MARCH/APRIL 1998

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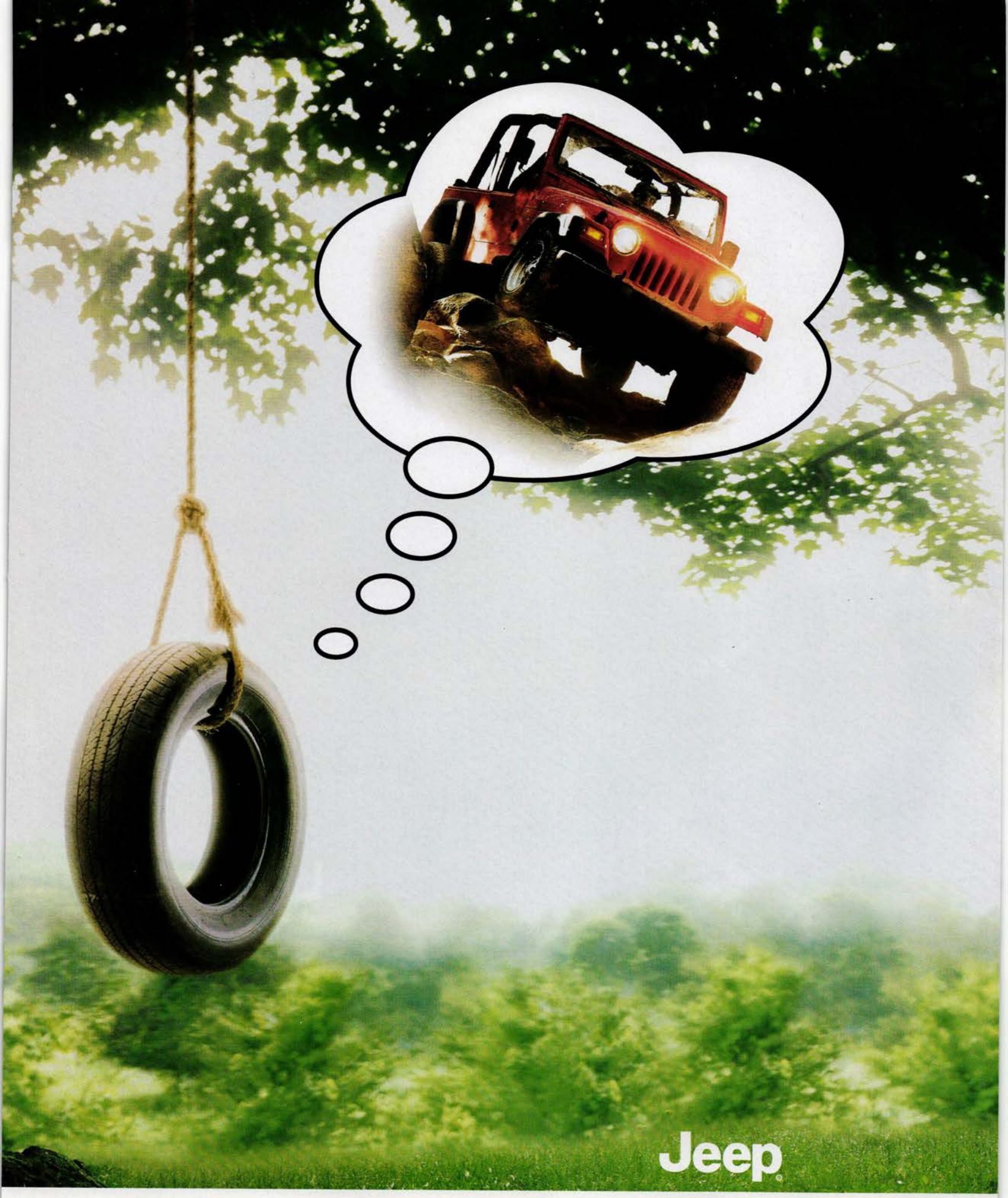

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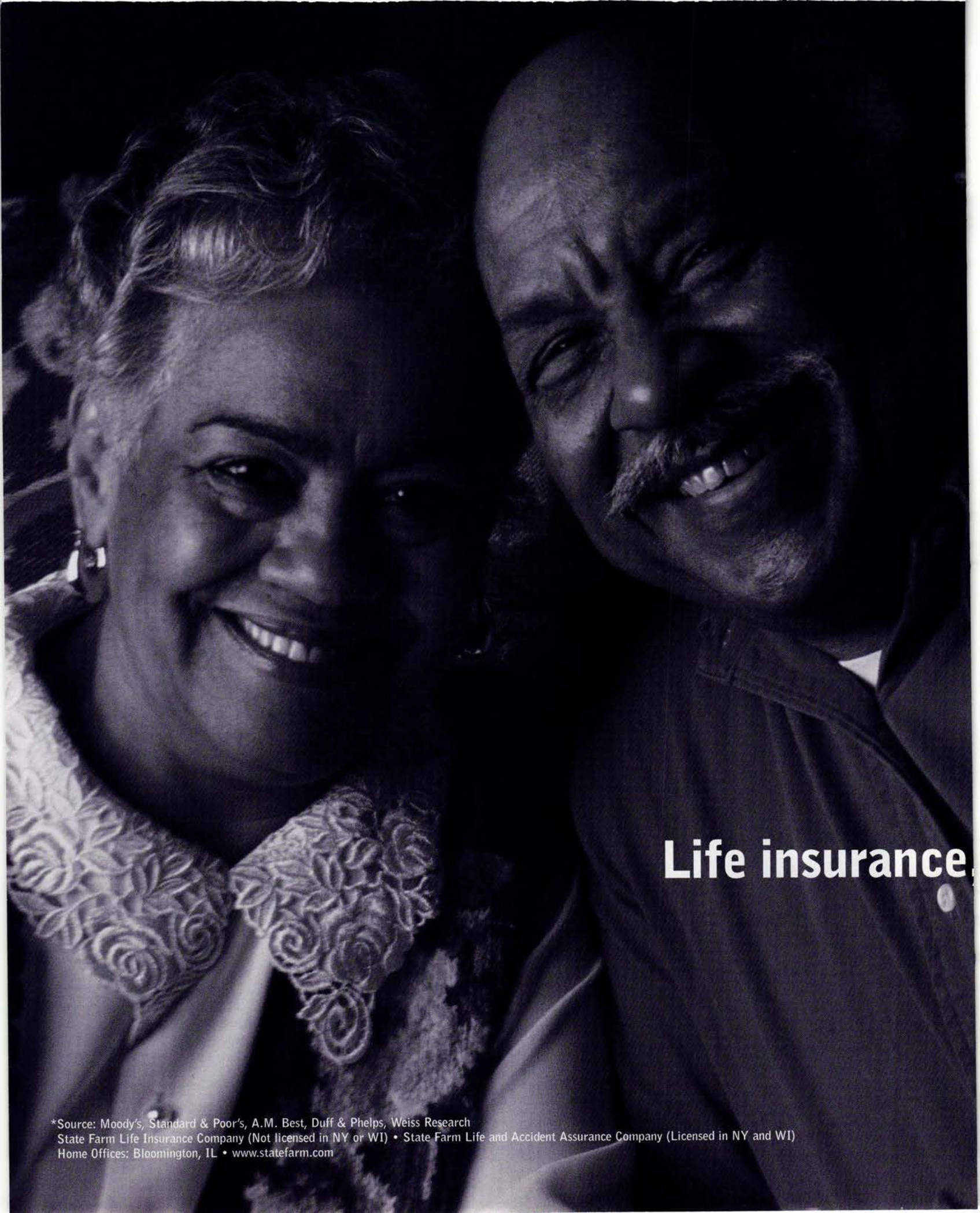

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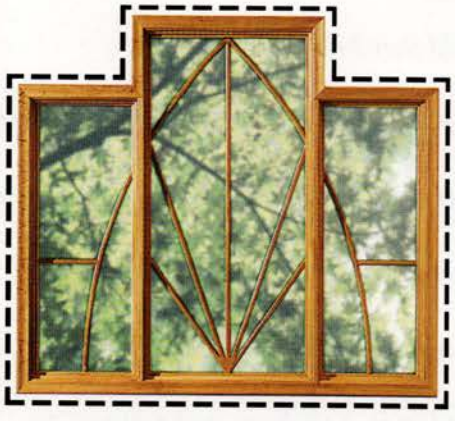

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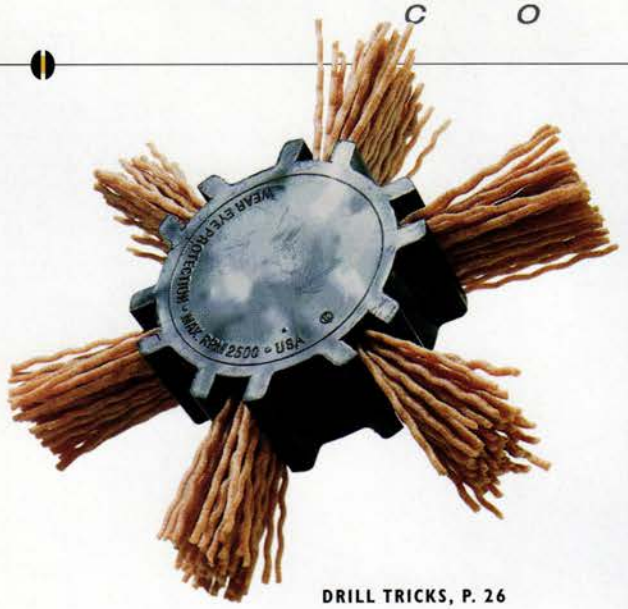

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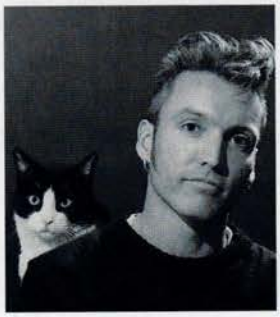
MARCH/APRIL 1998

After a 30-city promotional tour for his best-seller, *The Perfect Storm* (WW Norton & Co.), **SEBASTIAN JUNGER,** left, now has time to climb a few trees ("Out on a Limb," page 108). Junger started doing tree work, a hazardous but lucrative occupation that involves sawing off a tree's unstable branches and felling its trunk, to support himself as a young writer. Despite his literary success, he has stayed with the tree business to take refuge from the growing swirl of publicity around him—and to keep his perspective. "When I do tree work, I don't feel like an author," he says. "I'm 80 feet high with a chain saw, and I could fall and die any minute. It's a great equalizer." **DEBBIE MAHDESSIAN** and **TED CATANZARO** met as students at the University of California at Los Angeles and have worked as a photographic team ever since. When *TOH* assigned them to shoot Sam Maloof ("Woodworker," page 86), the married couple were surprised to see that the 82-year-old handled most of his shop's abundant workload alone. "Sam Maloof's creations seemed simple—but not simple," Mahdessian says. "Obviously an enormous effort went into everything he did." Mahdessian and Catanzaro live in Santa Monica with their 3-year-old son, Sam, who took the picture of the couple at right. **BENJAMIN OLIVER** (photographer, "Driveway Pavers," page 137) has long taken special notice of building materials. When Oliver, bottom left, was 15, his parents bought a Wesleyan chapel in rural Kent, England, remodeled it and moved in. "Conversions like that were unheard of back then," he says. "They had a lot of difficulty from the planning authorities." After moving to New York City in 1986, Oliver rewired, re-floored and restored an apartment he'd rented in a converted warehouse to use as his studio as well as his home. His photographs have appeared in *GQ, Glamour* and *YM*. **CYNTHIA SANZ,** bottom right, thought of her assignment to write about driveway paving stones ("Driveway Pavers," page 137) as "free shopping research." The owner of a three-bedroom Colonial in Floral Park, New York, she discovered that "you need a lot of money to avoid having an asphalt driveway." After examining more than a dozen samples of paving stones for *TOH*, Sanz proclaimed the task as sensuous as her other, full-time job as a senior writer at *People*, where she worked on the 1997 Sexiest Man Alive issue. "Paving stones are more concrete than celebrity news," she says. "It's nice to be able to *feel* what you're writing about."



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Frugal Praise

I was amazed, astonished and delighted to read about frugality in the Finances section of *This Old House* [November/December 1997]. To a point, I enjoy granite countertops and Swedish faucets with names I can't pronounce. But I have no desire to lie awake at night worrying about my house payment—because the new master bedroom suite has condemned me to 15 years of involuntary servitude. Sometimes, when I walk into a three-story foyer bigger than my living room, I don't even see the imported chandelier because of the flashing "waste" alarm in my brain. And I go away thankful I am not paying the heating bill for all that unused emptiness. I tell my kids, "Just because you can afford it doesn't mean you need it," and, as a remodeling contractor, I appreciate your magazine's practical attitude. Keep up the articles that note small crowning details that take an eye for beauty and creativity rather than simply a lot of money.

TODD PICKERING, *Janesville, Wisc.*

On the Spots

Regarding Norm's advice on cleaning paint from brick fireplaces [Ask Norm, November/December 1997]: Candlelight is not the only answer. What little paint is stuck in the pores can be covered with acrylic craft paint and a pointed brush. My husband mixed a brick color, pushed it into the pores with a stiff bristle brush and wiped it off the flat parts. People thought we had re-bricked.

MD MCCLURE, *Orangevale, Calif.*

Warm for Our Forms

Did *This Old House* list a source for the polystyrene forms used to make the coved ceiling in the Meigs' Tucson kitchen ["Team Tucson," May/June 1997]? They would be very useful to me in my remodeling work.

SUSAN DAVIS, *Boring, Ore.*

Henry Products Inc. supplied the polystyrene forms for our coved kitchen-ceiling treatment. Henry Products's manager in Tucson, Mike O'Brien, tells us that most large communities have a supplier of expanded polystyrene who can provide custom profiles at approximately 50 cents per board foot. (To calculate the board footage of your design, use this formula: length in inches x width in inches x height in inches ÷ 144.) For information on ordering from Henry Products, call 520-746-3181.

Pole in the Hole

We are repairing a farmhouse similar to the project Norm and Steve took on in 1995. They installed a wooden flagpole there to spruce things up. Can I get some details on that?

GLEN AND SARA BRUNSTON, *Monroe, Ore.*

Installing one of the 30 to 40 poles made each year by Hennessy House Wooden Flagpoles will put you in good company. George and Barbara Bush have one at their new house in Houston, and the former President and First Lady's neighbors in Kenne-

COLOR ILLUSTRATION: JOSE CRUZ; BLACK AND WHITE ILLUSTRATIONS: DOD HUMPHREY

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bunkport, Maine, have one too. The Douglas fir pole we featured on the *This Old House* TV show was 20 feet tall and pricey: $1,085 including accessories—a brass plaque, a gold ball for the top, hardware and both Betsy Ross and 50-stars flags. For more information, call 800-285-2122 or visit www.woodenflagpoles.com.

Cardboard Clones

On the Letters page of the November/December 1997 issue, there is a photo of Thomas R. Skaggs with a life-size cutout of Norm Abram from an advertising display. I desperately want a half dozen Norms for my woodworking shop and my brothers'. How can I obtain them? I'm sure they are not listed in the *This Old House Sourcebook*!

JEROME KEHRET, *Norwalk, Ia.*

Even we at *This Old House* didn't realize how fortunate Thomas R. Skaggs was to nab a Norm. It seems that Delta International Machinery, an underwriter of the *New Yankee Workshop* show, produced the cardboard cutouts for its distributors to display at point of purchase. That was back in 1994, and neither Delta nor the TV station has any left. Unless your favorite hardware retailer has a retired Norm sitting around in the basement, your best bet would be to take a picture of the real, three-dimensional Norm at one of his personal appearances—listed in the Extras section of every *This Old House* issue.

Try This Next Fall

It occurred to me that using my drywall keyhole saw to cut out the face on my Halloween pumpkin would work quite well—and it was excellent.

DAVE ANDERSON, *Reading, Penn.*

About Grout

Wouldn't this be a great address for any *This Old House* handy-person? Hope you enjoy the photo from Millers Falls, Massachusetts.

KARL PICULIN AND SHAWN PYNE, *Shutesbury, Mass.*

Getting the Lead Out

My wife and I purchased our 1920s house in St. Joseph in December 1996. Now that we have a 1-month-old, I am concerned about lead paint. I salvaged some French doors that perfectly fit an existing opening to our family room. How can we test for lead? If we find it, what should we do?

GREGORY H. FELDMAN, *St. Joseph, Mich.*

Ease your mind by having a laboratory test some paint you've chipped from the doors. Seal the chips in a labeled plastic bag, and wash your hands thoroughly after taking samples. Should the laboratory discover the presence of lead, consider taking the doors to an off-site facility for stripping. And think twice before stripping the doors yourself: Sanding or scraping creates mounds of hazardous material, and reliquefied lead paint combined with a chemical stripper is doubly noxious. Whether sanding, stripping or scraping, you'll ultimately encounter a disposal problem. To find a testing laboratory or a qualified lead-abatement contractor, call the Lead Listing at 888-532-3547.

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OFF THE WALL

BY JEANNE MARIE LASKAS

DEMOLITION DOG

Who needs chew toys when there's a house to devour?

When you bring a new puppy into your house, a lot of people will tell you what to do. Dog friends will give pointers about grooming, bedding, feeding and other matters of puppy parenthood.

But what about your house? Who speaks on its behalf? When you bring a new puppy into your house, your house is the one that needs the attention.

I know this because of Wilma. Wilma is 7 months old. She chews.

Wilma is half golden retriever, half yellow Lab. The perfect combination, I thought when I first saw her. But I am the mutt type. Alex, my husband, did not totally agree. He is, well, the poodle type, a fact I have managed to forgive. We are newlyweds. A few months ago, Alex brought Marley, his (carsick) standard poodle, into our marriage. And I brought Betty, my 4-year-old (angel) mutt.

And together we got Wilma. Our barking baby girl. Our love puppy.

"Wiiiilll-ma!" Alex will shout, sounding more and more like Fred Flintstone since this creature entered our lives. "Get that thing out of your mouth!" That thing, in one particular case, was the couch. Wilma had finished chewing the left-side cushion weeks earlier. This time, she had moved on to the arms.

At first we covered the couch with cotton throws to hide the destruction.

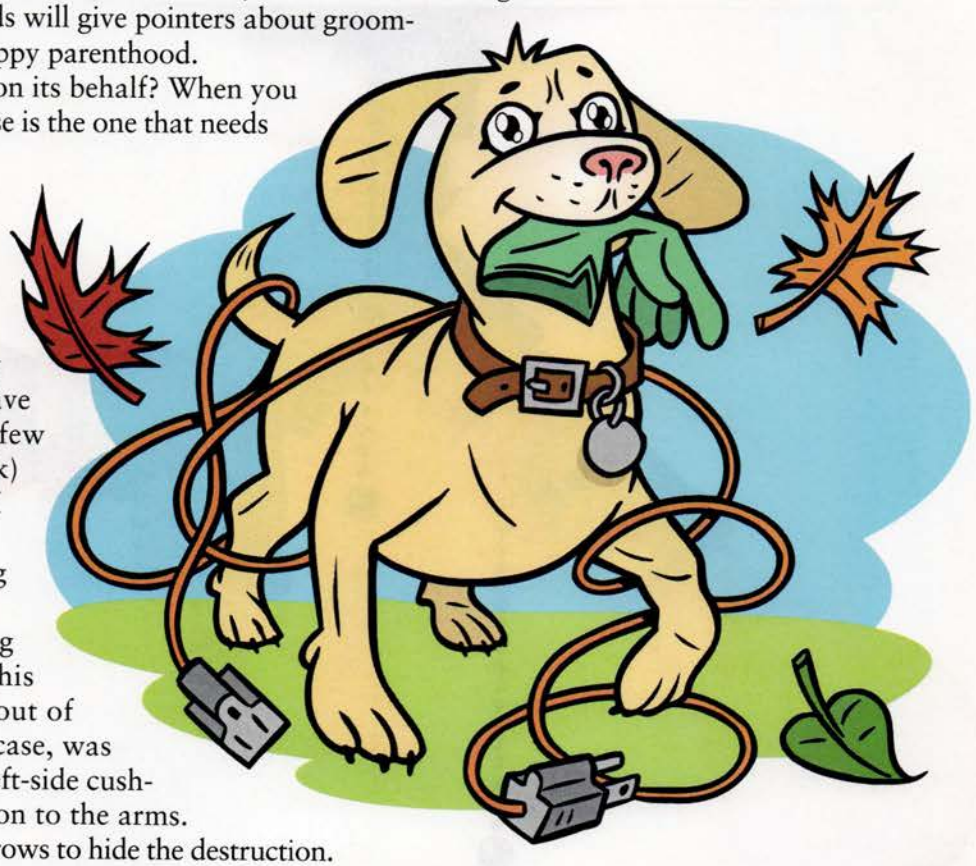


ILLUSTRATION BY STEVE WACKSMAN

It was denial, pure and simple. Wilma chewed the cotton throws. She was in her fiber stage. She chewed an oriental rug and a set of drapes. She went from there to her plastics/rubber stage. She chewed the child's gate we had used to contain her in the laundry room, then worked her way through the washing machine hoses and many sets of Tupperware. The arms of the couch, which are pine, became the official launch of Wilma's wood stage.

Alex said that's it. "Wilma stays outside," he said. He thought this would solve the problem.

Dog experts will tell you it's all your fault. When it comes to puppy-proofing your house, they offer a few offensive measures, such as bitter apple or other awful-tasting potions that you can spray on your possessions to discourage canine chomping. Mostly these experts defend the dog. They say puppies that chew are bored puppies. They say bad chewing habits are a puppy's plea for help. Your dog needs exercise, companionship, a better puppy life.

I look at Wilma. I look at her life. We live on a farm. She has 50 acres of hills—with no fences—to romp in. She has a pond to swim in. She has Betty to tumble with. She has Marley to learn good poodle-type manners from. She has deer to bark at in the fields. She has a barn with stinky things inside to roll around in. She has an endless supply of sticks to chew.

"What more do you want, Wilma?" I say to her.

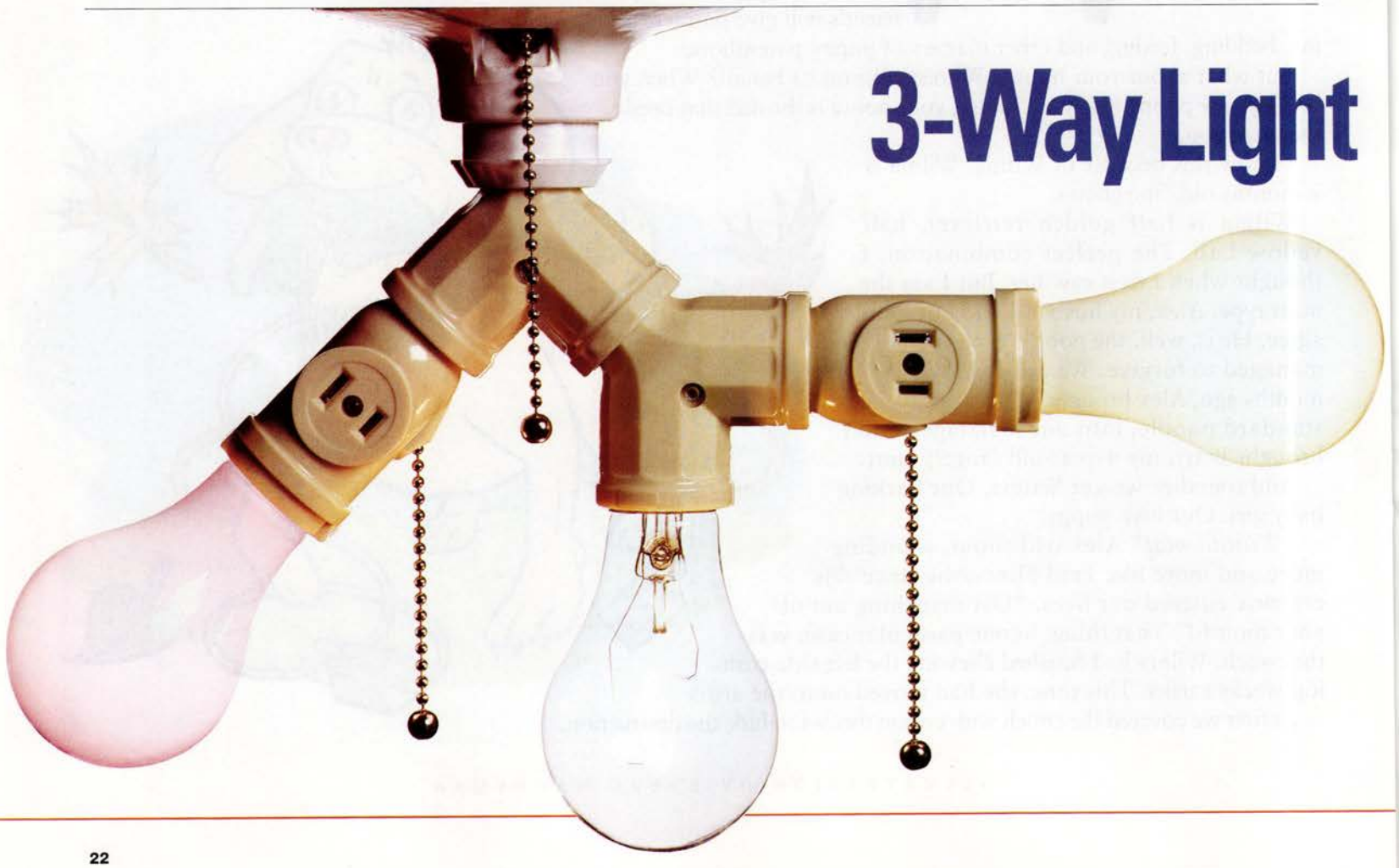
But Wilma says nothing. She is off working on a magnolia tree. When it comes to chew toys, Wilma prefers fresh ones—really fresh ones. She grabs hold of a low branch, pulls. The entire branch comes off. It is about 12 feet long with many lesser branches attached. Looking proud, Wilma trots off with the branch in her mouth.

Where is Wilma getting these things? We can only hope she is not pulling apart the neighbors' houses.

I know where she is going. She is going to the front yard, where she will deposit the branch along with all of her other treasures. It is not a good look for a front yard. We now have gutters and downspouts in our front yard. Chewed gutters and downspouts, that is. We have various chewed arms and legs from various components of our porch furniture in our front yard as well as the chewed mud flap, or ex-mud flap, from Alex's car. We have any number of plastic plant containers, their contents shaken loose by Wilma's thrashing jaw. And, of course, we have Wilma's rather sizable branch collection.

All in a week's work, for Wilma.

"*Wiiiilll-ma!*" Alex shouts upon seeing the magnolia branch go by. He has agreed with my point that keeping Wilma outside has not really helped our house. He has agreed with my assessment of the situation in its largest context: Wilma is eating our house.



3-Way Light

We have choices. We can pack up Betty and Marley, give Wilma the house and move. Or we can give Wilma away. We look at each other, unable to utter the words. She is our love puppy. How can we just abandon her? Would we do the same thing to each other, just give up on the relationship if the going got rough?

"Let's clean up," Alex says, grabbing a gutter. I take a downspout, crunch it in half.

"I guess she's in her metal stage," I say.

Alex says we better figure out where this gutter and downspout came from before the next rain. We walk around the house. We can't find any missing downspouts or gutters. It's a puzzle. We go back to the pile and continue our work. Alex picks up a sheet of metal. It appears to be off a storm door.

"We don't have a storm door like this," he says. Where is Wilma getting these things? It's a puzzle. We can only hope that she is not pulling apart the neighbors' houses.

I pick up a long lost garden glove. "My glove!" I say. It's the match to a favorite pair. "Thanks, Wilma!" I say.

Alex picks up an orange cord. It goes to his electric hedge trimmers. He's been searching for it for days.

"Hey!" he says. "Thanks, Wilma."

For a moment we feel encouraged. We say maybe this is it. If you can't puppy-proof your house, at least you can puppy-proof your attitude. We decide that we should stop fighting Wilma. We should embrace her. We should be thankful for all the lost stuff she finds.

Just then Wilma comes running around the house, carrying an entire 4-by-8-foot sheet of latticework that she has pulled off the bottom of the porch.

"*Wiiiillll-ma!*" Alex and I shout in unison, although I have to admit I admire the agility involved in running around with something that big in your mouth.

Alex grabs the panel. I go to the basement and grab a hammer and some nails. When I get out to the porch, I see Alex has his head in his hands. Marley is at Alex's side, leaning in as if to say, "There, there." Wilma has pulled all six panels off the bottom of the porch, leaving the entire crawl space exposed. Betty is busy exploring the crawl space, a looter cashing in on our misfortune. But the truth is I've never been in that crawl space. I follow Betty. It takes a minute for my eyes to adjust to the dim light.

"Hey!" I say and call Alex in. Marley follows. And Wilma. We have a cozy family gathering in that crawl space. We find things. We find Wilma's source of building supplies. We find a stash of gutters that the previous owners must have left. About 50 extra feet. We find a whole pile of extra downspouts. And four spare storm doors. And piles and piles of two-by-fours. And six incredibly wonderful oak beams. Our crawl space, it turns out, contains our own private little home supply shop.

"And you know I always hated that latticework," I say.

"Me too," Alex says.

"And that couch was ugly," I say. "Let's face it."

"It was," he says.

"Thanks, Wilma," we say.

But she is busy chewing a bag of dahlia bulbs. She is entering her flower stage. ■

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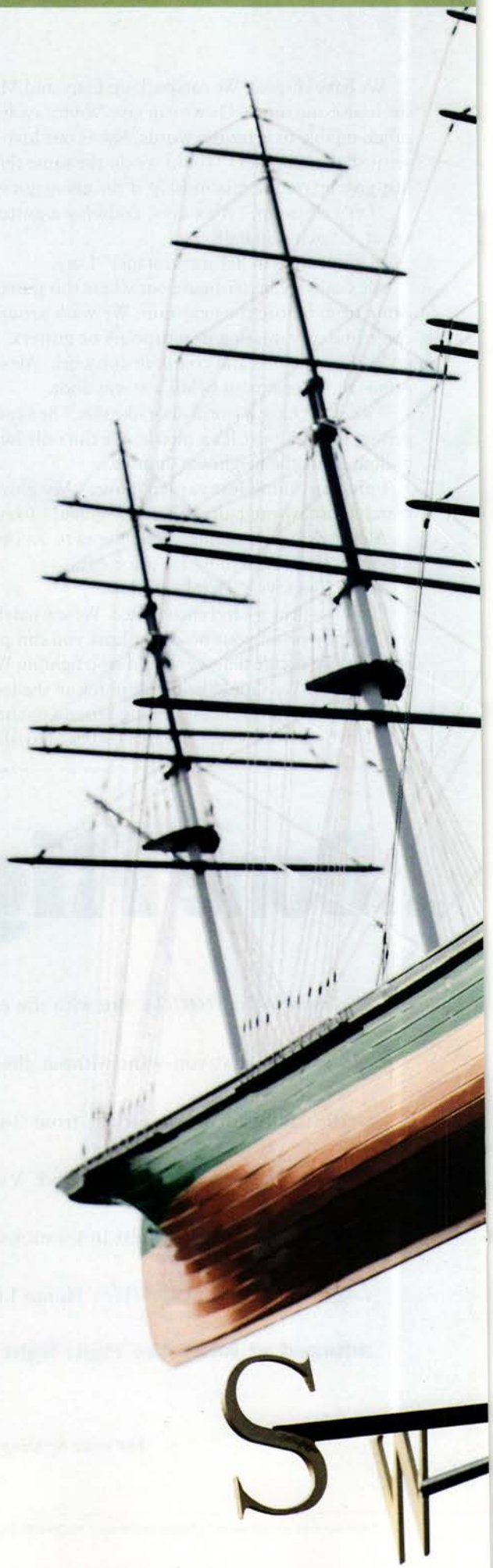
(extras)

Gimme a Brick

Assembled by the thousands into walls or patios, bricks rarely win notice individually. But some are quite beautiful, inscribed with flowers or fish, the occasional edict—"Don't Spit on the Sidewalk"—or the names of their makers. These beauties, mostly from before World War II, have inevitably attracted collectors, who in 1983 founded an organization to promote their hobby. But unlike other collectors, who continually try to raise going prices, the 400 members of the International Brick Collectors Association pledge not to buy or sell. Instead, they scour old brickyards and demolition sites, then gather to swap, show and tell. Which bricks will be most sought-after at this summer's three meets, beginning with a gathering in Pueblo, Colorado, on May 2? "Anything that's got a name on it," says association librarian Jim Graves, whose own collection includes an Egyptian brick from about 1500 B.C.

Adrienne Reinkemeyer holds up her prized Last Supper brick.

Many brick aficionados, like those at a recent swap meet in Hutto, Tex., started out as collectors of barbed wire and other Americana.



BRICK SWAPPERS BY WYATT McSPADDEN; WEATHER VANE BY GRACE HUANG

Full Sail Above

As the wind on Narragansett Bay pipes up and shifts 30 degrees, the 19th-century tea clipper *Ariel* brings her bow up into the eye of the blow. On deck, sailors begin to....

No, wait—this boat is made of aluminum, not wood. And although she's a dead ringer down to the thinnest rigging line, she's only 4 feet 3 inches long, not 197 feet. Nor is she out of Point Judith. She's mounted on a sturdy pole on the roof of a house. This *Ariel* is a weather vane built by Charlie Doyle of Wakefield, Rhode Island. Doyle has spent weeks installing 52 oars on a Venetian war galley and dabbing red paint inside every gun-port door on an HMS *Vanguard*. For *Ariel,* he welded together the frame and masts, screwed planks into the sides and rigged out the vessel with metal spars. "These aren't cartoon ships," he says. "They're the real thing."

Metal sculptor—a.k.a. weather-vane creator—Charlie Doyle, above and right, makes his models shipshape. He mounted the miniature tea clipper Ariel, *like all his vanes, on a stainless-steel pole rugged enough to withstand a nor'easter.*

(extras)

EVENTS & APPEARANCES

STEVE THOMAS

- **March 7-8**—Orchard Supply Hardware's How To Fair, Pleasanton, Calif.; Saturday, 10 a.m.-6 p.m.; Sunday, 10 a.m.-5 p.m.; 408-365-2421.
- **March 13-14**—Builders Home and Detroit Flower Show, Cobo Center, Detroit; Friday, 7:30 p.m.; Saturday, noon, 3 and 7:30 p.m.; 248-737-4478.
- **March 28-29**—Spring Atlanta Home Show, Georgia World Congress Center, Atlanta; Randall Brothers' booth; Saturday, 1:30-4:15 p.m. and 6-8:45 p.m.; Sunday, 12:30-2:45 p.m. and 3:30-6 p.m.; 770-798-1995.

BRUCE IRVING

- **March 14**—Restoration & Renovation show, World Trade Center, Boston; a talk, "Behind the Camera at *This Old House*"; 3 p.m.; 978-664-6455.

RICHARD TRETHEWEY

- **March 6**—Home Show, Farm Show Building, Harrisburg, Penn.; 2, 4 and 7 p.m.; 800-281-5539.
- **March 13**—Restoration & Renovation show, World Trade Center, Boston; the Unico Inc. booth.; 978-664-6455.

Quartz Crush

In the early 1980s, an Italian machinery manufacturer perfected a method for making stonelike slabs and tiles by vibro-compacting stone chips and resin under 50 tons of pressure, then baking them. The process, refined in 1991 for quartz and pigmented epoxy, produces Granirex, which looks like granite but is better at resisting impact, abrasion, staining, acids and water. It's also tougher than marble and terrazzo, although it hasn't been tested for outdoor use. As tiles or 4-by-10 slabs suitable for countertops, Granirex comes in 20 mottled colors as well as uniform whites and blues not found in any granite quarry. A hot pot won't crack it, but prolonged exposure to, say, a wood-burning stove might. That's a drawback we can live with, considering the cost: 15 percent less than that for a typical granite counter.

The Triangle Trade

As a builder in northern New Jersey, Robert Butwin used to begin every job by cutting a plywood triangle measuring 3 by 4 by 5 feet. Carpenters usually have to measure out these dimensions, using the Pythagorean theorem, every time they need to ensure a right angle. Butwin's triangle speeded up laying out walls and installing ceramic tile but was too rough to slide into position easily and too bulky to stow in his truck. "When the job was done, I'd throw it away." So Butwin tinkered in his workshop and came up with a lightweight alternative: an anodized aluminum version that slides open and locks into place. When the job's done, the triangle folds in on itself to resemble a single narrow cross-country ski, making it a lot easier to store than a big T square.

Take This Job—Please!

Calling all history-loving general contractors: A tiny town in northeastern Oregon needs you. Echo, a village of 600 residents that was once a stop along the Oregon Trail, has a $350,000 job waiting for a contractor willing to renovate its 1916 Beaux Arts city hall. The structure needs a heating, ventilation and air-conditioning system, wheelchair access and a refurbishing of its maple floor. The area's flourishing economy has ironically created a scarcity of available contractors—at least those willing to tackle painstaking historic restoration. If the project doesn't begin before July, Echo may lose $85,000 in federal grant money.

GRANIREX, HATS AND WAINSCOT BY DARRIN HADDADD; TOWN HALL BY SUSAN SEUBERT; BLOCKS AND DRILL BITS BY SPENCER JONES; TRIANGLE BY JASON SCHMIDT

DRILL TEAM

These shanks, which fit any drill with a chuck ¼ inch or larger,

Whirl *Stiff nylon fingers infused with a fine abrasive reach into cracks and crevices.*

Sand *A rubber drum wrapped in an abrasive sleeve smooths or strips paint from irregular wood shapes.*

Grind *For smoothing edges and working metal down to size, a coarse-grit wheel has no equal.*

Slice *Ridges slice away minute amounts of plastic without melting them.*

Swank Yanks

In the 18th century, British sailors braved rough seas with flat, round, tar-and-canvas "porkpie" hats on their heads. Across the Atlantic, the hats evolved into the quintessential Yankee fisherman's headgear, the sou'wester, named for the fierce gales that raise a "smoky" spray on heavy seas. Seamen eventually tilted the porkpie's brim up in front and down in back to funnel water away from the forehead as a gutter does on a house, molded the crown to hug the head and added chin straps to keep the hat on tightly even during hurricanes. Today's sou'westers are made of vulcanized rubber—or, in some cases, neoprene—that conceals the baby's-bottom softness of a flannel lining. These hats are no longer just for fishermen. In fact, anyone who dons one can't help but look like a good guy. Perhaps that's why the psychotic killer in the recent movie *I Know What You Did Last Summer* rarely appears without his trusty sou'wester.

Scrap Happy

Blocks don't have to be shaped like, well, blocks. Open a bag of Karl von Oppen's hand-cut blocks, and out spill miniature branches, logs, stumps and planks. Originally, Von Oppen procured his raw material by intercepting Los Angeles parks employees in the hazy dawn and plying them with his homemade banana bread in exchange for their prunings. Now the former "corporate slave" gets his deadwood from abandoned citrus groves in Mexico and southern California. The scraps are sawed into stackable shapes—no two sets are the same—and smoothed in a home-invented tumbler. The organic blocks, once sold only at crafts fairs, are available nationally, but Von Oppen is more interested in providing jobs for disadvantaged people, whom he employs at his factory in Mexicali, Mexico, than in being a toy-industry titan. "We'll settle for being thousand-aires if we can sleep at night."

Great Wainscot!

Wainscoting warms up a stark, empty wall. But the traditional hardwood panels, stiles and rails often lead to a stark, empty wallet. Materials can cost $30 per square foot, and the fussy installation just compounds the fiscal misery. These panels of medium-density fiberboard laminated with oak, maple, cherry or paintable paper, cost only $9 to $18. The components are available in raised-panel, bead-board or flat-panel styles and come pre-sanded to 180-grit smoothness, won't shrink or swell with humidity changes and can be painted or stained, then finished with polyurethane, acrylic or oil. "Anybody who can handle layout, scribing and cutting miters could put it up himself, no problem," says *This Old House* contractor Tom Silva, who lined the Milton dream-house media room with the paintable version. Veneer is not known for being marproof, but the manufacturer claims that nicks and scratches can be puttied and sanded away, just like they can be with solid-wood versions.

will turn a drill into a nifty detail sander, paint stripper, wood shaper, metal grinder or rust chaser

Claw *Riddled with tiny ragged craters, a hollow drum can cut wood in either direction.*

Scale *Best used on wood, legions of sharp metal scales march into small holes to make them bigger.*

Brush *Stiff metal bristles scour rust from metal surfaces. The bristles are too tough, however, to work on wood.*

Whip *Paint disappears as abrasive-impregnated hinged bristles beat against wood without doing much harm to the surface beneath.*

(extras)

EVENTS & APPEARANCES

NORM ABRAM

- **March 27**—Spring Atlanta Home Show, Georgia World Congress Center, Atlanta; Randall Brothers' booth; 1-5 p.m.; 770-998-9800.
- **April 18**—Kitchen and Bath Industry Show, McCormick Place South, Chicago; open to the trade only; 800-789-2223.
- **April 18**—Design Idea Center, Chicago Merchandise Mart; 800-677-6278.

TOM SILVA

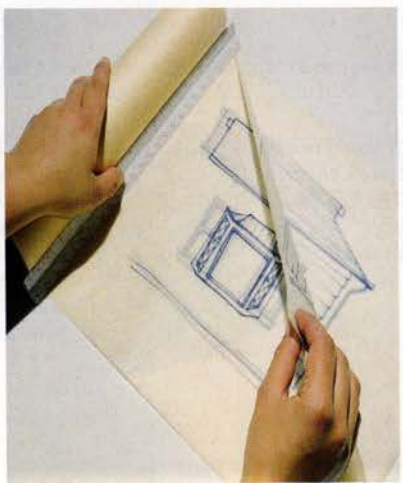
- **March 1**—Akron/ Canton Home and Flower Show, John S. Knight Center, Akron, Ohio; 800-865-8859.
- **March 6**—Home Show, Farm Show Building, Harrisburg, Penn.; 2, 4 and 7 p.m.; 800-281-5539.
- **March 7-8**—Home Show, South Jersey Expo Center, Pennsauken, N.J.; Saturday, 12:30, 3 and 7 p.m.; Sunday, 12:30 and 3 p.m.; 800-332-3976.
- **March 14**—Home Show, Hulman Civic Center, Terre Haute, Ind., noon-9 p.m.; 812-234-5736.
- **March 27-29**—Mid-Atlantic Home & Garden Show, Virginia Beach Pavilion, Virginia Beach, Va.; 757-420-2434.
- **April 4-5**—Home Show, World Arena, Colorado Springs, Colo.; Saturday, 12:30 and 7 p.m.; Sunday, 12:30 and 3 p.m.; 800-332-3976.

Scaffold and Carry

The up-and-down dance of spring—removing storm windows, hanging wallpaper, pulling down Christmas lights at last—seems a lot easier with a 4-foot, 7-inch-high mini scaffold than with just a ladder. An aluminum platform enables weekend handymen to extend their reach with a minimum of climbing down to scoot over to the next patch. Not that moving this piece of equipment is a hassle. Even with rags, buckets and brushes piled on, it wheels easily from spot to spot. Afterward, the scaffold can be collapsed to the size of a large portfolio and carried by its handle to the next chore.

Roughing It

One of the best investments to make before remodeling is buying a roll of inexpensive yellow or white translucent paper known as trace or sketch. Before a single nail gets hammered, architects go through reams of the stuff, drawing scads of ideas. As they try out positions of closets, windows, French doors and so on, they can stack the drawings on top of each other two or three at a time to visualize every possible configuration. For best results, use a light touch and a marker or soft pencil to keep from ripping through a scheme taking shape.



"Furious activity is no substitute for understanding."

—H.H. Williams

SCAFFOLD, TRACE PAPER AND CD-ROMS BY DARRIN HADDAD; TREE POUCH BY SUSIE CUSHNER; PLIMOTH PLANTATION BY GARY ANDRASHKO

Have a Nice Drip

This time of year, keeping feeder roots on recently transplanted trees watered requires round-the-clock garden-hose patrol. Only 5 to 18 percent of a root system gets transplanted with a tree, so remaining roots must work hard to suck up water. In two to three days, the root ball can dry out completely while the surrounding soil is perfectly moist. The solution? A cone-shaped polyethylene pouch that, zipped around a tree, allows water to seep into the root system for up to 10 hours. A single pouch holds 20 gallons, enough for a trunk 1 to 3 inches in diameter; a 6-inch-high junior version fits like a life preserver under shrubs and low-branch trees and drips for up to six hours.

Two pouches zip together and drip for up to 16 hours.

CD-ROMS

ALL THE WRIGHT ANGLES

The cantilevered balconies of Fallingwater, Frank Lloyd Wright's masterpiece of "organic architecture" near Pittsburgh, are recognizable enough, but how many folks know what the inside looks like? For those who can't visit in person, the CD-ROM *Fallingwater* provides intimate 360-degree views of each room, down to the moss-tinged undersides of those balconies. Using a technique that splices two fish-eye lens photos, this interactive tour allows viewers to pan dizzily up, down and sideways, exploring such details as Wright's design for a wine heater on the hearth and the hatch that opens to the cascades flowing beneath the house. • *The Frank Lloyd Wright Companion*, based on William Allin Storrer's critically acclaimed 1993 book of the same name, provides an overview of Wright's career, with more than 1,000 high-resolution photos that a click of a mouse can enlarge up to 250 percent, plus 700 floor plans, intelligently cross-referenced chronologies and lyrical, fact-filled histories. Detailed maps lead to Wright's "stars," which in his case make for a very crowded galaxy.

Pilgrims' Progress

Not a single Plymouth house survives from the 17th century. So in 1957, Plimoth Plantation recreated the village—and ended up with a dozen tidy cottages fit for Thanksgiving-pageant Puritans. Archeologists and historians have since discovered, however, that the earliest settlers' houses never had shingled roofs, planed clapboards or stone foundations, so this past winter Plimoth Plantation razed the governor's residence and an A-frame hovel across the street. In their place will go two new, historically accurate structures. Starting this spring, the living-history museum's costumed "inhabitants" will hand-hew timbers, sink earthfast posts into the ground, raise preassembled frames, thatch roofs and finish walls with rough exterior clapboards and interior wattle and daub. Using 1620s-style tools forged by the museum blacksmith, builders could construct a house in six weeks but stretch out the process over several months for visitors' benefit. That's not counting the occasional delay due to late deliveries of oak logs, which arrive by 20th-century truck.

The real Pilgrims didn't have time to plane clapboard, so Plymouth is going rustic.

CO Shuffle

For the second time in three years, Underwriters Lab has changed its rules for carbon monoxide detectors, raising the lowest alarm threshold. Now the devices won't activate until CO levels have remained at 30 parts per million for 30 days. Intended to reduce "nuisance" alarms, the new rules are a problem for people worried about low levels of the deadly gas, which is odorless, tasteless and colorless. Even the US Consumer Product Safety Commission, which supported UL's decision, acknowledges that heart patients may suffer chest pains before the alarms sound. For the best protection, buy a detector made to the old standards. (Packaging notes conformity to 1995 standards.) Or buy a detector with a digital readout, which notes—albeit mutely—concentrations as low as 1 ppm.

FOR SOURCES, SEE DIRECTORY – PAGE 145

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BY MARK FEIRER

SLOT MACHINES

Biscuit joiners make ordinary guys look good

In the hands of an experienced craftsman like *This Old House* contractor Tom Silva, even a bizarre, ugly and awkward tool can seem ordinary. And this tool he's holding, this so-called biscuit joiner, this spinner of tiny blades that can be shoved into a piece of wood to make a seemingly useless half-moon cut, is anything but ordinary. *Zeerip, zeerip, zeerip* goes the tool as Tom pushes it repeatedly into the edge of a doorjamb at the Milton dream house, making those silly little slots. Tom then makes matching cuts in a piece of trim he wants to attach to the jamb. He slathers the cuts in the jamb and the trim with yellow carpenter's glue. Then he sticks his hand into a pocket, pulls out a sliver of beechwood about 3 inches long that looks like a tiny football crushed by a steamroller. This is the biscuit or plate. He slips it into the glue-filled cuts and pushes everything together. Voilà—a crazy-looking but effective little spline joins pieces of wood together in about the same

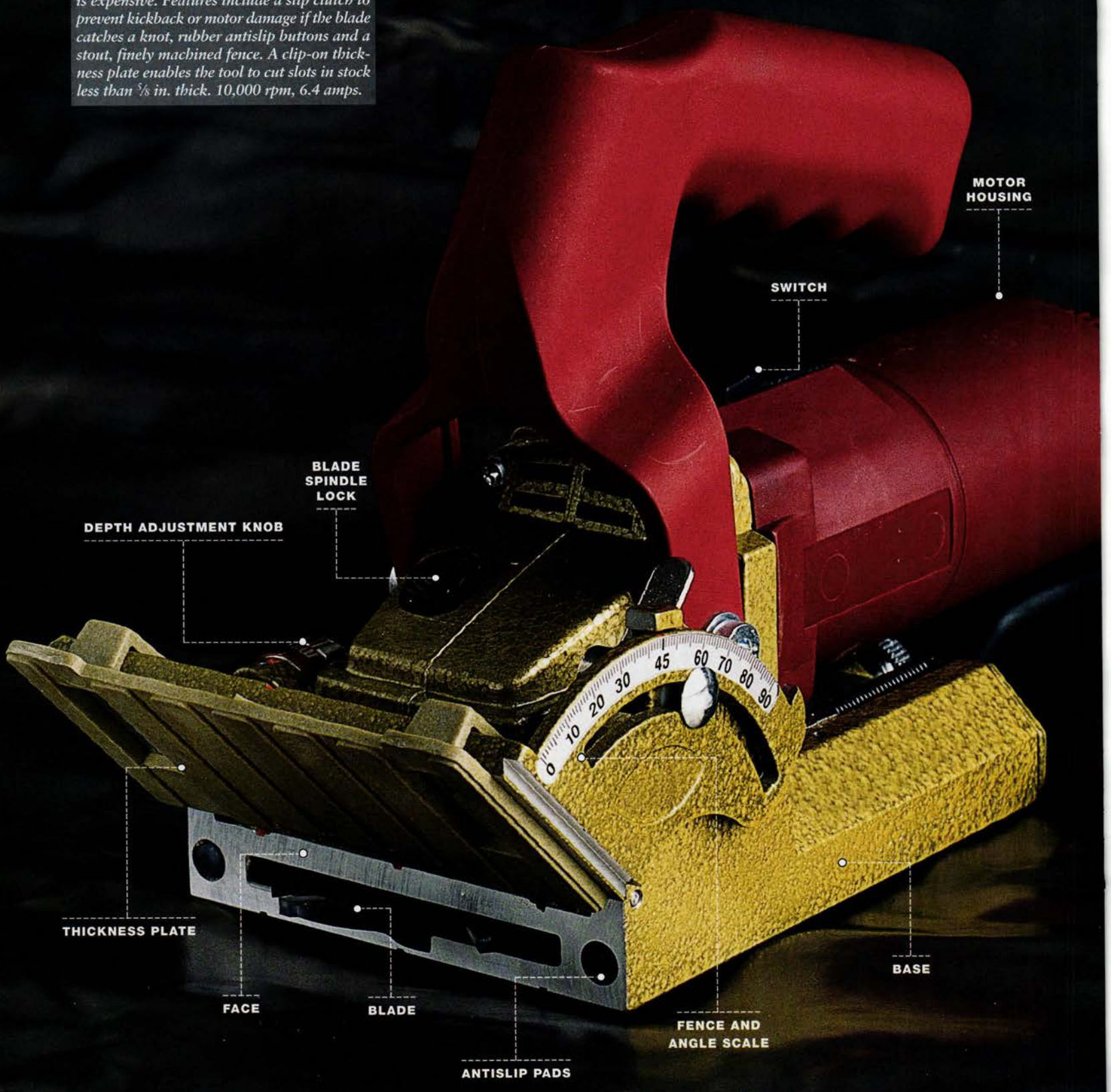
A biscuit joiner's carbide-tipped blade plunge-cuts a half-oval slot into synthetics such as solid-surface countertops or Lucite, above, but the tool is most often used to hold wood together.

