

Deck-Fastener

BY JUSTIN FINK

Fasteners used to be a minor cost in the large scheme of building a deck. Buried beneath the price of concrete footings, framing lumber, top-notch planks, and a high-quality stain or sealer, galvanized nails were the standard choice, almost an afterthought. With the average deck costing several thousand dollars, a few boxes of nails were just a drop in the bucket.

Needless to say, things have changed over the past decade. The preservatives used for pressure-treated lumber have been altered, hardwood and synthetic decking have swept the nation, and decks are so popular that they now boast better than a 100% return on investment. It's no surprise that these changes have created a market in which deck fasteners are as important, and sometimes as expensive, as the planks they will secure.

The affordable galvanized nails of the past, although not extinct, are competing with specialized screws and hidden fasteners designed for premium-level projects. Today, there are three basic fastener categories to choose from: top down, edge mount, and undermount.

The total cost may surprise you

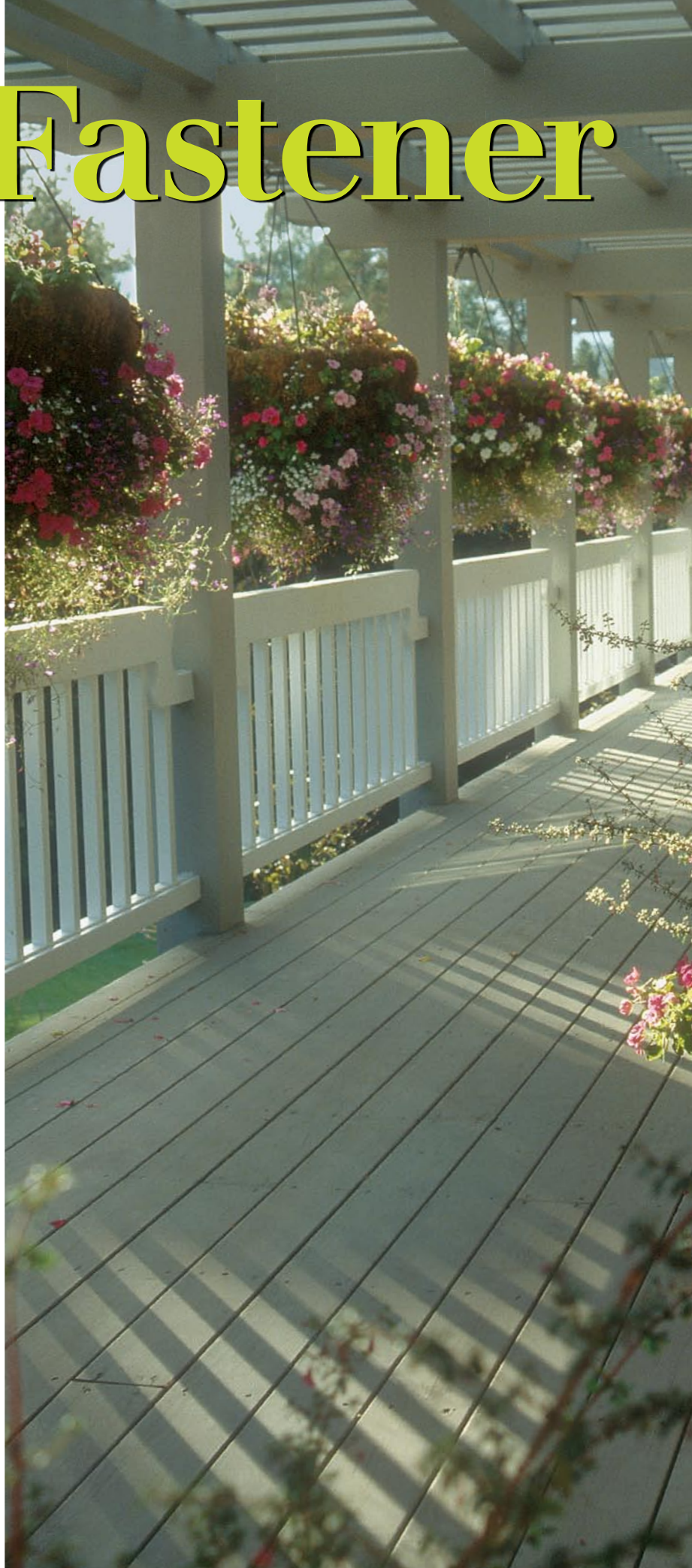
Modern fasteners are anything but cheap. Let's say you have a 20-ft. by 40-ft. (800 sq. ft.) deck with joists spaced 16 in. on center and plan to fasten 2x6 planks with screws; you will need roughly 3,000 fasteners. With the average deck screw ranging in price from 5¢ to 15¢ apiece, using top-down fasteners will cost you from \$150 to \$450.

