DECKORATORS

What's New With Deck Railings

Quick installation and low maintenance are just two of the reasons to offer prefab deck rails to your clients

by Jefferson Kolle

When your clients' friends and neighbors first see a deck you've just built, they probably don't exclaim, "We love what your contractor did with the footings and ledger! Can you give us his phone number?" But they will take note of an attractive, well-built railing, and that can drive sales your way.

You can spend hours sketching out custom railing designs—or you can save time by choosing a manufactured railing. Showing a building inspector a third-party evaluation report verifying that a manufactured railing is in compliance with the building code may also be a lot cheaper and easier than hiring an engineer to stamp your custom design.

Benefits

With manufactured railings, you can offer your customers a wide range of styles, from traditional to contemporary, without sacrificing ease of assembly. You'll find railing posts and decorative post caps in a variety of materials and colors, some with integral low-voltage lighting (**Figure 1**). If you still want to install 4x4 posts, you can buy finished post sleeves to slip over them. To reduce on-site work, many manufacturers offer pre-cut balusters and preassembled rail sections (**Figure 2**).

The kits are goof-proof (many are geared toward homeowners), with printed and online instructions and video tutorials to get you started, plus toll-free numbers for design assistance before you order—and for help later, when the process veers off-course. Each railing system has an assembly and installation learning curve, but once you get past it you should be able to complete a 6-foot section of railing, balusters, and rail cap in about 30 minutes, with no further sanding, sealing, or painting required.

To seal the deal with your clients, you can tell them that cleaning and maintenance requirements are minimal, especially compared with the regular scraping, sanding, and refinishing required with stained or painted wood railings. Vinyl or composite railings and powder-coated steel and aluminum balusters need only an occasional wipe down, if that. Tempered-glass panels might require some periodic cleaning with soap, water, and a squeegee, while stainless-steel cable railings have a marine pedigree and are virtually maintenance-free.

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Figure 1. Low-voltage lighting incorporated in post caps and balusters requires a transformer located out of the weather. Hollow railing pieces—metal, vinyl, or composite—make it simple to snake the requisite wiring.

TREX

Figure 2. White or light-colored balusters tend to make the eye stop at the edge of a porch or deck (if the deck is close to a neighbor's house, for instance). But if you want to look past the railing at the surrounding landscape, use dark-colored ones.

AERT/MOISTURESHIELD

Figure 3. Many decking manufacturers offer railing systems that complement or match the colors of their decking. Usually rail parts are packaged separately, making it easy to match the balusters and rail cap with one color of decking, and the posts and rails with another, as shown with these MoistureShield composite products.

Match the Rail to the Decking

Some companies, such as Rail Simple (railsimple.com), Deckorators (deckorators.com), and Fortress (fortressrailing.com), make only railings. Most of the major decking brands, such as Trex (trex.com) and Latitudes (latitudesdeck.com), now offer railing systems that match or complement their deck boards. So if your clients have chosen a particular brand of decking, a good place to begin when discussing railing options is with offerings from the same manufacturer (**Figure 3**).

This approach isn't foolproof, however, according to Brent Gwatney, a senior vice president at AERT—the maker of MoistureShield (moistureshield.com) and ChoiceDek (choicedek.com). He says customers sometimes complain that the decking and railing aren't a perfect color match. Decking that has an embossed wood-grain pattern, for example, can appear darker than smoother rails and balusters because of shadows cast by the textured surface. To demonstrate this concept, accordion-fold a sheet of white paper and place it next to an unfolded sheet—the two will appear to be different colors. "If you put a piece of railing right on top of the decking, you can see that they are the same color," Gwatney says.

Manufacturers of railing kits often package and sell different components in separate boxes: top and bottom rails in one box, balusters in another, and top-rail caps in yet another. The reason—it's not to drive deck builders crazy—is to allow customers to choose different colors for rails and balusters.

Some builders install rails from one company and balusters from another, or prefabricated rail sections or balusters with a custom-built wood rail. Mixing and matching rails and balusters lets you design a unique off-the-shelf railing. You can purchase top and bottom rails, and for infill, use horizontal cable, solid glass panels, or balusters in a variety of materials—man-made-composite, steel, aluminum, or even wood to match a wood rail cap.

