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JUNE 2002

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cover

In this Quarter Living issue, we asked how This Old House general contractor Tom Silva constructs a sturdy deck (p. 91), visit the finished grounds at the TV show's Manchester project house (p. 100), and follow the installation of a brick patio (p. 120). Find out how to garden under water restrictions (p. 126), share a shared (p. 132), and design a garden gate (p. 145). PHOTOGRAPH BY BARRY HADLOCK



The stylized design of the new deck porch at the Tim Silva House project in Manchester, New Hampshire, was a nod to the house's past, when the property housed formal gardens. For more on the deck-making advice, see "Stepping Out," page 100.

Rubber ducks

are just as important as china vases.

Jeanine Johnson LIBERTY MUTUAL SENIOR SERVICE REPRESENTATIVE



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2004 NEW TOOLS P. 30

"Since the gates provide a passage into our garden world, we wanted them built to last."
—Rick Cohen, *HomeAdvisor*



GARDEN GATES, P. 34

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2004 NEW TOOLS P. 30

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Drop Kev...

I've used so many of your good ideas that I am feeling pretty snug and thought I was well-fished with the email stuff. Then along came the March issue ("Weekend Workshop") and I saw that my workshop needs some major attention. Just glad to have that motivating organizer.

B. Quinn, La Grange, Ohio

And Shop "Wider"

After clicking the newsletter that a shark for two months (please, no action contained January/February issue), I finally

pounced on your March issue. Thanks! The info re the drip irrigation system will really come in handy in designing our kitchen garden this year. I will rig up our shut-off valve to give to my husband. It will not allow him to have access to the outdoor magazine because of the "Weekend Workshop" article. He's not allowed to see that. He spends entirely too much time in there on it.

Kara G. Wierwonen, West Salem, NJ

The Wine Ring Solution

Before paying to have a plumber inspect for leaking vinyl pipes (Jack Howe, "Sealing Your Pipe Smiles," March 2002), the best quality first approach is to simply replace the wine ring under the adjacent toilet. My toilet didn't seem loose, but the seal proved bad. The leak-top toilet gas flowed to test between four joints, up an exterior wall, and into a vanity cabinet under the bathroom sink. As with your reader, the problem manifested one for a long time since it happened only in the winter, as you are probably right about the furnace door being part of the problem.

Sharon LaFue, West Coon, IN

Water Glutton?

Thanks for the best magazine on home ownership and upkeep. Also a result of reading it is a better homeowner. I am concerned, however, about your Timeless Home project. If it were truly "timeless," wouldn't water conservation be a somewhat "not planting a shower for 12 gallons a minute ("All Systems Go," December 2001) is a lot excessive. Many communities in the West have a reduced water rationing in recent years, some to as little as 20 gallons per day per person.

Don F. McMillan, Pleasant, AZ

With many areas of the country facing water restrictions due to drought this year, your question is timely. But even a mid-sized shower system like the Timeless Home's but to meet the federal water-conservation limit of 2.5 gallons per minute per head, it can be used with only the most discernible shower use consumption is a privacy.

As Waterboring Issues

I've been a loyal subscriber for some time and have always thought that your publication would be the perfect place to demonstrate how to do outdoor light right, with properly installed fixtures and instructions on how to maintain the outside of a house in yet responsibly. But when I

opened the April 2002 issue, what did I find on page 117? A "timeless" invitation ("The Night the Lights Went On in Georgia") to point light upward. The prohibition of outdoor lights that allow light to escape upward tells me the show of the stars for miles around. Is some parts of the country, the problem has gotten so bad as to affect astronomical research. To bring the sky back to its simple as directing light downward instead. No flood, just the beautiful enough to justify displaying the area around it of the beauty of the night sky.



PHOTO: JIMMY HILLMAN

For information on light pollution, visit the International Dark-Sky Association at www.darksky.org.

Lisa Jantz, Laurel, OH, Pa.

Insulation Ignorance

I recently added a second story within the attic space of my 1930s home and needed to move the cellulose insulation from one side and then back as I could remove, remove, so I came up with a simple method that worked very well. I took a standard pool lifeline's end that I had a 30-foot length of plastic pipe and have to the exterior side and proceeded to vacuum up the insulation. Formerly hand hauling stairs at the other end, I learned the how to a better end at the exterior side up as high as it could to make it easier when I had to move the insulation back. (You suggested former as much debris as possible, such as pieces of wood, roofing, or old nails, to avoid jamming the lifeline.)

FD: The lifeline is still working today!

Debra L. Bloomer, Grove, IL

punch list

editorial: a lot of things happened here in creating it to be better than ever before.

- In "Landscape a Royal Let" (May 2002), about the Atlanta Garden House, we neglected to ask D.S. Frost, Garden House, for permission to use the Garden House's Garden House.
- The photograph on the April 2002 issue was incorrectly captioned as "Frost's Garden House." The photograph was correctly put back.



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ON THE JOB AT THIS OLD HOUSE

From Drawing Board to Reality

BY JEFFERSON KOLLE

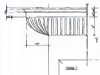
Picking out how to build something new is an underappreciated skill, one that is both mental and physical—part chess game, part dance routine. When an architect gives plans to a carpenter, some details are easy to execute, while others, such as the cornice on the music room mural at the TV-show project, will send a craftsman like Norm Alessi to his own drawing board.

"Designing the molding was one thing. Designing a way to build it was quite another," he says. The plan called for fluted car along quarter round molding, but in the corner the molding became quarter-sphere, meaning the flutes would have to be angled toward the corner and tapered.



While Norm's shop is well stocked, it's not the number of routers or the accuracy of a table saw that makes a fine woodworker. It's the ability to know both the potential and the limitations of his tools, so he can understand how he'll use them long before he ever touches them on.

"I spent weeks planning out the cornice in my head," says Norm. "By the time I finally set foot in the workshop, I didn't even need to cut a drawing." His solution was to design a router jig to attach to his table—a clever coupling of two power tools. One end of the flute held the wood, enabling him to rotate



it while he swung the router on its axis around it, first shaping the rounded profile using a straight cutting bit, then cutting the flutes on a slightly different axis with a 3/8-inch fluted bit. "It took two full days to make both pieces, not counting the time just thinking about it," Norm says. "But figuring out the tool stuff is the joy of this kind of work." And the prize.

On the mural that TOL master carpenter Norm Alessi built for the TV-show Project House (HBO), the architect's design for the cornice (left) seemed a bit of head-scratching before Norm figured out how to execute it in wood (right).



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HOUSE CALLS WITH STEVE



Hoosier Honey

A sensible makeover turns a primitive kitchen into a pretty one

BY HEATHER MCGILLIAC

F

ive adults living in close to a consensus on how to remodel the kitchen they share could have produced a real stew. But the renovation that Shannon Wiegand and her family undertook was as easy as, well, pie. For one thing, Shannon is a kitchen designer. For another, no one lives in the Indiana farmhouse full-time; Shannon and her husband, her brother and his wife, and her father use it only for holiday gatherings. Since the place had been in the family for more than 120 years, there was general agreement that the look of the kitchen should reflect the home's late 19th-century character. "This



The unassuming kitchen (left) of the 120-year-old Indiana farmhouse (right) was updated respectfully to preserve its country character.

