



Skyline Cable Railing

Cable Rail Installation & Assembly

Installation & User Guide

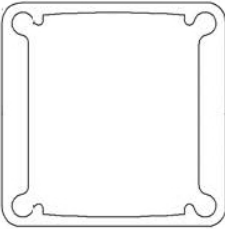
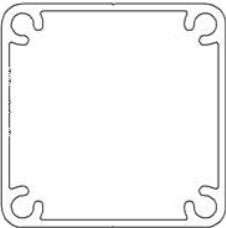
Required Tools for Assembly

- Power Drill
- Swaging Tool
- Marker
- Vise-Grip or other gripping pliers
- A piece of leather (to protect the cable as you grip it with the pliers)
- Crescent wrench
- Cable cutters
- Miter Saw with a carbide-tipped blade with high tooth count
- Grinding wheel, hacksaw, or reciprocating saw
- Level
- Speed square (optional)
- Clamp (optional)

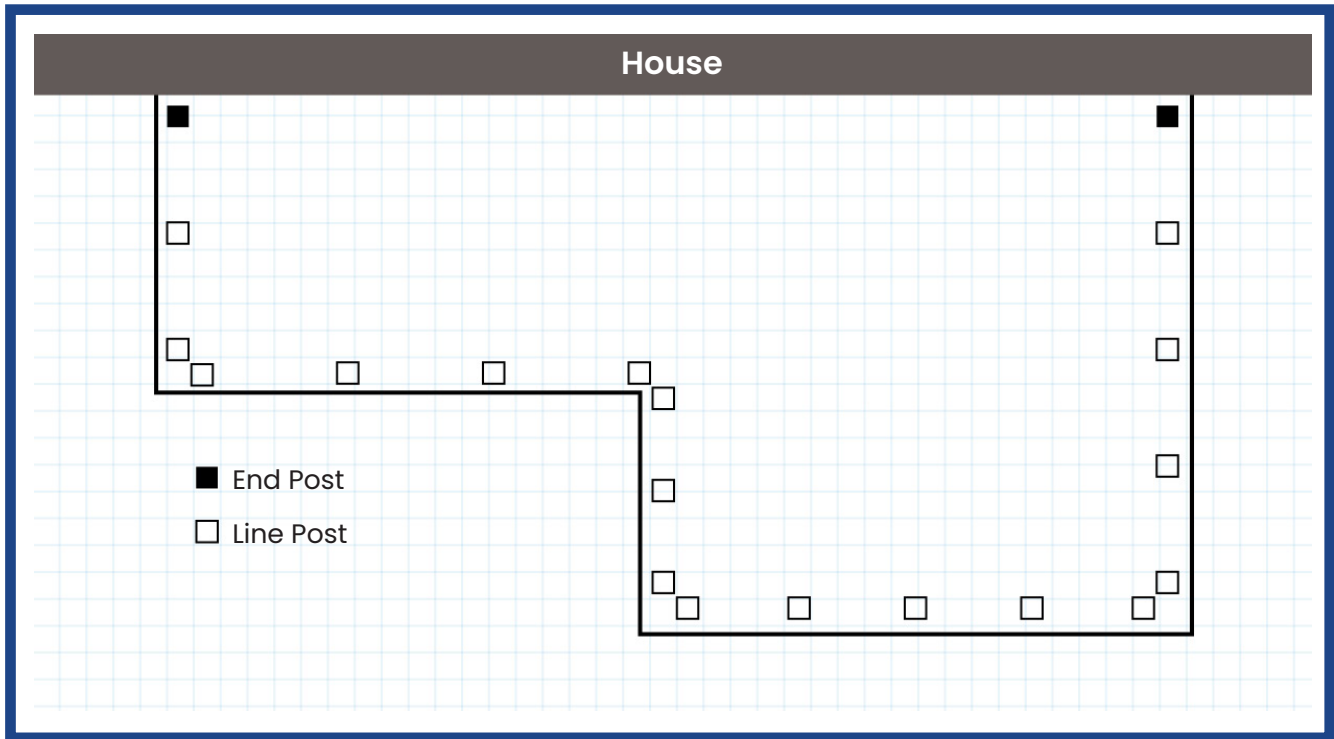
Part I: Identify Which Post Goes Where

1. Gather and identify all posts.

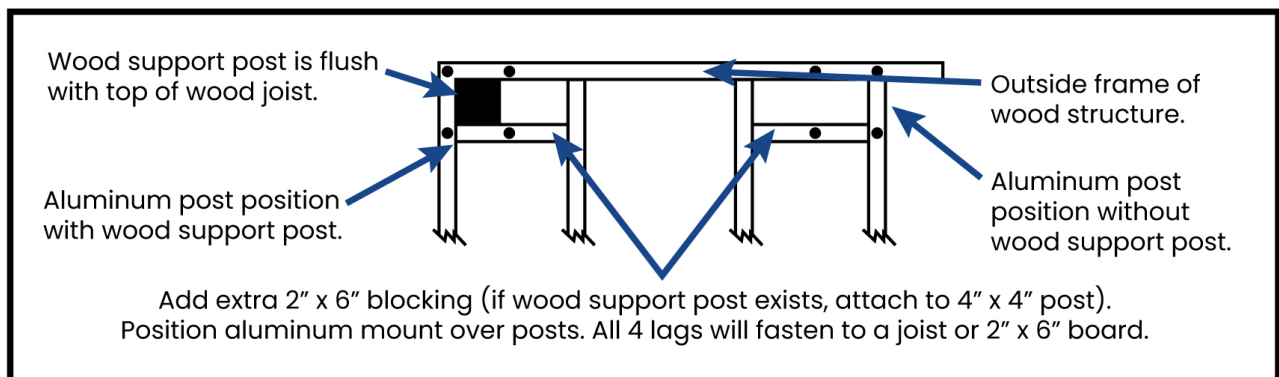
You can identify the different post types by how thick their walls are and by the pattern and size of the holes drilled in the post.

Type of Post	How To Identify It	Where To Install It
<p>End Post</p> 	<p>Thicker walls & larger 15/32-inch holes on each side</p>	<p>Install where a cable run starts or ends</p>
<p>Line Post</p> 	<p>Thinner walls & smaller 11/32-inch holes on each side</p>	<p>Install in the middle of railing sections where the cable will pass through and on to the next railing section</p> <p>This includes the corners of your deck</p>

Top View of a Deck - Where your End and Line posts go



Top View Of Your Deck Framing



WARNING: The installer is responsible for creating a substructure strong enough to support the post for what it is rated.

When installing the Skyline Aluminum Posts on top of a wood structure, the 5-inch lags **MUST** be lagged into at least 4 inches of solid wood. It will not be strong enough if it is fastened only into a deck board. Above is an example of how to design the wood structure of your deck frame to securely attach the Aluminum Post. Any other structural setup must meet or exceed these qualifications.

2. Prepare your framing before you mount posts. Determine where each post will mount on your deck layout. Then make sure there's enough framing underneath the deck to securely attach each post to the deck.

2(continued): If you're surface mounting your posts, each post will attach to your frame with four 5-inch lag screws. It's important that all four lag screws drive into at least 4 inches of solid wood - so you may need to add wood blocking to your deck frame to create a strong enough foundation for each post.

Here's an example of where to install 2x6 boards to create enough blocking underneath your deck posts. The diagram on the previous page shows blocking attached to a wood support post (the main vertical posts between your deck and the ground) and attached to framing where there isn't a wood support post.

Part II: Mount Your Posts

Mount **all** your Posts to your deck and cover the bases with either Decorative Screw Covers or Decorative Post Skirts. Then move to Part III to install your Rail Kits.


Posts can be up to 5 feet apart from the near edge of one post to the near edge of the next.

- Don't space your posts longer than 5 feet apart or your rails will not reach!
- You can space your posts closer than 5 feet apart - you'll just need to cut down your top rail to fit.


A note on corners: you'll need two posts at each 90-degree corner. Make sure you offset both posts the same distance from the corner so the specialized Skyline Corner Kit will fit.

Note: your project will likely use Surface Mount Posts or Fascia Mount Posts, but not both.


Surface Mount Post Parts & Pieces




Line Post




End Post




Base Plate




Neoprene
Rubber Base Pad



Base-To-Post
Installation
Screws




Post Cap




Decorative
Screw Covers

OR



Post Skirt



Post-To-Deck
Installation
Screws

**Post-to-deck lag
screws not included.
Sold separately - these
will vary based on your
mounting surface.**

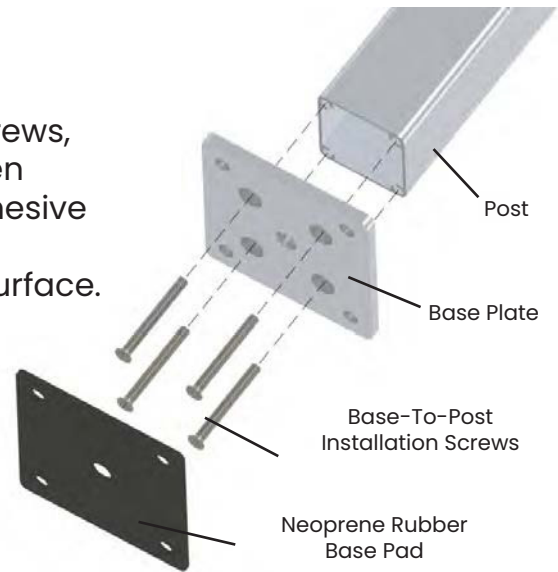
For Surface Mount Post Installation

1. Attach the Base Plate to the bottom of your Post.

Using the four included Base-To-Post Installation Screws, attach the Base Plate to the bottom of your post. Then take the Neoprene Rubber Base Pad, peel off the adhesive backing, and attach it to the bottom of the post as a protective barrier between the post and your deck surface.

