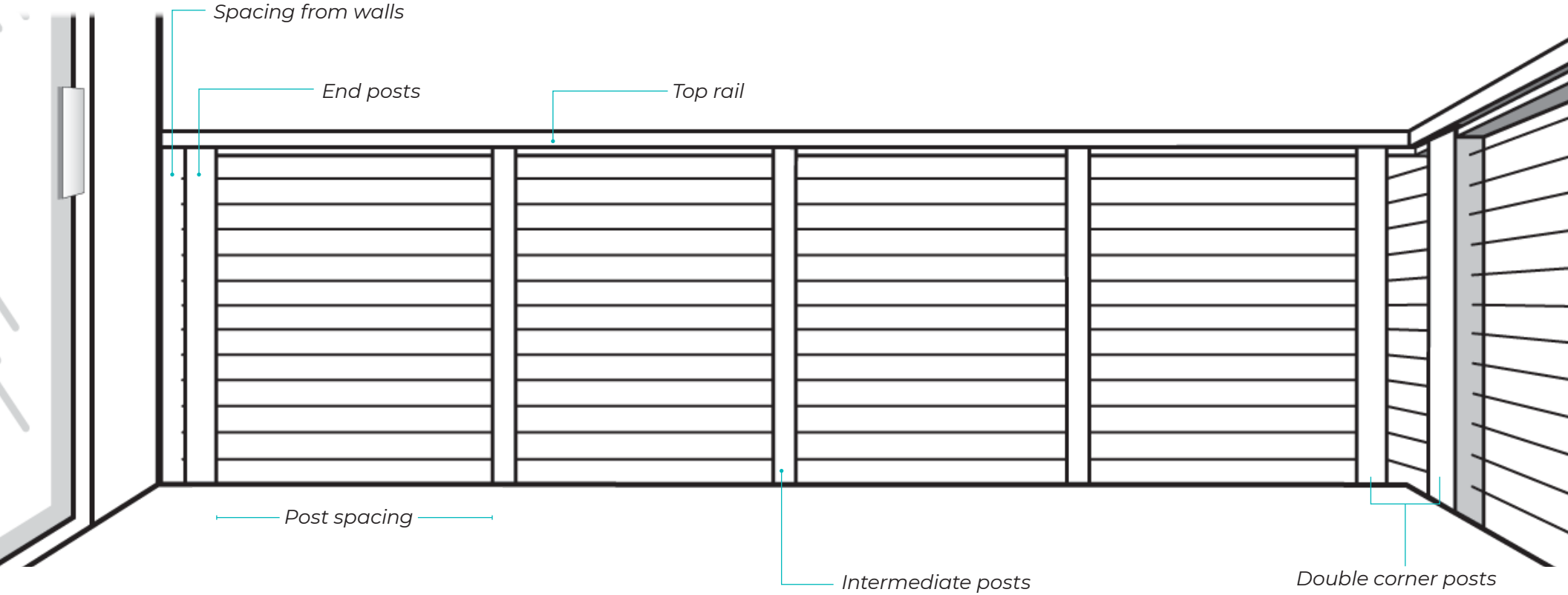
feeney®

Treasure the View

By Andy Engel

The first time I saw cable railings, they struck me as nautical, or perhaps vaguely industrial, in a sleek and timeless way, while offering the huge advantage of not blocking the view. Of course, glass railings also offer that advantage, as long as you keep them clean, and glass railings generally require installation by a specialty contractor. Any competent carpenter can install cable railings, and depending on the manufacturer of the system, without having to buy a lot of specialty tools.



Design

There's one big difference between cable railings and more traditional railings with vertical balusters. For the cable to remain taught, it's stretched pretty tight during installation. Each cable can put a lateral load of as much as three hundred pounds on the posts in a direction carpenters might not be used to thinking about. Having a rigid top rail running between the posts to resist that force is very important. It's not a bad idea to run a bottom rail between the posts, either, but good post attachment can work as well.

Railing basics

Spacing is always important with railings, but it becomes critical with cable systems.

