



An Economical Cable Rail

RailFx's Express Mount is a smart, affordable, fast-to-install cable railing for wood decks

by Mark Clement

Many of my deck-building colleagues on social media, and perhaps many *PDB* readers as well, proudly claim that they've graduated their business above the lowly pressure-treated (PT) wood deck. I get it. Wood is hardly perfect. But for my market and customer base, were I to make the same leap to building with only composite materials, the amount of work I'd have to say "No" to would cut my annual revenue by half or more. Besides, I like building PT decks: I serve clients who are easy to deal with and who pay on time, I make the same profit margins I do with composite decks, and I get to do carpentry I enjoy, too. What's not to like?

Here on the East Coast, I work with PT southern pine. It is as inexpensive as

it is durable, which are the first things that draw my customers to it. Coming in a close second is that PT wood decking remains cooler in the summer than composite decking.

Where PT decks fall short, however, is their typical rail systems with 4x4 posts, 2x4 or 2x6 rails, and 2x2 balusters. They're no picnic to install, they're bulky enough to effectively act as a solid barrier between the deck and the yard, and they're ghastly to maintain. All my customers want alternatives, of which cable railing is usually the first ask—and, at somewhere around a \$10,000 line item, it's also usually the first upgrade that is cut from the budget.

Now, though, I have a new option to offer to customers: RailFx's Express Mount

Bracket System, the cable railing used on the project shown in this article. It's designed for wood decks and is a bridge between the nosebleed prices for standard cable railing systems and more modest wood-deck budgets. At about \$3,500 (my cost, no markup) for a 16x20 deck with three-tread stairs, it's around double the cost of the powder-coated aluminum balusters I often use but still one-third the cost of a full-fledged cable rail system—and I don't have to drill a million dead-on-accurate holes in 4x4s. The secret to the sauce is the system's surface-mounted brackets.

A Different Approach

With most cable railing systems, posts are drilled to accept cable, whether they are

An Economical Cable Rail



Figure 1. To extend the life of the railing fasteners, the author fastens the top rail to the guard posts from below (A). Between each guard post, he installs a 2x4 subrail (B) to lock the posts firmly in position. This is required to resist the tension the cables transfer to the posts. To streamline the install, he places bar clamps to hold the supplied drilling template to the posts with the bars facing away (C) from where he needs to work with the template (D).

wood posts drilled on site or metal posts drilled in the factory. On one end, the cable is slotted into a toothed fitting; on the other end, the cable is mounted with a turnbuckle-type of hardware. Rail-Fx also makes that kind of hardware, but the Express Mount brackets install to the exterior face of the guard posts for the cable to run through instead of drilled holes. Easy on the eyes from the yard and invisible from the deck, they're a low-risk, high-reward install.

Layout. Express Mount brackets require 4-foot post spacing; for greater spans, the system requires a cable brace centered between posts. Because the configuration will affect budget and process, that's a decision that needs to be made in your permit application and materials order. On this deck, 4-foot post spacing worked fine with a single corner post in each corner.

Takeoff. The lumber order differs a little when Express Mount is used, too. Because the tensioning force of the cable fittings is massive, a 2x4 needs to be placed between the posts, under the typical 2x6 cap. No bottom rail is needed. (I also like this look and, to add shadow lines, I may install the 2x4s on other deck rails that don't require them.) In this case, I installed the 2x6 cap first, toe-screwing up through the post. I then used it as a stop to install the 2x4 underneath it (**Figure 1**).

Installation

Bracket installation is guided by a drilling template. I prepped the template for a 36-inch guardrail by cutting 8 inches off the end using a miter saw. Plastic doesn't act like wood and tends to jump when being cut, so make sure that it's secure and held tight to the saw fence. Be mindful that the template now has a top and bottom, and you'll need to register the top to the underside of the 2x4 post spacer every time.

End-post brackets. Mark the center of the post, 1³/₄ inches. Then, opposite



Figure 2. Following the template layout, the brackets are secured to the end posts with two screws per bracket. Next, a “threaded stud spacer” is inserted into each bracket (A). On a worktable, the author assembles a washer and nut on the threaded end of a cable (B). This assembly is fed through the “threaded stud spacer” (C). A flared, unidirectional “pull lock” (D) is then fit onto each cable and pushed into the bracket (E).

the cable run direction, mark a 1/2-inch offset from the centerline (2 1/4 inches total). Clamp the supplied drilling template here. The instructions show C-clamps, but I have bar clamps. It didn't take long to figure out the bar end of the clamp should face the deck, not my face.

Code language says that railing infill may not allow a 4-inch sphere to pass through it. That applies to cable railing but, because properly installed cable can deflect, the RailFx drilling template provides tighter spacing at 3 1/8-inch centers.

