Stanchion Mounted systems there is more 'extra' material at the top of the picket. For Fascia or Fascia Bracket Mounted systems there is more 'extra' material at the bottom of the picket. Be sure to trim the correct end of the picket.

At the Intermediate Picket location measure the opening height from the tread surface to the underside of the Top Rail (See Figure 2.13).

For Base and Stanchion Mount Systems: Trim the bottom of the Intermediate Picket so that the overall length equals the opening measurement plus 5/8-inch.

For Fascia and Fascia Bracket Mount Systems: Trim the bottom of the Intermediate Picket so that the overall length equals the opening measurement plus the amount of picket that will extend below the tread, this additional length at the bottom is where the mounting holes will need to be drilled.

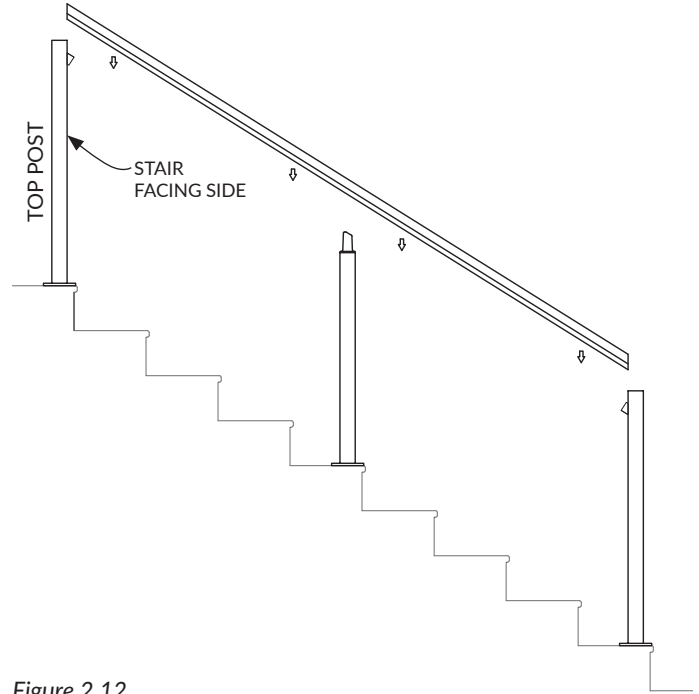


Figure 2.12