PHOTOGRAPHS BY MICHELLE MURPHY

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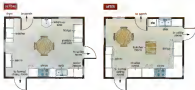


Profile

With being smart things to do.

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HOUSE CALLS WITH STEVE



BEFORE: The old 16-by-22-foot kitchen was roomy, but space was eaten up by a refrigerator parked in the middle of the room, a built-in heater next to the sink, and a washer and dryer taking up an entire corner.

AFTER: Relocating a kitchen door and moving the hot-water heater and washer and dryer to an adjacent utility room cleared the decks for additional cabinets and counters, which were then decorated the kitchen's theme.

LEFT: Where once a hand-hewn wall-up sink stood, now the main kitchen sink catches a wall. Two upper cabinets tucked by an arched molding (a shape echoed elsewhere in the kitchen) frame the window. Another arched frame surrounds the entryway to the house from the deck on the left of the sink.

RIGHT: Cream molding wraps around the top of the refrigerator—a bathroom, window-sights model with its compressor on top—standing in built-in look. (For more on fixtures, see *Interiors Notebook*, page 24.)



family was sensitive to the fact that an Indiana farmhouse is not the place for a slick kitchen," says Steve Thomas, host of *The Old Mower*.

Yet the need for an update was clear. "Nothing had changed since the 1940s," says Strassman. "With no upper cabinets there was very little storage, and there was minimal counter space other than the old-fashioned drain boards on either side of the sink."

The renovation called for keeping the footprint of the room, but creating ceiling windows to clear new counters and opening two new windows to make a canopy corner for a table. With the shoring of the door of the adjacent utility room, an informal refrigerator (continued on p. 11)



PHOTOGRAPH BY MICHAEL

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HOUSE CALLS WITH STEVE



could move a few feet over to be joined with cabinets. The old stove was traded for a countertop and built-in double ovens. And an island butcher block was added for efficiency. Storage space doubled, counter space nearly tripled.

"A bright, workable area was achieved that still evokes memories of the old family kitchen," says Steve. "Staying within the footprint helped maintain the character of the original room. And changing the locations of windows and doors and relocating plumbing, which isn't as expensive as most people think, are very effective ways of fixing up your floor plan."



UPPER The built-in cupboard, complete with cabinet, one drawer, and a shelf for the microwave, holds and functions like an old-fashioned freestanding Hoover vacuum. Cabinet has built-in and new shelves to create the vintage feel. The tall cabinet on the left (shown ABOVE) opens as a broom closet, the one on the right is a food pantry. At midnight, the granite-lined niche functions as an extra serving area.

ISLAND A bifold cabinet door and a double-tiered lazy Susan provide access to the corners of a super cupboard. Backsplashes like and connecting are made from and a new floor made of ecological and recycled cabinets have lasted for the same time for the new kitchen.



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the bottom-mount refrigerator (with a freezer drawer under the fresh-food section) has been making a comeback in the past few years, with more models in stores than all the time. If you're considering one, know that bottom-mounters, which run anywhere from \$119 to \$3,990, are less energy efficient than top-mounts but conserve more than side-by-sides. Look for those with an Energy Star stamp, says Steve Thomas: "They use the energy equivalent of a 75-watt light bulb, which means a considerable cost savings." Steve also recommends that you stage a kitchen-dress rehearsal. "Use a tape measure to determine how far doors and drawers will open," he advises. And be sure to factor in one reviewer's advice: "Since people tend to go into the fresh-load compartment more often than the freezer, bottom-mounts mean less bending." But as a galley kitchen as one with a tightly fitted island, there might not be enough room to accommodate a full door swing or drawer extension," says Steve. "The narrowest design of a side-by-side might work better."



ADVICE: A job done with top freezer drawers is not only handy, it's like a freezer.

IDEA: Don't be the retro look just yet. The model from Kitchen Store Works, which comes in eight colors, has 21st-century built-in style.

IDEA: The fridge section of this kitchen comes with a filtered water dispenser.

IDEA: Custom panels, as on this GE Monogram built-in, make a refrigerator all but disappear.



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WATERPROOFING WINDOWS

I've watched you install windows from the very first episode of *This Old House*, but I have always wondered why you [and crew] never, *never*, use *Shing* (or *Knob*) behind the rolling flanges that are found on some types of windows. We live on a lake in an area that experiences frequent storms with driving, horizontal rain, and water can break in by leaps of great importance to us.

Phyllis L. Jones, M.D., San Antonio, Tex.

The way Tom and I figure it, water should never be allowed to reach that location in the first place.

Preventing window leakage starts from the inside. Before the advent of self-sealing neoprene gaskets, carpenters would typically caulked a window opening with butyl's ilk and then use caulk as a backup to seal the window. But now we use 4- to 6-inch wide splines of neoprene over the flange and around the opening—the spline pieces should overlap the bottom one and the top piece should cover the sides—with properly detailed metal flashing above it [for step by step instructions, see *Homeowner's Handbook*, "Sealing a Window," March 2002, page 61].

CHIMNEY VS. GABLET

Our 1900 bungalow and garage are clad with cedar shingles. Although the house shingles are in good shape, those on the chimney gable are in terrible condition. They are a patchwork of old and new they're cracked, warped, and rotted. I'd like to replace them with either cement or cedar shingles. Gypsum tile on the gable and some of these two products?

James Guerrero, Bismarck, Minn.

Tom Silva installed a lot of cement siding—both clapboards and shingles—on his brother Dick's house in Billerica, Massachusetts, back in 1979, and so far it's held up well.

There are a few key differences between cedar and cement. The biggest is that cement shingles, being a man-made product, carry a 50-year warranty—most cedar ones don't. Pressure-treated wood trim and cedar eaves with a 30-year warranty.

Also, cement shingles can be painted, while cedar can be given a clear stain or left to weather. But if you want painted shingles, you're better off with cement because it holds paint exceptionally well. And if you pay a little extra for factory painting, the durability of the finish will be even better. That said, cement shingles do not have the same look as ones made of wood, despite the wood



pattern imbedded into some of them. Their uniform pattern and joint spacing won't fool anyone who comes within 10 feet of them.

The other difference between cedar and cement is evident during installation. Cedar can be nailed with a utility knife and stepped to size, but cement needs to be cut with a power tool. A circular saw will kick up sizeable clouds of fine dust—not quite as appalling as the smog of cedar—so when I recently replaced the wide cedar clapboards on my brother's small vacation cottage with cement shingles, I used a pair of electric shears. They worked great, and didn't make much dust, although it took a little practice to get the hang of them.

I didn't take the shingles off with out some thought. My father sold those cottages and made every cent with a hand saw. But the old claps were badly in need of paint, and I realized I'd be staining and painting former siding I got rid of them. I considered putting up new cedar and using a green instead of paint, but I'd have paid dearly to match the relatively wide boards my father used. Cement solved all these problems easily. I thought of my father often as I replaced the work he had done over 50 years ago. I think he would have liked the results.

SQUEAKY STEPS

Most of the woodwork in our 100-year-old house appears to be original, the painted doors still work, and the floors are solid. We

have only one complaint regarding stairs. The staircase is solid and all of the steps feel as if, but about half of them squeak when stepped on. We can't see any obvious source of trouble, so I call to get just the trouble down. Our doesn't seem a sensible approach, either. The underside of the steps isn't accessible from below. Can you suggest a solution?