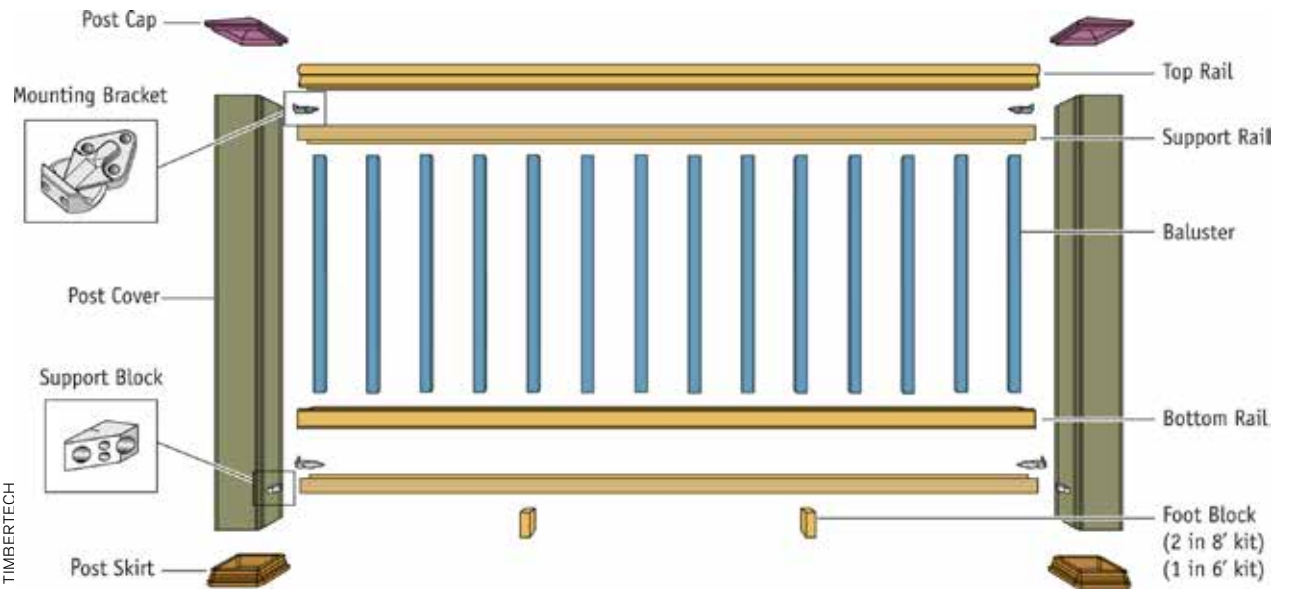
Compatibility. If you are playing matchmaker, check that the balusters and rails you choose actually fit together properly. Trex rails, for instance, capture balusters in pre-cut square or round holes, depending on a baluster's cross-section. The balusters for Azek's Reserve Rail System (azek.com) are fastened to the top and bottom rails with through-screws that grip a chase at the end of each baluster.

"Make sure to get exact dimensions, especially if you're getting balusters from one company and rails from another," says Paul Boehlke, general manager of online retailer DeckBuilderOutlet.com. "For example, the round balusters from Rail Simple are usually 1/16 inch smaller than the standard 3/4-inch diameter."

David Elenbaum, owner of both the Deck Store of South Carolina and Deckmasters, an installation company based in Greenville, agrees. "Companies talk about interchangeability, but one's balusters might be 26 inches long and another's are 29 inches." Making on-site modifications to prefab components that you thought would simply snap together will quickly eat into profits.

Code compliance. Most manufacturers include third-party-testing results with their products so they'll pass the scrutiny of building inspectors (for more on code requirements for rails, see "Code-Compliant Guardrails," May/June 2013). You don't want to fail an inspection because the rails or the balusters you chose don't comply. Jason DaVoll, a product manager at TimberTech (timbertech.com) says, "We test our balusters, but we don't test everyone else's."

Elenbaum offers another general warning about building codes: "Some manufacturers even sell railings that have no code compliance, either because they knew their products wouldn't pass third-party testing or they didn't want to pay for the tests. Contractors need to know they could be taken to court by a homeowner over a railing failure, and even if



TIMBERTECH

Figure 4. Not all rail systems consist of as many parts as TimberTech's Radiance Rail, which has two-piece top and bottom rails. Because attachment systems are not standardized, mixing and matching components from different manufacturers can be tricky.

they win the case, they ultimately lose because of legal fees, bad publicity, and wasted time." If you buy a manufactured railing, don't assume it's code-compliant—ask for the report. And if you mix and match components from different manufacturers, make sure you hash out the structural details and approvals with your building inspector in advance.