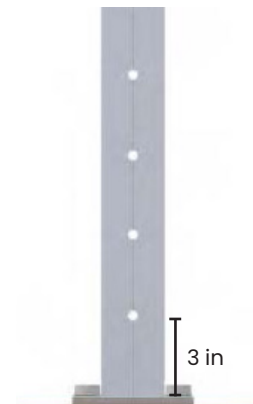


Base Plate Assembly
Be sure the install screws use the four inside holes of the base plate



Note: here's how to identify which end of the post is the bottom:

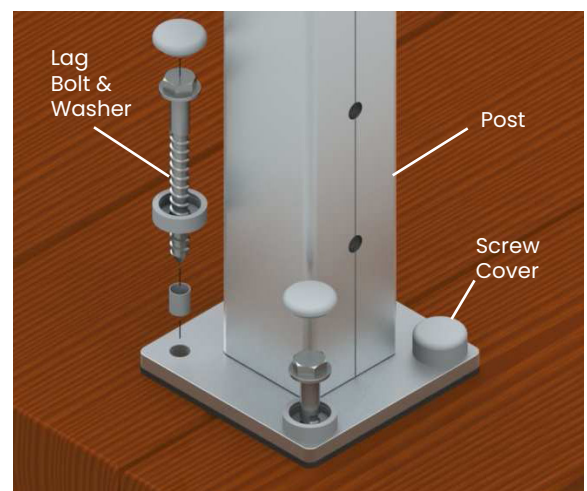
- For 36-inch rail height posts, measure from the bottom of the post to the center of the first drilled hole. It should be 3 inches from the bottom of the post to the first drilled hole.
- For 42-inch rail height posts, the distance from the end of the post to the center of the first hole is 3 inches measuring from either end, so you can use either end as the bottom.



2. Mount the Post in place using one of the three following methods.

2A. If you're using Decorative Screw Covers:

Use (4) 3/8-inch x 5-inch or longer stainless steel Lag Screws or equivalent (**lags not included**). Begin by inserting each Lag Screw through a washer, screw base, and sleeve of the Decorative Screw Cover assembly, then through the Base Plate and into the deck surface below. Install one lag screw through each of the four mounting holes on the post base plate into the structural frame of your deck.



Note: Do not fully seat the lag screws – leave the lag screws sticking up roughly one inch. This will give your post a little flexibility to install rails between them. You will fully tighten the lag screws in Part III and then snap the Domed Caps over the top.

2B. If you're using Decorative Post Skirts:

Use (4) 3/8-inch x 5-inch or longer stainless steel Lag Screws or equivalent (**lags not included**). Insert each Lag Screw through the top of the Base Plate and down into the deck surface below. Slide your Post Skirt over the top of the post and let it rest over the Lag Screws.

A note on corners: if you're using Decorative Post Skirts on a 90-degree corner, make sure both of your corner posts have at least 5 inches between their base plate and the corner. This will leave enough space to fit both Decorative Post Skirts.

Note: Do not fully seat the lag screws – leave the lag screws sticking up roughly one inch. This will give your post a little flexibility to install rails between them. You will fully tighten the lag screws in Part III.

2C. For installation into concrete:

Fasten aluminum posts to concrete using (4) 3/8-inch x 3-inch or longer concrete screws (concrete screws not included). Cover concrete screws and base plate with the decorative post skirt (sold separately). **Note:** We do not recommend using the Decorative Screw Covers with concrete screws.

NOTE: Do not fully seat the lag screws – leave the lag screws sticking up roughly one inch. This will give your post a little flexibility to install rails between them. You will fully tighten the lag screws in Part III.

Fascia Mount Post Parts & Pieces



Line Post



End Post



Post Cap



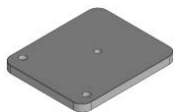
Fascia Mount Bracket



Shim Stacks (x2)
(Optional)



Neoprene Gaskets (x2)



Bottom Cap



Bottom Cap Installation Screws



Post-To-Fascia Bracket Installation Screws

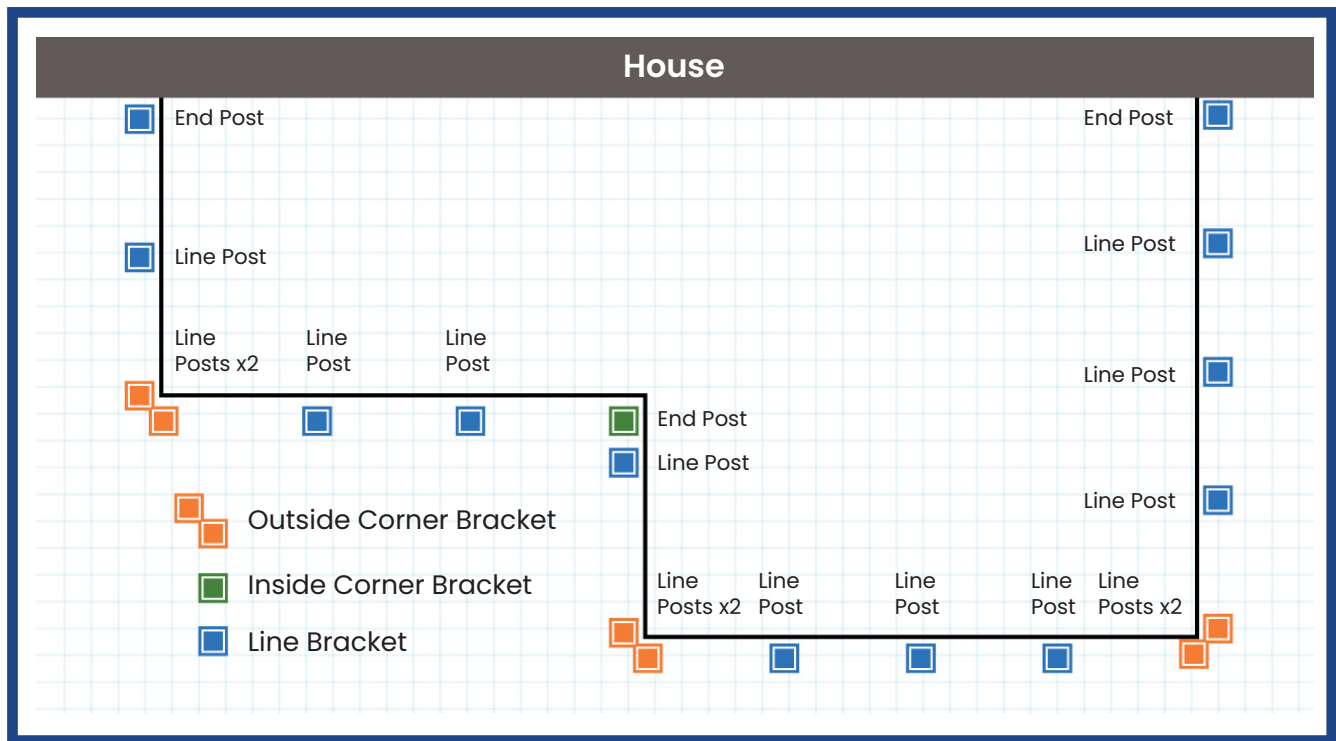


Note: Post-to-frame lag screws not included these will vary based on your framing setup.

For Fascia Mount Post Installation

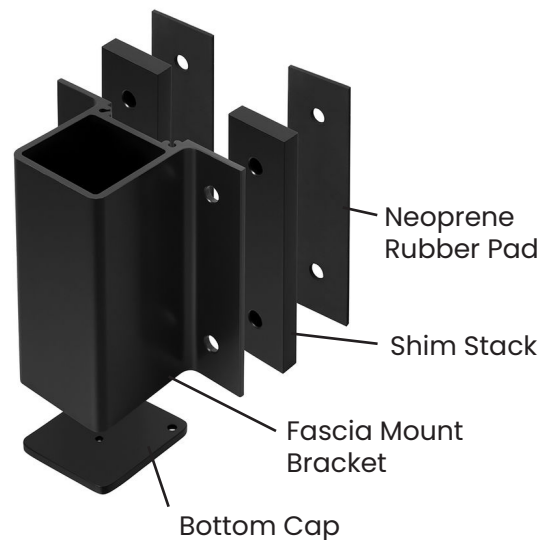
Here's how to know what posts and brackets to use at various spots in your deck layout:

Top View of a Deck - Where your posts and fascia brackets go



How to know if you need to use Shim Stacks:

If your deck boards hang over the edge of your deck frame, you will need to use Shim Stacks to offset your fascia brackets. If your deck boards are flush with the edge of your framing, you can discard the Shim Stacks.



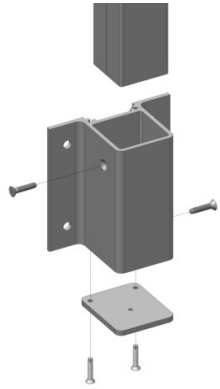
1. Prepare the Fascia Bracket.