- Minimum 1x4 subrail
- Posts spaced no more than 4 ft. apart, or 6 ft. with intermediate posts
- 3½-in. spacing from walls allow for cable tensioning
- Maximum 3-in. spacing between cables

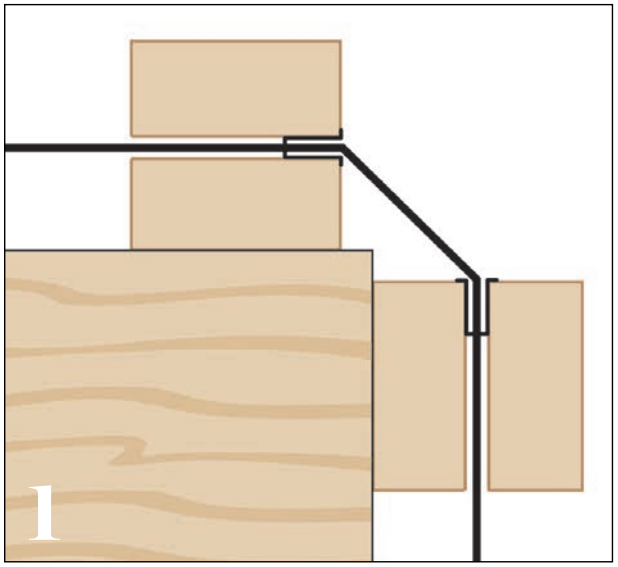
Going 'round the bend

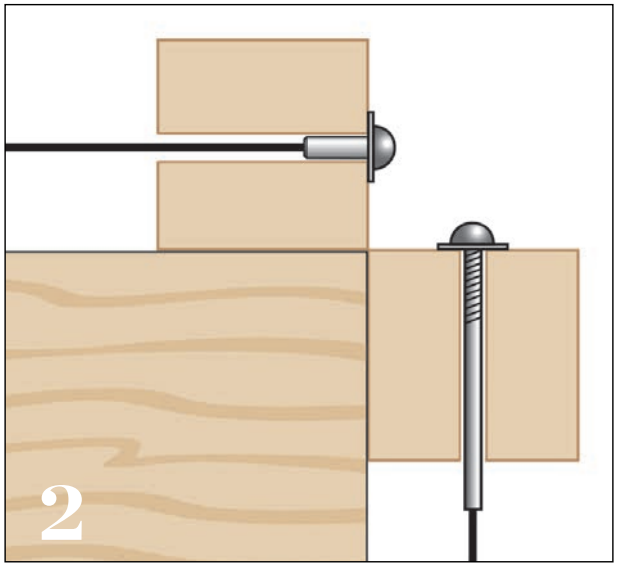
Using two corner posts keeps the cable location consistent throughout the installation.

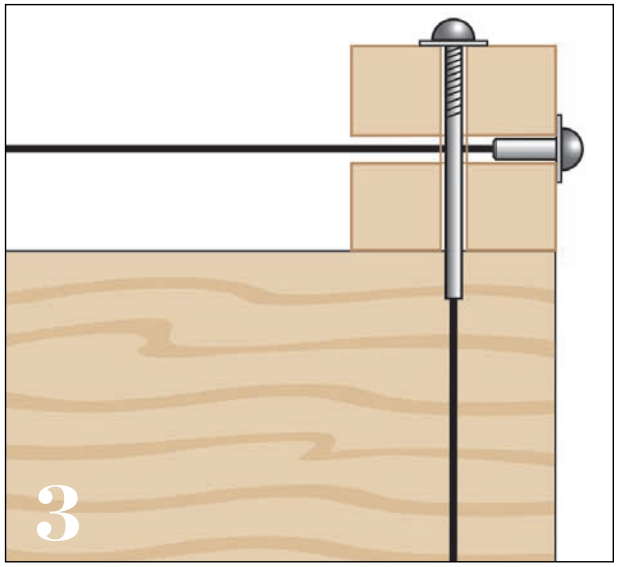
1 Protective sleeves allow the cable to run continuously

2 Corner terminations are less visible and allow better tensioning

3 Single corners require drilling offset holes







Post spacing is important, too. Most manufacturers recommend a maximum distance between posts of 4 ft. to manage cable sag. However, that can grow to as much as 6 ft. with the addition of smaller, midspan supports.

Another consideration is post location. Depending on the kind of cable termination you're using, it can be important to space end posts no more than 3½ in. from the building in order to allow working space to tighten the cables.

Corners can be another tricky spot. There are a couple of ways to handle them. If you want a single post, the cables on one side will likely have to terminate with a face-mounted connector instead of running through. (If you ran cables through from two sides, they'd hit each other.) The usual solution is to use two corner posts. You can then either terminate the cables on the outside of each post, or, using sleeves to protect the holes in the posts, run the cables through continuously. One issue with running cables continuously around a corner is that the resulting friction can make it difficult to properly tension the cable.