If you install an edge-mount deck fastener such as EB-TY, Ipe Clip, or Tiger Claw, you aren't just buying screws. You often are investing in a complete kit that includes hardware, compatible driver bits, and wooden plugs to hide the screw holes in the first board. For the same 800-sq.-ft. deck, an edge-mount kit costs from \$336 to \$952.

Undermount systems like Invisi-Fast or Deckmaster typically cost even more because you're paying for larger pieces of metal. Prices range from \$448 to \$1,648 to cover the same area.

Making sense of corrosion, compatibility, and fastener coatings

Corrosion resistance is important whether you choose to secure decking with nails, screws, or hidden fasteners. Even the seemingly innocuous plastic hidden fasteners



Options

How much time, trouble, and money does it take to install deck planks? It all depends on the fasteners you use.

TOP DOWNS: FAST BUT VISIBLE

Driving nails or screws straight through decking boards and into joists is the old-fashioned approach to laying down a deck. But there's been plenty of innovation in top-down fasteners. Stainless-steel and durable coatings stand up to the weather and to the more corrosive chemicals used in today's pressure-treated wood. Auger points and special threads make screws easier to drive, reduce the chances of splitting the wood, and

(depending on the type of decking) eliminate the need for pilot holes. Some screws even have heads designed to make countersinking easy or to eliminate the unsightly "mushrooming" that can occur when fastening down synthetic decking. If budget and installation speed are priorities and if you like the ability to remove fasteners easily should a board need replacing, this family of fasteners is your best bet.

Woodpecker & Razorback

A good choice for hardwood decking, these screws have coarse, square-shaped threads that cut into the wood as they spin. Razorback screws (9¢ apiece) have an auger point to improve self-drilling performance and come with either a square or star-drive head. Swan Secure's Woodpecker (13¢ per screw) relies on a small ridge running along the shank to make driving easier. Both screws are available with or without color-coated heads. www.manasquanfasteners.com; www.swansecure.com



Nails

Old-timers and penny-pinchers aren't the only people still fastening decks with nails. These fasteners still are used more than any other type. If you go this route, building codes require hot-dipped galvanized fasteners—available at any hardware store for about 2¢ apiece. Stainless-steel nails are the premium choice and typically cost about 5¢ apiece. Opt for spiral or ring-shank versions to minimize nail pops. www.mazenails.com; www.mcfelys.com; www.manasquanfasteners.com



SplitStop

Available in stainless steel (13¢) and both composite (8¢) and ACQ-rated finishes (6¢), these screws are compatible with all types of decking. An auger point eliminates the need for a pilot hole, and knurled shoulders above the threaded section of the shank are designed to reduce splitting. Nibs under the head aid in countersinking the screw. With square-drive or star-drive heads, these screws are pretty versatile. www.splitstop.com



TrapEase & Dexxter

Both of these screws use changing thread patterns and an undercut head to eliminate the common problem of mushrooming in synthetic materials (detail photo). The epoxy-coated zinc TrapEase screws are available in four colors, at about 8¢ apiece. Swan Secure's stainless-steel Dexxter costs about 15¢ apiece. www.fastenmaster.com; www.swansecure.com