If you are not using fascia bracket shim stacks, peel the adhesive off of your Neoprene Pads and attach them to your fascia brackets.

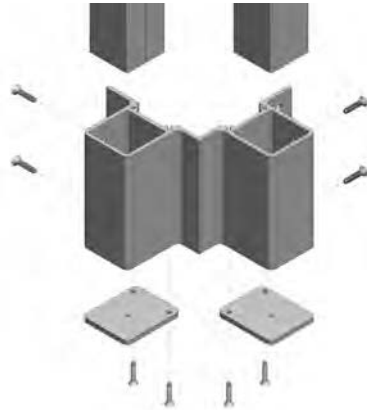
If you are using the Shim Stacks, peel the adhesive off of your Neoprene Pads and attach them to your Shim Stacks. You'll place them between the Fascia Bracket and fascia board with the rubber pad facing the fascia board.

2. Install Bottom Caps on the Fascia Mount Brackets.

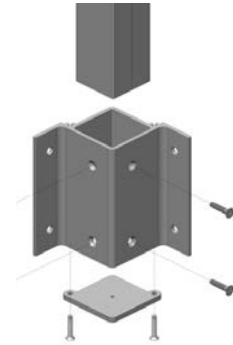
Attach Bottom Caps to each Fascia Mount Bracket using the included Bottom Cap Installation Screws. The Line Fascia Bracket, Outside Corner Fascia Bracket, and Inside Corner Fascia Bracket each have uniquely-shaped Bottom Caps, so make sure to install the right cap to the right bracket.



Line Bracket
with Bottom Cap



Outside Corner Bracket
with Bottom Cap

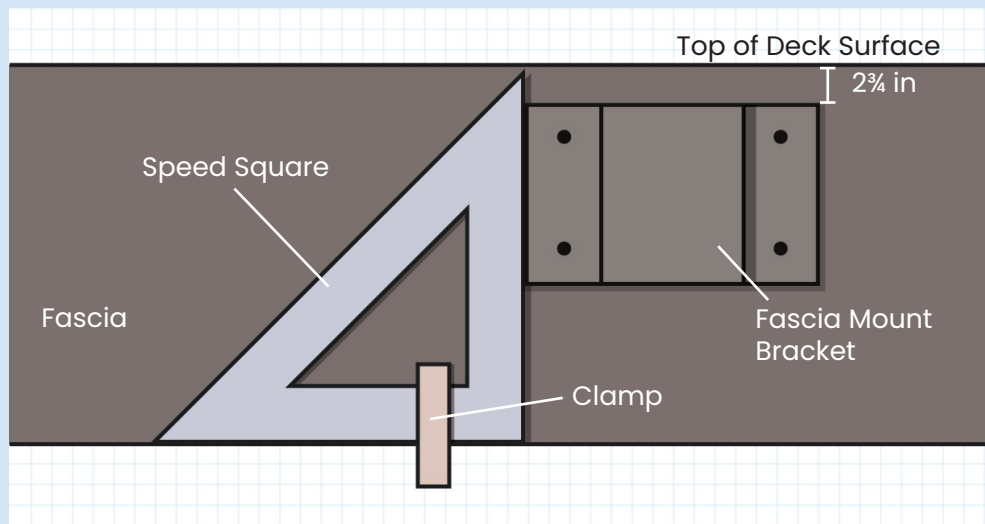


Inside Corner Bracket
with Bottom Cap

3. Level and mark the Fascia Bracket.

Measure down 2-3/4 inches from the top of the deck surface and make a level mark on the fascia. Align the top of the Fascia Bracket on that mark. Make sure the top of the bracket is level while holding it on the layout marks.

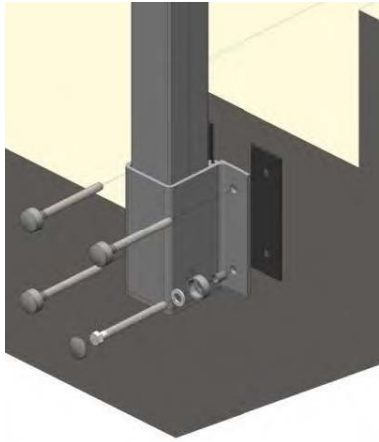
Pro Tip: Holding the fascia bracket in position, place a speed-square along the bottom edge of the installation surface alongside one edge of the fascia bracket and use a clamp to hold the speed-square in place. Doing this will ensure the bracket is positioned plumb.



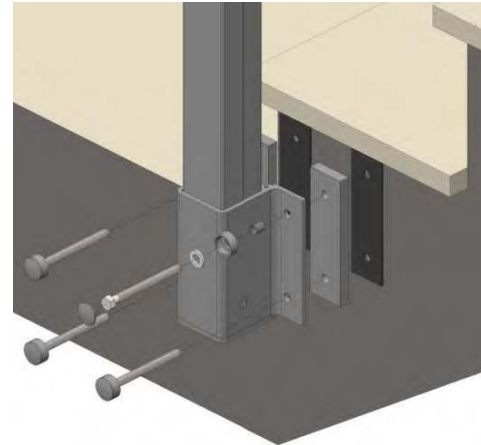
Mark the Fascia Bracket hole locations on the fascia board, then set the bracket aside and pre-drill the bolt pilot holes through the framing.

4. Attach the Fascia Bracket to your frame.

Slide your lag screws (**not included**) through the Decorative Screw Cover components: first the washer, then the screw base, and finally the sleeve. Then insert the lag screw through the Fascia Mount Bracket, the Shim Stack (**if used**), and Neoprene Pad, then into the bolt pilot hole you drilled into your framing. Fully tighten these lag screws.



Bracket Installation
without Shim Stacks



Bracket Installation with
Shim Stacks

5. Cut Fascia Post To Length (36-inch railing only)

For 36-inch tall railing, you'll need to cut the fascia post to length before installing it into the bracket. Measure down 3-3/16 inches from the **top** of the post, make a mark, and cut the post.

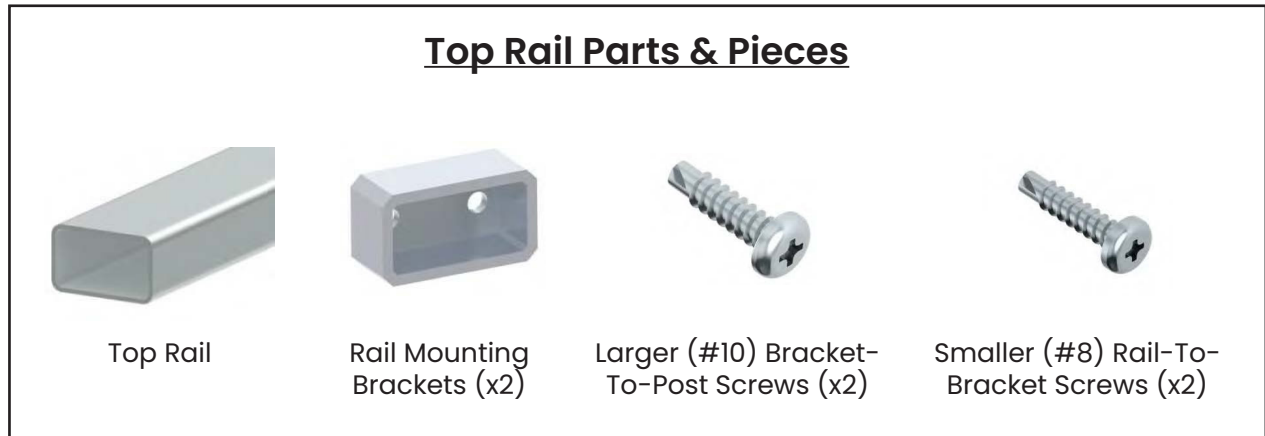
For 42-inch tall railing, you do not need to cut the fascia post.

6. Attach Fascia Posts to Fascia Mount Brackets.

Insert the bottom of the Post into the Fascia Bracket, ensuring the cable holes run parallel to the perimeter of the deck. Using the holes in the fascia bracket as a guide, pre-drill holes in the post and install the Post-to-Fascia-Bracket Installation Screws to secure the post to the bracket.

Work your way around the perimeter of the deck repeating this process with each fascia-mount post.

Part III: Attach Your Top Rail



Mount Top Rails between **all** of your posts. Then move to Part IV (if you have corner kits) and Part V (the cable runs between posts).

