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Synthetic Teak Test

Here's an introductory look at three deck coverings that can add luster and function without too much cost. Two are PVC-based—Tek-Dek and Flexiteek—and one is cork-based—MarineDeck 2000. Due to its user-friendliness and resilience, Tek-Dek is our top choice.

Sailing, it seems, involves a constant struggle between heart and brain, with a similar dynamic occurring between time and money. We lust after a bright-finished classic wooden yacht—one by Herreschoff, say, or Alden—but yield to the practicalities and buy a fiberglass sloop. We drool at the sight of beautiful honey-colored teak decking, but settle for molded-in, low-maintenance fiberglass nonskid surfacing. Well, there aren't many alternatives we could suggest to supplant a classic yacht, but there are some viable alternatives to natural teak decking.

Natural teak has long been a material of choice for boatbuilding. Its naturally high oil content and tight grain make for exceptional longevity without the need for protective finishes. Over time, if not exposed to pollutants, teak gradually ages to an attractive silver-gray color. And it provides an excellent natural non-skid surface. Teak is classified as a "heavy" hardwood with a density of approx 930kg/m³. It shows exceptional grain strength and stiffness, along with excellent wear and durability characteristics. And it looks great.

Natural teak decking isn't without its downsides, though. From an environmental standpoint, natural teak comes from forests that are in real danger of depletion. This factor, regardless of how you feel about environmental issues, makes teak an expensive material. And while it will last for a long, long time without maintenance, it won't necessarily look good that long. Soot, air and water pollutants, and spills can stain and discolor the deck in short order.

A natural deck can be washed, but power washing can easily erode the wood. There are varying ways to clean a teak deck. The dozens of different teak cleaners on the market are testimony to the existence of the problem. Teak oils and various protective treatments can help preserve the appearance of a teak deck, but tend to commit boat owners to continuing periodic treatments. This defeats much of the purpose of using teak in the first place. Further, many treatments sharply reduce the teak's anti-skid properties, and others can give your deck a "painty" look.

Bleaches and chemical cleaners work—at least to some extent—but tend to remove the oils that made teak the choice in the first place. The time-honored practice of sanding the teak's surface ("holystoning") was a much more practical approach when decks were solid teak and crews had lots of time on their hands. Modern teak decking is thin enough so that frequent sanding just isn't feasible, although occasional sanding can be called for if the surface is severely stained or scarred. Sanding can present further problems if the sandpaper picks up



Our testing included dropping blunt objects—like this plumb bob—from above to see what damage the synthetics sustained. This Flexiteek sample was very resilient.

caulking material and deposits it in the teak's grain.

Teak decks, while providing excellent skid resistance when dry, aren't quite as good when wet. And teak decks get hot enough in bright sunlight to be distinctly uncomfortable to bare feet and skin. Decks in the old days tended to be fashioned from solid teak planks an inch or more thick, but a modern teak deck typically measures from a quarter inch down to something in the veneer range, and is ordinarily laid on top of a structural fiberglass deck. A thicker deck is usually not an option, due to the high cost of teak and the amount of above-the-waterline weight that this would introduce.

Applying a modern teak deck isn't impossible (see PS Nov. 1, 1993), but it's a time-consuming and fussy job, usually involving drilling holes in the fiberglass deck for screws to hold the teak in place while it's being glued down. There's also a good deal of caulking to do—each joint where planks meet must be caulked to keep water from getting under the decking and lifting it. And teak isn't particularly flexible, so dealing with curves and/or arched decks can be tricky.

In recent years, synthetic options have made it possible to enjoy the look, durability, and feel of natural teak decking without many of the problems. Hence this report.

Synthetic Teak Decking

PVC—PolyVinyl Chloride—is a type of plastic that can be readily modified by manufacturers to match almost any desired set of physical characteristics. It has shown up in such diverse applications as inflatable boats, phonograph records, shower curtains, computer cases, pipes, and house siding. In recent years, PVC has also shown up in the form of synthetic teak decking. It looks and feels amazingly like natural teak, and has some distinct advantages over natural teak in terms of installation, cost, and maintenance.

The synthetic teak decking systems we've seen—two PVC-based and one cork-based—are, once installed, quite similar in appearance and texture. They look and feel like rough-sanded teak planking (sans splinters), with caulked strips between the planks. Rounded edge pieces, or "margin boards" make for a neat installation, and if a complete deck is desired (rather than, say, a hatch cover), a wider central "king plank" can be obtained.