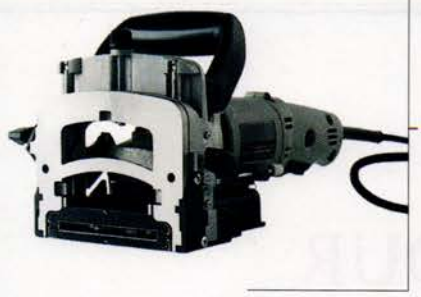
To clarify how biscuit joiners and their wafer-like connectors work, we made a 45-degree miter joint out of clear acrylic, cut into it with a biscuit joiner and inserted a red plastic biscuit. The system was the brainchild of Carl Steiner, a Swiss woodworker who invented it in 1944.

PHOTOGRAPHS BY ANTHONY COSTIFAS

Gold Standard

From the company that first introduced biscuit joining, this Swiss beauty is as durable as it is expensive. Features include a slip clutch to prevent kickback or motor damage if the blade catches a knot, rubber antislip buttons and a stout, finely machined fence. A clip-on thickness plate enables the tool to cut slots in stock less than 5/8 in. thick. 10,000 rpm, 6.4 amps.





Switch Blade

Fitted with a blade that has a diameter of either 2 in. or 4 in, this joiner can biscuit big and small. It has a rear-mounted switch, seven depth settings and a gritty, full-length antislip pad. 10,000 rpm, 7.5 amps.

Low Down

A snug profile puts the hand close in line with the easy-to-change 4-in. blade. The joiner's metal fence has rack-and-pinion gearing, six depth settings and a full-length rubber antislip pad. 10,000 rpm, 6.5 amps.

Upright

The only D-handled biscuit joiner has a convenient trigger switch, a 4-in. blade, three blade-depth settings for different biscuits and retracting antislip pins that barely penetrate the wood. 8,000 rpm, 5 amps.

No Cord

A rechargeable 12-v. ni-cad battery frees the joiner from proximity to a wall socket, a plus when trimming doors and windows. It has a 4-in. blade, six depth settings and two rubber antislip buttons. 24,000 rpm.

Compact

A blade with a 2-in. diameter cuts slots only for the tiny biscuits in picture frames. Features include a reversible 45- and 90-degree fence, a rubber antislip pad and three blade-depth settings. 20,000 rpm, 3.5 amps.

time it takes to make a weak joint with glue alone.

The first biscuiting tools in the United States were imported from Europe by the Lamello company 15 years ago. Not much more than an angle grinder with a 4-inch—or smaller—saw blade and chunky L-shaped fence on the nose, the biscuit joiner is finally beginning to break out of the woodworkers' insular domain and into the world of Harry Home Owner.

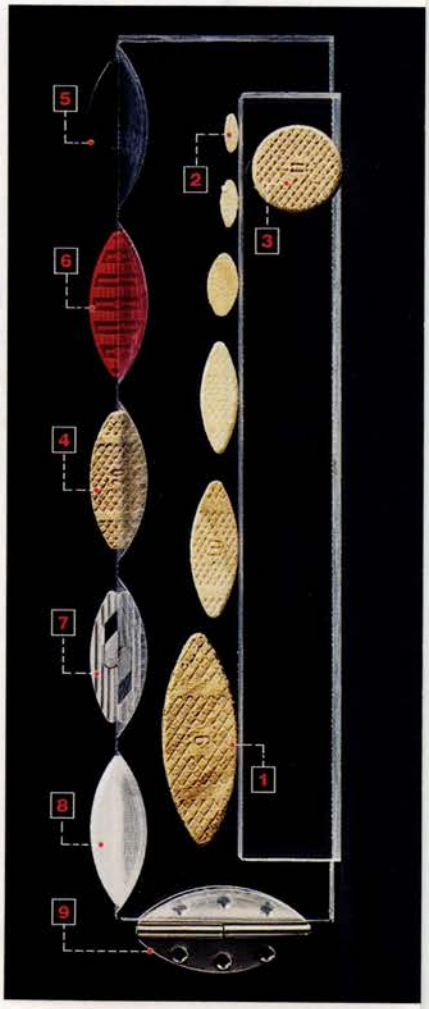
It may be, in fact, the perfect power tool: durable, forgiving, relatively safe and so easy to use that a novice can improve his woodworking abilities immediately. When Tom first picked one up 10 years ago, it was love at first plunge. "I saw instantly that it made wood joints strong and easier to assemble."

Before biscuits, a strong joint took lots of time both in the learning and the making. Dovetail and mortise-and-tenon joints need precision sawing and chiseling to create mating surfaces that meet exactly. Spline joints require a router or table saw, a sure hand and custom-sawn splines. Dowel joints use standard drill bits and wood pegs but demand absolute precision in layout and drilling. If one dowel is just a smidgen off, it will ruin the joint.

Contractors and home owners have had little time for such nonsense. When installing trimwork, they've used glue, nails and a prayer, and hardly seem surprised when

Pass the Biscuits

The best wood biscuits are beech, a wood that takes glue well and swells predictably. Die-cut from solid wood then imprinted with a moisture-absorbing pattern, they range in size from 3½-in.-long S-6s **(1)** *for thick stock, to diminutive ¾-in. R-2s* **(2)** *for picture frames. Round biscuits* **(3)** *are for kerfs cut with a router and a slot-cutting bit. Tom's favorite wood biscuit, the No. 20* **(4)**, *suits a variety of joining jobs. Not all biscuits are wooden. UV-resistant polypropylene biscuits* **(5)** *space wooden deck boards uniformly and anchor them invisibly with screws. Plastic clamping biscuits* **(6)** *grab wood without glue; they're used with wood biscuits in hard-to-clamp joints. Interlocking aluminum plates* **(7)** *allow joint disassembly. Plastic biscuits* **(8)** *join slabs of solid-surface countertops. The lozenge-shaped cabinet hinge* **(9)** *isn't a biscuit at all, but it needs a biscuit joiner to carve its mortises.*



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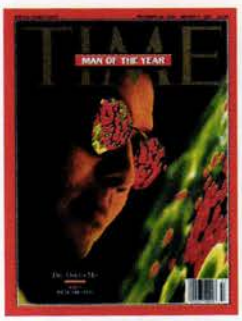

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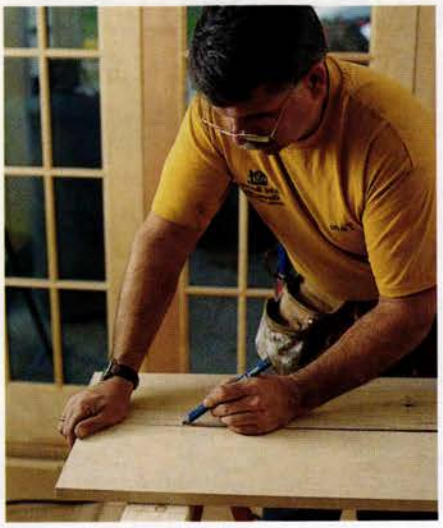

Marking

When Tom Silva biscuit-joins boards to make a shelf, marking layout lines couldn't be simpler. He simply marries the boards edge to edge, then strikes a line across the joint wherever he wants to plant a biscuit, every 10 in. or so. The marks on the boards show him where to make each plunge.

Cutting

Tom sets the depth dial to the size of biscuit he's using, flips down the fence and adjusts the blade's height to about half the board's thickness. The whole process takes less than 10 seconds. To cut the slot, he lines up the fence's red index mark with his pencil line, turns the tool on and pushes it into the wood. A thumb on the fence steadies the tool.

Joining

After cutting layout marks along the length of each board, Tom flips the boards up, runs a bead of carpenter's glue down both edges and smears it into the kerfs. He slips a biscuit into each slot on one board, mates the boards' edges and clamps them up. Moisture in the glue swells the biscuits, making a tight mechanical bond.

the joints open up later. Biscuits can't match the strength of tenons, splines or dowels, but in undemanding joints, they're stronger than glue alone. "I had to pull out a fresh-glued biscuit joint once," Tom recalls. "It wasn't fun."

Despite the confusing and unfamiliar knobs, markings and moving parts of a typical biscuit joiner, the tool is not difficult to operate. The user just holds the spring-loaded fence against a hard surface, turns the motor on and pushes. The carbide-tipped blade slides forward just enough to make its kerf, usually ½ inch deep. As the tool is pulled off the work, the fence covers the blade, protecting both it and the operator from harm.

This is a forgiving system. "You don't have to measure a layout," says Tom. He simply pencils a line across the joint and uses it as a target for the tool's index marks. Joints invariably fit because mating pieces can slide lengthwise about ⅛ inch without binding on the biscuit. And there's no fighting to keep glue-slick wood in place. A buried biscuit holds the mating surfaces in perfect alignment as the glue dries. "It's like having three hands," says Tom.

Uh-Oh

When Tom biscuits into a board's beveled edge (the bevel is hidden in this photograph), the cutting depth is critical. If he sets it too deep, the blade will exit through the face of the wood. To slot these miters, a joiner must have either a fence with an angled notch, above, or an add-on miter fence.

A biscuit joiner has few quirks. There's a slight tendency for the blade to pull to the left as it grabs the wood, but a thumb on the fence and the slip-resisting prongs, pads or buttons on the tool's face stop sideways movement. Tom also makes sure the face rests flat against the work. "It's more important to keep that correct than worry about small differences in blade position," he says.

Once a novice gets comfortable with the tool, its applications will seem endless. "There's always a use for a biscuit," Tom says. He rattles off the ways he uses them now: reinforcing damaged tongues on wainscoting, assembling exterior corner boards, indexing the long miters on soffits, attaching cabinet stiles to rails, joining boards edge-to-edge to make a tabletop, installing deck railings, blind-fastening cabinet panels, even assembling two-by-fours into a cheap bunk bed for his kids. Sometimes, he will deliberately slide the tool sideways, cutting a groove down a cabinet stile. Then he'll biscuit the adjacent stile as usual. As he screws the cabinets together, the little ovals are his insurance that their faces stay flush.

Tom says his biscuit joiner has become as essential as his constantly beeping cell phone. "I could work without it," he says, "but I wouldn't want to." And if this one breaks? "No problem," he says. "I've got six more in the truck." ■

PROCESS BY KELLER & KELLER

FOR SOURCES, SEE DIRECTORY – PAGE 145

SPECIAL ADVERTISING SECTION

HGTV
HOME & GARDEN TELEVISION

the enlightened home

well-built for well-being

Light. Space. Environment. Health. Harmony. Flexibility. Community. These are the cornerstones of a new ideal in American residential design, an ideal rapidly being embraced across the country. The idea is to build homes and communities that truly reflect and respect the most cherished values, the personal needs, and the diverse lifestyles of individual homeowners and to do so with as little impact on the environment as possible. It might best be called "enlightened" design.

BY CHARLIE POSONEIL

Photo: David Luttrell

Whether you're renovati

Charlie Brooks

David Livingston

"Enlightened" homes are designed to be considerably more than mere expressions of an architectural style or the manifestation of a real-estate marketer's alluring phrase. They represent a clear and deliberate attempt to understand the most important activities in and around a home and what that home actually means to its owners. People have always wanted good homes in nice environments. Now, on the eve of the 21st century, it is entirely possible to construct well-built homes that are good for the environment, good for the community and good for the people who live in them.

At Home & Garden Television we recognize this important shift to enlightened thinking about our homes and communities. With more than a dozen television programs on homebuilding and remodeling, we report on this and many other emerging trends in these fields every day. We also

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old house or building a new one...

cover just about every other home-related topic you can imagine, including gardening and landscaping, design and decorating, crafts and hobbies and a plethora of such special topics as auctions, collecting, home entertaining, food and much, much more.

But more about HGTV later. Let's take a deeper look at enlightened design.

One good example of enlightened thinking in building is on display at the National Association of Home Builders Research Park in Maryland. It's a showcase of homes built with new and exciting technologies and energy-saving, resource-conserving ideas. Here, entire precast foundations have been trucked in and installed by cranes, rather than poured. Some exterior walls have been constructed entirely of pre-manufactured, structural-insulated panels. Others incorporate "fitted" concrete blocks with foam-insulation cores. Still other walls went up shaped by polystyrene forms into which cement was poured. Some homes were built with steel frame studs recycled from, in part, old car bodies. On several homes here (photo, next page, left, top), advanced photovoltaic roof shingles that turn solar energy into electricity are being tested. Geothermal and other breakthrough heating and cooling systems are also in operation.

In the Home of the Future, recently opened in Dallas, Texas, ultimate flexibility is key. Designed by architect Barry Berkus, built by Centex Homes and sponsored by *Builder* and *Home* magazines, the Home of the Future features large rooms that can be made into smaller, modular spaces with walls that move on casters. The house is chockablock with other innovations: a poured polymer-mortar mix allowed bricklaying to be completed four times faster. A fireplace was built without a chimney: it vents directly outside. The geothermal heating system is 40 percent more efficient than conventional furnaces. The house is powered with photovoltaic roof shingles.

The Next House at McGill University in Montreal also features flexibility tied to lifestyle: Whole interior walls of the three-story demonstration house can be moved to fit the needs and lifestyles of the various homeowners; a second-story outdoor porch can be converted to a small children's room if needed; plumbing and mechanical equipment is easily accessible on every floor; the ground floor is wheelchair accessible.

The idea of designing and building houses that aren't bad for you is working its way into the mainstream. The American Lung Association's Health House (photo, below) features an HVAC system that filters out dust and pollen, and humidity hovers below 50 percent. The paints, finishes and furnishings contain no harmful toxins; hardwood planks and tile floors replace carpets that harbor allergens.

American Lung Association


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Walter P. Callahan

In Barbara Clark's Texas home, a rainwater-collecting system supplies year-round water for the house; her roof panels are made of recycled metal; the floors are stained concrete; the walls are painted with low-toxic paints; the carpets are natural; and the whole house is passively cooled and heated by the sun.

American homebuilders look to old as well as new materials to build environmentally friendly houses. For instance, straw-bale houses are becoming popular, especially in the West. One great advantage to straw is its insulation values, say experts. To equal the R-factor of a straw-bale house, walls of a conventional stick-built house would have to be 19 inches thick and have an R-factor of 57.

With lumber prices going up one-third in the last 10 years, many alternatives to conventional lumber are making their way to market.

Charlie Brooks

Oriented strand board, less expensive and just as omnidirectional as plywood, is used for sheathing and subroofing. Engineered lumber (photo, left), which utilizes small strips of wood pressed and resined together into dense boards, is also becoming a commonly accepted material. Floor joists of engineered lumber are lighter, easier to use and span greater distances with less wood than dimensional lumber. And walls of engineered lumber are perfectly straight, have no twists in the wood and are great for hanging cabinets and moldings.

Advancements in concrete block and insulated-concrete building systems are making concrete an attractive alternative to wood. One product–I.C.E. Block–is a 9 1/4 inch-thick, poured-in-place polystyrene foam form that, when glued together, laced with rebar and filled with cement, has the insulative values of a 19-inch-thick, stick-built wall. Precast aerated concrete blocks by Hebel (photo, above) weigh 20 percent less than standard concrete, so they cost less to transport and are much easier to move.

Courtesy of Hebel U.S.A.

Steel-frame houses make up less than 5 percent of all new-house construction, but they are catching on. Built with cold-formed, recycled-steel alloys, steel-frame houses are termite- and rot-proof, provide straight, crisp walls and greatly exceed wind and seismic codes. Though a little more expensive than those built with conventional lumber, they are gaining popularity.

Perhaps the most interesting advancement in enlightened thinking about homes and communities is in the recent development of whole new towns. The first of these new towns is the retirement-vacation

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The Very Best

Home & Garden Television is dedicated to providing our viewers with the absolute best in television programming about the home. Through such weekly programs as *Dream Builders*, *Homebuilding Digest*, *Your New Home* and *Dream House*, we keep our finger on the pulse of the major trends in home-building. Our look into the future–*21st Century Homes*–gives viewers a taste of what's to come in the next millennium. In *Extreme Homes*, we visit truly unusual–even, extraordinary–residences.

And there's more. We have a workshop full of remodeling and home-improvement shows as well: *Fix it Up!*, *Remodeling & Decorating Today*, *Hands On*, *The House Doctor* and *Homewise* give our audience the tricks of the home-improvement trade. *Before & After* follows the often radical transformations of homes undergoing major renovations.

Charlie Brooks

Finally, in the ongoing effort to air the very best programming about homes and gardens, we are proud to say that *This Old House Classics* is now on HGTV every weekday and weekend. You can see some of the phenomenal renovations, from start to finish, that constitute the classic years of *This Old House*.

To learn more about HGTV, feel free to call us at 800-HGTV-275 (800-448-8275) or visit HGTV Online at www.hgtv.com. To learn whether HGTV is available in your area, check your local listings or call your local cable operator.

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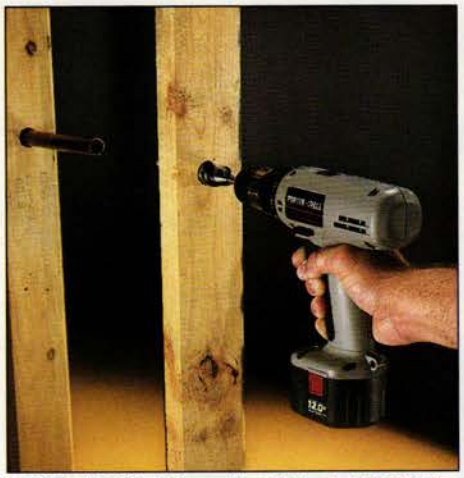
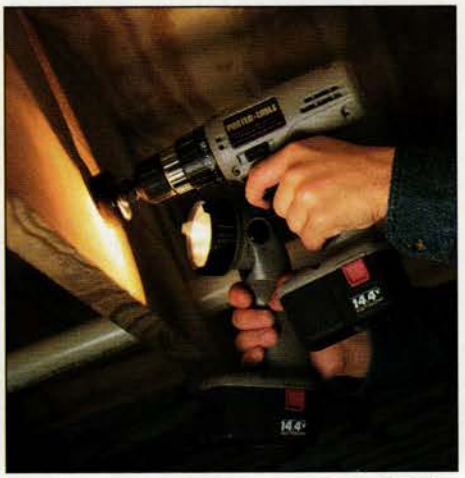
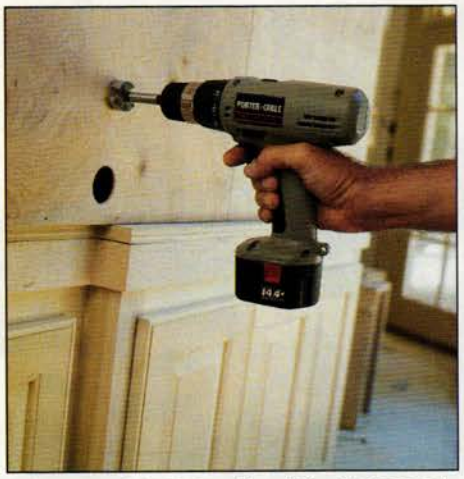


3/8" 12V T-Handle (Model 9862)



3/8" 14.4V T-Handle with Flashlight (Models 9872 & 871)

3/8" 12V Push-Handle with Flashlight (Models 9863 & 861)



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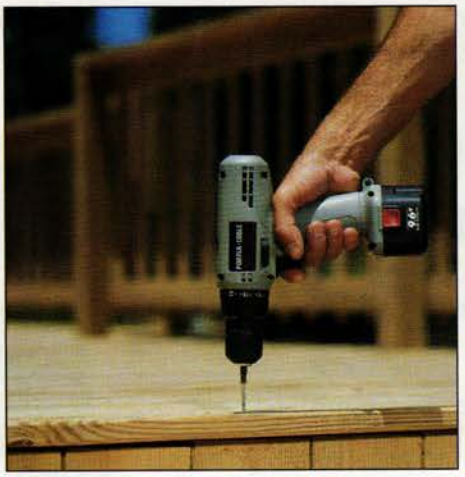
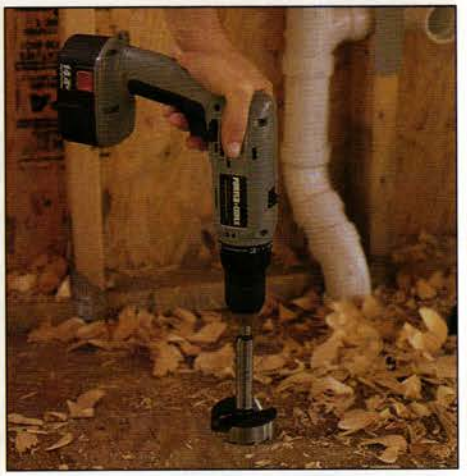


3/8" 9.6V T-Handle (Model 9830)



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Walter P. Callahan

village of Seaside, Florida, which is now more than 10 years old. Small, classically designed but colorful homes with front porches overlooking winding, narrow streets defined a new standard for people-sensitive community planning. Since the opening of Seaside, new towns have sprouted up in such places as Celebration, Florida, Gaithersburg, Maryland (photo, above), and along the Oregon coast. These communities, patterned with principles drawn from 19th-century town planning but incorporating modern conveniences, highlight values-based planning at its best: pedestrian-friendly streetscapes, working and shopping areas within walking distance, public parks, lots of water and greenway features and neo-traditional home designs.

Whatever your interests in architecture or your tastes in design, enlightened thinking enhances America's homes and communities. As one builder said about standard building practices, "We won't be able to continue to do what we are doing if we continue to do what we are doing." Put another way, it's smart to get enlightened.

Courtesy of Hotel U.S.A.

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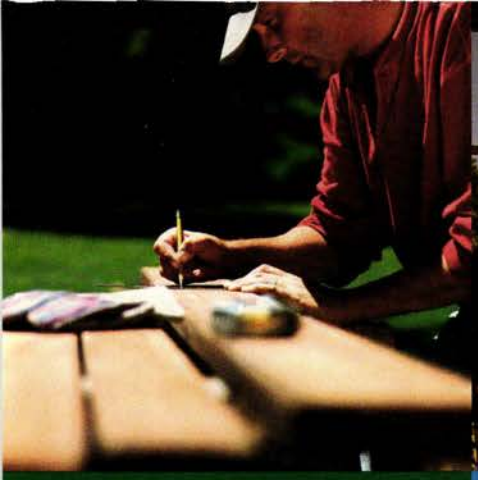

So many weekend projects.

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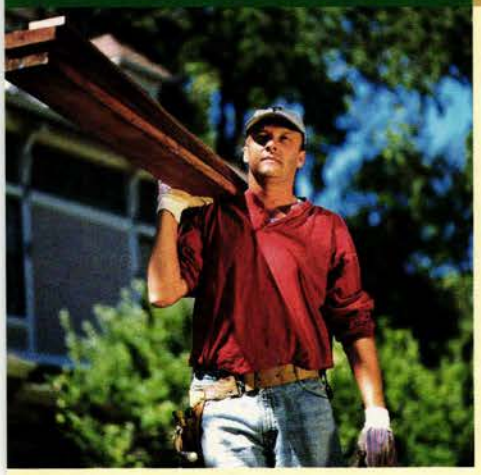

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march 1998 schedule

EASTERN	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	PACIFIC
6:30 am	House Doctor					Simply Quilts	Simply Quilts	3:30 am
7:00 am	This Old House Classics					Winter Gardening	Hands On	4:00 am
7:30 am*	New Yankee Workshop	Hands On	New Yankee Workshop	Hands On	New Yankee Workshop	Great Indoors	Hands On	4:30 am*
8:00 am	Today at Home					New Yankee Workshop	New Yankee Workshop	5:00 am
8:30 am	At the Auction	Collectible Treasures	At the Auction	Collectible Treasures	At the Auction	House Doctor	House Doctor	5:30 am
9:00 am	Carol Duvall Show					House Doctor	House Doctor	6:00 am
9:30 am	Sew Perfect	Simply Quilts	Sew Perfect	Simply Quilts	Sew Perfect	Your New House	Your New House	6:30 am
10:00 am	What's Your Hobby?	Party at Home	All in Good Taste	Buy Smart	Company of Animals	Fix It Up!	Fix It Up!	7:00 am
10:30 am	Awesome Interiors	Kitchen Design	Kitty Bartholomew	Room by Room	Haven	Designer's Landscape	Designer's Landscape	7:30 am
11:00 am	Decorating With Style					Breaking Ground	Breaking Ground	8:00 am
11:30 am	Dream Builders	Your New House	Homebuilding Digest	Your New House	Before & After	Gardening by the Yard	Gardening by the Yard	8:30 am
Noon	Homewise	Fix It Up!	Homewise	Fix It Up!	Homewise	This Old House Classics	This Old House Classics	9:00 am
12:30 pm	House Doctor					This Old House Classics	This Old House Classics	9:30 am
1:00 pm	Breaking Ground	Designer's Landscape	Garden Architecture	Designer's Landscape	Gardening by the Yard	What's Your Hobby?	Homewise	10:00 am
1:30 pm*	Victory Garden					Company of Animals	Kitty Bartholomew	10:30 am*
2:00 pm	Carol Duvall Show					Carol Duvall Show	Room by Room	11:00 am
2:30 pm	Sew Perfect	Simply Quilts	Sew Perfect	Simply Quilts	Sew Perfect	Carol Duvall Show	This Small Space	11:30 am
3:00 pm	Decorating With Style					Great Indoors	Decorating With Style	Noon
3:30 pm	Awesome Interiors	Bed & Bath Design	Kitty Bartholomew	Room by Room	Haven	Winter Gardening	Furniture Show	12:30 pm
4:00 pm	Today at Home					Gardener's Journal	Gardener's Journal	1:00 pm
4:30 pm	At the Auction	Collectible Treasures	At the Auction	Collectible Treasures	At the Auction	Gardener's Diary	Penelope Hobhouse	1:30 pm
5:00 pm	Gardener's Journal					Special Presentation	Special Presentation	2:00 pm
5:30 pm	Breaking Ground	Designer's Landscape	Garden Architecture	Designer's Landscape	Gardening by the Yard			2:30 pm
6:00 pm	Victory Garden					All in Good Taste	Victory Garden	3:00 pm
6:30 pm*	Dream Builders	Your New House	Homebuilding Digest	Your New House	Before & After	Spencer Christian's Wine	Grow It!	3:30 pm*
7:00 pm	This Old House Classics					At the Auction	This Old House Classics	4:00 pm
7:30 pm	House Doctor					Collectible Treasures	Dream Builders	4:30 pm
8:00 pm	At the Auction	Gardening by the Yard	Dream Builders	21st Century Home	Party at Home	Kitty Bartholomew	Before & After	5:00 pm
8:30 pm	Collectible Treasures	Surprise Gardener	Breaking Ground	Location	All in Good Taste	Decorating Cents	Extreme Homes	5:30 pm
9:00 pm	Kitty Bartholomew	Room by Room	Country at Home	Furniture Show	Awesome Interiors	Room by Room	Special Presentation	6:00 pm
9:30 pm	Homewise	Decorating Cents	Interiors by Design	Willard Scott's Almanac	This Small Space	Room for Change		6:30 pm
10:00 pm	Grow It!	Kitchen Design	Special Presentation	Company of Animals	Great Antiques Hunt	Interiors by Design	Good Life	7:00 pm
10:30 pm	Gardener's Diary	Best of American Design		What's Your Hobby?		Bed & Bath Design	Homes Across America	7:30 pm
11:00 pm	At the Auction	Gardening by the Yard	Dream Builders	21st Century Home	Party at Home	Kitty Bartholomew	Before & After	8:00 pm
11:30 pm	Collectible Treasures	Surprise Gardener	Breaking Ground	Location	All in Good Taste	Decorating Cents	Extreme Homes	8:30 pm
Midnight	Kitty Bartholomew	Room by Room	Country at Home	Furniture Show	Awesome Interiors	Room by Room	Special Presentation	9:00 pm
12:30 am	Homewise	Decorating Cents	Interiors by Design	Willard Scott's Almanac	This Small Space	Room for Change		9:30 pm
1:00 am	Grow It!	Kitchen Design	Special Presentation	Company of Animals	Great Antiques Hunt	Interiors by Design	Good Life	10:00 pm
1:30 am	Gardener's Diary	Best of American Design		What's Your Hobby?		Bed & Bath Design	Homes Across America	10:30 pm
2:00 am	This Old House Classics					At the Auction	This Old House Classics	11:00 pm
2:30 am*	New Yankee Workshop	Hands On	New Yankee Workshop	Hands On	New Yankee Workshop	Collectible Treasures	Dream Builders	11:30 pm*
3:00 am–6:30 am	Long-Form Paid Programming	Long-Form Paid Programming	Long-Form Paid Programming	Long-Form Paid Programming	Long-Form Paid Programming	Long-Form Paid Programming	Long-Form Paid Programming	Midnight–3:30 am

Building & Remodeling **Decorating & Interior Design** **Gardening & Landscaping** **Crafts & Hobbies** **Special Interests**

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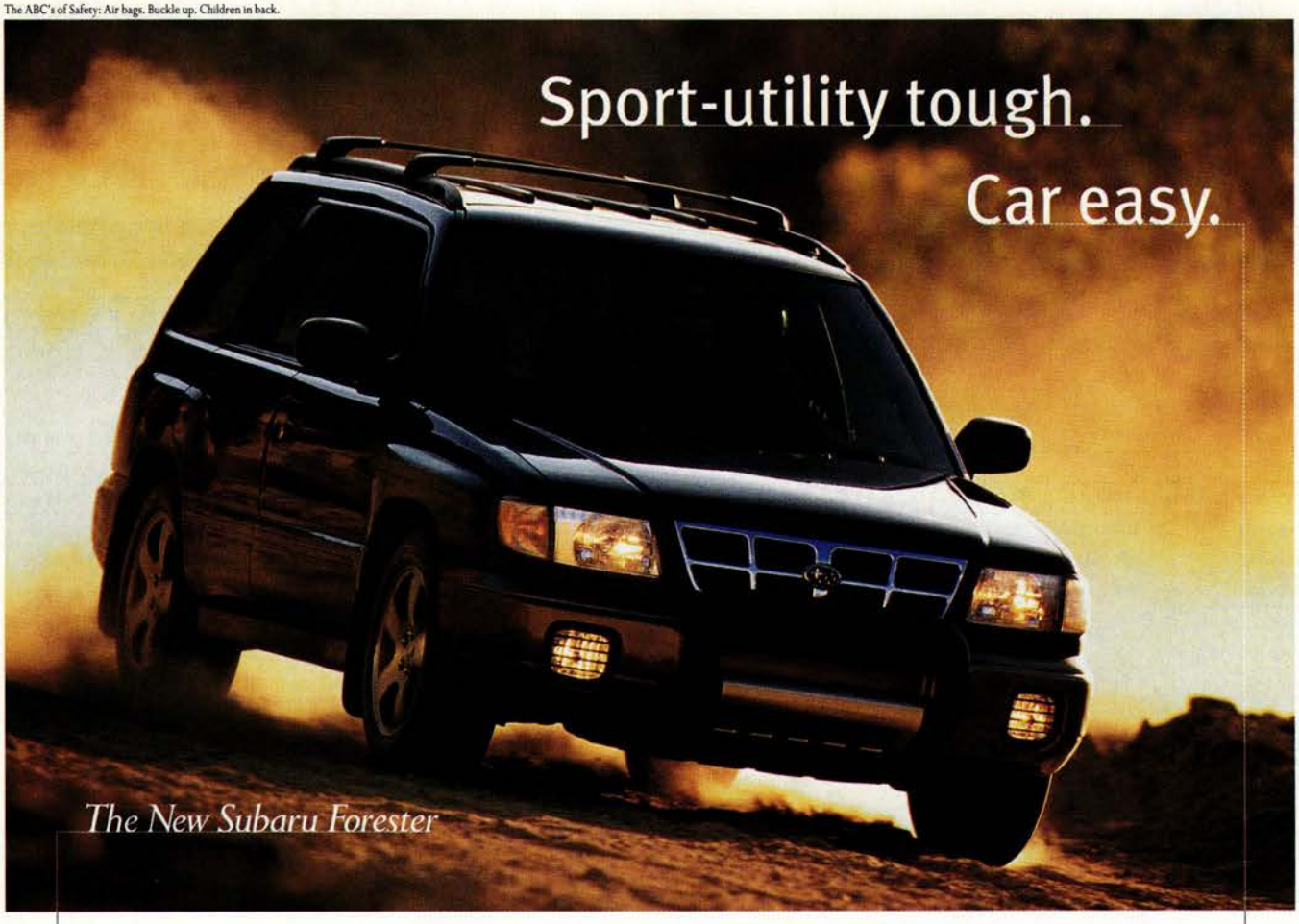

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SUBARU

The Beauty of All-Wheel Drive.®

BY JEFF TAYLOR

Before carbide blades and ergonomic handles, thick-bladed, wooden-handled scrapers did the donkey-work of removing paint from wood. Slanting the blade at a 30-degree angle to its direction of travel improves the peeling action.

GOOD-BYE, OLD PAINT

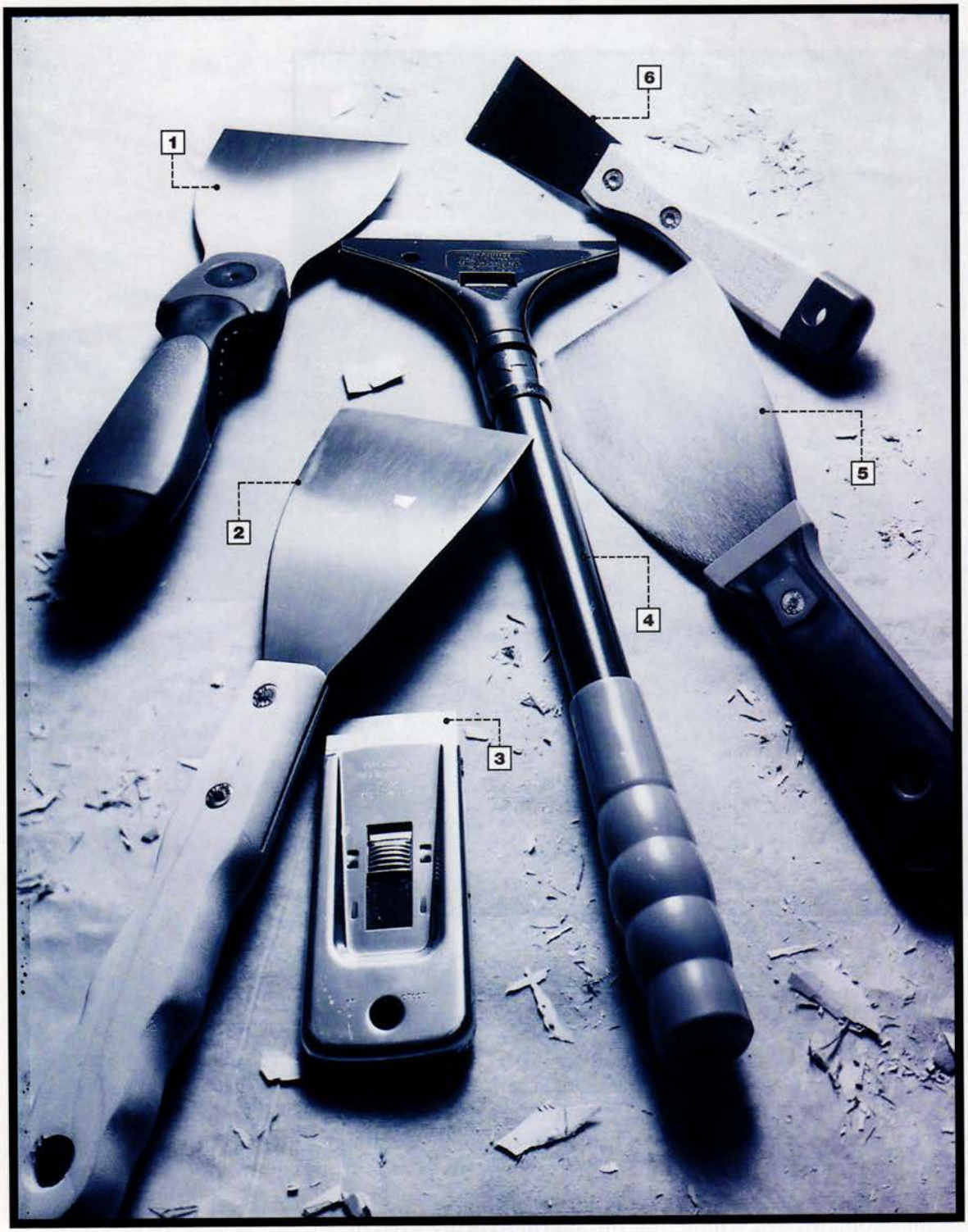
Scrapers take it all off

For sheer pleasure in the work, no renovation job gives less than scraping. It builds character, not happiness. To appreciate how hours can flit by—like glacial epochs—try pulling paint off hand-carved woodwork covered in white lead by some Victorian vandal, followed down the decades by coats of salmon, lime, chartreuse and mauve. Afterward, for even more personal growth, strap on some knee pads and take to peeling the varnish off an oak floor.

Scrape may have an unpleasant onomatopoeic sound, but the alternatives are even uglier. Sanding by hand is too slow and dusty, power sanding erases details and leaves gouges, and chemical stripping creates a toxic goo that still requires scraping. Together, a well-honed scraper and a pure heart can lead to ecstasies of scraping perfection, those heavenly moments when each stroke peels away long strips of encrusted paint to reveal the lovely wood hidden beneath. Anyone still scraping with grandfather's heirloom, however, will find this job pluperfect hell.

At 19, my first paint scraping mission was stripping the badly alligatored lead paint on an old house. (We should have worn respirators and disposable clothing, but this was back in the '60s.) My three tools were an old deck scraper with a triangular head, a brass blowtorch and the traditional navy bar, a steel hook good for battleships

PHOTOGRAPHS BY MICHAEL GRIMM



THE PUSHERS

On painted wood, push scrapers work best with a heat gun or chemical stripper. If pressed too hard against the wood, the scraper's corners will dig in and leave rippled gouges on the surface.

1. The ergonomically designed rubber-and-plastic handle includes a spot for thumb or forefinger to guide pushing pressure. 2. A scraper's bent shaft spares knuckles a scraping. 3. Standard razor blades remove errant paint strokes from glass. A spritz of water prevents scratching. 4. A wallpaper scraper strips most efficiently when angled at about 30 degrees. Its head unscrews to accept a longer handle for out-of-reach areas. 5. Stiff rust-resistant stainless-steel blades remove paint better than do flexible blades, which are more suitable for puttying. 6. The beveled chisel edge of a 1½-in. scraper helps it slide under paint and curl it off.

and little else. I was blundering along, popping some of the bigger blisters on the paint—and on my hands—until my boss took pity on me. He explained the need to keep scraper blades honed by filing them every five minutes (lead paint is abrasive as well as toxic) and showed me how to stroke the file toward the edge not off it, which leaves a fragile edge. After that, the work must have gone faster, because a week of scraping paint aged me only five years, and my forearms bulged and rippled like Popeye's.

Too bad my boss didn't know the other secret of easy scraping: a variety of good modern tools, exceedingly sharp, some with wide blades that peel the crud off in a single pass, others designed for narrow planes and tiny crevices where the corner of a wide one would do damage.

All paint scrapers are divided into two types: push and pull. The most common push scrapers look like double-wide putty knives with stiff blades designed to slip under and pop off loose paint. The best ones have full-tang blades that go from the working edge to the handle, which can range from fairly standard to cleverly ergonomic, made of rubber, nylon or wood. Some push scrapers have hammering surfaces on the butt; others have screw sockets for poles to increase the reach. These work well for flooring adhesive, putty and caulk softened with a heat gun or for well-soaked wallpaper, but they tend to slide over all but the most thoroughly exfoliated surfaces or nosedive into wood grain.

A pull scraper, on the other hand, can exert more downward thrust and sink the blade under the paint. The tool can

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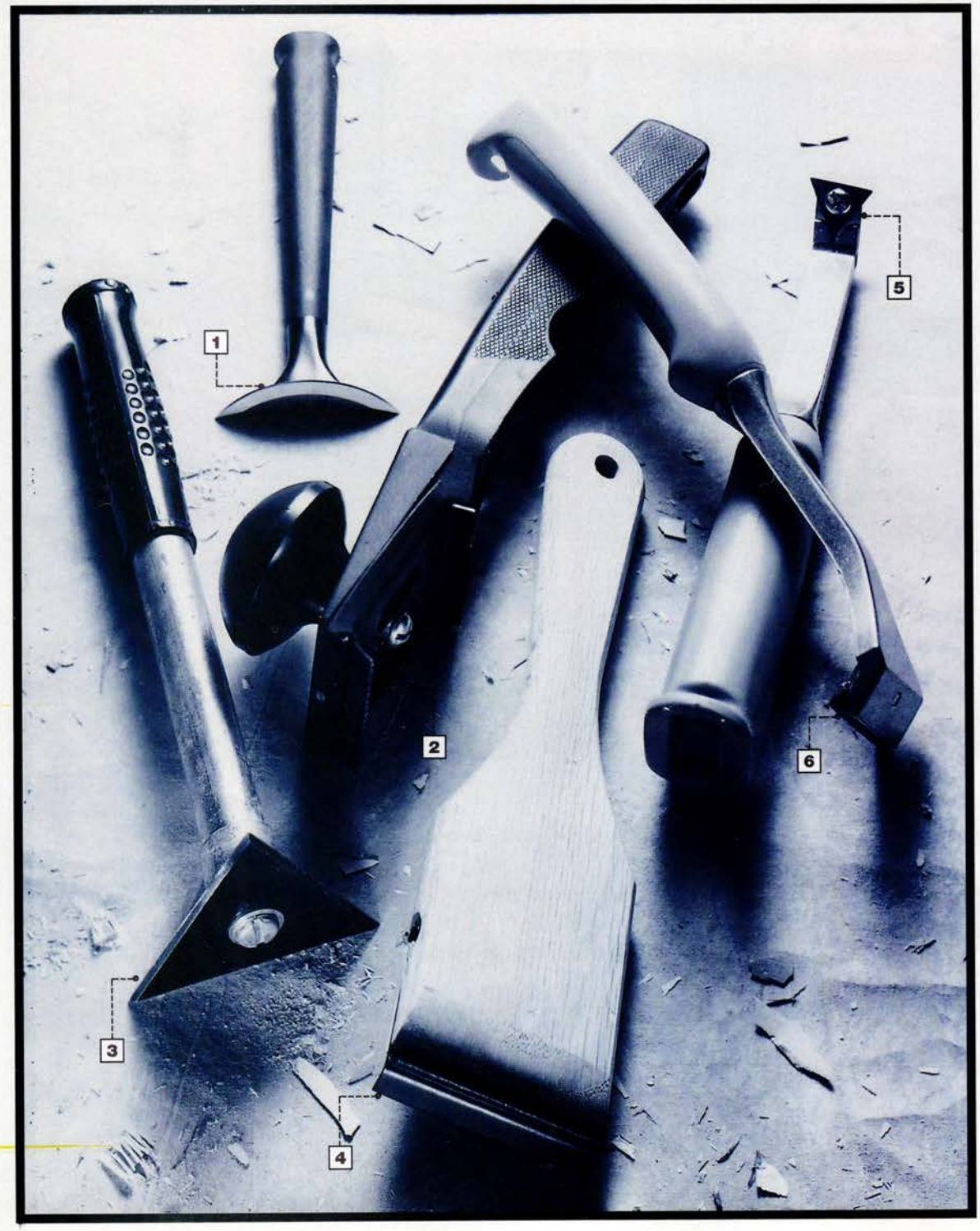
THE PULLERS

Pull scrapers are the natural choice for wood because they have smaller, more stable blades, which makes applying pressure easier. For tough jobs, a knobbed handle helps both hands get into the act.

1. *Interchangeable stainless-steel blades have multiple profiles for molding, trim and grooves.* **2.** *Four-edged blades reduce the number of sharpening interruptions.* **3.** *A three-edged tool's perpendicular blade limits its angle of attack on paint but works wonders on glue cleanup.* **4.** *Old-fashioned paint scrapers offer a wide wooden head for two-handed work.* **5, 6.** *Hand-friendly handles have a 20-degree blade angle that rips off paint without damaging wood. Both handles are fitted with blades of carbide, which keeps its edge 50 times longer than stainless steel. Designed for detail work, the 1-in. triangle blade* **5,** *rotates twice to prolong use.*



go into the corners of tiny little reveals or scrape down bowling alleys with equal ease, and the blade can be switched to its sharper edge when it gets dull. Most modern pull scrapers have removable blades with two or more edges, in widths from 1 to 5 inches.

Blades held at an angle slightly toward the handle won't damage the wood as easily as blades held perpendicular to the wood. One favorite type has two handles and eight interchangeable stainless-steel blades. They require frequent sharpening, but their curvaceous edges can scoop out the most intricate grooves, flutes and ogees from paint-smothered moldings.

The latest in pull-scraping technology is tungsten carbide, a harder-than-almost-anything alloy that saves a lot of blade filing. The ads claim that carbide blades are two and a half times harder than the best steel, and now I believe them. I used one on both rusted iron and old oak, and the edge stayed perfectly keen. Of course, carbide replacement blades cost thrice as much as steel and require a diamond-studded honing stone to touch up their edges. But in scraping, money spent is sweat saved.

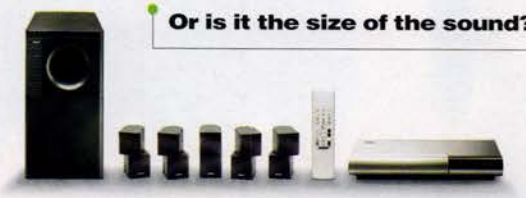
When shopping for scrapers, trust your hands. If the manufacturer has shaped the handle scientifically to reduce fatigue and minimize tunnel-scrapal syndrome—as I like to call it—the tool will feel like an extension of your arm. Labels such as "contractor's grade" and "professional quality" sound nice, but "full warranty" is more reassuring. Personally, I was moved by one company's simple boast: "guaranteed forever." As I recall, that's how long my first scraping job seemed to last. ■

FOR SOURCES, SEE DIRECTORY – PAGE 145

As you begin your search for the ideal home theater audio system, ask yourself what's important:

Is it the size of the equipment?

Or is it the size of the sound?



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BY CURTIS RIST

PANE RELIEF

The fail-safe way to install a window

Before Tom Silva's tango with this 80-lb. replacement window, he fastens waterproof splines around the opening, over the building paper. At the bottom of the window, he laps the splines over the flashing so water will drain away from the wall. The spline at the top of the opening goes on last to overlap the two pieces on the sides. Tom normally tops windows with wood or metal flashing but, because the overhanging soffit keeps water out, no flashing is needed.

The old white-pine window with its hand-planed muntins and peg-jointed sash had withstood the assault of snow, rain, ice and wind for about 270 years. By the time *This Old House* contractor Tom Silva found it in the upstairs back bedroom of the Milton dream house, it looked its age, the victim of rainwater splashing back from a porch roof. "The sash didn't work, the side jambs were rotted 6 inches up and you could stick your finger right through the sill," says Tom. "The cost of repairing this window would have been more than it was worth. It was just totally gone." In short, the time had come to replace it with a new one.

When functioning properly, a window lets in the best of the outdoors in the form of light and fresh air. When a window fails, it lets in too much of the outdoors—not just cold winter drafts but also water, a house's ultimate enemy. Moisture seeping in from the outside or condensing on cold surfaces inside can deteriorate a window's frame and, if unchecked, will destroy the structural integrity of a wall. In

PHOTOGRAPHS BY KELLER & KELLER

these cases, a new window becomes a priority. "You can replace the sash alone," says Tom, but he recommends taking that course only if frames and sills are still square and in good condition. "If you find any rot, the entire window unit should be removed and replaced."

At *This Old House*'s fall project in Milton, Massachusetts, Tom saved the nine early Georgian windows in the front to "keep the feel of the house," he says. Each one was laboriously rebuilt with epoxy and then weather-stripped. In the rear of the house, however, the few remaining original windows had become lost in a hodgepodge of tacked-on additions, so replacing them with new, energy-efficient ones made sense.

Once he had removed the sash and torn out the old window frame, Tom inspected the studs and found them sound. (Had they not been, he would have replaced them too.) He measured the rough openings, from stud to stud and header to rough sill, and placed his order. When the windows arrived four weeks later with weather-stripped preprimed sash mounted in the jambs, they were ready to pop in.

Well, almost. First, like any good window installer, Tom had to detail the opening to keep water out, keep heat in and make sure the unit looked its best inside and out.

When Tom installs a new window, his foremost goal is to make its perimeter watertight so it won't have to be replaced again. "I can't tell you how many times I've seen windows in relatively new houses completely rotted out," he says. To prevent that, he peeled off the old siding, protected the exposed sheathing with asphalt-impregnated kraft paper and stapled a waterproof, 9-inch-wide spline of fiberglass-reinforced polyethylene around the window opening. "It's the single most important step in the process," he says, because it keeps water from finding its way past the sheathing and into the framework. House wrap alone won't do. "That's an air-infiltration barrier and does nothing to stop water," says Tom.

After stapling the splines, Tom slid the window, bottom edge first, into its opening. Once he centered the unit, he tacked

ON THE OUTSIDE...

Wooden windows last longer with one moisture-repellent coat of oil-based primer on the back of the casing. It may be overkill, says Tom, but priming protects the wood from moisture exiting the house or seeping around the edge of the casing during a rainstorm. The exterior of the casing and sash was primed at the factory.

Tom can't find new windows with sills as thick as the old ones, so he orders sill extensions. First he spreads construction adhesive between sill and extension. Then he clamps them together with screws before caulking any remaining gaps. After belt-sanding and painting, the glued-up sills closely match the one-piece originals.

ON THE INSIDE...

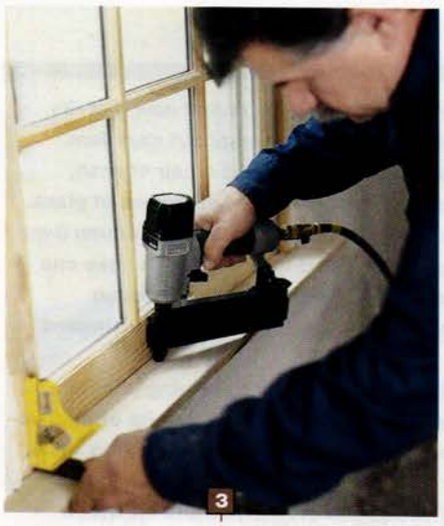
In older houses with uneven walls, Tom often makes jamb extensions to bring the jambs flush with the wall or even a bit proud of it. To find the right extension size, he holds a board against the wall and looks for the widest gap between it and the jamb's edge—½ in. in this case. Then he rips a strip of wood to the same thickness.

Tom attaches the ½-in. jamb extensions to the side and top jambs with glue and brads. Because he nails all window trim to the jambs, these extensions provide him a flat plane on which to work. "I won't have to battle irregular walls," he says. He'll deal later with any of the gaps that crop up between the trim and wall.