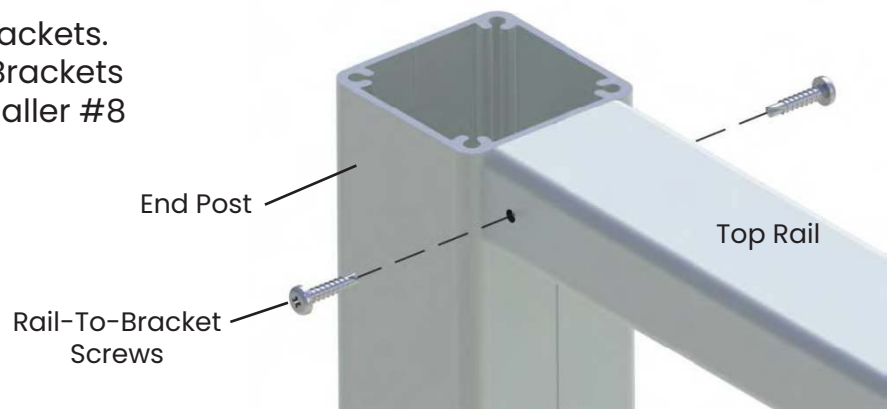
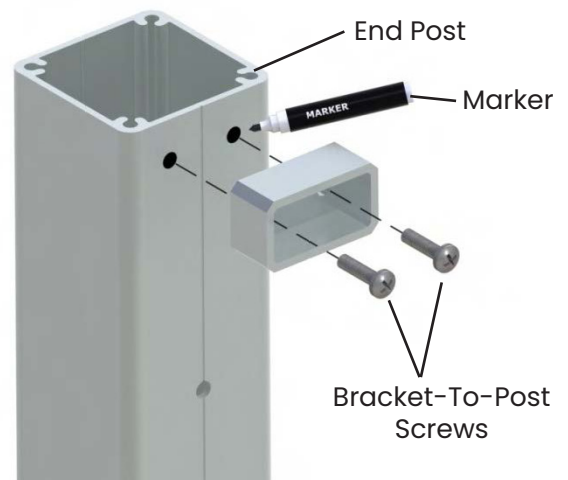
1. Start with your first End Post. Place a Rail Mounting Bracket against the post with the top edge of the bracket sitting 1/16-inch from the top of the post. Use a marker to mark where the holes in the bracket are. Then pre-drill on those marks with a 1/8-inch drill bit.

2. Use the larger #10 Bracket-To-Post Screws to attach the bracket to the post.

3. Repeat steps 1 and 2 to attach a Rail Mounting Bracket to the next post.

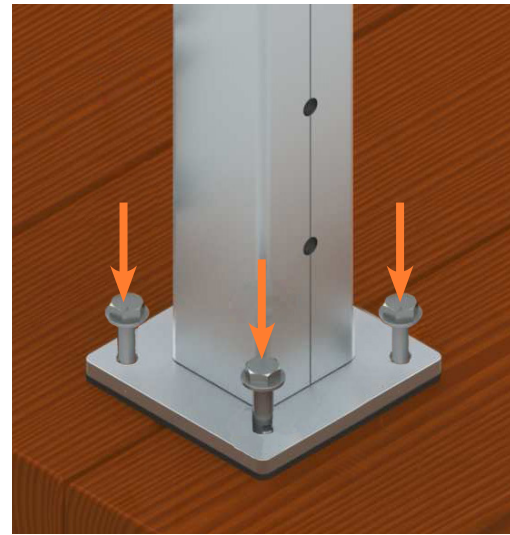
4. Measure the distance between the End Post and the next post. Be sure to measure the distance between the posts as close to the deck surface as possible to ensure an accurate measurement. Cut the Top Rail to the length you measured.

5. Place the Top Rail onto the brackets. Then fasten the Top Rail to the Brackets through each side using the smaller #8 Rail-To-Bracket Screws.



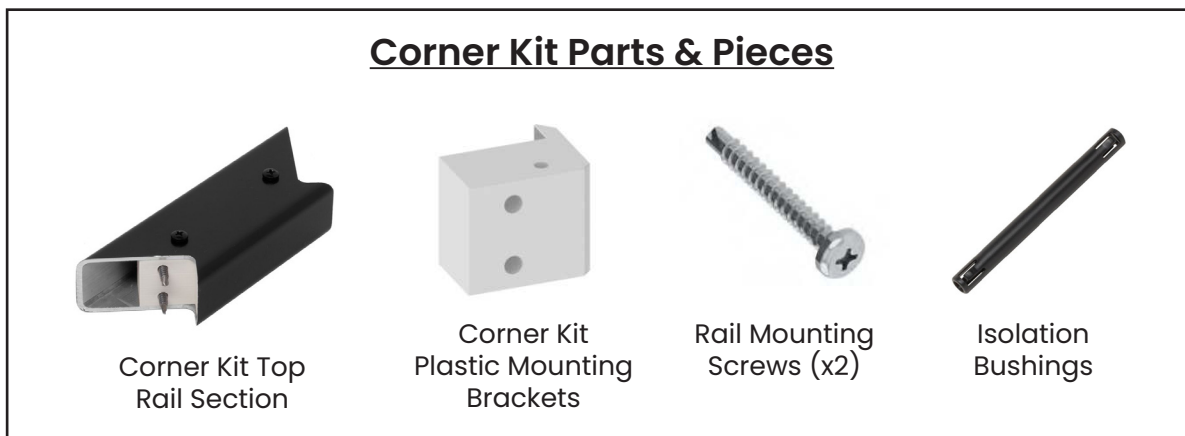
6. After all Top Rails are installed, go back and fully tighten your post mounting lag screws. (surface mount posts only).

In Part II, we left the Lag Screws sticking up about an inch. Once your top rails are installed, go back and fully tighten all of these screws for every post to lock everything firmly in place.

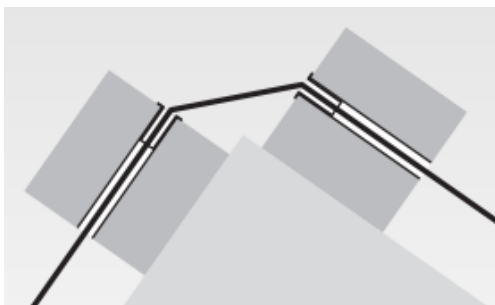


7. After all Top Rails are installed, install the Post Caps on each post using the included hardware.

Part IV: Install Your Corner Kits



Note: The Skyline Cable Railing system requires the installation of two Line Posts at all 90-degree corners. To reinforce the corner posts against the loads placed upon them by cables under tension, the Skyline Cable Railing system uses a specialized Corner Kit.

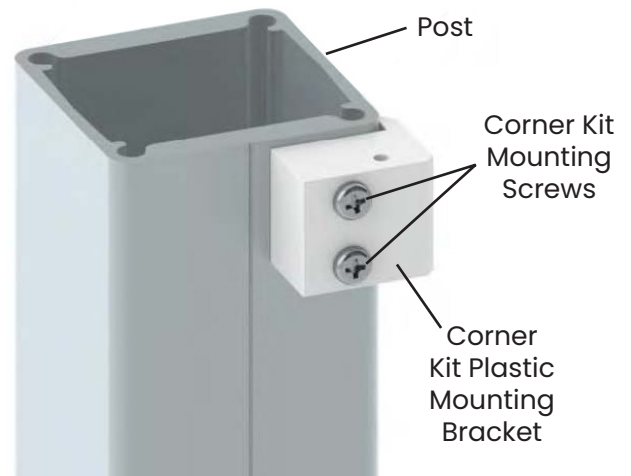


Pictured Left: a 90-degree Skyline Cable Railing corner before the Corner Kit Top Rail Section has been installed. The cable passes through each post with Isolation Bushings to protect the cables from rubbing against the posts.

1. Position the Corner Kit Plastic Mounting Brackets on the post so that the top of the Corner Kit Top Rail Section is flush with the top of the post.

2. Hold the bracket firmly in place and attach it with the Corner Kit Mounting Screws.

- For Line Posts: use a drill with the proper size Phillips driver bit and tighten the bracket onto the post.
- For End Posts: mark the bracket hole locations and pre-drill holes with a 5/32-inch drill bit



3. Repeat steps one and two for the other post on the corner.

4. Install the Corner Kit Top Rail Section over the Corner Kit Brackets. Make sure the holes in the top rail are facing downward.

5. Using a long Phillips screwdriver, install one Corner Kit Mounting Screw into each of the pre-drilled holes in the Corner Kit Top Rail.

Note: Keep your Isolation Bushings close by – you will need to install them along with your cable runs in Part V.

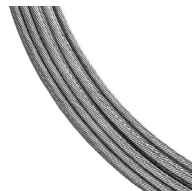


Part V: Install Your Cable Runs

Cable Infill Parts & Pieces



Threaded Tensioners (x2)



Cable



Acorn Nuts,
Hex Nuts,
& Washers
(x2)



Beveled
Washers
(if needed for
stair railings)



Isolation
Bushings
(if needed for
stair railings)