Quay B. Lee, Tucson, Ariz.

Stopping a squeak on old stairs is straightforward, but if the underside isn't accessible, your only choice is to install a screw down the inside—there's just no way around it. Glue doesn't have the strength to solve this kind of problem, even if there were a way to inject it where it needs to go.

The fasteners (screws) will have to go through the tread and into something solid below—either a stringer (the framing that supports the treads) or the top of a riser. You probably won't find more than one or two in each tread, and maybe a couple into the stringer, but you'll have to be precise about it. The next may only



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ASK NORM

In 1/4 or 3/8 inch thick, and Tom Sawyer and I have even seen the outer strength on some old ones.

When using nails, always drill 1/8-inch pilot holes first, to prevent the nails (or rivets) from splitting, and use 7d spiral shank flooring nails, driven at an angle in line with the stringer, to maintain their holding power. As you're drilling the pilot holes, have someone stand on the step to hold it down, then drive a nail between his feet to hold the step tight. Construct the heads with a nail set, fill the holes with colored putty stick or a finishing crepe to match the wood, and then wipe with a clean rag to remove the excess. (See *Upstairs*, "Securing the Staircase," December 2001, page 34.)

If using screws, you'll need a 3/8-inch counterbore, a square

Screwing and Plugging Stair Treads

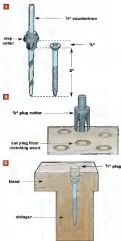


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ASK NORM

cut for three dials: both a pilot hole for a screw and a recess for the screw's head, so that it can be covered with a 3/8-inch-long wood plug, also known as a bung. (This can be made in advance with a plug cutter, be chucked into a drill press and a scrap of knot-free oak that matches the core used to make the oval.) Just be sure to clamp the wood to the drill press's table.) Set the counterbore's depth with a stop collar so that it makes a 2-inch-long pilot hole and a 3/8-inch-deep recess for a plug. Drill through the oval and into the stringer or rafter. Then, while looking on the oval, drive a 2-inch-long #8 Phillips head wood screw into each hole.

To hide the head, dab the end of a plug into carpenter's glue, then tap it into the recess with a hammer. To make the plug less visible, line up its grain with that of the oval. After the glue dries—in about an hour—pass off the protruding top of the plug with a sharp chisel at block plane. To disguise the plugs, try dabbing them with a cotton swab dipped sparingly in stain, or just wait a few months for your footprints to give the plugs the desired patina.

HAFFLING SHES

When we wash large pots and pans in the stainless steel sink of our church kitchen, the noise is deafening. Is there anything we can do to eliminate, or at least minimize, this problem?

Marion McConery, De Kask, Ill.

Stainless sinks are inherently noisy, wherever they sit, although those made with dishes, 20- or 18-gauge steel and factory applied

undercoating will be quieter than the usual sink with no undercoating. (See *Materials*, "Stainless Steel," May 2002, page 74.)

To reduce the noisiness of an existing sink, take a tip from the companies that install automotive audio systems. They use various types of spray-on, roll-on, and trowel-on "dampening" products to keep car doors from vibrating when someone cranks up the music. In your case, the events, noise absorbers, and less obnoxious solution would be to apply self-adhesive dampening sheets to the bottom and sides of each basin. One product, a heavy-duty rubber sheet with a layer of black neoprene and aluminum bonded to it, will lower the "resonant frequency" of the sink to a point where clanging pots will sound like dull thuds, according to the manufacturer. For maximum effectiveness, at least 70 percent of each side of the basin and 70 percent of the bottom need to be covered. You might be able to find the sheets at automotive supply stores, but you can easily get them via mail-order.

MYSTERIOUS PLASTER

When we tore off the plaster and lath in our 1890s post-and-beam frame house, I found more plaster left on the inner wall, behind the studs. Then I found it on exterior walls as well. Our architect said it's a mystery for this type of construction!

Jeff and Lisa Lewis, New Philadelphia, Ohio

The technique is called "thick plastering," and I've seen it only on exterior walls, not interior ones. What I saw consisted of three

Preferred 10 to 1 over sweating.



GREAT STUFF™ insulating foam sealant is the fast, easy way to fill the holes and cracks where heat and cool air escape. So you and your home will use less energy. Pick up a can anywhere home-improvement products are sold and visit www.dowgreatstuff.com

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evenly spaced strips of lath nailed horizontally to the inside of the sheathing, between the studs, with vertical lathing nailed to the horizontal strips. Then, a rough coat of plaster was slapped on over the lath and the inside of the sheathing. The idea was to cut down on drafts back when old houses were sheathed with boards and before the invention of bedding paper and house wraps. The assembly also served as rudimentary insulation. Maybe the original owner of your house had a lot of ready kids and back-plastered the interior to cut down on noise transmission.

Unless the back plastering is interfering with the work you are doing in your house, try to leave at least some of it intact. Saving as much as possible of a home's original fabric, especially plastering, is relatively easy as back plastering, could prove expensive to future preservationists and students of American building practices.

GETTING PAINT OFF CONCRETE

The paint on the corner of our 1950s home apparently lasted 60 years. The stuff is everywhere, including the concrete sidewalks and steps. Now the paint is peeling badly and we want to remove it. We've tried power-washing and scraping, but both are time-consuming and not very effective. Can you suggest a solution to our nightmare?

With Efforts, Columbus, Ohio

Scraping concrete seems like a good way to run a lot of sweat, and power washing is hard for cleaning tasks, not paint removal. Some power washers develop extremely high pressures at

the nozzle—upward of 2,000 pounds per square inch—enough to melt wood and even concrete.

Short of jackhammering the concrete to bits and starting over, you should try one of the various liquid and paste strippers that are available for removing paint from masonry. Look for a one-week all-solvent brew, and be sure to follow exactly the instructions for its use, as well as any safety precautions.

THE FRAMING DETAILS

I am remodeling the first-floor bathroom of my early-'50s house. When I removed the tile and drywall around the cash-less tub, I noticed horizontal lath nailed between the studs at the same height as the rest of the tub. A friend told me those were used as a tie beam. But I argued they were just used to support the bottom of the drywall. Who is right?

Gene Olson, Winnetka, Minn.

The main clue to the purpose of your lath is their location. This is a standard technique for anchoring the bottom edge of a wall sheathing around a bath or tub, whether it's drywall, cement board, or metal lath. Sometimes called backer blocks, or blocking, they can be used to hold lightweight stud or fiberglass tubes in place. That wouldn't be important with your tub, however—cut into it heavily enough to stop in place without such help.

Normally, blocking is installed with one wooden side facing the tub—give some support and a bigger target to hit with nails. The fact that your blocks were installed edge-on probably explains why your

wood cracked them for fire blocking, which prevents stud bugs from using the channels during a fire. But building codes don't require fireblocking for masonry walls less than 10 feet tall.

BASEMENT NEWER SMELLS

Every once in a while my 1985 Acura is invaded by sewer gases from a drain in the concrete floor of the basement. I tried blocking the drain, which stopped the smell somewhat, but I went up with standing water in the basement because the stove installation leaks during heavy rain. I also use the drain to let the water that my air conditioner condenses.