Because synthetic teak decking measures just 5 mm (a bit over 3/16" thick), it's flexible enough to conform to surfaces that aren't flat. You install it by gluing it down to a clean surface with a two-part adhesive. One considerable advantage of laying a synthetic deck as compared to a natural wood deck is that you don't have to drill any holes for screws, thus you don't compromise the structural integrity of the underlying deck. And the installation is much easier than with real wood because synthetic decking can be cut easily with a sharp utility knife, and most of the caulking required for teak decking is eliminated.

Synthetic teak decking requires little maintenance—occasional washing keeps it in good shape. Pressure washing is feasible. For surface damage, the decking can be sanded, as both the color and the grain extend through the entire thickness.

Though different brands of synthetic teak decking may look quite similar, there are some major differences in design and installation.

Tek-Dek

Tek-Dek uses basic building blocks that consist of individual sections measuring 2 3/8" wide and come in 2.25-meter (89") lengths, or longer coils, if required. These sections feature tongue-and-groove joints, with molded-in "caulking" strips. When the sections are joined, the resulting deck appears to consist of 1-7/8" planks separated by 3/16" wide black caulking strips. The sections can be laid straight, or can take a slight bend if required to conform to a deck's contours. For applications where wide sections of straight planking are required, Tek-Dek also supplies a wider, four-plank section, which cuts down on installation time and effort.

Both left-hand and right-hand margin strips are available (one with a tongue termination and the other with a groove), as are king strips. Margin boards come with either a radiused edge or a square one.

To lay out a deck, you first cut and fit the margins (and the king plank if you're using one), allowing a gap for caulking at each joint. You then glue down these pieces, using a two-part epoxy, and hold them in place with weights. Bricks, or containers filled with sand are sufficiently heavy to work well here.

You then fill in the remaining deck area with the tongue-and groove sections. If you use a king plank, you'll have to custom cut the sections where they meet the plank. When the entire deck is laid out, fits, joints together with a one-part cement. resulting in assembled multi-section mats. You then pick up the mats, clean the deck, mix and apply the epoxy, and replace the mats—it's a lot like laying flooring in the home.



On larger jobs, the manufacturer recommends assembling the mats in sections, as the limited working time of the epoxy restricts you to about 20 square feet at a time.

For applications where wide sections of straight planking are required, Tek-Dek also supplies a wider, 4-plank section. That, too, cuts down on installation time and effort.

PVC-based Tek-Dek is affixed in place with two-part epoxy. Each 'plank' is linked with the others by way of tongue-and-groove joints. This appears to be a handy system when custom cuts are needed, as in the cockpit sole above.

The cost of Tek-Dek is \$24-\$25 per square foot, including adhesives for the bedding and tongue-and-groove joints. The company recently extended its warranty to 10 years. This product is also marketed as PlasDECK by a company called PlasTEAK. PlasDECK is made in particular extrusions for specific layouts.

Flexiteek

Flexiteek is made by a company based in Nelson, New Zealand, with distributors around the world, including Florida, California, Georgia, Illinois, and Massachusetts. The sales and marketing focus is on larger yachts and production boatbuilders, different approach toward installation, effectively removing the "Y" from D-I-Y. Rather than having you piece the deck assembly yourself, the company asks that you make a paper pattern of the shapes you want. Then you send that to a local Flexiteek distributor, and you get back a preassembled mat that's ready to be glued down, complete with margin planks.

Rather than using a basic one-plank-wide section as a building block, Flexiteek offers multi-plank panels—an approach that has both advantages and disadvantages. Laying down several "planks" at a time is certainly faster and easier than dealing with individual planks, but these panels don't bend as easily as the narrower sections. The Flexiteek approach is clearly best suited for applications where straight, parallel planking is required.

Flexiteek panels are available in either 1- 7/8" or 2-3/8" wide "planks," and buyers can choose panels with either six or more planks, up to a maximum of 12.

Caulking strips come in black or white. Unlike Tek-Dek and PlasDECK, which assemble mats by cementing tongue-and-groove joints together, Flexiteek uses heat to weld the thermoplastic sections together—a system not suited to DIY assembly.

A Flexiteek deck tends to be a bit more uniform in color than one assembled from Tek-Dek's individual planks. The latter, we thought, looked more like natural teak due to that variation.

Still, Flexiteek seems to us best suited for professional installation, or at least for installation by someone familiar with pattern-making, who has experience in fitting large surfaces, and perhaps a handy friend or two when it comes time to lay sections in place and secure them. Either way, to apply Flexiteek, the patterns you use must be submitted to a distributor for manufacture.

The cost of Flexiteek is roughly \$40 to \$42 per square foot, and the product comes with a five-year warranty. not so much on the DIY market.

