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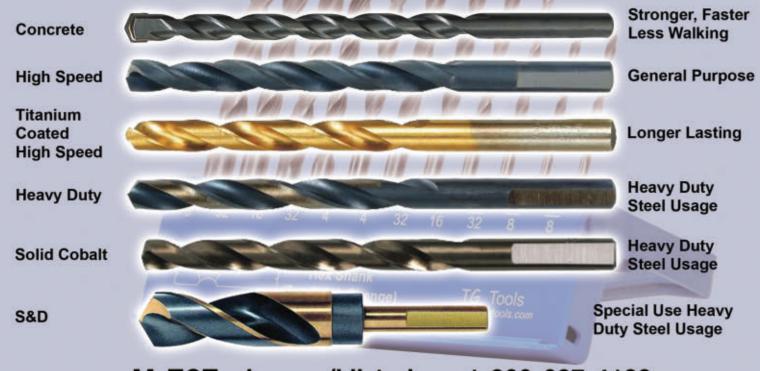
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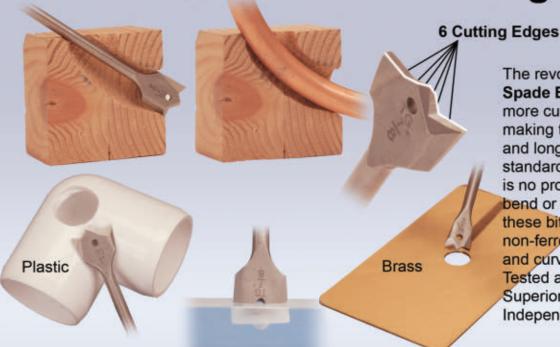


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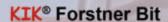
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• This summer I'm planning to update my landscape by planting a few trees. What are the pros and cons of buying a young potted tree versus one of the larger trees with the wrapped root balls?

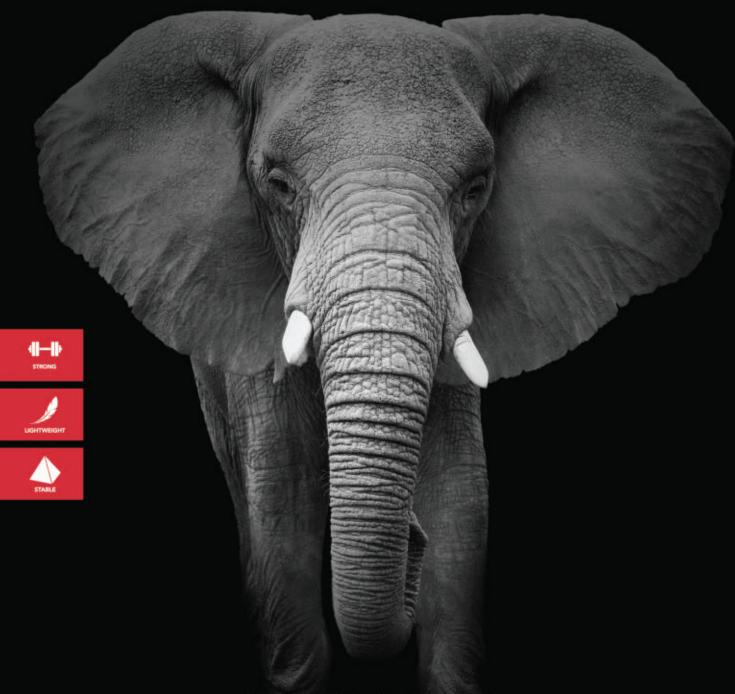
• For the impatient landscaper with plenty of money, the more mature trees offer instant gratification, providing an immediate visual impact to the yard. They also cost more and are difficult to plant. These larger trees usually come with big burlap-wrapped roots and require more digging. They can also be very heavy, requiring several people or even heavy equipment to get them in the ground. The smaller container-grown trees are less expensive and easier to carry and plant. According to some landscape professionals, since the younger trees have spent less time in the containers, they often start growing faster once they're in the ground. In just a few years, the smaller trees sometimes reach the same size as larger trees that were planted at the same time.

I have a new pre-primed steel door I plan on painting. What is the best way to apply the paint?

• For steel doors, we recommend 100-percent acrylic latex exterior paint so it can expand and contract with the extreme heat that metal doors will retain. Using a sprayer will achieve the best finish, and a high-quality acrylic latex paint will be formulated with levelers to even out the finish and help it lay down without adding any thinning agents. In lieu of a sprayer, a 4-in. foam roller will also do the job without leaving bristle marks from a paint brush.







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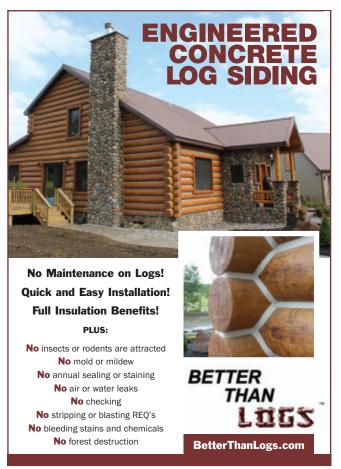
• A fallen tree limb has punched a hole in our aluminum siding about the size of a baseball. The damage appears to be limited to a single panel. How do I repair this?

• The trickiest part of repairing aluminum siding can be finding a replacement piece that exactly matches • the existing siding profile. First, cut out the damaged section of siding using tin snips. Keep the cut 1/2 inch away from the top of the damaged panel, and avoid cutting the vertical seam between two panels. Cut a patch of siding from the replacement panel about an inch larger than the damaged area. Cut away the upper nailing flange from the patch so it will lay flat. File all rough edges smooth. Test the patch for fit, adjusting the lower lip with pliers as necessary. Apply construction adhesive around the back perimeter of the patch and glue in place. Tap securely with a wood block to seat the repair. Paint to match.

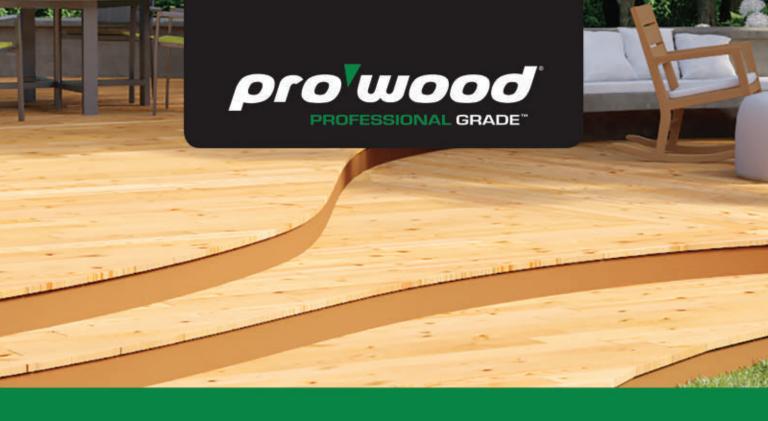
If you're unable to find a matching siding panel, you (or a contractor) may be able to fabricate a patch from aluminum sheet by measuring the panel and folding a piece to match on a sheet metal brake.

• When hanging drywall, do the panels install lengthwise or across the studs?

• On walls, installing the panels horizontally reduces the overall linear footage of the seams, which • requires less finish work. Plus, the joint falls at waist level, so you don't have to reach overhead with a putty knife as often. For ceilings, neither direction makes finishing the joints easier, but panels will sag less if installed across the joists rather than aligned lengthwise. **EHT**







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Front Porch Story

True Dimensional Lumber Repairs



By Clint C. Thomas, Esq.

They don't build them like this anymore," is a phrase that we have all heard in connection with old houses. Those words take on a whole new meaning after you've actually gotten your hands dirty while working on an historic property. Older homes were built in a very different manner from houses that are built today. They were usually framed with rough-hewn lumber, balloon framing was common, and mortise-and-tenon joints were as normal as a nail gun is today.

My family and I have the privilege of living in a Victorian home that was built circa 1890. Recently, I had to make a repair to the side porch where it connects to a corner of the house. Over the years, the deluge of rainwater

running off the porch roof eventually caused it to rot along with the skirt that covers the porch's structural components.

The majority of the original porch floor was unaffected and is still as solid as the day it was first installed. I decided to repair only what was actually damaged so I could retain as much of the original wood as possible. Only the outside six to eight inches of floor had been damaged. Therefore, I made the decision to remove enough flooring to go from the outside edge in as far as the first floor joist. This distance measured 19 inches.

DAMAGE REMOVAL

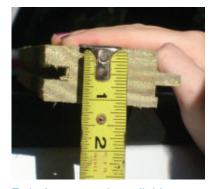
For my first step, I located the first floor joist in from the edge of

the porch, and cut a line parallel with the edge of the porch with my circular saw. To do this, I set my blade at a depth to cut through the flooring, but nothing else. I tore out the rotten tongue-and-groove boards with a framing hammer, removed all of the old nails and then pried off the original skirt.

I attached a new joist onto the original one using pressuretreated lumber and lag bolts. The original joist did not have any damage, but it was easier to use it as a guide for the saw blade than to try and cut a perfectly straight line along the midpoint of an existing joist.

RIGHT-SIZE REPLACEMENT

Next came the hard part. The home's original porch flooring, like all of the other original lumber in the house, is true dimensional. This means that a 2x4 stud actually measures 2 inches by 4 inches, and not 1-1/2-by-3-1/2 inches as



Today's commonly available 3/4-by-3-1/2-in. "1x4's" were not large enough for simple replacement of the old boards. The original flooring measured 1-1/8 inches thick and 2-3/4 inches wide.



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is commonly available today. The porch floor was a real oddity because it actually measured 1-1/8 inches thick and 2-3/4 inches wide. It had been milled from heart pine, and even after 120 years it still produced a strong smell of sap when sawed.

I wanted to replicate the original flooring to retain the home's historical character, but I also wanted to improve the finished product to keep it from rotting again. I knew that it would be impossible to purchase lumber in the dimensions that I required. I've yet to find any store that sells 1-inch thick stock, and certainly not 1-1/8-inch thick lumber. The easy way would have been to use modern 1x4 material, rip it to width on the table saw, and then shim the bottom of it. However, the easy way is rarely the best way.

As I have had to do several times before, I decided to mill my own lumber. This is actually much easier than it sounds and produces a very satisfactory sense of accomplishment.



After removing the old boards, the first step was to plane down each "2x4" from 1-1/2 to 1-1/8 inch thick.

For this project, I chose to use pressure-treated pine lumber to resist any future rot or water damage. I selected the best looking 8-ft. 2x4s that I could find at the lumberyard and then set about milling my new flooring.

One of the old boards was used as a guide to determine the width of the replacement boards.

One tip when selecting treated lumber for this type of a project is to purchase boards that have been stored in the direct sunlight and have already dried out. If you mill wet lumber, it is going to shrink as it dries, making your finished product smaller than what you planned. Another option, if you purchase wet lumber, is to put it in direct sunlight until it dries and then mill it.

The first step was to plane down each 2x4 from 1-1/2 to 1-1/8 inch thick. This process was the most time-consuming phase of the entire project because it required multiple passes through the planer. With the help of my daughter, Zoe, we planed seven 2x4's to the proper thickness. Planing them also had the added benefit of removing any imperfections, most of the knots, and made the boards totally flat and smooth. We planed them in their factory-cut 8-foot lengths to maintain as uniform a thickness as possible.