Cable spacing matters. Code specifies that components in railing assemblies must be spaced so that a 4-in. sphere can't pass between them. Because you can't make cable completely rigid, manufacturers require a maximum 3-in. spacing between cables.

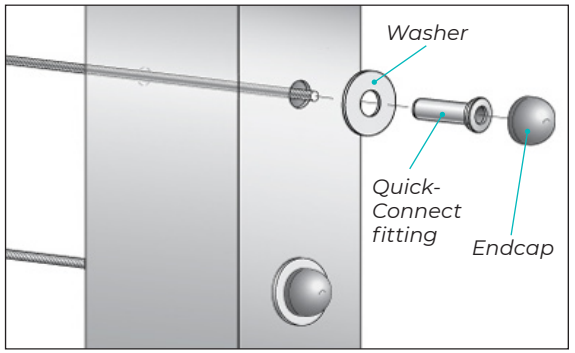
Materials

There's cable, of course. It's sold in several diameters, with ⅛ in. being the most common. You can buy heavier cable (3⁄16-in.- and ¼-in.-diameter cable are also used) for a beefier look, but of course the price rises commensurately. Most cable and fittings sold are 316 stainless, which is highly corrosion resistant. Lower grades, such as 304, might be okay for interior use, but if you want your railing to look good for a long time, 316 is what you want.

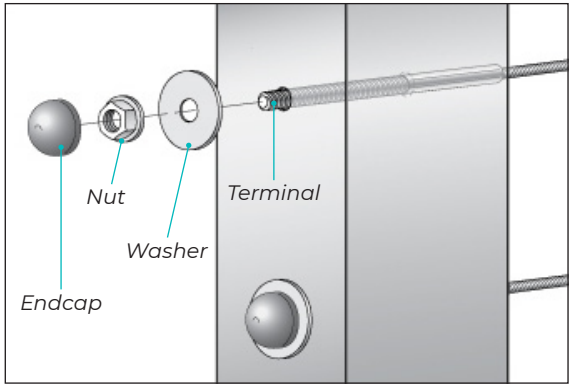
More interesting than cable diameter are the fastening systems. At one end of every run of cable is some kind of anchor, and at the other end is some means of tensioning. Not only do these have to secure the cable, they have to look good as well. And of course there's the question of attaching the cable to these pieces of hardware in a way that will resist a lot of tension. The old-school method required special swaging tools that crimped the end hardware to the cable. Today, manufacturers such as Feeney have Quick-Connect systems that don't require special tools and which grip the cable ever more tightly as more tension is applied.

Cable is sold in spools you can cut to length on the job, which requires swaging the hardware onto one end. There's a simpler way, however. Feeney sells kits with the cable cut in increments of 5 ft., and with a threaded fitting already installed on one end. After the cable is run through the posts, a nut is threaded on that end, and the Quick-Connect anchor is placed on the other end. The initial tension is applied by pulling the cable through the Quick-Connect, and it's finalized by tightening the nut on the other end. The cable is cut flush with the ends of the fittings, and end caps are applied to hide the cut ends.

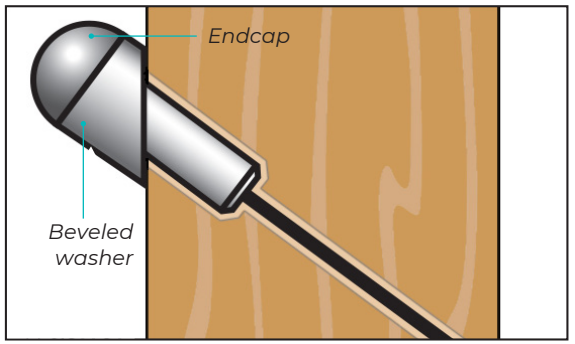
There are a huge variety of other fittings available. For example, there are simple ones that face-screw to posts, pivoting fittings for stairs, and expansion systems to anchor cables to masonry walls.