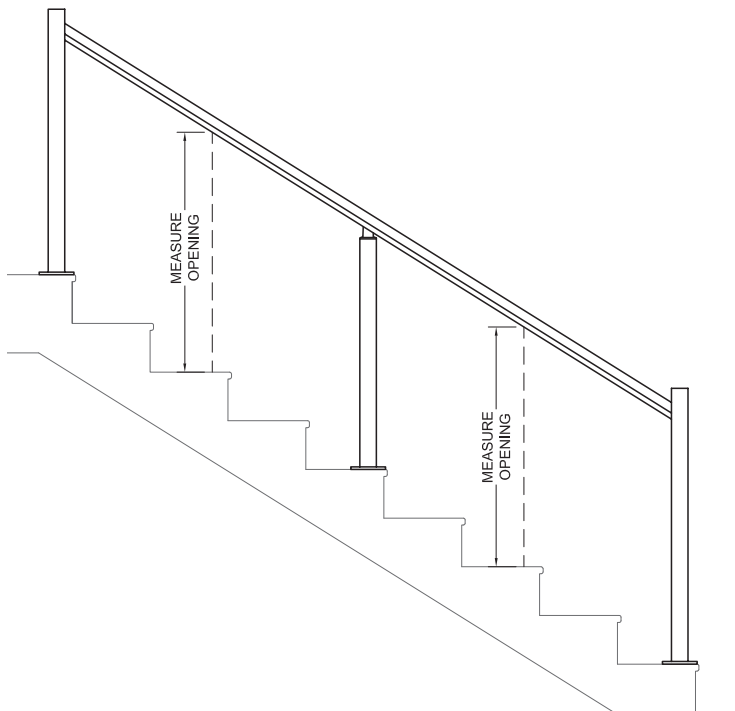


Figure 2.13

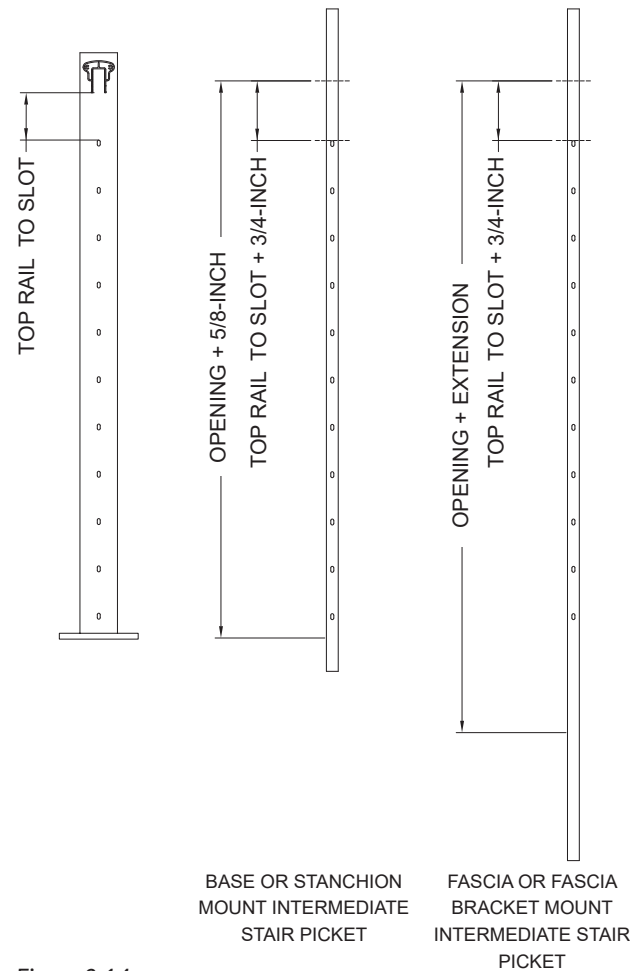


Figure 2.14

STEP 2F – MOUNT INTERMEDIATE PICKETS

For Base and Stanchion Mount Systems: Loosely place a Picket Receiver onto the bottom of the picket and then pivot the Intermediate Picket into position, inserting the picket into the Top Rail channel. Once in place, secure the Picket Receiver to the picket using a #8 x 3/4" screw. Drill a 1/8" pilot hole for the #8 screw. Mount the Picket Receiver to the tread using a #10 x 1" flat head screw (See Figure 2.15).

For Fascia and Fascia Bracket Mount Systems: Pre-drill the bottom of the Intermediate Picket for two 1/4" fasteners. Insert the top of the picket into the Top Rail channel. Once in place, mount the Intermediate Picket to the stair stringer using 1/4" diameter screws and spacers cut from extra picket material (See Figure 2.16).