The next step involved ripping the boards to the correct width on the table saw. I am a template nut,



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The new boards were ripped to size.

and used a piece of the original flooring as a guide to get the exact width. I put the original piece on the table saw between the blade and fence, and then installed a makeshift feather board to keep the 8-foot long piece of lumber from wobbling as I slid it through the saw. When measuring, be sure that the tongue is included in the measurement of the width. It is easy to overlook.

MILLING THE JOINT

After ripping the new stock to a width of 2-3/4 inches, we then embarked on the next step of making the tongue and groove (T&G), which was by far the most difficult part of the entire process. Milling a T&G joint is not that hard by itself. The difficulty is making the joint on the new stock match the one that's already on the house. Remember, this was a repair, so the new lumber had to abut the original flooring that remained on the porch. The easiest way to ensure that the new joint worked smoothly with the old one was to use a piece of the old flooring as a guide, or template, if you will.

I set my router on top of a piece of the old flooring and adjusted the depth of cut until the router bit matched exactly the tongue on the original piece. I then routed the tongue on all of the new boards at one time. I repeated this same procedure for the groove. The only difference is that as I finished milling the groove on each board, I would lay it next to the last piece, groove to tongue, and then eyeballed them to make sure they lined up properly.

My router bit could not remove all of the waste material from the tongue side of the new flooring because of the wood's 1-1/8-inch thickness. To remedy this, the final step of this stage involved running the tongue side of each freshly milled piece through the table saw two more times, once for each side. When I did this, I adjusted the height of the blade so it would only take off the remaining waste without hitting the new tongue, and ran each board through one time on both sides to produce a perfect tongue.

NEW FLOORING

With the milling completed, I then measured and cut each piece to length on the miter saw. Before installing the new flooring, I draped a piece of 4-mil plastic over the porch's outside frame for further protection from the elements, in case water ever worked its way through the new flooring. I also ran a thin bead of clear silicone inside each groove as I installed each piece. This may seem unnecessary, but this particular corner catches a lot of water coming from three different roofs, so I figured it is



Use an old board as a template for the tongue-and-groove joints, and rout the new joints along each replacement piece.

Cut the replacement boards to length.





Shown are the replacement pieces after being nailed in place.

A router was used to ease the edge of the flooring with a 3/4-inch round-over bit.

better to be safe than sorry.

After the flooring had been installed, I routed the outside edge with a 3/4-inch round-over bit to match the original flooring. I performed this task freehand on-site, rather than try and get a uniform edge by individually passing each piece through the router table.

DIY MOULDING

The last step in completing this repair involved installing a new piece of decorative trim underneath the floor's overhang. Decorative trim is another area of concern on older homes, since the trim in question has probably not been manufactured since the 1940's. This, too, involved me having to mill my own stock.

The best way to replicate older trim work, without spending a fortune at the local moulding shop, is to look at a piece of the trim from the side, then mark off the geometric patterns. In this

case, I could see that the trim could be divided into a 2-by-5/8-inch wide rectangle, a 1/2-by-1/2 inch square and a piece of cove moulding.

There are two options to reproduce moulding outside of having it professionally milled. One is to divide the original piece into the

geometric patterns mentioned above and then assemble new pieces of lumber with those same dimensions. This method works well for many applications, but it is not historically accurate, nor is it as durable as one solid piece of trim

The method that I chose was to mill new moulding with my router and table saw. The initial step in this process involved ripping a pressure-treated 2x4 stud down to a width of 2 inches on the table saw. I then ran it through the planer to reduce the thickness from 1-1/2 down to 1-1/4 inch.

With the basic stock completed, I had to apply the decorative edge to match the original trim. I did this by using a 1-1/2 inch vertical panel-raising bit in my router. All of the above steps I performed on an 8-foot long piece of lumber. Again, this helped ensure a uniform size and shape throughout the entire process.

Once I had applied the decorative detail, all that remained was to attach the new moulding along the top of the skirt immediately under the porch floor.



The last step was to fabricate a new piece of decorative trim for underneath the floor's overhang—another oddly sized piece that is no longer readily available. One solution is to mark off the profile in geometric patterns and cut individual pieces that combine to form the original size and profile of the moulding.

SKILL SAVVY

The end result is a new and improved porch floor that will be weather-resistant for many years to come while still retaining the home's original charm and historic character. It is true that we don't build them like we used to build them, but there's no reason why we cannot build them with the same quality. All that is needed is a little bit of know-how with a little patience thrown in. **EHT**

Editor's Note: Clint C. Thomas, Esq., is a practicing lawyer, Professor of Law and freelance writer. He lives in a home that is listed on the National Register of Historic Places with his wife and three children, and performs all of his own renovation and restoration work.





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Several of our local landscapes incorporate large flagstones as stair treads.

When positioning a rock, pay attention to how it will catch the morning or afternoon sun.

My favorite landscapes have been created over thousands of years where moss and ferns have taken root in dirt deposited by volcanoes, river erosion, earthquakes and composting trees. Sword ferns, vine maple and rhododendrons live in the shade of Douglas fir, hemlock and cedar trees. Leaving these environs intact and building around them is my first choice, but these opportunities are rare.

Taking a cue from nature, moving big rocks into our landscapes is a good option in many parts of the country. Sometimes the very rocks you'll need are excavated from the ground in the process of leveling for foundations, digging for sidewalks and dozing for driveways. Such was the case with a new street in our neighborhood where hundreds of large rocks were unearthed to make room for utilities being installed beneath the street. Many of these rocks have found their way into our neighborhood's yards.

While placing rocks in a landscape is not rocket surgery, there are some pitfalls and stumbling blocks to be avoided. Here's how my neighbors are rocking their world:



Moving large rocks around can be a challenge and often requires the use of wheelbarrows, utility vehicles and tractors.

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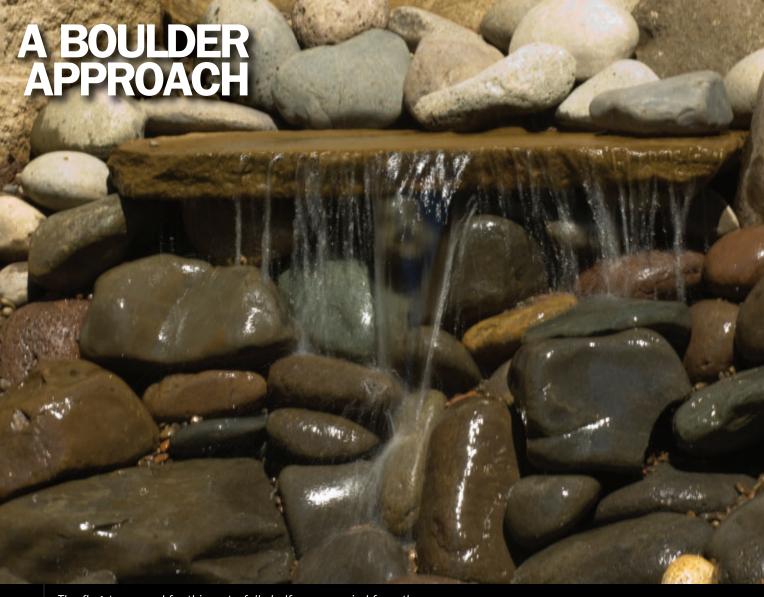


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The flagstone used for this waterfall shelf was quarried from the ground a stone's throw from where it now lives.



Moving large rocks requires heavy-duty equipment or at least a piece of equipment that you don't care about such as this trailer, which didn't leave the property.



Our neighbor, Mel Ashland, hires a large crane for about \$150 an hour whenever he wants to move large rocks, some of which were "flown" right over his house.



The guys on Ashland's crew rig rocks by using one chain in a circle at the bottom of the rock and four chains coming down from the rigging hook into the circular chain.



Mel Ashland oversees the placing of a rock in his landscape.



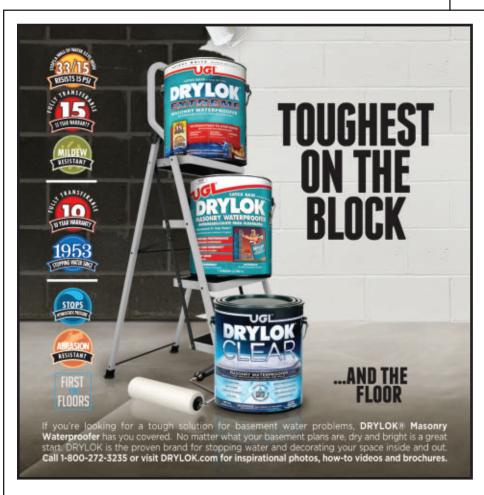
Leaving a large round rock sitting on the surface was not the look Ashland wanted, so his crew used an excavator to dig a hole for the bottom half of the rock.



After digging a hole with a backhoe, the crew directs the crane operator to set the rock in the hole.



One of the advantages of this rigging setup is that the rock can be easily turned to position it in the desired direction.





It's common to use a small, flat rock as a shim to get a larger rock to settle or to make it level. A shim rock can be treated much as a wood shim by driving it into place with a rubber mallet to snug it up.



After positioning the rocks, Ashland's guys spread loam to prepare the landscape for a variety of plants.



Here's the round rock Ashland's crew set into the landscape. Placing the large rock in a hole makes it appear to have always been there. **EHT**



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27

PICKING A PICKET FENCE DESIGN

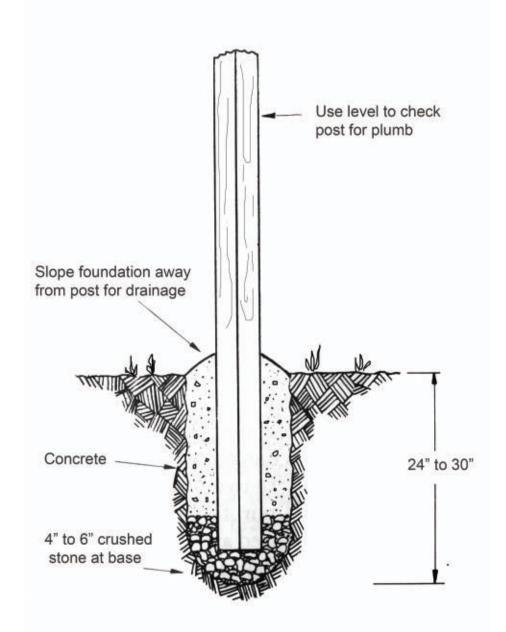
You might be surprised at the number of ways a collection of neighbors can make fences. Some designs have obvious issues such as pickets that are too wide or too narrow and spaces that are too spacey or overly tight. Other problems are less obvious, and it takes some study to determine what about the fence is not quite right. Examining the relative merits of a neighbor's fence design has its dangers, which is why I've done the work-so you can rank your neighborhood fences while designing a better alternative.