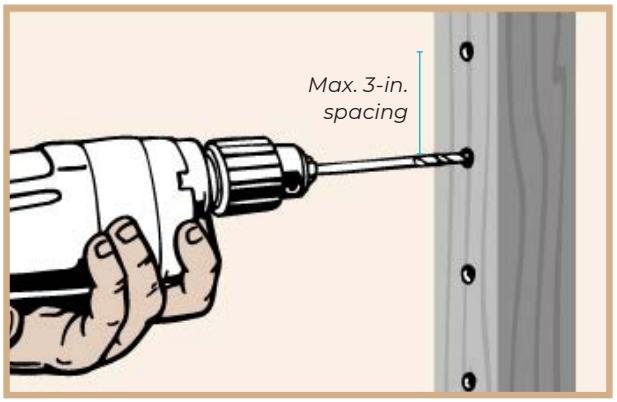
Quick starting-connector. The one-way jaws on Feeney's Quick-Connect fittings allow for easy terminations.



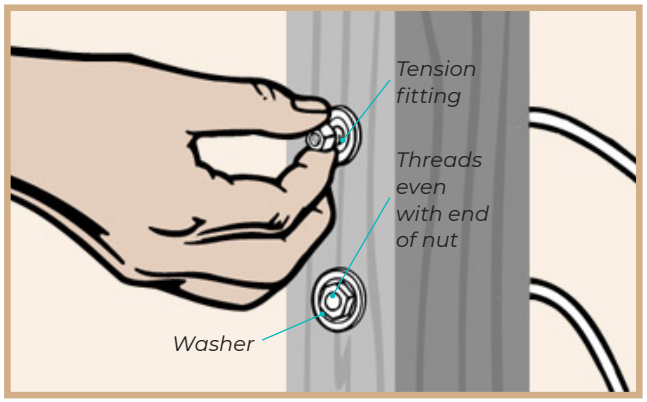
Preassembled tension fitting. Slip on the washer and nut, tighten the cable, cut it to length, and finish with an endcap.



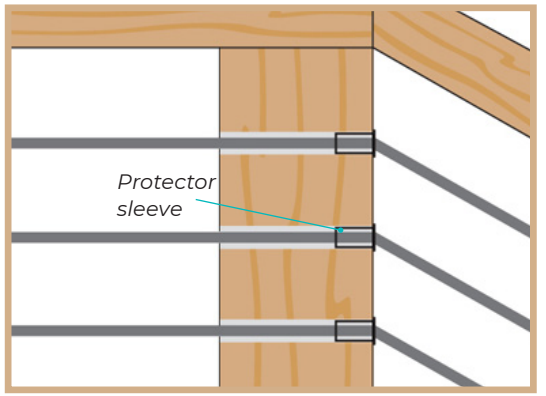
Stair railing. Beveled washers establish the correct angle on stairs.

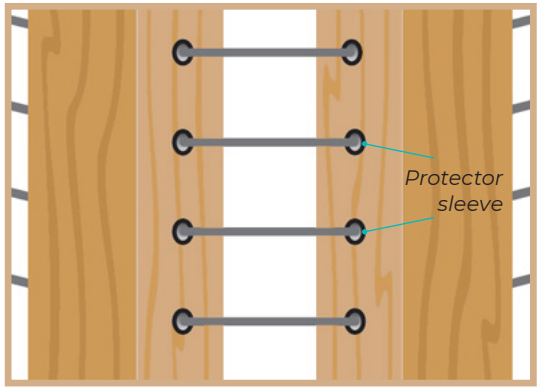


Drill the holes. Drill from both sides to ensure accuracy and leave cleaner holes.



Affix the Threaded End. The first components to go in is the tension fitting, whose threaded ends come already swaged onto the cable.





Protect angled holes. Use stainless-steel protector sleeves to prevent the cable from cutting into wood posts.

Installation

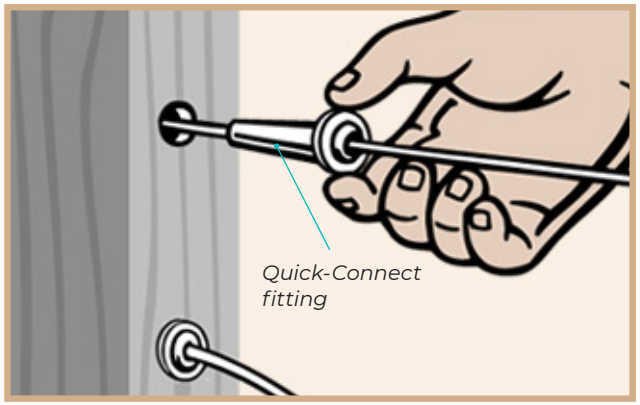
Installation starts by determining the cable spacing. That's figured by dividing the space between the top rail and the decking or floor (or the bottom rail, if you have one) by 3, the maximum spacing allowed. Say your space is 35 inches, so 35/3 = 11 and change. You don't need to know the change, but if there is any, that means you have to round up, in this case to 12, which will be the number of spaces between the cables. To find the spacing, you divide the overall height by the number you just found. So, in this case, 35/12 = 2.92, or about $2\frac{15}{16}$ in.