Tom's level shows that the window is slightly higher on the right, a problem he can correct either by taking it out and trimming a bit off the lower end of the right jamb or by shimming up the left jamb. Before he fastens the window to the wall, he slides both sash open and shut as a final check that everything is OK.

Tom affixes the window to the framing permanently with 2½-in. stainless-steel screws placed 12-16 in. apart. (No screws through the sill, though.) "You want to make sure they're going into the structure of the wall, not just the sheathing," he says. Afterward, he'll either putty over the holes or leave them flush and paint the heads.

Before he nails the siding in place, Tom guns sealant between the window casing and the spline, creating one more barrier against leaks. Then he squishes the ends of the clapboards into the goop and nails them down. Shielded in this way from ultraviolet rays, the caulk should last years longer than its warrantied life span.



The stool, a piece of poplar 1 in. by 3½ in., is long enough to project ½ in. beyond the edges of the side casings. With a series of scribes and cuts, Tom fits the stool within a "hair's width" of the sash; then he glues and brad-nails it to the sill at 6-in. intervals. Bracing a combination square against the frame keeps the stool level as he nails.

Once the stool is in place, Tom trims the rest of the window with poplar, nailing it tight to the jambs. The low ceiling forces him to install the head casing before biscuit-joining the side pieces to the head trim. (It's easier to trim the head last.) He then anchors the lower end of each side casing with a screw through the stool.

At the end of the job, Tom nails the apron beneath the stool. He sands the newly installed trim to remove mill marks. It all fits perfectly—except for the slender gaps between the side casings and the uneven wall. "I could just fill them with caulk," he says. Instead, he carefully scribe-fits strips of poplar and glues them in place.

it in place through the casing with a 10d galvanized nail. Then he plumbed, leveled and checked its squareness by measuring both diagonals, just to make sure it hadn't racked during the installation. Tom's last tasks on the outside were to screw the window to the framing and snug the siding against the casing. Next he moved inside to apply the trim and insulation.

Freshly painted, a new window at the back of the Milton house blends in seamlessly with the Georgian originals gracing the facade.

He started by shimming the gap between the window jamb and the framing, then he insulated it. Overlooking that step can allow condensation to form inside the wall and wreak as much havoc as rainwater. Loose-packed fiberglass needs a vapor barrier, so Tom insulates and stops vapor in one step with canned polyurethane foam, a product he chooses and applies with care. "You don't want triple-expanding foam in a ¼-inch space," he says. It can bow the jambs and make a window impossible to open. Even with the minimally expanding variety, which increases in volume only by half, less is better. "If you use it and don't think you've got enough, you've got enough," says Tom.

The last step of the window installation was to cover the exposed jambs and the rough plaster edges with wood trim. Tom surrounded the opening with a plain band of poplar with a single routed bead, just the simple detail the Milton house demands. As he stood back to assess his handiwork of the last three hours, the swaying branches of a century-old hemlock dappled the light shining through. "That first window lasted a couple hundred years," he says. "Let's hope this one lasts even longer." ■

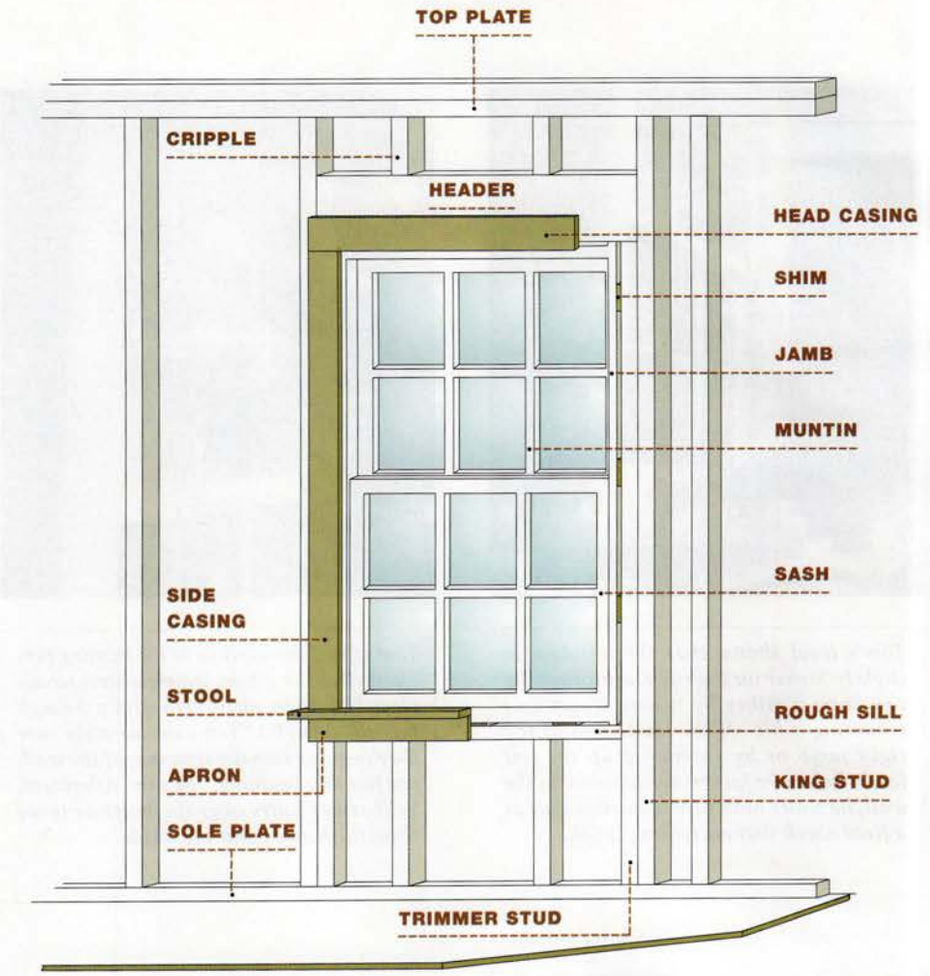


ILLUSTRATION BY MARK BOESHAUER

How to Order a Window

When Tom Silva needs new windows to remodel old houses, he tries to find new that fits with the old. "You want to take all the steps to make sure they look original," says Tom.

At the Milton dream house, for example, the old windows each had a pair of sash, single-hung (only the lower one slid up and down), and each sash had six panes of glass. When Tom placed his order, he asked for what is known in the trade as double-hung (two sliding sash) six-over-sixes. For energy efficiency, he specified that each sash have one panel of insulated glass and, for appearances' sake, he requested applied wooden muntins, inside and out, with metal spacers between the glass panes. "It approximated the look of the oldest windows," says Tom.

His window order also included the width and height of the rough opening (the hole formed by the header, rough sill and studs). These cannot be estimates. "Quite often, I've seen home owners try to guess the size of the rough opening based on where they think the sill plate is, rather than taking off the trim to find out exactly," says Todd Dalen of the architectural division of Marvin Windows. "And if you guess wrong, you end up with a window shorter than the one you're replacing." By industry custom, the width always comes before the height. Properly sized, a new window won't have to be squeezed into the rough opening. Dalen says there should be ½ inch of space on the top and sides for proper shimming and insulation. The window should rest directly on the rough sill.

Finally, Tom made sure the replacement windows arrived at the site complete with flat, primed exterior trim 3 inches wide to match the originals. He could also have ordered the windows with an exterior nailing flange and attached his own trim. "That's useful if you want more elaborate trim," he says. "In that case, you have to make it yourself."

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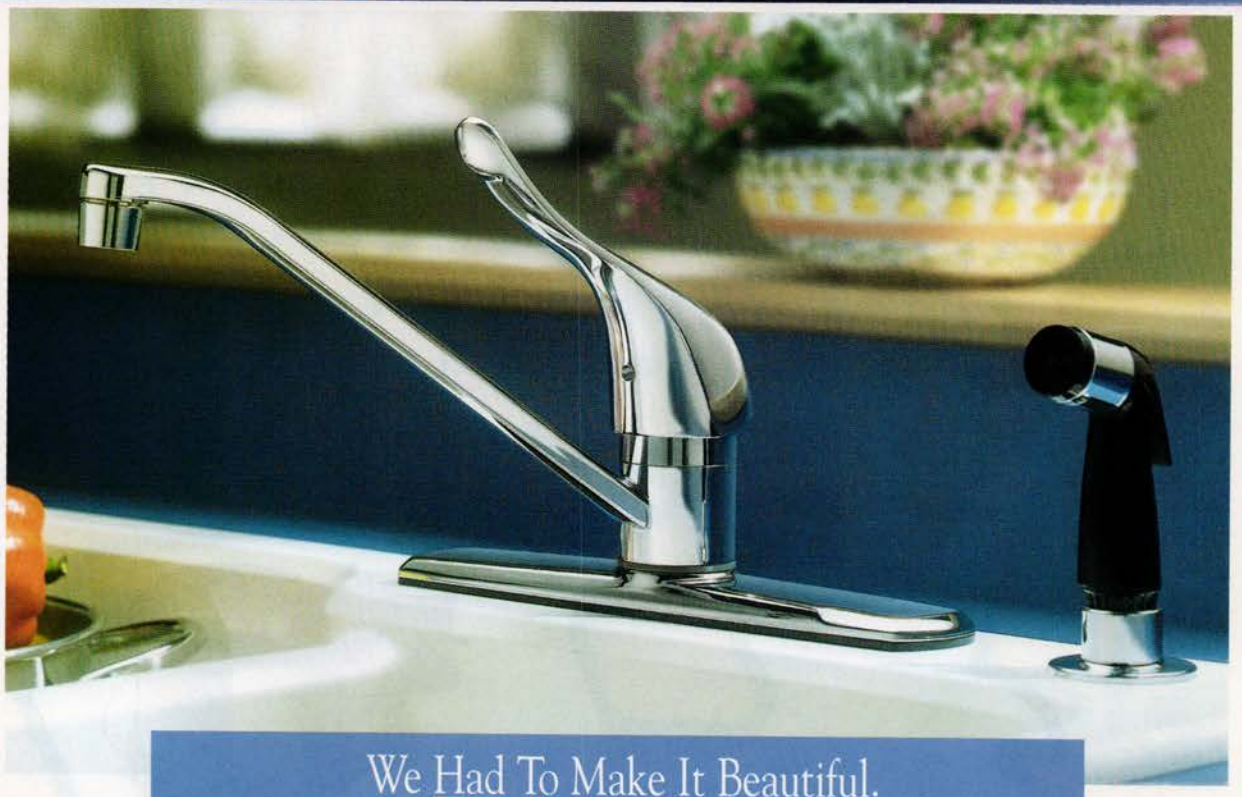

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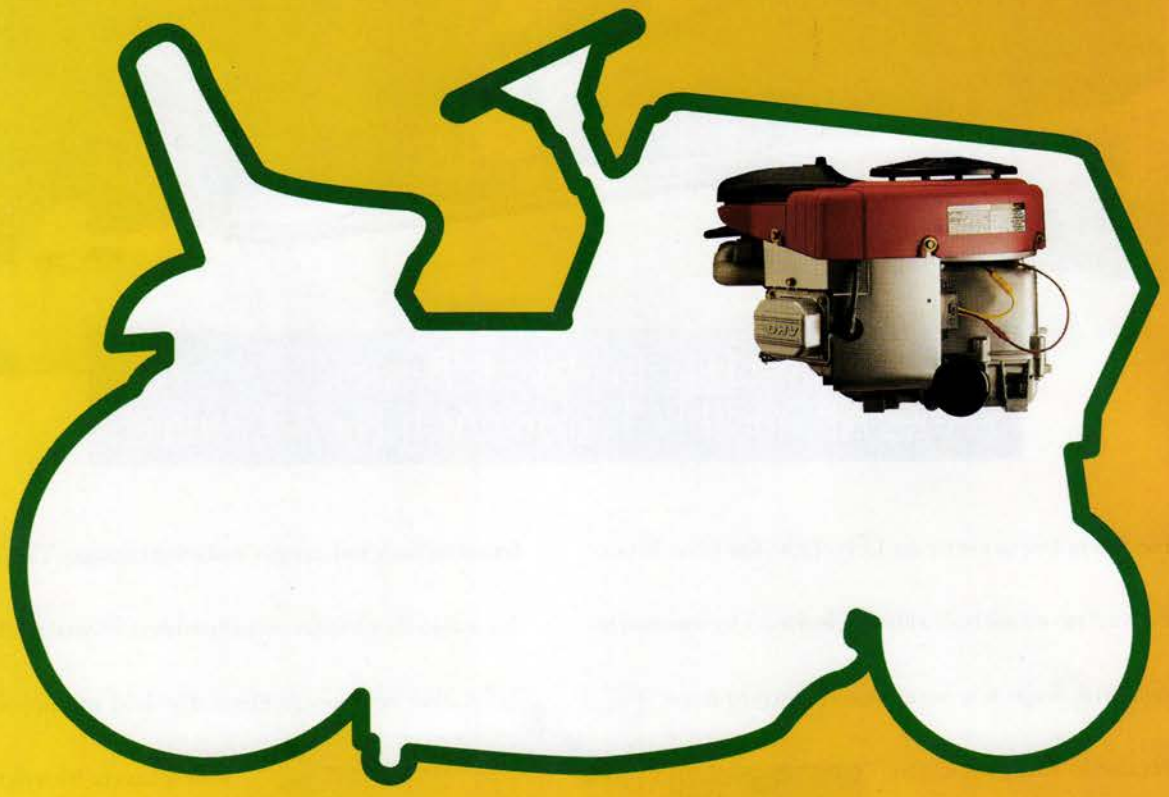

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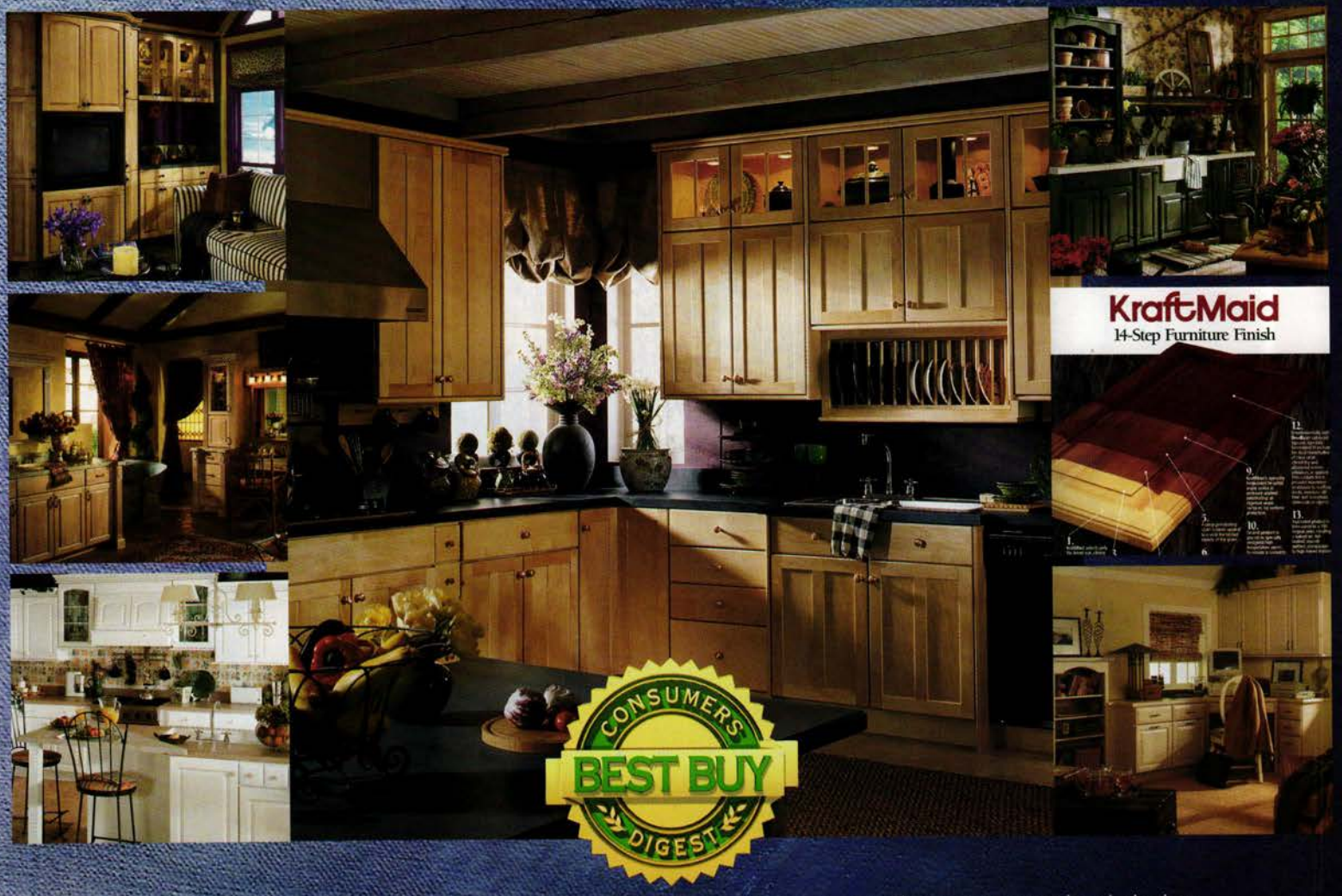

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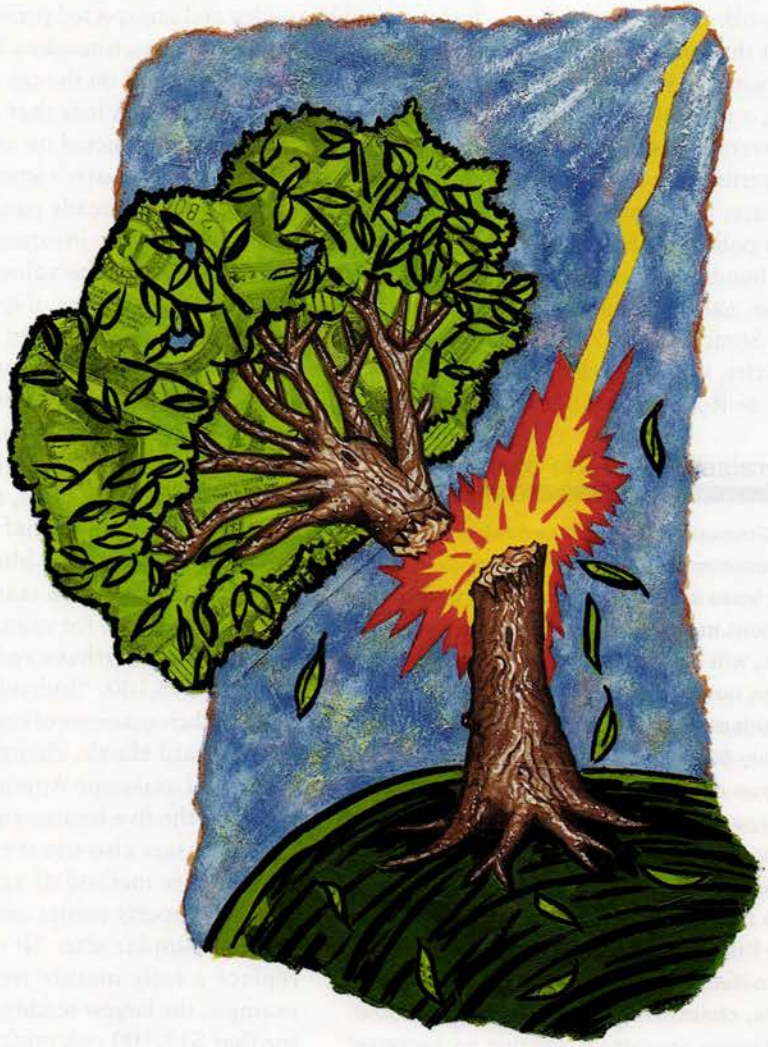
BY GARY BELSKY



WHAT'S A TREE WORTH?

Take a loving look at them now

As a book to curl up with by the fireplace, the eighth edition of the *Guide for Plant Appraisal* hardly makes for scintillating reading. Its 103 pages are crammed with chapters such as "Trunk Formula Method" and "Cost of Repair/Cost of Cure," as well as calculations for dealing with "elliptical cross sections" and determining the "diameter of the casualty stump." Yet dense as it is, the guide explains something important: Those trees out in the yard are likely worth a great deal. That may not mean much now, but it could translate into dollars—from home owner's insurance and the Internal Revenue Service—if a prized oak suddenly dies. "For most people, trees are about shade or beauty, not money," says Steve Day, president of the American Society of Consulting Arborists. "It's only when they have to replace one that they think about what it's worth." Yet while the guide's equations could put a mature tree's value at thousands of dollars, a typical insurance policy won't

ILLUSTRATION BY HUNGRY DOG STUDIO

cover nearly so much, and the Internal Revenue Service isn't likely to give anyone a huge, full-value tax write-off.

Most insurance policies cap the amount that home owners can receive for damaged or destroyed vegetation at $500 per tree or shrub and, in the case of multiple losses, a maximum of 5 percent of the house's insured value. This coverage extends only to losses caused by sudden and unexpected perils such as fire, lightning, vandalism or riot, not termites, disease, hurricanes, hail or other perennial problems. A home owner's policy can also include the cost of removing a tree, which can be hundreds or even thousands of dollars, but only if it hit the house, garage or another of the insured structures on the way down. Some insurers, including Chubb and Travelers Property Casualty, will raise the per-tree limit to $1,000. A few others, such as Royal Insurance in Charlotte, North Carolina, offer policies that allow a claim for up to 5 percent of the total policy value, which typically exceeds the insured value of just the house. Upgrades like these can add as much as 25 percent of the base insurance premium.

But that's all the insurance industry will do for a dead tree. If a property had, for instance, a fairly mature Japanese red maple that would cost $3,000 to replace, the owner would have to pay any costs that surpass coverage limits. If someone else's car knocked down the tree, the driver's liability policy might cover the entire cost. Beyond that, there's virtually no way for a residential property owner to buy extra landscaping coverage. Calls to most of the major property insurers in the United States turned up none that would underwrite additional coverage. Even the vaunted Lloyd's of London, the syndicate with a reputation for insuring almost anything, would have nothing to do with a home owner's landscaping risk. "This is simply not a risk that most insurers seem willing to take on," says Jeanne Salvatore of the Insurance Information Institute.

The only other way to cover more of the cost of replacing a tree or shrub is to claim it on Schedule A of your federal income tax return, using Section A of form 4684 to figure the actual loss. You may not deduct the first $100 of any loss—that is, $100 per event—and the IRS allows you to deduct only the portion of a casualty that is greater than 10 percent of your adjusted gross income and isn't covered by insurance. A home owner with an adjusted gross income of $75,000 who loses five Japanese maples worth $15,000—and gets a $2,500 insurance settlement—could take a $4,900 deduction. That's $15,000 minus $2,500 (the insurance payment) minus $7,500 (10 percent of $75,000) minus $100 (the nondeductible loss). Like insurers, the IRS allows claims only for losses caused by sudden and unexpected perils, although Uncle Sam also counts blizzards, hurricanes, tornadoes and the like. As a rule, casualty losses must be deducted on the tax return for the year in which the damage took place. A loss that occurs in a federally declared disaster area can be deducted on an amended tax return for the prior year. That way, a disaster victim in need of cash may be able to get a refund on taxes already paid.

The rub is that the IRS and the insurance industry have different standards for determining the value of trees and shrubs. Insurers generally accept the verdicts of qualified tree appraisers, most of whom belong to one of seven industry groups (see Directory). A few years ago, these groups banded together to form the Council of Tree and Landscape Appraisers, which put new and traditional valuation methods into its *Guide for Plant Appraisal.* One method appraisers commonly use considers size, rarity, condition and even location in the belief that a tree placed to show off its beauty or block out an eyesore is worth more than one standing in a backyard corner. The guide, for example, values a healthy, well situated northern red oak with a 35-inch trunk at $18,100. "Individual appraisers might differ in their opinions of condition and location," says Richard Harris, chairman of the Council of Tree and Landscape Appraisers, "but appraised values in the five figures aren't unusual."

Appraisers also use the replacement-cost or cost-of-cure method of valuation, particularly when a property owner can't replace a tree with one of a similar size. "It's often impossible to replace a fully mature tree," says Harris. For example, the largest readily available replacement for that $18,100 oak might have a 4-inch trunk and cost about $1,000.

Yet no matter which method an appraiser uses, there's as good a chance as not that the IRS will balk at the deduction. In an orchard of cases, the IRS has not accepted the Council of Tree and Landscape Appraisers' formulas. Instead, the revenuers tend to limit deductions to the difference between the fair market value of the property before and after the loss. Owners can use a landscape appraisal as ammo in making their case but, says Tom Ochsenschlager, a partner in the Washington, D.C., office of Grant Thornton, an accounting firm, "You may have to consult with a real estate agent or appraiser to prove that the property has dropped in value as a result of the casualty loss." The loss in market value cannot exceed the adjusted basis cost—the purchase price plus the planting costs—for the tree or shrub in question. That's easy enough to figure for those who bought and planted the tree on their property themselves, but far more difficult if the tree was already there. It may be a good idea to have the landscaping appraised and to make a photographic record of all shrubs and trees to verify their existence and their condition before trouble hits. Whatever its value, a tree isn't worth the hassle of an IRS audit. ■

Appraise Before the Storm

The Council of Tree and Landscape Appraisers recommends that home owners have their trees and shrubs appraised before an accident happens. That, the council suggests, will not only make its members' jobs easier, but also save home owners money. A residential landscape appraisal costs roughly $250, assuming a cost of $5 to $6 per tree or group of shrubs, of which the average property has 40 to 50, says James Ingram of the American Society of Consulting Arborists. The bill could run to $1,000 or more if an appraiser has to establish values after the fact. "It's a lot easier to appraise a tree before it's damaged," says Richard Harris, chairman of the Council of Tree and Landscape Appraisers. Getting an appraisal in advance makes the most sense for properties with rare specimens or trees and shrubs that perform a vital function—like a stand of evergreens between the house and a busy thoroughfare. An early appraisal is also wise for those who live in an area prone to lightning, tornadoes or other of nature's perils.

FOR SOURCES, SEE DIRECTORY – PAGE 145

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BY DENNIS WEDLICK

OUTDOOR ROOMS

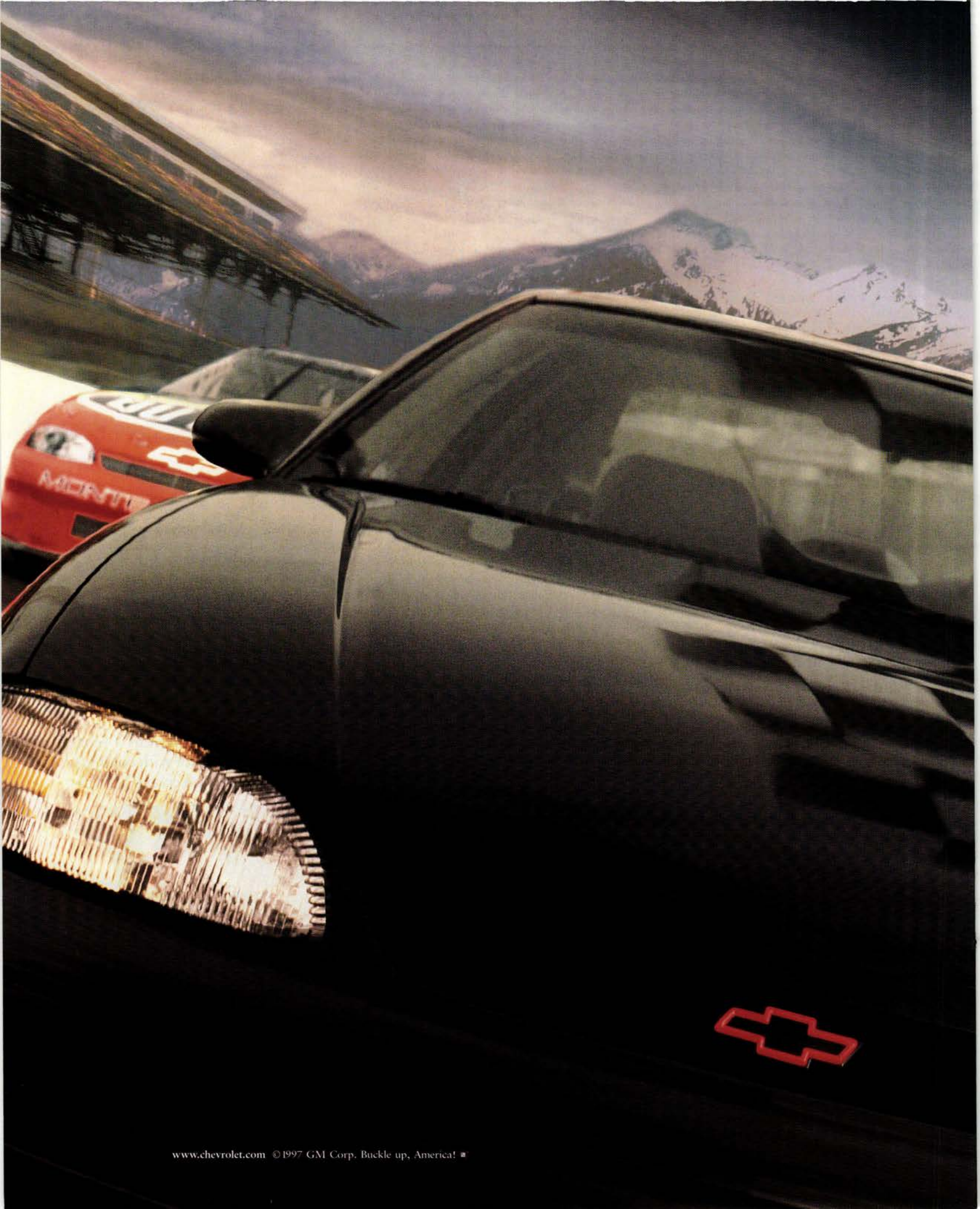
Let in the sun—and the rain

The idea is as old as a temple in Plato's Greece, but the perfection of the outdoor room has become a modern art and quite American. We love porches, and good outdoor rooms are porches we can't resist enclosing. Neither protected from weather nor fully exposed to it, an outdoor room provides a transition space between outside and inside. It is part of the house, not the landscaping. (A deck, by contrast, is not a room, so it is not perceived as part of the house. Instead, it is perceived as part of the landscaping.)

Depending on the level of weather protection built into an outdoor room, you can use it several months a year, six months a year, nine months a year or even year-round. If you choose minimal protection—only a roof with columns holding it up—you can stand outside the house in a gentle rain, absorbing nature. But if conditions worsen and a storm

A foursquare farmhouse located in Sullivan County, New York, was gutted, renovated and restored to its original exterior appearance—except that the depth of the structure's wraparound porch was doubled. A four-seasons outdoor room was added to the rear with a fireplace as well as a ceiling fan.

PHOTOGRAPHS BY GUY KLOPPENBURG



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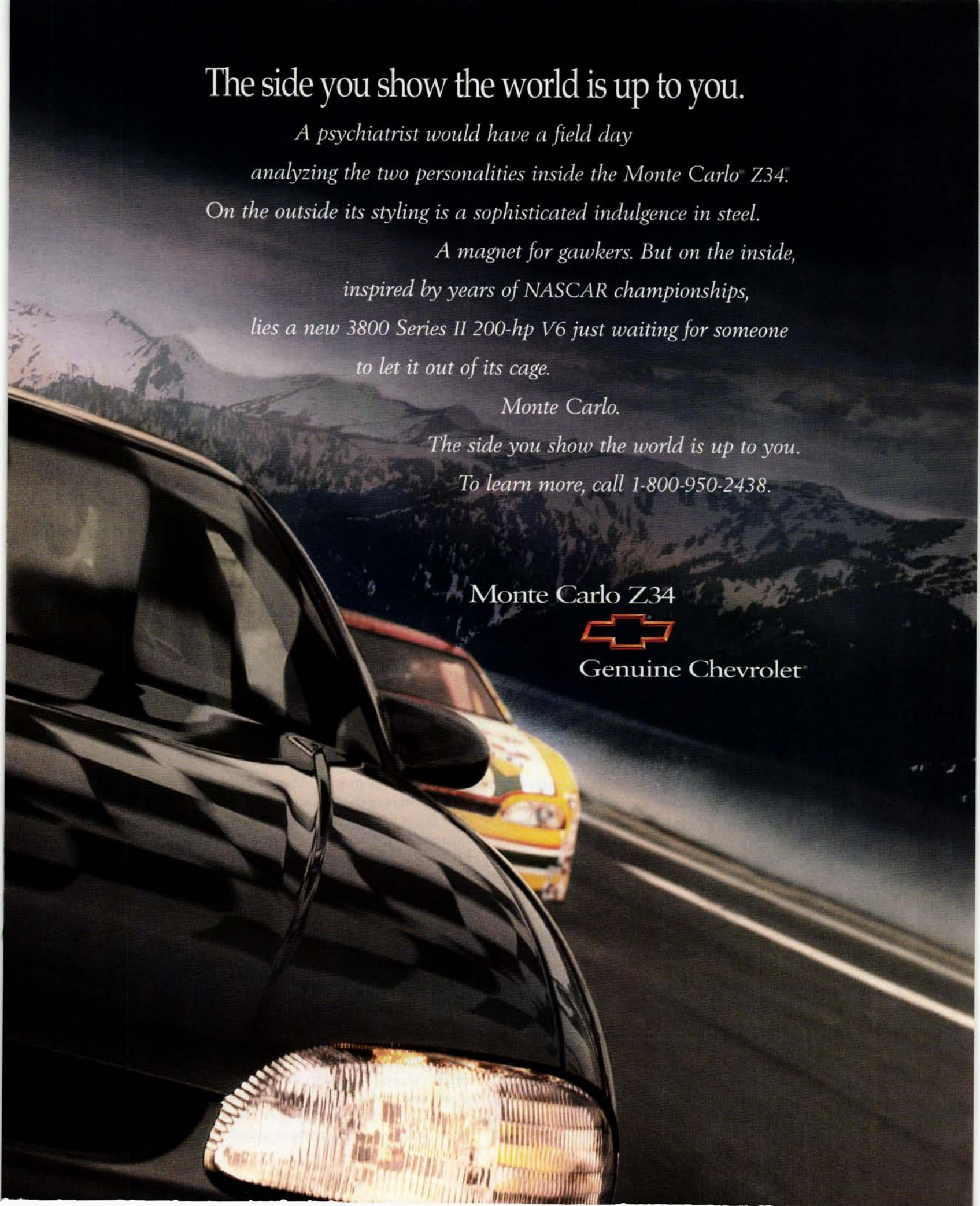
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develops, you'll get wet. If a front moves through and the air turns cold, you'll get cold. Those experiences differ greatly from what someone inside the house feels. And different experiences make good residential architecture. The more sensations you feel on the same piece of property, the more likely you are to appreciate it.

To figure out what sort of experiences you want from an outdoor room, start with the basic form—a roof; a ceiling under it made of bead board; columns or piers that hold up the roof and define the vertical surfaces on three sides of the room (the fourth side will be the siding of the house); and a solid floor.

Next, add to the room—if you must. Add screens to the walls to extend the number of months the room is usable. Add a door that leads outside from the screened-in room. Next, consider big windows that open fully. To create a year-round room, add insulation, heating and weatherproofing. But before you actually begin any construction, stop and think about what the result will be. All the different options for enclosing an outdoor room have validity, but the original appeal of the room was to be closer to nature. The more the room is protected from the elements, the less outdoorsy the experience will seem. With most of these rooms, less is more. An open gazebolike room is better than a screened-in room, which is better than a glassed-in room. The experience should have duality—being inside but feeling as if you are outside.

How much you add to the basic outdoor room will also dramatically affect the appearance of the rest of the house. An open room with just columns for side walls will show off striking contrasts between deep shadows created by sunlight falling around the thin columns holding up the roof.

Screens will give the feeling that you have added to the bulk of the house, and they will cut down shadow details. Less sunlight will penetrate along the floor of the porch; instead, it will tend to be muted or may even seem to stop altogether at the screens. And the screens themselves are likely to add to the illusion that full walls have been built. Throw in some glazing, and the look will further resemble that of a finished room. Because an outdoor room that isn't bug-proofed or glazed offers more architectural intrigue to the house, the best way to have your beauty and still escape mosquitoes and cold is to install easily removable screens and windows that can be popped in and out when needed.

When it comes time to decide where to build the outdoor room, give it some serious thought—don't surrender to your impulses. And don't assume the addition should be tacked onto the side or the back of the house. If your property faces the street and lots of people walk by every day, you might find it pleasant to add to the front of the house. The key to making any unorthodox location of the room work well is careful consideration of the architecture incorporated in the rest of the house. An outdoor room will change the look of a house significantly, which can be a plus.

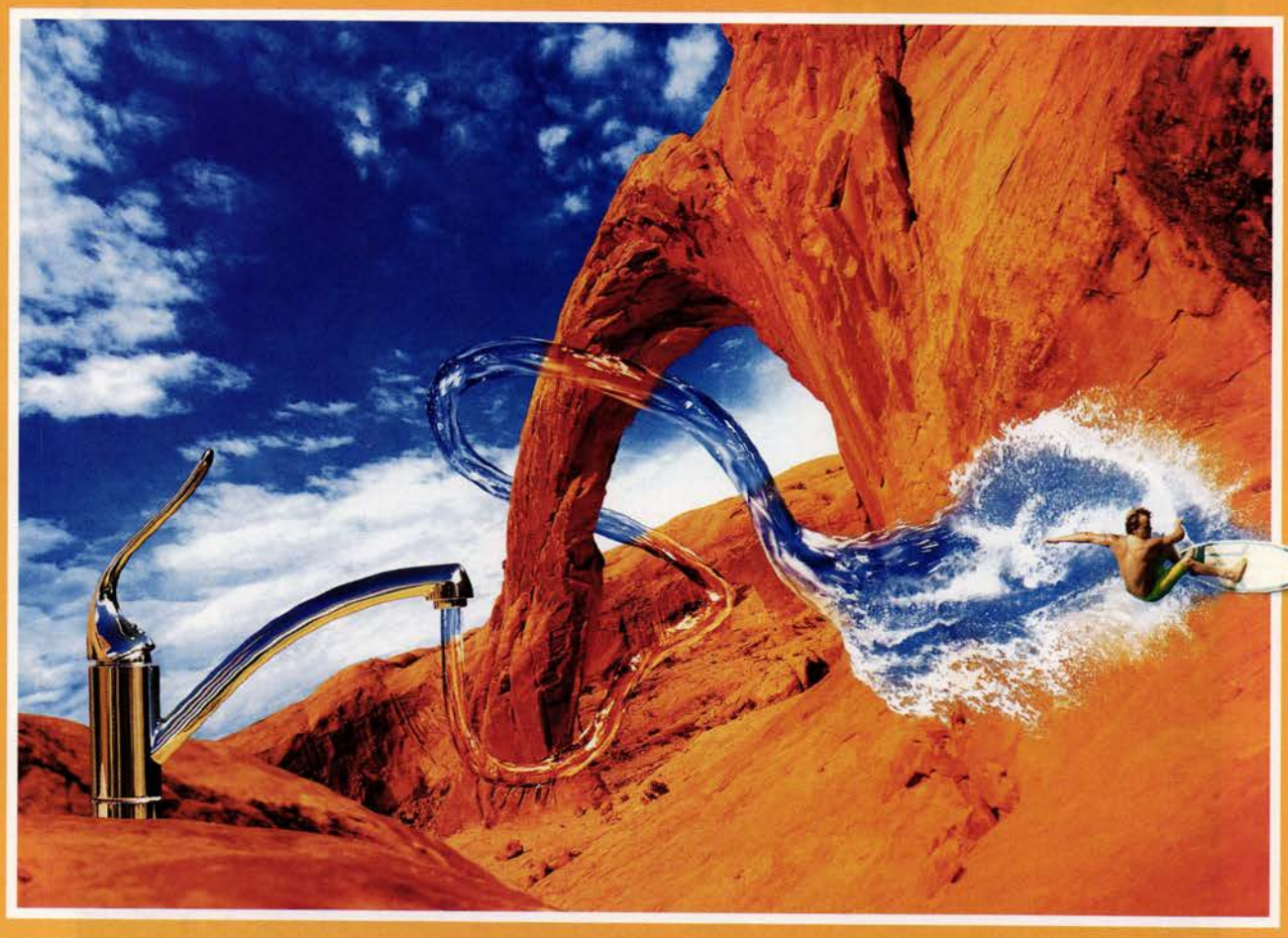
Architect Dennis Wedlick designed a screened-in outdoor room for the shady side of this tiny house in Columbia County, New York. The floor and ceiling are traditional American porch—painted Douglas fir below and bead board above. At 15 feet square, it is by far the largest room in the house.

If you have a symmetrical house, for example, you can use the room to amplify the symmetry. On the other hand, adding an outdoor room to the corner of the house—or making it round when the rest of the house is very angular—can change a symmetrical house into an asymmetrical one.

The addition of an outdoor room changes perspectives from inside the house too. If you add a screened-in porch off a living room, the new room will block some light. But the room-beyond-the-room effect can make both the new outdoor room and the living room look bigger from either location, especially if the floors of both rooms are kept on the same level. Give the eye the maximum amount of space to follow the floor line into the new room—two French doors, or even more, will help.

Outdoor rooms are romantic spaces that deserve the thought of an attentive lover. They are as close as you can get to standing outside under a tree. The columns anchor the space like a tree trunk, the roof is a canopy as impressive as branches chock-full of leaves, and the floor beneath spreads out before you like the earth. This is a fine affair with Mother Nature: experiencing the joy of the world around you without actually going outside. ■

As I See It, #38 in a series
Wilhelm Scholz
"The Next Wave"
Color Photography



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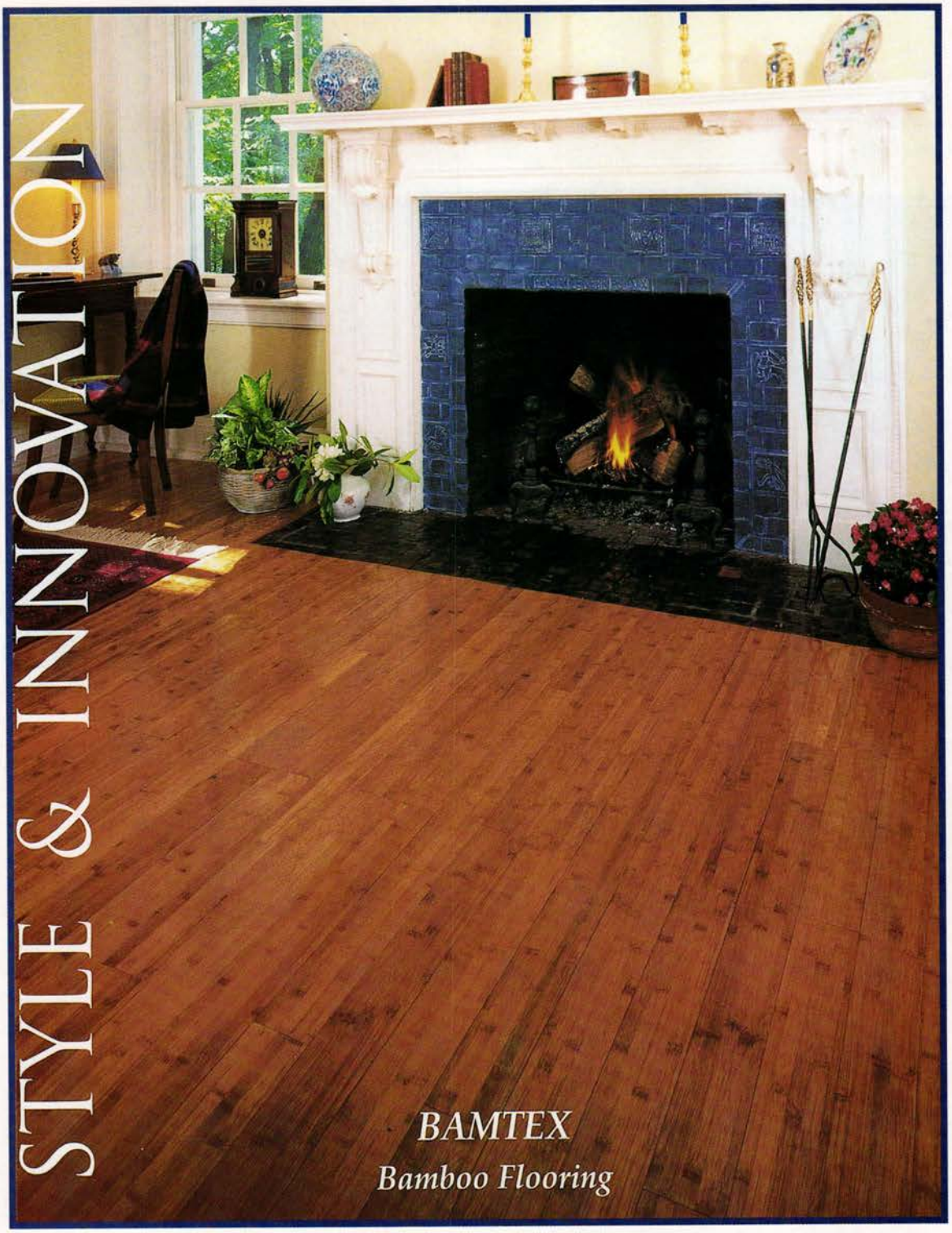

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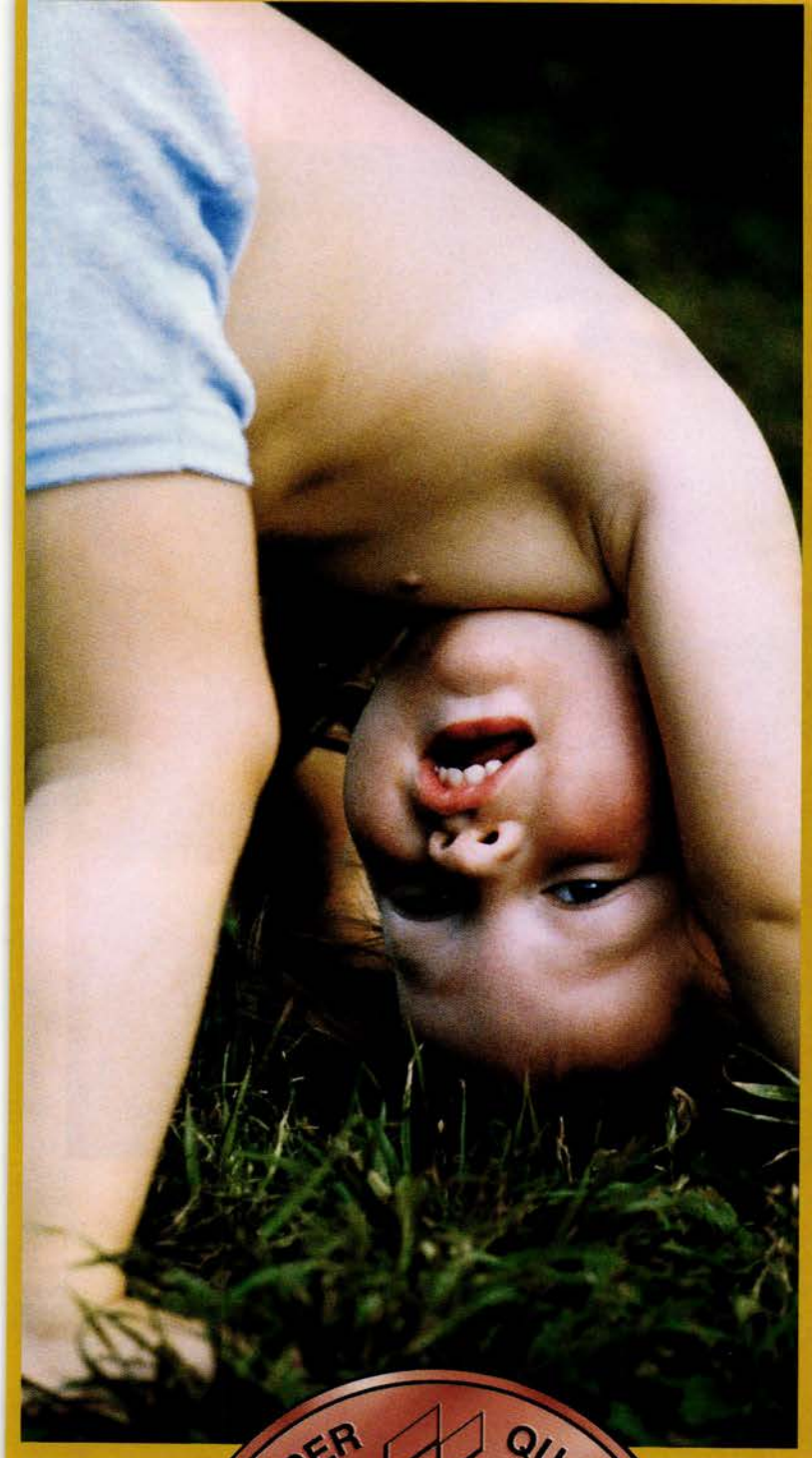

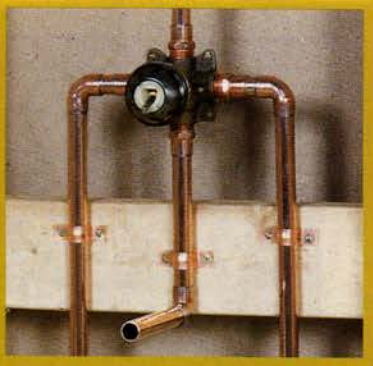

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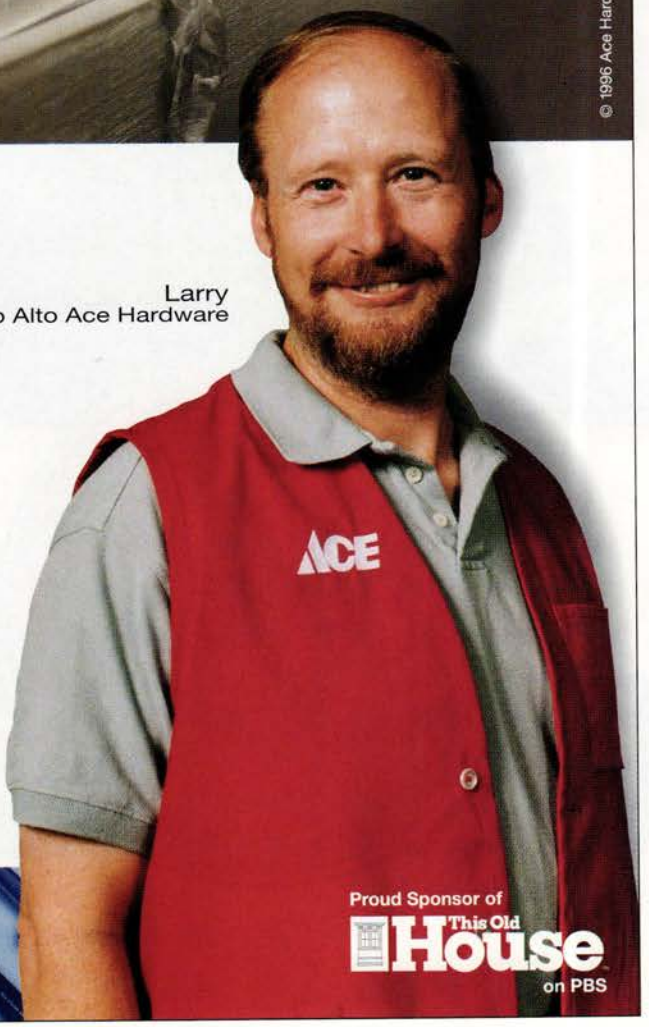

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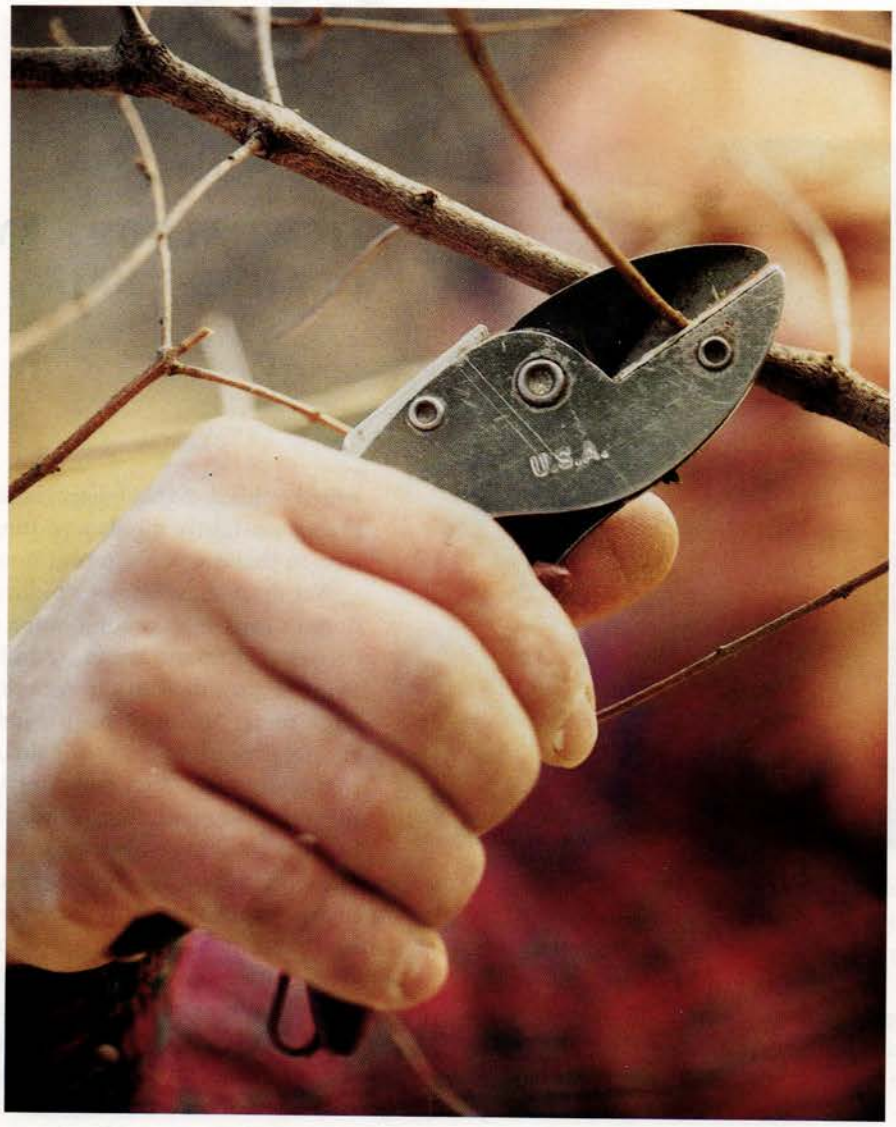
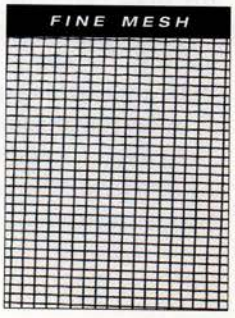


Get out of the house and embrace the new season


DECAYED DOOR


FINE MESH

PHOTOGRAPHS BY KOLIN SMITH

SWAMP FIX

FIGHT FLOODS BY DRAINING RAIN

DOMINICK RATTACASA STABS THE GROUND WITH A ROUND-point shovel, puts his boot on it and steps up with all of his 190 pounds. The shovel barely breaks the surface, its blade no match for the dense, glacial soil prevalent in northeastern New Jersey. Besides being tough to dig in, dirt like this doesn't soak up much water. Instead of percolating into the ground, rainwater obeys gravity and heads downhill, in this case straight for the house.