Perhaps the best thing I've learned from my neighbors is to plan your fence so either the posts are camouflaged or accentuated by making them a part of the picket pattern. All too often, picket fence builders seem to ignore the fact that the posts affect the look of the fence. Unlike a more solid treatment of fence boards, picket fence posts are visible. You must either incorporate the posts into the look of the design or hide them by keeping them short and setting them back from the rail face.

POST YOUR PLAN

If you choose to make your posts part of the look of your fence, you need to give attention to spacing the posts evenly on any given run of your layout. For example, if you choose a post spacing of eight feet and the last section ends up being six feet in length, adjust the spacing of all of the posts to fit the pattern equally.

Divide the total run by the desired post spacing to get the number of fence sections in the run. Next, divide the total run by the number of fence sections to get the spacing. You may need to



Set the posts securely to support the fence components. Short fences won't require quite as much anchoring as large fences, but this diagram shows a standard method of setting a post. A good rule of thumb is to bury a third of the post's length

adjust the number of fence sections to get closer to your desired spacing. Here's an example:

Total run: 85 feet
Desired section length: 8 feet
85/8=10.625
85/11=7.73 or 7'8-3/4"

Treat each fence section on each side of a gate opening as

a separate section of fence with an evenly spaced fence layout. Place a stake on the ground at each post location to test your spacing and make any adjustments as needed before digging your post holes.

The best picket fence designs that incorporate posts as part of the look set the rails so the outside face of the pickets are



PICKING A PICKET FENCE DESIGN



This vinyl fence creates interesting lines with the post caps and varying length of pickets.



Capped fence posts and a gentle curve cut in the top of the pickets give this fence its character.



Although a painted "white picket fence" has a very classic look, another option is the rustic look of exposed wood grain, stained with a semi-transparent waterproofing sealant. © Photo Ma - Fotolia.com



Simply alternating two different picket sizes puts these rectangular pickets to good use.



Notice how the rails in this vinyl fence design are mortised into the posts.



Some of the best looking fences in our area make use of ground cover vegetation to conceal the picket bottoms.

flush with or set back slightly from the outside of the fence posts. Setting the rails too far forward creates a problem in the look of the fence. Some fence builders compound this problem by trying to align a picket in front of each post. The better solution is to allow the post to stand boldly at the front of the design with the picket layout going on between the posts.

Once the posts and rails have been set, treat each section of the fence between posts as a separate section with consistent picket spacing as close as possible to the width of a picket. I like 2-3/4 in. as a picket width with a 2-3/4-in. space. But within each section between posts, you may need to adjust the spacing by 1/16 in. or so to get the spacing to work out evenly within the section.

As you are working on your picket spacing, keep the same spacing between the last picket in each section and the post. When these spaces are much different from the picket spacing "in the field," it can be quite noticeable.

When one of your posts is a bit out of plumb (not perfectly vertical), make slight adjustments to



You know not to lay fence rails flat, right? The structural strength is lost resulting in sagging fence rails and sinking pickets. At least the builder was consistent so the resulting sag creates its own pattern.



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PICKING A PICKET FENCE DESIGN

the picket spacing spread over several pickets to help hide the flaw. Whether crowding the spacing slightly or providing a little more gap at either the top or the bottom, spread the adjustment over a large portion of the layout to make it indiscernible.

SECRET STRUCTURE

If you want a clean, picketsonly look to your fence, you can conceal the posts by mounting the rails on the outside of the post faces and cutting them off flush to the top rail. There are several advantages to this design. First, post spacing is not as critical because they are not seen as part of the layout. The spacing between posts can vary as long as you give attention to the length of the span for rail strength.

The second advantage is that no special hardware or mortises in the posts are required. The rails are attached with simple fasteners such as deck screws or lag bolts.

Thirdly, the posts can be shorter, saving materials. As long as the



Gate openings can be handled in a variety of ways. A cleaner approach here could have incorporated the fence posts on each side of the arched trellis into the trellis design.



The chamfers on these pickets do not meet in a point.



The spearhead shape of these pickets evoke a Gothic feel.



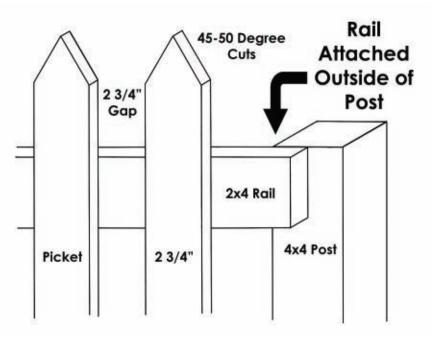
Letting the garden spill through the pickets creates a nice blend of fence and landscaping.



Slight dog ears and close spacing creates a sturdier, less elegant feel



A bold, two-tone color scheme, large posts and curved picket arrangements offers several ideas to out-of-the-box picket fence designers.



Too often picket fence builders don't know what to do about the posts. One solution is to hide the post by mounting the rails on the outside and ignoring the post locations by continuing the regular picket layout over the posts.



In the hidden-post design, the fence rails are mounted on the outside of the post and are joined together on the post.



The hidden-post design presents a clean line of pickets when seen from most angles.



Larger posts at the driveway opening would have brought these design ideas together, giving the lamp fixture a proportionally strong base and hiding the conduit and outlet boxes.



A lower top rail and larger gaps would have helped the look of this fence. In general, a picket fence should have gaps between pickets that equal the width of the pickets.

PICKING A PICKET FENCE DESIGN

set post is slightly above the desired top rail height, it's all you need above ground. Proper in-ground penetration is still important.

The biggest mistake I see when fence builders use this design is when they try to mount the rails between the fence posts. This brings the posts forward in the layout and fills some of the gaps between the pickets, making the posts much more noticeable. When done right, this design presents an uninterrupted line of pickets and the posts remain unseen from most angles. **EHT**



Mixing two different design concepts creates problems. Hide the post or bring out front in the design.

PREFAB PANELS

A properly built and installed picket fence can define property lines and decorate a home's landscape, but building from scratch can take a lot of time, tools and labor. Prefabricated fencing sections, which come in a variety of sizes and styles—including picket, stockade and square spindle—make it easier for homeowners to install their own fence. However, keep in mind that the prefab panels must be stair-stepped and do not follow the contour of the land.



This hidden-post fence follows the contour of the land.

FOLLOW THE CONTOUR Ideally, your fence should follow the contour of the land. An easy way to see this is that the bottom rails run parallel to the ground under it. While there are a few cases where keeping a fence section level is desired (close proximity to a building, for example), most of the time it is best to follow the lay of the land. This does several things for your design including keeping picket lengths and post heights

consistent. As a general rule, use your level only to keep posts plumb. Set rail height by measuring up from the bottom of the post.

PICK YOUR PICKETS

Preferring a traditional look, I rip my pickets 2-3/4-in. wide and cut 45-degree chamfers to a point. As you can see, this is not the only way to go. Varying picket length alone can have a dramatic effect and changing the cut at the top can distinguish your fence from others in the neighborhood.



A simple bevel gives these pickets a unique look. You can always change them to a traditional cut if you change your mind!



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DECK By Matt Weber STAIRS

spent a lot of time building a big deck, so I wanted a big set of stairs to match. A width between seven to eight feet seemed like ample space for walking and be large enough to give the nearly 40-foot deck a visually complementary stair design. I had left the deck handrail unfinished at the stair location, which provided the upper landing, but I had to construct the lower landing on the ground from concrete, as well as everything in between. Here's a step-by-step account of the job, from digging the slab to staining the handrail.

START WITH A PLAN

Laying out the staircase is the first step. The pitch of your stairs will be determined by the rise and run you need to traverse to reach the landing, factored with a comfortable tread and riser height that adheres to local building codes. (For example, maximum riser height is typically 7-3/4 inches; minimum tread depth is usually 9 inches.) Stair layout can be a complicated process, so for an in-depth look at calculating stairs, check out the free how-to articles at www.extremehowto.com. Because, for this project, I cheated.







I designed these stairs for the Universal Stair Brackets from GoPro Construction. Made from 16-gauge hot-dipped galvanized steel, these brackets eliminate the need to cut stair notches, and reduce measuring and marking as you screw in the pre-marked stair hangers. It saves a lot of work. Plus, when I say that I "cheated" during the layout phase, I was referring to the free Online Stair Calculator available at www.goproconstruction.com. Simply type in your total rise and run, and the stair calculator spits out the number of risers and runs (brackets) needed, as well as stringer length, slope and tread height. Plus, with the click of a mouse you can adjust the stair slope to make it more or less steep, and the layout figures are automatically adjusted for you. I was happy to cheat.

One note about slope:
Depending on the proposed
handrail system of your steps,
you may be limited in the range
of slope you can use. For example,
I was using the Deckorators handrail system with specific stair
connectors that will only work
on a slope of 30 to 35 degrees.
You'll need to account for such
requirements when designing
the stair layout.

The width of my staircase was another unusual factor. Code typically requires the stairs be supported by stringers spaced no greater than 2 feet on center, which meant my unusually wide staircase required a total of five stringers.

CONCRETE CONSTRUCTION

With my measurements provided by the GoPro calculator, I could then map out where my lower landing would be on the ground. Building a slab landing can be



My first step was to excavate the slab location and tamp down a bed of gravel for the concrete.

The concrete form was made from 2x4s.



tough work, requiring a lot of digging and other sorts of manual labor. Be prepared for a workout if you're tackling this job.

First, mark the perimeter of the slab with stakes and string. Make sure it is deep enough to completely support the mitered bottom of your stair stringers. Then, calculate the depth of the finished slab, including concrete and gravel base, and excavate the soil necessary to place the finished surface of the concrete about an inch above the ground.



I used a cutoff saw to trim the rebar to size for the reinforcement grid.

Secure the rebar grid with wire ties.



The first layer of my slab consisted of 5 inches of gravel compacted down to 4 inches with a hand tamper. Next, I laid a grid of rebar on wire brackets that float the rebar about midway deep in the concrete forms. I tied the rebar intersections with wire. Then, I screwed together the rectangular concrete form from 2x4s. I leveled the form on the gravel bed and staked it in place every 18 inches from the outside of the frame.

There was a slight grade in the









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soil I had to overcome to ensure that my stair landing was built level. To accommodate the slope I partially buried one end of the form below grade, with just the top inch of the form above



Stake down the form every 12 to 18 inches.

Apply the concrete. I mixed it one bag at a time but should've rented a mixer.





Screed the concrete even with the form.

ground to shed water. The opposite end was set above grade, with the edge of the form exposed. These two alterations allowed me to level it from left to right and front to back, and stake it securely. Be sure the form is flat to achieve an even landing for the stair stringers.

I mixed up some quick-drying concrete, one bucket at a time, and filled my form. It took longer than expected, and next time I'll rent a concrete mixer. You should spray down the form and the gravel with water when adding the concrete. Keep the entire work area damp throughout the installation of the concrete. When it reached the top of the forms, I struck off the excess concrete even with the top of the forms by screeding it with a very straight 2x4. I then used a wood float to work the heavy aggregate below the concrete surface and bring the "cream" to the top. Allow the concrete to cure for a few days. Because I was building during the heat of summer, I kept the slab covered in plastic to retain moisture for a slow, solid cure.