Bob Klossner, Harris on Green, Mo.

When sewer gases come through any plumbing fixture (or floor drain), it's usually because of a dried-up or leaky trap, the small U-shaped bend in the drain. The water that collects in this bend blocks sewer air or septic-system gases from getting into the house, but less wastewater drains out. That's why if a trap dries up, as people sometimes find when they return to a vacation cabin after a long absence, the place may smell of sewer gases. In most cases, the problem can be remedied simply by pouring a quart or so of water down the drain to restore the seal. But since you seem to have water in your basement regularly, I'd guess you have a leaky basement trap, as that is how U-U are called, and that's a harder problem to solve.

The Old House plumbing and heating expert Richard Tretheway says that since your house drains to the "rear age" of plumbing, when these house traps were made of cast iron, yours has probably corroded

to the point that it no longer holds water. Go ahead and investigate, says Richard—"It doesn't rain much still in the Midwest"—but invest the repair to a pro who knows how to replace cast-iron or cement piping. Depending on local code, your plumber might replace the damaged area with plastic piping (ABS or PVC) or with some cast iron, and he'll make sure the drain is connected, via a cleanout pipe, to the main stack vent, which allows gases to escape and water to drain freely. The old pipes have to be in reasonably good condition in order to be coupled to new. If they aren't, he may have to install a new one. That may turn into an expensive proposition, in which case you'd be better off capping and venting the old pipe. Then install a sump pump, the modern way to rid basements of excess water. Even if you want to dump the sump water into the sewer, it's illegal in most towns. Your plumber will have to route the pumped water outside your house. ■

Send questions to Ask Norm, 100 Old House Magazine, 100 Avenue of the Americas, 10th Floor, New York, NY 10038, or to Ask Norm@oldhousemag.com. We will publish selected questions and may adapt the photos and illustrations for clarity and layout design for specific articles.



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A price note to the garden, these cottage-style gates made of enduring wicker and cedar serve both a practical and a decorative purpose. Their sturdy side-and-rail construction guarantees they won't sag.

Garden Gate

A handsome entry hints at the beauty beyond

While garden gates can display a whimsical charm, putting one up properly is serious business. Just ask Rick and Paula Carven, who had to juggle issues of sturdiness and practicality when they added four entry gates around their hillside property overlooking San Francisco Bay. First and foremost, the homeowners wanted to create an inviting threshold between their gardens

and the outside world. But the gates also had to keep wildlife from pilaging their prized roses and dahlias.

Pursuing a style that would meet their needs was the first step in the planning process. While low-rungs, wicker gates have a welcoming quality, they provide no real protection. High, solid-paneled gates, on the other hand, are secure but forbidding. Chose, advising fence elements



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Offering style and a way to give your garden a new look, these four garden gates range from the old to the new. A painted double gate with a lattice pattern adds a formal touch to an urban courtyard. A double gate, a green painted gate and a white painted gate, at the garden beyond, a green painted wooden gate is a modern look.

provide useful design ideas. A lattice wall, for instance, will be better served by an ornate wrought-iron gate than by rustic split rails. In this case, landscape designer Bruce McCree felt an elegant cottage-style gate would suit both the formal courtyard garden in front of the house and the vine-covered walled area

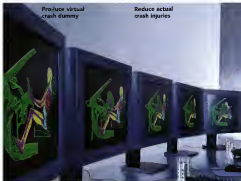
fencing that enclosed the lawn in back.

Custom-built by Charles Powell (who collaborated with McCree on the design), the wood gates stand 7½ feet tall, with a 2½-inch ground clearance—barely enough to feed off the lawn's dew, raccoons, and other troublesome pests. But the open spindles and

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disposal courtyard sends visitors with a glimpse of the garden beyond. And in 4 feet wide, each entry accommodates a wheelchair. The four gates are also in axle with their surroundings. "The strong, geometric design complements the lines of the Cove's handsome clipboard house," says Prowell.

Given the heavy use a gate must withstand—swinging open and shut thousands of times—sound construction is crucial. Quality jobs start with a stable, decay-resistant material, such as oakwood, cedar, or cypress. (Metal gates, though rare-glass, have the advantage of never rotting.) Prowell prefers clear western red cedar for its price, and treats it with a water-repelling clear sealant or an oil-based semitransparent stain. His gates (more of Prowell's styles can be found on page 36) are wide and tall constructions and typically hang on sturdy steel butt hinges, dipped in brewed oil and benzoin to prevent corrosion. "The gates are guaranteed never to sag," says Prowell, and so far none have.

Of course, that kind of quality assistance doesn't come cheap—Prowell's gates start at about \$900—but the homeowners feel the expense is justified. "We've worked hard to make our garden a great space in which to entertain friends and let our children play," says Rick Cove. "Since the gates provide a passage into that world, we wanted them to be built to last." ■



The selected gate helps shape a quiet sanctuary where children's path winds through a garden.

GUARDING AGAINST GATE SAG



A SHARP, STEEP BRACE is one way to keep a gate square. It works by exerting pressure, transferring gate's downward pull to the steel hinge post. The gate's weight is then the post.



Alternatively, if THE BRACE IS TOO SHARP, IT CAN BE DAMAGED OR BROKEN, especially from the top hinge working to break pulling up the entire assembly. A better way would be to use a brace that has started to decay.

If the gate is a garden's welcome gesture, it's sagging one is equivalent to a limp handshake. Ensuring that a sturdy gate won't warp, or pull out of square, starts with a sound building system. Prowell's type of white-oakwood construction with metal and fence-jointer works best. Simply built, low-frame gates, on the other hand, require a diagonal wood brace. In order to transmit the force of gravity to the strongest part of the gate, the brace (often a 2x4) must run from the top of the hinge post to the bottom of the hinge post (up). A diagonal rod or wire with turnbuckle is also effective, especially in receding sites that have already started to sink. Because the system works by tension instead of compression, the rod or wire runs in the opposite direction of a wood brace (down), tightening the turnbuckle to pull up the bottom, then-swinging corner.

A gate also needs a sturdy hinge post, with at least one third of its total length set in gravel topped with concrete. Heavy hinges are another common cause of failure, as least in heavy-duty business. That's not always guaranteed to make sure. Strong hinges are often used on older gates because their long pinless trip distribute the load. If the hardware is now compromised, let an undertaker replace them with stainless steel screws that will anchor deep into the hinge post.

ILLUSTRATION BY JAMES HARRIS

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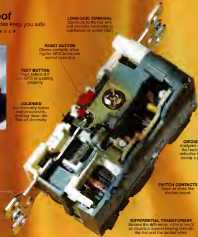


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Arc flash happens whenever electricity escapes the confines of the wiring in its appliance, light fixture, or power tool and takes a shortcut to the ground. When that shortcut is through a human, the results can be deadly. About 200 people in the U.S. alone die or go blind each year, and another 100,000 are injured, all of which means you could be the next victim.

To prevent such accidents, Charles Dahbirt, a professor of electrical engineering at the University of California, invented the ground fault circuit interrupter (GFCI), in 1961. Most of the time, his invention does nothing. It just monitors the difference in the current flowing out and out of a cord or appliance. But when that difference exceeds 3 milliamperes, an indicator that a ground fault may be occurring, the GFCI takes off the flow in its moment—no time at all.