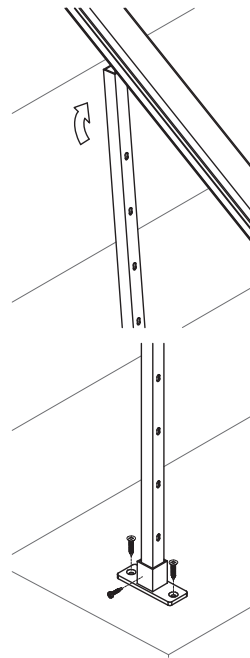


Figure 2.15

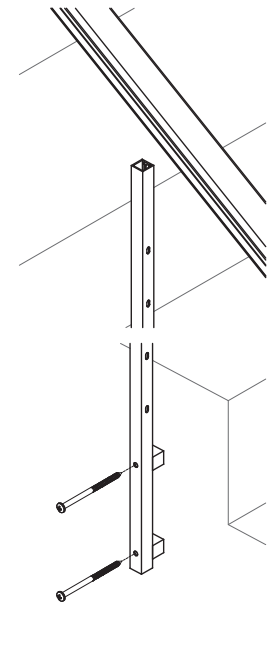


Figure 2.16

STEP 2G – SECURE PICKETS TO TOP RAIL

Ensure the Intermediate Picket is plumb and secure it to the Top Rail using a #8 x 3/4" screw. Drill a 1/8" pilot hole for the #8 screw (See Figure 2.17).

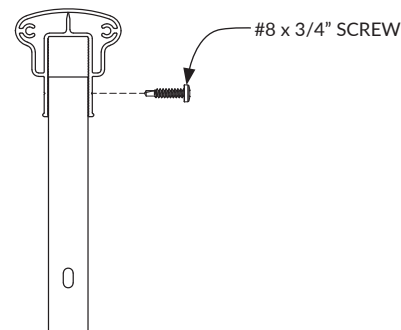


Figure 2.17

STEP 2H – SECURE RAILS TO POSTS AND STAIR POST ADAPTERS

Secure the Top and Bottom Rails to the RCBs using two #8 x 3/4" screws for each RCB. (See Figure 2.18)

Note: Drill 1/8" pilot holes for the screws and offset the holes slightly so that the screws do not hit one another inside the RCBs.

Secure the Top Rail to Stair Post Adapters using two #8 x 3/4" screws (See Figure 2.19).

Note: Drill 1/8" pilot holes for the screws and offset the holes slightly so that the screws do not hit one another inside the Stair Post Adapter.

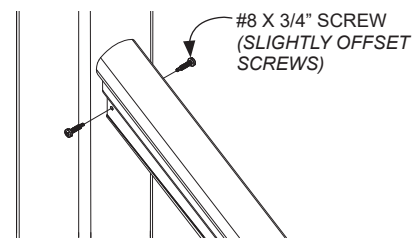


Figure 2.18

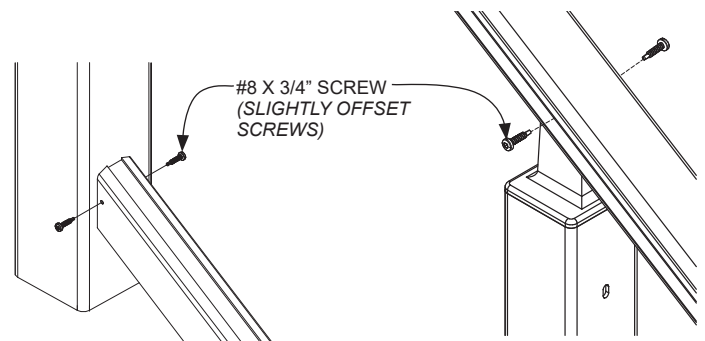


Figure 2.19

Step 3 - Finishing Component Installation

STEP 3A - CUT AND ATTACH SNAP CAP

Measure underneath the Top Rail from the face of the Intermediate Picket to an adjacent post face. (See Figure 3.1)

Trim the Snap Cap to match the corresponding measurement.

Press the Snap Cap onto the bottom of the Top Rail until it clicks and locks into place. (See Figure 3.2)