STRINGER SOLUTION

While the concrete dries, you can cut the stringers. Traditional stair-building methods require cutting notches in 2x12's to support the stair treads. Laying out the correct measurements can be difficult, and the cutting process can be very time-consuming. However, by using the metal stair brackets, I only had to determine the length of the stringers and the angle of the end cuts. Also, the stringers can be made from 2x6's rather than 2x12's. Making things even easier, I already had the run and the slope of the stairs provided for me by the GoPro calculator.



Float the surface of the slab to bring the cream to the top.



Drop a plumb line from the upper landing to help lay out your stringers.

First, I dropped a plumb line from the edge of the deck, and marked the point with a peg of rebar. I then measured the total run straight from the plumb mark to the concrete landing, and marked where to locate the end of the stringer.

Then, being a very visually oriented person, I determined the stringer layout by tacking up a temporary 2x4 stringer (mitered at the upper end) to the rim joist of the deck. I adjusted its angle until I was satisfied that a 2x6 replacement would land solidly on the concrete landing (and ensuring the slope was within the parameters of my



Measure the run from the plumb mark to the landing.



I tacked up a temporary 2x4 stringer to help check all my measurements.

handrail system). I staked the end of the temporary stringer in place and registered the angles with my Starrett Pro Site Protractor.

Note: If your method of anchoring the stringers is to notch the upper ends to accept the deck's rim joist (as I did), then remember that the bottom end of the stringer will be pushed back the same distance as the depth of your notch. Account for the notch when measuring the stringers.

Using the temporary stringer is a personal preference that helps me to "see" the design before I build it. In fact, I temporarily tacked on some stair brackets to get a visual grasp

of how the system would come together.

I made the miter cuts on the 2x6 stringers with a sliding miter saw and notched their upper ends with a jigsaw. I also pre-stained and sealed the stringers.

Installation of the stair brackets is a simple procedure because they include marked measurements along both the rise and run of the bracket. I was working with a 7-1/4-inch rise (step height) and a 10-inch tread depth (run), so I aligned the L-shaped stair brackets along the corresponding markings, tacked them to the stringers with nails, then cinched them down with screws. I used four 1-1/2-inch No. 8 cone-head exterior screws in the predrilled holes of each bracket.

At the end of each stringer, the final bracket had to be cut to fit. I marked a parallel line on the bracket where the stringer would meet the landing, subtracting 1/8 inch for the base stringer bracket. I chopped the bracket to size on a cutoff saw, screwed it to the stringer and added the galvanized base stringer bracket, which screws to the stringer from the bottom.

I marked each of the five stringer's on-center locations along the deck rim joist and fastened them in place with 3-inch exterior deck screws driven through the joist and into the mounting notches. My stringer notches were each about 1-1/2 inch deep.

At the bottom end of the stringers I used a hammer-drill to drive Tapcon screws—two per stringer—through the predrilled base brackets and into the concrete landing.

TREADS

To install the stair treads I simply measured from outside

bracket to outside bracket, cutting the treads to fit. For my 11-inch treads I combined two 2x6's. Combining two boards to create a tread is preferable to using a single board because the combination is less likely to cup or warp.

To prevent squeaking I ran a bead of poly construction adhesive along the edge of each metal bracket before installing



I tacked the stair brackets in place with nails before securing them with screws.

The GoPro Construction stair brackets feature marked measurements making it easy to align the rise and run of the treads.







I used four 1-1/2" No. 8 conehead exterior screws in the predrilled holes of each bracket.

The bottom bracket of the stringers must be cut to fit.





I used a grinder to trim the upper bracket to cut a mounting notch in the stringer.

I notched the stringer with a jigsaw.



the treads. I fastened the treads from below through the predrilled bracket holes using 1-1/2-inch R4 screws from GRK Fasteners. These tough fasteners have enough bite to pull the boards flat to the brackets.

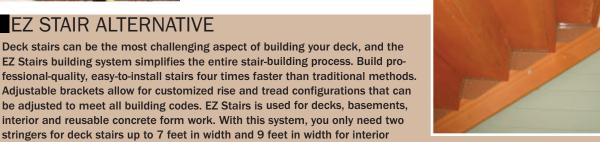
HANDRAIL

The handrail system for my deck stairs originated with two deck posts that framed the stair opening. I installed two matching lower posts to the outside stringers with a couple of 1/2-inch galvanized throughbolts and washers for each.

I prestained the posts and rails, and installed the handrails flush between the posts with Deckorators stair brackets, basing my miter cuts on the slope of the stair stringers to keep all the components parallel. I was incorporating stainless aluminum balusters that install over the lower rail, with the upper rail capping the balusters. Each of the balusters is fastened to the rails using a special connector piece, which is why I had to keep the slope of the stairs between 30 and 35 degrees.



Deck stairs can be the most challenging aspect of building your deck, and the EZ Stairs building system simplifies the entire stair-building process. Build professional-quality, easy-to-install stairs four times faster than traditional methods. Adjustable brackets allow for customized rise and tread configurations that can be adjusted to meet all building codes. EZ Stairs is used for decks, basements, interior and reusable concrete form work. With this system, you only need two



stairs. No center stringers are needed at all because the stair riser acts as a load-bearing joist, saving material and providing strong stairs. Save up to \$500 per flight of stairs. The outside stringers then require only three to four cuts each, and the risers and treads are simply attached to the brackets. If you make a mistake, simply readjust the patented brackets. In addition, the brackets provide an excellent solution for lateral load stair rail post support for wood stairs. The brackets may also be used singularly, to achieve the same rail post support on conventional 2x12 cut stringers. Whether you're building stairs or need a quick, easy and safe retro-fit for stair rail post support, EZ Stairs is a proven solution. Learn more at www.ez-stairs.com.



The stringers were mounted with 3" deck screws through the rim joist and into the back of the mounting notch.

Such a wide staircase required five stringers. I anchored the base stringer bracket to the slab with concrete screws.

As a finishing touch, I topped the deck posts with Deckorators Solar Post Caps from Maine Ornamental. These accessory post caps simply glue to the posts. They require no wiring and recharge daily to automatically





Each tread was cut to fit flush with the edges of the brackets.

Using construction adhesive along the tops of the brackets will help reduce squeaking.



produce ambient night lighting for the deck and staircase. For a more detailed look at installing the Deckorators railing system and post caps, visit www.extremehowto.com and www.deckorators.com. **EHT**



The treads were mounted from below with some GRK Fasteners' R4 screws to pull the boards tightly to the brackets.



The lower handrail posts were each anchored with a couple of 1/2" through bolts, nuts and washers.



I matched the slope of the handrail system to the slope of the stringers.



The handrail featured Deckorators aluminum balusters, which installed on the rails with special angled stair connectors.

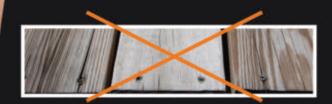




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DECK REDO

By Monte Burch

Renewing a Deck with an **Elastomeric Coating**

hen our deck weathered to splits and splinters we had a major problem. With more than 1,800 square feet of decking surrounding an above-ground pool, a number of the boards had also rotted. We didn't want to rebuild the entire deck, nor install new composite decking because most of the deck boards were still solid but weathered. Although an awning

protected the ends of the boards close to the house, their outer ends were badly weathered. Rather than replacing the entire 16-ft. boards, we only wanted to replace the weathered sections. However, recoating the new sections with a deck stain/preservative wouldn't match the old boards, even with a number of coats.

The solution was Superdeck Deck & Dock Elastomeric Coating. This high-build coating is designed to protect, resurface and waterproof old damaged wood and concrete. The unique formula provides long-lasting



The weathered boards of this big pool-surround deck had lots of splinters and sun and water damage.

Replacement of rotten boards and application of Superdeck Deck & Dock Elastomeric Finish bring protection and new life to the old wood.



protection against moisture and the damaging effects of the sun. It is designed to expand and contract along with the substrate while offering excellent scuff-resistance for heavy-duty foot traffic areas. Deck & Dock Coating will also lock down splinters and bridge dimensionally unstable cracks on old damaged wood surfaces. The product is formulated to resist growth of mildew and algae on the coating's surface.

Because our deck surrounded a pool, we also utilized Deck & Dock Anti-Skid additive. It creates a great slip-resistant surface to the deck and stair treads.

REPAIR AND PREPARATION

First step was to check the deck framing. All support boards were in good shape, with only the deck boards weathered. Because the pool-deck had a railing section to keep toddlers from falling into the water, it had to be removed before recoating.

The next step was to locate and mark the rotten or soft deck boards. Some you could feel when walking across. We used a sharp knife to probe doubtful boards. A knife blade was used to probe between the deck boards to locate the joists, and mark their locations. We then used a Stanley Quick-Square to mark across the boards on the front side of the joist.

We bored starter holes at the corners of the mark with a paddle bit and then used a saber saw (jigsaw) to make the cut. In the case of multiple boards, we made a pocket cut with a circular saw followed by a saber saw to finish.



Sections of boards were removed by first locating joists.

A Stanley Quick-Square was used to mark across the boards.





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BIGECK REDO

The old screws were then removed and the old boards pried up and out.

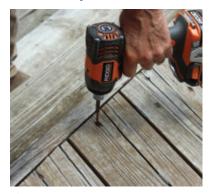
We fastened short sections of 2x6 on the cut side to the existing joists. We then cut the replacement boards to length and screwed them in place. Where board ends are at an angle, use the old board to mark the proper cut line.



Starting holes are bored in the corners of the mark.



A saber saw is used to make the cut. The Bosch cordless saw is ideal for the job.



Old screws are removed using an impact driver. Go slowly or you may strip out heads and have a real problem.

Note: If possible, position new deck boards with the crown facing up so water will run off. For this reason, be selective in purchasing so you have a good recognizable crown side. Examining the end of the board will reveal the crown.

The pool railing sections as well as the outside railings and benches were given fresh protective coatings using Superdeck Transparent Stain. The stain is a high-solids, professional-grade wood finish. The stain uses high-quality pigments to inhibit damage caused by the sun, a three-oil system to provide superior protection, and a highly effective



Old pool-surround edging screws were too rusty to remove, and had to be cut out using a saber saw and metal cutting blade.



Old boards, or sections of boards, are then carefully pried out.



The removed boards with angled cuts are laid on new boards to mark the cuts.



A cordless circular saw makes quick work of cutting deck boards to length.

New 2x6 blocking is scabbed to the existing joists and fastened in place with screws to support the replacement decking.



mildewcide to inhibit mildew growth on the coating surface.

The deck took more time preparing to finish than we had planned, but finally we were ready to apply the Deck and Dock coatings. The entire deck area was lightly power-washed, as well as the house siding adjoining the deck.

Superdeck Exterior Cleaner was used to thoroughly clean the



New boards are installed with quality exterior deck screws.



The rebuilt deck with old and new boards. Note the rot on the pool edges, these boards haven't been replaced yet.

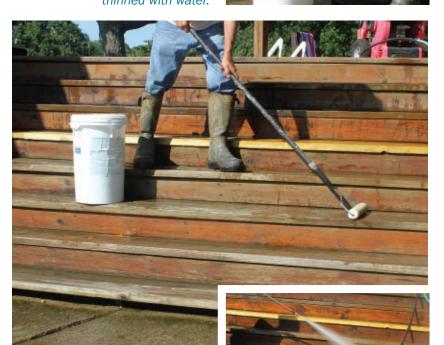


The deck and steps are lightly power-washed.