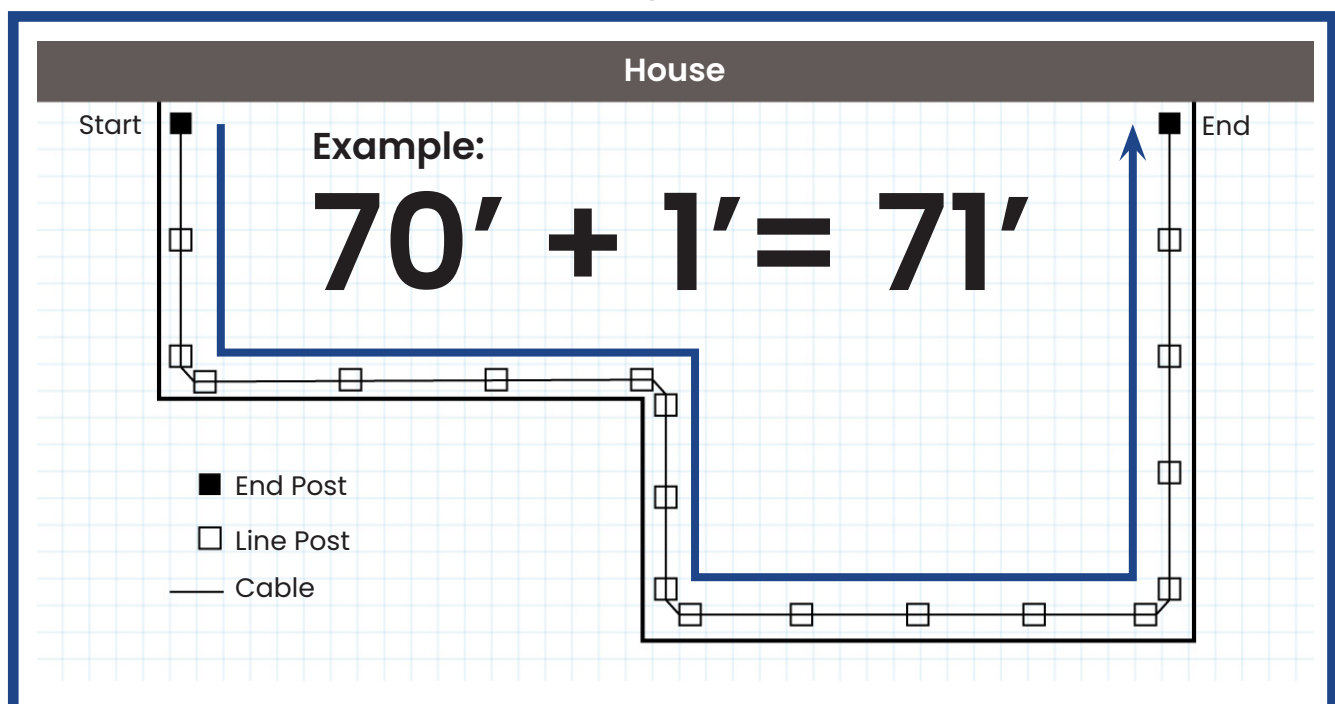
Cut Your Cable To The Right Length

Begin by determining the total length of each run of cable for the section of railing you are working on, from one End Post to the other End Post.

Add 1 foot to the measured length to determine the total cut length for each run of cable. For example, if you measure 70 feet of run length, you will want to cut 71 feet of cable for each run to make sure you have enough cable. You will trim the cable to a more exact length in a later step.

Cut a piece of cable equal to your total cut length, using a cable cutter or grinding wheel. Swage a Threaded Tensioner onto one end of the 1x19 1/8-inch stainless steel cable you just cut, using the instructions below:

Measuring Your Cable



Install Cable & Fittings Into Your Posts

Each Cable Fitting Kit includes two Threaded Tensioners that will be swaged (a technical term for clamping or crimping) onto each end of the cable. Here's how to do it:

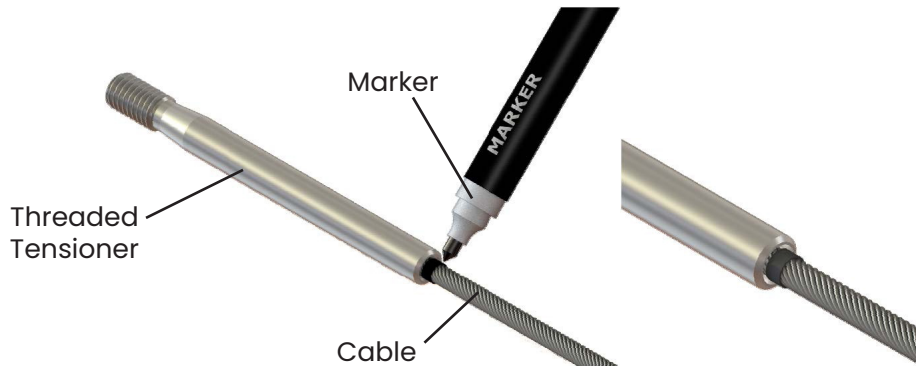


What does "swage" mean?

In cable railings, "swaging" is a way to attach cables to fittings by squeezing the metal fitting tightly around the cable.

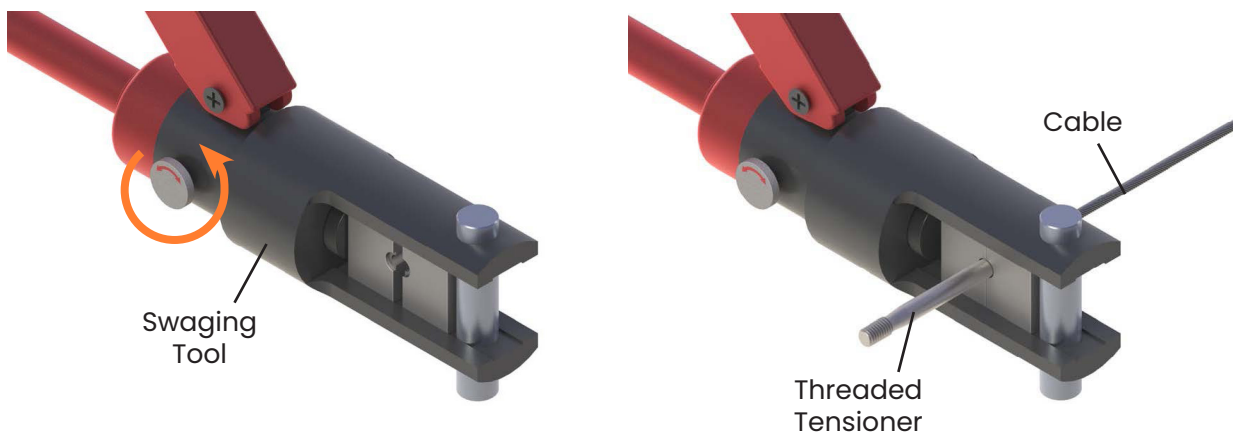
Attach Cable To Threaded Tensioner Fittings

1. Insert Cable into one Threaded Tensioner until it is fully seated.
2. Using a marker, mark the cable at the edge of the Threaded Tensioner to provide a visual reference and ensure the cable remains fully seated inside the tensioner fitting.



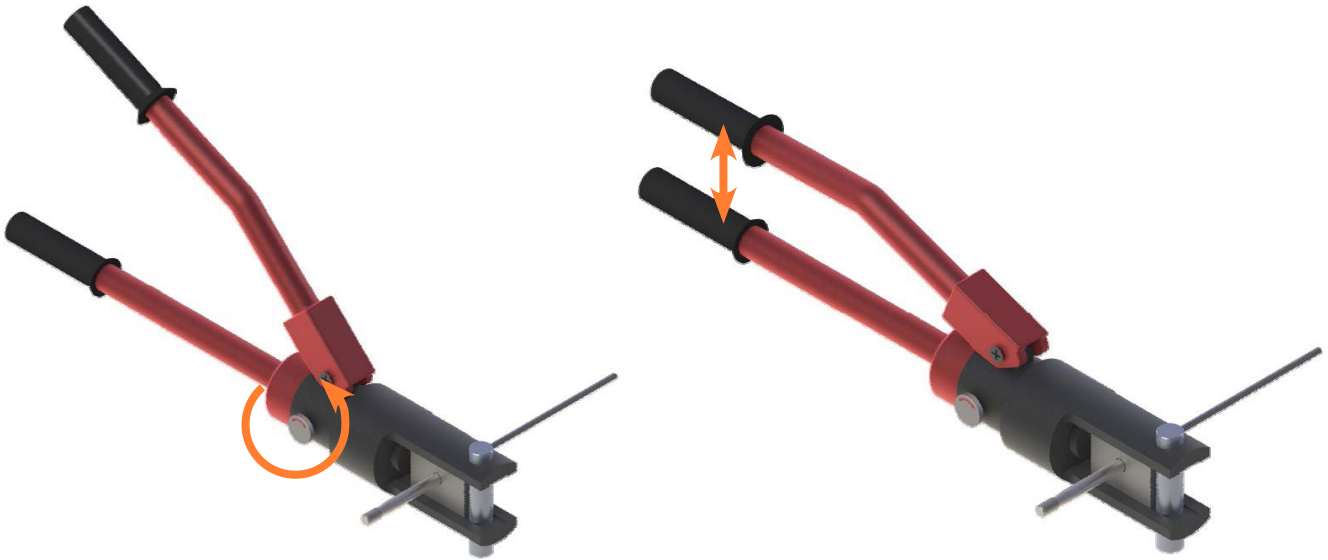
Note: Your tensioner may be longer than the one pictured, but the installation method is the same.

3. Turn the knob on the Swaging Tool counterclockwise to open the jaws. Position the jaws around the Threaded Tensioner fitting, $\frac{1}{8}$ inch from the edge of the fitting where the cable enters the tensioner fitting.