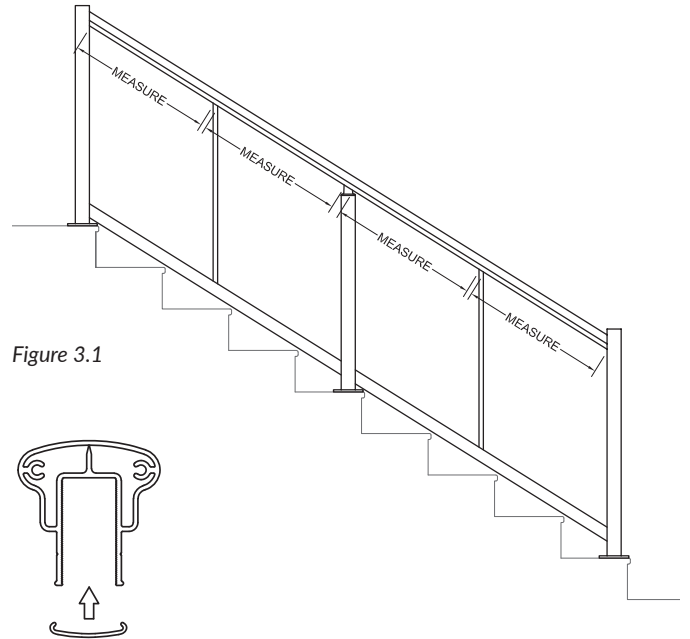


Figure 3.1

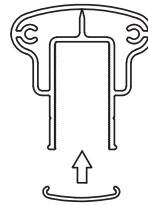


Figure 3.2

STEP 3B - CUT AND ATTACH BOTTOM RAIL INSERT (IF APPLICABLE)

Measure underneath the Bottom Rail from the face of one post to the face of an adjacent post. (See Figure 3.3)

Trim the Bottom Rail Insert to match the corresponding measurement.

Press the Bottom Rail Insert into the Bottom Rail until it clicks and locks into place. (See Figure 3.4)

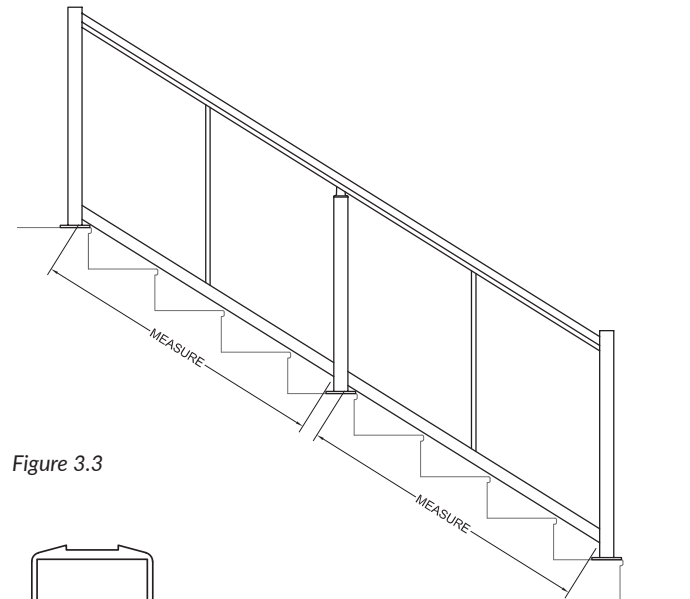


Figure 3.3

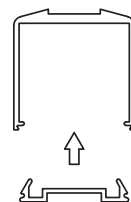


Figure 3.4

3C – ATTACH POST CAPS TO POSTS

Insert the Post Cap on the top of the post, oriented so that the tabs are on the sides of the post that the cable passes through.

Pre-drill a hole through the post and the post cap tab with a 1/8" drill bit.

Secure the post cap to the post using two #8 x 3/4" screws. (See Figure 3.5)