The product is first thinned with water.

the wet areas.



The diluted cleaner is applied with a roller.

The deck is brush-scrubbed and power-washed.

BIGREDO



entire deck. The Cleaner is a concentrated product formulated to remove foreign matter from wood, including: oxidized (failed) wood coatings, dirt, grease, oil, pollen and surface stains caused by mildew. The product dilutes with water. The surface must be sprayed with water first, then the diluted product can be applied with a brush, roller or pump-up sprayer. The surface must be kept wet by occasionally misting with water. Allow it to stay on the surface for approximately 15 to 30 minutes, keeping the surface wet.

Test a small area by scrubbing with a brush to determine if the surface is ready for rinsing. When ready, scrub the surface with a firm bristle brush or long-handled push broom. Rinse thoroughly with water using a garden hose or pressure washer. Do not exceed 1,000 PSI when using a pressure washer. Rinse any residue from plants.

APPLYING THE NEW COAT

Finally, the fun part—applying the finish coatings. The product should not be thinned and goes on fairly thick. It can be applied with a brush, roller or airless sprayer. When rolling, use a 3/8-in. nap synthetic roller cover for smooth surfaces, use a 1/2- to 3/4-in. nap for medium texture,

and a 1-1/4-in. nap for a heavily textured finish.

Back-rolling is suggested when spraying, working the finish smoothly and evenly to avoid lapping. Always apply a bit of product to a test area and allow to dry completely before coating an entire project to test for color and appearance.

The product should not be applied in the extreme heat of the day. Unfortunately, our deck faces south and we did the job in mid-summer. I discovered we had to work only in early morning because the product dried too quickly to prevent lap marks in the hot sun. Two coats are recommended in order to fill the large, 1/4-in. cracks. And, in a couple of areas we had to apply a third coat. Because the material goes on fairly thick you must brush between the deck boards to cover the sides of the joints.

Coverage may vary, but in most cases it will be 100 square feet per gallon for application of 1 to 2 coats. When filling deep cracks or locking down splinters on old, extremely damaged wood surfaces, additional coats may be required. The product comes with a limited lifetime warranty.

The Duckback Anti-Skid additive was added to the last coat, although we used it in two coats

The Superdeck Deck & Dock is rolled onto the cleaned, dry surfaces.



For the last coat Duckback Anti-Skid additive is added.



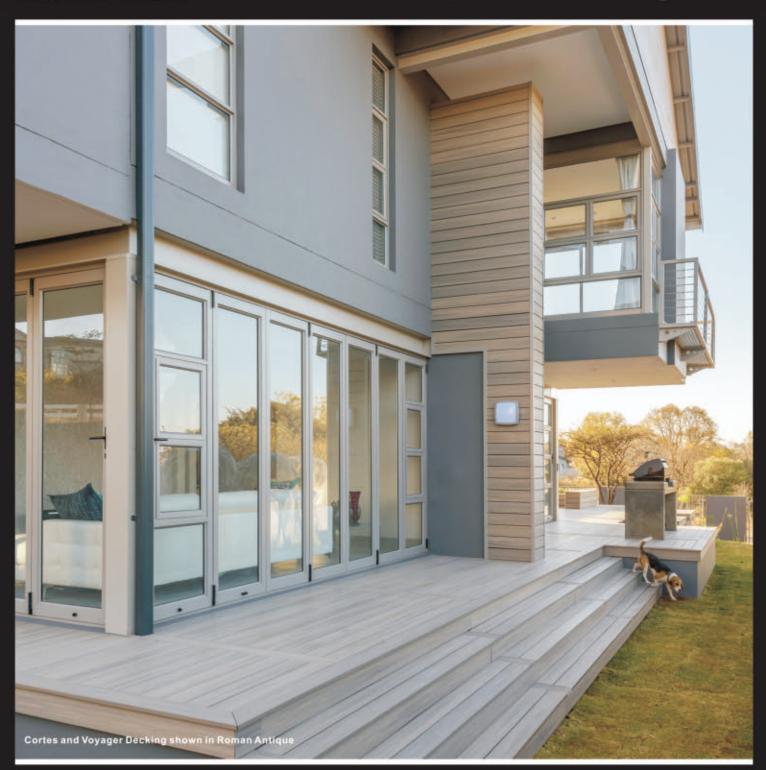
The additive, made of ground walnut hulls, is used one packet per gallon of product.



The additive must be thoroughly mixed into the coating.



UltraShield® Naturale™ Composite Decking



Actual production colors may vary from colors shown



BIGREDO



on the stair steps. The product, made of ground walnut hulls, is mixed one packet to each gallon of finish.

After the main deck was coated, we cut trim pieces to go around the awning posts and the pool edge. These pieces were precoated, then fastened in place. The pool railings were then reinstalled. We had discovered a lot of rot on the deck boards under the railings, so we raised the railings slightly with wood blocks.

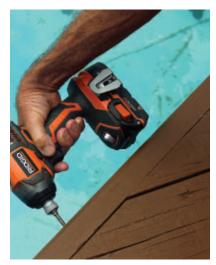
The end result is that our deck looks great and has a new life. **EHT**



The second coat with the additive is rolled in place. Note the crack on the left side and how it is being filled.



Trim boards are then installed using a cordless finish nailer and stainless steel finish nails.



Pool edging has routed rounded edges, and 15-deg. angles are cut using a miter saw. The trim is installed with screws.



Trim boards are first routed to create a rounded edge, then cut to 45 degree angles to fit around awning posts. The Bosch cordless miter saw makes the on-site work easy.



Pool railing and benches are stained using Superdeck Transparent stain. Note the benches were stained prior to deck coating. The railings were removed, stained and then reinstalled.

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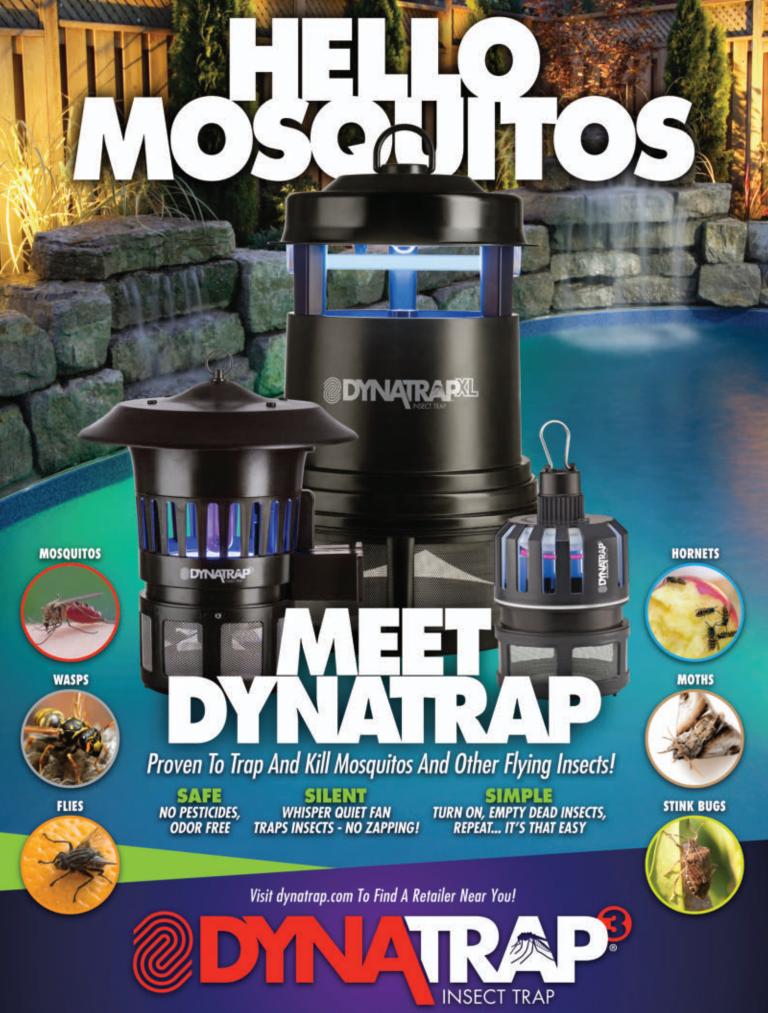
By Matt Weber

he Gillikin family's boat dock had seen better days. The winter's heavy rains had caused the water at Logan Martin Lake in Alabama to rise to abnormal levels. As the water rose, so did the dock, all the way above the tops of the dock piles. A monster storm shifted the dock over the top of one of the posts, where it snagged beneath the corner of the docks' rim joist. Then, when the water receded, the corner of the dock was stuck on the end of the pile so the structure couldn't float down evenly with the water. Three corners went down with the water, but one corner didn't, and the heavy weight of the lumber caused the entire dock to deform into a potato-chip shape that destroyed its construction. The old dock had to go, and the EHT crew built a new one. Here's how our staff teamed up for a weekend project that gave us a new place to kick back, relax and drop a fishing line in the water.

MUST-HAVE MATERIALS

Our plans were for a 10-by-10-foot dock to serve primarily as a swim platform throughout summer until the old boat dock could be demolished and rebuilt. A dock is much like a deck, but it floats, and the state's lake authority regulates the design and material used to build any structure on the water. In years past, large Styrofoam pontoons could be used as flotation, but the regulations for Alabama waterway structures now require the flotation devices to be completely encapsulated to prevent artificial debris from littering up the natural beauty of the state's lakes.

Owner of the lake property and esteemed publisher of *Extreme How-To*, Chad Gillikin, ordered a flotation kit online that consisted of six dock floats. These 12-inch thick 2-by-4-foot floats are each foam-filled with expanded polystyrene but have a seamlessly molded outer

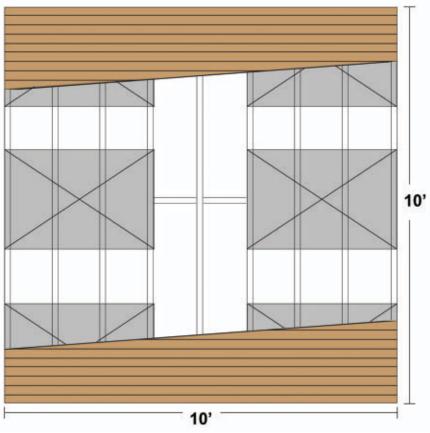


BUILD YOUR OWN SWIMMING DOCK

shell made of extra strong polyethylene, containing ultraviolet inhibitors. This hard shell helps prevent damage from the sun, water, oil, gas and marine organisms, and satisfies the state's requirements for flotation materials.

A dock must also withstand the rigors of Mother Nature, and she throws a lot at a wooden structure that floats on water. Normal deck framing techniques aren't intended to contend with the stresses that come from changing pool levels or choppy water. Decks are supposed to remain still, but docks must be built strong enough to shoulder all the extra stress. Whereas as a dock's building components are much like a deck-floor joists, rim joists and deck boards-the "connective tissue" that binds them is heavy-duty stuff. Instead of nails, screws or joist hangers, the joints between joists are all connected with galvanized or stainless steel hardware consisting of thick metal plates, 1/2-inch through-bolts, nuts and washers.