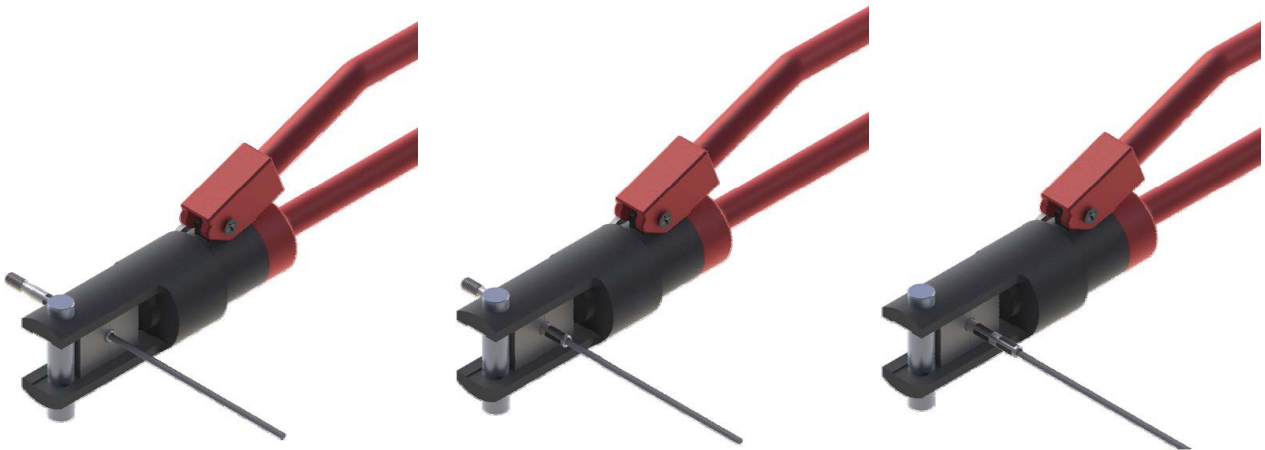
4. Turn the knob on the Swaging Tool clockwise, then pump the handle repeatedly until the two die halves nearly touch, creating the first crimp.

Warning: Only firm handle pressure is needed to close the die halves. Applying excessive force to the tool will result in damage.



5. Reposition the dies $\frac{1}{4}$ inch further along the Threaded Tensioner and rotate the fitting 45 degrees. Pump the handle repeatedly until the two die halves nearly touch, creating a second crimp.

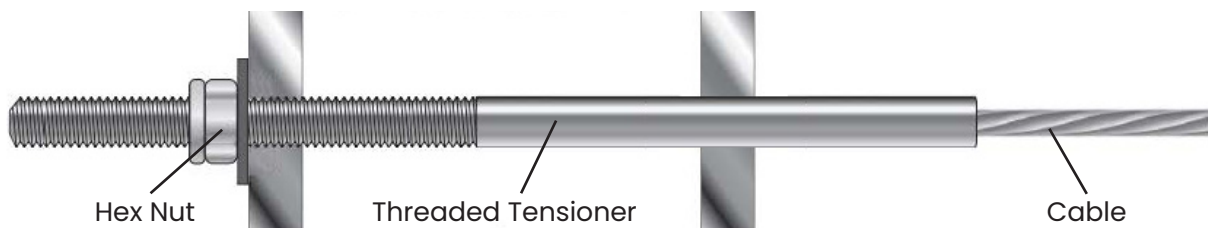
6. Repeat step 5. Reposition the dies $\frac{1}{4}$ inch further along the Threaded Tensioner and rotate the fitting 45 degrees. Pump the handle repeatedly until the two die halves nearly touch, creating a third crimp.



Attach Cable To One End Post & Run It Through Your Line Posts

1. Attach the Threaded Tensioner fitting to your End Post. Push the Threaded Tensioner with the now-attached cable through the pre-drilled holes of the first End Post.

2. Slide the Washer over the threaded end of the Threaded Tensioner and turn the Hex Nut onto the Threaded Tensioner by rotating it clockwise until the end of the tensioner fitting is flush with the outside edge of the hex nut. Set the Acorn Nut from the assembly kit aside to install later.



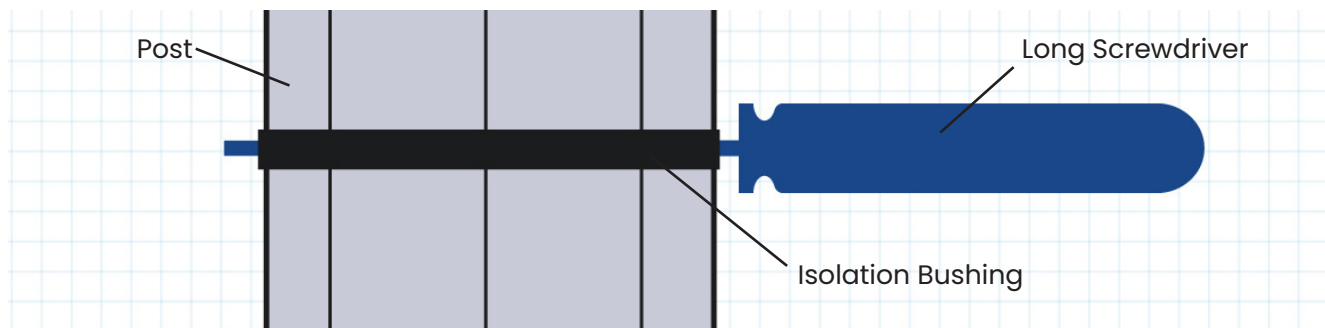
3. Run the cable through the first Line Post, ensuring that the cable is running through the same level of holes on the End Post.

4. Continue running the cable through each subsequent Line Post.

Note: Include Isolation Bushings Anytime The Cable Changes Direction.

When you reach a corner, a set of stairs, or any other place where your cable run needs to change direction, install an Isolation Bushing into the post by pushing the Isolation Bushing into the hole in the post until it clicks into place. (We'd recommend using a long screwdriver to feed the Isolation Bushing into the post). Then run the cable through the Isolation Bushing and out the other side of the post. This bushing will keep your cable from rubbing against your post and causing corrosion or weakening the cable.

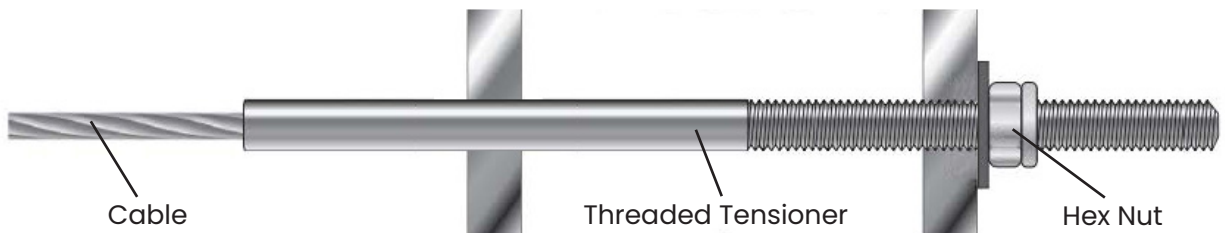
How To Install Isolation Bushing



5. Run the cable through every Line Post until you reach the final End Post.

Attach Cable To Your Second End Post

1. Pull the cable tight and make a mark on the cable where it enters the second End Post. Cut the cable at this mark.
2. Attach the end of the cable to the other Threaded Tensioner by following the same instructions from the **Swaging the Threaded Tensioner Fittings** section above.
3. Install the second Threaded Tensioner fitting with the now-attached cable by pushing the fitting through the pre-drilled holes of the second End Post.
4. Slide the Washer over the threaded end of the Threaded Tensioner and turn the Hex Nut onto the Threaded Tensioner by rotating it clockwise.

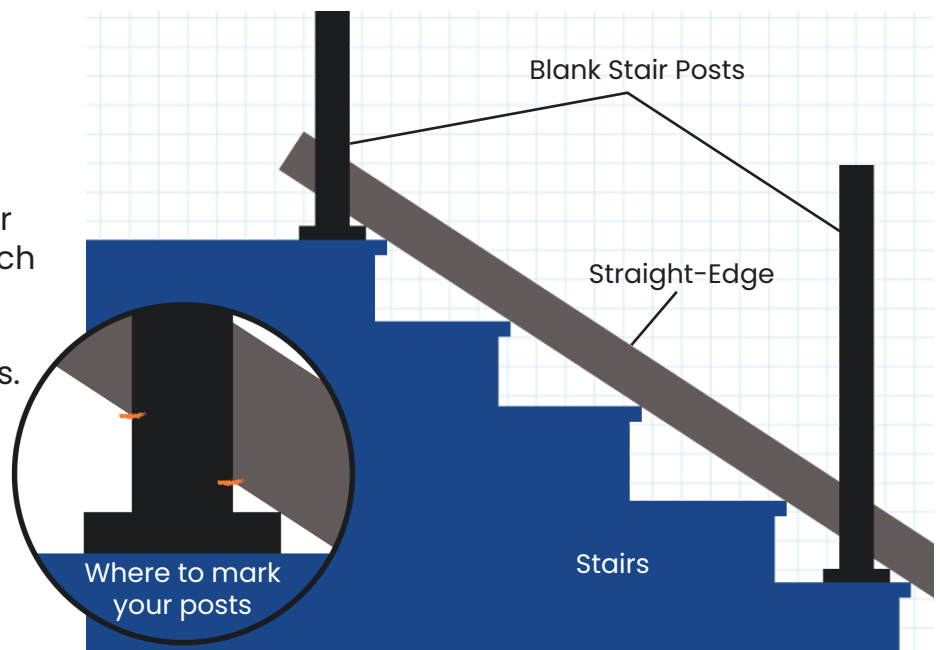


Special Note For Stair Railing Sections

For stair railing sections, your posts will arrive without pre-drilled holes so that you can drill your own holes to match your specific stair angle.