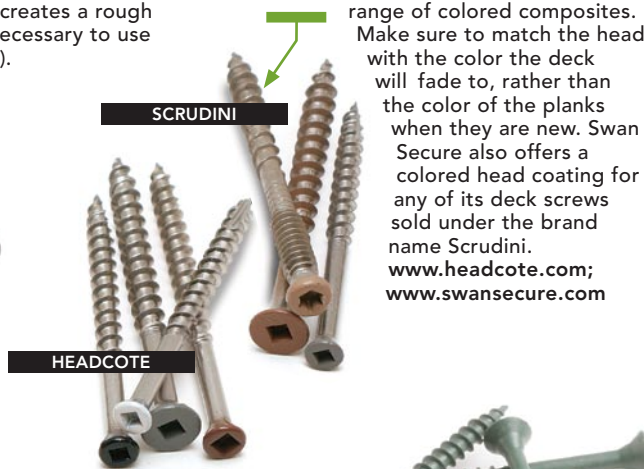
No-Co-Rode

Recommended for use with wood decking but not synthetics, these screws are affordable (5¢ apiece) but don't have the self-drilling and split-resistant characteristics of other types. Mechanical galvanizing creates a rough surface texture and makes it necessary to use an undersize square driver (\$1). www.mcfeelys.com



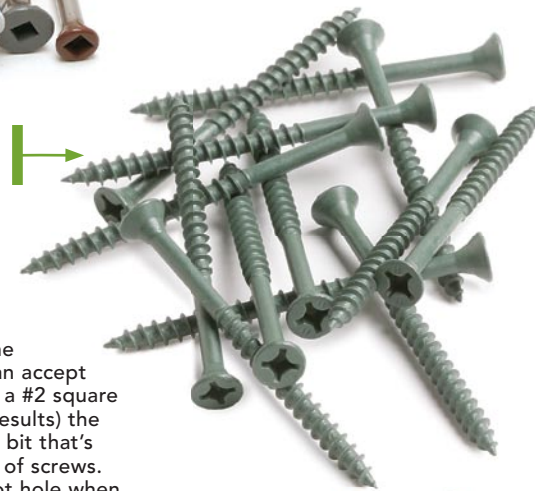
Headcote & Scrudini

Headcote stainless-steel screws (10¢ apiece) are designed to blend with most conventionally used deck materials, including cedar, mahogany, ipé, and a wide range of colored composites. Make sure to match the head with the color the deck will fade to, rather than the color of the planks when they are new. Swan Secure also offers a colored head coating for any of its deck screws sold under the brand name Scrudini. www.headcote.com; www.swansecure.com



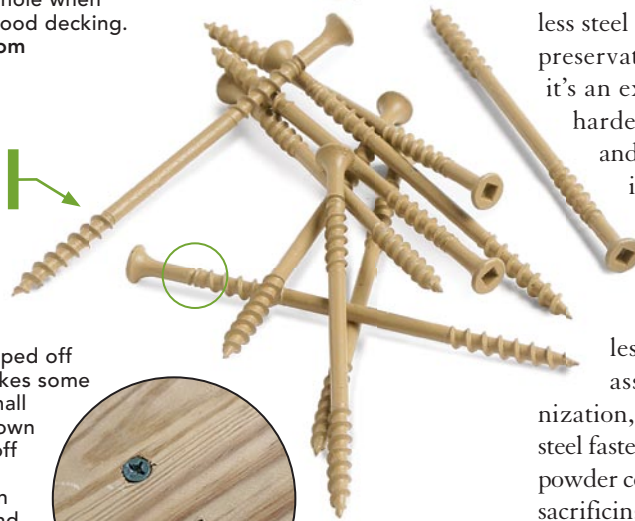
DeckMate with Evercote

These nationally available screws are very cost effective at just 7¢ apiece. The corrosion-resistant coating is green or tan, and the Square-Driv head can accept a #3 Phillips bit and a #2 square driver, or (for best results) the special combination bit that's included with a box of screws. Expect to drill a pilot hole when screwing down hardwood decking. www.phillips-screw.com



Counter-Snap

These coated screws need their extra length (3½ in. as opposed to 2½ in. for most other deck screws) because they're designed to have their heads snapped off after installation. It takes some practice to use the small beheading device (shown at right), but the payoff is a tiny hole that can become invisible when the wood swells around it. The screws have a weather-resistant coating and square-drive heads; they cost 6¢ apiece; www.squeaknomore.com



A small metal fixture breaks off the head of the screw, leaving only a tiny hole in the plank.

Production-style fastening. If you have a large area to cover—or if you're concerned about hammer tracks on the deck surface—consider using pneumatic nailers or collated screw guns in lieu of manual fastening. These options are fast and help to minimize labor costs. The model shown above is Hitachi's new SuperDrive W6V45D; www.hitachipowertools.com.



such as EB-TY and Ipe Clip require the use of metal screws.