The type of framing and decking material is also an important consideration. For this dock, we used Ecolife Stabilized Weather-Resistant Wood manufactured by Viance (www.treatedwood.com). Ecolife is top-of-the-line treated lumber that is protected with a non-metallic preservative plus a wood stabilizer, offering the natural beauty of real wood combined with dimensional stability and weathering protection. This reduces cracking, checking, warping and splitting. The Ecolife preservative is also a Green Approved Product by the NAHB Research Center and complies with the criteria specified in the National Green Building Standard, Plus, the treatment



Shown here is the basic plan for the swimming dock. Figure not drawn to scale.

is no more corrosive to fasteners and metal fittings than untreated wood. However, even with the preservative treatment, applying a waterproof sealant to the wood will provide the best protection.

STRONG FOUNDATION

The Gillikin lake house sits on a considerable slope, so we had to carefully plot our plan of attack. The flattest, most construction-friendly area to build the project was the relatively level and flat driveway. However, the driveway was nearly 50 yards from the lake, and we were building a 10-by-10-foot dock. We didn't exactly have a crane at our disposal. If we were to build the whole thing on the driveway, we would not be able to lift it to the

water. So, we compromised. We constructed this deck in phases to carefully manage the weight of the structure.

To ensure a flat, level frame on which everything else would be built, we assembled the four rim joists on the driveway. The 2x8 rim joists comprised the outside perimeter of the dock. Each corner was bolted together with eight 1/2inch lags along with inner and outer galvanized plates. We centered each of the plates mid-height of the joists, and we found that it helps to clamp the plates in position while you drill the holes for the bolts. You can always tighten the nuts and bolts with a socket wrench, but we used a powered impact wrench that saved us hours of labor.



We began construction on the relatively flat driveway to keep the rim-joist frame as square and level as possible.



The corners are connected with galvanized plates, 1/2" through-bolts, nuts and washers.

Make sure to locate the joists so they match the mounting holes of the flotation devices.



When assembling, it is critical that each rim joist is square and level so take any means necessary to make sure this happens. We used everything from scrap lumber to landscape pavers as shims to keep the frame in shape while we fastened the four corners.

Once the square perimeter of rim joists was complete, we carried the dock frame closer to the lake onto a paver patio where we installed the interior joists.

JOIST PLACEMENT

When building a dock such as the one shown, there are two things to consider when determining joist placement: (1) the size of your deck boards, and (2) the mounting locations of your flotation devices.

Full 2x deck boards can be installed over joists spaced on 24-inch centers. However, this project was decked with 5/4 decking boards, which required a tighter joist span of 16 inches on center.

The flotation devices were designed to be installed with 1/4inch stainless steel lag screws through four corner mounting holes and into the lower edge of the deck joists. First, we measured the distance between the mounting holes on the dock floats, and fastened the corresponding joists so they exactly matched the spacing of mounting locations. Once these critical joists were installed, we located the remaining joists 16 inches from their centers. It's important to orient the joists with their crowns facing the same direction to provide an even nailing surface for the deck boards.

Like the rim joists, the deck joists were installed with a combination of lag bolts, nuts, washers and galvanized plates. The plates include an L-bracket to fasten the joists to the rim lumber, as well as two smaller plates that sandwich the joists to the bracket.

BUILD YOUR OWN SWIMMING DOCK



The dock joists install with heavyduty plates and through-bolts. It helps to clamp the hardware in place while you drill the bolt holes.

The hardware provides a solid and secure connection that resists tension and twisting within the dock frame.

To provide some extra structural integrity, we cut blocking from 2x8 material and fastened the blocks between the center joists of the dock that would not be bridged by the flotation devices.

With all the joists assembled, the dock had accumulated a great deal of weight. At this point our team of five *Extreme How-To* staff members carried the completed dock frame even closer to the lake, where we attached the six flotation devices to the joists.

The flotation units added even more weight to the structure, and the dock was upside-down. We needed to flip over the dock to have the floats on the bottom. To do so, we recruited a Jeep with a front-mounted winch. Our crew was able to stand the dock upright on its side while our winch operator helped to ease the dock down gradually, so it didn't crash on top of us. Once flipped, the dock was roughly 8 feet from the water in preparation of launch.



After locating the joists on which the flotation devices will mount, we spaced the remaining joists 16" on center.

DECKING THE DOCK

We needed to install at least some of the deck boards over land to provide a working platform on which to install the remainder of the decking on the water. When installing the decking, be sure to check the ends of the 5/4 boards and install them with the "bark side" of the wood facing upward to reduce the chance of cupping. We fastened each deck board with stainless steel deck screws from GRK Fasteners, two per joist. We love the GRK screws because they've got unmatched holding power and the heads never cam out—a real timesaver (www.grkfasteners.com).

Driving the fasteners with an impact driver proved to be the quickest method of installing the decking. For bowed boards, we used the board-straightening BowWrench from Cepco Tool, which clamps over a joist to leverage the bowed board in straight alignment with the installed decking (www.cepcotool.com).

We installed about a third of the boards to give us a floor on which to work, but we didn't want to complete the deck until we got the dock in the water, so as not to add any more weight than necessary.



We installed 2x8 blocking between the three center joists that would not be bridged by the floats.

The floats install with 1/2" stainless steel lag screws driven into the underside of the joists.



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BUILD YOUR OWN SWIMMING DOCK



A total of six 2x4' floats were required for the swimming dock. Notice the old storm-wrecked dock in the background, which provided the motivation for this project.

At the time of construction the water level was low, so rather than sliding the dock easily into the water, we had to make the transition over the sheer ledge of a 3-ft. seawall. This was an awkward affair in which we used 2x8 boards as makeshift ramps and the winch to keep the weight of the dock manageable as we eased it into the water.

MOUNTING THE DOCK

The Gillikin property had two piers. One was home to the dilapidated older dock, the other



was a narrow, shorter fishing pier that would serve as the gangway to the new dock. To mount the dock, we used two large pieces of hardware called "Chain Pile Holders," which are equipped with a chain to wrap the piles (support posts) of the existing pier and prevent the dock from floating away from the shore. These heavy-duty, L-shaped galvanized brackets required eight through-bolts and washers each.

To center the dock on the pier, we measured between the two posts that would hold the dock in place. The center of the posts had a 64-in. span. We then marked the midpoint of the dock on its "mounting" side, and measured 32 inches to each side of the center mark, where we made new marks that indicated the midpoints of the Chain Pile Holders to ensure they aligned with the posts.

Sixteen bolts and washers later, the Chain Pile Holders were in place. We paddled the dock over to the posts and wrapped them with the chains to anchor the dock in place. The chains fit loosely around the piles, keeping the dock in place but providing enough



We used a Jeep equipped with a winch to help flip over the 10x10' foot platform. The winch was critical to manage the heavy weight of the structure.

slack so they can slide easily up and down the posts as the water level rises and falls.

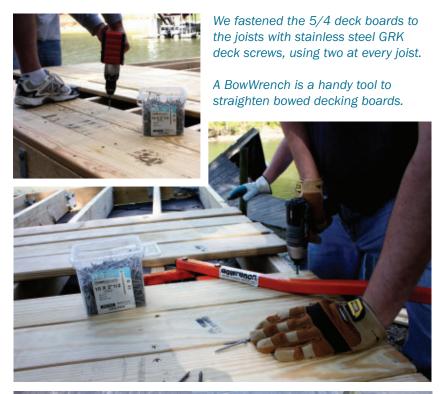
TRIM PACKAGE

The final phase of the dock project was to add vinyl dock trim to the three edges that were not connected to the pier (supplied by Taylor Made Products, www.taylormadeproducts.com). The trim package starts with 6-by-6-inch vinyl corner bumpers, which we top-fastened to the deck with the stainless steel GRK screws. The trim strips that fit between the corner bumpers are called dock bumpers, and we used a hacksaw and snips to trim them each to fit flush between the corner pieces. The bumpers are manufactured with a tough PVC inner core that is surrounded with softer white vinyl, providing a cushion for boats, jet skis and people climbing up the side of the dock. Like the corner trim, the bumpers fasten to the top of the dock with stainless screws and provide a crisp, finished look to the new dock.

With a team of five guys firing on all pistons, we managed to complete the dock and send it



To mount the platform to the gangway, we used two heavy-duty brackets called Chain Pile Holders, which we bolted to the rim joist and the last row of decking.





We installed about 1/3 of the decking to provide a working platform, and then launched the partially decked platform into the water so we would not have to contend with any more weight than necessary. Once in the water, we completed the remainder of the decking.

BUILD YOUR OWN SWIMMING DOCK

swimming despite its heavy weight. It was tough work, but we wrapped up the day with cold beverages and barbecue ribs and now have a new place for fun in the sun. **EHT**

The chains of the Chain Pile Holders loosely wrap the gangway piles, allowing the dock to move with changes in the water level.

The final step was to install the vinyl dock trim.



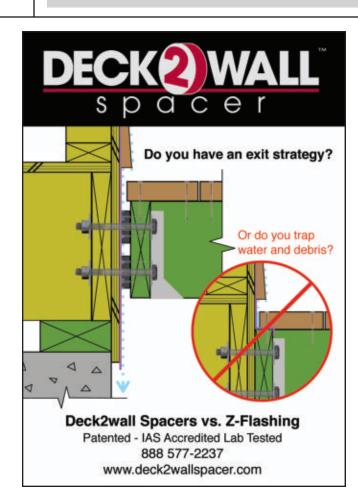


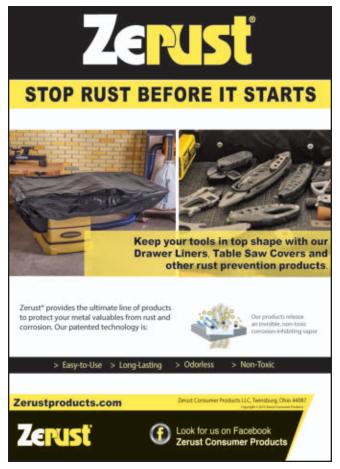
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SPRAL STAIR-CASE



Modular kits make design and installation easy for the DIY'er.

dding a traditional spiral staircase can be an intimidating project for a homeowner, because the stairs are professionally custom-built to exact specifications, and everything must fit correctly or there will be problems with the installation. Furthermore, the custom manufacturing process accounts for a large part of the typical 6 to 8 weeks lead time required by most spiral-stair companies.

Arke Stairs takes an entirely different approach to spiral stairs. The company offers a modular "staircase in a kit" that the homeowner designs online with a simple step-by-step web-based tool at arkestairs.com. Once you've determined your staircase style, your exact height measurement, the directional turn of the spiral, and the size/type of your landing, Arke assembles a kit to fit your needs and ships it to arrive within 7 working days, ready for installation even by a do-it-yourselfer.

FIVE-STEP SELECTION PROCESS

When ordering a spiral staircase kit, the first step is to decide whether or not it's an indoor or outdoor installation.

Step Two is to measure from the finished floor on the top level to the finished floor on the bottom level of the proposed stair location. This determines the exact height required for the installation.

Step Three is to measure the total amount of space you have available to determine the correct diameter of the stair. The company recommends that the available finished space is at least two inches greater than the total diameter of the















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you in purchasing the right stair kit for your needs.