You can drill the posts and intermediate stabilizers after installation, but I prefer to do it for the posts on level areas using a drill press. I have a benchtop model that can be brought to the job. The advantage of using a drill press is that I'm sure all the holes are centered on both sides of the post, and they're drilled dead square.

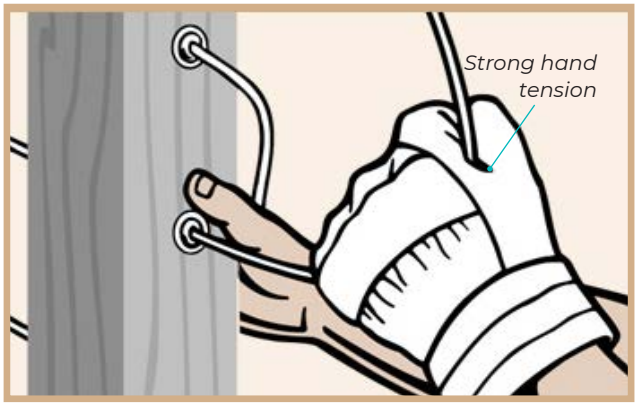
Any holes you have to drill in posts along stairs will have to match the stair angle. I like to mark the layout on each side of these posts, and drill partway through from each side. That way, the visible holes will be consistent even if the drill angle is off a little.

The next step is to thread the cable through the posts from the anchor-end of the cable. The details here depend on the manufacturer, and you should definitely spend some time

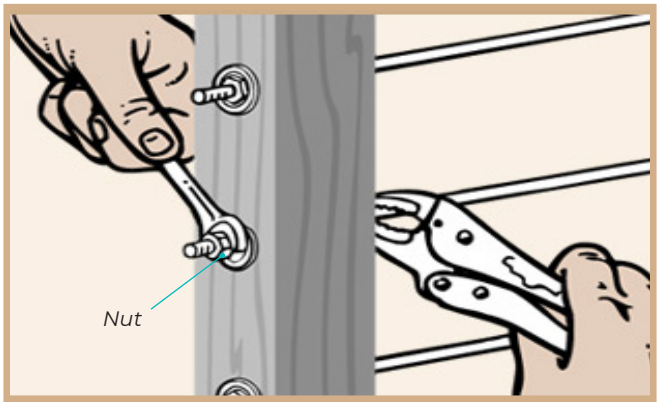
Installation CONTINUED



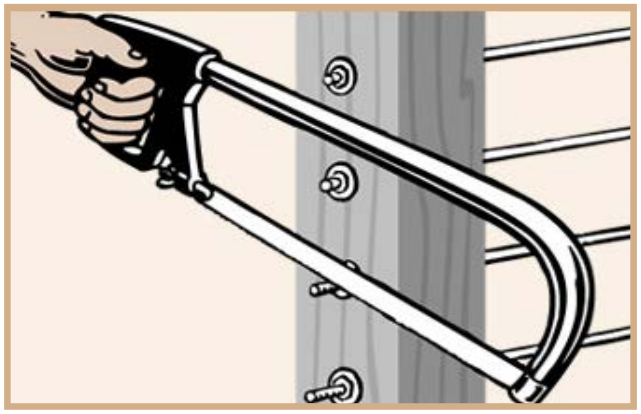
Anchor the far end. Quick-Connect fittings slide on in one direction only, anchoring the second end of the cable.