Lumber manufacturers have discontinued the old CCA (chromated-copper arsenate) wood-preservative treatment and have replaced it with arsenic-free treatments such as CA (copper azole) and ACQ (alkaline copper quaternary).

Although these new compounds pose less of a health hazard, their high copper content (about 6 times more than CCA) leads to corrosion in fasteners made of brass, lead, mild steel, aluminum, or zinc. Unless there is a protective coating or a physical separation, the fasteners will deteriorate.

Even if you choose a synthetic material for the deck surface, the underlying pressure-treated framing lumber still poses a serious corrosion threat.

The use of hot-dipped galvanized fasteners is the minimum requirement according to building codes, but this protective coating can be difficult to apply to deck screws without clogging the recessed heads and congesting the threads along the shaft of the screw. Fortunately, many building inspectors now accept mechanical galvanization, which is a flash-coating of copper followed by a layer of zinc. The copper and zinc combine to make a thinner coating. But reports have shown mechanical galvanization to be a potential problem on sharp threads or on auger points where coatings get thinner.

The inherent corrosion resistance of stainless steel is the best defense against lumber preservatives and the harsh elements, but it's an expensive option compared to the hardened steel found in common nails and screws. Then again, stainless steel is the only option if you choose to install deck planks that are prone to staining, such as cedar or redwood.

To combat the price of stainless steel and the problems that are associated with hot-dipped galvanization, several manufacturers now offer steel fasteners that have proprietary epoxy or powder coatings to help reduce costs without sacrificing durability. Because the benefit of these proprietary coatings is most obvious in small and intricate fasteners, they more commonly are found in screws—DeckMate, No-Co-Rode, and Counter-Snap are a few examples—but are also available in some undermount brackets, such as Deckmaster and Shadoe Track. Although it may not be

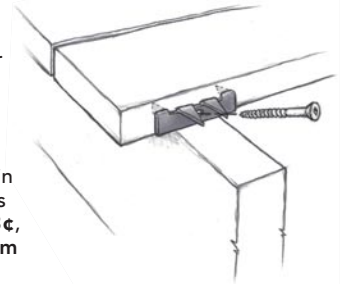
EDGE MOUNTS: FUSSY BUT INCONSPICUOUS

Some edge-mount fasteners get their holding power from prongs driven into board edges, but most have flanges that fit in slots. Integral spacers establish a uniform distance between deck planks, and there's a hole for a screw that anchors the fastener to deck joists. Manufacturers typically recommend using a router or a biscuit joiner to cut a slot in the plank over each joist, but some decking boards come with edges already grooved to accept specific fasteners. Alternatively, many lumberyards will mill planks to your specifications for a fee.

Whichever edge-mount fastener you use, trouble-free installation depends on boards that are flat and straight. Most synthetic decking comes this way, but the same can't be said for solid wood. A cupped or curved board must be forced into place and held there to get slots aligned properly for fastener installation.

Tiger Claw

Tiger Claw fasteners are available in hardened- or stainless steel—both with black-oxide coatings—and are offered in three varieties, making them compatible with all types of decking. To drive claws into the edges of a board, you hammer against a proprietary installation block (included in every box of fasteners), a straightforward process as long as planks are straight. Cost per sq. ft.: **48¢**, **68¢**, and **84¢** respectively; www.deckfastener.com



Dec-Klip

The Klip's thick point may be a good choice for softwoods, but it doesn't penetrate easily in dense hardwoods like ipé. Also, because these fasteners raise the planks above underlying joists (drawing below), washers are required under the last deck plank to maintain a uniform height. Cost per sq. ft.: **45¢**; www.deckclip.com

Lumber Loc

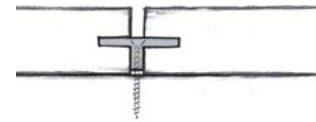
Made from UV-resistant polypropylene, these fasteners are designed specifically for use with exotic hardwoods, and each has springlike spacers that maintain a constant pressure against deck planks as the wood expands and contracts seasonally. Cost per sq. ft.: **60¢**; www.lumberloc.com