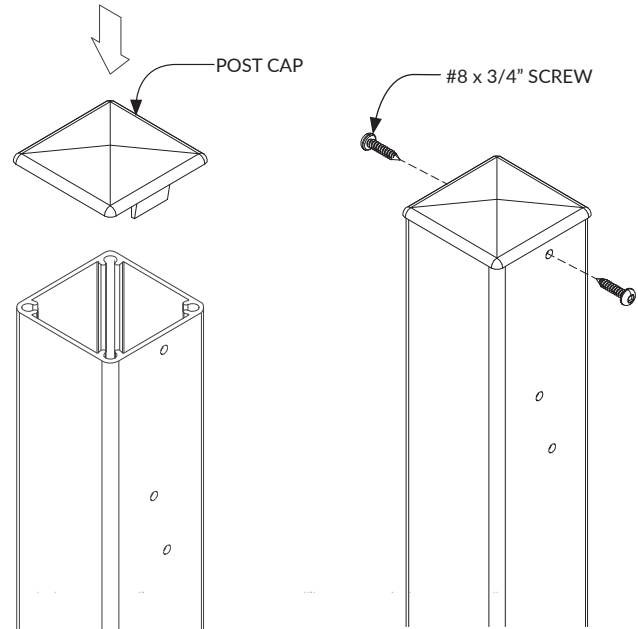


Figure 3.5

NEXT STEPS:






Continue to CableRail infill installation (See *CableRail installation Instructions*).

Note: If project is located in a harsh environment (such as within 2 miles of saltwater) install Isolation Bushings in all posts.



HARDWARE OVERVIEW

All DesignRail® hardware shown for reference. Only certain hardware will be provided depending on project type, configuration, specific attachment detail, and structure substrate.










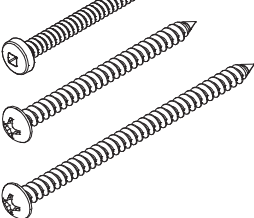
FLAT HEAD SCREWS

- A** 7294: #8 x 1" SS SCREW, FLAT HEAD, #2 SQUARE DRIVE
USE: TOP RAIL END PLATES 
- B** 7643: #10 x 1" SS SCREW, FLAT HEAD, #2 SQUARE DRIVE
USE: PICKET RECEIVER & PICKET BASE PLATE TO WOOD 
- C** 7273: #12 x 1" SS SCREW, FLAT HEAD, #3 SQUARE DRIVE
USE: FASCIA BRACKET COVER PLATES 
- D** 7265: #14 x 2" STEEL MAGNA-COAT SCREW, TYPE F, FLAT HEAD, TORX DRIVE
USE: BASE PLATE TO POST 
- E** 5294: 3/16" x 2-1/4" SS TAPCON SCREW, FLAT HEAD, #2 PHILLIPS DRIVE
USE: PICKET RECEIVER & PICKET BASE PLATE TO CONCRETE 

HEX HEAD SCREWS

- F** 7017: #14 x 1" SS SELF-TAPPING SCREW, HEX WASHER HEAD
USE: POST TO STANCHION & FASCIA MOUNT BRACKET 
- G** 8024: 5/16" x 1" SS THREAD-CUTTING SCREW, HEX WASHER HEAD
USE: HANDRAIL BRACKET TO POST 

PAN HEAD SCREWS

- H** 7226: #8 x 1/2" SS SELF-TAPPING SCREW, PAN HEAD, #2 SQUARE DRIVE
USE: TOP RAIL TO SPLICE PLATE (SERIES 450) 
- I** 7270: #8 x 3/4" SS SELF-TAPPING SCREW, PAN HEAD, #2 SQUARE DRIVE
USE: TOP RAIL TO SPLICE PLATE, TOP RAIL TO POST, RAIL TO RCB, PICKET TO RECEIVER 
- J** 7285: #8 x 1" SS SELF-TAPPING SCREW, PAN HEAD, #2 SQUARE DRIVE
USE: LIGHTING PICKET INSERT TO TOP RAIL 
- K** 7272: #10 x 3/4" SS SCREW, #2 PAN HEAD, SQUARE DRIVE
USE: PICKET TO TOP RAIL INSERT 
- L** 7271: #10 x 1-1/2" SS SELF-TAPPING SCREW, PAN HEAD, #2 SQUARE DRIVE
USE: 
- M** 7267: #10 x 1-3/4" SS SELF-TAPPING SCREW, PAN HEAD, #2 SQUARE DRIVE
USE: RCB TO POST (LEVEL) 
- N** 7355: #10 x 2" SS SELF-TAPPING SCREW, PAN HEAD, #2 SQUARE DRIVE
USE: RCB TO POST (STAIRS) 
- O** 7802: #12 x 2" SS SELF-TAPPING SCREW, PAN HEAD, #3 SQUARE DRIVE
USE: RCB TO POST (CENTER HOLE) 
- P** 7282: #14 x 3" SS SCREW, PAN HEAD, #3 PHILLIPS DRIVE
USE: NBR PICKET TO FASCIA 
- Q** 7966: #14 x 4" SS SCREW, PAN HEAD, #3 PHILLIPS DRIVE
USE: NBR PICKET TO FASCIA (FMB) 