UNIQUE FEATURES FOR EASY INSTALLATION

For the do-it-yourself installer, Arke spiral stairs come with three innovative design features that address the major problems which



Measure total available space.



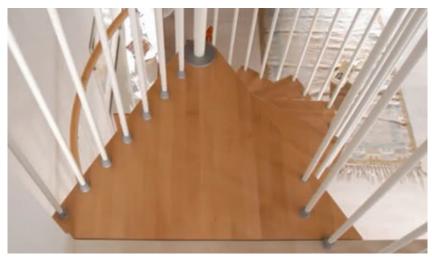
Choose your stair tread.

spiral staircase or total width of the modular staircase. This allows for clear passage of the handrail and eliminates a "pinch point" of the handrail against a wall or upper floor opening.

Step Four: Decide between metal treads and wooden treads. Arke offers both.

Step Five: Choose your color. Arke offers the choices of a highgloss black, high-gloss white or a satin gray.

Once you have this information in hand, you can visit Arke's online selection tool. The company's sales and support team can also assist



Arke offers wood and metal treads.

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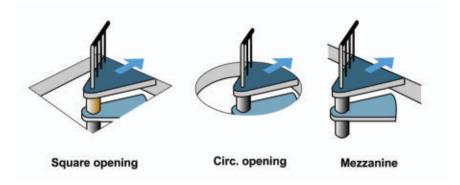


Arke offers staircase kits in three different colors.

usually make installation a contractor job.

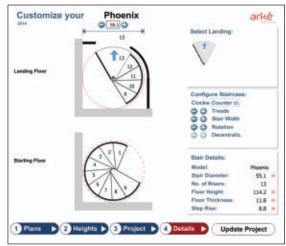
Adjustable height. Rather than rely on an exact height measurement, Arke stairs are adjustable in height through the use of a patented spacer system. The standard spiral kit is adjustable in height from approximately 8 ft.-3in. to 10 feet. For heights above 10 feet, additional risers and center pole extensions are available.

Directional turn of the spiral. Most manufacturers produce a specific unit based on the rotational turn (clockwise or counterclockwise) of the spiral for specific installation. This requires careful planning and measurement to avoid a restricted or blocked floor exit. The standard Arke kits are designed to make a complete 360-degree turn. Therefore, the first step will be directly underneath the landing. However, by adding or subtracting risers the rotation will change by approx. 30 degrees per riser. Furthermore, Arke spiral stairs can be turned



Arke can accommodate three landing options.

Design your spiral or modular kit with Arke's online software.



in either clockwise or counterclockwise, which greatly minimizes the chance of error in the order and installation.

Landing size and type. For the landing at the top of the stairs, most manufacturers produce a specific design for the planned installation, either a mezzanine, round or square landing area. Arke's premiere interior kits, the Phoenix and the Civik models, both offer a patented universal landing as a standard feature. This provides greater flexibility and easier installation.

INSTALLATION & ASSEMBLY

Once the kit has been designed and shipped to the home, the Arke staircase kit is a do-it-yourself project that can easily be installed by the homeowner with common



The staircase arrives as an all-in-one kit.



Step-by-step instructions and all necessary hardware are included.



Install the base plate.

household tools. Most installations can be accomplished in a single day.

Each model contains all the necessary components and detailed assembly instructions as well as a DVD. You can preassemble parts of the base, treads and balusters prior to incorporating them into the staircase. Careful measurement of the floor-to-floor height will help you determine the required number of spacers and their proper placement.

Mark on the floor the center of the opening, then position, drill and fasten the base with the included hardware. Screw the center pole into the base, insert the base-plate cover and then add the treads and spacers according to the kit's instructions.

When you reach the end of the pole, join the second section of pole with the included hard-ware and proceed up the pole with the remaining treads and spacers.

After having chosen the stair rotation, position the landing on the arrival side of the treads and fasten in place according to the kit's manual.

You can then spread out the treads fan-like, making it possible to use the stair. Starting from the landing, insert the longer railing balusters that build the connection between the treads. Be careful to keep them in a vertical position.



Fasten on the base-plate cover and screw on the center pole.



The treads and spacers slide over the pole.



Add the second section of the pole and continue assembling the treads.



The staircase shown has a mezzanine landing.



Attach the landing to the finished floor with the included hardware.



The next step is baluster installation.



The handrail screws on one section at a time.



The handrail installs with the same corresponding curve of the staircase.



All the hardware to assemble the baluster system is included with the kit, and the handrail installs over the balusters with the same corresponding curve of the staircase. Check your kit's literature for further installation details, which may vary somewhat from model to model.

DIY FRIENDLY

For a do-it-yourselfer who wants a spiral staircase, you're unlikely to find a more user-friendly solution than Arke's "staircase in a kit." Rather than waiting 6 to 8 weeks for a custom unit and paying for expensive professional installation, the Arke kits come as all-in-one complete units. All



Keep the balusters plumb when assembling.



Once in position, the balusters can be secured from beneath the treads.

treads, landing, balusters, handrails, hardware and accessories are included. The kits are in stock for immediate delivery, plus there's nothing to paint, weld, stain or seal. **EHT**

Learn more at arkestairs.com.

•••••



The handrail can be trimmed to fit.



The staircase kits can be completely assembled in a day by a do-it-yourselfer using only common household tools.

BUILDING CODE REQUIREMENTS

Ultimately the question of code compliance for a spiral staircase is a local matter. A municipality may have its own specific requirements. Local building inspectors and code compliance officers often have different interpretations of the International Residential Code (IRC), International Building Code (IBC), or the older ICBO, CABO or SBCCI codes. It is the homeowner's responsibility to consult with the local building inspector or code compliance officer for information with respect to local code requirements.

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Raised Bed Rehab

Concrete, block and smart building techniques solve the problem of a dilapidated retaining wall surrounding a garden bed.



By Clint Thomas, Esq. Photography by Zoe Thomas

o it yourself" and "homemade" are not necessarily the same thing. In fact, the expression "homemade" often invokes the thought that something is less than professionally done. That is just what the raised flower bed at my house was, and by "homemade" I definitely mean less than professional.

According to neighborhood lore, my raised flower bed sits over an old cistern that had long ago been filled. Whoever did this also constructed a "homemade" retaining wall of sorts out of pieces of cement, rocks of assorted sizes and broken pieces of brick. Over the many years a magnolia tree had taken root

and grown up in the middle of the planter.

I had the tree cut down professionally because it had grown up into the power lines, and I have enough sense not to play around power lines. So, my first step was to tear out a cement sidewalk and begin breaking apart the makeshift retaining wall so I could get my truck close enough to the magnolia tree's stump to pull it out.

In order to save money, I broke the sidewalk into pieces with a sledgehammer. It is much easier to break a slab of cement that has a hollow space beneath it than it is to break one that is resting on solid ground. Naturally, concrete is very heavy and not easy to move. This is when a 4-by-4 pickup truck

comes in handy. I attached a logging chain around one corner of the cement slab and hooked the other end to my truck, and with the truck in four-wheel-drive low gear, I pulled the slab up and out enough so that I created a hollow space under part of it.

I then beat it with a sledgehammer over and over in the same spot until the cement broke. I repeated this procedure several times until the entire sidewalk was reduced to a pile of broken pieces no larger than soccer balls.

My attention then turned to the "homemade" retaining wall, which came apart with very little effort. With a few firm whacks, it fell into pieces.

The next step was to remove the old magnolia stump. I accomplished this by digging around its perimeter to expose the main roots, which I cut with an axe. After all of the roots had been cut, I wrapped a logging chain around the uppermost part of the stump to have maximum leverage and used my pickup,



Shown here is the old retaining wall that was being replaced.

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The site first required removing an old wall, as well as some trees and a concrete sidewalk, which required a pickup truck to help unearth.

again in 4-by-4 low, to rip it out of the ground.

NEW WALL CONSTRUCTION

With the major impediments removed, I squared up the planter. Originally, it had been shaped like an irregular circle—or perhaps a circle with a bulge is a more accurate way to describe it. I reshaped it by manually shoveling the dirt to where I wanted it so I could lay the new retaining wall with a 90-degree corner.

First, dig the trench for the wall's concrete footing form.

Once the site had been prepared, I began the actual construction of the new planter. The first step was to dig a level trench around the outer perimeter that formed a right angle at the outside corner. I used a pick-axe and a shovel to dig the trench, throwing the dirt into the bed of what would be the new planter, and then compacted the soil.

With the trench dug, I placed a couple of stakes in the ground at the corners and ran string from one stake to another. It is crucial

at this stage to make sure that the stakes are square to one another and that they are the same distance apart. The string acts as a guide to show you where to build a wooden form.

The ground sloped toward the back of the house so I had to compensate for this by digging one end of the trench deeper than the other end and recess one end of the form below grade. Recessing one end of the form allowed me to keep the top of the form level all of the way around.

I built my form out of leftover 2x4 material, and used some scrap pieces of oak across the top of each one to tie them together. When the form is being built, use a level and a framing square to constantly check for square and to make sure the sides of the form are level. Remember that whatever you build, it is only as good as the foundation, and if the foundation is crooked, uneven and unlevel, then everything built on top of it will be crooked, uneven and unlevel.

I discovered that I had a tendency to push down on the part



The wall was reconstructed from a round shape into two straight walls that intersected at right angles.



A framing square helps to ensure the angle is true when building the concrete forms.



Check and recheck the forms for level and plumb. A perfectly flat foundation will determine the layout for everything that is placed on top.

of the form that I had just gotten level while leveling the next section, throwing the previous section out of level. Fortunately, I kept re-checking for level and discovered this before I poured any cement.

With the form secured in place with wooden stakes, I was ready to pour in the cement. In all, I used 27 60-pound bags of cement, and mixed them all by hand in a wheelbarrow with a shovel. A cement truck would

have been much faster, but my labor is free and cement trucks aren't.

I wet the entire form and the ground around it with my garden hose before I started adding the concrete to the form.

As I shoveled in each bag of cement, I used a piece of scrap 2x4 as a screed board to smooth the surface of the cement. I then only had to wait for it to dry before I began laying block on top of it.

The following weekend, I laid out a row of block around the entire project to make sure I had enough blocks, and also to have each one ready at hand when my cement was wet. I mixed up bags of mortar in my wheelbarrow and laid the first course of block after I wet the entire cement slab with my garden hose.

Again, it is of paramount importance to check and make sure that every block that is laid is level with the other blocks. I initially had some trouble buttering the ends of the block, but I discovered that if I wet the ends of the block that the mortar clung to it better and made the job much easier.

I lined the lower 6 inches along the back edge of the block with pebbles, gravel and small pieces of broken cement that I collected from the sidewalk demolition. This will serve as a French drain and help to keep water from pressing against the block by allowing it to drain more freely.

I followed-up the block by laying a course of 4-in. thick solid cap blocks on top to help give it a more finished appearance. A couple of these had to be cut, and I used a circular saw with a 7-in. carbide blade. The blade cut through the solid concrete



Shown here are the completed forms, made from 2x lumber, staked securely to the ground and bridged with oak ties.