EB-TY

These polypropylene fasteners are available in 3/32-in. or 1/4-in. board spacing, with or without Live Cylinder, which allows for board expansion and contraction. To avoid squeaks, decking should be secured to joists with construction adhesive. Cost per sq. ft.: **91¢**; www.ebty.com

Deck Clip

The Deck Clip is designed for use in hardwoods only and is the only edge-mount system that uses black screws, a helpful feature if camouflage is a priority. When installed properly, a 1/8-in. gap separates the marine-grade aluminum fastener from underlying pressure-treated framing to prevent corrosion. This product is not compatible for direct contact with pressure-treated planks. Cost per sq. ft.: **90¢**; www.deckclip.com

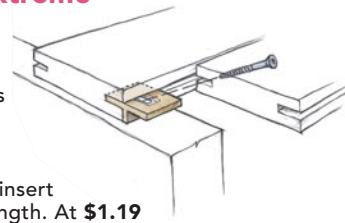


Deck-Tie

Designed to be used with all types of decking, Simpson's galvanized-zinc fastener is secured between deck boards with a single 10d by 1 1/2-in. nail. Cost per sq. ft.: **42¢**; www.strongtie.com

Ipe Clip Extreme

Available in gray, brown, and black, these fasteners are fiberglass-reinforced plastic with a stainless-steel insert added for strength. At **\$1.19** per sq. ft., they are the most expensive edge-mount option. Despite the name, the Ipe Clip Extreme can be used to fasten most hardwoods and composite decking that don't have a high rate of expansion and contraction. www.ipeclip.com

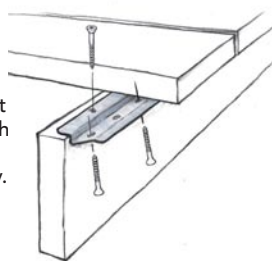


UNDERMOUNTS: TRULY INVISIBLE

If you want to keep fasteners hidden and have an elevated deck that's easily accessible from below, an undermount strategy is worth considering. Systems based on steel strips are screwed to the top edges of deck joists before any decking goes down; they're great for flattening cupped or bowed planks. With small brackets like those from Invisi-Fast and FastenMaster, you can install fasteners one at a time. In all cases, it's necessary to have pressure bearing on the board from above during installation to ensure that each plank rests solidly on joists. Unlike edge-mount fasteners, undermounts offer the advantage of reversibility: If you can access the underside of the deck, you can remove the screws that hold a damaged deck board in place.

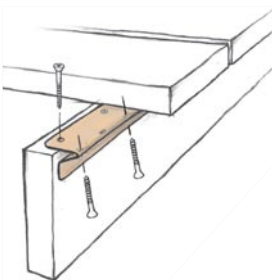
Shadoe Track

Offered in galvanized steel, stainless steel, and powder-coated steel, Shadoe Track is compatible with all types of decking. Sold in 4-ft. and 8-ft. lengths, the track can be cut to length using tin snips. The manufacturer offers a 30-year transferable warranty. Cost per sq. ft.: **\$1.05** www.shadoetrack.com



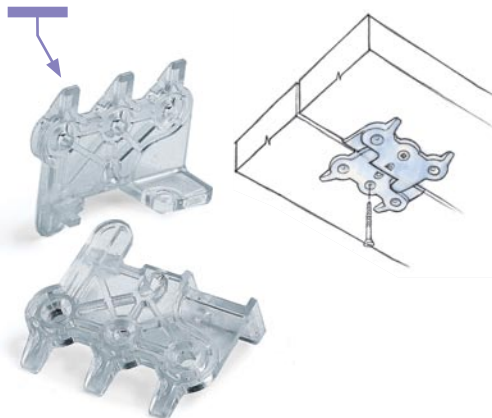
Deckmaster

Available in powder-coated and stainless steel (**\$1.20** and **\$2.06** per sq. ft., respectively), Deckmaster is the most expensive of all undermount options. Installation requires brackets to be installed on the top of each joist, alternating sides as you move along (drawing right). www.deckmaster.com