When it gets there, says Rattacasa, an excavation and landscape contractor based in nearby Hackensack, the basement turns into a reflecting pool. In heavy downpours, so much water speeds down the slope that little waves slap against the house, leaving muddy marks on the pale yellow stucco and turning the yard into a swamp. "There is constant ponding on the lawn," he says. "Hardly anything grows at all."

A lawn that squishes underfoot "spells doom for plants," says Jud Griggs, president of the Associated Landscape Contractors of America. "When roots get saturated, they lose oxygen, and plants suffocate." Signs of trouble include stunted growth and wilted or black-edged foliage, he says. Saturated ground also breeds unsightly molds and fungi and, where water collects in shallow pools, mosquitoes.

Yet despite the damage poor drainage can do, fixing it doesn't rank high among home owners' landscaping priorities. "Humans are incredibly adaptable," says Tom Dunbar, president of the American Society of Landscape Architects. "A lot of people just ignore the water. They simply give up that part of their yard." Contractors say that clients are often reluctant to sink money into something they can't see. But without better drainage, there will be little to admire in this backyard, which has kept Rattacasa busy off and on for the past two years.

To change the course of all that water, Rattacasa has brought in a small squadron of earthmovers—an excavator, backhoe, bulldozer, skid loader and dump truck—160 yards of gravel, hundreds of feet of 4-inch perforated pipe and a blueprint of the new drainage system. It was developed by Charles J. Stick, a landscape architect based in Charlottesville, Virginia, who had already designed the parklike front yard, dotting it with trees and shrubs indigenous to the region. His plan for the backyard includes patios, pathways, planting beds and dozens of trees, none of which can go in until the ground gets a lot drier.

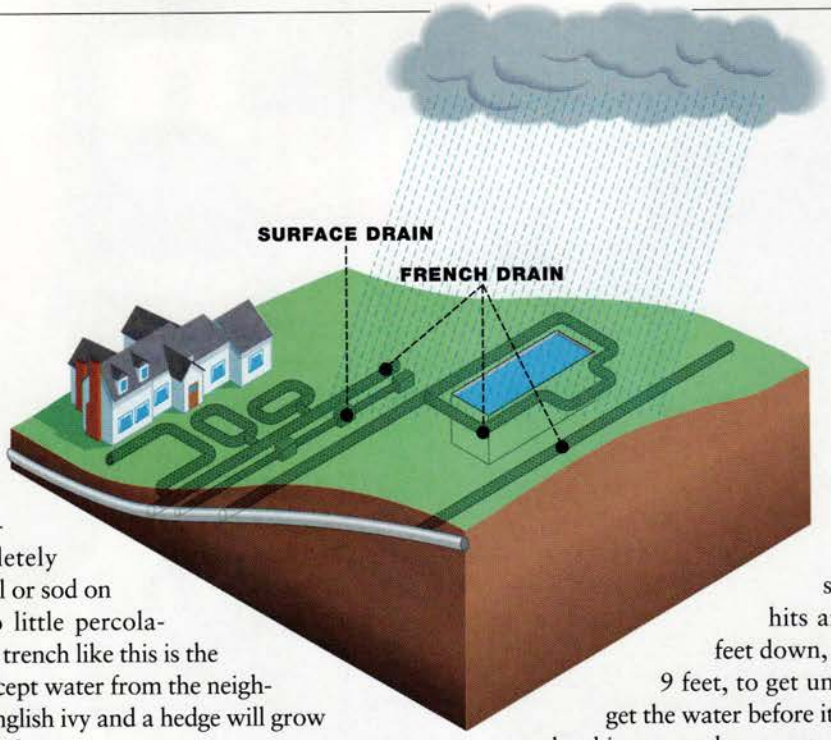
Stick's drainage system consists of subsurface water movers, called French drains; some cut across the top, middle and base of the slope while others wrap around those future patios and beds and an in-ground swimming pool that's already been dug and poured. Each drain begins as a 3-foot-deep trench that gets lined with fiberglass landscaping fabric to keep out silt that could ultimately clog the drainpipe. After dumping in about 4 inches of gravel, Rattacasa's

BY LOGAN WARD PHOTOGRAPHS BY KOLIN SMITH

LEFT: The bubble in the level signals part of the problem, a slope that sends storm runoff and snowmelt toward the house, where it not only floods flatter ground but also pours into the basement. RIGHT: A trench planned for 3 ft. was dug down to 9 when a soil test showed conditions to be worse than originally thought. Here, a crewman smooths the base to ready it for the layer of gravel on which the drainpipe will lie.

crew lays in the 10-foot perforated-pipe sections, glues them together and covers them with more gravel. On top of that goes a 6-inch layer of topsoil, a drainage-friendly replacement for the hard-as-a-rock dirt that came from the trenches.

To collect as much surface water as possible, the 150-foot-long uppermost trench is completely gravel-filled and has no soil or sod on top. "Because there is so little percolation," says Stick, "an open trench like this is the most effective way to intercept water from the neighbors' yards." Eventually, English ivy and a hedge will grow to cover and hide the gravel.



Landscape architect Charles J. Stick's drainage plan, left, battles water across four lines of defense with French drains and surface drains. Each sends captured rainwater to a main pipeline that discharges below the house. More drains will go in this spring when a stone patio and a couple of planting beds are installed near the house.

Each run of perforated pipe ends at a solid 6-inch collection pipe that goes all the way down to a creek in the lowest corner of the front yard. Water that gets by this gauntlet of drains will be caught in a swale, a shallow channel that Rattacasa's backhoe carved between the house and the base of the slope. The swale has plumbing too: a string of three surface drains linked by 4-inch solid pipe buried just 6 inches underground.

The swale will also fix a common yard defect: poor grading, a condition usually created when a site is first cleared. "Regardless of whether a house is brand-new or 100 years old, the yard is usually a result of how the builders left it," says Dunbar. Builders and owners alike put off or altogether avoid hiring a landscaper to shape the ground. But most problems can be corrected by regrading to create the right amount of slope, adding dirt to fill sinkholes or cutting a swale to reroute runoff. Sometimes, getting control of the flow requires reshaping the lay of the land entirely. The 10 feet of ground closest to the house should slope at least 6 inches downward, says Griggs, to keep water from seeping into the basement or flooding foundation plantings. Lawns require less of a grade: at least 1 inch of slope for every 5 feet of turf.

Before Rattacasa breaks ground for the first trench, he digs a deep pit for a perc test, which measures the soil's ability to absorb water. He hits an underground stream about 6 feet down, so he takes the trench deeper, to 9 feet, to get under the water. "We're trying to get the water before it gets to the house," he says. This land is wetter than most. "The builder hit so much water when he dug the foundation that he had to bring in 3,000 yards of dirt to raise the house." Low in organic matter, some of the fill was spread across the yard and compacted by heavy machinery. To make the ground more porous, Stick has prescribed annual treatments with an aerator, which will pull out dirt plugs and replace them with pelletized gypsum and humus.

CLOCKWISE FROM TOP LEFT: *Landscaping fabric lines the trench to keep out silt; the vertical pipe will connect to a surface drain like the one below. Water that seeps into the trenches will drain away through hundreds of feet of 4-in. PVC perforated pipe. Three surface drains will swallow water that collects at the base of the slope.*

Once the drain system is installed—a job Rattacasa estimates will take four days and cost $14,000—the real test will be the spring rains. If runoff overwhelms 600 feet of French drain, Rattacasa can add even more drainage. Leaving nothing to chance, Stick's plan includes vertical pipes—now capped just below the surface—that tie into the perforated pipe. To catch more rainwater and snowmelt, the verticals can be connected to the same kind of surface drains used in the swale. "This way, we know we'll have the drainage we need," says Stick. "It means the difference between having a garden and not having a garden." ■

ILLUSTRATION BY STEVEN STANKIEWICZ

FOR SOURCES, SEE DIRECTORY – PAGE 145

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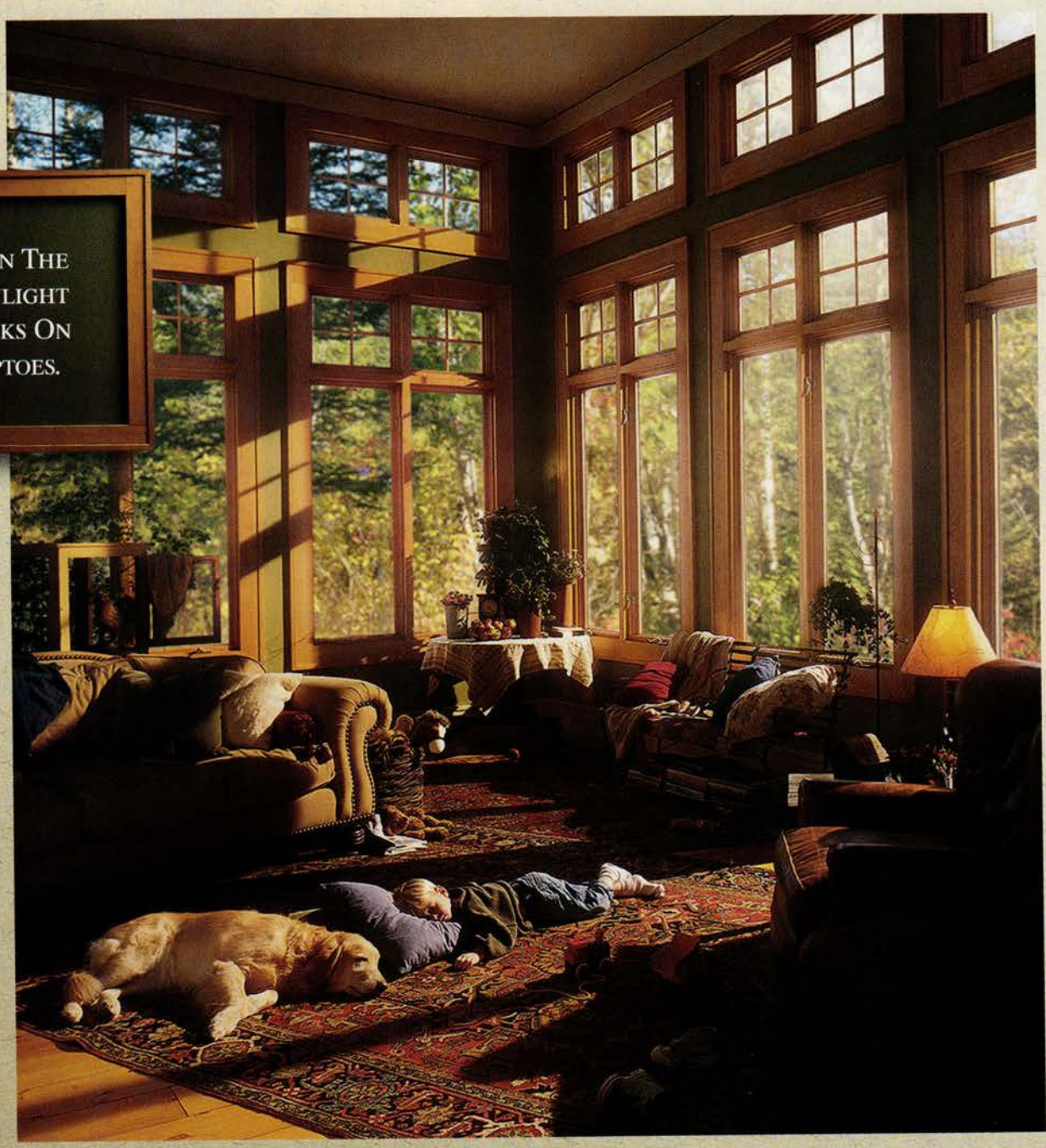

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ROT PATROL

FIXING THE POTHOLES IN WOOD

THE WAND-SHAPED GRINDER BITES deep into a stile at the bottom of the garage door. Prowling like a DDS in dentin, John Stahl grimaces slightly as the tool chews through punky wood with a stinging whine. After a couple of minutes, he eases back on the trigger and surveys the cavity he has made. "You'd think your dentist was nuts if he didn't get out all the decay, right?" he says. "It's the same with rot. I don't stop until I get down to good wood. I know when I hit it by the sound of the cutter. It changes to a high wreeee."

John Stahl's business is to repair rot, but he strongly advocates stopping it before it starts. "You'll get rot wherever wood never completely dries out," he says, eyeing the garage door. "First of all, it's north-facing and never sees any sun. And even though there's a wide roof overhang, there's no gutter, and water splashes back onto the bottom of the door and keeps it damp."

The relentless, voracious fungi that feast on wood thrive in such moist conditions. The cellulose in wood's strawlike cell structure provides the food and, when a fungus digests it, even the thickest beam loses all of its strength. You can push a finger into it.

Windowsills with cracked paint and open joints, the end grain of an exposed rafter, leaky shower stalls, poorly caulked tubs and dripping radiators: These are all places where fungi, aided by oxygen and warm air, routinely take hold and do immense, expensive damage.

"There's an old saying about the best ways to prevent rot," says Steve Quarles, a researcher at the University of California's Forest Products Laboratory. "Keep wood dry, don't get wood wet and keep water away from wood."

When he looks for rot, Stahl pokes at wood with an awl or penknife. The damage may lie just beneath an apparently normal surface, and is revealed only by the tool's easy penetration. He also checks suspect areas with a moisture meter. A reading higher than 18 percent is a clear signal the wood is rotting.

When he finds what he's looking for, Stahl aims to fix the problem without destroying the detail. "In an older house, the wood is almost always better than anything you can buy to replace it. When people say to me, 'Why are you going to this trouble? Just rip it out!' I tell them it's like driving a Rolls-Royce with a bad paint job and bald tires. Why trade it in for a Yugo?"

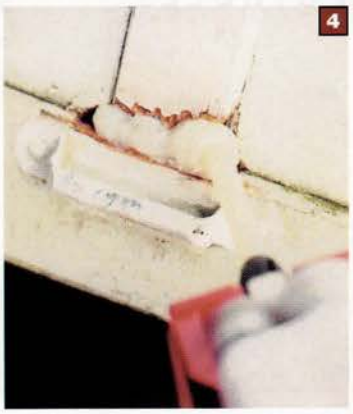
Specialists who regularly use rot-repair products differ on which technique works best and lasts the longest. One camp believes in restoring the damaged wood's strength by infusing it with

1. *Good paint often hides bad wood, and the only way to find rot is to probe suspect spots with a knife or awl.* **2.** *Nothing beats a 26,000-rpm die grinder for speed in cleaning out rot, but a smaller hobbyist's grinder or a router will also work.* **3.** *Borate gel and capsules injected into holes drilled in the cavity help keep rot from coming back.* *See the following page for the next steps.*

BY PETER JENSEN PHOTOGRAPHS BY KOLIN SMITH

a thin liquid epoxy called a consolidant. There's no dental work, no removing the punky wood. Stahl, however, doubts the durability of that approach and works out of the other camp: Eliminate the soft stuff, add some borate and use a thick epoxy paste to fill the cavity.

After getting the rot out of the stile, Stahl drills 5/16-inch holes in the solid wood and fills them with borate gel and pellets. The fluoride of rot repair, borate compound helps prevent damage if the wood gets moist again. "It's like an insurance policy," he says. "Moisture makes the borate diffuse into the wood and kill fungi."



4. *After the cavity is coated with a thin epoxy primer, it's filled with a much stiffer mix of resin and hardener squeezed from a special twin-tube caulking gun.* **5.** *The epoxy can be shaped and smoothed for 20 to 60 minutes, depending on the air temperature. After curing for a day or two, the patch is ready for sanding and painting.*

Stahl next brushes the excavated area with a low-viscosity epoxy to strengthen the bond between the good wood and the patching compound. Then he pulls out the epoxy equivalent of a double-barreled gun. It carries caulking tubes of the resin and hardener that make up the two-part epoxy he uses. When he squeezes the trigger, they merge on their way through a 6-inch mixing tip and flow into the cavity. On a cool day like this, Stahl has about an hour to sculpt the epoxy. "I've used this material to re-create a redwood gutter on a San Francisco Victorian," he says. "It has excellent modeling characteristics." Stahl, a fine-arts graduate, pulls his putty knife over the flat face and beveled edges of his latest plastic creation, marrying it perfectly with the wood. The epoxy, in places a full 1½ inches deep, clings to the vertical surface and never sags.

After 15 years in the restoration business, Stahl has worked with dozens of epoxies. Some patching compounds slump or run slightly before they start to harden and need constant working. Some require a wooden form lined with plastic to keep the epoxy in place while it sets. When he needs to form a long, straight edge and a flat surface, Stahl sometimes uses a strip of Plexiglas, which doesn't bond with epoxy. Most times, he does it freehand.

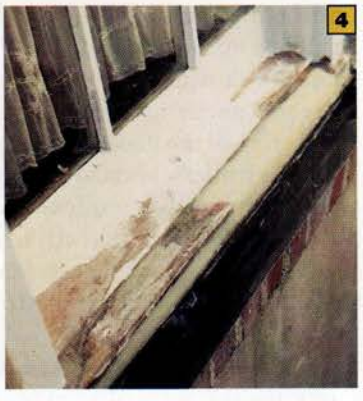
He has also seen repairs fail because an epoxy doesn't keep up with the wood's expansion and contraction, so the bond between them breaks. Other epoxies take too long to set up in low temperatures or thicken only with the addition of super-light fillers called microballoons. "Try mixing them into two-part epoxy while kneeling on a scaffold three stories off the ground in a light breeze," says Stahl.

Moisture can also hasten a repair failure if the wood gets wet enough to swell and break its seal with the epoxy. Once rot is removed, however, the surrounding wood quickly returns to a relatively dry state (10 to 15 percent moisture content). In high humidity conditions that keep wood damp (say, July in New Orleans), Stahl might use a heat gun to speed the drying.

The wood should also be kept relatively dry after the repair, but that doesn't mean creating a hermetic seal, says Barry Goodell, wood science and technology professor at the University of Maine's Forest Products Laboratory. "Placing an epoxy wrap around moist wood or letting the wood get wet again can create a petri-plate environment that's perfect for the growth of fungi," he says.

Stahl's epoxy will take just one day to cure enough to allow a few passes with a belt sander to take off its almost glassy slickness and make it dead level with the adjacent wood. A couple of coats of paint will provide the necessary protection from ultraviolet rays and make the patch almost invisible.

Stahl steps back to admire his work. It took a little more than an hour to undo damage that was more than 30 years in the making. "Only a fungus would know that isn't real wood," he says with a chuckle. ■



SAVING A SILL

1. *A north-facing windowsill in an unheated garage stayed damp for decades, never seeing sunshine and eventually becoming a mere shell around a rotten core.* **2.** *Rot fungi steal wood's strength and weight, leaving nothing but a fluffy pulp.* **3.** *The cleanout left enough good wood to warrant repair instead of a total sill replacement.* **4.** *After masking the bricks with tape, restoration specialist John Stahl troweled on and sculpted the epoxy. To save expensive resin, he embedded small wood blocks in it.*

FOR SOURCES, SEE DIRECTORY – PAGE 145

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WHACK ATTACK

BEFORE AND AFTER

PRUNE IT OR LOSE IT

YOUR YARD IS A JUNGLE. YOUR SHEARS ARE SHARP. STOP. Before hacking a path to Dr. Livingston, lie down for a quiet moment under the trunk of a young tree. Stare skyward. Imagine a beach umbrella. "You should be able to see through the branches but still have an umbrellalike canopy," says Dennis Ryan, a professor of arboriculture and urban forestry at the University of Massachusetts.

Visualization is the key to pruning trees and shrubs effectively. "Use your artistic eye," says Ryan. "Try to visualize the tree 10 or 15 years down the road. Will the branches crowd each other out when they're larger?" Like the ribs in an umbrella, strong and uncrowded branches can support a full leafy canopy and improve a tree's ability to manufacture food through photosynthesis. Pruning shrubs requires a similar leap of imagination; most varieties of shrubs develop dense interiors that should be opened to more light. "As with trees, the idea is to encourage the strong branches. Work from the inside not the outside."

Ultimately, the pruner aims to promote healthy growth patterns. "If you don't prune, Mother Nature will," says Ryan. Allowing weak branches to survive invites breaking and tearing, especially during high winds and heavy snows. But trimming too much can be equally problematic. "Never remove more than 25 percent of the live wood," says Ryan, "because, along with the branches, you're also removing leaves, the plant's food factories."

The art of balanced tree pruning begins with developing strong scaffold branches, the major limbs that extend from the trunk. "Look at the branches of a young tree," says Ryan. "The ones you want to keep are attached to the trunk at a wide angle, the way your thumb is attached to your hand. The ones to prune are those which originate at sharp V-shaped crotches." The tight angle creates a weak spot at the crotch, limiting the growth of a branch and making it more likely to be torn off under stress.

Branches that intersect are troublesome too. "The danger comes when crossed branches rub against one another and cause an uncallused wound," writes gardening expert and author Robert Kourik in his book *Pruning*. "There is a chance that the open lesion can be an entry point for pests and diseases." The simple remedy: removing the errant branch as soon as a sore spot appears, if not before.

Sometimes a tree has two trunks, called leaders, each vying

ABOVE LEFT: To give his lilac a better shape and improve its flowering potential, landscape contractor Walt Jamroga reduces its height and cuts out useless suckers and dead branches. He also opens up the inside to more light by selectively removing live inner branches. ABOVE RIGHT: *The same lilac had several branches that crossed and rubbed against one another, sometimes creating open wounds. In each case, Jamroga lops off the branch that is weaker or growing toward the center of the shrub.*

BY WILLIAM G. SCHELLER PHOTOGRAPHS BY KOLIN SMITH

Prime Time for Pruning

The ideal season for pruning varies according to the plant. Evergreen shrubs such as yew and juniper should be pruned at the first hint of spring. Likewise, for shrubs vulnerable to frost, such as rhododendron and azalea, forestry expert Dennis Ryan recommends pruning out dieback—withered branches that won't support new growth—after the snow melts and the ground has started to thaw: "This will assure that water will be available as the shrubs put out new growth." Live branches of spring-flowering trees and shrubs should be pruned right after flowering. "Dogwood, flowering cherry, crab apple, rhododendron, azalea and forsythia are ideally pruned immediately after their flowers have withered and dropped off," says Ryan. "Prune too early, and you cut off this year's buds; wait too long, and you'll remove the following spring's buds."

Shear Gear

1. *A lightweight bow saw, available with blades for both green and seasoned wood, features a knuckle-saving hand guard.* **2.** *In a new take on the combination pole saw and pruner, the rope that controls the shear runs inside the fiberglass handle, which adjusts from 6 ft. 6 in. to 12 ft.* **3.** *Short carbon-steel blades on scissorlike shears allow surgical precision on bonsai and delicate bud ends.* **4.** *The adjustable top blade of a classic bypass shear stays tightly aligned with the lower blade; every part on this lifetime tool is replaceable.* **5.** *A folding saw excels at close work and wherever thick growth stymies big saws; the aggressive 7½-in. blade cuts on the pull.* **6.** *With its 22-in. aluminum handles, the lopper prunes with power and reaches up to high branches and into dense shrubs; it cuts limbs up to 1¼ in. across.*

for predominance. With some species, neither will ever have enough strength, and the rivalry should be ended by removing one of the leaders when the tree is very young.

Lopping off the upper portion of the trunk of a mature tree can be disastrous. Known as topping, this crude approach is usually a last-ditch means of shortening a tree that has grown so tall that it blocks a cherished view or interferes with utility wires. A topped tree spreads out along its upper reaches in a flat, wide growth pattern and, says Kourik, will likely "die much sooner due to rot and disease entering the exposed leaders, limbs and branches." The best way to avoid the eventual need for topping is to thin lateral branches selectively before the tree grows too tall.

BEFORE AND AFTER

When his 10-year-old stewartia turns 20, Walt Jamroga wants it to be neither too wide nor too high for the garage it fronts and the shrubs it stands near. To promote the shape and look he wants, he removes some interior branches and others that are too horizontal. Next year, he'll study the new growth and prune away any that doesn't fit into his plan.

As with trees, the art of pruning shrubs depends on foresight. "The first rule with shrubs is to make sure they're planted in the right place so they won't present a problem as they grow taller," says Ryan. "If you have to lower a shrub, cut the main stems down to lateral branches at the desired height." Called drop-crotch pruning, this technique changes the shape of a shrub by directing new growth outward rather than upward. By contrast, when outward growth is the problem—the shrub presses against the house or crowds other shrubs—trim the laterals.

When branches grow longer on one side of a shrub than on the other, usually because of uneven exposure to sunlight, the solution is counterintuitive. In springtime, prune the long side lightly and the short side heavily, Kourik advises. The reason: trimming the shorter branches prompts them to grow faster.

With trees or shrubs, cutting in the right place is critical. Alex Shigo, a tree biologist, teacher and author of *100 Tree Myths,* pioneered one of the most important pruning innovations, the abandonment of the flush cut. "Years ago, we removed branches as close as possible to the bough," says Shigo. "Today's practice is to avoid cutting into the collar at the base of the branch." The collar, a raised shoulder of bark and wood, protects the wound within the first year after pruning. It's also a mistake to cut too far out from the collar. "Cellulose is made of glucose," Shigo says, "and a stub is like a stick of sugar that invites microorganisms to enter the plant."

The bark of a tree or a shrub is like human skin; piercing it makes the entire organism vulnerable. The secret of good pruning is not to hack and whack like a jungle explorer but to visualize a healthy growth pattern, then wield the shears with a surgeon's care. ■

FOR SOURCES, SEE DIRECTORY – PAGE 145

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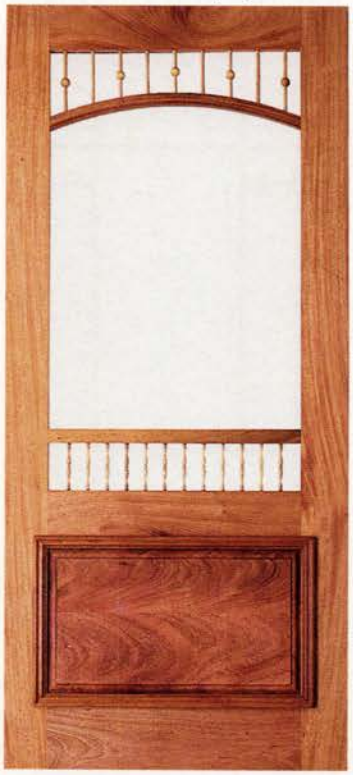
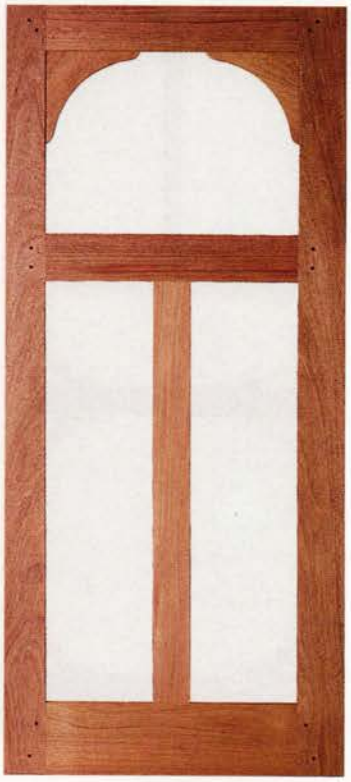


CAPE COD

If the window on the door is up high, fasten this hefty screen to a saltbox or other New England classic.



FARMHOUSE

The informal crossbuck design can grace a cabin or a country house or stand out on a screened-in porch.

MONTEREY

Fancy wagon-wheel and fan motifs will work on just about any romantic house west of the Rockies.

IN THE WARM MONTHS, A VISITOR'S first up-close impression of your house is often of its weakest part—a plain screen door. Flimsy, boring and creaky, the typical lumberyard offerings are hopelessly unimaginative and uninspiring. A lot of people need a new door and a new attitude.

"Home owners should see their entryways the same way they see a picture, as something that needs an interesting frame to enhance it," says architect Dennis Wedlick. "Look at the house, and determine if it has a clear-cut style. If it does, the screen should embody that style. If it doesn't, consider the style of the door it goes over and don't be afraid to add a little character or a bit of whimsy to a plain facade. You can even hint at the decorating style inside."

A small industry has geared up to produce hundreds of different designs to accommodate people who are determined to choose a screen door that rises above the ordinary. The manufacturers maintain little stock but will custom-build a door of redwood, mahogany, pine, oak, poplar, ash or Douglas fir. Many are built solidly, with mortise-and-tenon joints and face doweling. Any one of these should stop a visitor's eye as effectively as it stop june bugs.

Continued on next page

BY JOE CARTER
PHOTOGRAPHS BY BENJAMIN OLIVER

MISSION

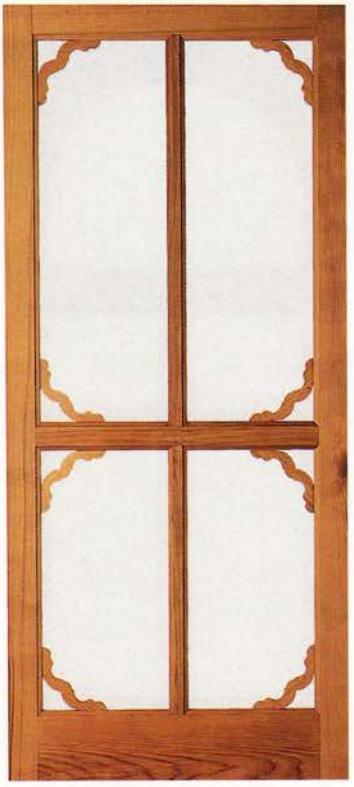
A modern interpretation of a classic 20th-century look belongs over a plain solid-plank or full-light door.

VICTORIAN

Take an intricate screen and put it on an equally ornate door to re-create America's favorite nostalgic style.

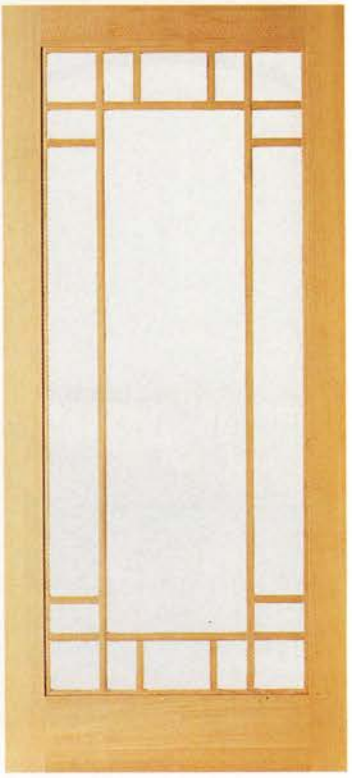
ADOBE

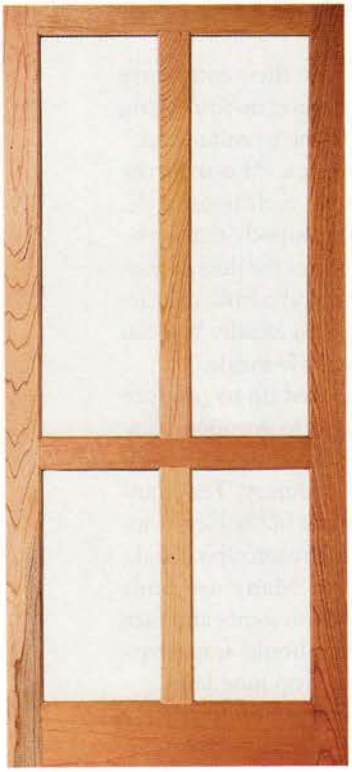
All that's needed to complete the Southwest look are two or three pastel colors from a desert palette.



CRAFTSMAN

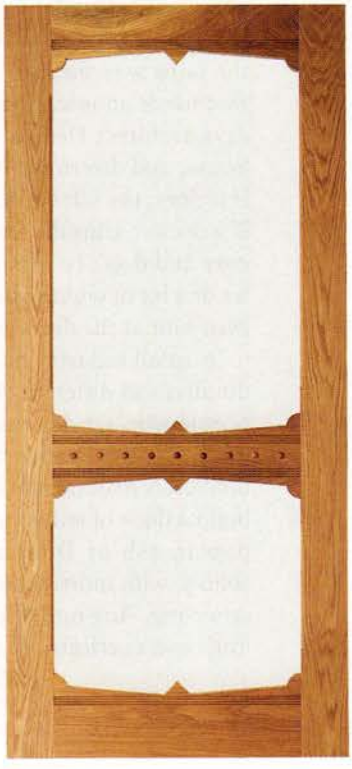
Multiple muntins surrounded by a thick frame revive a style that will look right at home on a bungalow.





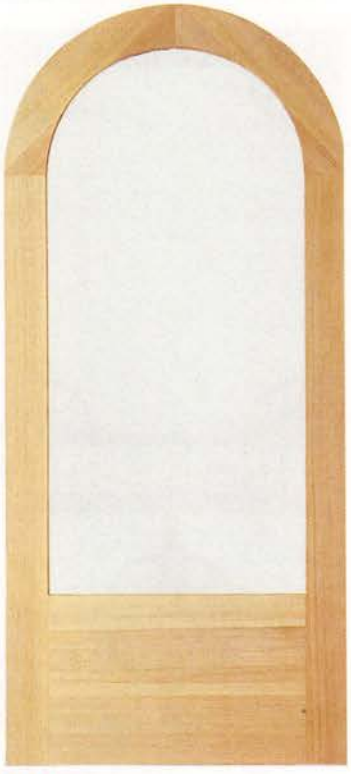
SHAKER

Simplicity can span centuries of style, from Colonial to contemporary, but beware of a boring result.



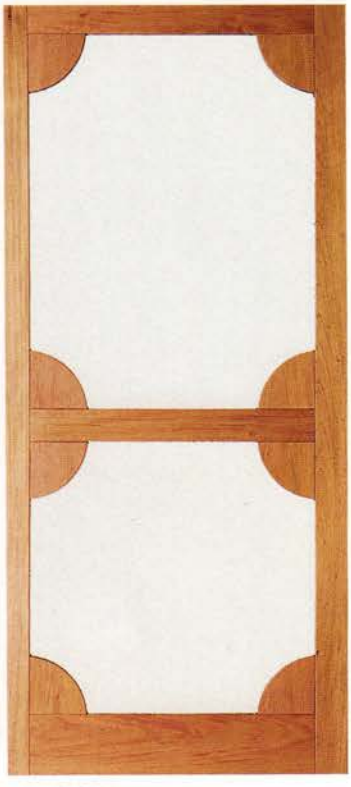
RANCH

Decorated rails and wide stiles will work well on a house rooted in Western or Southwestern motif.



TUDOR

A round-topped design can find a home in the doorway of a Tudor-style house or an English cottage.



CLASSICAL

The boldly scalloped corners connect a playful design with neoclassic and Greek Revival architecture.

FOR SOURCES, SEE DIRECTORY – PAGE 145

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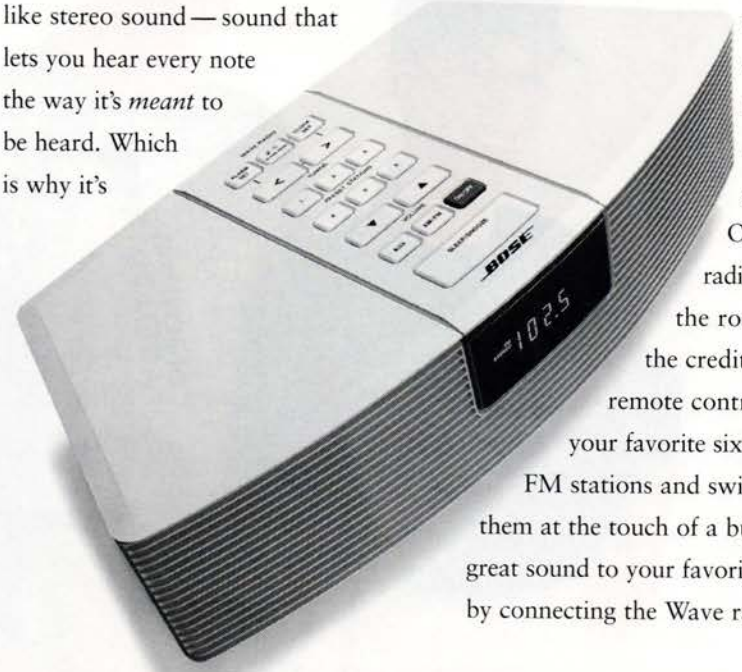

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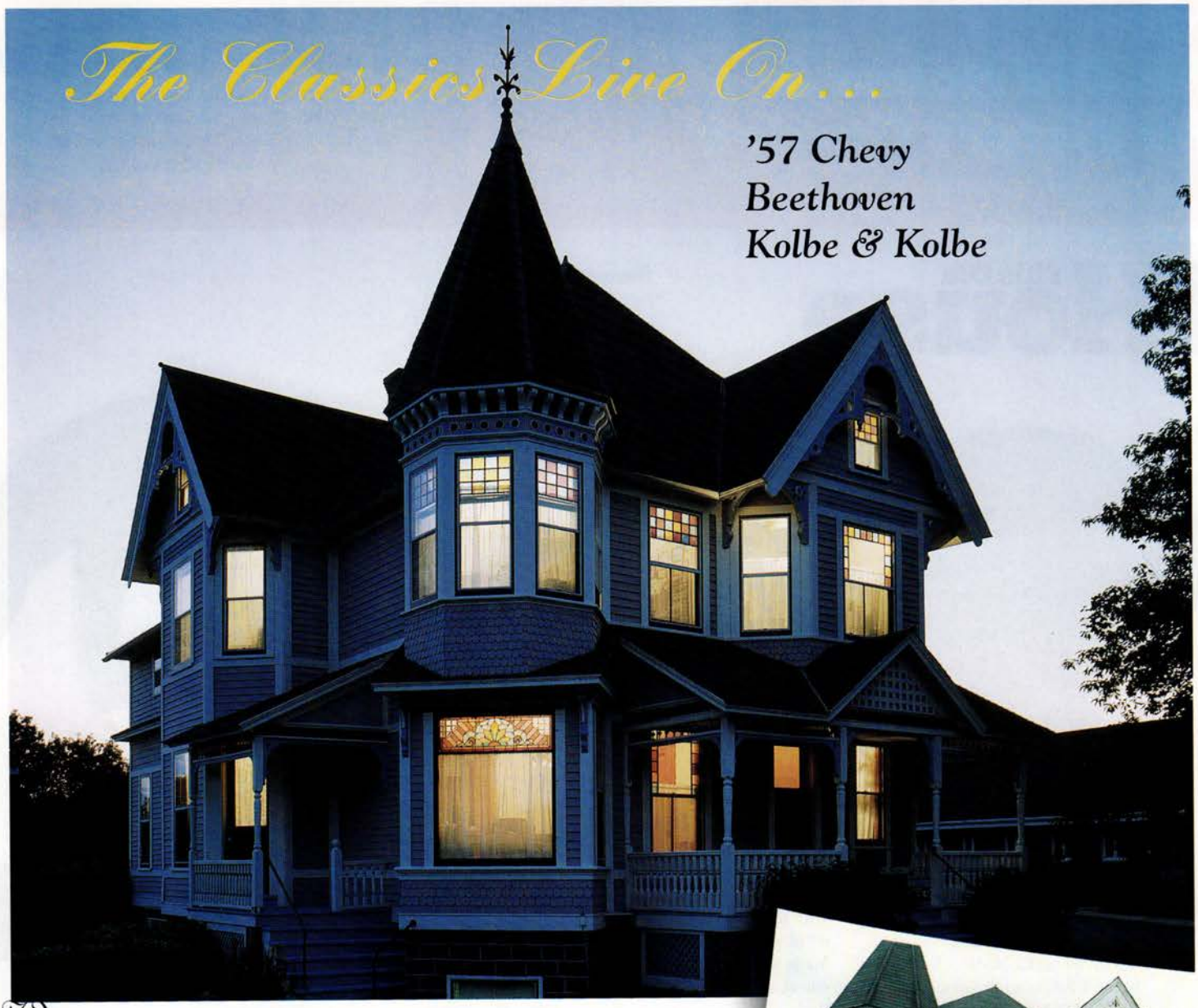

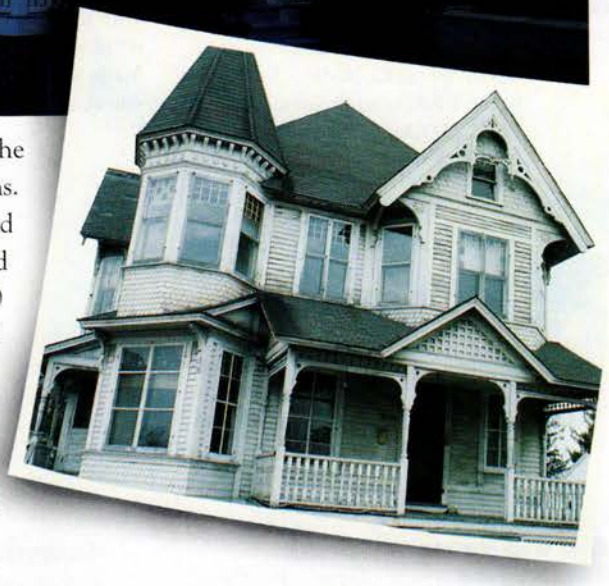

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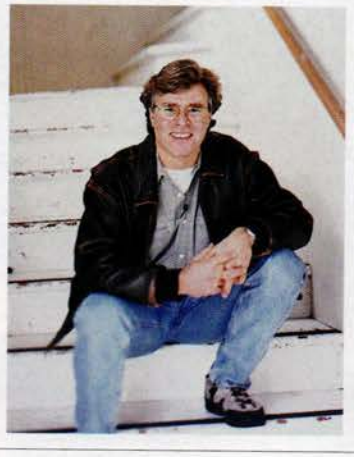
LETTER from *This Old House*

ALL YOU NEED IS FAITH

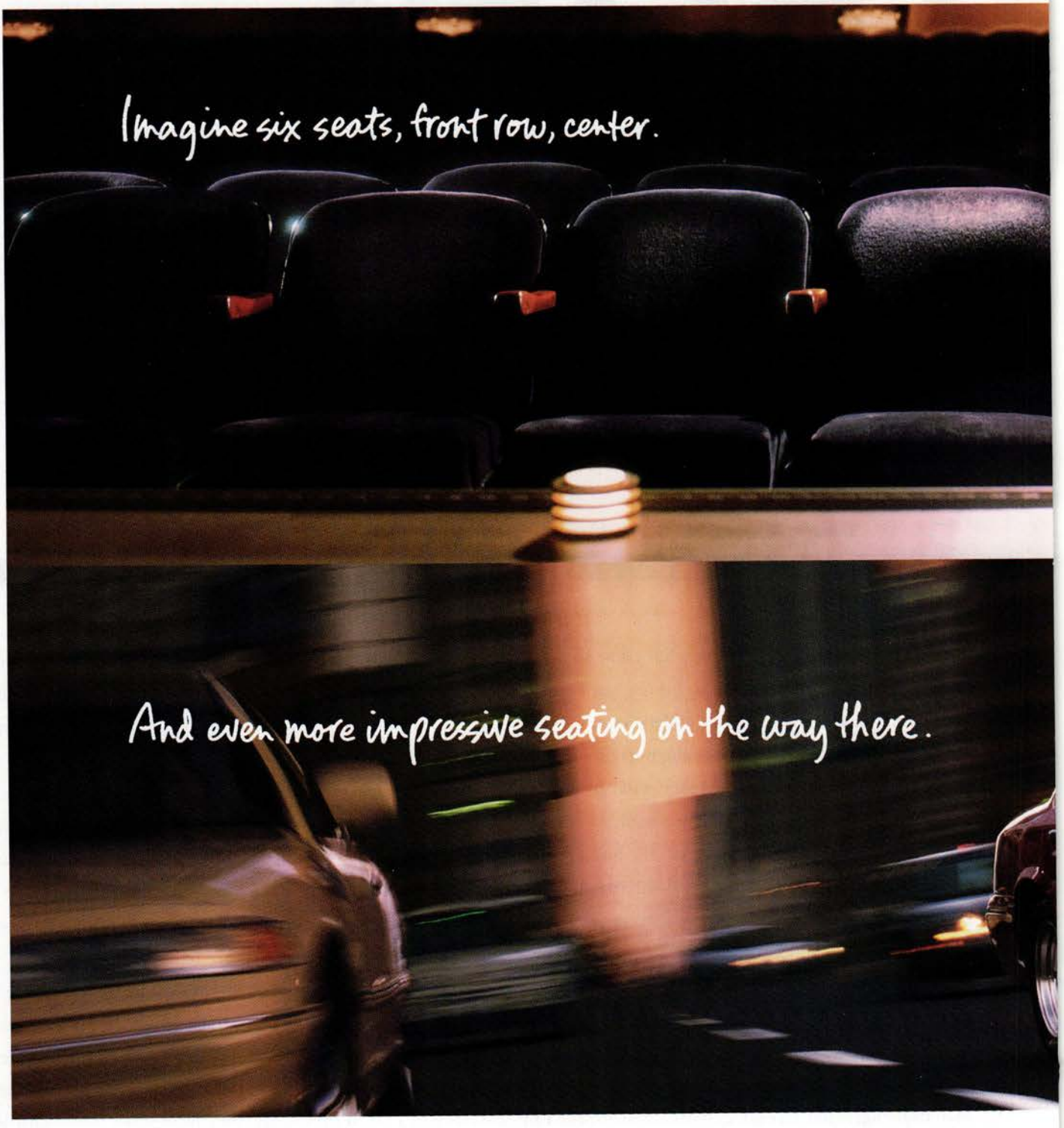


This Old House has come to the City by the Bay—San Francisco—one of the great cities of the world. I spent my childhood in the Bay Area, so for me San Francisco is laced with memories: stopping on the way home from school to watch the fog spill through the Golden Gate, sitting by the waterfront with my father while freighters unloaded cargo from the world over. My family's house in the Berkeley Hills had termite-infested sills, and my dad had to jack up the entire structure to do repairs. I can still smell the damp crawl space and pungent wood preservative and hear him muttering about the creaking of the house jacks. My father was not a professional, but he was unafraid to tackle any job. The *TOH* winter project reminds me of the challenges my father took on. The building was originally a church, built in 1907, right after the big earthquake, by the Reorganized Church of Jesus Christ of Latter Day Saints, with a baptismal font that still graces the nave. When the group moved in 1983, the church became a synagogue for a predominantly gay and lesbian congregation. Recently the congregation outgrew the little building and sold it to Mark Dvorak and Laurie Ann Bishop, who intend to make it a house.

Dvorak and Bishop will have to overcome formidable obstacles. For starters, it will cost $30,000 to reengineer the building to meet California's earthquake codes. Then, the crew will transform the traditionally nonresidential structure to include a kitchen, bedrooms, bathrooms and a laundry, not to mention new plumbing, heating and electrical systems. The building extends right up to its lot lines so there's no driveway or yard. Dvorak's mother, for one, thinks he and Bishop are a bit over the top to take on such challenges. But Dvorak designs stores for the Gap and has had a lot of experience humanizing cold, unfriendly buildings. Bishop works in fashion and knows how to create beauty. So, although my first reaction is to side with Dvorak's mother, I hesitate. Maybe it's blind faith, maybe it's vision, but dancing in the mind's eye of these home owners is a realizable dream. Something in their intensity reminds me of my father and the qualities that got him through his renovations. We at *This Old House* will support Dvorak and Bishop all the way. Still, if any members of the congregations that once met here are reading this, please know that a little additional help in the form of prayer—English or Hebrew—would be appreciated.