GFUs are required by the National Electric Code in all new garages, basements, crawl spaces, unfinished basements, and major surface receptacles. Owners of older homes can save up to \$18 (3¢/sq. ft.) by installing GFUs in these locations or have GFU location switches (which run as much as \$300 for 30-amp models) installed in the main breaker panel. For the GFU, all types of GFUs, which plug into standard wall receptacles, are available for use (see p. 90).

"The great thing about GFCIs is that they protect you whether or not your wiring is grounded," says Ed Grande, manager for safety products at Leviton, a manufacturer of GFCIs. Because lighting and other power surges can damage a GFCI, it's better to ensure it's up to date. Grande recommends the following monthly test: Plug in a light fixture and turn it on. Then push the device's test button. If the light turns on, the GFCI needs to be replaced.

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TALKING SHOP

The Dirt on Shovels

The right shape makes digging easier

BY CLAYTON KROGER

W

hen it's time to dig a tree hole, move gravel, or turn garden soil, a good shovel needs to be stiff and strong. The quality of the head and the material used in the handle are both important considerations. But the weakest link is just above the socket, the tube that connects handle and head. "All the tension lifting and prying is concentrated at this point," explains Roger Cook, *The Old Shovel* landscape restorer. "If this connection is poor, the shovel folds like a hinge—it's got to be absolutely rigid, with no play whatsoever." On the best-quality digging shovels, the sockets are long (extending 5 to 10 inches above the step), have closed backs (either welded or forged), and sport metal bands

at the top where they join the handle (vents create weak points).

A shovel can run anywhere from \$5 to \$80, but those built to last are usually priced at \$25 and above. To evaluate a shovel's durability, Roger recommends a head-and-handle flex test: For the head, hold the shovel as if you were going to drive it into the earth, with one foot on the step, and push down with all your weight. For the handle, lay the back of the shovel head flat on the ground and, with one hand holding the handle end, push down on the middle with the other hand. "If either flexes, look for another, sturdier model," advises Roger. "There's nothing more frustrating than using a flimsy shovel."

PHOTOGRAPHS BY BEN STECHSCHULTE REPORTED BY JORDAN REED

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— Shovel Types —

Heads

ROUND POINT

The point-to-to level through hard soil, while its curved profile leaves heaps of dirt. The handle's neck has pronounced goose-neck curve with prying and lifting. Finger Coat recommends a large head for all-around digging tasks. Though a smaller one will do for light grooming.

BROADEN

The flatter head and straight neck are good for shaping vertical-sided holes. This model called a copack (biggest shovel has a head that is less likely to bend when it hits rock because of its rounded blade and flat flared neck, stronger than the cramped-and-bent steel of other styles.

EDGE

Is extremely wet, muddy environments (such as rice paddies), holes in the head allow water to drain and keep the shovel from sticking to the soil like a suction cup.

TRENCH OR DRAIN SPAD

Ideals for light digging—say, in landscaping business—this spade also works in fairly for shaping and leveling out uneven spaces.

SQUARE-POINT SPAD

The squared blade of this heavy-duty tool is best for turning gravel and shaping flat railroad trenches, and edging around beds.

Handles

LONG HANDLE +

Provides maximum leverage and allows most digging to keep their back straight and change hand positions comfortably.

+ D-HANDLE

Provides firm control over the head, but is found only on short handles, which fit into tighter spaces and may be more manageable for shorter people.

FIBERGLASS +

Stronger than wood but usually not as light or pleasing to the touch. Better models are hollow with a solid wood or fiberglass insert to reinforce the joint between the shaft and the handle. Solid fiberglass is stronger, but weighs considerably more. A cushioned rubber grip helps with control. A fiberglass/handle-side about \$5 to the cost.

+ WOOD

Typically made of strong hardwoods like white oak or hickory. It's lighter than fiberglass and while some recent hand tools better straight grain is a sign of strength. Wood imparts grain which can break. At the end of the season, most handles with hollow flared or rimmed with tapestry so the steel will be less likely to split.

Backs

GOOD-Open Bent steel that forms a trough beneath the blade. It's the most economical choice but also the weakest and the most prone to reflect mud when clearing away wood handles. Gorge out open sockets at the end of the digging season.

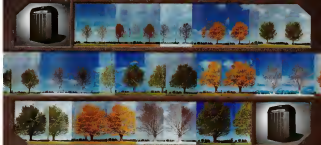
BETTER-Closed The neck is reinforced with a solid steel plate, making it stronger and less prone to handle damage. Slightly more expensive.

BEST-Built A seamless plate forged over the back of the head plate the most durable connection. Generally costs the most.

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F

or all the lounging done on them, wood decks require a lot of work to maintain. They have to be cleaned frequently. When paint or stain fades and chafes because of the weather, they need to be recoated. Eventually, as rot and moisture cause the wood to crack, splinter, and rot, boards will have to be torn up and replaced. To keep a wood deck looking at best like new and costly.

Building with new wood decking can change that. This durable and low-maintenance alternative to wood will never split or rot and requires no paint or finish. Made from recycled milk jugs and grocery bags or new plastics like vinyl, it accounts for 18 percent of the \$3 billion-plus spent each year on residential deck boards and railings. Colors are mixed into the material, from white to dark to faux wood grain.

Textures range from smooth to rough. Some types are solid and heavy, while others are hollow and lighter weight. And because much of this decking can be cut, shaped, and fastened almost like wood (some use simple clips), building with it is just as easy. Prices are competitive with those for cedar or redwood, but expect to pay 15 to 20 percent more than for pressure-treated pine.

Maintenance involved in new wood planking will find two main types to choose from: all-plastic and composite. All-plastic features covers of plastic plus additives such as ultraviolet inhibitors (to provide protection against the sun) and color pigments. Composite boards are made by mixing plastic with wood or other natural fibers. Both products have their pros and cons.

Plastic or plastic composite decking is a low-maintenance and higher priced alternative to pressure-treated wood. This deck in Highlands, Washington, is built with composite plastic and railings made from recycled plastic and oak timbers.

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Composite Decking

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B Weatherboard is a board with a back wood-grain finish. This 1½-by-5½-in. plank contains pine, oak and high-density polyethylene (HDPE). Cost, \$2 a linear foot.

C Homewood makes a 1½-by-5½-in. hollow-core tongue-and-groove product made from pine hulls and recycled HDPE. Cost, \$1.75 a linear foot.

D DuraDeck's 1½-by-5½-in. board is a partially hollow product made from recycled polyethylene plastics and oak. Cost, about \$1.75 a linear foot.

E Trex's 1½-by-6½-in. board is made of rice hulls, flax, and virgin HDPE. It only takes grooves. Cost, about \$1.60 a linear foot.

F Trex's 1½-by-6½-in. board is made of rice hulls, flax, and virgin HDPE. It only takes grooves. Cost, about \$1.60 a linear foot.

Composite decking looks and behaves more like wood than all-plastic does because it contains about 50 percent wood dust in addition to plastic. Most boards have solid or tongue-and-groove profiles and are screwed down just like wood. Some have hollow cores to cut down on weight.