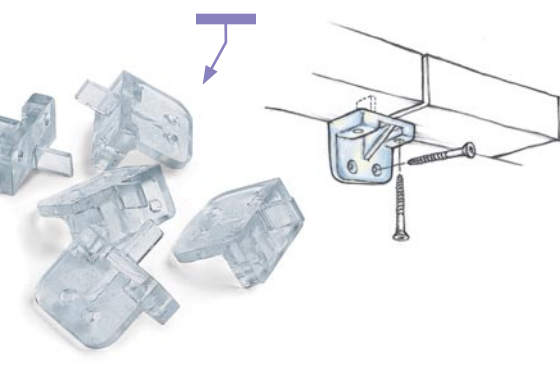
FastenMaster IQ

Brand new to the market, the IQ Hidden Fastening System's clear plastic fastener has an ingenious interlocking design that enables you to complete most of the decking installation from above. Fasteners can be screwed to a board before it's flipped over and slid into place. A toe screw and one face screw go with each fastener. Cost per sq. ft.: **\$1.90**; www.fastenmaster.com



Invisi-Fast

These Lexan fasteners are clear (though they can be painted) and are compatible with all but hardwood deck planks. Fasteners can be purchased in any desired quantity for **30¢** apiece, and each Invisi-Fast requires three screws. Cost per sq. ft.: **56¢**; www.invisifast.com



a major concern, if this coating were to chip or crack, the underlying steel core would be exposed and would become susceptible to corrosion.

In the end, it's important to consider the life span of the deck itself. Stainless-steel fasteners are likely to outlive any deck material that they are securing, but the extra cost may not be sensible if the fasteners are used to install pressure-treated pine.

Some hidden fasteners are more visible than others

If you choose to fasten deck planks with nails, keep in mind that the heads will be hard to conceal and may pop up above the surface as the deck planks weather, shrink, and expand.

When choosing screws, remember that small-headed trim screws or Counter-Snap breakaway fasteners are less visible because the deck plank will expand around the top of the fastener; this is especially true with softwoods and composites.

Color-matched screws like DeckMate, Scrudini, TrapEase, and Headcote are a good compromise between cost and ease of installation. But remember to match your deck fastener to the color that the deck planks will be after you've applied a stain or they've spent a few years out in the sun; otherwise, the screw heads will become more obvious over time.

The ideal edge-mount system should have all of its components extruded from black metal, coated in a matte black finish, or color-matched to the deck planks to help them disappear in the shadowlines of the finished deck. Unfortunately, most edge-mount brands use a combination of black hardware and shiny stainless-steel screws, which are more likely to be seen from the finished side of the deck. The Ipe Clip is the only edge-mount fastener that's available in alternative colors.

If you choose to install undermount fasteners, the clear plastic brackets made by Invisi-Fast or FastenMaster offer invisibility as well as excellent corrosion resistance. If you go with a steel strip-type undermount, try to match the hardware's coating color to the tone of your deck planks. □

Justin Fink is an assistant editor at *Fine Homebuilding*. Photos by Scott Phillips, except where noted.

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Reader Response

Deck-fastener correction

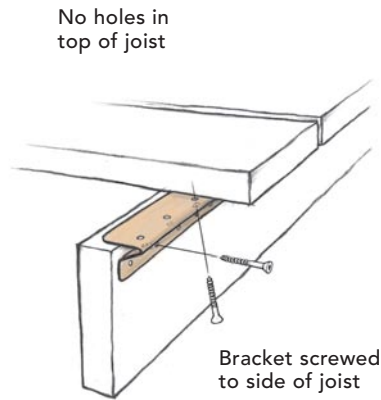
In my article “Deck-Fastener Options” (*FHB* #178, pp. 78-82), we illustrated the Deckmaster product (www.deckmaster.com) incorrectly. These brackets should be screwed into the side of the joist, not into the top as we showed. The advantage is obvious: With no holes in the top of the joist, water is less likely to penetrate and cause rot.

—JUSTIN FINK, assistant editor

Deck Clip correction

Thank you for including The Deck Clip in your article on hidden fasteners (*FHB* #178, “Deck-Fastener Options,” pp. 78-82). You stated that The Deck Clip works only on hardwoods. In fact, it works with hardwoods, softwoods, and most solid composites.

—JIM GUFFEY
WOOD HAVEN INC.
via email



The right way

More on Star Drive screws

Another source for deck fasteners is Screw Products, Inc. www.screw-products.com <<http://www.screw-products.com/>> The company specializes in stainless steel and heat-treated hardened steel Star Drive screws for composite and ACQ decking materials.