—Steve Thomas

PHOTOGRAPH BY DAVID ALBANESE



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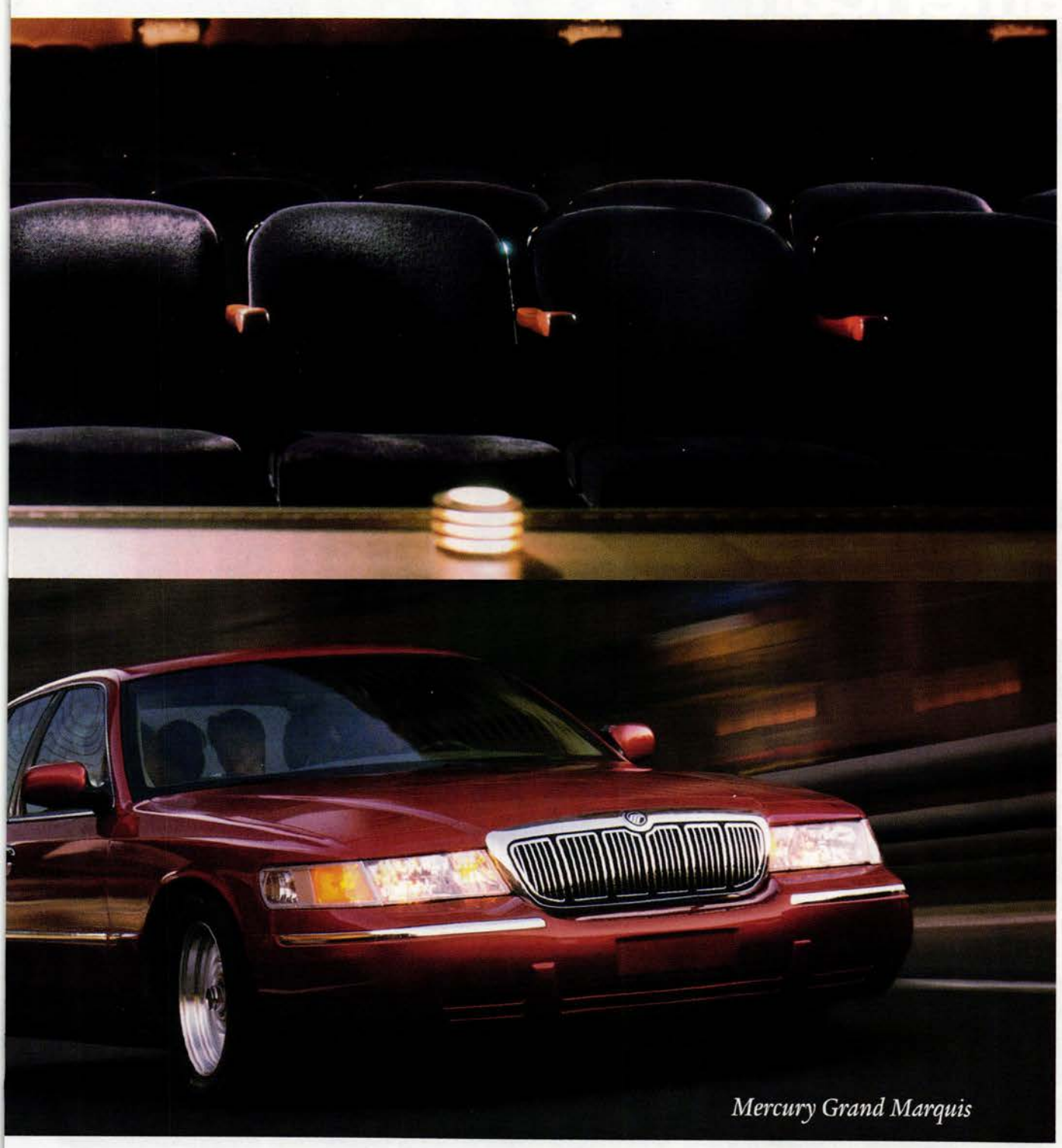

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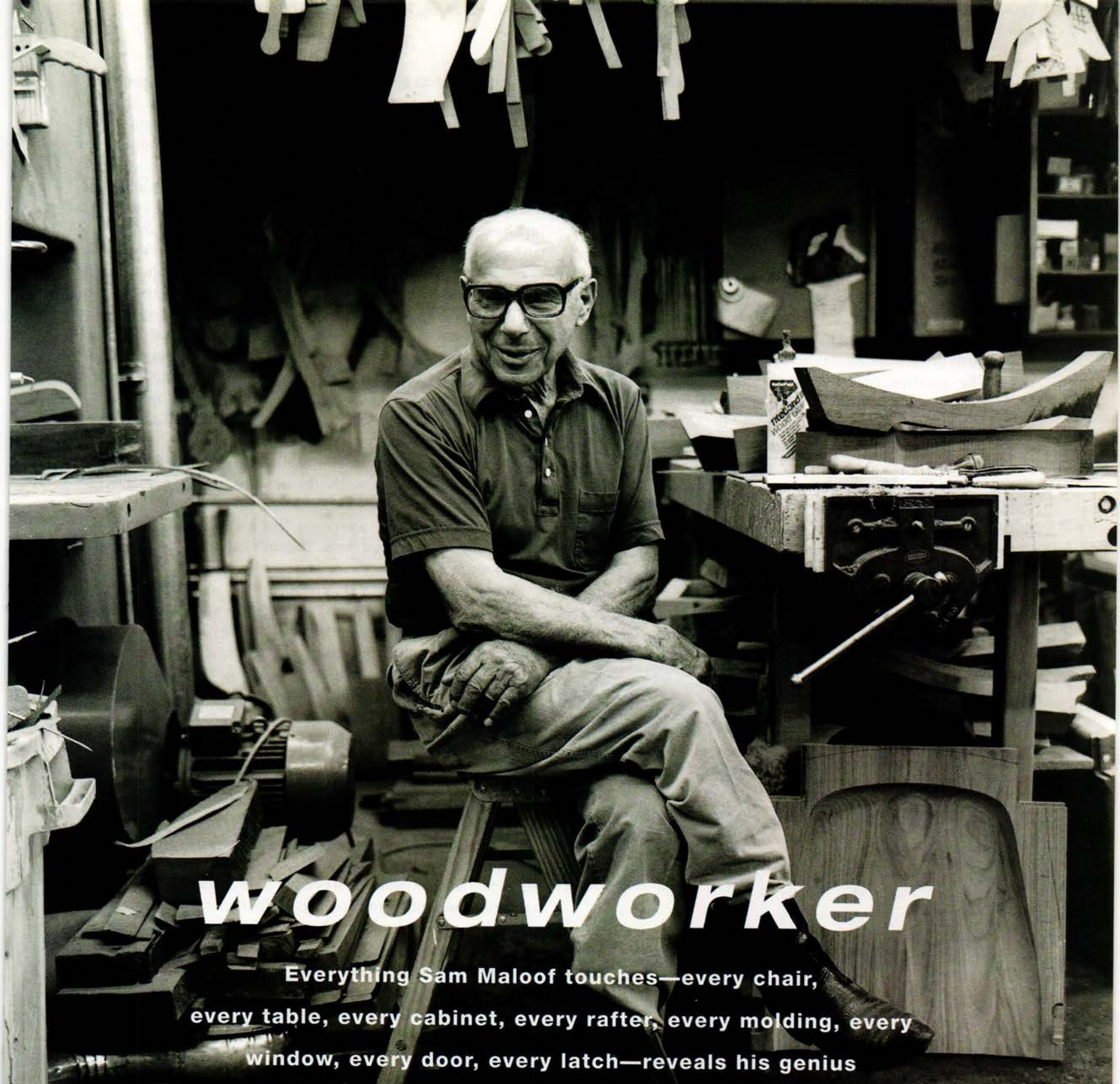
an american craftsman

As a young man, Sam Maloof could not afford power equipment, so he developed his woodworking skills using a few hand tools. A half century later, his shop is filled with an overwhelming array of electric routers and drills, squares, hammers, razor-sharp spoke shavers, rasps, files, pliers, calipers, screwdrivers and planes. OPPOSITE: *Flanked by a band saw—the power tool he uses most often—and his workbench, Sam takes a rare break. People have described him as an artist, but he prefers to be known simply as a woodworker. "It's an honest word," he says. "And that's what I am: a woodworker."*

BY WALT HARRINGTON PHOTOGRAPHS BY TED & DEBBIE



woodworker

Everything Sam Maloof touches—every chair, every table, every cabinet, every rafter, every molding, every window, every door, every latch—reveals his genius

Sam Maloof made a world. In a citrus grove now surrounded by malls and houses, in a wood shop where he hand-built furniture that is now revered as art, in the home he crafted one room at a time as he could afford the lumber and where he has lived the last half century, almost every minute of every day, with the wonder of his life—his wife, Alfreda—Sam Maloof made a world. He nurtured his lemons and oranges and figs, planted walnut and sycamore trees that started as cuttings the size of his thumb and eventually grew to engulf the grounds. He tore down a chicken coop and built a shop that always smells of sweet, fresh wood. He tore down a shack and built a house

that, like a piece of modern sculpture, has no front or back. In the kitchen, he laid bricks without mortar so that each step makes the music of wind chimes. Then he moved on to the living room, Freda's study, the skylit tower, the guest room with a loft, the balcony overlooking the grove. The house ultimately came to 7,000 square feet—26 rooms that unfold like a pyramid's secret chambers adorned with handmade redwood doors, windows and jalousies, two dozen wooden door latches that resemble flying fish or bones or tusks, jagged-edged walnut dogboards nailed to the wall like abstract art, Douglas fir rafters with mortise-and-tenon joints at their peaks, window frames joined with dovetails, even toilet seats handmade from English oak and black walnut. Outside the grove, cars and trucks groan and spew and honk in stagnant air while, inside the grove, birds are always singing and a breeze is always rustling the trees. The question everyone wants answered is: Would Sam Maloof's craftsman genius have blossomed if he had not first created this world in which to live and work? In other words, did his genius create this place, or did this place create his genius?

"Oh, I don't know," Sam says. "What do you think, Freda?"

Sam and Freda are puttering around their house in Alta Loma, California, at the foot of the San Gabriel Mountains. She is tidying the kitchen. He is giving a tour of the house and the 100 handmade chairs and tables, desks and settees, coffee tables, beds and dressers that decorate it, of the woodshop, of the 6 acres of lemons, peaches, pears, apricots, figs and avocados that sit like an island in a sprawling suburban sea. But this island, like Atlantis, is about to disappear forever, to be buried not underwater but under concrete, a new section of the nearby Foothill Freeway. Because Sam's house and workshop are on the National Register of Historic Places, they will be moved to a scraggly citrus grove a few miles away and turned into a working museum. Sam will design and help build a new house on the new grounds for himself and Freda.

All 20 doors in Maloof's house have wooden latches he handcrafted. The sitting-room door latch is made from a small piece of eucalyptus wood that he found in his lemon grove. The handmade door is redwood.

"It's sort of scary sometimes," Sam says of his success and fame, which have seemed almost to overtake him in recent years. His furniture is in the Metropolitan Museum of Art, the Smithsonian Institution's Renwick Gallery, the White House and the homes of former presidents Jimmy Carter and Ronald Reagan. A dining room set he sold for $3,000 about 25 years ago resold recently for $150,000. One of his new high-backed rockers today sells for $18,000. "Sam's furniture embodies intangible qualities that transcend the sensory delights of sight and touch," Jonathan Fairbanks, curator of American decorative arts and sculpture at the Museum of Fine Arts in Boston, has written. Sam is hailed today not as a furniture maker but as an artist. Yet for all his success, Sam, at 82, is too militantly modest to take credit. And Freda, at 86, is too down-to-earth to think Sam—or anyone, for that matter—can deserve the world-renowned stature he has achieved.

"God's been very good to us," Freda says.

"I'd say I was lucky," Sam says, "but I worked doggone hard."

Freda flashes an ironic smile. "I didn't know he was going to be so famous."

Sam is embarrassed. "Oh, Freda."

"Freda helped me," Sam says. Fifty years ago he was working as a graphic artist for a California company that made decals, but he wanted to quit and make furniture for a living. "She didn't say, 'You're crazy. Just stay where you are. At least you're making a living.' She said, 'If you want to do it, I think you should do it.'" After Sam lost money on his first commissioned pieces of furniture, he told Freda he was going back to graphics. She said, "No, you can do it."

"You talk about faith, hope and charity," Sam says. "She had it for me. I would have given up if it hadn't been for Freda."

"I was just happy he was doing something he loved," Freda says.

Doing what Sam loved—creating about 50 pieces of furniture a year for 50 years—has made him one of the most respected craftsmen in the country. His chairs have the curving grace of a parabola, the embracing comfort of loving arms and the tactile sensuality of supple skin. They look and feel like living creatures, not pieces of wood connected by dowel and glue and joint, but single, seamless waves of wood. Sam once watched as the blind bluesman Ray Charles caressed a piece of his furniture and announced that it had "soul." Sam likes that story because soul is a place beyond words, where hand, head and humanity blur.

"You can't have soul without sincerity," he says.

Sam and Freda are short and silver-haired. She is lithe and fragile and walks with an airy glide, her silky hair tucked up in a little twist. She speaks so softly that the last words of her sentences, like a distant sound trailing off, can be lost. She has a mild laugh, more like a sigh. And that ironic smile. Sam, on the other hand, is compact and muscular, nothing fragile about him. He walks with the spring of an athlete. He speaks slowly but with a deep voice that's always audible. He looks a decade younger than his years, easy.

Freda has always kept Sam grounded. Early in his career, when art-show judges rejected two pieces of Sam's work, he hang-dogged around the house looking for sympathy. "Sam," Freda said, "rejec-

tion is good for the ego." Decades later, when he won a $375,000 MacArthur Foundation "genius" grant, he was embarrassed at the ceremony that other winners' résumés went on and on with various accomplishments and advanced degrees. His read, "Sam Maloof, Chino High School graduate, 1934, designer." Freda just flashed her smile: "Sam, I bet there isn't a person here who knows how to make a chair." And when President Jimmy Carter and First Lady Rosalynn, who own several pieces of Sam's furniture, stopped by the lemon grove one day, it was Freda who calmly asked the Carters to stay for dinner.

"She cooked chicken casserole," Sam says.

Freda shrugs. "Well, that's what we would have eaten."

"And he," Sam says of President Carter, "had two helpings."

Freda believes Sam could write a book about the famous people he's met.

"No," says Sam, suddenly serious. "A memoir. How I met and married you."

Now Freda is embarrassed. "Oh, Sam."

The Maloof workshop connects to the house through an alcove off the living room. A giant fan sucks a cool breeze into the long, high-roofed building. Chairs are everywhere—half built, built, unsanded, sanded, unfinished, finished. Eight will go to a CEO in the Napa Valley. One will go to Singapore. Two to Atlanta. Each takes about a week of Sam's cutting, shaping and gluing. Sam and three workers will then sand and finish them. Freda will send the bills and enter the sales in the books. Wooden templates marked with the names of the first people to buy each style of chair—Miller, Evans, Mars, Hafif—hang like stalactites from the ceiling. Hulking around the room are joiners, lathes, a planer, a band saw, a drill press, a shaper and a spindle sander. And holstered in a wooden rack along the wall are chisels—Sam's favorite is 50 years old and has been sharpened down to a 1-inch nub.

"It's like a favorite cup," he says. "You get used to it."

Sam still works 60 hours a week in the shop, down from the 80, 90 or 100 he worked as a younger man scratching out a living. Now almost every day, after

The Douglas fir beams in Sam and Freda's bedroom have mortise-and-tenon joints. Sam also made the sculptured walnut pedestal table, the walnut Texas chairs, and the redwood-framed wall cabinet filled with pre-Columbian statues, primitive Iranian pottery and Native American dolls and moccasins. "People should surround themselves with beautiful objects they love," he says.

Sam keeps limber by picking lemons, an activity his wife, Freda, calls the "lemon ballet."

he and Freda eat the lunch she has made, he takes a nap. Freda insists. She had not been well lately, and that worried Sam. Their son, Slimen, also a woodworker, had never seen his father so pensive and distracted, so unable to concentrate, as when Freda was sick.

"What'd the doctor say," Sam asks Freda when she pokes her head into the workshop after returning from a morning checkup.

"I'm fine."

"I'm sure glad you're OK," he says as Freda heads back into the house.

He is quiet for a moment, still looking worried about Freda. Finally, he goes on with his conversation. "The way people react to my furniture," he says, "it's almost embarrassing." He gets letters by the hundreds—the woodworker who says meeting Sam briefly more than a decade ago changed his life, the composer who studies Sam's furniture as inspiration for his music, the woman who says that, every time she looks closely at Sam's chair in her living room, she cries at its beauty. Sam is human. He likes the respect that borders at times on adulation. But it baffles him.

"I went into woodworking thinking it would be a nice way of making a living," he says. He wasn't thinking about becoming famous or rich or making a chair that would be enshrined in the Smithsonian. He just couldn't imagine commuting to an office cubicle. But now people study Sam to understand how the way he lives his life has fostered his creativity. He tells the curious that creativity is inherent in humans, God-given, although it can be either nurtured or suppressed. And blind determination matters.

Sam has known craftsmen who worked hard for short periods and found that no one would buy their furniture. Their feelings hurt, they quit. He has known woodworkers who believed they deserved recognition after making only a few pieces. He has known furniture makers who sold their designs to production companies, took the money and never built another piece. Sam believes that affirmation, glory and wealth are motivators that will do little to create a fine craftsman. He says, "You do it because of the love."

In his shop this morning, Sam is

Redwood front gates, which have vertical slats Sam individually sculpted on a band saw, open onto a 40-by-40-foot patio topped with beams of Douglas fir.

working for himself. Forty-five years ago, he made a chair for Freda's mother, now dead. He has looked at that chair with his perfectionist eye for years, thinking the back is too small for its body and that he should fix it someday. Today is the day. He has taken a 2½-by-4-by-16-inch chunk of walnut in his hands and begun to sculpt it on the band saw, trimming away much of its thickness into a curving wave along what will be the new back of the chair. As he usually does, Sam stops what he's doing to work on another chair for awhile, turning a leg on the lathe. Reddish walnut spalts mist his hair, eyebrows and arms.

"You have to feel it," Sam says of the work. "You make a joint that fits absolutely perfectly, and you feel it. I still pinch myself. I'm not a workaholic. I just enjoy my work." Never has Sam had a day when he woke up and didn't feel the desire to work. "Sometimes the day is gone before I get started," he says. He wonders: What if he had opened a workshop somewhere in an industrial zone, commuted there every morning, commuted home every night? Would he have made the furniture he did? He thinks not.

This world—this shop, this house, the grove, Freda, his daughter, who grew up here running in and out of the shop, his son, who became a woodworker in the grove, the men who have been with him for decades—this world created Sam as much as Sam created it. He is a meticulous man, who painstakingly laid the stones at his house's entryway to look as if they were scattered at random. Everything here is as if Sam took a pencil and drew this world, then entered it. With stones laid, fig trees, olive cuttings and sycamore saplings carefully planted, woodwork covering nearly every square inch of the house. Like a poet who writes a line and then must respond to that now existing line in the next sentence, Sam was shaped by the world he shaped. His creativity, he believes, is rooted here in the grove, in the house, in the workshop.

Freda is back, standing at the door to the shop, waiting for the lathe to wind down.

"What's up?" Sam says.

"Seth died yesterday afternoon."

"Seth died?" He was a friend from their Methodist church.

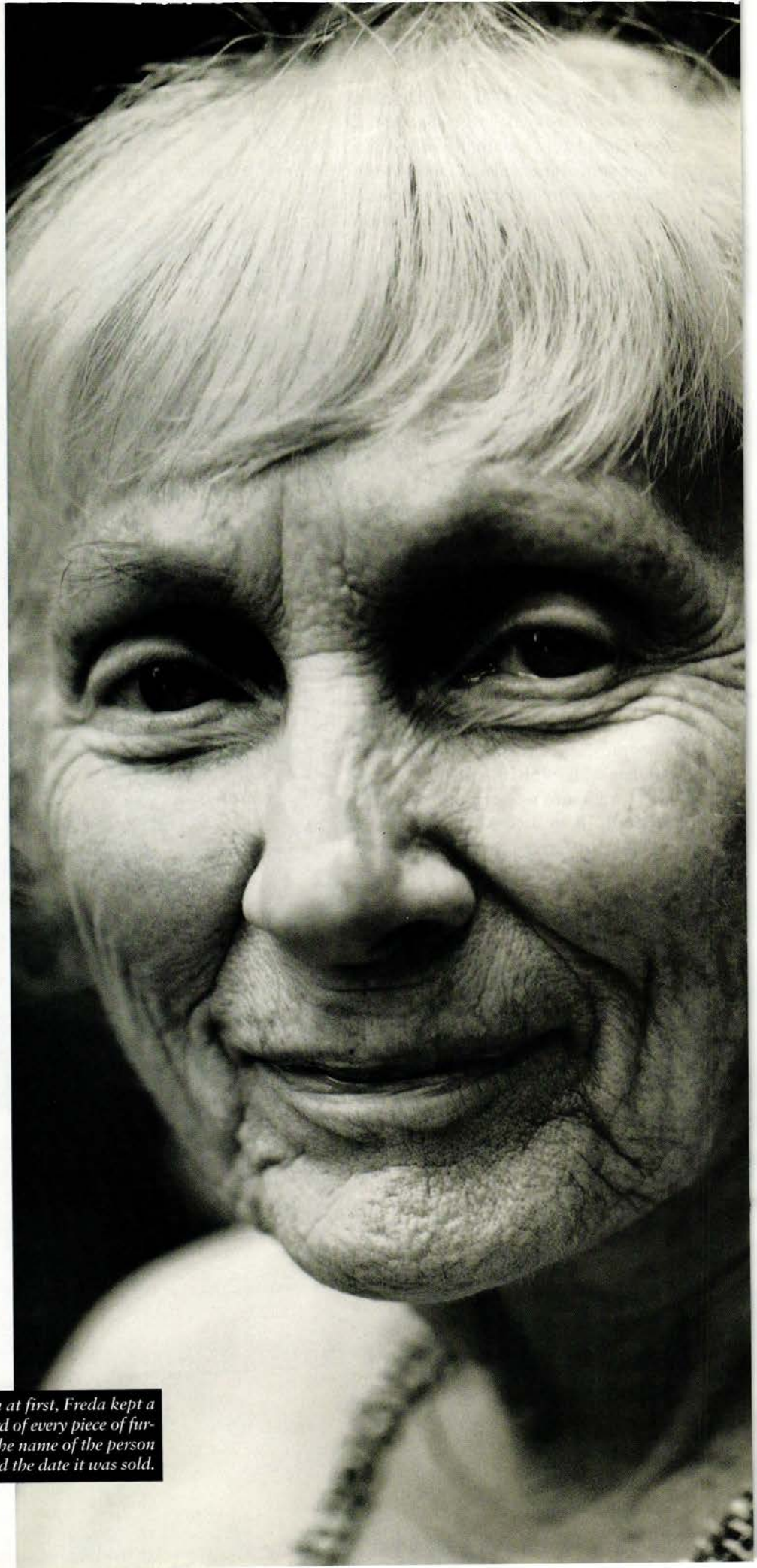
"He died."

"I saw him yesterday. He was fine."

"He was in the garden, and he fell over dead."

"Oh, my God! This is a sad thing."

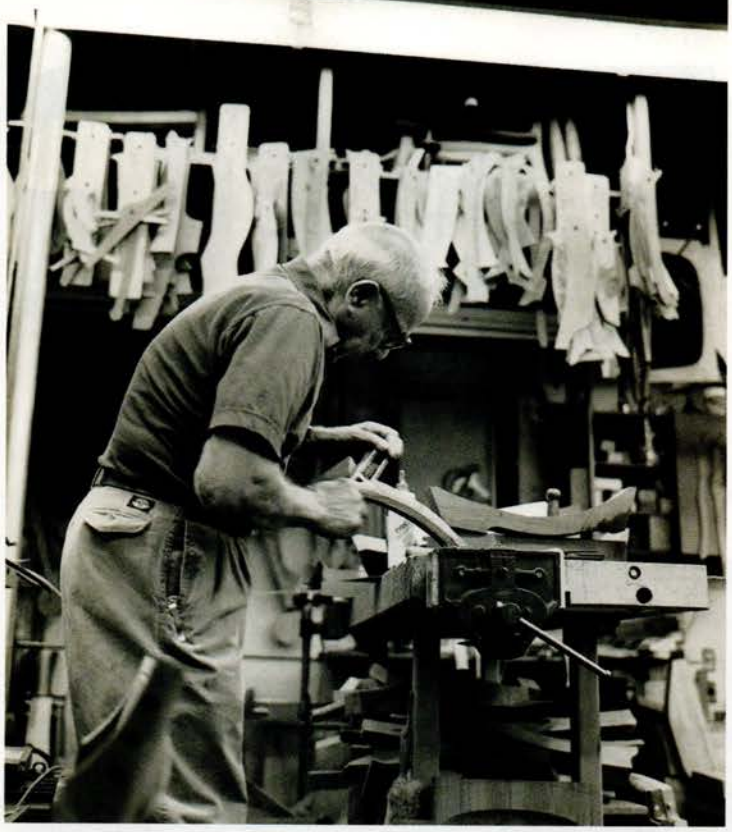
Sam goes back to turning, clearing his mind as he presses a gouge into the narrowing bottom of the chair leg. Spalts fly again. "That's the way to go," he says—in the garden, doing what you love. "People say, 'Work must be the most important thing



Unknown to Sam at first, Freda kept a diary with a record of every piece of furniture he made, the name of the person who bought it and the date it was sold.

in your life,' and I say, 'But it isn't. First comes God, then my family, my friends, my work, in that order.' Without my family and friends, I would have no interest in work."

That sentiment, beyond furniture, is really what has made Sam Maloof famous, as he and Freda have become a moral lesson on what so many people fear is missing in their lives. Sam and Freda left the bureaucratic, workaday world to live in a citrus grove beyond callous civilization. Sam never advertised. He once turned down an offer worth $22 million to mass-produce department-store versions of his furniture. People came to him by word of mouth, like disciples. He labored day and night in his work-sanctified shop, and they came to him. Life for Sam and Freda became like a piece of Sam's furniture—organic and seamless: he and Freda walking the misty lemon grove before breakfast, she stopping by the shop on hot afternoons with lemonade, the two of them cooking dinner at night for raw-handed woodworkers, CEOs, even a President.



Sam uses a hand rasp in the workshop to shape the arm of a chair. "Even now I'll see an old piece of furniture, and I just can't believe I made it 50 years ago and it still looks pretty good," he says. "It's a good feeling."

So what is the secret to creative work?

Sam tells this story: He once sent a friend's son looking for a summer job to the famous Pennsylvania woodworker George Nakashima. The boy later called Sam and told him that Nakashima had hung up on him. Sam asked the boy what had been said.

Nakashima: "I couldn't teach you to sweep my floors in three months."

Boy: "I know how to sweep floors."

The correct answer: "If it takes a year, I want to learn how to do it."

"I would have hung up on him also," Sam says. "There has to be a humility. Patience is very important."

The men who work with Sam are master craftsmen, but sometimes for weeks they do nothing but sand spindles. "But they wouldn't even think of doing a poor job because they were bored," Sam says. "It isn't because of how much I pay them. They do it for themselves. You have to work with integrity." To be a fine craftsman, Sam believes, you must first be a good person. Somehow the qualities that make good people—humility, patience, integrity, sincerity—transfer to the objects they make. To Sam, that is a gift passed from God. After all, what is God if not goodness living in the hearts and minds and creations of people? Sam says he can teach anyone to be a good woodworker. But a person can't be a fine woodworker without a good heart.

"You have to be able to see the beauty around you," Sam says. Once he and Freda were walking through the woods, stopping to look at how a leaf was shaped or a stem held its flower. "And then Freda saw a little bird's nest. It was abandoned. It was so beautiful. To see how a tiny bird could create and build such a beautiful nest is amazing to me. Life is discovery." They took the nest home and still have it on a shelf. Each time Sam and Freda notice it, they are transported back to that day in the woods.

It will be hard for Sam and Freda to leave this made world. That bird's nest, the flying-fish door latches, the dovetailed redwood window frames, the peaked Douglas fir rafters will all go with them. So, too, will the 100 pieces of Sam's furniture—the chairs, tables, desks, settees, beds and dressers, the rosewood music stand Sam made for violist Jan Hlinka, who willed it back when he died. And, of course, the piece Freda is now touching gently with her fingertips, that smile on her face. "This is my rocking chair," she says. "He gave it to me. It has my name on it."

Made for Alfreda Maloof, Christmas, '72. P.S. All my love.

"It all belongs to Freda," Sam says.

But much will stay behind—the sycamore tree Sam planted as a sapling that is now a giant tree, the dry dirt that compresses under his boots on morning walks, the dust that rises with each step, the sunlight as it filters into Freda's study. These pieces of Sam's world can't be moved. But he will not be depressed: "Freda and I have the chance to start life over again," he says. Sam has plans. He will rejuvenate the scraggly citrus grove on his new land. He will plant walnut and maple saplings that will be giant in hope. He will build a Japanese teahouse over the land's arroyo. And he will build a new house. "The house," he says, "will be like a piece of furniture."

Sam Maloof is again about to make a world. The question still: Will he create that place, or will that place create him?

"Well," says Sam, "you can't have one without the other." ■

Sam is renowned for his high-backed rocking chairs. A bird's-eye maple rocker he made in 1970 is accented with dark Gabon ebony wooden plugs.

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THE RIGHT

REAL SLATE

Cut or snapped from metamorphic rock that flakes into thin layers, quarried roofing is durable but heavy and expensive.

Quarried Stone

INSTALLED COST PER SQUARE: $800-$1,000

DURABILITY: Up to 100 years

COMMENTS: Weighs 7-10 lbs. per sq. ft., requiring a beefy, engineer-approved roof structure. Should be rated ASTM S1 because cheap, unrated slate can fail in as little as two years.

When the slate roof on her 1936 Colonial began "disintegrating," as Mary Sinclair puts it, she learned that a replacement would cost $27,000. As she idly fingered various faux slate samples at a local roofing center, she flirted with heresy. Should she follow other home owners in her neighborhood in Washington, D.C., and settle for chunky asphalt shingles that mimic slate? No, she ultimately decided. Digging deep, she invested in

ROOF

Here are your options when someone says: "The new roof will be $27,000, please."

MODERN CONTENDERS

Lighter and less expensive, slate substitutes succeed to varying degrees in looking like the real thing.

Plastic

INSTALLED COST PER SQUARE: $400-$450

DURABILITY: 50-year warranty

COMMENTS: Very light—.7 lbs. per sq. ft. Hollow in back. Fire retardant. Won't rot or support mildew.

Clay

INSTALLED COST PER SQUARE: $450-$800

DURABILITY: 60-year warranty

COMMENTS: Survives freeze-thaw cycles because it absorbs little water. Weighs 5.8 lbs. per sq. ft.

Fiber Cement

INSTALLED COST PER SQUARE: $250-$500

DURABILITY: 50-year warranty

COMMENTS: Consists of cement, sand, wood and other fibers. Molded in various textures. Fire retardant. Weighs 4 lbs. per sq. ft., half as much as slate.

BY BRAD LEMLEY PHOTOGRAPHS BY TOM WOLFF STILLS BY MICHAEL GRIMM

After inheriting her parents' Colonial in Washington, D.C., in 1988, Mary Sinclair chose to replace its half-century-old slate roof with the real thing rather than a modern impostor. "I'm not necessarily averse to all new materials," she says, "but slate seemed right for me."

honest Pennsylvania slate, even specifying a gray to match the existing slabs. "I'm a purist," says Sinclair, a 38-year-old property manager. "I like original things. I wanted to do it right." Her house still has its original wooden Venetian blinds shading the windows, and she soldiers along without a dishwasher or garbage disposal because she sees them as extravagant.

A roof repels rain, wind, snow and stray baseballs. But it also expresses the fantasies and fixations of whoever dwells beneath it. Early Christians domed their basilicas to suggest the vault of heaven. The Chinese curl up the corners of pagoda roofs to prevent *chi*, the life force, from cascading down too abruptly. Bruce Wentworth, an architect in Silver Spring, Maryland, believes self-evaluation is essential when a home owner chooses a roofing material. "The first step should be going to a psychiatrist," he says. "It's a very personal decision."

For old-house owners who, like Sinclair, are blessed with a clear remodeling identity, the roof-material decision tree is a short, straight sapling: I'm a history zealot; this house originally had slate; I want slate. But for those grappling with fuzzier self-definitions, other considerations matter. Interviews with architects, roof consultants, historians, contractors and owners yield a spreading maple's worth of branches to ponder. Ignoring the complexities can lead to a nasty fall. No other element of a house so evenly bears the twin burdens of beauty and practicality; considering how a given material measures up in both categories is crucial.

First, establish whether the roof really needs replacing. "If it's asphalt and leaking anywhere, you generally need to put in something new," says *This Old House* contractor Tom Silva. "Repair only makes sense for a fairly recent roof where you have specific damage from a tree, wind blow-off, that kind of thing." Roofs made of other materials may need a specialist roofer's evaluation.

Then think money. The choice that owners make may depend largely on how long they plan to stay. "Most people invest in homes with an eye toward resale," says Minneapolis architect Dale Mulfinger, who specializes in renovations so sweeping that he prefers to term them transformations. "If a client says to me, 'Motorola might move me to San Francisco in a year,' an expensive, long-lasting roof might not be smart." But since Mulfinger himself has no plans to relocate, he says, "For my own house, I made the investment in a metal roof."

Further, in terms of raising resale value, the impact of an expensive new roof almost certainly won't equal the effect of more desirable improvements inside. "If the choice is between spending $40,000 on a roof or a kitchen, you'd have to be kind of eccentric to spend it on the roof," Wentworth says.

Mark Graham, director of technical services for the National Roofing Contractors Association, suggests weighing the conformity factor. "I think it makes sense to match the neighbors," he says. "Asphalt is a common look. Generally if you use it, no one can accuse you of having a weird roof." In 1996, asphalt shingles accounted for 64 percent of residential reroofing—compared to less than 4 percent apiece for wood, metal, slate and tile. (Most of the rest were flat or low-slope roofs with rubber or other built-up coatings.)

Dennis Wedlick, a residential architect in New York City, offers another consideration: mulling how "present" the roof is. "If you've got a shallow pitch and lots of interesting architectural features on the facade to draw the eye, don't spend a lot of money on it," he says. "A good asphalt shingle works fine."

The presence factor led Diana Hughes of Stamford, Connecticut, in the opposite direction. She used cedar shingles to replace the asphalt on her 7,000-square-foot, century-old Colonial. "The house is below the street. When you walk by, you are just about eye to eye with the roofline, so the roof is very prominent," she says.

The quest for historical accuracy also guided her choice. Excavating, she had found her house's original wood roof buried under several layers of asphalt. Andrea Gilmore, a Boston-area conservation consultant, says that wood shingles look right on many Colonial and Federal houses because "wood shingles predominated on American roofs through the middle of the 19th century. In that era, you really see slate only on houses near quarries."

But asphalt has a long lineage, too, and can be the historically correct choice on modest houses less than a century old. In 1847, a Cincinnati manufacturer saturated rolls of felt with coal tar, sprinkled the sticky surface with fine gravel and started the asphalt-roof revolution. With the three-tab asphalt shingle, invented in 1903, proletarian householders could—with varying success—imitate their more fortunate neighbors' slate roofs at a fraction of the cost. By 1918, the variety of roof coverings available was nearly as dizzying as it is today. One builders' catalog lists built-up tar, canvas and several kinds of metal, as well as asbestos, asphalt and wood shingles.

To highlight fanciful roof details such as a turret and a gable-peak window, Diana Hughes of Stamford, Conn., chose to reroof with cedar shingles: "We wanted to preserve the house's integrity and still have a little fun with the roof."

So if history propels home owners, how can they determine what kind of roofing their house originally had? Gilmore says the first roof is often still there to be seen by prying up the asphalt shingles or

WOOD

Sawed into shingles or split into shakes, cedar, redwood, southern pine and other woods once roofed most houses in the West and Midwest. Modern pretenders promise longer life or lower cost, plus less fire risk.

Cedar

INSTALLED COST PER SQUARE: $250-$500

DURABILITY: 20-25 years

COMMENTS: Must be installed over skip sheathing so underside of shingles can breathe. Banned in some areas unless treated with fire retardant. Weighs 2 lbs. per sq. ft.; heavy shakes can weigh up to 3 lbs.

Cement

INSTALLED COST PER SQUARE: $300-$400

DURABILITY: 25-year warranty

COMMENTS: Manufactured product, meaning sizes are consistent. Won't burn. Can't withstand extensive freeze-thaw cycles. Weighs 5.8 lbs. per sq. ft.

Metal

INSTALLED COST PER SQUARE: $400-$600

DURABILITY: 50-year warranty

COMMENTS: Made of aluminum .019 in. thick. Manufacturer says paint will last 50 years, then can be recoated. Very lightweight—.44 lb. per sq. ft.

Plastic

INSTALLED COST PER SQUARE: $375-$425

DURABILITY: 50-year warranty

COMMENTS: Fire resistant. Won't rot or support mildew growth. Weighs .6 lb. per sq. ft. Installation is fast; panels are big—about 21 by 41.5 in.

METAL

Besides being shaped to mimic wood, slate and tile, metal shines on its own as a distinctive roofing material. Look twice at that gleaming copper roof—it may be thin foil bonded to an asphalt shingle.

Copper & Asphalt

INSTALLED COST PER SQUARE: $600-$750

DURABILITY: More than 40 years

COMMENTS: Made of copper foil .004 in. thick over fiberglass and asphalt. Installs like regular asphalt but requires copper nails and weighs twice as much. Made in three-tab pieces.

Standing Seam

INSTALLED COST PER SQUARE: $500-$800

DURABILITY: 50-75 years if painted every eight years

COMMENTS: Traditional steel roof with soldered seams. Installer needs metalworking experience. Can rust on back if attic ventilation is not good. Made in two thicknesses, .012 and .0149 in.

Vertical Seam

INSTALLED COST PER SQUARE: $300-$450

DURABILITY: 25 years with initial paint

COMMENTS: Also made of steel, but seams are secured with sealants not solder, so installation is easier. Available in two thicknesses, .019 and .0239 in.

peering up from the attic. Even if the original roof has been torn off, she says, "You often find fragments of the old roof in the attic where the additions are attached." In her own 1797 house, cedar shingles cover the triangular section where the addition's roof intersects the original house.

The roof framework can also provide clues. Spaced horizontal boards, known as skip sheathing, point to an original wood roof. Heavy solid sheathing, steep pitches and closely spaced rafters suggest slate, which can weigh 1,000 pounds per "square" (100 square feet), quadruple the weight of asphalt shingles. Narrowing the choice to a specific material leads to more decisions. For asphalt shingles, Wedlick often specifies thick, laminated versions. These approximate the look of shakes or slate but cost far less.

And asphalt comes in a broad palette of colors. Tom argues for white because it reflects sunlight, helping to keep the house cooler in the summer. "Red works well with an all-white home," Wedlick says. "Greens are traditional on dark-brown bungalows. I most often use black or charcoal gray. It can go with a range of colors." Wedlick particularly admires the look of a black roof on a house with weathered silver-gray cedar shingle siding.

Asphalt's color versatility inspired Glenn Harder of Weston, Massachusetts, to replace the plain shingles on his house and to outfit his new barn with a version striated with shadow lines suggesting slate. "You'll never mistake it for real slate, but it's striking on the barn," he says. "It really fits with the 1910 look we were going for."

Graham says home owners shouldn't worry about whether their roofers use so-called organic asphalt shingles (manufactured on cellulose mats) or the more popular fiberglass-mat versions. "The organic shingles are more flexible, so they are easier to apply in cold weather. But fiberglass has a higher tensile strength, so it's really a trade-off. Either type will last about the same amount of time, and they will cost the same."

Lead

INSTALLED COST PER SQUARE: $400-$500

DURABILITY: 100 years or more

COMMENTS: Surface oxidizes, creating a dull gray finish and forming a protective layer that keeps lead from washing off in storms. Weighs 4 lbs. per sq. ft. Shingles are .0625 in. thick.

Copper

INSTALLED COST PER SQUARE: $500-$800

DURABILITY: 100 years or more

COMMENTS: Designed for easy installation; no metalworking experience needed. Lightweight—just 1 lb. per sq. ft. Shingles are .0153 in. thick.

TILE

Genuine tile roofing is made of clay shaped into half cylinders for a Mission look or into flat pieces for an English or French effect. Concrete is a close substitute. Other materials achieve the look only from a distance.

Clay

INSTALLED COST PER SQUARE: $180-$400

DURABILITY: 50-100 years

COMMENTS: Traditional but very heavy—10 lbs. per sq. ft. Engineer should check roof before tiles are installed.

Cement

INSTALLED COST PER SQUARE: $265-$385

DURABILITY: 100 years or more

COMMENTS: Extruded and cured by a method developed in Europe in 1902. Easily repaired; old pieces slide out, and new ones slide in. Weighs 9 lbs. per sq. ft.

Metal & Stone

INSTALLED COST PER SQUARE: $330

DURABILITY: 50-year warranty

COMMENTS: Steel panels are 16.25 by 44.25 in. Manufacturer says fastening system results in great strength during earthquakes. Weighs 1.5 lbs. per sq. ft.

Metal

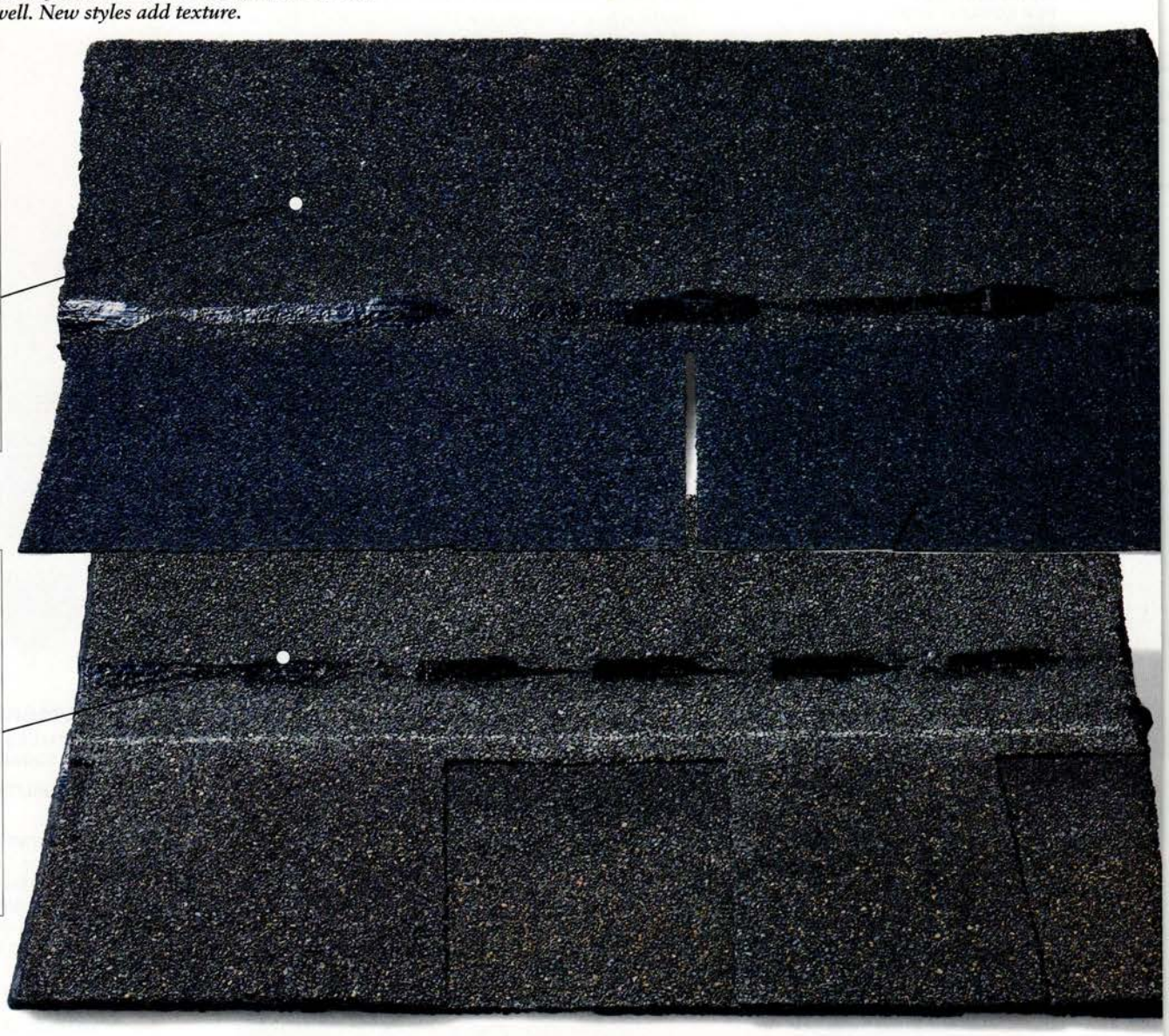
INSTALLED COST PER SQUARE: $500 and up

DURABILITY: 20-30 years

COMMENTS: Fast installation because panels are 39.75 in. wide and as long as roof is high. Available in aluminum .0299 in. thick and in steel .0239 in. thick.

ASPHALT

Invented nearly a century ago to mimic wood or slate, three-tab asphalt shingles are the cheapest solution and are often the historically correct choice as well. New styles add texture.



Standard

INSTALLED COST PER SQUARE: $50-$150

DURABILITY: 15-25 years

COMMENTS: The most popular residential roofing. Roofers are familiar with it. Made in a variety of colors. Weighs 2.1 lbs. per sq. ft.

Laminated

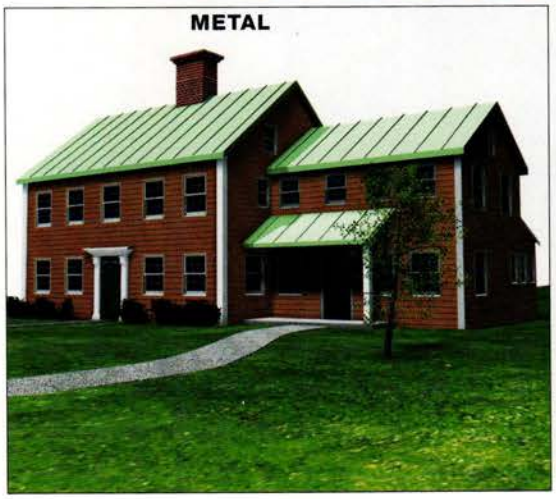
INSTALLED COST PER SQUARE: $100-$400

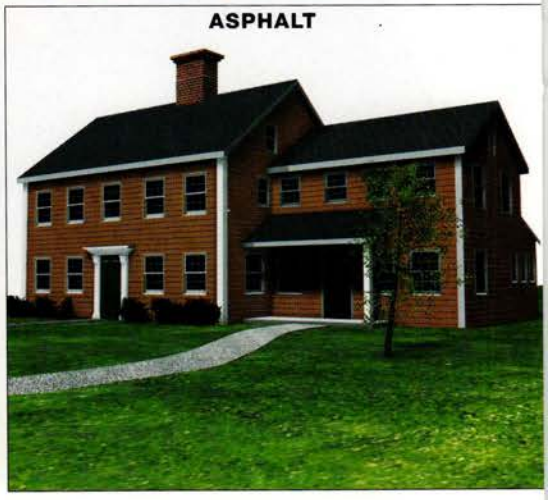
DURABILITY: 25-40 years

COMMENTS: Becoming more popular on high-end houses because of its textured look. Installs just like standard asphalt but weighs more—2.4-3.4 lbs. per sq. ft. May last longer because it's thicker.

Same House...Different Roofs

Computer images of *This Old House*'s 1994-1995 renovation project in Acton, Massachusetts, reveal how various roofing materials change the look of a house. Slate gives the 1710 Colonial a formal appearance; cedar shakes make the house seem more rustic. (We'll pass on the Yankee-hacienda effect of clay.) At $1,400 for these five views, preconstruction modeling isn't cheap. But because owners often change details of a house under renovation, this approach could save money.





For the roof of his barn, Glenn Harder of Weston, Mass., chose a five-tab asphalt shingle with a contrasting color line to suggest the natural texture of slate. Real stone, he decided, didn't make sense in New England's cold climate. "Freezing and thawing tend to crack and displace hard stone," he says.

The warranty number—the claim of a life span of 20, 30 or 40 years—doesn't matter much either, he says. "The marketing and legal departments of these manufacturers hammer out a number together, but it has very little relevance to real-world performance." Graham says that shingle-testing science still can't predict actual service life.

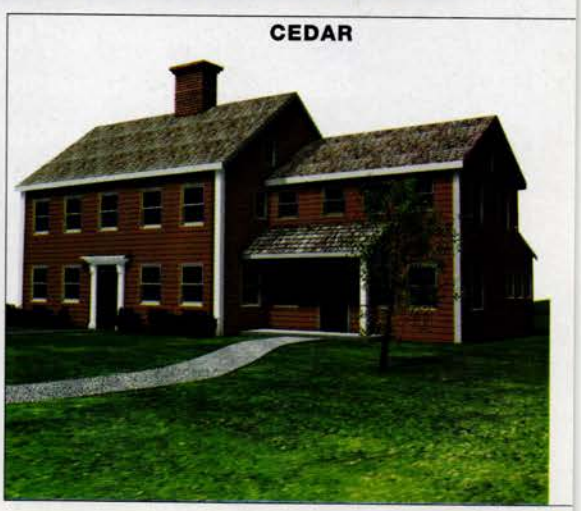
Instead, he advises buyers to look for the designation ASTM D225 on the wrapper of organic shingles or ASTM D3462 on fiberglass. Such designations, established by the American Society for Testing and Materials, mean the product meets baseline standards for durability. "What's interesting is that there are a lot of shingles out there that don't meet these standards," Graham says. In warm, wet climates, get algae-resistant brands. Usually designated by "AR," they incorporate zinc or copper granules to inhibit the growth of algae, fungi and moss. In windy areas, use six nails per three-tab shingle instead of the usual four. "The placement of the nails, as low as possible without seeing their heads, is as important as the number," Tom Silva adds.

With cedar shingles, beware the urge to over-rusticate. Sharon Park, a historical architect for the National Park Service, notes, "Part of the myth of the wood roof is that it should look rough and weathered, because people are judging by aged, deteriorated shingles. Historically, shakes were planed or dressed with a drawknife and looked smoother than present-day commercially available split shakes." Graham recommends avoiding wooden shingles treated with fire retardant. "Some chemicals that are good for fireproofing aren't good for the wood itself. If fire issues are important where you live, use something else instead of trying to make wood work." And Tom emphasizes that wood shingles must be installed over spaced sheathing, on top of fiberglass mesh or both to allow air to circulate beneath. Otherwise, a wood roof can rot or split in five to 10 years.

Metal works very well for utilitarian buildings, Wedlick says: "A standing-seam metal roof on a new garage or outbuilding gives a nice variety to the whole property." Aesthetically, he says, standing-seam roofs complement houses on opposite ends of the spectrum: "It's great for a very rustic house that looks like a barn or for a high-end, small-mansion type of look." On outbuildings, he favors a weathered silver finish that evokes galvanized steel panels. On houses, he prefers a patina copper finish. Graham recommends finding an experienced installer with ample references: "The success of a metal roof depends largely on labor."