THE COMPOSITE OPTION

Composites are by far the most popular type of renewed decking, accounting for 50 percent of all products sold. The reason for this mix is simple: Composites look, feel, and act more like wood. That's because they contain about 33 percent sawdust from sawmills, in addition to recycled and virgin high-density polyethylene (HDPE) (At least one company uses poly(vinyl chloride) (PVC) instead of HDPE.) The fiber content improves plastic's stiffness, makes it less likely to warp as temperatures change, and roughens its surface for improved dirt resistance. It also makes the material easier to cut and install than all-plastic decking. Composites do not require a finish of any kind, making them easier to maintain than solid wood.

Even so, there are some drawbacks to composite lumber. Because of the natural fibers in the material, it absorbs water (although not nearly as much as solid wood decking), making it vulnerable to decay. It can stain and discolor from food spills or grill grease. Plus, textures in the wood tend to hold dirt, which can be a good investment for surface mold and mildew. As a result, composite decking needs to be cleaned periodically with a scrub brush and an all-bleach deck cleaner or a detergent that is safe on bleach. "Composites are not so maintenance-free; they're low-maintenance decks," says Randolph Perini, regional sales manager for TREX, which makes both composite and all-plastic decking. Also, with the exception of a few brands, most composites—no matter what color they start out as—will eventually weather to a light gray over the years.

Composites carry 10-year warranties better than wood (which has none), but less than the 30-year offers for solid plastic decking.

ALL-PLASTIC DECKING

The biggest advantage to using all-plastic decking is that it needs no maintenance. It can't absorb moisture and so isn't vulnerable to decay because it's made entirely from recycled polyethylene or virgin PVC. To clean off dirt or spilled food, simply hose off the boards or wash them with soap and water. Mildew can be scrubbed off with a deck cleaner or detergent that contains bleach. Plus, plastic decking can be thinner and lighter than wood or composite decking.

The downside is that plastic lumber doesn't look much like wood. And some products, particularly the hollow ones, make a noisy clatter when you walk on it. "It's just too 'plasticky' for many people," says Marc Kucharski, general manager for the Green Builder program in Austin, Texas. Singleply will hide the color of a plastic deck board and eventually cover its surface to more closely

"When installing non-wood decking, you don't have to worry about splinters or dust. Plus, you'll never have to replace the boards because of rot."

—TOM BRUCE

look like wood. According to Richmond, who makes plastic and composite decks, all-plastic plastic seems to be a little more slippery than composite wood, whereas composites are not. "More plastic boards are another on top of this composite, which have a rough texture to improve slip resistance," he says. To ensure safety, manufacturers of plastic and composite decking have started submitting

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Pool School

A pro's tricks for making maintenance less of a chore

O

n a sparkling summer day, a swimming pool is a welcome respite from the heat. But before you can dive into its cool blue water, you have to perform all the maintenance drudgery that prolongs its crystal-clear perfection. This often makes a backyard pool more of a burden than a blessing.

In the interest of spending more time in the pool than maintaining it, we went far afield to William Sotgiu, chief technician for Riverside Pools Service Inc., in Camarillo, a guy who has the weekly cleaning ritual down to a science. He gets there, vacuum, shock, and eliminate in under an hour, not much more time than it takes to sunbathe, throw on sunscreen, and get out the motor radio. Here are some of the techniques he uses to speed up the process and create a safe, relaxing oasis.

BY NANCY LACKMAN AND JORDAN HEE
PHOTOGRAPHED BY CRAIG RAINE

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CLEARING THE FILTRATION SYSTEM



Backwashing the filter

1) Turn the filter valve to "backwash" to redirect water flow. Most pools are one of three kinds of filter sand, automatics with DE, or cartridge. In a sand filter... as long as it's in the container... sand (sand and oil). The backwash sends the water to the ground or to the pump. With a DE filter, the claylike particles of diatomaceous earth (DE) filter the water and the backwash sends the dirt into a filter bag (empty every other week and replace every five years). Replace the DE by sprinkling it into the skimmer well. A cartridge filter is a removable unit that you press off and clean. Cartridge replacing suits with a DE or cartridge system, both clear better, save water, and are better for the environment.

Cleaning the pump filter

2) Close out the headless outlet to the pump. First, shut the system off, then close the skimmer valve in front of the pump to hold the water in place as the system was last draining when it starts up again. Uncover the pump cover and remove the basket, emptying it into the garbage.

Adding chlorine to the system

3) If you have a chlorinator, a tubular tank tied to the filter, it's a great way to introduce chlorine—the filter of slow-dissolving sticks—into your pool. (You can also use a floating dispenser, but it can be a danger if small children get their hands on it.) Place the packaging and calculate the number of sticks needed for the pool based on the water volume. Add more in hot weather when the heater is on, or when the pool is in use. Finally, check the pool's water level, refilling if it's less than that not way up the skimmer well mouth.

CHEMICAL BALANCE

Maintaining proper pH and chlorine levels is vital to ensuring that pool water is safe to both equipment and swimmers. Fluctuating pH is one problem. Levels lower than 7.2 (too acidic) may dissolve plaster or concrete surfaces and cause metal to be accelerated to corrode. Higher levels reduce chlorine's ability to kill microorganisms, such as E. coli or those that cause ear infections and rashes.

Chlorine monitoring is equally important. "If you don't maintain the levels, you risk exposure to harmful bacteria," says Dr. Thomas M. Lashinski of the National Spa & Pool Institute (NSPI). At the same time that chlorine kills bacteria and algae, it bonds with nitrogen-based chemicals—mostly from urine, fertilizers, and the ammonia-based bathing soaps some swimmers use. The chlorine-nitrogen bond creates chloramines that sting the eyes and irritate the skin. Periodically, adding more chlorine destroys the chloramines. However, excessive chlorine—the NSPI's standard is a maximum of 10 ppm—can not only irritate mucous membranes but corrode system parts and fade your swimsuit.

So, chlorine remains the industrywide favorite. As long as you're vigilant, checking levels once a week and more frequently during peak usage, it's a safe and very effective method. The only thing better would be to kill the water. —J.R.



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than a few people have been surprised by a zoning law that they didn't know existed," says Julia Mason, author of *Smart Municipal Zoning Law*. "And often that's an expensive surprise."

THE HIGH COST OF BREAKING THE RULES

Cheri Edwards learned how expensive zoning violations can be when she fixed up a 1920s cottage in Colleyville, Texas, last year. At \$115,000, the two-bedroom place was a bargain. Edwards immediately invested another \$75,000 in improvements, including repaving the porch, updating the kitchen, and remodeling rooms she planned to use as the headquarters for her accounting business. But just as she was about to advertise her services, she learned that local zoning codes restricted the square footage that she could

devote to her business and prohibited her from employing administrative staff at home. As a result, Edwards scaled back her home office to a small space that she uses for client meetings and was forced to rent a second office for her employees, at a cost of \$1,000 a month—not to mention the \$5,000 she spent to equip it with phones, fax, and computers. "The work from home is really great deal to a financial nightmare," she sighs.