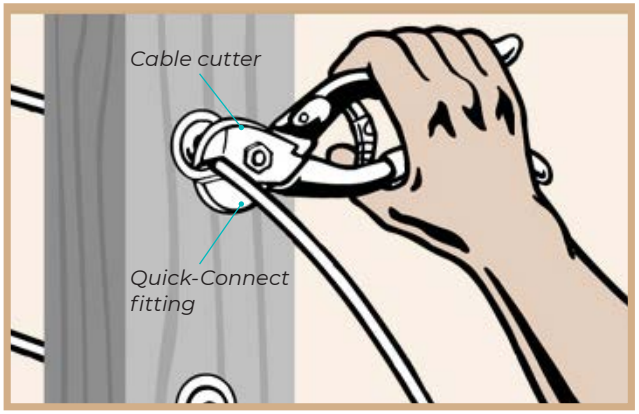
Snug it up. Pulling the cable taught through the Quick-Connect fitting provides the initial tensioning.



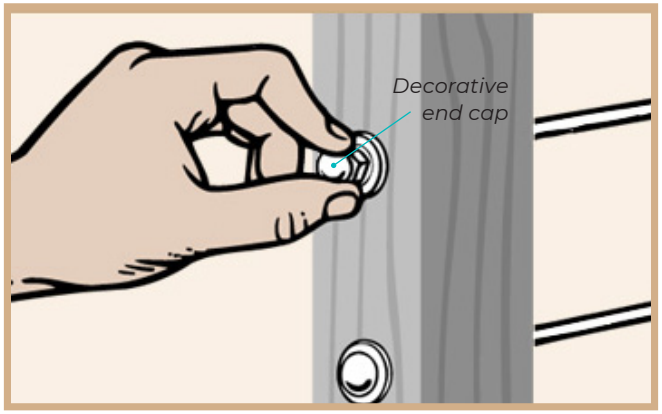
Snug it up for real. Final tensioning is done by tightening the nut on the tension connector.



Trim the tension connector. Cut the tension connector flush with a hacksaw or grinder, and protect wooden decking from metal chips with a dropcloth or tarp.



Remove excess cable. Use a cable cutter or grinder to trim the cable at the Quick-Connect fitting.



Cap the ends. End caps to cover the cuts come in a variety of shapes and colors.

with their instructions. At the other end, the tensioning device is installed and the cables are stretched tight by hand or with the help of locking pliers.

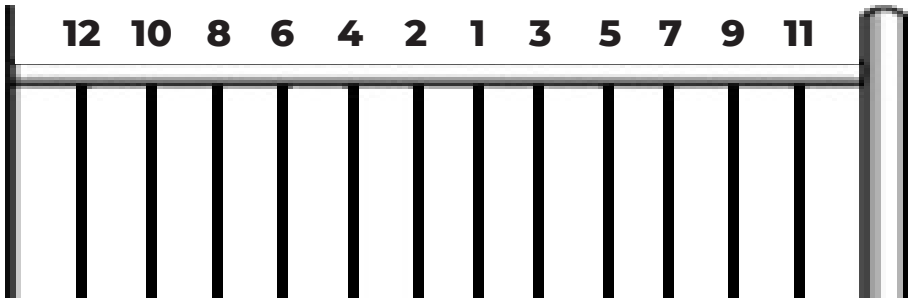
Final tensioning is always done beginning with the middle cable. You can use a tension gauge to verify that you've got the tension right, but a lot of installers simply tighten the tension nut the recommended number of turns. After the middle cable is tight, the remaining cables are tightened by moving up or down one in an alternating pattern.

Once the cables are taught, they're trimmed flush with the tensioner. An angle grinder with a cutoff wheel is the tool for this. Two

Installation CONTINUED

words of caution: First, always wear a full-face shield when using an angle grinder. And second, protect the decking and posts from the cutoff debris. Once it's heated as hot as a grinder gets it, even stainless steel can rust. Small particles from cutting that land on decking can cause staining.

The final step is to place end caps on the cut cable. Feeney's snap on, and come in a variety of shapes and colors.



Sequence matters. To ensure consistent tension, it's important to begin in the middle and work outward in an alternating pattern.

Tools

Generally, cable railing doesn't require tools that aren't already in most carpenters' quivers. There are a few that can help out, though.

Tension gauge: To be sure cable is tight enough, use this special tool to measure its tension.

Cable cutter: Stainless-steel cable is tough. It will destroy electrician's cutters, which are made for softer metals such as copper and aluminum. Get one made to cut stainless steel.

Tensioning tool: For serious installers, this tool both stretches and measures the tension of the cable at the same time.

Cable-lacing tool: This tool aids in threading cable through posts without snagging individual wires.

Swaging tool: This tool is used for crimping fittings onto cable.