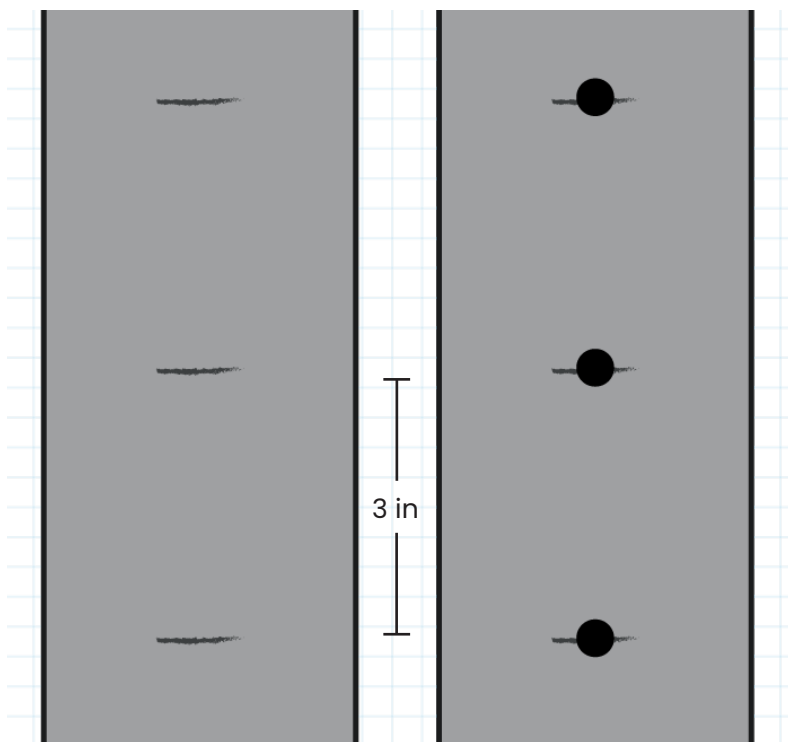
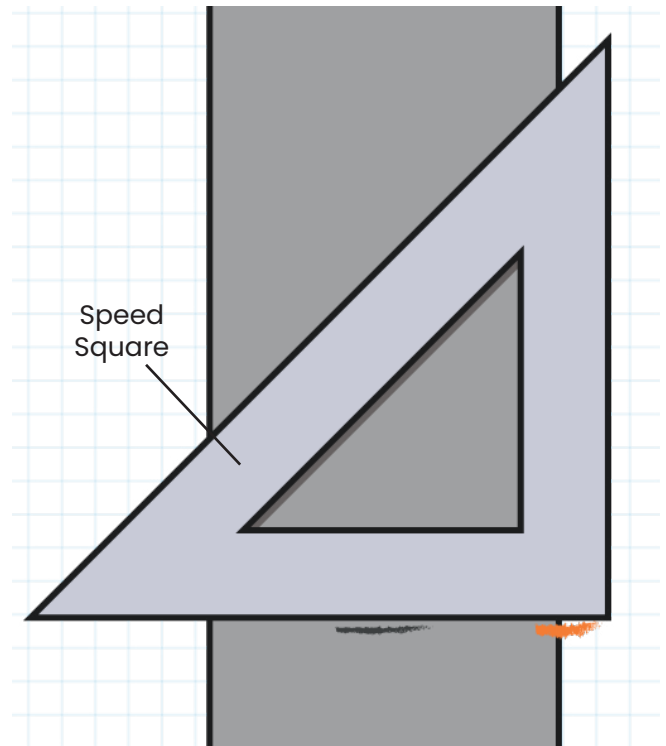
How To Drill Your Cable Holes in Stair Posts

1. Place a straight-edge (like a level, deck board, or yardstick) on your stairs, running from your top post down the stairs to match the slope of your stairs. Use a carpenter's pencil to mark this slope on each of your stair posts. This is the angle at which your lowest cable will pass through your post.



2. Use a speed square or other leveling device to mark the front of your post, where you'll drill the bottom cable hole. This mark should be in the center of your post and level with the slope mark on the side of your post.

3. Do the same thing to mark the higher hole on the back of your post.

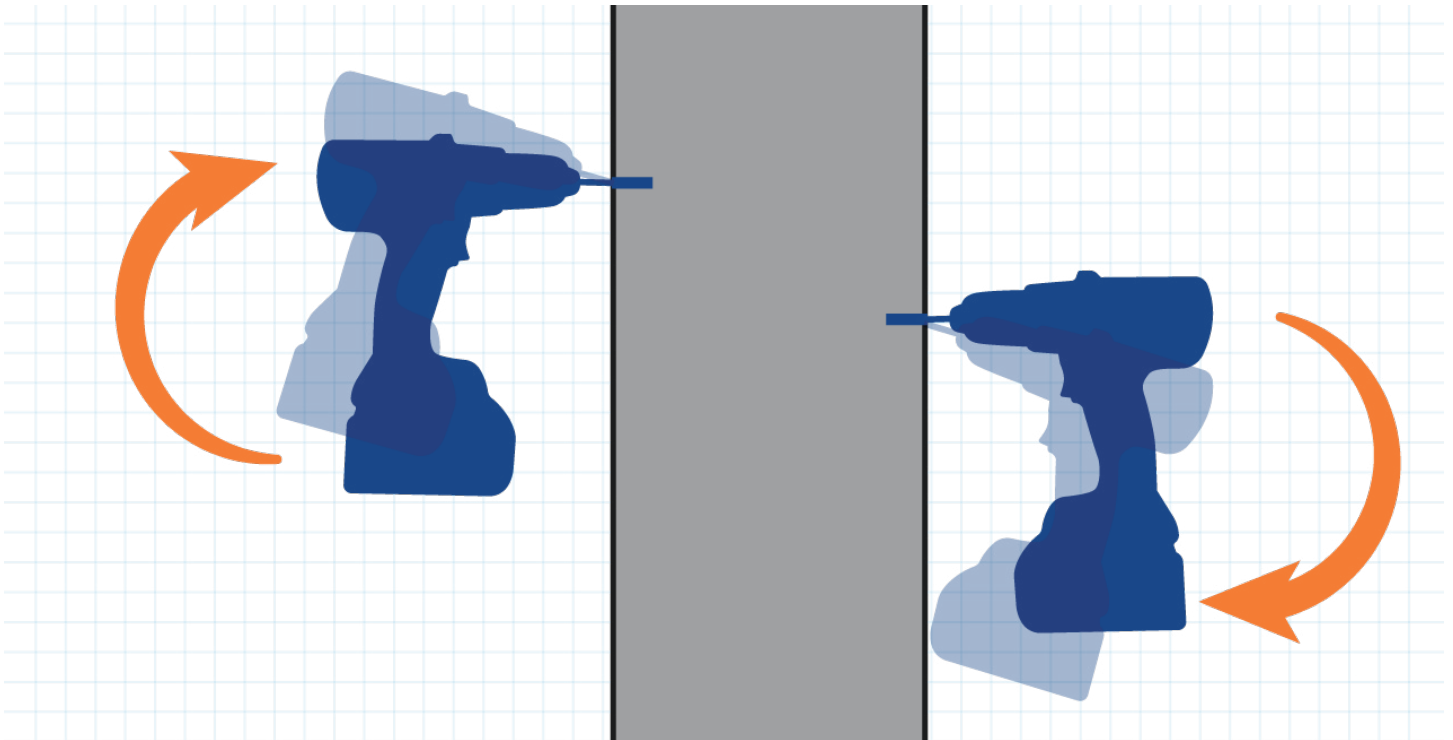


4. Mark the rest of the holes in the front of your post by measuring 3 inches up from the previous hole. You'll mark 11 total holes for 36-inch railing or 13 total holes for 42-inch railing.

5. Mark the rest of the holes in the back of your post the same way, measuring 3 inches up from the previous hole.

6. Drill pilot holes on all of these marks using a 3/16-inch drill bit.

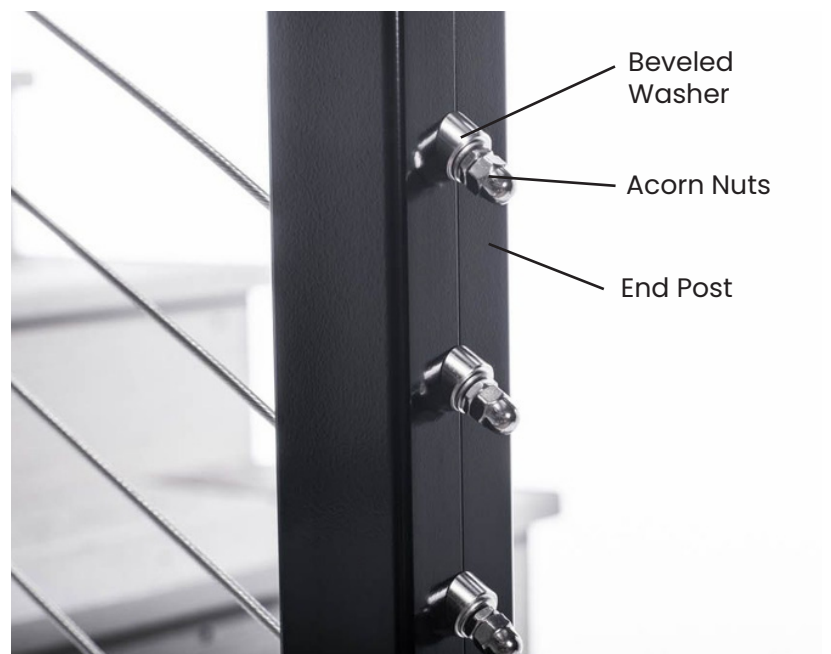
7. Widen and angle each hole using a 17/64-inch or 1/4-inch drill bit. Start by drilling straight into each hole. Once your bit enters the post, lower your drill so the bit angles upwards, widening the hole and allowing the Threaded Tensioner to fit through the post at an angle.