More commonly, homeowners run afoul of zoning rules when they try to change the look of their house or the way they use the property. Sometimes the legal dilemma is made exceptionally, as when a homeowner erects a two-story fence in Los Altos, California, for instance, overlooking fences can be only 3 feet high. Other times, people only try to hide less visible zoning violations, such as adding an apartment suite to a house, by not obtaining the necessary construction permits. Or they may alter an approved proposition, extending an addition a few feet over the setback line, or building a boundary—and hope that the town inspector does not notice. Such moves can be risky because there are any number of ways that local zoning authorities can find out. A neighbor may report the infraction, an assessor could be on the way a visit to update tax records, or it might be noticed during a routine inspection when the house is sold. But if however a disallowed improvement is discovered, it may have to be demolished, and a fine may be imposed every day until the work is completed. And take note: Even if a previous owner made the change, you bear the consequences if it is discovered after you bought the property.

"When you add the cost of the improvement you're losing, the cost of demolition, and the fines, you can easily be out many thousands of dollars," says Edward Ziglar, professor at the University of Denver College of Law.

GETTING A ZONING VARIANCE

The only legal way for homeowners to undertake a renovation that breaks with zoning codes is to get a variance, or waiver of the rules. Generally, homeowners can do this by filing an application with the local zoning board, which will set a hearing on the request. Neighbors will also have to be notified and invited to present their views on the renovation, in writing or at a public meeting. Most of the time homeowners can handle this without the help of their architect or contractor, but they must be prepared to respond persuasively to any challenges to the project. Objections can be raised for a variety of reasons. Common complaints are first granting the variance will alter the character of the neighbor-

hood, have a negative effect on property values, or pose a threat to the safety of local children.

Even if a project seems innocuous—for example, widening a driveway by a few feet, or changing the driveway surface from asphalt to gravel—variances don't come easily. "Unless the owner can prove a hardship that prevents him or her from complying with zoning rules, a variance is certainly far from being a sure thing," says Walter White, Quincy's zoning enforcement officer. Most zoning boards will grant one only if the homeowner can demonstrate that not being able to make the alteration would cause significant personal or financial difficulty. For example, if someone purchases a lot intending to build a house on it, and soon afterward the town changes drainage requirements in a way that makes the project unviable by a few feet, the zoning board would likely award a variance. On the other hand, a homeowner who wants to build a second floor on a street-level single-story house because the house is too small for his growing family isn't likely to win over local officials.



WHEN ZONING CODES CHANGE UNEXPECTEDLY

Even when homeowners are in strict compliance with zoning rules, they can sometimes suffer if neighborhood or town regulations change unexpectedly. That's what happened to Linda Moore, who moved to The Colony, Texas, three years ago to be near her daughter and move to a place that had a brand new house as a development featured by model.

The real estate agent told her that the town planned to act on the surrounding property into a park. Even if that didn't happen, the street was zoned for business use, so Moore figured at worst she might have a small shopping center or professional complex for a neighbor. She ended up getting a neighbor—but not the type she wanted. Last December, The Colony city council approved a zoning change for the land bordering Moore's street that will allow a developer to construct 15 buildings for light industrial manufacturing and warehouse use. Now, the odds will be better, the neighborhood will be noisier and, what's worse, Moore says, "the value of my house will drop. The house was supposed to be my retirement vehicle."

Nothing can be done before buying a house to completely protect against zoning changes to adjacent property, but there are a few



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place prospective buyers can look for hints about the future function of an area (for more tips, see "What to Look for When Buying a House," below). For instance, while checking the zoning rules for the property they're looking at, homeowners should also examine the setbacks that cover neighboring areas. Just because a tract of land is being used as a horse farm doesn't mean it can't legally hold, say, a shopping plaza. In addition, home buyers should read the municipality's comprehensive plan, if it has one. It may show that the town eventually intends to approve

high-density, low-income housing in an area that is currently zoned agricultural, or to turn the edge of a neighborhood into a mix of mixed industrial and retail use. "The real property of the town, the town's future is communicated in the master plan—whether it's being toward industrial development, toward agricultural preservation, or residential development," says Quincy environmental officer White.

If after taking these precautions homeowners still find that an anticipated zoning change will cost them money or

headaches, there's one more thing they can do: "Get as many people together as you can and yell as loud as you can," says David Collins, professor at the University of Hawaii's Robinson School of Law. Even if the winning coalition is small, consensus can be won. For example, Maui's neighborhood organization was able to get the developer to agree to leave 250 feet of woods as a buffer between the houses and the warehouse and won to disrupt a strand of trees along a nearby creek. The developer also promised to plant hedger and trees to screen the

roads entering the industrial complex. If there is one recurring theme in all zoning issues it is that being prepared—knowing ahead of time what homeowners are permitted to do under the codes and being aware of how the codes may change—is the most effective strategy for preserving a property's comfort and value. Ignorance, experts say, is the worst enemy for making a mistake. "When it comes to zoning, homeowners do have rights," says Collins, "but they have to take positive action to know them." ■

"The vast majority of the time, the town's zoning future is communicated in the master plan."

—WALTER WHITE, SENIOR OFFICER

WHAT TO LOOK FOR WHEN BUYING A HOME

Prospective purchasers can take any of these simple steps to protect themselves from zoning-related problems.

Ask the seller to add a clause to the sales agreement that guarantees they obtained the necessary permits before making any improvements to the property—and that they are responsible for any future fines levied in its with these improvements.

Have a lawyer investigate all possible uses of the property and the legality of any specific changes you have in mind. This can cost around \$500, but if you're planning to keep repairs, say, or build a separate apartment over the garage, at least you'll know ahead of time whether you're allowed to.

Inspect your own records. At the town's building department and zoning office, you can examine prior construction permits and possible uses of the property. One caveat, though: You can't always trust what town officials tell you. And the fact that they may have given you incorrect information is no defense should you get in trouble with the zoning commission. Make sure that you are resolving the matter up-to-date information—not all towns are diligent about updating the zoning ordinance. Now attorneys may be piling in on ideas somewhat willing to be paid. There is no fool-proof way to protect against overlooked filing records. But if the very least, check the date on the map and ordinance and if they are more than a year old, call a member of the zoning commission to see if there have been any recent revisions.

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Best of Show

What's new in tools and building materials for 2002

BY ANDREW WORMER

a person who says men don't like to shop hasn't been to the International Builders' Show. The year's event, in Atlanta, Georgia, sponsored by the National Association of Home Builders, brought together 1,330 makers of building products and 71,406 (mostly male) professionals from the building trades for three days of show-and-tell on a gargantuan scale. We wound over the aisles—all five miles of them—linked to representatives of companies big and small, and tried out some innovative gizmos in a quest for the newest and most intriguing tools and materials for 2002. Here's a sampling of the best stuff we found.

Compact Power

Power and durability: They're two big reasons that hard-charging carpenters on the West Coast prefer "worm-drive" saws over "redwinders," the drive-drive saws favored by Midwestern and East Coast carpenters. And because worm-drive saw blades are mounted to the left drive motor, it's easy to use the collar (for right-handers, at least). But the handle on a worm drive is attached to the rear of the blade, an awkward location for anyone used to the balanced over the motor handles found on redwinders. Bosch's new worm-drive saw (B110) combines the best of both styles: a nicely balanced top-handle design, a left-side 1 1/2-inch blade, and a 3-horse, 11-amp motor that won't quit or bog down. Note: Weighing in at 16 pounds (about the same as other worm-drive saws), it'll give your boss a workout.