Slate, quarried in Vermont, New York, Pennsylvania, Virginia and Canada, makes sense only if it replaces an original stone roof, Tom says. "If your roof structure wasn't specifically designed to handle slate, forget it. It's very expensive to begin with. Add in restructuring, and the cost is ridiculous." To Wedlick, even replacing slate with slate is a dubious proposition: "If a house is old enough to need a new slate roof, it probably has deteriorated structure." Or it may have been under-structured to begin with. "Slate is pure extravagance. It's the right choice only for someone who has so much money they don't know what to do with it. In my experience, they are very high-cost and very high-maintenance roofs." Even in all-slate neighborhoods, he says, "There are asphalt roofs now that can fit the context."

Probably so. But Sinclair is still sanguine about the choice she made seven years ago—she even put slate over her porch, which had asphalt. "The fake stuff is going up on some half-million-dollar homes in the area, and it does have some dimension," she says. "But when you look up, you just know it's not slate." ■



FOR SOURCES, SEE DIRECTORY – PAGE 145

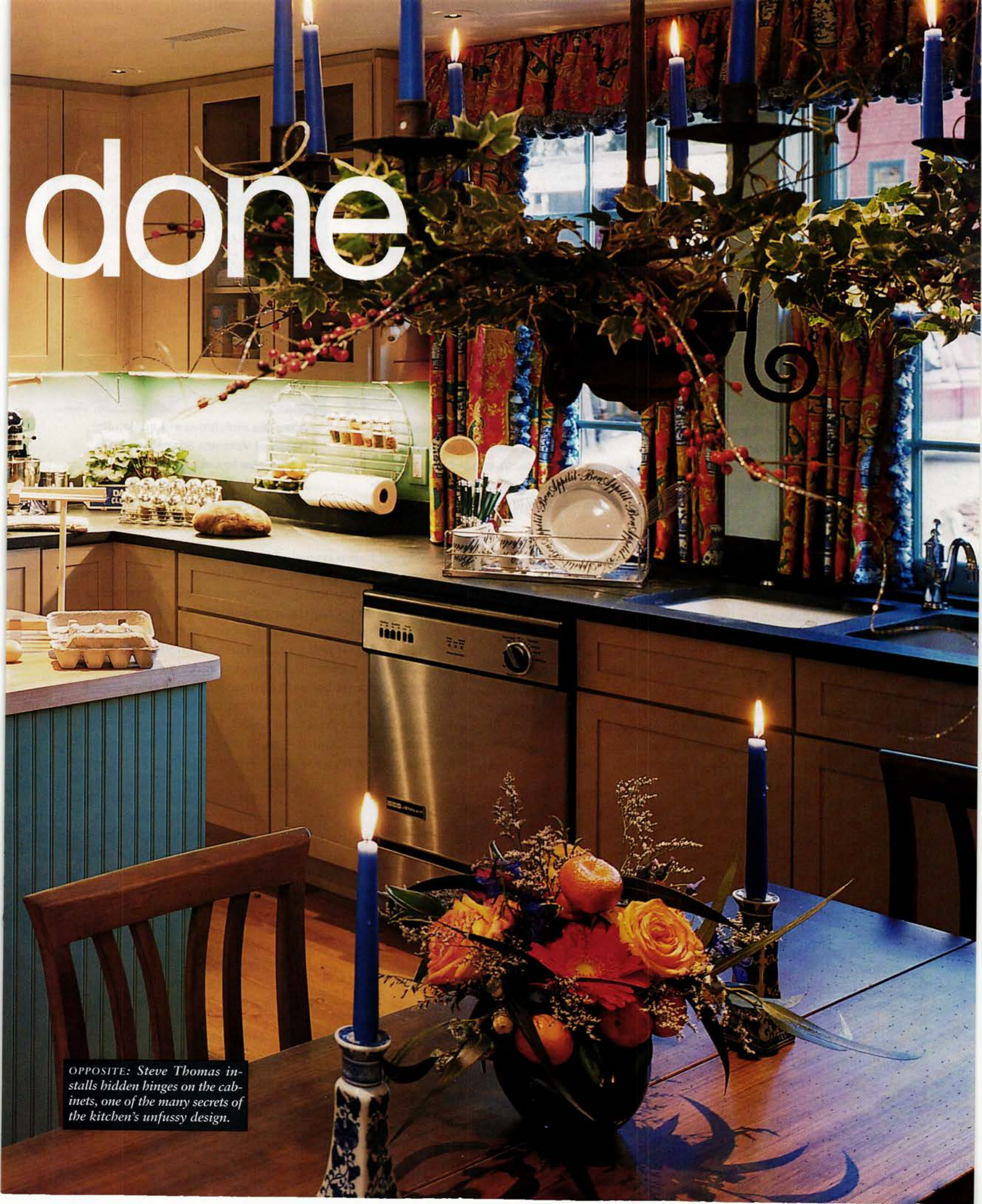
The Milton dream-house kitchen has all the right ingredients for a serious work space: tough counters, high-tech appliances and even a 19th-century fireplace

kitchen well

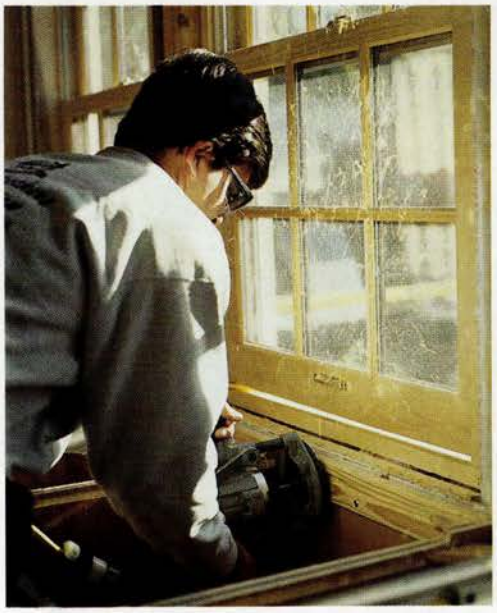
When a craving for beef bourguignonne seizes the future owner of the *This Old House* dream house in Milton, Massachusetts, he'll face an intriguing choice. He can program a phalanx of gleaming microchip-controlled appliances to simmer, bake or nuke his meal. Or he can dangle a pot from the iron hook in the kitchen's circa 1880 fireplace and spend a happy, anachronistic afternoon stirring the bubbling stew and nursing the embers. Even if the owner seldom exercises the second option, he should still appreciate the no-nonsense ethic that the 19th-century hook represents. "We've made

BY BRAD LEMLEY PHOTOGRAPHS BY KELLER & KELLER

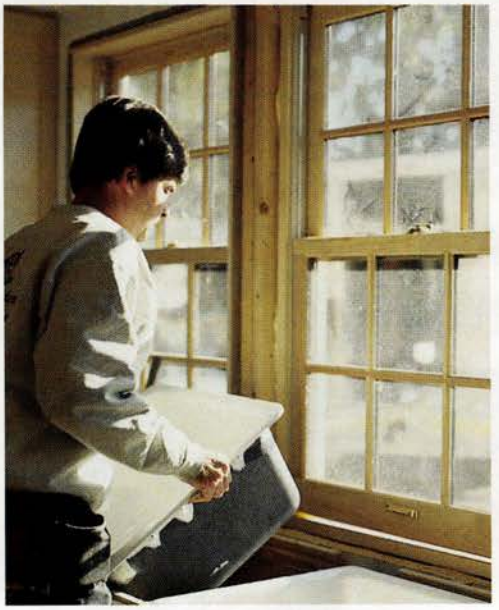
done



OPPOSITE: *Steve Thomas installs hidden hinges on the cabinets, one of the many secrets of the kitchen's unfussy design.*



To under-mount the cast-iron sinks so they won't have a protruding lip, Tom Silva's nephew Charlie Silva shaves ½ in. off the top of the cabinet boxes with a plunge router.



Charlie Silva drops in the sinks so they sit flush, centered above the two base cabinets. Vermont Soapstone workers can make a template for cutting the sink holes in the counter.

After the sink holes are made, Jim Heath of Vermont Soapstone uses a hole saw to cut out three plugs—for a single-lever faucet, a sprayer and an instant hot-water dispenser.

this kitchen the modern equivalent of the old fireplace," designer Phil Mossgraber says. "This is a hardworking, hands-on food preparation area for someone who really wants to cook. We kept it basic by focusing on the tasks rather than on making some visual statement."

Yet functionality begets beauty. The utilitarian, clean lines of the design, juxtaposed with the hearth's ruddy bricks, create an appealing room destined to become the heart of the house.

To create this efficient, inviting space, the first decision was the most essential. The *TOH* crew, including master carpenter Norm Abram, director Russ Morash, contractor Tom Silva and host Steve Thomas, opted to move the kitchen from the house's dim northwest corner to a sun-washed south room previously used as a study. "That was really a no-brainer," says Steve. "The original corner was the worst possible spot for a kitchen. Now, you get not only the sun but also the driveway, which comes right by the door so it's easy to unload groceries."

Three new double-hung windows on the south wall fill the 18-by-19-foot kitchen with sunlight. Mossgraber positioned the porcelain-enameled cast-iron sink directly below these windows—and not just to give the cook a charming view of the old barn. Anyone rinsing off leeks in this light will have no excuse for grit in the vichyssoise. Steve likes the 9-inch-deep pot-friendly basins. "That's an example of the workshop mentality we used here," he says, adding that the tiny subbasins typical of trendy designer sinks are fit "only to hold your lemon zest shavings." In other words, fit for nothing.

The sink is under-mounted, which means it has no protruding lip to catch water and peelings, and it hangs below a soapstone countertop (see sidebar). The ½ ton of subtly veined blue-gray stone bridges a difficult aesthetic gap, appearing both informal and dignified. "Soapstone doesn't have the glitz and gloss of granite, but it has that timeless quality with a softer feel," says Mossgraber.

For the base cabinets, Mossgraber and the *TOH* crew picked a model with flat-panel doors and hidden hinges. The stain—an off-white with the brand appellation "muslin"—renders the cabinets neutral to the point of vanishing. "We chose a plain, simple style to go with the character of the house," Mossgraber says. "The colors make the room seem even lighter."

In the buttery sunlight, the stainless-fronted appliances glow. Early in the design process, when famed cook Julia Child visited the raw space that would become the new kitchen, she proffered her simple appliance philosophy: Buy the best. "You are better off getting professional equipment because it's made for hard use," she says. "If you cook a great deal, it's less expensive in the long run."

On the other hand, a behemoth professional-quality range can cost

Charlie Silva, left, and Ron Coldwell slip the six-burner gas cooktop into its soapstone slot. A stainless-steel backsplash and hood go in next.

The sinks temporarily lifted off, Tom squirts silicone sealant around the perimeter to hold the counter and act as a watertight barrier between the basins and the cabinet.

up to $7,500. "That's overkill," says Steve. "Yes, they are gorgeous, but they take up a lot of space, and the burners are so big that you have to replace a lot of your cookware." So the team outfitted this kitchen with what Steve terms crossbreed appliances, which incorporate Wolfgang Puck toughness with June Cleaver sizes and prices. The most powerful burner of the six-ring gas cooktop is capable of producing a potent 12,000 Btu. That's slightly less than restaurant-grade ranges but more than enough for high-temperature specialties such as authentic Chinese wok dishes. (For safety's sake, *TOH* plumbing and heating contractor Richard Trethewey positioned a sprinkler head nearby.) The capacious double ovens offer both radiant and convection heat.

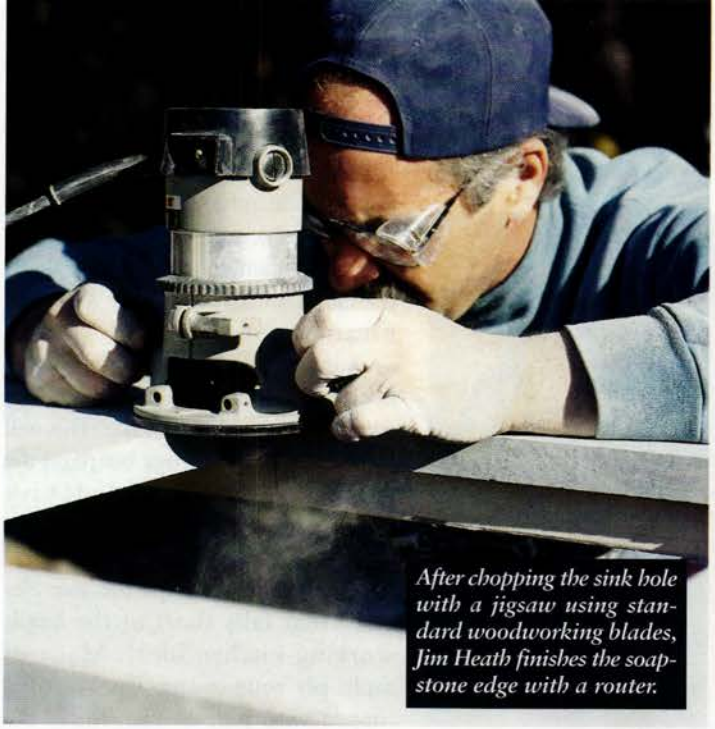
One short step from the cooktop and ovens—as well as from an 850-watt wall-mounted microwave and an ultraquiet dishwasher—is the maple butcher-block countertop, the kitchen's central preparation area. Although butcher block's popularity has declined in recent years, the surface—perfect for chopping and slicing—is one of Child's favorites.

Flush with the edge of the counter, the refrigerator looks almost built in. While the average residential refrigerator is between 27 and 30 inches deep, this one is just 24. That shallowness makes the contents easier to see, lowering the likelihood of obscured, forgotten—and ultimately moldy—boysenberry yogurt.

Next to the fridge is a 32-bottle wine cooler. This glass-paneled undercounter system operates as a satellite of the wine cellar Tom carved out of a corner in the basement (see "A Cellar for the Buyer," January/February 1998) and chills white wine to 55 degrees or lower, depending on the wine and the owner's taste.

Although the room was already sunny, electrician Al Gallant installed 15 recessed and three surface-mounted fixtures reg-

Unlike other types of stone, soapstone can be cut with an ordinary circular saw that is fitted with a masonry blade.



After chopping the sink hole with a jigsaw using standard woodworking blades, Jim Heath finishes the soapstone edge with a router.

Soapstone Counter Culture

Melding the weighty presence of granite with the matte informality of wood, soapstone countertops "reflect the fact that this isn't an untouchable designer kitchen," says Steve Thomas. "The more wear and tear this surface gets, the better it will look."

Craftsmen have assembled soapstone slabs into sinks and laboratory countertops since the 1700s. Unlike marble and granite, soapstone has a unique crystalline structure that allows it to heat and cool thousands of times without cracking. Glenn Bowman, owner of the 148-year-old Vermont Soapstone Company, says that demand for soapstone countertops in residential kitchens has soared in the last decade: "People like the fact that it instantly looks like it's been there for 100 years."

For an installed kitchen counter, Bowman charges about $75 a square foot, making the cost of the Milton kitchen's counters about $3,500. "When people comparison shop, they generally find us in the same range as solid-surface materials and the more commonly available grades of granite."

The stone consists of about 70 percent talc, the same stuff that, in powdered form, soothes diapered skin. The remaining 30 percent can comprise various minerals such as iron or magnesium, accounting for hues ranging from white to gray, green and brown, although only gray stone is used for countertops. Some of Bowman's soapstone comes from a quarry in Chester, Vermont, but he gets longer slabs from Brazil, so he used those in the kitchen at the Milton dream house.

To hold the slabs to the cabinetry, Bowman relies on gravity rather than fasteners: "At 25 pounds a square foot, it's not going anywhere." He sealed the seams between the five slabs that make up the dream-house countertop by slathering two-part transparent polyurethane-based epoxy on the edges with a putty knife, then pushing them together (the excess spilled onto clear tape he had affixed to both sides of the gap) and sanding the dried excess smooth.

He recommends treating the stone with mineral oil, which speeds the natural darkening process. "If you don't use the oil, it will darken anyway, but the oil makes it happen uniformly."

ulated by a wireless central lighting control that lets the home owner snap on lights not only from the kitchen's three entrances but also from an automobile 60 feet away. "So if you've got your arms full of groceries when you come in the door, the lights are already on in whatever pattern you've preset," says Gallant.

Using a router and tapered jig, Glenn Bowman, owner of Vermont Soapstone, carefully carves drainboard grooves into the soapstone counter.

A built-in desk nook in the room's northwest corner will allow the bill payer to chat with the cook. "This will be the spot for a message board on the wall," says Mossgraber. "And I envision cookbooks in these glass-door cabinets—it's sort of a nerve center."

The floor is perhaps the sole element that falls short of the hard-working-kitchen ideal. Made of multi-ply tongue-and-groove strips topped with pine ⅛ inch thick, the relatively soft surface will likely appear battered within several years. "It represents that exquisite process of compromise that always marks remodeling," says Steve, pointing out that vinyl was deemed too cheap-looking and tile too unyielding for comfort. Although this floor's pine surface will accommodate no more than two sandings, Tom contends that a solid-wood tongue-and-groove floor would have provided negligible improvement. "Even then, you could sand only down to the groove. It would really give you just a tiny bit of extra sanding depth."

Tom's solution: "Take care of the finish." He recommends hiring a flooring professional every two years to buff the polyurethane surface with a fine-mesh screen and apply three more coats. "You've also got to scatter area rugs in high-traffic spots, like at the sink."

As Jeff Hoskings taps tongue-and-groove laminate floor strips into place, he uses a polyethylene block to cushion the blows.

Whether the future owner will conscientiously protect the floor remains to be seen. But, generally, this architectural paean to culinary efficiency stands ready to serve hungry inhabitants just as the black hook and glowing coals might have during the Garfield Administration. A glory of stone and wood, of long, lovely counters and tight work triangles, the room fulfills Julia Child's prediction. Perched on a stool in the center of the raw space, she envisioned a room both "wonderful and beautiful. To me, there is nothing nicer than a kitchen that is really made for a cook. I think things that are designed to be used always have an innate beauty." ■

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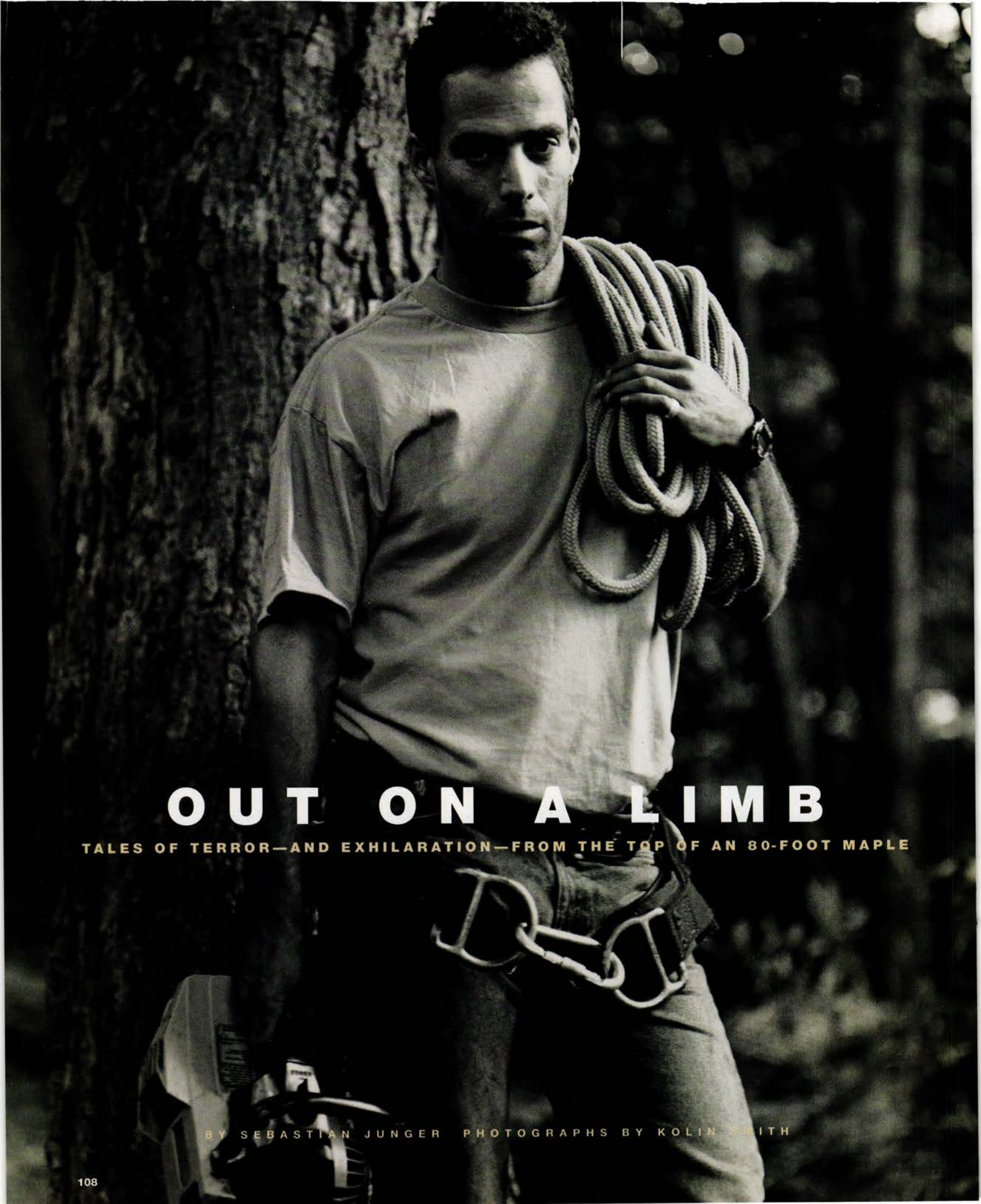
Because the 18-by-19-ft. kitchen accommodates a dining table, the butcher-block-topped island can be reserved for prep work and storage.



OUT ON A LIMB

TALES OF TERROR—AND EXHILARATION—FROM THE TOP OF AN 80-FOOT MAPLE

BY SEBASTIAN JUNGER PHOTOGRAPHS BY KOLIN SMITH

The tree is a 60-foot red maple, fully alive, growing out of a stone wall about 12 feet from a Cape Cod's screened-in porch. The maple is twice my age and could outlive my great-grandchildren. It weighs 4 or 5 tons and contains enough wood to boil a pot of water 40 feet high and 20 feet across. And it might kill me, because my job is to take it down.

People love trees but, as long as they continue to build their houses near them, the trees will have to be pruned and, occasionally, cut down. This maple must go because its roots will inevitably penetrate the house

LEFT: *The author, Sebastian Junger, buckled into his climbing saddle and ready to go.* ABOVE: *Hanging from his climbing line, Junger ropes off a limb so it won't fall on the house. On the ground, another crewman holds the line's other end, waiting to lower the limb as soon as it's cut.*

After tying himself into one of the main leaders, Junger stands in a crotch and watches a limb he has just cut parachute to the ground. He first cut the lower limbs to keep the higher ones from getting hung up on their way down.

foundation and reduce the concrete to rubble or, leaning as it does toward the sunlight, it could succumb to a windstorm and crush the porch. If this monster were dropped with one cut, it would fall with the kinetic energy of a 100-ton ship moving at 8 miles an hour and make a whump that all the neighbors would notice. But it is surrounded by other trees and too close to the house, so I must climb to the top and take it apart one branch at a time.

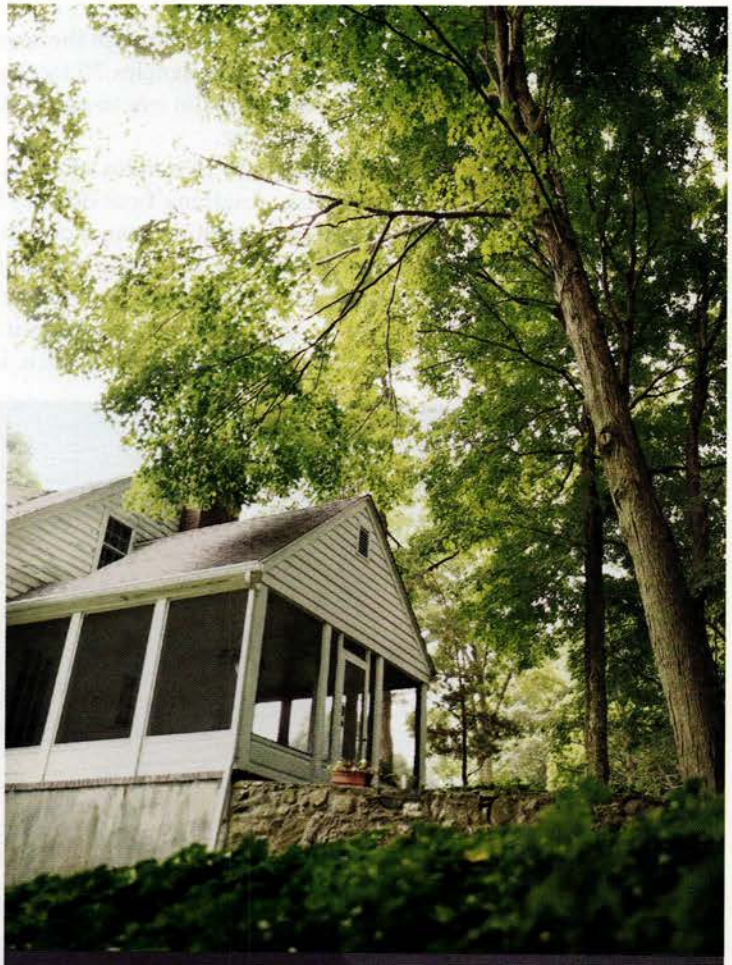
I've been climbing for seven years, since I was 29. It has been an ideal job for me, dramatic and well paid, and there has always been more work than I've needed. With a best-seller on bookstore racks, I don't need to climb for money. But one day a week I drive out of New York City to work for a friend who owns a small tree service in Westchester County. I spend all day clambering around with a screaming chain saw, then return to the city exhausted, filthy and sore. The work takes me back to my old self, which is where my writing springs from.

My life depends completely on the strength of the tree I'm destroying—one of the ironies of tree work. Before I climb, I always look for mushrooms or damaged roots at the base and woodpecker holes or large cracks up on the trunk. It's not always possible to spot a dangerous tree. I once cut up a massive oak that had come crashing down—in full foliage and seemingly healthy—on a breathless summer day in Massachusetts. The woman who called me said she had been doing dishes when she heard a funny crackling sound and looked out her window to see the ancient 120-foot oak begin its slow arc to the ground. The core of the trunk, as it turned out, had completely rotted.

I have always thought about that tree and how secure I would have felt up there in its crown. Trees that size are like whales, sort of benevolent in their huge bulk, and the idea that their strength can fail alters your relationship to them forever. Another climber I know, Dave Coats, whose sister, Lauren, owns the company I work for, once tied into a big limb 70 feet in the air. He leaned back on the rope, and the limb let go with a hideous *crack!* The next thing he knew, he was falling. "All I could think of was: Get your feet underneath you," he says. Twenty feet into his fall, the branch caught in the crotch of two other limbs, and he slammed to a stop. He collected himself, climbed up to where he had been and went back to work.

The maple that I have to take down appears to be as straightforward and reassuring as tree work can get. The tree is healthy and offers plenty of places to tie in with my line. I cinch climbing spikes tight to my boots, buckle a harness around my waist, clip a climbing line to it with a carabiner and step up to the tree. I jam one spike into the trunk, step up, jam the other spike in, step up again and slowly stomp my way up. The spikes keep me from falling, and my hands, slapped securely around the trunk, keep me from tipping over backward. When I get too high for comfort, I flip a safety line from my harness around the tree, clip myself in and continue moving upward.

I climb slowly, carefully, never in a hurry. When I come to a limb, I unclip the safety line and re-clip it above. Ten minutes later, I'm at the top of the tree, looking out over the town. In summer, the foliage catches so much wind that even barely perceptible air disturbances make the tree move. I can feel it shift underneath me as if it were breathing. I pass my climbing line through a crotch and clip the free end to my harness. Then I tie a locking knot, called a prusik knot, to the other end of the rope and start rap-



Danger Zone

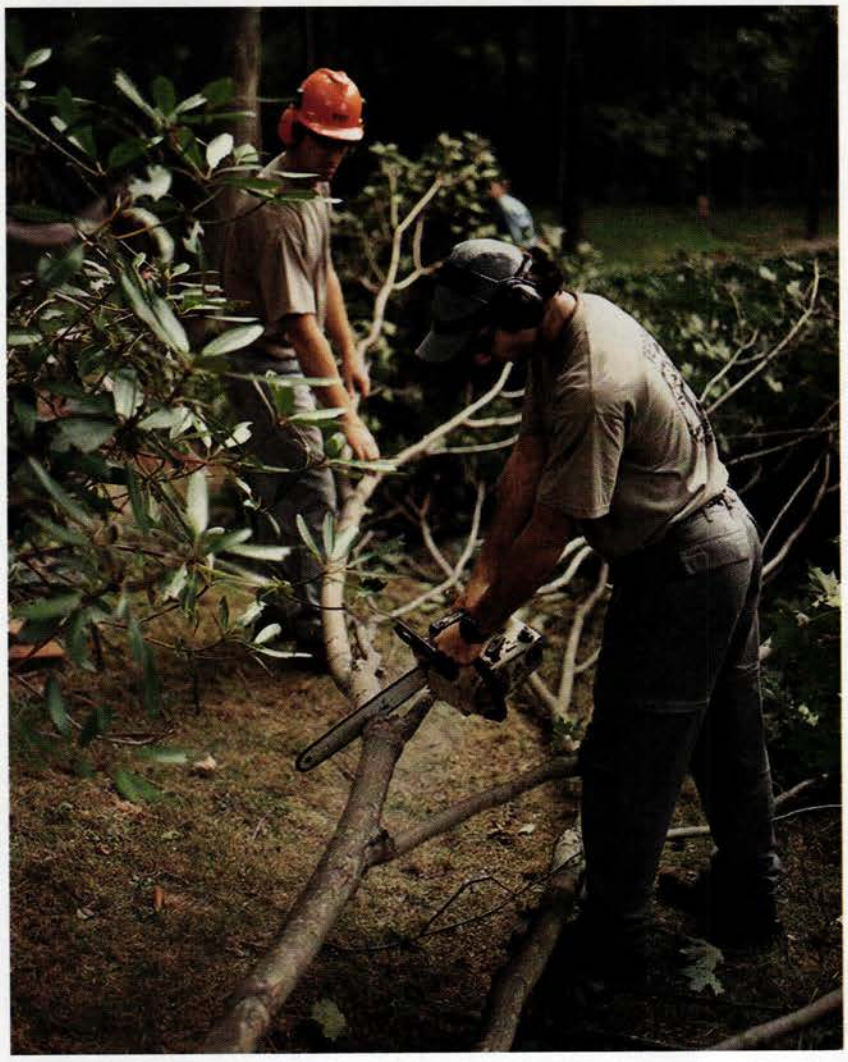
Taking a tree down is the arborist's last resort, done only when the tree is standing dead, clearly dying or sure to cause problems in the future. Near the house or not, a dead or dying tree should be taken down as soon as possible. Waiting might allow so much rot to take hold that a tree company will refuse to put a climber in it. A tree that is unhealthy or leaning over a house poses a threat, but a good arborist may be able to save it by selectively pruning new growth in the crown, cutting out deadwood, cabling leaders and split trunks together and taking off big limbs.

Call a tree company for an immediate evaluation if a tree shows any of these signs:

- **Large branches that are dead or broken and hanging**
- **Cavities or mushrooms at the base of the trunk, noticeable amounts of rotten wood or patches of missing bark**
- **Cracks or seams where major limbs attach**
- **Other dead trees in the immediate area, particularly where there has been construction work that involved excavation and grading with heavy equipment**
- **A trunk that has much more of a lean than those of surrounding trees**
- **Roots or trunk damaged by heavy equipment, construction or soil addition or removal**
- **Signs of extreme pruning such as topping (removing most of the crown), which can weaken and kill a tree—SJ**

pelling down. The rope runs from my harness, through the crotch above me and back down to the prusik, from which it dangles 70 feet to the ground. If I take my hand off the prusik, it locks and I'm free to work. When I loosen it slightly, I can drop down to my next cut.

Above the trunk, the tree divides into two main sections, or leaders, one of which reaches over the house. Anything I cut off that leader might fall onto the roof, so I'll have to lower sections from a crotch in the other leader. For that I've brought up another rope, called the lowering line. I swing to a crotch that is directly over a clear patch of yard and run the line through it. Then I drop one end down to the ground man, who wraps it once around the trunk to gain some friction when he lowers a heavy branch. I slowly work



To prevent a pile-up of branches, crewmen buck up limbs almost as soon as the climber cuts them off the tree. Usually one man cuts and the other drags the brush over to the chipper.

my way out to the end of the first big limb, attach the lowering line and swing back in closer to the trunk. The ground man stands with his head tilted up, waiting. I reach down to my belt and unclip the chain saw—a small climbing saw with a 12-inch bar that's light enough to use one-handed—then choke the engine, yank the cord and let 'er rip.

There are a lot of ways to make a cut, and the one I choose depends on what I want the limb or trunk section to do. The first limb I have to take off extends way over the porch. I could start near the tip and take the limb off in small pieces but decide instead to make a swing cut. With the rope holding up the tip, I make a wedge-shaped cut into the limb where it comes off the

Choosing a Tree Company

There is perhaps no greater scorn than that which reputable tree companies reserve for fly-by-night outfits. In the old days, jacklegs, as these operations were called, would go door-to-door with a truck and chain saw, offering their services but working with little regard for a tree's health or the home owner's interests. Like most contractors, tree companies vary in the quality of their work, and the one offering the lowest price isn't necessarily the one to choose. Bad pruning can kill a marginal tree, and then it costs money to take down.

The International Society of Arboriculture offers some tips about how to select a tree company:

- **Ask if the company has insurance for personal injury, property damage and workmen's compensation.**
- **Be skeptical of tree workers who look for jobs by canvassing a neighborhood. Most good companies get all the work they need through paid advertising and customer referrals.**
- **If a tree needs pruning, ask how it will be climbed. Workers should never wear spikes, because they leave the bark with unsightly tears that can also become entry points for viruses.**
- **If the company says that a crane or bucket truck is necessary, ask if that will cost more and, if so, get an estimate from another company.**
- **To save money, you may be able to get a tree company to take the tree down, leaving you to handle the cleanup and wood removal. This can save a lot, but make sure the arrangement is clearly spelled out in a contract.**

"A legitimate company should have signs on its trucks, and the foreman should be able to identify trees on sight and seem to care about trees," says Lauren Coats, who owns the company I work for part-time. "If someone asked me, 'Is there any way to save this tree?' and there wasn't, I'd tell them that but in a way that made it clear I'd love to be able to save it."—SJ

Powered by a 95-horsepower, 6-cylinder engine, the chipper makes a hellish noise as it devours brush and logs that are too small for the fireplace. Left to rot for a few months, the chips will break down into a fertile mulch.

leader. The tip swings sideways and, when the limb clears the porch roof, I cut it all the way through. The ground man lowers it to the lawn, and I move to the next limb.

Making a cut is probably the most dangerous thing to do in a tree, although it's not perceived that way. Climbers will hold the tree with a death grip when they're unroped or jerk awake in the middle of the night with falling dreams, but they'll cut loose a huge piece of trunk without a second thought. If they're going to get hurt, though, it will probably be by a big limb doing something unexpected. Once I was topping out a pine tree, and the entire top came backward toward me instead. I reacted quickly, having learned that even very heavy objects can be manipulated when they first start to fall. I locked my elbow, palmed the butt end and rolled 10 feet of white pine over my shoulder and down. Another time, the wind caught the top of a tree that Dave Coats was cutting and pushed it toward an electric line. The current would have killed him. He put both hands against the trunk and held it up for five minutes until the wind finally abated.

Hurrying the work almost always leads to a dangerous situation. Dusk may come too soon, a climber may feel invincible or the job may have been underbid and is taking too long. Fortunately my job doesn't fall into any of those categories. As methodically as possible, I dismantle the tree, limb by limb, section by section. The good climbers, as a rule, are the undramatic ones; maneuvers they do 80 feet in the air seem so mundane they hardly merit watching. Like good pool players, efficient climbers don't do impossible things; they avoid them.

The red maple is coming down easily. I finish off the first leader, then the other one—it rises over open yard and doesn't need roping—and start taking down the trunk in 6-foot sections. I rope off the ones that lean the wrong way, so a ground man can pull them over; others I can just cut. I make a wedge-shaped cut in the direction I want them to fall, put a back cut in on the opposite side and kill the saw as the piece starts to go. I only keep my saw running if a piece is going to take a long drop on the lowering line and the tree feels unstable. If there are hidden pockets of rot and the log jerks too hard on the end of the rope, the entire tree could come down. In that case, my only chance would be to cut my rope and jump clear. I'd need a running saw to do that.

Massive tree failure is the climber's ultimate nightmare, a scenario no one wants to think about. Occasionally, though, I'm up in a tree that feels so intent on killing me that before making a big cut I pause to go over what I'll do if it starts to fall. I've reduced it to four moves. Grab the tree with my left hand, cut the ropes with the saw in my right hand, jerk my spikes out of the trunk and jump clear. I'll have about two seconds. It's possible.

A few months ago, a very experienced climber in Connecticut cut a huge limb from what turned out to be an unstable tree. When the limb yanked the rope, the tree started to go, but the climber couldn't extricate himself in time. He rode it to the ground and was killed on impact. I like to think that I'd get clear; I like to think that time would slow down enough for me to complete the four moves.

I sit there a moment before making cuts like that, the ground man waiting far below, the tree rocking slightly in the wind. Then I pull the saw to life. Fast now: wedge cut, back cut, left hand to the tree, the crack of wood fiber sundering and then the unbelievable sight of a 500-pound section slowly tipping right in front of me, seemingly weightless in midair. It's the moment between setting in motion the machinery of one's own destruction and then being spared. All of tree work can be distilled to that moment.

Then it drops. It slams to the end of the rope. The tree shudders. Nothing happens. I take a deep breath, kill the saw and look around for my next cut. It has to be simple. It has to be the cleanest, most direct route to getting my feet back on the ground. ■

Drop It Yourself?

Home owners occasionally tell me stories of putting a tall ladder up to a tree and doing the work themselves. I tell them stories of people who died that way. Ladders are inherently unstable and, when a big limb comes off a tree, the trunk can jolt back and forth and pop the would-be climber off like some annoying insect. Still, a tree that doesn't require climbing can be cut down by anyone reasonably competent with a chain saw. The bar should be at least as long as the trunk is wide, and when you work you should always, of course, wear a safety helmet, ear protection, eye protection, heavy boots and Kevlar cutting chaps. To start, make a waist-high wedge cut in the trunk, facing the cut in the direction the tree will fall. The wedge should form a 45- to 60-degree angle and go only about a third of the way into the trunk. That will leave plenty of holding wood to keep the tree from falling prematurely. Make the next cut (the back cut) horizontally, directly opposite the wedge and 1 or 2 inches above it. Any deviation from this alignment might make the tree fall away from the desired direction. If the back cut starts to pinch the saw, force the kerf open by driving in some plastic wedges with an ax head, sledge or maul. A back cut that closes up means the tree is trying to fall in the wrong direction, and no more cutting should be done until the wedges have tipped it the right way. Assuming all goes well, the tree will start to tip forward as the back cut gets close to the wedge cut. At that moment, pull the saw out of the cut, kill the engine and step back with your head up. Sometimes dead limbs come down when a tree starts to fall, and you want to see them coming. If you have any hesitation about taking a tree down safely and properly, call in a professional. Once a tree is down, you'll still have plenty of cutting, splitting and stacking to do.—SJ

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After making a wedge cut, Dave Coats back cuts a 60-foot silver maple recently killed by lightning. Every few seconds, he idles the chainsaw to check for movement and to avoid a dead tree's biggest hazard: falling branches.

one fine day

who says you can't have christmas in april?

BY WILLIAM G. SCHELLER

PHOTOGRAPHS BY KRISTINE LARSEN

TOP: In need of repair, the Miller house in Peoria. CENTER: *To the rescue, Christmas in April volunteers install insulation on the side of the house.* BOTTOM: *Bob Hoerr, a contractor, guides vinyl siding into place.*

AT 8 A.M. on a bright spring Saturday in Peoria, Illinois, all is calm at a little blue house on Monroe Street. Ed and Wilma Miller have lived here for 21 years, but age and infirmity have caught up with them faster than they could keep up with repairs. The house has seen better days. Within an hour, though, a host of volunteers will descend like a swarm of benevolent bees to perform a fast-forward renovation miracle. In Peoria, as in hundreds of towns across the United States, it's Christmas in April.

Christmas in April is the sixth largest US home-improvement company. But unlike the five bigger outfits, it doesn't charge its customers. Launched as a neighborly venture in 1973 in Midland, Texas, the organization has more than 200 nationwide affiliates today. The idea remains simple: providing labor and materials to make repairs for low-income home owners, particularly those who are elderly or disabled. The name came about because most of the work takes place on the last Saturday in April and because an early beneficiary took one look at her refurbished house at the end of the day and exclaimed, "It's like Christmas in April."

The organization is effective—160,000 volunteers this year will work on 5,000 renovations worth a total of $40 million—because of its decentralized style. Each affiliate identifies the neediest houses—and the most deserving home owners—in its community and puts together a coalition of corporate and nonprofit sponsors.

"Each sponsor provides a captain and most of the volunteer crew for its house," explains Joan Carroll, president of the Christmas in April affiliate in Peoria. Matching the sponsor and the house is a key to good results. Of the 20 houses that Peoria's program renovated in 1997, the Miller house required the most work. So it made sense to assign

TOP: Volunteer Mari Garza covers a bedroom wall with a fresh coat of paint. CENTER: *Rod Weaver, another volunteer, measures for door trim.* BOTTOM: *From the front yard, home owner Ed Miller views the repairs.*

PJ Hoerr Inc., a local contractor, to act as sponsor. Hoerr teamed up with Saint Francis Medical Center, and the two sponsors marshaled three cocaptains and 75 workers. Curt Davis, a Hoerr project manager and Peoria's Christmas in April vice president, says, "The hospital provided a lot of maintenance and repair people, and Hoerr sent professional builders. The volunteers bring their own tools, and with these guys that means everything."

BY 9 A.M. SATURDAY, repairs are under way at the Miller house. Working side by side, doctors and carpenters remove rotted portions of the front-porch wall. The volunteers are tacking into place the polystyrene insulation panels that will underlie new vinyl siding. Bob Hoerr, the contractor, is helping pull down corroded gutters. Inside, the CEO of Saint Francis Medical Center is up on a stepladder, rolling paint on a living room wall while a nurse from the hospital takes her first dabs at painting an old wooden door. The small rooms are a tangle of arms and legs, rollers and brushes. The house contains as many people as could possibly fit without painting each other.

Wilma Miller sits in a curbside chair, watching the transformation of her home with a look that mixes satisfaction, perplexity and sheer amazement. "It's unbelievable that all this can get done so fast," she says above the din of an electric generator, "but I've seen these people work before. All this would cost an arm and a leg, and my husband couldn't keep up with it." Ed Miller is in the early stages of Alzheimer's disease. When he was healthier, he used to lend a hand when anyone nearby had a repair project going. "Ed was the most deserving guy in the neighborhood," says Frank Lewis, one of the leaders of the local group that unanimously nominated the Millers to participate in the program last year.

TOP: Amid the construction, the crew breaks for lunch. CENTER: *Carpenters Doug Dean and Terry Grenna cut wood for the seventh, and last, window opening needed on the front porch.* BOTTOM: *Dean cuts lumber for a back-porch door frame that was a "little short on right angles."*

Lunch rolls around early, at 11:30. The volunteers tuck away the hospital kitchen staff's chicken and bratwurst and survey their accomplishments. They have already completely sided one of the walls. They have knocked out the old front-porch windows, have almost finished the interior painting, and have hung a new back door. At lunch, Wilma Miller looks more relaxed; she's enjoying an across-the-fence chat with a neighbor. Her husband talks with a few of the volunteers about his days as a soldier, farmhand, bricklayer and church-choir trumpet player. "We've all got to stick together," he says. "Don't we?" His listeners agree—and are back to work within seconds after the last bratwurst disappears.

Four o'clock. The Christmas in April crew is wrapping up. They have installed 21 new windows, covered three sides of the house with vinyl siding, replaced three exterior doors and two interior doors, rebuilt the basement stairs, painted all the interior walls and woodwork, installed and painted latticework on the front porch foundation and planted four shrubs in the front yard—an impressive tally. The only real disappointment is that they weren't able to install new vinyl siding on the front of the house today; the tedious job of rebuilding interior window frames devoured too much of the carpenters' time. The front siding will have to wait a few more days, but no matter.

Ed and Wilma Miller are all dressed up and headed to Peoria High School for the Christmas in April dinner, a gala event that centers on a Christmas tree festooned with paintbrushes. Wilma has a new outfit and hairdo, a gift from volunteers who whisked her away from her whirlwind-struck house that afternoon. "Teamwork," Ed Miller says again as he takes his wife's hand. "Can't do anything if you don't stick together." ■

TOP: Ashley Backes and her twin brother, Jacob, paint the front-porch latticework. CENTER: *Ed and Wilma Miller "couldn't keep up" with the repairs their house needed.* BOTTOM: *At day's end, a dramatically improved house.*

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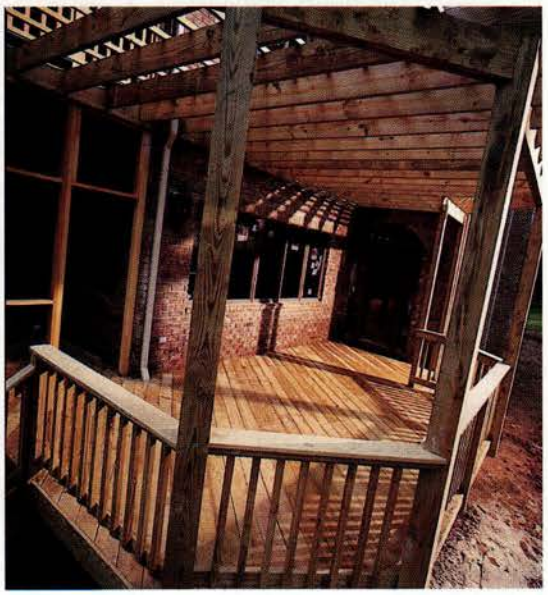
Pressure-treated wood resists rot and dangerous pesticides. Yet, safer formulations

arsenic and old wood

It's Saturday morning at a home center in Paramus, New Jersey, and shoppers are hauling off plank after plank of greenish lumber. One couple has plans for a raised flower bed. Another wants to build patio steps, possibly a fence. No matter what the project, they find plenty of material to choose from. At this store, half the wood in the lumber aisle is pressure-treated. "I don't know what's in it," says a man from nearby Ridgewood, as he piles up 2-by-4s to build a deck in his backyard. "I just know it doesn't rot."

Among building materials, wood is ideal: beautiful, strong, easily shaped. And it's renewable. Its one big flaw is vulnerability to decay and insects. For centuries, builders resorted to oily, smelly solutions like creosote to make wood more durable. Then, in the 1930s, scientists found a way to infuse wood with a solution that included copper (toxic to the fungi that cause rot) and arsenic (then the most common insecticide). To ensure the protection would last and builders and the environment wouldn't be hurt, they also added chromium. It triggered a chemical reaction that locked the pesticides into the wood.



This new deck near Charlotte, N.C., will hold off termites and rot for decades, but at what cost?

The formula became known as chromated copper arsenate, or just CCA. But the industry called it pressure-treated because the chemicals were injected under great pressure. The wood dried with a green tint because of the copper, but otherwise it was similar to ordinary lumber—except that it stood up to even the dampest, warmest climates. Indeed, stakes pounded into a termite-infested field at a federal laboratory in Mississippi in the late 1930s remain intact "and some of them will probably last 100 years," says Jerrold Winandy, a research wood scientist with the U.S. Department of Agriculture's Forest Products Laboratory in Madison, Wisconsin. For many decades, pressure-

BY CURTIS RIST

insects, but it's loaded with just sit on the shelf.

Even the smallest of pressure-treated decks—8 by 10 feet—has 4 pounds of toxic metals in its 1½-inch-thick platform. The recipe for this amount of chromated copper arsenate calls for 1.9 pounds of red crystals (chromic acid), 1.36 pounds of white powder (pentavalent arsenic) and .74 pounds of copper.

DECK: CHARLES HARRIS; CHEMICALS: MICHAEL GRIMM

treated wood remained a specialty product; people built porches, decks and fences of untreated redwood, cedar or fir. But as the price of those woods soared, marketers of plantation-grown Southern pine seized on pressure-treating as a way to convert their product into one that would command a premium. Sales of the greenish lumber ballooned from practically nothing in the early 1970s to 467 million cubic feet last year—nearly a fifth of all softwood boards and timbers sold.

In saltwater, preservatives can leach out of pressure-treated wood and kill or stunt a variety of plants and animals. Green from copper, the oyster on the left lived on pressure-treated pilings in Florida. The younger one on the right came from nearby rocks. Rutgers University biologist Judith Weis fed contaminated oysters to carnivorous snails and followed the copper—and reduced vigor—up the food chain.

Virtually every piece of that wood carried a label stapled to one end, the manufacturer's guarantee against rot and insect damage. Dangling somewhere on each pallet was supposed to be another label with cautions required by the U.S. Environmental Protection Agency. The cautions are vague and mild: "Exposure to inorganic arsenic may present certain hazards... Do not use treated wood under circumstances where the preservative may become a component of food or animal feed."

Nowhere is there a hint of how much pesticide is in each stick of lumber. A single 12-foot-long 2-by-6 contains more than an ounce of arsenic—enough to kill 250 adults were they to ingest it. Chromium and copper kill plants and marine life, but arsenic presents the gravest danger to humans and many other forms of life. It has long been a staple of murder mysteries and real-life homicides. "We call it a three-fer," says Bill Hinkley, a top official in the Florida environmental protection agency who has had to deal with arsenic in the ash of burned pressure-treated wood. "It can leave you dead as a doornail at high doses. It can kill you at moderate amounts over a longer period. And it's a carcinogen at low levels."

With the skyrocketing use of pressure-treated wood, 57 million pounds of arsenic is going into the backyards of America each year—nearly all of it reclaimed from copper and gold smelters in China and Chile. This presents an unsettling scenario: the United States as toxic waste dump of far poorer countries. No harm is done, however, as long as the pesticides remain locked in the wood. But can they seep out? And what happens when the wood becomes scrap?

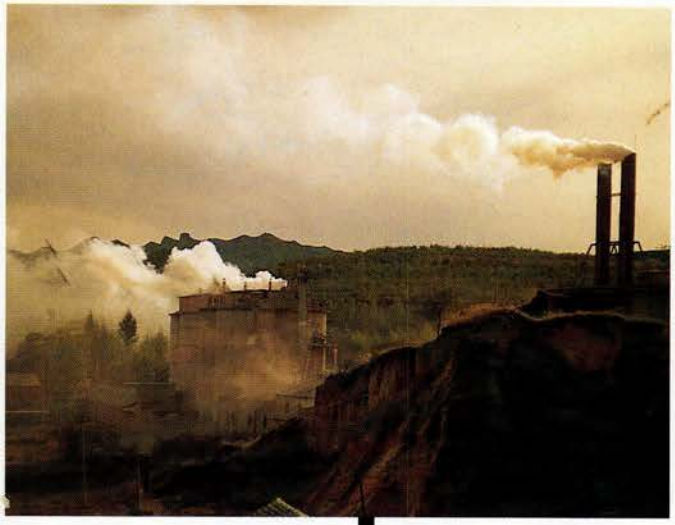
In the early 1980s, the Environmental Protection Agency found the rate at which the toxins leak out so slight that its official statement says the product "does not pose unreasonable risks to children or adults, either from direct contact with the wood or from contact with surrounding soil." The agency exempts treated wood from regulation, even though it classifies the preservatives as restricted pesticides, available only to licensed wood preservers. George Parris, director of environmental and regulatory affairs for the American Wood Preservers Institute, is more colorful in explaining the strength of the chemical bond linking the pesticides to the wood: "Not that I'm advocating doing this, but you could basically suck on a 2-by-4 and it wouldn't cause you any harm."