Intermediate and corner post brackets. For intermediate posts, you'd think that you would align the drilling

template flush to the edge of the post. In reality, however—and I don't know why—when the template is correctly placed so the brackets are centered on the post, the template's outside edge runs 1/4 inch past the edge of the post.

The corner brackets require a particular fastening sequence. Place a bracket using the template as a guide, then snug up a screw but don't set it until after you have set the screw on the other side. The brackets are durable, but make sure not to overdrive the screws.

I also noticed a difference between using a cordless drill and a cordless impact driver. The drill set softly but with enough force to crush some wood fiber

on the 4-by posts. Everything threaded through, but another 1/16 inch or so and I would have been backing out a lot of screws. The impact driver was easier to goose in just right.

Inside corner posts. The installation instructions have a provision for inside corners for deck rails that have them. Each side of an inside corner post is treated as an end post, and the drilling template needs to be offset down 1/8 inch on one side so the cables can pass by each other.

Setting Cable

If there was ever a project that called for setting up a large worktable, this is it.

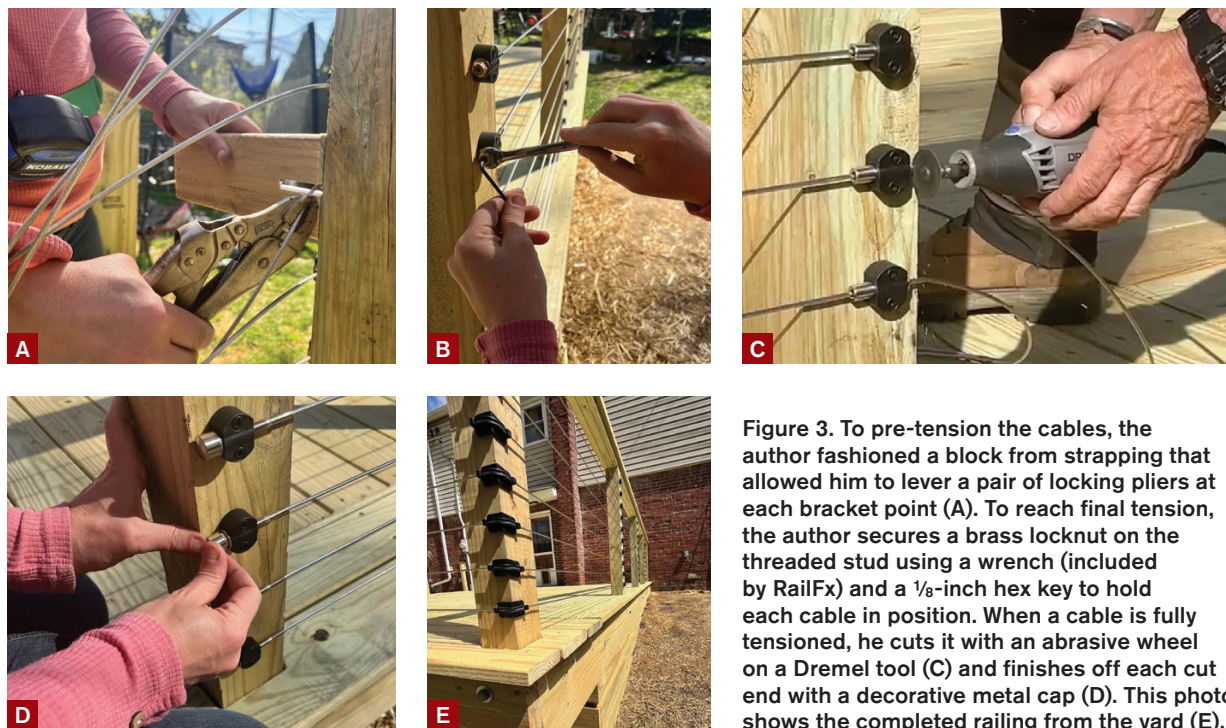


Figure 3. To pre-tension the cables, the author fashioned a block from strapping that allowed him to lever a pair of locking pliers at each bracket point (A). To reach final tension, the author secures a brass locknut on the threaded stud using a wrench (included by RailFx) and a 1/8-inch hex key to hold each cable in position. When a cable is fully tensioned, he cuts it with an abrasive wheel on a Dremel tool (C) and finishes off each cut end with a decorative metal cap (D). This photo shows the completed railing from the yard (E).

Once the cable, cable parts, and hardware come out of the boxes and bags, there are suddenly a hundred pieces, parts, nuts and washers, and other spare parts. My guess is that the same hardware bags are packed in with all the RailFx models, so there are mystery washers and parts not needed for Express Mount installation. All these pieces need to be organized in the same place. Two sawhorses, three 2x4 struts, and a sheet of 5/8-inch plywood do the trick for me. Call it a really big stand-up desk.