PHOTOGRAPHED BY DAVID HANLEY

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Steel Splint for Joists

When plumbers have to run pipes through joists, building codes (and common sense) tell the size and placement of the holes they can drill so that the floor trussing remains strong. Menovox's Joint Reinforcer (JIR) gives plumbers the ability to use larger pipes and still meet code. When removed to the side of a 2x10 or 2x12, this sheet of 10-gauge galvanized steel allows runs up to 6 inches in diameter—twice the size permitted for an unreinforced 2x10—with no loss of strength. Menovox also makes steel reinforcements for I-joists (see right), so that building contractors remove doubts in lay or city by 12 inches; code approval for that product is pending.

**Water Saver**

Waiting for hot water to reach a faucet or showerhead wastes thousands of gallons a year per household in the U.S. The solution—to keep hot water circulating through the pipes—wasn't new, but retrofitting such systems has been in-convenient and costly. Now Grundfos has just developed the Comfort Series (3000), a one-way bypass valve that does not require the installation of additional piping.

The Comfort Series begins working when the timer-activated pump at the hot water tank pushes hot water toward a one-way bypass valve farthest from the tank. The valve connects the hot- and cold-water supply lines as long as the water in the hot line remains cold. The valve stays open and cold water is mixed back to the heater through the cold-water line. But when the incoming water is 99 degrees, the valve closes, and hot water starts rising to pipes and where the tap is turned on. For nearly instant hot showers, install the bypass valve in the nearest cold

**Open Wide**

Pop! French doors or sliders. The K'laciper-s2 system from K'lacipack lets you create interior openings that open up to 48 feet, unobstructed by fixed panels or posts. The system's heavy-duty roller and track level was allows as many as eight 2-foot-wide doors (or sliders) to fold back on themselves, much like the rollers used in closets. This hardware works with all types of wood, metal, and fiberglass doors, as long as each one weighs no more than 50 pounds. (No slip!—use securing fasteners like window blinds.) Please include doors, weatherstripping, and locking hardware, but omit with door material and opening width. A 2-foot system runs from \$2,300 to \$2,700; a 12-foot system, from \$2,800 to \$3,300.

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ILLUSTRATION BY MICHAEL



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Let 'er Rip

Making straight, accurate cuts on full sheets of plywood or large pipe is basic to all of a carpenter's work. The Auto-Rip size guide from Craftsman (SAS) just saves a 21-inch-long aluminum arm to the base of a right-bladed circular saw "sawing" the end with the saw blade. Then slide the "nut guide" along the graduated arm to the desired cut width and tighten it in place. This guide runs against the edge of the board, ensuring straight cuts at 90° to 24 inches and at angles as fine as 1/4° to other riping guide cuts as close as 1/4" with any size guide the best. But no need to be out of the yard, and when making wide cuts, a hand is needed on the nut guide to move it and the saw together.

**Laser Chalk Line**

Chains of beads at cost almost straight lines across that appear as bright red dots. But the Super-accurate Laser Chalk Line (SCL) projects a laser line on flat or uneven surfaces. This futuristic chain-saw-like tool, which can be seen over a distance of 30 feet, features a built-in guide when building straight, laying tile, hanging wallpaper, and doing many other demanding tasks where you need accuracy. Use a chalk line to transfer lines from a blueprint to the work surface. The SCL can be used to mark a line on a wall or ceiling.

Insulation From Beams

Spaced polyurethane foam makes an ideal insulation because it fills cavities completely, knowing the movement of air and moisture through walls and ceilings. But its great performance has a high price—about twice that of conventional fiberglass batts.

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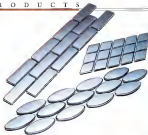
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Floor Stiffener

Ever since plywood became the material of choice for surfaces, exposed 5/8-inch-thick sheets have been the carpenter's standard. Georgia-Pacific's new ToughPly plywood just took another leap, using thicker veneers to make a nominal 5/8-inch-thick sheet. Their veneer is actually about 3/4 inch rather than 5/8 inch-ply. So stiff, in fact, that a ToughPly subfloor with joists set 16.2 inches on center will not score more than one with 7/8-inch ply and joists spaced 18 inches on center. ToughPly comes with finger-and-groove edges, and is standard smooth on one face, allowing the need for additional underlayment beneath vinyl tile or carpeting. Added thickness does mean added weight—63 pounds per sheet versus 57 pounds for a 5/8-inch piece—and a price about 30 percent higher, too.

**Tiles of Steel**

The cool, high-tech look of stainless steel—long popular in commercial and residential kitchens for its durability and ease of cleaning—is now available in a new line of epoxy-injected tiles known as Steeltile. Imported from Italy by Timber Zangor, these tiles cost \$57 to \$67 per square foot, come in a variety of shapes and sizes, including squares, rectangles, ovals, and hexagons. Aligned together as 18-inch-square sheets of fiberglass mesh for easy installation with epoxy grout and grout. The tile is suited for walls, backsplashes, and countertops, but not floors because it could dent or scratch.

**No-Guess Marksmanship**

To take a face measure, you almost always need a pencil. Which means you have to remember where you put it down and then, once you've found it, decide one hand and both eyes to etching a mark in precisely the right spot. Levitt's next 25-foot tape measure does away with that tedious and less-than-accurate process by using the tape measure itself to make the mark. Just tie up the red guide pin on the case with the desired measurement on the tape, press the case down, and move its base slightly over the work surface. A tiny scuffing wheel in the base leaves a mark exactly at the desired measure. (The replaceable wheel inside of the case hardened steel used for cutting glass will mark almost any surface, including for metal, and smooth stone.) One hand is all it takes. Save pencil for drawing pictures.



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Thirsty Landscapes

Plant-saving strategies when water is scarce

BY SARA JANE VON TRAPP
PHOTOGRAPH BY ERIC HARRIS

This summer, the hottest topic for gardeners from Maine to the Rockies is drought. This has been one of the driest and warmest summers on record in many parts of the country. Water levels in reservoirs serving many urban and suburban areas have fallen far below normal, and county sheriffs who depend on wells are finding ground-water supplies in danger. Even a hose at your own place this spring and summer won't solve the problem, says Gregory Zielinski, vice climatologist of Maine, which had its driest year on record. "All we're going to have to get for above-normal precipitation through much of the rest of the year to get out of this drought," he says. That means that even if the grass is green right now, it's very likely young crops will be forced to some water-conservation rules this summer, says Ray Mutha, USDA chief meteorologist. Restrictions are determined by state and local governments and can range widely depending on the severity of the problem—from a call for voluntary water conservation to a total drought watch to allowing watering only during certain hours of the day to a complete ban on outside water use as a serious emergency.

The bottom line is that if you're water-wise, there's nothing water you might be looking at a brown lawn and scorching hot flower beds on the summer goes on. And if you have a water-loving vegetable garden, that would be a good year to let it lie fallow or plant some container in containers. Still, there's a lot you can start doing now to make sure that a failed lawn is the worst you suffer—and maybe even add a little color to your garden.

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