Yet the issue of whether touching the wood poses a threat rears up periodically. A decade ago, state officials in California became concerned that arsenic could rub off onto children climbing on playground equipment built of pressure-treated wood and required all new equipment at public playgrounds to be sealed every two years. Last year, the tabloid television show *Hard Copy* aired an exposé showing that a handkerchief picked up arsenic when wiped on playground equipment. But public health officials took little notice. The con-

A POISONED PASTURE

Dairy farmers Peggy and Jim Janson of Sauk Rapids, Minnesota, had to replace 18 holstein heifers after a thunderstorm spooked them over a fence and into a neighbor's farm. Jim retrieved them, but they all died within four days. State investigators determined that the cows died of internal bleeding and liver failure caused by arsenic poisoning. They traced the arsenic to ash dumped on the neighbor's land after someone burned scraps of pressure-treated wood to heat a house. Preservatives made the ash taste salty—which attracted the cows. Mike Murphy, a University of Minnesota veterinary toxicologist, found that 5 tablespoons of the ash have enough arsenic to kill a 1,100-pound cow; a single tablespoonful could kill a 150-pound human. "I don't think people really understand how dangerous pressure-treated wood can be when it's burned," Murphy says.

OYSTER: JUDITH WEISS; COW: MICHAEL CROUSER



THE ABC'S OF ARSENIC

All of the arsenic that goes into wood in the United States comes from elsewhere, mostly as waste from refineries like this copper smelter in Hebei Province, China. Arsenic's extreme toxicity has been known for centuries. But health officials realized only recently that low levels cause cancer. Researchers tracked a Taiwanese community where 40,000 people routinely drank from arsenic-contaminated wells until 1966. Among those who had regularly consumed water with the most arsenic—sometimes above 600 parts per billion—428 cases of cancerous skin lesions had appeared by the late 1970s. People whose water contained arsenic at less than 17 ppb had no lesions. By 1990, researchers discovered that the group with the most arsenic also suffered more bladder, kidney, liver and lung cancers. These and other studies prompted Congress to tell the Environmental Protection Agency to sharply reduce the arsenic limit in drinking water, now 50 ppb. Proposed new limits range from 2 to 20 ppb.

centration was so low that the U.S. Consumer Product Safety Commission found no risk of contracting skin cancer—the biggest worry about contact with the wood.

Not so easily dismissed are worries about whether the chemicals can seep out of the wood. In the late 1980s, researchers discovered that acids could reverse the chemical reactions that bind in the pesticides. At the University of Guelph in Ontario, two scientists soaked small cubes of the wood in a citric acid solution. Depending on its strength, the acid leached out 32 to 68 percent of the arsenic. Intrigued, a pair of researchers from the Connecticut Agricultural Experiment Station in New Haven decided in 1996 to crawl under actual decks to check whether acid rain—common in the Northeast—might be having the same effect. "We had been getting a lot of calls from gardeners wondering if they could use pressure-treated wood in their gardens," says David Stilwell, the analytical chemist on the team. "We wanted to take a look at what was happening ourselves."

Stilwell and a colleague, Katja Gorny, sampled soil under seven decks, ranging from four months to 15 years old, and shared their results in the *Bulletin of Environmental Contamination and Toxicology* last year. In all cases, they found significantly higher levels of arsenic, chromium and copper than in soil collected away from the decks. The amount of contamination increased with the age of the decks, except for one that had been painted. The copper and chromium fell below state pollution limits, but the arsenic did not. It averaged 20 times higher than arsenic in surrounding soil. Under the second-oldest deck, arsenic in some samples measured 350 parts per million—35 times higher than the level that would empower the state Department of Environmental Protection to order an owner-funded cleanup of a commercial site.

A single study by two obscure researchers might be easily dismissed, even if published in a scientific journal. But these findings were not ignored. They have prompted many people—including researchers at the U.S. Forest Service, which has long promoted pressure-treated wood—to take a fresh look. Although there have been dozens of studies on the safety of pressure-treated wood, researchers now see flaws in them. Until Stilwell's study, scientists mostly worked with small samples of wood in laboratories, where they could control all the variables. No one had ever studied the effect of acid rain on actual structures. Outside of laboratories, researchers had mostly tracked what happened to soil around utility poles or stakes pounded into the ground—always vertical surfaces. No one had looked at what seepage might drip from horizontal decking, where water is more likely to pool and sink in. "It was always assumed that ground contact would be where you would get the most leaching, and that wasn't found to be significant," says Winandy of the Forest Products Laboratory. "Nobody thought to look at water runoff."

The lab plans to hire a researcher

At a recycling center in Johnston, R.I., 1,000 tons of junk wood cascades down a conveyor belt daily. Workers have just seconds to identify and pick out pressure-treated pieces so the rest can be safely burned in power plants or pressed into fuel pellets for home furnaces.

TOP: CHRISTOPHER LIU/CHINA STOCK ; BOTTOM, GRACE HUANG

specifically to study leaching of wood preservatives, and several organizations are conducting studies similar to Stilwell's—including Scientific Certification Systems Inc. of Oakland, California, under a contract with Home Depot, which sells more pressure-treated lumber than any retailer in the world. The study is part of Home Depot's long-term effort to monitor the environmental integrity of products it sells.

Paul Cooper, a wood science researcher at the University of New Brunswick, in Canada, and the leading expert on leaching from pressure-treated wood, says Stilwell's readings were so high that they can't be dismissed as insignificant. "If there's some logical explanation for this, I think everyone would agree you have to do something to stop that from happening," he says. Cooper says his own calculations over the years indicated arsenic beneath decks probably wouldn't measure more than 10 ppm. But he did not factor in something that many home owners now use routinely: chemical brighteners. Some of these contain oxalic acid; other, "environmentally friendly" formulas are made with citric acid—the same reagent that researchers at the University of Guelph used to induce leaching in samples of pressure-treated wood. "That could be what's behind these numbers," Cooper says.

The American Wood Preservers Institute, which represents two of the three manufacturers of CCA and about 100 of the 375 companies that inject it into wood, says Stilwell may have found isolated pockets of contamination rather than evidence of generalized leaching. "We think he's hitting sawdust that's left over from when the decks were formed," Parris says. "If we take away the sawdust, I think everything Mr. Stilwell found of interest would just go away."

Stilwell, however, says that if sawdust were to account for the elevated levels, he would have found the preservatives in proportions like those in treated wood: 47.5 percent chromium, 34 percent arsenic, 18.5 percent copper. Under the decks, he found twice as much copper as chromium. "The amounts were consistent with leaching, not sawdust," he says.

When arsenic is added to clay soil, it tends to bind to particles in the top inch or two. Children can ingest it along with dirt on their hands, and families can eat it if soil clings to root vegetables from their gardens, although the plants are unlikely to draw in enough to become poisonous. Beneath decks, it's possible that the arsenic would pose little problem—except perhaps with nervous buyers when it came time to sell. But no one really knows. Stilwell sampled only near the surface under most of the decks in his study because the ground was hard. In loose soil under one deck, he found high arsenic readings as deep as his probe went—7 inches.

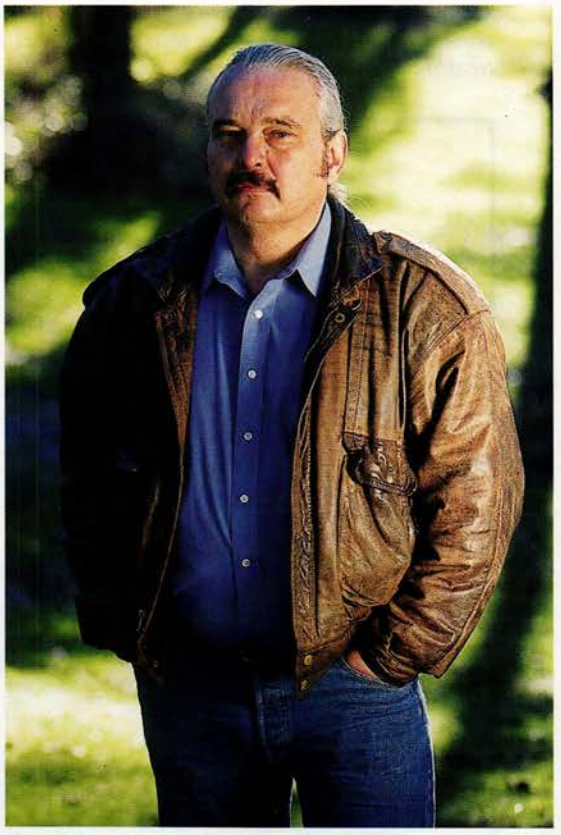
"The big risk with pressure-treated wood is that the arsenic will leach out and contaminate the groundwater, and then we will drink it," says Jerome Nriagu, an environmental chemist at the University of Michigan's School of Public Health and author of *Arsenic in the Environment*. Because the toxin occurs naturally in most soils, a small percentage of the nation's drinking water already needs special treatment, says William Diamond, director of the Environmental Protection Agency's standards and risk-management division.

Parris, the industry representative, says the preservatives haven't poisoned people. "I'm not aware of anybody ever having a demonstrable adverse reaction to CCA in the wood or in the soil," he says. "And even if there is some leaching, the vast, vast majority of the chemicals stay in the wood."

Which, in itself, presents a problem. Although the chemicals in pressure-treated wood resist rot and many insects, they cannot protect it from weathering—or from the changing tastes of home owners. The Forest Products Laboratory estimates that pressure-treated wood will stay in use for 30 years. Retired from service, ordinary lumber can be mulched, recycled or burned to produce electric power, and its ash spread on crops as a nutrient. Not pressure-treated wood: Along with each truckload of cutoffs or old decking, at least several pounds of arsenic hitches a ride.

The official warning label on pallets of pressure-treated wood says it should be disposed of by "ordinary trash collection or burial" and never burned in stoves, fireplaces or residential boilers. Waste wood at construction sites "may be burned in commercial or industrial incinerators or boilers in accordance with state and federal regulations," the label says. But the Environmental Protection Agency issued

FIRST TINGLING, THEN COLLAPSE

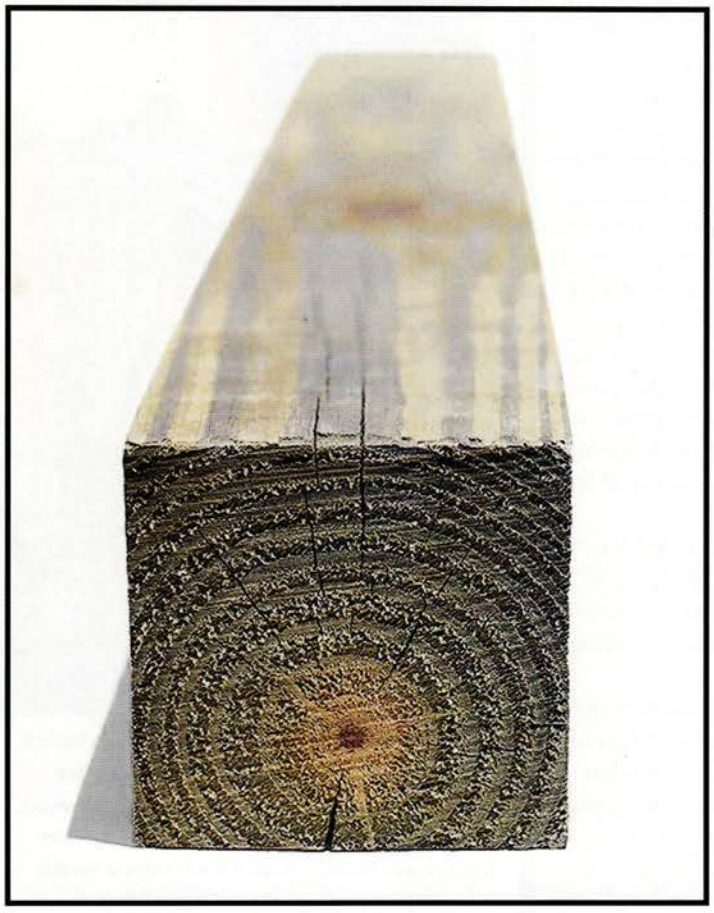


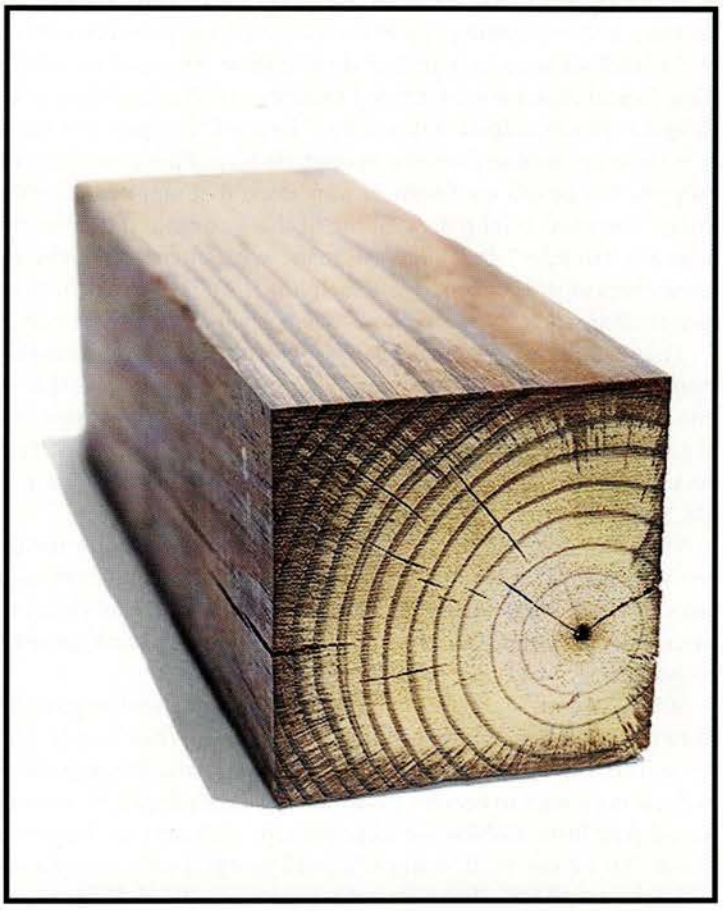
JASON SCHMIDT

When he built a swimming dock off his beach on Steel Lake near Seattle, schoolteacher Rick Feutz thought he used the perfect wood: pressure-treated. "The brochure said it was impervious to rot," says Feutz, who brought home a pickup load. But while cutting the wood, Feutz, then 38, felt his legs aching. "I thought, 'My God, I'm getting old.'" Soon his hands and feet began to tingle "like they were going to sleep." By the time he finished the job two weeks later, his legs were numb. He collapsed just hours after putting the dock in the water. For three months, he remained partially paralyzed with no sense of feeling in his limbs. Doctors suspected a rare nervous disorder until a series of white half-moon marks appeared in his fingernails—a sign of arsenic poisoning, as is numbness. After tests at the University of Washington found a high level of arsenic in his body, doctors concluded he must have been poisoned by contact with the treated wood. No one else in his family became ill. "We've never heard of another case like this," says Dr. David Buscher, who treated Feutz at the Northwest Center for Environmental Medicine in Bellevue, Washington. Feutz sued the lumberyard, wood preserver and preservative manufacturer in 1989. They settled in 1992—admitting no liability and insisting the amount be kept secret.

A SAFER GENERATION OF PRESSURE-TREATED LUMBER

There is more than one way to pressure-treat pine so it resists rot and termites. The post on the left was infused with a preservative free of arsenic and chromium but rich in copper, so it's as green as if it were treated with the problematic original formula. The sample on the right was pressure-treated with another arsenic-free preservative. It was then surface-coated with a preservative stain intended to make it look much like cedar.





Wood preservers could easily switch to arsenic-free formulas—using the same equipment and procedures—if consumers demanded it. "It's what I've been trying to argue for years," says Douglas Mancosh, president of BB&S Treated Lumber of New England, one of the Northeast's largest wood preservers.

As a hedge against any future federal or state bans on chromated copper arsenate, the three licensed suppliers of the preservative have developed a new generation of chemical mixes: ammoniacal copper quartenary (ACQ), copper azole and copper citrate. In addition, other companies have recipes to protect wood without arsenic or chromium. The most heavily promoted is Kodiak Preserved Wood, made with copper dimethyldithiocarbamate.

All of these alternatives are ready to go—the Environmental Protection Agency says they're safe, and the American Wood Preservers Association says they work. (However, the association's endorsement for copper azole is limited to above-ground use; ground-contact approval is pending. The formula is common in Japan and Europe—in part because of concerns about the hazards of arsenic in traditional pressure-treated wood.) The other three alternatives—ACQ, copper citrate and the Kodiak formula—are "pretty much one-to-one substitutes" for chromated copper arsenate, says Jerrold Winandy of the Forest Products Laboratory.

The new formulas cost more because they are richer in expensive copper. But wood and labor—not chemicals—are the most costly elements of wood-preserving, Mancosh says; these remain constant no matter which chemicals are used. His company uses ACQ to treat a small portion of its wood, and he says the finished products cost 8 percent more than standard pressure-treated wood. "It's pretty insignificant," he says.

In Chippewa Falls, Wisconsin, another wood preserver, Northern Crossarm Co., switched to ACQ last fall because of fears about worker safety and its own liability. Co-owner Pat Bischel says the new wood generally costs 5 percent more than the old.

Of the alternatives, ACQ is the least expensive—and most common. Only one company in California uses copper citrate, to treat Douglas fir. Kodiak is the most expensive, but it includes a color stain that the other treated woods lack.

Mancosh, still churning out bundles of wood treated with a chemical recipe dating from the 1930s, says the industry could switch to the arsenic-free alternatives tomorrow. But the industry is fragmented and hard to move, he says: "There's no one to take the lead. To me, it seems an absolute no-brainer to make the switch."

MICHAEL GRIMM

that statement in 1988, and incinerating pressure-treated wood is no longer legal in any state because the dangers are too great.

Rather than destroying the arsenic, chromium and copper, fire concentrates them in the ash. Burning even a small amount of the wood with other debris is enough to turn all the ash into hazardous waste, as owners of the Okeelanta and Osceola sugar mills in Palm Beach County, Florida, discovered after they began running a cogeneration power plant to produce electricity as well as steam for refining sugar. Half the year, the plant burned primarily sugar cane waste as fuel; the rest of the year, it burned construction and demolition debris. The owners say pressure-treated wood accounted for less than 1 percent of what was burned. But when the ash was tested in 1995 and 1996, arsenic measured as high as 507.7 ppm. "It was just way off the scope," says Hinkley, the state environmental officer. "Nobody thought that little an amount of pressure-treated wood would cause a problem that big." The sugar company—stuck with 30,000 tons of contaminated ash that cannot be spread on crops—faces a $1 million landfill bill.

Because of such hazards, researchers are scrambling to find ways to extract the chemicals from scrap wood so it can be recycled safely. So far, they have not found a viable solution. Using citric or other acid is too expensive, and no one wants pressure-treated fibers in particleboard. In the meantime, the volume of the scrap is growing. In 2020, the year's total is expected to be 467 million cubic feet—enough to build a boardwalk 3 feet wide and 1½ inches thick all the way to the moon. "And every piece of it is headed for the landfill," says Jeff Fehrs, an engineer with C.T. Donovan Associates of Burlington, Vermont, which finds markets for scrap wood.

Some home owners, unaware of the danger, burn pressure-treated wood to heat their homes. In 1984, the *Journal of the American Medical Association* reported the fate of a Wisconsin family who heated their house this way for four winters. Mysteriously, they lost their hair and suffered nosebleeds, skin rashes and extreme fatigue. "Headaches were frequent, and the parents complained of 'blacking out' for periods of up to two hours followed by feelings of disorientation. The two children had multiple seizures described as grand mal," the journal reported—all because the family breathed arsenic-laden dust. The family's houseplants and fish were less susceptible to arsenic, but they died anyway, victims of copper poisoning.

Despite all the concerns about pressure-treated wood, there might be some justification for using arsenic—if chromated copper arsenate were the only formula available. But safer recipes exist, and some are just as effective.

The most common is a compound known as ACQ, manufactured by Chemical Specialties Inc. of Charlotte, North Carolina. The company, which also makes about a third of all CCA sold, has had little success selling the safer alternative, says Tom Bailey, the company's marketing manager. Although wood with ACQ costs as little as 5 percent more than standard pressure-treated lumber, that is a big enough premium to prevent most retailers from stocking it, Bailey says. "Unfortunately the choice is not ours to make. The market is being driven by retailers, and these retailers are under more pricing pressure than they've ever been."

But the result nags at him. "I have kids, sons 8 and 5," Bailey says. "In my quiet moments, I feel better about offering ACQ than CCA. I feel that our industry has to change eventually. And the reason is the arsenic." ■

WHAT'S UNDER YOUR DECK?

Home owners can find out how much arsenic is under their decks for about $50. The procedure is simple: Dig a spoonful of surface soil from 10 places under a deck and mix the dirt in a plastic container. Put soil from other parts of the yard in a separate container. Label both mixes and take or mail them to an environmental laboratory. "Any local public health department should be able to direct you to one," says Tony Bogolin of Ecology and Environment Inc., a laboratory in Buffalo, N.Y., that accepts samples in the mail from anywhere in the country. It charges $50 for arsenic readings and $10 each for readings of copper and chromium.

USE WITH CAUTION

Home owners concerned about potential problems from pressure-treated wood face difficult solutions. Ripping out an existing deck just because it's there is costly and—in light of the growing waste problem—counterproductive to protecting the environment. It makes more sense to seal the wood regularly with a moisture repellent. Paul Cooper of the University of New Brunswick, in Canada, says doing this will help lock in the toxic chemicals; manufacturers say it will also prolong the life of the wood.

As to future projects, the first step is to ask which wood is best for the specific situation. Off the ground, ordinary pine works fine for vertical features such as balusters, especially if it's brushed with a water-repellent and then painted or stained. For decks, cedar and redwood look better than pressure-treated wood but cost more. In the garden, the best solution may be to skip wood altogether. Compost rots just as well in a freestanding pile as it does in a box. (Cooper built a compost bin of pressure-treated wood and discovered that acids in the compost doubled leaching from the wood.)

Where lives depend on rot-free supports—such as posts and framing under decks—pressure-treated wood still makes sense. The recommended precautions, however, go beyond those that most builders take. The Environmental Protection Agency suggests sawing and machining outdoors. Workers should "wash exposed areas thoroughly" before eating, drinking or smoking, the agency says, and if sawdust accumulates on work clothes, they should be laundered separately. George Parris of the American Wood Preservers Institute recommends cutting over a plastic tarp so it can be rolled up along with the sawdust and thrown in the trash. "It just makes good common sense," Parris says.

Tom Silva, general contractor for *This Old House*, has been using pressure-treated wood for years. "For sills and posts, it's a necessary evil," he says. "You feel a lot better being in a building or standing on a deck that is not rotting beneath you."

He recommends using pressure-treated wood for all structural parts near the ground. This includes porch posts and posts installed in a crawl space to give extra support to floor joists. "A steel post could rust," Tom says. "With a pressure-treated post, the worry is gone."

FOR SOURCES, SEE DIRECTORY – PAGE 145

TO BUILD A FENCE

FIRST, DIG SOME HOLES

Fence builder Danny King needs just a few simple tools, including a drill driver, to install factory-assembled fence modules. Still, he has to fine-tune the fit of panels and posts to achieve a handmade, built-in-place look. Galvanized screws, rot-resistant white cedar and a penetrating acrylic stain will help this fence's panels last for 30 years or more.

At one end of the garden, five segments of 6-ft.-high lattice fencing trace a broad arc against a living screen of shrubbery. The rails supporting the lattice panels are steam-bent and cut at the factory.

In Lynn Hippeau's peaceful backyard in New Canaan, Connecticut, the scene was anything but. Landscapers wrestled 12-foot-tall evergreens from a truck and dodged a growling skid-steer loader, pallets of bluestone and piles of crushed rock. A fencing crew lugged six-by-six cedar posts, seven-by-four V-grooved board sections and seven-by-two panels of lattice to the edges of the yard, where workers dug holes,

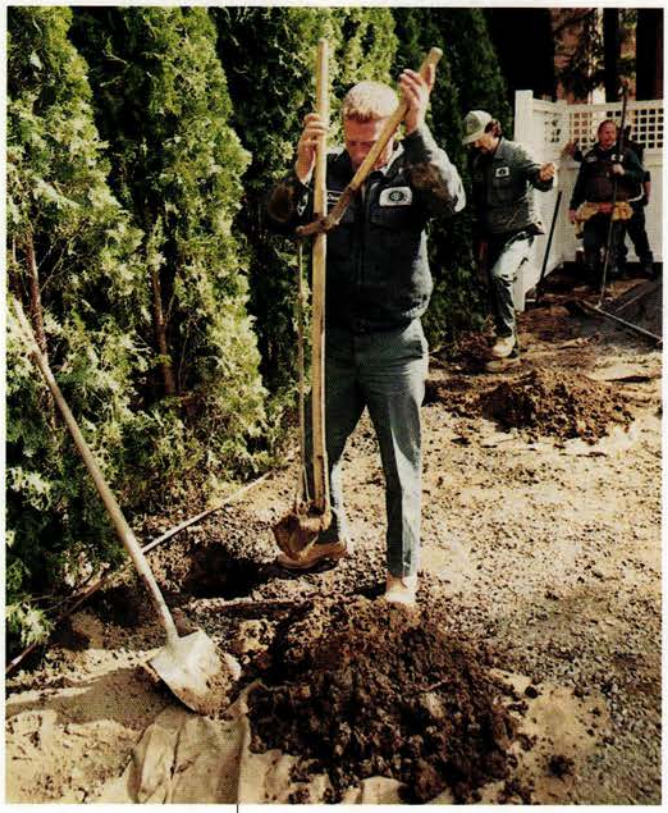
BY GEORGE NASH PHOTOGRAPHS BY KOLIN SMITH

trimmed rails, tamped soil and pounded posts with sledgehammers.

Only 12 hours after this chaos erupted, a fence around Hippeau's 3,000-square-foot backyard was already half finished—60 feet of brilliant white against brown earth and green shrubs. A plot that had once been a dull patch of grass was rapidly becoming a refuge.

"What you're striving for in any fenced garden is a serene, calm haven," says landscape architect Marc Schwartz. That is exactly the effect Hippeau asked Schwartz to design. The architect suggested arranging the yard into "garden rooms"; Hippeau wanted to follow principles of fêng shui, an ancient Chinese philosophy of placement. "It's not hocus-pocus, just good design," Hippeau says.

Schwartz highlighted each roomlike area with fencing of lattice and solid boards. He specified lattice panels that went from post top to post bottom and that curved to match the edge of a nearby pool. A hedge of close-ranked arborvitae provided privacy. The rest of the 6-foot-high fence would be mostly solid panels of grooved shiplap boards topped with 2 feet of square lattice. In the center of the fence's longest side, marking the transept of the garden, Schwartz threw in another curve, a graceful latticed arch atop a panel of solid boards. He flanked this centerpiece with narrow, all-lattice sheets punctuated with an oval-framed window. Fêng shui aside, the final fence looked anything but Chinese and could have complemented any Victorian's backyard.



David Gladstone shuns traditional post-hole diggers, which look like giant hinged chopsticks. His Gibbs Digger has a blade that swivels from vertical to horizontal with the flip of a short lever. Constant digging and sharpening wear the blade to a nub every nine months.

To project manager Robert Booth and his crew, niceties of design hardly mattered. They were there to build—fast and well. Long before the first hole was dug, Booth had started on the project by measuring the fence lines and marking off the post centers and gates. He delivered these dimensions, along with Schwartz's plans, to Walpole Woodworkers in Walpole, Massachusetts. Six weeks later, 27 posts, 24 panels and two gates arrived on a flatbed truck.

Like all Walpole Woodworkers fences, this one was milled from number-one northern white cedar, which naturally resists rot. The shiplapped boards between posts are ¾ inch thick; the lattice is ⅝ inch thick, not the ¼-inch-thick variety usually found at home centers. Rustproof stainless-steel staples secure each lattice crossing. All other nails and screws are galvanized. Before delivery, each piece of wood is coated with solid acrylic latex stain.

When Booth and his crew first arrived at the site, they stretched a mason's line along the ground and staked off the centers of the post holes. Then they started digging. On most jobs, the crew excavates with muscle-powered shovels, less disturbing to the site and the ears than gas-powered augers. "We do it so fast and with so little mess—people think our fences were dropped out of the sky," Booth says. He'll call in a skid-steer loader with a hydraulic auger if the soil is too hard or rocky, but in Hippeau's sandy soil the digging was easy. The short-lever, pivoting-blade shovels they used reached the recommended 34-inch depth for 6-foot posts in minutes. (Posts 8 feet tall need 42-inch holes.) Heightening the "dropped out of the sky" illusion, shovelers dumped their spoils onto canvas ground cloths to speed removal. "It's a lot easier to pick dirt up than pick it out," says crew member David Gladstone.

An iron tamping bar pounds the soil tightly around the post while it is held plumb. Porous soils make the best fence-post packing. About the only force that will lift a well set post is a frost heave. The fence company's one-year warranty provides for a return visit to correct such problems.

Tipped off a worker's shoulder, the first 40-pound post thunked into a hole. Then the post was jostled upright against the mason's line, plumbed with a 24-inch-long level and backfilled with the newly excavated dirt. Every 2 or 3 inches, a heavy steel tamping bar packed the fill solidly against the post. In most soils, Booth says, a thorough tamping anchors a post as effectively as a concrete collar does, and tamping is better for the wood. The crew almost never sets posts in concrete because water trapped between wood and concrete hastens rot and can burst the concrete if it freezes. The workers pour a little concrete only when the bottom of a hole isn't deep enough to hold a post securely.

The next step is to attach the grooved board panel to the post. Paired wedges, 5½ inches

No matter how good the raw materials, a fence out of plumb or alignment calls the wrong kind of attention to itself. Tight lines, exact measurements and deep post holes are essential for a good installation. In well drained soil, a cedar post can last for 25 years; in wet clay, rot may render it useless in eight. Fortunately, this type of installation makes post replacement easy. A panel unscrews at one end, the post is replaced and the two are rejoined.

square and 18 inches long, hold the panel a few inches above the ground as the crew fastens one end to the post with three 3½-inch galvanized wood screws. As the panel hangs from the post like a stiff flag, the next post is dropped into a hole, snugged up to the string and the panel, plumbed and tamped. The foreman, Mike Sludock, checks that the panel is level, adjusts the wedges and checks again before screwing the other end of the panel to the post. Like a tailor matching a plaid along a seam, Sludock makes certain the lattice pattern on each adjacent panel lines up before attaching the lattice tops, which hang over the grooved board panels, to the posts. Gladstone follows behind each completed section, nailing on ornamental post caps and brushing on a touch-up coat of stain.

Even for a fence with as many different elements as this one has, installation is essentially the same basic sequence—dig a post, attach a panel, dig a post, attach a panel—over and over. The crew's skill shows when conditions at Hippeau's property call for a little improvising. For instance, when the panels must align at different heights because of sloping terrain, workers tack the lattice top up before installing the boards to ensure that at least one horizontal strip aligns with its neighbor. When they discover that shrubs are planted less than a foot from the fence, they rearrange the post holes to avoid damaging root balls. When a post is bowed, they purposely set it so it bends away from the panel. Then they take a tie-down strap similar to those used by truckers and loop it to the nearest post. A few cranks on the strap's ratchet draw the offending timber upright for long enough to screw the panel home.

As the afternoon light wanes, the crew packs up its tools. Sludock steps back to assess the day's progress. He counts 13 newly set panels. Although a three-man crew can often place 15 to 20 panels in a day, 13 is a lot given the difficulties of this site. Schwartz is pleased to see in solid form something that had only existed in his mind's eye. Two days ago, there was nothing but dirt and detritus. Now, with the crisp walls circling the yard, sanctuary seems tangible. And for him there is a surprise. The curving white lattice set against the dark-green screen of arborvitae makes the small backyard look more expansive. "That's an idea I'm going to steal for my future projects," he says. ■

Banging on a post with a 5-lb. sledge adjusts height quickly. The tool—known to the crew as the Persuader—is also useful for leveling panels, as Mike Sludock and Gladstone demonstrate. Sludock takes care not to overdo it: A post pounded too low must be completely redug and reset.

Made in Maine

At the Walpole Woodworkers mill in Chester, a tiny village on the fringe of Maine's vast North Woods, fence parts begin their journey to suburban estates as limbless tree trunks

in a muddy storage yard. Here, some 4,000 cords of tree-length white cedar are sorted, stacked and graded each year. Large logs become square posts, smaller ones become rails and the smallest go through the gang edger, which rips them into several pickets at a pass. A machine similar to a giant pencil sharpener gives pickets their finished points. Two trips through the twin saw, above, turn a log into a post. The vintage 1932 four-sided planer, a screaming 9½-ton beast powered by seven motors, smooths any stock up to 6 inches thick and 15 inches wide. Perhaps the most ingenious machine is the scarfing saw. Its bell-shaped blade, like the disk of a farmer's harrow, swings in an arc, cutting rail ends so that they look as though they were hewed with an adze. After milling, the final grading is ruthless: The Chester mill ships only number-one stock to its sister factory in Walpole, Massachusetts, which then assembles and paints the pieces. "Walpole's installation crews don't have to worry about hiding the bad side of a fence board," says mill manager Bob Hayes. "And you don't make bad neighbors."

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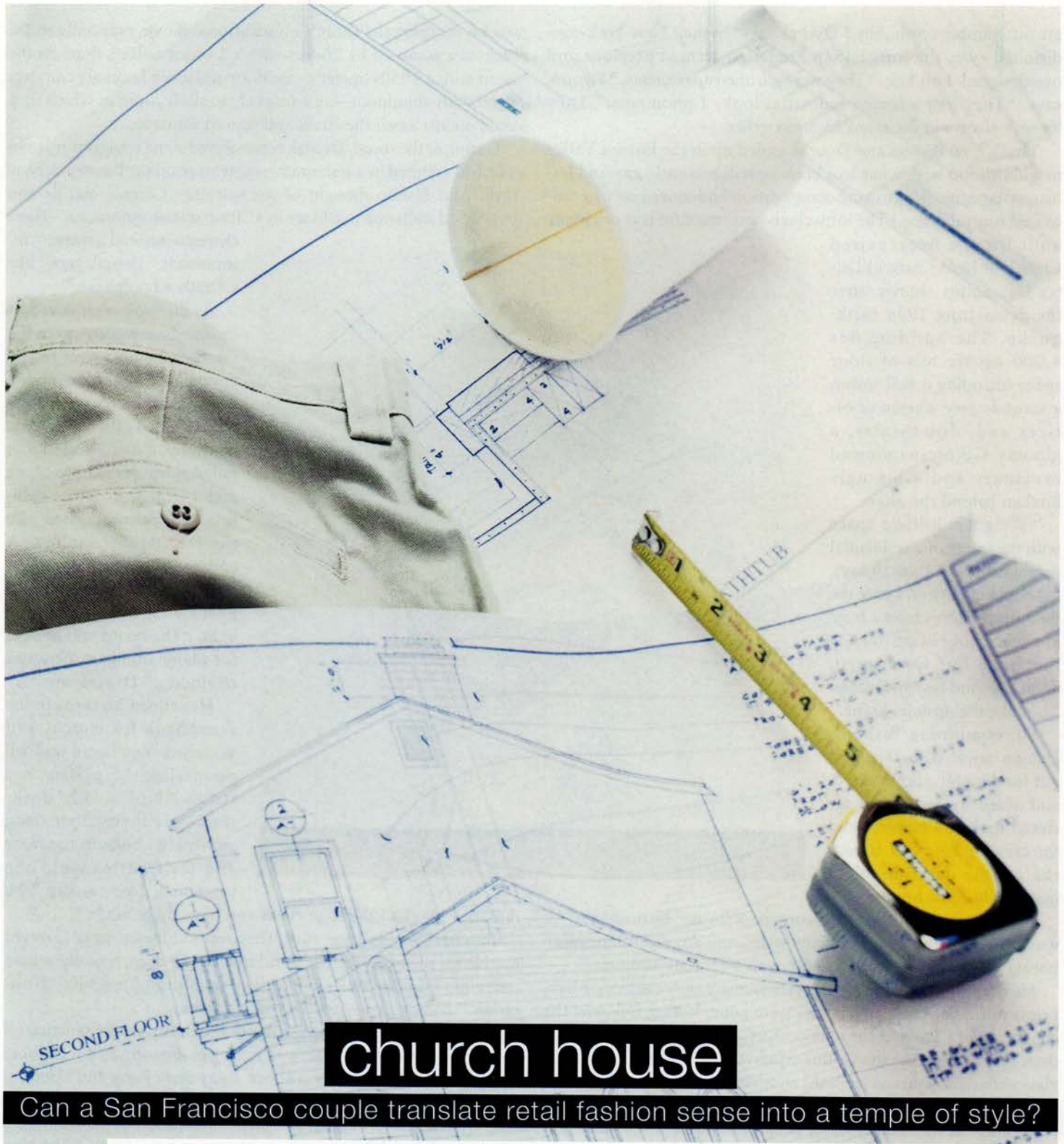
Like the perfect hat for an elegant suit, a post cap completes a fence's appearance as it sheds water away from vulnerable end grain. This cap is cedar, but caps in copper and other metals work well too.

For a design-savvy couple, a former house of worship provides the perfect backdrop for their dream home: artist's loft meets 1920s schoolhouse.



church house

Can a San Francisco couple translate retail fashion sense into a temple of style?

Having lived in cramped New York City studios and a bright, airy apartment in the Pacific Heights district of San Francisco, Mark Dvorak and Laurie Ann Bishop wanted something new when they got married. They looked for a loft: rough, industrial and huge, a great canvas on which to express themselves. Both are in the fashion business; Dvorak designs stores for the Gap, and Bishop, a perfect size 8, is a fit model, ensuring that Gap clothing is properly proportioned. And they have strong tastes. The new place had to be able to accommodate not only children but also the couple's well traveled collection of flea-market exotica. "Flea markets and antiques stores

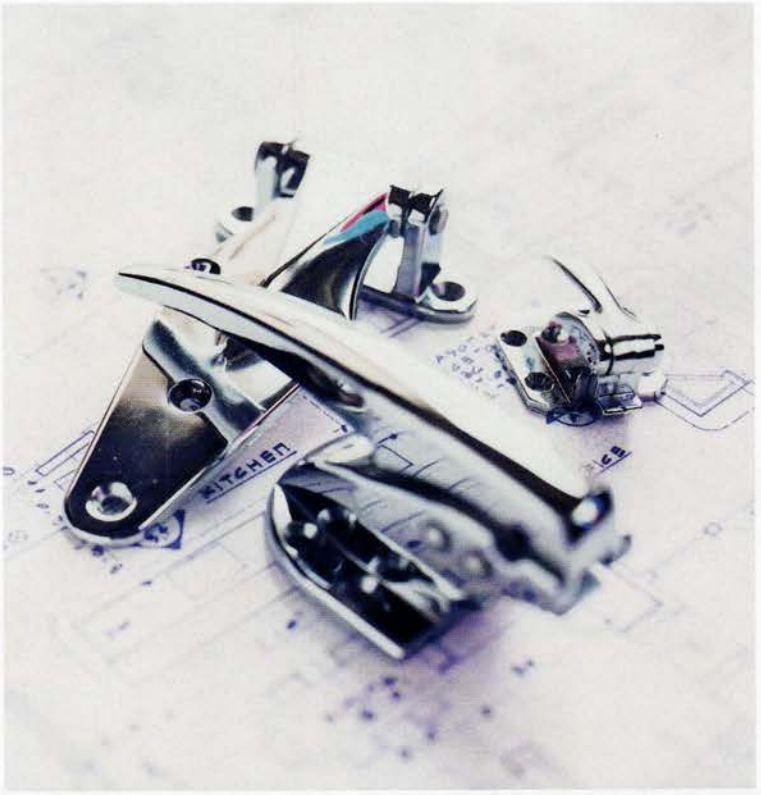
BY JACK McCLINTOCK PHOTOGRAPHS BY DAVID ALBANESE

are our number-one hobby," Dvorak says. To their New York-conditioned eyes, the lofts in San Francisco seemed precious and overdesigned: Loft Lite. "They were glorified apartments," Dvorak says. "They had a forced industrial look, a phoniness." They weren't always in the safest location either.

That's how Bishop and Dvorak ended up in the Eureka Valley neighborhood with what had been a predominantly gay and lesbian synagogue. (Its growing congregation had moved on to a renovated funeral home.) The lofty clapboard structure was originally built for the Reorganized Church of Jesus Christ of Latter Day Saints shortly after the devastating 1906 earthquake. The building has 4,000 square feet of floor space including a bell tower, a second-story warren of offices and, downstairs, a gloomy Gothic-windowed sanctuary and a big ugly kitchen behind the altar.

"We got a loftlike space with the safety of a residential neighborhood," Dvorak says. "I thought, 'Perfect. Leave the downstairs alone, have a huge kitchen, a huge living room—that's the loft we wanted. Then...'" And Bishop finishes: "...make the upstairs home."

So, combining Bishop's fashion sense with Dvorak's gift for designing large spaces and aided by residential architect Barbara Chambers and the crew of *This Old House*, the couple determined to make a church a home.



Rather than trying to erase the kitchen's institutional ambience, Dvorak plays it up with industrial-size refrigerator latches on all 20 of the cabinets.

"We had to find a consistent concept, a focus," Dvorak says. "It was hard because we love so many styles, and there's nothing more boring than, say, a Victorian house with Victorian furniture."

He started a sketchbook. Keep the sanctuary, now the living room, pretty much the same. (The pews were gone, having followed the congregation.) Tear out the funky carpet, and stain the wood floors dark brown. Replace the Gothic windows' cheap-looking stained glass with clear panes to let in the sunshine, and cheer the big room even more by painting the dark chest-high wainscoting a light color. Punctuate the recessed lighting with a few antique fixtures. And create a new focal point by replacing the altar with a paneled study and a fireplace with a 6-foot-tall slate mantel. They planned to put a piano for Bishop in one corner, while Dvorak, a jazz-loving amateur saxophone player (framed photos of Miles Davis, Dizzy Gillespie and Charlie Parker enliven the couple's apartment walls), looked forward to practicing again after 15 years of apartment life.

Dvorak has plenty of experience giving large retail spaces the Gap look—wood floors, white walls, bright lights—but who wants to live in a store? Or for that matter, a church? And this wasn't an actual loft, so why try to make it look like one? Besides, there was no escaping the church's institutional flavor, especially in the kitchen: a room 15 by 20 feet with a 14-foot ceiling, done on the cheap with a 1950s linoleum tile floor and green laminate counters edged with aluminum—an eminently soulless room in which they could almost smell the chalk and stewed tomatoes.

Gazing at the room, Dvorak remembered some refrigerator latches he had admired in a restaurant-supply store on the Bowery in New York. And Bishop thought of the soft-gray Carrara marble and dark-wood stalls one would see in a "train station bathroom." These elements inspired a theme. "Institutional," Dvorak says, "like a 1920s schoolhouse."

As the look crystallized, it included a mosaic-pattern tile floor, a stainless-steel refrigerator, an 11-foot bar with a thick marble top set on a black painted cabinet. Chrome hardware, a stainless-steel foot rail. A north wall, 20 feet long and 14 high, of white cabinets, their doors operated with the refrigerator latches. A rolling library ladder on a track and a 4-by-8-foot blackboard with a billboard-style light. "The board will be cool for phone numbers, lists and reminders," Dvorak says.

He refined his ideas in the sketchbook for months and as construction began was still pondering the perfect bar stool. "Not a '50s diner stool—too flimsy. Something sturdy that bolts to the floor and feels permanent, like something from a ship," he mused. "Maybe I'll design them and have them made."

In a Berkeley salvage yard, they found the soft-gray Carrara marble for the baths for $400 and two 8-inch-deep, brutally square porcelain laundry sinks in excellent condition for $800. "Utilitarian," Bishop says—and very institutional.

If anything could stamp a sense of humanity on the sanctuary's yawning space, the couple's eclectic possessions had a chance: African three-legged stools, 8-foot sofas from Paris and London, a coffin trolley converted to a television table... "We'd never do that at the Gap," Dvorak smiles. When he designs for his employer, Dvorak has to stick to the corporate idiom. "The idea is to make the architecture support the brand and the marketing rather than the other way around," he says.

Still, the designer can't help being influenced by his work. For the exterior paint, Dvorak and Bishop were leaning toward white with black trim, but a certain light tan was tempting him. The shade he had in mind felt as familiar as a pair of old khakis—and in fact was the color of a pair he eventually brought home from the Gap to use as a color chip, holding them up against the sunny east wall for Bishop's approval. ■

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Laurie Ann Bishop and Mark Dvorak transform the vast church sanctuary into a loftlike living room, replacing the altar with a fireplace and study area.

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ASK NORM

"If you want a dry basement, first check your grading."

STARTER KIT

What are the first tools someone who is interesting in doing home projects should get? Do you have some kind of shopping list for the novice?

BEN KRONISH, *New York, N.Y.*

If you're talking about do-it-yourself repairs rather than woodworking projects, I'd suggest starting with a 7¼-inch circular saw and a good electric drill with a ⅜-inch chuck; if you're going to do any serious amount of work, the drill should be corded rather than cordless. Then add a good random-orbit sander for refinishing work. After that, get a jigsaw or bayonet saw. To get the most out of the tools, be sure to buy top-quality bits, blades and sandpaper (the hook-and-loop kind, which is user-friendly, not the adhesive-backed, which isn't).

PANES-TAKING WORK

I'm an aspiring timber-framer, and I'm curious whether I can build my own windows and frames to fit the irregular and large expanses between timbers. What kinds of wood are typically used? What about double-pane windows?

JARED RUSTEN, *San Jose, Calif.*

Every homemade window I've seen has failed. Building windows and window frames is an engineering as well as a millwork job. Doing it yourself is definitely not a way to save either time or money.

HAND-ME-DOWN BASEMENT

We got a good price on an old farmhouse with 40 acres in a prime suburb of Duluth, and we plan to stay there for years. The problem is our wet and unsightly basement. It was hand-dug, and the walls were poured one wheelbarrowful of cement at a time by the farmer who built it. The floor is bedrock, and in one corner a boulder sticks up that the farmer obviously couldn't move. My husband wants to redo the whole basement. I think we can save money by just waterproofing it. What do you think we should do?

DANIELLE THOMPSON, *Hermantown, Minn.*

A foundation doesn't have to be waterproof to hold a house up, but dampness can damage the wood structure. If you want a dry basement, first check that your grading slopes sufficiently to carry water away from the house. Poor grading is surprisingly common on older properties, and it's simple and relatively inexpensive to fix. If the grading is OK, the next option is to repair the foundation with hydraulic cement. Each time your farmer poured his cement, it began to cure. By the time he got around to pouring another batch, the earlier one had hardened just enough so that the two batches couldn't bond. The result: a cracked and leaky foundation composed of large cement blocks. Chisel out the seams, and apply hydraulic cement between these blocks.

PROBLEMS UNDERFOOT

Our family moved into a wonderful 1929 Arts and Crafts home a year ago, and we are trying to decide what to do about the flooring in the kitchen and bath. The original ceramic tiles have cracked because of settling. Once the floor is leveled, would you use tiles, wood (all our other floors are maple) or period-look linoleum (if there is such a thing)? We want a floor appropriate to the period.

KAROL EGGERS, *Yankton, S.D.*

The big question is: What's under the tiles? Your floor was probably a "mud job" laid in a bed of mortar about 1½ inches thick. That's a high-quality technique still used today. The bad news is that the structure of the floor was inadequate or the bed of mortar cracked when the house settled, and now the mortar will all have to come out. The floor frame should be made structurally sound and flat, not necessarily level. Then you have a number of options. The simplest is a wood floor; it will match your other floors and can be installed over a ¾-inch plywood subfloor. If you go with tiles, you can either start with a mud job or put down the plywood, followed by a layer of cement board. For old-fashioned linoleum, which is tough to find but may be available at some specialty outlets, you again start with the plywood subfloor, but this time you add the underlay (¼-inch void-free ply) on top. Then you'll have to fill the underlay's seams so they won't show through the linoleum.

MICHEAL McLAUGHLIN

ASK **NORM**

UNWELCOME GUESTS

Squirrels are entering my attic by way of a power line from the utility pole. Unfortunately, there's no way to bury the line because it crosses a stream. I've asked the utility to install a baffle on the line, but they say they're unable to do so. Any ideas?

JACK WEISER, *Alexandria, Va.*

Yes. Stay away from the power line. Amateurs should never mess with large doses of electricity, especially when ladders are involved. If you are not a gentleman of leisure, the old patience-and-pellet-gun solution is also out. The best thing to do is call an exterminator. He'll handle the problem and spot other possible rodent entrances. That's important because, if there are other ways to get in, any squirrel worth his salt will find them.

BIG BLOW

I need help with an exhaust-fan dilemma. My mother recently had her upstairs bathroom redone complete with a ceiling exhaust fan. The initial decision was to vent into the attic, but we've since heard that this can lead to condensation and ice buildup in winter. Is this correct? And if we must vent to the outside, can we do it without piercing the roof? Will flexible tubing do, or will it sag and collect moisture?

ADAM DREW LIPPE, *Baltimore, Md.*

You can't just blindly vent a fan into an attic: The moisture can rot your roof. To avoid opening the roof, vent through the soffit instead. Use rigid insulated ducting, and install an exterior damper so cold air doesn't blow in.

SCREEN PLAY

Do you know of any way to clean old metal window screens? I have about a dozen, which I believe might be made of aluminum. Over the years, they have become so badly oxidized that I can no longer see through them.

PHIL PONTIER, *Dover, N.H.*

I won't say it can't be done but, if your screens are so corroded that you can't see through them, they probably aren't worth cleaning. Aluminum cleaners available at hardware stores might work, but the screening will probably fall apart. So use the cleaner to salvage the frames, and install new mesh—aluminum or fiberglass.

BREADBOARD AND BISCUITS

I made a bedside table out of oak, and the top has breadboard ends. After a few months, the top split. Is there a way to attach breadboard ends that will prevent this? I used biscuit joints on mine.

WILLIAM J. COCHRAN JR., *Washington, N.C.*

Your biscuit joints are the cause of the difficulty, not the solution. Since breadboard ends are wood pieces with grain running perpendicular to the grain of the tabletops, the joints should be glueless so the wood can move as it expands and contracts. Start with a friction-fitted tongue-and-groove joint. Assemble the joint, and drill through it so dowel pins can hold all of the pieces together. Then remove the breadboard end, and provide the necessary elbowroom by slightly elongating the holes in the tongue. The holes will be invisible when you reassemble the joint and drive the pins home.

MISPLACED LAUNDRY

I am a fan of yours and have even fantasized sometimes about adopting you. But let me pick at you about something I've seen all too often: Why do you guys at *This Old House* always put the laundry room next to the kitchen? Think about the house in Milton, for example, which has all the bedrooms and bathrooms upstairs. Where does all the laundry come from? Where do people dress and undress, bathe, change bed linens, use towels and washcloths? Upstairs, of course. Then why is the laundry downstairs? I'll bet your design team is all men—not one woman.