To set a cable, the threaded stud spacer first needs to be inserted into the post bracket (**Figure 2**). Next, at the table, we install a washer and nut on the threaded end of the cable. This assembly is then fed through the stud spacer in each intermediate bracket.

At outside corners, pull the cable all the way through one side of the corner fitting, then horseshoe it into the other side of the fitting. The cable will have twisted as it has been passed through the

various fittings. While the last gesture of snaking it through the corner post is kind of a snap fit, make sure the cable has very little play and is untwisted before doing so, or you risk putting a kink in the cable. We didn't kink any cables, but I can see a newbie yanking the stuff—like cranking all the stretch out of a nylon line with a trucker's hitch—and things going sideways fast. You can't just run out to the lumberyard and get another piece of cable, so it pays to be mindful of what you're doing.

At the end of the run, you'll have excess cable. Sleeve the pull-lock fitting on to it. This is unidirectional, so make sure the flared end is toward the end of the cable. The fitting is similar to a zip tie: Once it's in, it's in. And while that's a little all-or-nothing, if something does go wrong—for example, we had a strand of cable unspool a little that we needed to get past—the kit includes a tool that disengages the teeth such that the fitting can slide freely along the cable.

Then it's a matter of hand-snugging the cable and fitting.

Pre-tension cable. RailFx sells a product for pre-tensioning cable, but one didn't come with my order. Making a tool out of a piece of strapping (or furring strips, something I usually have on hand for making jigs, braces, and other assemblies) was easy. Give the cable ends a quick crank to snug them up (**Figure 3**).

Tension the cable. RailFx calls for 225 pounds of tension and, while there are tension testers out there, I'm happy with about 1/4-inch deflection—tight but not too tight. RailFx also calls out a tensioning sequence, starting with the center cable, then moving up one, then down one until all cables are snugged up. We found that we still had to tune individual cables to make all the cables the same tension. If you're installing the cable in cold weather, it might be worth putting a line item in the scope of work to return when temperatures warm up to readjust the cables, which, technically,



Figure 4. For stair rails, the bracket must be positioned on the post at the same angle as the railing. To accomplish this, the author cut a block at this angle, which he used to sight the angle of the bracket (A). Each angled stair-rail cable passes under the corresponding level cable on the deck (B).

will elongate when it gets hot. It might also be worth mentioning to customers that this condition is possible, and that there's nothing wrong with the system. It might not happen, but if it does, you're covered.

Cut the cable. My kit shipped with what appears to be an abrasive grinder wheel and mandrel-like thing for use with a cordless drill. I couldn't get it to work. I'm sure it's my fault—one of those glitches between the instructions and real life, but no matter; I already had a Dremel rotary tool with an abrasive wheel out anyway, and it works great for zapping the cable ends. I don't wear safety glasses all day, but for a task like this, I always wear them. That thing is spinning a billion rpm, and it doesn't

have a guard to catch a fleck of abrasive moving at light speed toward your face.

Also, read your item list when you're ordering materials. If you plan to install more than one of these systems, keep track of the template, because it costs \$40 to \$55, depending on where you shop.

Finally, pop on the caps.

Stairs

As all instructions are wont to do, they tell you what to do but often leave out how to do it. For our stair configuration, the end post of the horizontal run was also the end post for the angled run down the stairs, and it took some head scratching to figure out how the cables crossed. Simply, the cable through the

angled Express Mount Brackets passes under the cable in the level brackets (**Figure 4**).

As for matching the stair angle, our solution was to cut a small guide block at the angle of the stair and match it up to the orientation of the disc on the post. We had to set the top bracket using a tape measure but were able to use the drilling template for the remainder. The rest of the installation sequence is the same as for level parts. Make sure to place the bottom bracket-set the same distance from the top rail as the top bracket-set so everything is parallel. ❖

Mark Clement is a deck builder and remodeling in Ambler, Pa., and author of The Carpenter's Notebook. @myfixituplife

A Better Top-Rail Corner



Miters for rail caps look great when first cut. The problem, however, is that despite how tight the miter is, wet wood—especially pressure-treated southern pine—changes shape as it dries. Typically, the toe (the long point of the miter) moves toward the other long point, while the heel (the short point) recedes, opening a gap. It takes a couple of weeks, but the result is inevitable. To avoid this unfortunate result, I've landed on what I call a "stepped joint" for my top caps. Essentially, the stepped pattern is a series of butt joints. The wood still moves, but it all moves at the same rate, so the gaps are consistent and don't look like a mistake. —M.C.