The concrete for this project was mixed one bag at a time in a wheelbarrow.

Fill the forms with concrete and level the top with a screed board.

block with ease, but it also dulled out after the second block.

FINISHING MOVES

My final step was to apply a 1/8-in. thick coat of Quikwall Surface Bonding Cement to the

outside of the block. Quikwall is a product that is a mixture of Portland cement and fiberglass, and it is designed to be used on cement blocks that are drystacked together without any mortar. I had mortared my blocks together so the Quikwall



Once the concrete has cured, disassemble the forms.

will only make it that much stronger and also provide a smooth finish to the outside of the block wall, which was my primary goal.

In order to achieve a somewhat smooth finish, my choice was between traditional stucco and Quickwall. I opted for Quickwall because it is a strength-enhancing product and will make a wall that will last for many years. I applied the product with a 6-in. taping tool working from the bottom of the wall toward the top. After applying a section, I used a 16-in. taping tool as a trowel, running it over the wet mix to smooth it out. It is very important to hold the taping tool so that it is almost flat against the surface of the wall to achieve a smooth finish. If the taping tool is held in any other position the fiberglass fibers will stick out and give the wall a hairy appearance.

I had barely finished the construction of the new retaining wall and my wife, Shellye, had already begun planting a vegetable garden and transplanting flowers along the back edge.



Wet the dried concrete thoroughly, then use a trowel to apply the mortar and block. Remove excess mortar from the joints.

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The wall consisted of the concrete foundation, a full course of cement block and an upper course of solid cap blocks.

Some of the cap blocks had to be cut, which were marked with a Speed Square.

We planned the garden after the French intensive gardening style that utilizes inter-cropped plants in loose, well drained soil. To help achieve this, my wife added forty 40-lbs. bags of topsoil to the new bed along with several bags of humus and manure. She then sectioned off the various plants with old bricks.

When this summer's growing season comes to an end, I will add more topsoil and a healthy amount of compost from my compost pile to further enrich the soil. I have hopes of making Plexiglas



A wet saw does the best job of cutting concrete and block, but occasional cuts can be made with a handheld circ saw equipped with a carbide blade.

DON'T FORGET: PREP SOIL FOR FROST HEAVE

Soil preparation beneath concrete foundations, such as footings, slabs and walls, is crucial for long-term performance. You need to prepare the soil for proper drainage and dig the trench deep enough to avoid frost heave, which is more prevalent in colder climates than in warmer regions of the U.S. Freeze-thaw cycles and frost heaving—when water in the soil freezes and expands, raising everything sitting on top of itcan result in cracking of the slab or mortar joints. Down in Alabama, frost heave is not often a problem but up North it's a very big deal. When building any sort of foundation, always check with your regional building codes to determine the best soil preparation for your project.



covers for some of the different sections and try growing crops year around in what are commonly referred to as cold frames.

Thanks to several weekends of hard work, what had been an overgrown embarrassment had now been transformed into a giant garden bed with a neat and orderly appearance. **EHT**



The 4" thick cap blocks provide a finished look to the wall's top course.



The wall was coated with surfacebonding cement to make it stronger and provide a finished texture to the outside of the block wall.



Apply the surface cement with the blade held almost flat against the surface of the wall to achieve a stucco-like finish.



The garden was inspired by the French intensive gardening style that utilizes inter-cropped plants in loose, well drained soil. To help achieve this, we added topsoil to the new bed along with several bags of humus and manure. We then sectioned off the various plants with old bricks.

HOT PRODUCTS FOR THE GREAT OUTDOORS



M-BRACE FOR WOODEN RAISED BEDS

Some raised garden beds are surrounded by wooden borders, and the M-Brace garden bed bracket from Art of the Garden takes those gardens to a new level. Simply insert dimensional lumber into the brackets to create an instant raised garden bed without tools. The M-Brace is made in the USA using recycled metal and available in a variety of styles with either an unfinished steel or an antique bronze finish. The brace is portable and adjustable up to 12 feet per side. Visit www.artofthegarden.net.

DECKORATORS PLANTER POST CAPS

Cast stone planter post caps are available in copper round and square black, and fit standard 4-by-4 or 6-by-6 wood posts. These unique planter caps feature a drain hole to keep plants thriving longer. Visit www.deckorators.com.





DECKSTAIR

Fire-resistant Dekstone Pavers combine the traditions of wood framed decks with the easy installation of large-scale concrete pavers. Dekstone now introduces the Dekstair, which enables deck builders to bolt precast concrete stair treads to wood stringers. Block-outs in the end of the tread hide all mounting hardware for a clean, finished look. When set at a 7-inch rise, the 3-1/4-inch thick nose reduces the riser space to less than 4 inches to meet new code requirements. Visit www.dekstone.com.

DUCKBACK STAINS & SEALERS

Duckback premium-quality stains and sealers are designed to help you get more from the time you spend outdoors. Offering products for exterior wood, concrete and composite surfaces, Duckback sealers are safe and easy to apply, adding dimension and sheen to outdoor surfaces. Visit www.superdeck.com.





THE OUTDOOR GREATROOM COMPANY

A fun way to gain extra "living space" in the summer is to create an outdoor area to relax and socialize, expanding the footprint of the home. The Outdoor GreatRoom Company develops unique, upscale products for outdoor living and entertaining. Outdoor GreatRoom products include grills (gas and electric), outdoor kitchen islands, gas lights, fireplaces (gas, electric and gel), campfires, heaters, outdoor furniture, pergolas and more. Visit www.outdoorrooms.com.

PRODUCTS



WAYNE PUMPS' WWB WATERBUG SUBMERSIBLE PUMP

The *EHT* staff recently tested the WaterBUG Submersible Water Removal Pump from Wayne Water Systems. Wayne Pumps' Multi-Flo Technology allows the WaterBUG's user to easily select the appropriate discharge for the water removal application from either the top or side of the pump. Excellent for removing water in confined spaces, the top discharge of the WaterBUG may be selected for eliminating water in window wells, baths and hot tubs, as well as five-gallon buckets.

We found an ideal location to test this product. An annoying low spot in the driveway that has been a constant issue. This area holds water due to poor drainage. The low spot tends to become an unsightly mud puddle ripe for

mosquito infestation and other problems. As you can see in our video, The Water BUG performed beautifully. We were able to drain off the standing water and then clean the area with a hose and drain off the excess.

For water removal in open areas, the WaterBUG's side discharge may be used on flat roofs, in flooded basements, shower stalls, or outdoors in a flooded yard and even for draining a child's swimming pool in the summer months. "The WWB WaterBUG Submersible Water Removal Pump is a high-quality, easy-to-use tool for anyone seeking to eliminate unwanted water, and is especially practical for consumers to protect their homes as the spring rains and winter melt-off begins," says Jeremy Cantor, V.P. Sales and Marketing, Wayne Water Systems. "Wayne is proud to be featured on Amazon.com where it will be accessible to all."

Capable of pumping up to an impressive 1,257 gallons per hour, the WaterBUG simply connects to a standard garden hose and can remove water to 1/16th inch on the surface, making a given area virtually dry. Assembled in the United States, the WaterBUG also features a multi-ring suction strainer that filters debris, ensuring the suction intake remains clear to minimize clogging. Visit Wayne Pumps at www.waynepumps.com.







NEW AMERICAN OVEN

Former director of Research and Development for Big Green Egg, John Creel struck out on his own in 2011 and created the New American Oven, an alternative to the expensive, permanent structure outdoor brick ovens on the market. Fueled by lump hardwood charcoal or wood logs, the Oven produces chemical-free, flavorful



food without propane or gas. All aspects of production are made in America: With metals from Wisconsin, glass from California, and ceramics from Ohio, every Oven is assembled by hand in the home base of Acworth, Georgia. With the best in ceramic convection and airflow technology, sleek lines and precision temperature control, flavors don't disappear and food doesn't dry out—meat stays juicy and full of flavor. Visit newamericanovens.com.

WEATHER GUARD DEFENDER SERIES TRUCK BOXES

Compatible with virtually any storage need, the Weather Guard Defender Series is now available with more than 20 products across five categories, including Saddle and Cross Boxes, All-Purpose Chests, Lo-Side and Hi-Side boxes. With four-piece welded construction and a C-channel reinforced lid for professional durability, the Defender Series provides professional features at the right price. The new products offer heavy-duty security including push-button locks, a reinforced front panel and two dual-stage rotary latches with looped strikers. Additional product highlights include multiple styles and colors and a D-shaped ribbed weather-stripping for protection from the elements. Most of the Defender Series products come with an included plastic stor-



age tray to organize smaller tools and accessories, and the mounting kit requires no drilling during installation, making the process quick and stressfree. Visit www.weatherguard.com.



PRODUCTS

PROWOOD TREATED LUMBER

ProWood is embracing the recent ground contact standard changes set forth by the American Wood Protection Association (AWPA) in February of 2016. The new standards released by the AWPA recommend that current above-ground treated lumber applications must now adhere to (UC4A) "ground contact" requirements when critical components are difficult to difficult to maintain, repair or replace (such as deck joists or ledger boards). The new standards also apply if the lumber is installed less than 6 inches from the ground, at risk for poor air circulation, likely to have prolonged contact with vegetation or leaf litter, exposed to frequent moisture or used in tropical climates



Previously, deck components such as deck boards, joists and ledger boards were not required to be treated to ground-contact retention. Now, ProWood treated lumber is available to customers with a full line of products treated to the ground contact (UC4A) standards including 5/4-in decking, dimensional lumber, plywood, and appearance-grade boards. The new standards will eventually dictate building codes, so the transition to the new ground contact recommendations for ProWood treated lumber is imperative for code compliance, product reliability and, above all, safety. For more information, visit www.prowoodlumber.com/use.

GORILLA SEALANT

The new Gorilla Sealant is tough, clear 100-percent silicone available in an easy-to-use squeeze tube for DIY'ers. Suitable for both indoor and outdoor applications, the sealant is water-ready thirty minutes after application, won't yellow, shrink or crack, and it's mold and mildew

resistant. Visit www.gorillatough.com.





DECKORATORS VAULT COMPOSITE DECKING

Deckorators Vault enhances the experience of installing a beautiful, ultra-low maintenance deck. Vault uniquely benefits deck builders because it is virtually unbreakable—twice as strong as PVC decking. A lightweight composite that looks and works like wood, it is designed to withstand the rigors of the job site. Vault cuts, drills, shapes and fastens as easily as wood, due to a fibrous structure. Yet Vault boards—7/8 inch thick by 5-1/2 inches wide—are 35 percent lighter than most wood-plastic composite decking

and similar in weight to PVC, making Vault easy to handle on the job site. Vault also stays put when installed. It contains no organic material, helping keep thermal expansion to a minimum. Plus, the product is backed by a 25-year structural, 25-year stain-and-fade and 25-year removal-and-replacement limited warranty. Visit www.deckorators.com/Vault.



DaVinci roofing tiles have all the appearance and beauty of natural slate or shake, but with a higher level of durability from the proprietary-engineered polymer roofing formula. The tiles are designed for easy installation, while protecting against the elements for decades to come. DaVinci offers the discerning homeowner a level of style and beauty previously unattainable, backed by a lifetime limited warranty and made in the United States.





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