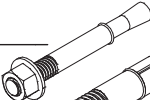

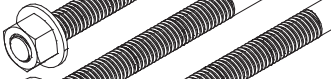
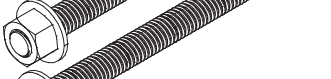

CAPS

- JJ** PART # VARIES: VINYL CAP (SMALL) 
- KK** PART # VARIES: VINYL CAP (LARGE) 

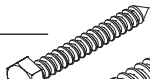


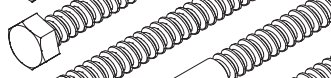

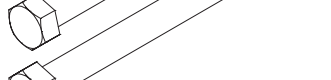

WASHERS

- LL** 7070: 1/4" ID WASHER, FOR SMALL VINYL CAPS 
- MM** 7062: 1/4" ID WASHER, FOR LARGE VINYL CAPS 
- NN** 7063: 3/8" ID WASHER, FOR LARGE VINYL CAPS 
- OO** 7064: 9/16" ID WASHER, FOR LARGE VINYL CAPS 


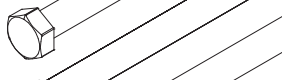
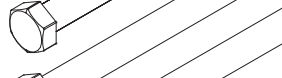
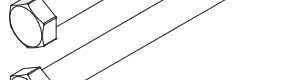


EXPANSION ANCHORS

- R** 7276: 1/4" x 2-1/4" EXPANSION ANCHOR 
- S** 8015: 3/8" x 3" EXPANSION ANCHOR 
- T** 7356: 3/8" x 3-3/4" EXPANSION ANCHOR 
- U** 7288: 3/8" x 5" EXPANSION ANCHOR 
- V** 7284: 3/8" x 6-1/2" EXPANSION ANCHOR 

LAG SCREWS

- W** 3183: 1/4" x 2" LAG SCREW, HEX HEAD 
- X** 7277: 3/8" x 3-1/2" LAG SCREW, HEX HEAD 
- Y** 6565: 3/8" x 4-1/2" LAG SCREW, HEX HEAD 
- Z** 7280: 3/8" x 5" LAG SCREW, HEX HEAD 
- AA** 7278: 3/8" x 6" LAG SCREW, HEX HEAD 
- BB** 7209: 3/8" x 6-1/2" LAG SCREW, HEX HEAD 
- CC** 7248: 3/8" x 7" LAG SCREW, HEX HEAD 

BOLTS

- DD** 7287: 3/8" x 4" 18/8 SS CAP SCREW, HEX HEAD 
- EE** 8017: 3/8"-16 x 5" CAP SCREW, HEX HEAD (3-7/8" SHANK, 1" THREAD) 
- FF** 8016: 3/8"-16 x 6" CAP SCREW, HEX HEAD (4-7/8" SHANK, 1" THREAD) 
- GG** 8004: 3/8"-16 x 7" CAP SCREW, HEX HEAD (5-9/16" SHANK, 1-3/8" THREAD) 
- HH** 7225: 3/8"-16, NYLON INSERT LOCKNUT, HEX HEAD 
- II** 7224: 3/8" ID, 2" OD FENDER WASHER 



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