Connections and Details

Unfortunately, there are no standardized attachment systems; each company's baluster-to-rail and rail-to-post attachments are a little different (**Figures 4, 5**). Some are unobtrusive or hidden, while others are bulky and highly visible, especially some of the adjustable-angle brackets used on stair railings.

Posts. Manufacturers offer framing-mounted and surface-mounted posts, as well as post sleeves that fit over 4x4 posts you've installed. Before setting any posts, check the deflection-code specs on the lengths of manufactured rails you intend to use.

Rails. Some materials—especially composites—can meet deflection codes only

FAIRWAY BUILDING PRODUCTS

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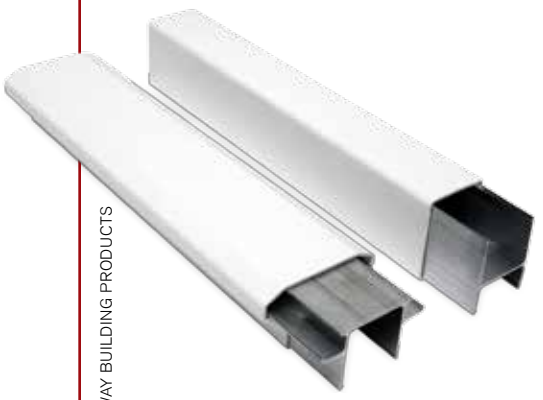
Figure 5. Fairway Building Products' Contour (fairwaybuilding.com) one-piece vinyl top and bottom railings are reinforced with aluminum inserts (left). The mounting brackets have vinyl covers that slide into place over the brackets, concealing the bracket fasteners but creating a rather bulky profile (above).



FAIRWAY BUILDING PRODUCTS

Figure 6. Vinyl rails are typically reinforced with internal aluminum channel, allowing spans of up to 12 feet.

if they are shorter than 8 feet. To allow rails to span greater distances, some manufacturers reinforce them with steel or aluminum channels (**Figure 6**).

Balusters. To simplify maintenance, many builders incorporate low-maintenance round or square-channel powder-coated aluminum or steel balusters into their site-built rails. Round balusters can always be insert-mounted, but many manufacturers also offer connector inserts to allow surface mounting. Square balusters are often predrilled so they can be face-mounted. Bowed, ogee-curved, or filigreed metal balusters are also usually face-mounted and offer a different look, while tempered-glass balusters or panels can be fit into channels in the top and bottom rails or into special brackets (**Figures 7, 8**).

Gwatney and Elenbaum agree that black and similar darker colors are the most popular baluster colors, especially for decks with a commanding view. Gwatney says, "We sell a ton of black balusters with light colored rails."

Stair railings. Running a railing system along a stair requires special mounting brackets, some of which can be adjusted for the stair's run (**Figures 9, 10**). If the

Figure 7. Tempered-glass balusters don't block the view, if you keep them clean with soapy water and a squeegee. Stop blocks between the lower rail and the decking distribute the weight of the glass.

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Figure 8. Full-width, tempered-glass panels are very heavy and can be difficult to handle. They also tend to block the wind, which can be either an asset or a liability, depending on the climate.

TREX

This chart compares the average costs of an 8-foot length of railing in different materials; note that railing costs vary widely from brand to brand within each category.

SAMPLE 8-FOOT RAILING COSTS							
	Wood	Powder-coated steel	Vinyl*	Aluminum	Composite*	Vinyl-coated composite*	Stainless steel cable**
Rail kit	$170	$135	$170	$130	$120	$140	$350
Brackets	included	$27	included	included	included	included	included
Balusters	included	included	included	$60	$100	$100	included
Post (1)	$18	$38	$19	$55	$50	$63	$18
Cap & skirt	$13	$7	$24	included	$26	$26	$13
Total cost	$201	$207	$213	$245	$296	$329	$381

*Sleeves only; structural post insert needed **Ten rows of cable for a 10-foot section; posts, caps, and skirts are wood

balusters are captured in a rail, you'll need to cut them to the stair angle. Balusters that are installed on the face of a rail are usually cut square on the ends. How a railing system will accommodate a stair run varies by manufacturer.