8. Repeat this process for each undrilled post at the top, middle, or bottom of your stairs.

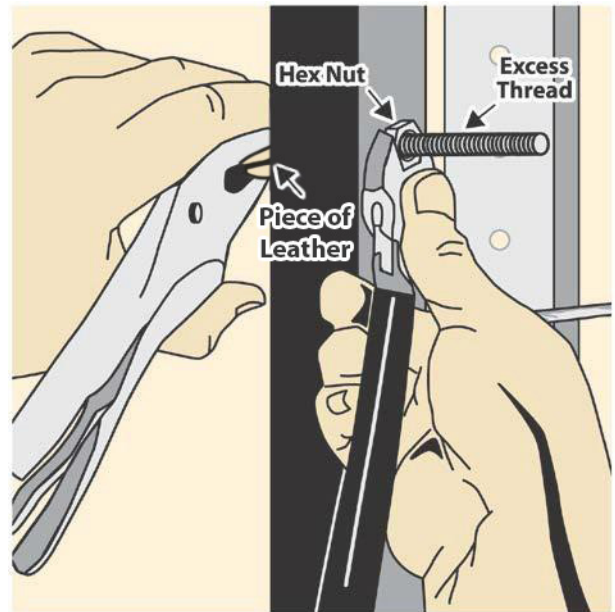
Installing Your Fitting Kits

1. For angled stair railings, follow the same installation instructions as above. But for the End Post(s) at the top and/or bottom of your stairs, use Beveled Washers in between the post and the washer to connect the cable fittings at an angle.



Tension Each Cable Run

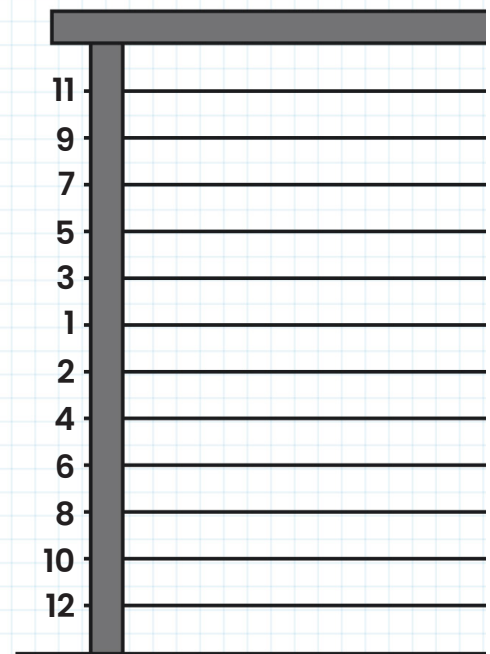
1. Return to the first End Post. Beginning with the middle run of cable, use a Vise-Grip™ and a piece of scrap leather to secure the stud end of the Threaded Tensioner, protecting it from marring and preventing it from spinning. Use a crescent wrench to turn the hex nut and tension the cable.



2. Repeat step 1 for each cable run, alternating cables high and low from the center cable, working towards the top and bottom, as shown in the diagram to the right.

For straight runs of cable under 20 feet in length, complete all the tensioning of cables using the threaded studs of the first End Post.

For straight runs of cable over 20 feet in length, or for runs of cable that turn one or two 90-degree corners, tension your cables from both ends instead. Tension your cable on the first End Post only until 3/4-inch of thread is exposed beyond the hex nut. Then move to the other end post and complete the tensioning from that side.



Recommended Tensioning Sequence

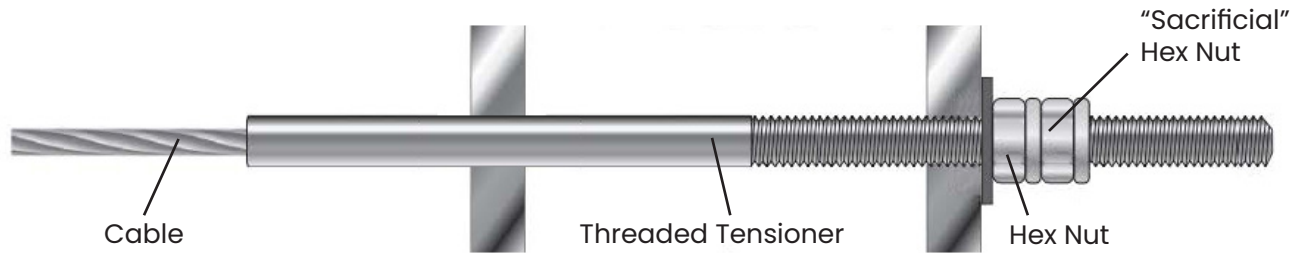
Trimming Excess Threaded Stud & Installing Acorn Nuts

After tensioning, you will likely have a long threaded portion of the Threaded Tensioner sticking out of your post. You'll cut off this excess threading and install an Acorn Nut to give your End Posts a clean, polished finish. Cut off most of this excess thread by following these instructions:

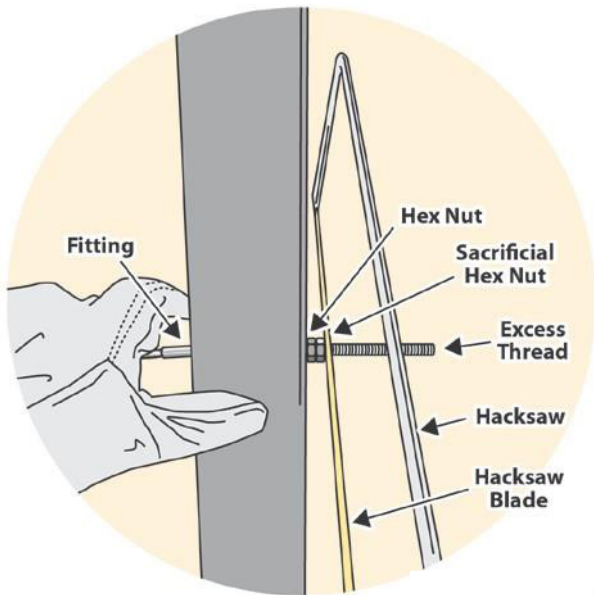
1. In order to protect the hex nut and leave enough exposed threaded stud to install the **20** Acorn nut, screw a second "sacrificial" hex nut onto the threaded stud.

2. Use a grinding wheel, hacksaw, or reciprocating saw with a metal cutting blade to cut off the excess thread beyond the second "sacrificial" hex nut.

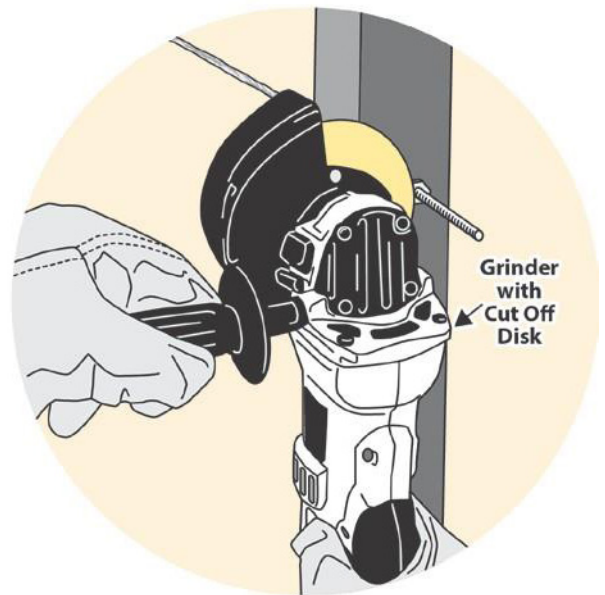
3. Remove the second "sacrificial" hex nut and thread the Acorn Nut onto the remaining exposed threads.



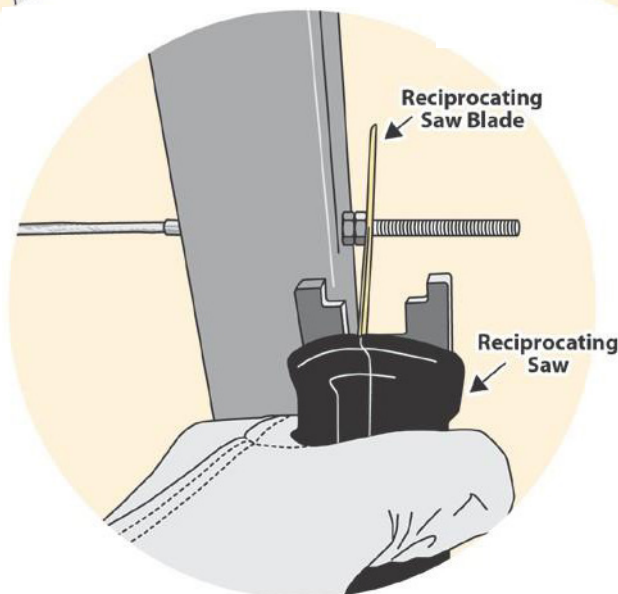
Acceptable Methods to Trim Excess Threaded Stud:



Hacksaw



Grinder



Reciprocating Saw