MarineDeck 2000

Unlike Flexiteek and Tek-Dek, MarineDeck 2000 makes no attempt to simulate natural teak grain. Made by Stazo Marine Equipment in the Netherlands (the U.S. representatives operate out of the Stazo office in Thomaston, ME, and Marquipt in Pompano Beach, FL.), MarineDeck 2000 consists of highly compressed natural cork particles in a polyurethane binder. Cork, in this application, has superior thermal and sound insulation properties, as well as being highly resistant to damage from UV light, salt water, and even chemicals. The pressed cork is cut into planks, that, once assembled, and seen from just a slight distance, look remarkably like real teak decks. Like Flexiteek, MarineDeck 2000 is advertised for express use on larger vessels where broad expanses of deck require replacement),

While the product is made in interior and exterior grades, we tested only the exterior version. According to the manufacturer, the exterior decking material can be sealed, if desired, with a polyurethane coating, but it's not necessary. An uncoated deck will absorb very little moisture, and provide superior traction. A coated deck will resist staining better, and be easier to clean, but won't provide as much traction. A UV inhibitor in the coating would obviously be of benefit, but coating the deck would bring you back into the endless cycle of periodic refinishing—which teak decking is supposed to eliminate.

The planks come in four sizes—normal, narrow, margin, and king plank. All are 74" long, and vary in width and thickness. The material is guaranteed for five years. A company representative says that untreated MarineDeck 2000 will tend to darken and gray, within a few months in the sun, much like regular teak will, but then a few months later it seems to come back to a natural teak color.

MarineDeck 2000 costs \$28 to \$29 per square foot (exterior grade), which includes adhesives and all other materials, and comes with a five-year warranty.

How We Tested

We started out by making a small (roughly 2' x 2') deck section with each of the three products, using a sheet of rigid fiberglass as a sub-deck. We followed (and evaluated) instructions, and (if we thought they were required) we used manufacturers' technical support. We determined how easy it is to cut, caulk, and assemble each.

Once this was done, we set out to subject each deck to a program of systematic abuse. We won't be evaluating long-term UV resistance in this case, other than to report on the condition of our samples in a year's time. Our findings, for the sake of brevity, are summarized in the accompanying chart on page 12.

We dropped heavy objects onto each deck—a plumb bob, from a height of six feet, to be specific—in order to evaluate dent resistance. (Natural teak decks are sometimes subjected to this kind of damage.) We repeated this after chilling the deck down to below-freezing temperatures, to see if embrittlement occurred; we tried it again at 150° F or so, a temperature that a deck can reach under the tropical sun. While we were at it, we checked to see how the heated deck felt to bare skin.

We evaluated non-skid properties by placing a weighted "foot" on the "deck," and then tilting the deck until the shoe skidded. We tried this with both a wet and dry surface.

And, to reassure us that our measurements were meaningful, one of our testers stood on each "deck" and made subjective evaluations of how slippery each was.



Flexiteek uses multi-plank panels that are heat-welded and cut according to templates at the factory, and then sent along to the customer for installation.

One of the major claims made for these synthetic teak decks is stain resistance. We went out of our way to stain them, using gasoline, dirty oil, antifreeze, coffee, and whiskey. We allowed each mess to remain on the surface 24 hours, judged how bad it looked and then tried to remove it by scrubbing with a mild detergent and a soft brush.

As part of this ongoing test, we'll put each panel out in the sun in an area where it will be subjected to weather, pedestrian traffic, and general wear and tear. As other nasty ideas arise, we'll try them. We're anticipating an opportunity to work out some of our aggressions, as well as the chance to study what looks like an interesting and useful group of products.

Conclusions

It's a bit premature for us to make any firm recommendations at this point—we'll know a lot more after our extended exposure tests are completed. We do have some fairly clear initial findings, though. All three teak replacements—Tek-Dek, Flexiteek, and MarineDeck 2000—can provide a good-looking, stain-resistant, low-maintenance deck at a lower cost than natural teak. All three have non-skid properties comparable to teak, both wet and dry. All are more resistant to scarring and denting than teak. All are lighter than teak, which is a consideration if you're trying to keep above-the-waterline weight down. So far, Tek-Dek and MarineDeck 2000 have exhibited the best resistance to staining and the easiest clean-up.

We found all three are appealing alternatives to traditional teak decking, but we'd put Tek-Dek ahead of the others due to its more DIY-friendly nature. Regarding longevity, we'll have a much clearer picture of which one is best in six months or so. Watch this space.

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