Cable Rail Systems

For years, cable-rail detractors claimed that horizontal balusters made it too easy for kids to climb up and over a railing, and building codes used to prohibit them in certain applications. However, in 2008, after much testing, the so-called ladder-effect prohibition was eliminated, allowing cable rails in most jurisdictions. Of course, allowable construction details are at the discretion of your local inspector, so it's worth a call to find out what gets a green light, as opposed to a red ball, in your town.

Several companies sell complete predesigned systems that include fascia- or

AFCO

Figure 9. AFCO's (afco-ind .com) aluminum stair railings are available with adjustable post brackets that pivot to accommodate stair angles between 0 and 36 degrees. The brackets are available to fit their fluted columns (above) as well as standard square posts (right).

Figure 10. Fixed stair rail brackets are designed for standard stair runs of about 34 degrees, and usually offer a few degrees of variance. They're less expensive than adjustable brackets and faster to install, and have a lower profile.

AFCO


ATLANTIS RAIL SYSTEMS

Figure 11. Horizontal cable rails are popular not only for their sleek, contemporary look but because the thin cables are almost invisible. Many cable-rail companies sell pre-engineered railing systems complete with surface-mounted posts and cable runs.


ATLANTIS RAIL SYSTEMS

Figure 12. Cable balusters can be integrated into a wood rail system, though most manufacturers have special post installation requirements, such as separate posts at each corner. In-house design assistance is usually available from cable rail manufacturers to help engineer the railing.

surface-mounted posts, top and bottom rails, lengths of cable, and the necessary hardware (**Figures 11, 12**). Such manufacturers offer in-house design and planning assistance that's only a phone call or mouse-click away. More commonly, contractors install wood posts and complementary top and bottom rails, then string cables through the posts (see "Installing Cable Railings," November 2011).

Most cables are made of stainless steel, though some companies offer aluminum ones. Cables are held captive at one end post, run through (or surface-mounted on) support posts on approximately 3-inch centers, and tightened at the other end post with a threaded tensioner. Cylindrical metal sleeves tapped into each wood post's cable hole prevent chafing. While some companies have corner hardware, allowing cables to take a turn, others require a new cable run and two end posts in the corner for each direction change.

The cost of material and hardware depends on the number of end posts as well as the length of the railing. The end-post hardware costs about $25 for a pair, depending on the brand and retail outlet. Bulk 5/32-inch stainless steel cable costs about $.75 per foot and a 36-inch-high railing requires seven to nine cable runs. Therefore, a straight 50-foot-long, eight-cable run of railing with two end posts would require eight pairs of end-post hardware ($200) and 400 feet of cable ($300) for a total cost of about $500. A similar length of railing but with one right-angle corner (and thus four end posts) would require 16 pairs of connectors and cost about $700.

While cost varies by manufacturer, cable railings are generally the most expensive option. Composite rails with steel or aluminum cost a little less, followed by vinyl railings. Site-built pressure-treated wood railings remain the least-expensive option.

The Right Railing

Railing kit options at most local lumberyards are limited, and you'll probably find even fewer choices at the big-box home centers. There may be a wider variety offered on their websites, but special-order fulfillment from a big box can take weeks. If you're lucky, though, there might be a specialty retail decking store in your area, such as Elenbaum's Deck Store of South Carolina, with plenty of sample railings on display.

Sending your customers to one of these stores is a good way for them to see details that don't show up in a printed brochure or web photo. Make sure they take a close look at the brackets and hardware for their chosen railing system, so that they can't later say, "Wait, what are those ugly things? I never knew about them."

If there isn't a specialized deck store in your area, there are several online sources for deck-related supplies. A disadvantage to ordering a railing online is that you and your customers can't look at the products in person, but the same would hold true at a brick-and-mortar retailer with limited stock. The benefit to shopping online is the wide variety of styles available almost immediately; some suppliers have large warehoused inventories, or they have an arrangement with manufacturers to ship directly to end users. "A salesperson at a home center in South Carolina recommended us to one of his customers because it was going to take them 14 days to order what the customer needed," says Boehlke. "We shipped the order the next day."

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