AUDREY R. RICKER, *Pendleton, Ore.*

Just for the record, our design teams aren't always all-male, but that doesn't make the difference. The point is, where does most daily activity occur? If you have a busy first floor—cooking, cleaning, entertaining, children playing—the laundry should be there too, for easy access. Otherwise you have to go up and down the stairs every time you need to start another load or switch clothes from washer to dryer. But if you work at home from an office in a spare bedroom, an upstairs laundry makes sense. There's one downside. A leak in an upstairs laundry will flood the first floor, not just the basement, and ruin the walls too. A drain pan under the washer-dryer and connected to the plumbing is required. Manual or automatic water shutoffs and burst-proof hoses covered with braided stainless-steel wire should also be considered.

Send questions to Ask Norm, *This Old House* magazine, 1185 Avenue of the Americas, 27th floor, New York, NY 10036.
Include a complete address and daytime phone number. Letters may be edited for clarity and brevity.

MICHEAL McLAUGHLIN

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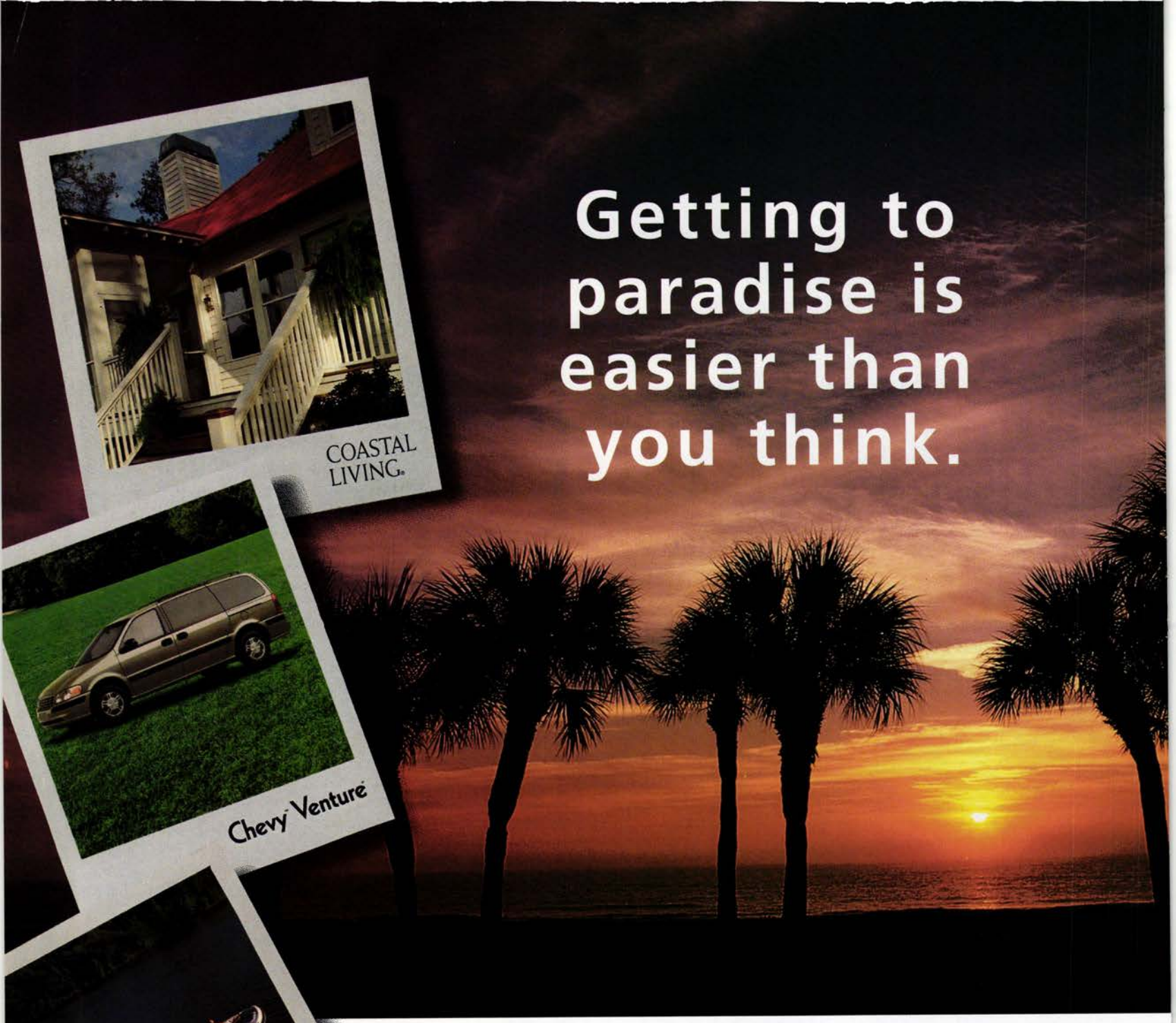

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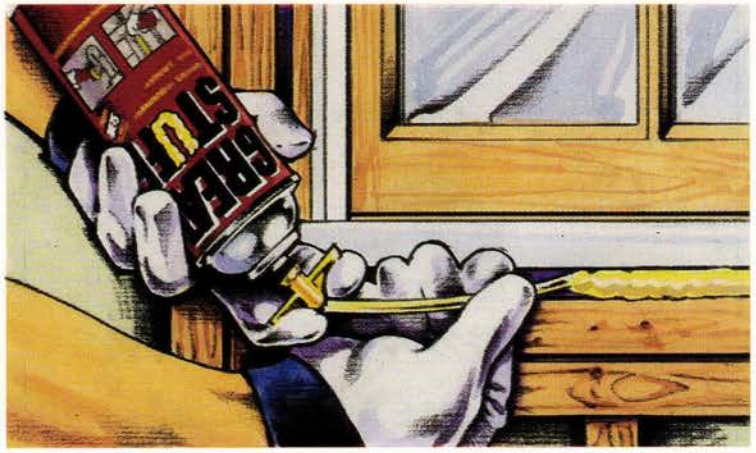

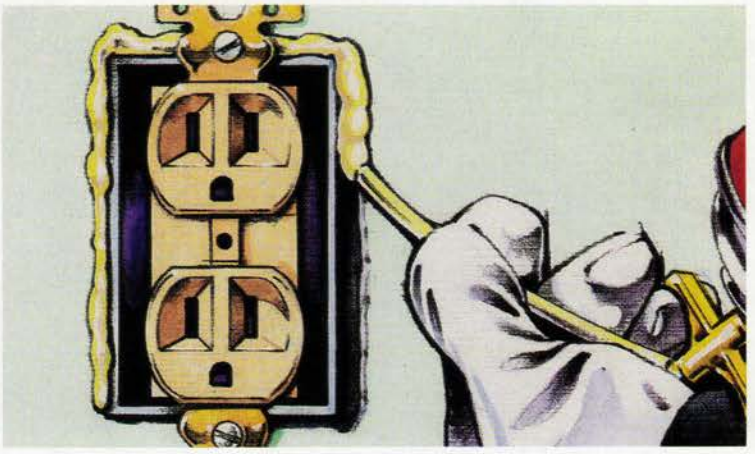

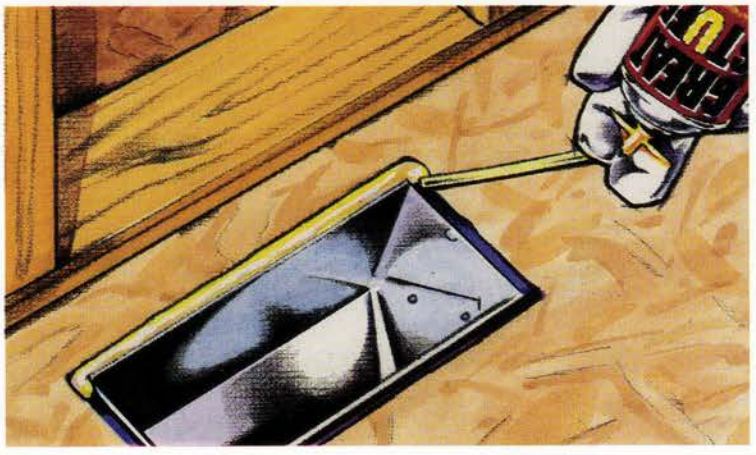

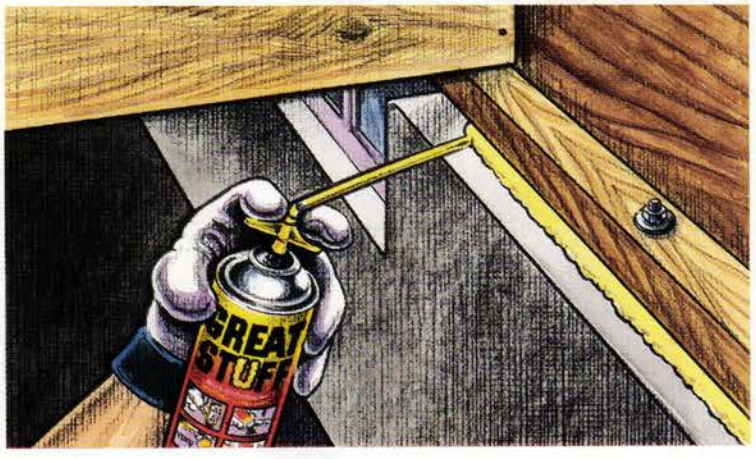

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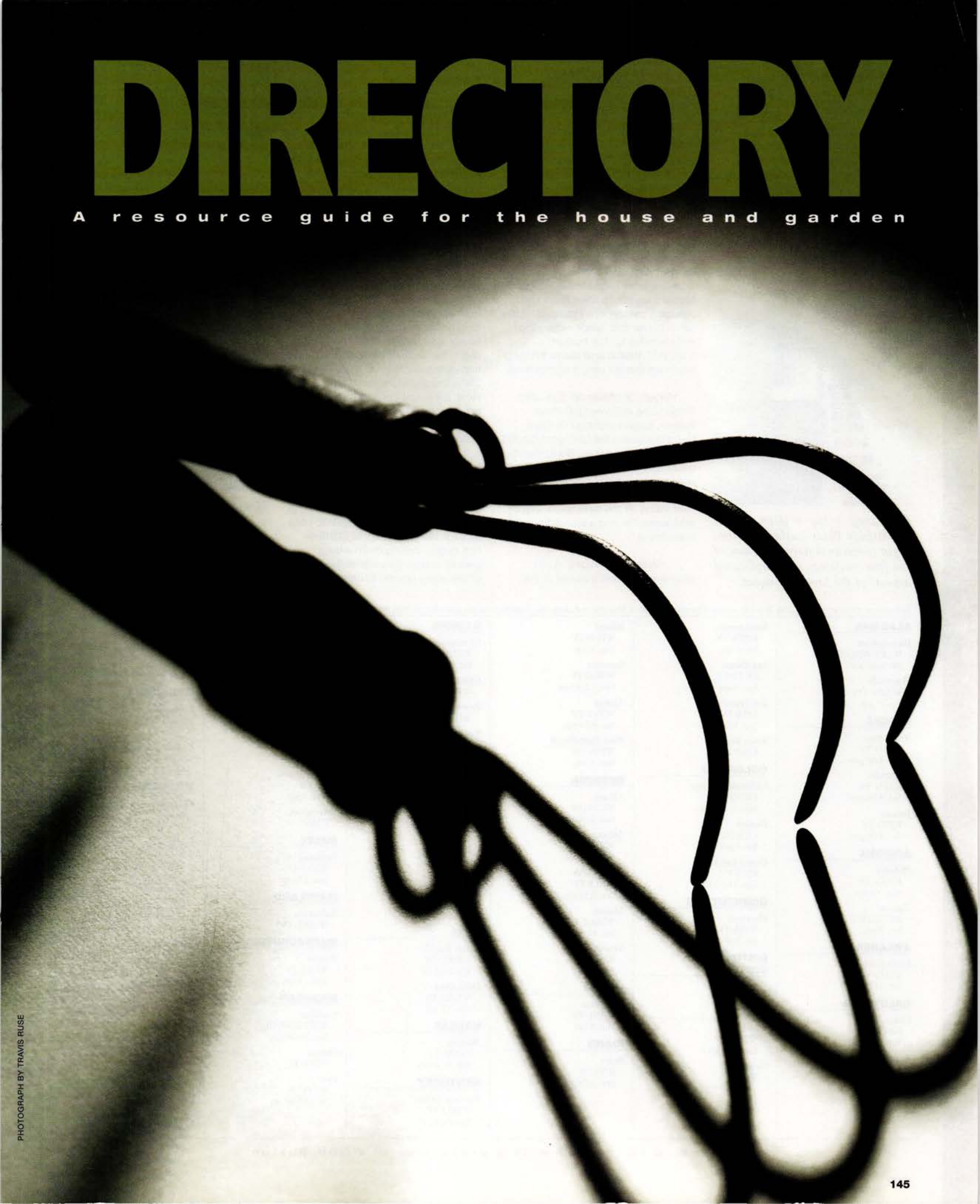
DIRECTORY

A resource guide for the house and garden



PHOTOGRAPH BY TRAVIS RUSE

Back in the USA

The crew returns from England to start an all-American project

Week 25 (March 7-8)

After a sojourn to a stone henge in Avebury, Wiltshire, England, Steve returns to Pembridge Place to preview the bathroom that will occupy a closet-size space in the apartment. Richard shows us the "smallest sink I've ever seen" and the high-tech controls for the shower. ***Watch and learn:*** Using English pipe-bending devices.

Replacing a top section of the Pembridge Place building's five-flight communal staircase is one of the few relatively uncomplicated aspects of the London project.

Week 26 (March 14-15)

In the final week in London, the crew labors at an accelerated pace. Carla Vogler shows off the array of lighting fixtures she has chosen. ***Watch and learn:*** Insulating a patio deck.

Week 1 (March 21-22)

Before starting the new season's project, Steve revisits the Kirkside house in Wayland, Massachusetts. Then the crew heads to Lexington, Massachusetts, to meet Brian and Jan Igoe, owners of a cramped 1950s ranch house that needs expanding and remodeling. The budget: $150,000. ***Watch and learn:*** Bringing heavy equipment onto a sloped lawn.

Week 2 (March 28-29)

At his office in Boston's Bulfinch Square, project architect Graham Gund discusses the Lexington project with Steve. Meanwhile, Norm investigates a new style of insulated concrete foundation squares. Back at the ranch (house), the Igoes talk about their vision for the renovation. ***Watch and learn:*** Pouring a foundation into foam forms.

Week 3 (April 4-5)

With drawings and a model of the house, Graham Gund reveals his architectural plans. Tom and Norm use a computer program to figure out material and labor costs for the project; then they file for a building permit. Meanwhile, Steve journeys to London to see the Voglers' apartment, now complete. ***Watch and learn:*** Using architectural models for a redesign.

Week 4 (April 11-12)

As the Igoes move their possessions out of the house before the partial demolition, the crew readies for the heavy work. With a giant hole already dug in the back of the house, foundation contractor Ken Lewis shows Steve the unusual excavator he uses. Next, Bill Russell cuts through the basement's 10-inch concrete walls. ***Watch and learn:*** Excavating without disturbing underground pipes.

Week 5 (April 18-19)

Norm explains the theory behind the innovative foundation-shaping system used for the Lexington house. Making room for his heavy equipment to pass through the yard, arborist Matthew Foti begins cutting down a large swamp maple. Steve tests the solidity of the newly poured foundation walls. ***Watch and learn:*** Hinging tree branches with a chain saw.

Week 6 (April 25-26)

Architect Graham Gund shows Steve another of his projects, the abandoned Mount Vernon Church, which he converted into luxury apartments. Back at the Igoe property, a load of lumber has arrived, and Norm explains the tricky process of unloading it into a narrow space. ***Watch and learn:*** Applying protective latex cement.

Home again in Massachusetts, Norm and Steve dig into the 1992 season project, the expansion of a distinctly American structure: a 1950s ranch house in Lexington, near Boston.

Because of space limitations, only *This Old House* "Classics" appear. In May, the complete list—including current episodes on PBS stations—will return.

ALABAMA

Birmingham
WCFT/WJSU-TV
Sat. 6:30 am

Huntsville
WZDX-TV
Sun. 7 am

ALASKA

Anchorage
KIMO-TV
Sat. 4:30 pm

Fairbanks
KATN-TV
Sat. 4:30 pm

Juneau
KJUD-TV
Sat. 4:30 pm

ARIZONA

Phoenix
KNXV-TV
Sun. 10 am

Tucson
KTTU-TV
Sat. 9 am

ARKANSAS

Little Rock
KTHV-TV
Sat. 11 am

CALIFORNIA

Chico
KRCR-TV
Sun. 5 pm

Eureka
KAEF-TV
Sun. 5 pm

Los Angeles
KABC-TV
Sun. 6:30 am

Sacramento
KPWB-TV
Sat. 6 am

San Diego
KGTV-TV
Sun. noon

San Francisco
KPIX-TV
Sun. 10:30 am

Santa Barbara
KSBY-TV*

COLORADO

Colorado Springs
KRDO-TV
Sun. 11:30 am

Denver
KCNC-TV
Sat. 4 pm

Grand Junction
KJCT-TV
Sun. 11:30 am

CONNECTICUT

Hartford
WFSB-TV
Sat. 9:30 am

DISTRICT OF COLUMBIA

WRC-TV
Sun. 5 am

FLORIDA

Fort Myers
WTVK-TV
Sat. 5:30 am

Gainesville
WCJB-TV
Sun. 1:30 pm

Miami
WPLG-TV
Sun. 8 am

Sarasota
WWSB-TV
Sun. 11:30 am

Tampa
WTVT-TV
Sat. 9:30 am

West Palm Beach
WPTV-TV
Sun. 6 am

GEORGIA

Albany
WGVP-TV
Sun. 2:30 pm

Atlanta
WXIA-TV
Sat. 5:30 am

Chatsworth
WCLP-TV
Sat. 5:30 pm, Sun. 7 pm

Macon
WMAZ-TV
Sat. 11 am

Savannah
WTOC-TV
Sun. 5 pm

HAWAII

Honolulu
KHNL-TV
Sun. 3 pm

IDAHO

Boise
KIVI-TV
Sun. 6:30 am

ILLINOIS

Champaign
WAND-TV
Sat. 5:30 am

Chicago
WFLD-TV*

Peoria
WHOI-TV*

Rockford
WTVO-TV
Sat. 6:30 pm

Springfield
WICS-TV
Sat. 7:30 am

INDIANA

Evansville
WFIE-TV
Sun. 6 am

Indianapolis
WTHR-TV*

Terre Haute
WTWO-TV
Sun. 6 am

IOWA

Cedar Rapids
KWWL-TV
Sat. 2:30 am

Davenport
WQAD-TV
Sun. 11 am

KANSAS

Wichita
KSNW-TV
Sun. 6:30 am

KENTUCKY

Bowling Green
WBKO-TV
Sun. 6:30 am

Lexington
WTVQ-TV*

Louisville
WAVE-TV*

Paducah
KBSI-TV
Sun. 10:30 pm

LOUISIANA

Baton Rouge
KWBJ-TV
Sun. noon

New Orleans
WVUE
Sun. 6 pm

Shreveport
KTBS*

MAINE

Portland
WPXT-TV
Sun. 11 am

MARYLAND

Baltimore
WMAR-TV*

MASSACHUSETTS

Boston
WFXT-TV
Sun. 11 am

MICHIGAN

Cadillac
WWTV/WWUP
Sun. 10:30 am

Detroit
WDIV-TV*

Flint
WEYI-TV
Sun. 10:30 am

Grand Rapids
WOOD/WOTV-TV*

Lansing
WILX-TV
Sun. 11 am

MINNESOTA

Rochester
KAAL-TV
Sat. 6 am

St. Paul/Minneapolis
KSTP-TV
Sun. 11:30 am

MISSOURI

Columbia
KRCG-TV
Sun. 11 am

Joplin
KOAM-TV
Sun. 6 am

Kansas City
KMBC-TV
Sat. 6:30 am

St. Louis
KTVI-TV*

Springfield
KSPR-TV
Sun. 11 am

NEBRASKA

Lincoln
KHAS-TV
Sat. 5 pm

NEVADA

Las Vegas
KTNV-TV
Sun. 8:30 am

*check your local listings

PHOTOGRAPHS BY D.B.NOYES; TREVOR RICHARDS

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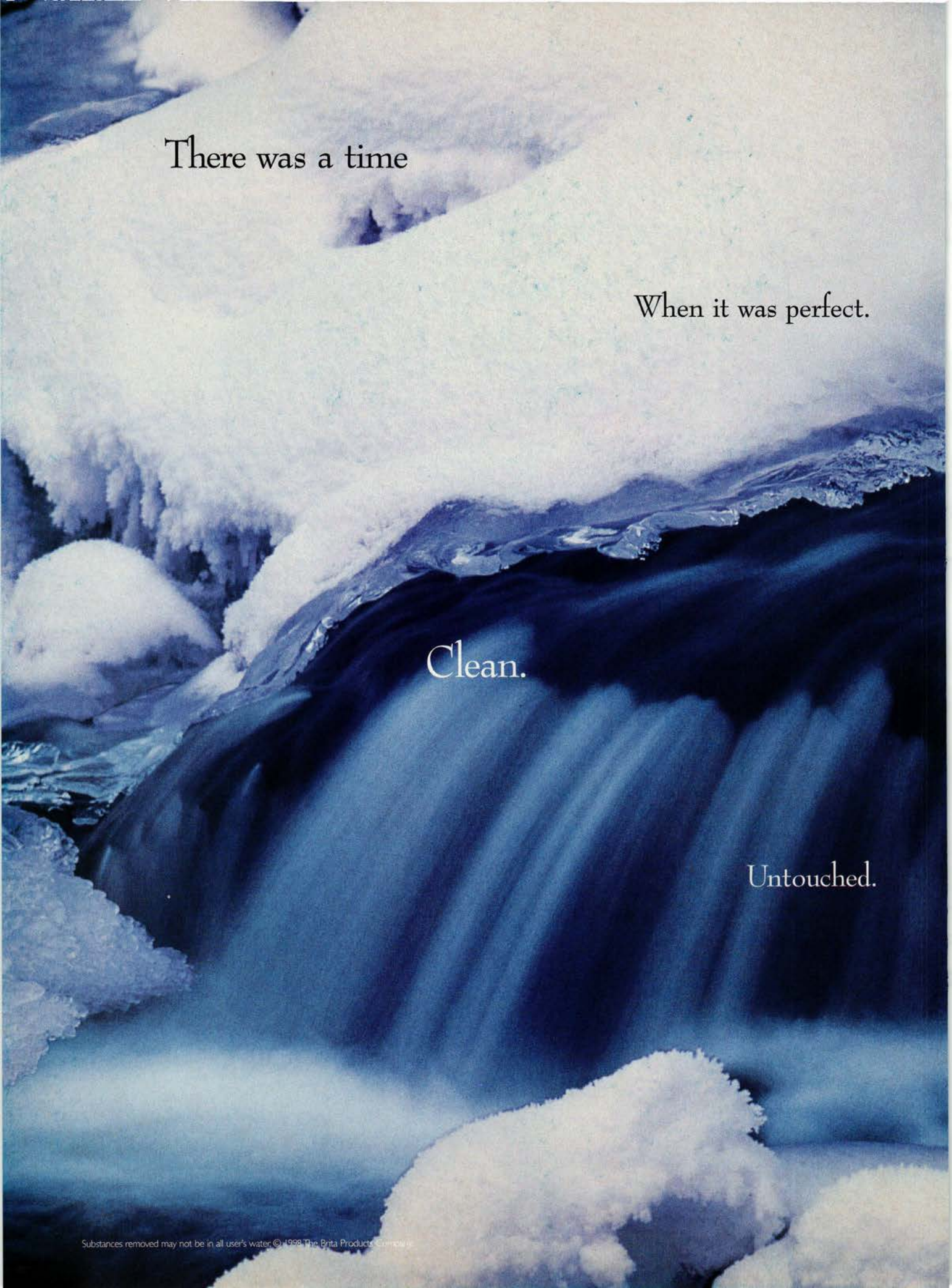
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Clean.
Untouched.
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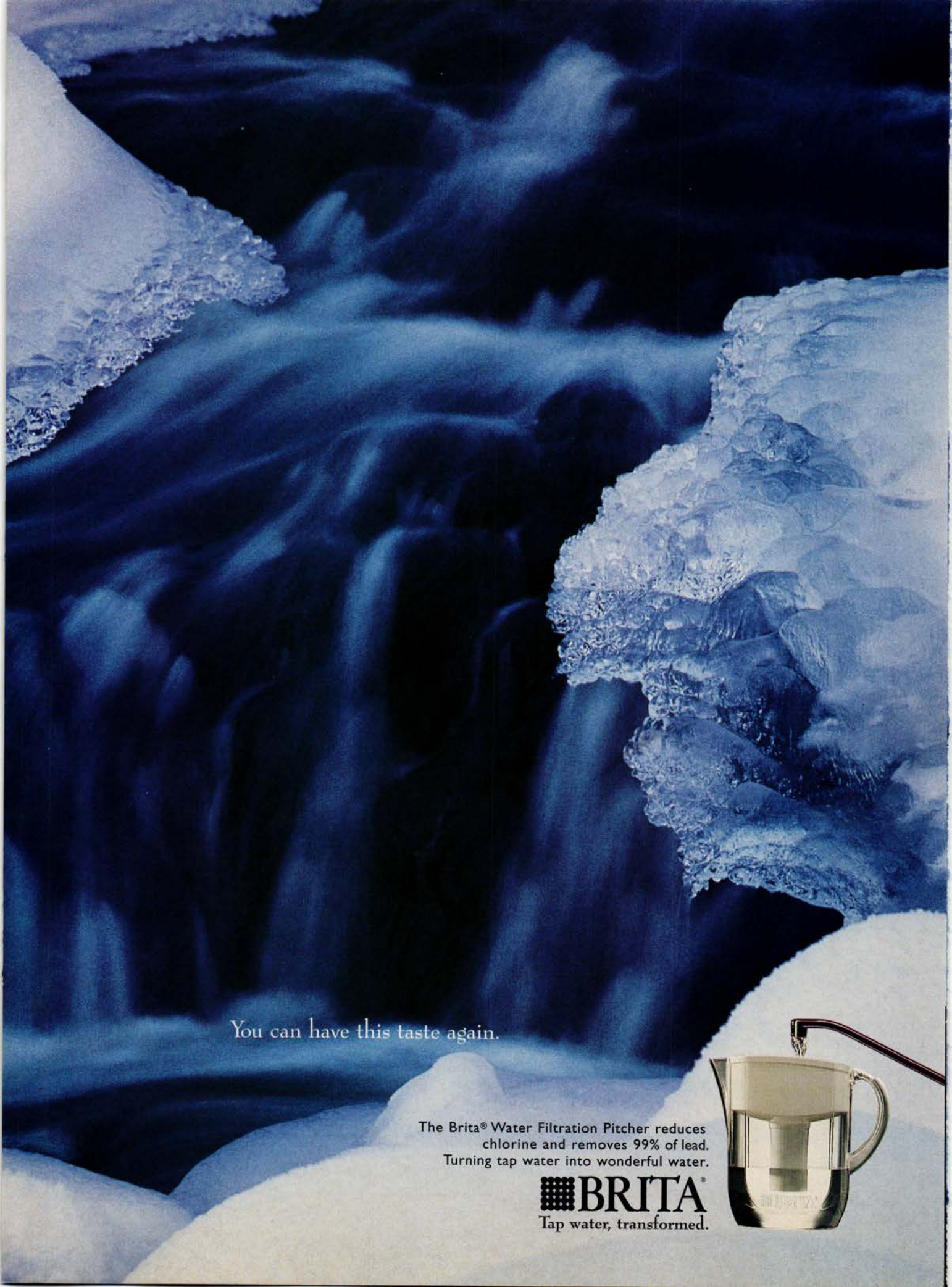
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A Guide to Resources for the "Classics" TV Series

The following is an updated list of some of the suppliers and manufacturers featured during *This Old House*'s 1992 television season, when the crew worked on projects in London, England,* and Lexington, Massachusetts.

Week 25

Toilets, lavatories and shower body washer: Trevi Showers, division of Ideal-Standard Ltd., Bathroom Works, National Ave., Kingston-upon-Hull, HU5 4HS; 1482-470788. *Glass blocks:* Pittsburgh Corning, 800 Presque Isle Dr., Pittsburgh, PA 15239; 800-624-2120.

Week 26

Low-voltage light fixtures: Concord Sylvania Ltd., Avis Way, Newhaven, E. Sussex, BN9 0ED; 1273-515811. *Door and window hardware:* D-Line International Ltd., marketed in the UK by Allgood plc., 297 Euston Rd., London NW1 3AQ; 171-387-9951. *Japanese bathtub:* Design Workshop Mfg., 7-8 Denbydale Industrial Park, Wakefield Rd., Denbydale, Huddersfield, Yorkshire HDD8 8QH; 1484-864455. *Kitchen:* Smallbone & Company Ltd., Hopton Industrial Estate, Devizes, Wiltshire SN10 2EU; 1380-729090.

Week 1

Truck: Ford F-150. *Developer:* Gwen Simpkins, Delaporte Design, 100 Westchester Rd., Newton, MA 02158; 617-527-2583. *Architect:* Joseph S. Artley, 72 Inman St., Cambridge, MA 02139; 617-354-9180. *Plumbing and heating consultant:* Richard Trethewey, Radiant Systems Technology, 19B Thompson St., Dedham, MA 02026; 617-320-9910.

Because of unprecedented delays to the renovation schedule, Steve must leave London before the project's completion. He returns later, however, to tour the finished apartment.

Week 2

Architect: Graham Gund Architects, 47 Thorndike St., Cambridge, MA 02141; 617-577-9600. Rick Bechtel (Gund's assistant) now has his own firm: Bechtel Frank Erickson Architects; 781-862-3313. *Foundation contractor:* Ken Lewis, Ariel-Triad Co. Inc., Box 59, Newton, MA 02168; 617-964-7578. *Insulating foundation forms:* Pink sheets with ties from Lite-Form Inc., 1210 Steuben St., Box 774, Sioux City, IA 51102; 800-551-3313. White interlocking blocks from 3-10 Insulated Forms (now known as Reward Wall Systems), 4115 S. 87th St., Omaha, NE 68108; 800-468-6344. *Concrete pump:* Independent Concrete Pumping Corp., 66 New Salem St., Wakefield, MA 01880; 781-246-0423.

Week 3

LEXINGTON PROJECT—Model: Nina Coles Architectural Models, 94 Menotomy Rd., Arlington, MA 02174; 781-648-2255. *LONDON PROJECT—Interior design:* Furniture from the Conran Shop, Michelin House, 81 Fulham Rd., London SW3 6RD; 171-589-7401. *Shower stall:* Showerlux (UK) Ltd., Sibree Road, Coventry, W. Midlands CV3 4EL; 1203-639400. *Spiral staircase:* Albini & Fontanot, supplied by Staircases Solutions, 213 Bingley Rd., Shipley, W. Yorkshire BD18 4DH; 1274-530308.

Week 4

Dumpster service: Laidlaw Waste Systems (now Vining Disposal Services); 617-289-0500. *Protective floor covering:* Homasote Co., Box 7240, W. Trenton, NJ 08628; 800-257-9491. *Concrete cutting:* M. Solberg Enterprises, Concrete Cutting Service, 149 Cross St., Winchester, MA 01890; 781-729-5575.

Week 5

Arborist: Matthew R. Foti Landscape & Tree Service, 30 Fairbanks Rd., Lexington, MA 02173; 781-861-0505. *Insulating polystyrene forms:* Lite-Form Inc. (see week 2). *Reinforcing steel bars:* Barker Steel Co., 25 Birch St., Milford, MA 01757; 800-370-0132. *Termiticide application:* Orkin Pest Control, 35H Industrial Pkwy., Woburn, MA 01801; 781-938-0202.

Week 6

Engineered and dimensional lumber: Georgia-Pacific Corp., 133 Peachtree St. NE, Atlanta, GA 30303; 800-284-5347. *Foundation coating:* RetroTek Ltd.; 800-225-9001. *Mason:* Lenny's Masonry Contracting, Stow, MA; 508-897-6256.

* Callers from the US must precede UK phone numbers with 011-44.

Reno
KAME-TV
Sat. 11 am

NEW HAMPSHIRE

Manchester
WNUR-TV
Sun. 8 am

NEW YORK

Albany
WXXA-TV
Sun. 10 am

Binghamton
WBNG-TV
Sat. 7:30 am

Buffalo
WIVB-TV
Sun. 8:30 am

Elmira
WYDC-TV*

New York
WCBS-TV
Sun. 7:30 am

Rochester
WHEC-TV
Sun. 6 am

Syracuse
WSTM-TV
Sun. 6 am

NORTH CAROLINA

Charlotte
WBTV-TV
Sat. 2:30 pm, Sun 1:30 pm

Greensboro
WGHP-TV
Sat. 6:30 am

Greenville
WLOS/WFBC-TV
Sat. 10 am

Raleigh
WTVD-TV
Sun. 11:30 am

OHIO

Cincinnati
WCPO-TV
Sun. 6 am

Cleveland
WEWS-TV
Sun. 6 am

Columbus
WSYX-TV
Sun. 9:30 am

Dayton
WRGT-TV
Sun. 10 am

Toledo
WTVG-TV*

Wheeling
WTRF-TV*

Youngstown
WFMJ-TV
Sun. 10 am

OKLAHOMA

Oklahoma City
KOCO-TV
Sat. noon

Tulsa
KJRH-TV
Sun. 12:30 pm

OREGON

Eugene
KEZI-TV
Sun. 12:30 pm

Medford
KOBI/KOTI-TV
Sun. 4 pm

Portland
KATU-TV
Sun. 5:30 am

PENNSYLVANIA

Erie
WJET
Sat. 6:30 am

Harrisburg
WGAL-TV
Sun. 11 am

Johnstown
WWCP/WATM-TV
Sun. 9 am

Philadelphia
WTXF-TV*

Wilkes-Barre
WYOU-TV*

RHODE ISLAND

Providence
WLNE-TV
Sat. 6:30 am

SOUTH CAROLINA

Allendale
WEBA-TV
Sat. 4 pm

Beaufort
WJWJ-TV
Sat. 4 pm

Charleston
WCSC-TV
Sun. 5:30 am
WITV-TV
Sat. 4 pm

Columbia
WLTX-TV
Sun. 6 am
WRLK-TV
Sat. 4 pm

Conway
WHMC-TV
Sat. 4 pm

Florence
WJPM-TV
Sat. 4 pm

Greenville
WNTV-TV
Sat. 4 pm

Greenwood
WNEH-TV
Sat. 4 pm

Rock Hill
WNSC-TV
Sat. 4 pm

Spartanburg
WRET-TV
Sat. 4 pm

Sumter
WRJA-TV
Sat. 4 pm

SOUTH DAKOTA

Rapid City
KCLO-TV
Sun. 10 am

Sioux Falls
KELO-TV
Sun. 10 am

TENNESSEE

Knoxville
WATE-TV
Sun. 5:30 am

Memphis
WPTY/WLMT-TV
Sun. 11:30 am

Nashville
WKRN-TV
Sun. 12:30 pm

Tri-Cities
WKPT/WAPK-TV
Sat. 10:30 am

TEXAS

Amarillo
KFDA-TV
Sat. 5 pm

Austin
KTBC-TV
Sat. 7 am

Beaumont
KBMT-TV
Sun. 6:30 am

Corpus Christi
KRIS/KDF-TV*

Dallas/Fort Worth
KXAS/KXTX-TV
Sat. 5 pm

Harlingen
KVEO-TV
Sun. 6 am

Houston
KTRK-TV
Sun. 11 am

Lubbock
KLBK-TV
Sun. 5 pm

Tyler
KLPN-TV
Sat. 9 am

Waco
KXXV-TV
Sun. 11 am

VERMONT

Burlington
WCAX-TV
Sun. 8:30 am

VIRGINIA

Richmond
WAWB-TV
Sun. 6 am

Roanoke
WSLS-TV
Sun. 6:30 am

WASHINGTON

Seattle
KIRO-TV*

Spokane
KXLY-TV
Sun. 9:30 am

WEST VIRGINIA

Bluefield
WOAY-TV*

Charleston
WCHS-TV
Sun. 6 am

Wheeling
WTRF-TV*

WISCONSIN

Green Bay
WGBA-TV
Sun. 7 am

La Crosse
WEAU-TV
Sun. 9 am

Madison
WMTV-TV
Sat. 5 pm

Milwaukee
WTMJ-TV
Sun. 6 am

Wausau
WJFW-TV
Sun. 10:30 am

*check your local listings

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DIRECTORY

EXTRAS
pp. 24-29

p. 24—Gimme a Brick: The International Brick Collectors Association, 1743 Lindenhall Dr., Loveland, OH 45140. A $15 annual membership includes three issues of their journal. For details about 1998 swaps, call Peggy French at 513-683-4792. In addition to the May 2 event in Pueblo, Colo., there are swaps scheduled for July 18 in Portersville, Penn., and Sept. 19 in Tulsa, Okla. Jim Graves (1200 N. Edwards, Wichita, KS 67203) answers questions about the history of bricks. A Brick Collector's Homepage is at www.zoomnet.net/~stevenb/ *Reported by Jeanne Huber.*

p. 25—Full Sail Above: Charles Doyle, 46 Fire Lane 1, Jerry Brown Farm Rd., Wakefield, RI 02879; 401-789-1798. Prices for his commissioned weather vanes have ranged from $5,500 to $16,700. *Reported by Elena Kornbluth.*

p. 26—Quartz Crush: Granirex Inc., 1045 Monfette North, Thetford Mines, Quebec, Canada G6G 5T1; 800-667-8663. In the United States, distributed exclusively by Walker & Zanger Inc., d/b/a West-chester Marble and Granite, 31 Warren Place, Mt. Vernon, NY 10550; 914-667-1600. *Reported by Thomas Baker.* **The Triangle Trade:** A Square (c), $49.99, Ercon Inc., Box 369, Ramsey, NJ 07446-0369; 201-327-1919. *Reported by Curtis Rist.* **Take This Job—Please:** Readers interested in making a donation to the historic restoration project should contact Diane Berry, City of Echo Administrator, Box 9, Echo, OR 97826; 541-376-8411. *Reported by Rebecca Reisner.* **The Drill Team:** A: Nyalox coarse bristle wheel 771, 3-in. diam., $5.45, Dico Products, 200 Seward Ave., Utica, NY 13503; 800 378-3546. B: Drum sander 74-790, ⅝-in. diameter, 1-in.-long, $4.99, Black & Decker, 701 E. Joppa Rd., Towson, MD 21286; 800-544-6986. C. Coarse-grit abrasive wheel 821-3629, 2-in. diam., $2.30, Fuller Tool Corp., 252 Bradenton Ave., Dublin, OH 43017; 800-563-8553. D. The following description applies to a product similar to, but not exactly like the one pictured in the story. Cylindrical flat end rotary file 4238A128, ⅝-in. diam.,$13.20, McMaster-Carr Supply Co., Box 440, New Brunswick, NJ 08903; 732-329-3200. E. The following description applies to a product similar to but not exactly like the one pictured in the story. Rotary power tool rasp 4227A13, 1¼ in. diam., $4.55, McMaster-Carr Supply Co. F: The following description applies to a product similar to but not exactly like the one pictured in the story. Conical rasp 2535, ⅝-in.-diam., $1.50-$2, Wolfcraft Inc., 1222 W. Ardmore Ave., Box 687, Itasca, IL 60143; 630-773-4777. G. The following description applies to a product similar to but not exactly like the one pictured in the story.Coarse cup brush 1425, 2-in. diam., $2.50-$3, Wolfcraft Inc. H: Nyalox flap wheel, 782, 4¼-in diameter, $6.95, Dico Products; 800-378-3546. *Reported by Mark Feirer.*

p. 27—Swank Yanks: Red, blue, green and black rubber, $46.80; yellow neoprene, $51.30; William H. Kaufman Inc., Kitchener, Ont., Canada. US distributor: Robert S. Dwelley, Bent Oak Run, Westport, MA 02790; 800-222-0191. *Reported by Thomas Dodson.* **Scrap Happy:** Thirty-piece box $39.95; 35-piece bag $49.95; Tree Blocks, 21103 Mulholland Dr., Woodland Hills, CA 91364; 800-873-4960. *Reported by William Marsano.* **Great Wainscot:** Available in 32-in. and 36-in. heights; 6-, 9-, 12- and 24-in. panel-widths; oak, maple and cherry veneers; raised-panel, flat-panel and beadboard styles; $9-$18 per sq. ft., New England Classic Interiors, 100 Middle St., Portland, ME 04101; 888-880-6324; www.homefittings.com.

p. 28—Scaffold and Carry: Project Buddy Work Platform 3954, $299, Werner Ladder Co., 93 Werner Rd., Greenville, PA 16125; 412-588-8600. *Reported by Sarah Shey.* **Roughing It:** Dataprint Corp., Box 5910, San Mateo, CA 94402; 800-227-6191.

p. 29—Have a Nice Drip: Treegator and 6-in.-high Treegator Jr, $20, Spectrum Products, 4200-152 Atlantic Ave., Raleigh, NC 27604; 800-800-7391. *Reported by Sarah Shey.* **All the Wright Angles:** Both are designed for Windows and Macintosh. *Frank Lloyd Wright's Fallingwater:* featuring "Photo Bubble" IPIX technology, $50, Omniview Inc., (now named Interactive Pictures Corp., 1009 Commerce Pk. Dr., Suite 100, Oak Ridge, TN 37830; 800-916-6664. *The Frank Lloyd Wright Companion,* $60, Prairie Multimedia Inc.; 708-513-0978. *Reported by Laura Fisher Kaiser.* **Pilgrims' Progress:** Plimoth Plantation is on Route 3A in Plymouth, MA; 508-746-1622; Internet address is www.plimoth.org. *Reported by E.K.*

WGBH Educational Foundation does not endorse any product or service mentioned or advertised in this magazine.

SLOT MACHINES
pp. 31-36

Tool in opening and technique shots: DW682K, $386, DeWalt Industrial Tools, 701 E. Joppa Rd., Towson, MD 21286; 800-433-9258. **Gold Standard:** Top 10, $999, Lamello, imported by Colonial Saw Co., 100 Pembroke St., Box A, Kingston, MA 02364; 800-252-6355. **Switch Blade:** 557, $400, Porter-Cable, Box 2468, Jackson, TN 38302; 800-487-8665. **Low Down:** 390, $421, Makita Corp. of America, 14930 Northam St., La Mirada, CA 90638; 714-522-8088. **Up Right:** 556, $240, Porter-Cable. **No Cord:** Dynamic, $625, Lamello. **Compact:** DBJ50, $79, Ryobi America Corp., 5201 Pearman Dairy Rd., Anderson, SC 29625; 800-525-2579. **Biscuits:** Red plastic clamping biscuit: K-20, 156100, $63 per 250, Lamello, imported by Colonial Saw Co. 1. Wood biscuit: S-6, 144006, $85 per

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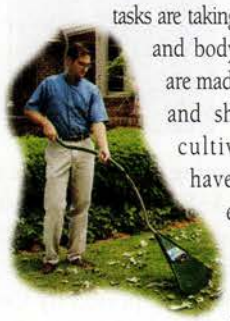

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1000, Lamello. **2.** Tiny wood biscuits: R-2, $7.90 per 100, Ryobi America Corp., 5201 Pearman Dairy Rd., Anderson, SC 29625; 800 525-2579 **3.** Round wood biscuits: 14011, $69 per 1000, Lamello. **4.** Standard: No. 20, Lamello, $43 per 1000. **5.** Decking biscuit: EB-TY, $50 per 100, Box 414, Califon, NJ 07830; 800-438-3289. **6.** Clamping biscuit: K-20 156100, $63 per 250, Lamello. **7.** Interlocking aluminum plates: 166101, $52 per 50 pairs, Lamello. **8.** Plastic biscuits: C-20 156110, $35 per 250, Lamello. **9.** Brass hinges: 166003, $61 per 10 pairs, Lamello.

THE SCOOP ON SCRAPERS
pp. 37-40

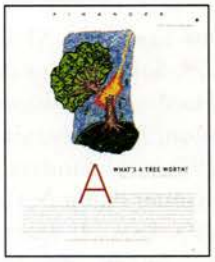
Pushers: 1. One-and-a-half-in. Ergo 2000, 6203, $5.83, Red Devil. **2.** Three-in. heavy-duty burn-off scraper 25000, $6.50, Goodell. **3.** Safety glass scraper with five blades, $2.19, Allway, Box 777, Bronx, NY 10462-0551; 718-792-3636. **4.** Four-in. wall and floor scraper, $9.40, Allway. **5.** Three-in. flex pro-grip 674, $11.15, Warner, 13435 Industrial Park Dr., Minneapolis, MN 55441; 800-444-0606. **6.** One-and-a-quarter-in. Tuf-Job scraper, 4502, $4.35, Red Devil.
Pullers: 1. Pro-Prep MS200 handle with one blade, $9.95; pictured with crescent blade, $6.95, Pacific Handy Cutter; 800-229-2233. **2.** Two-and-a-half-in. 4-edge paint scraper with knob 20650, $5.99, Goodell Inc., 9440 Science Center Dr., Minneapolis, MN 55428; 800-542-3906. **3.** Triangle molding scraper 10400, $13.50, Hyde; 800-872-4933. **4.** Two-and-a-half-in. double-edged "flip-over" scraper, 3050WD, $5.71, Red Devil, 2400 Vauxhall Rd., Union, NJ 07083-1933; 800-423-3845. **5** and **6.** One-in. carbide blade scraper 44, $15.70; and 2-in. carbide scrapers, 440, $16.70; Sandvik, Box 2036, Scranton, PA 18501; 800-828-9893.

PANE RELIEF
pp. 43-46

Fiberglass-reinforced splines: Moistop, $25.80 per 9-in.-by-

300-ft. roll, Fortifiber Corp., 300 Industrial Dr., Fernley, NV 89408; 800-773-4777. **Minimal expansion foam:** Touch 'n Foam, Convenience Products, 866 Horan Dr., Fenton, MO 63026; 800-325-6180. **Replacement window:** Marvin Windows, Box 100, Warroad, MN 56763; 800-346-5044. **Asphalt-saturated Jumbo Tex kraft paper:** $6.50 per 324-sq.-ft. roll, Fortifiber.

WHAT'S A TREE WORTH?
pp. 51-52



For further information: Insurance Information Institute consumer hot line; 800-331-9146. Internal Revenue Service Web site www.irs.ustreas.gov (in the publications section, open No. 547, "Nonbusiness Disasters, Casualties and Thefts"). "Arboriculture & The Law," $30, and "Guide for Plant Appraisal," $70, from the International Society of Arboriculture; 217-355-9411.

SWAMP FIX
pp. 64-66

For help hiring a landscape architect, ask for a referral from the American Society of Landscape Architects, 636 I St. NW, Washington, DC 20001-3236; 202-898-2444; www.asla.org. For help hiring a landscape contractor, ask for a referral from the Associated Landscape Contractors of America, 150 Elden St., Suite 270, Herndon, VA 20170; 703-736-9666. **Our thanks to:** Charles Stick, landscape architect, Charlottesville, VA; 804-296-1628. Dominick Rattacasa, DJR Contracting Services Inc., 166 Ross Ave., Hackensack, NJ 07601; 201-488-4267.

ROT PATROL
pp. 69-70

Wood restoration specialist: John Stahl, Box 510, Cherry Valley, NY 13320; 607-264-9040. Pictured using Jecta diffusible borate gel; Impel rods 14012, ¼ in. by ½ in.; Primatrate cell-bonding primer; Flex-Tec HV elastomeric wood repair compound; dual-piston heavy-duty dispensing gun with 12-in. static

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mixing nozzle; all products are available from Advanced Repair Technology, Box 510, Cherry Valley, New York 13320; 607-264-9040. **Our Thanks to:** Jim Belford, Bels/Smith Inc. Terry Highley, USDA Forest Service, Forest Products Laboratory; 608-231-9200. Brian Knight, Gougeon Brothers Inc. Steve Quarles, Ph.D., UC Forest Products Laboratory, Richmond Field Station; 510-215-4261. John Stahl, Advanced Repair Technology. Barry Goodell, Ph.D., Forest Products Laboratory, University of Maine; 207-581-2888. **Further reading:** The publications "Other Uses—Suggestions for Household Repair," "Epoxyworks" and "Wooden Boat Restoration & Repair," all published by West System Epoxy, Gougeon Brothers Inc.

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WHACK ATTACK
pp. 72-74

p. 74: 1. Bow saw: 9-21-51-KP, 21-in. blade, $13.39, Sandvik Saws and Tools Company, Hardware Division, Box 2036, Scranton, Pennsylvania 18501; 800-632-7297; www.sandvik.com. **2. The Craftsman Pump N Cut Tree Pruner:** 86393, $69.99, Sears Power and Hand Tools, 2740 W. 79th Street, Chicago, Ilinois 60652; 800-377-7414; www.sears.com. **3. Heavy-duty shears:** 11-431-50, $35.95, Japan Woodworker, 1731 Clement Avenue, Alameda, California 94501; 800-537-7820. **4. Pruning shears:** Felco 8, $44.95; Pygar Inc., Box 3147, Kirkland, Washington 98083; 425-827-7676; fax 425-828-4061. **5. Folding saw:** 396 HP, 7½-in. blade, $27.78, Sandvik; 800-632-7297, Web site www.sandvik.com. **6. Super Lopper:** 62-5137, $55.49, Sharksaw Series, Takagi Tools Incorporated, 337A Figueroa Street, Wilmington, California 90744; 800-891-7855. **Further reading:** *Pruning,* by Robert Kourik, part of Smith and Hawken's Hands-On Gardener series books, Workman Publishing, 1997, $12.95, in paperback. *The Garden Explored (Accidental Scientist),* by Mia Amato with Exploratorium, Henry Holt and Company, 1997, $12.95, in paperback. "Tree Pruning Guidelines" pamphlet, $5 plus $2 shipping and handling charge (from International Society of Arboriculture); Box GG, Savoy, Ilinois 61874; 217-355-9411; fax 217-355-9516.
Our thanks to: Dennis Ryan, professor of forestry and arboriculture, Holdsworth Hall, University of Massachusetts, Amherst; fax 413-545-

4358. Dr. Alex Shigo, Shigo & Trees Associates, Box 769, Durham, New Hampshire 03824; 603-868-7459.

SCREEN SAVERS
pp. 77-78

Screen doors pictured:
Mission: Craftsman-style, redwood, $800, Screen Scenes, Box 3625, Quincy, California 95971; 916-283-4366. **Victorian:** Eloise in pine, $355, the Gingerbread Man, 327-3 Industrial Drive, Placerville, California 95667; 530-622-0550. **Adobe:** SD102 in redwood, $280, Mad River Woodworks, Box 1067, Blue Lake, California 95525; 800-446-6580. **Craftsman:** 119 (Leschi special) in Douglas fir, $325, Great Northwest Storm & Screen Door Company, 13723 100th Avenue NE, Kirkland, Washington 98034; 800-895-3667. **Eastlake:** SD1102 in mahogany, $385, the Wood Factory, 111 Railroad Street, Navasota, Texas 77868; 409-825-7233. **Cape Cod:** 201 (Essex) in mahogany, $435, Touchstone Woodworks, Box 112, Dept. TOH, Ravenna, Ohio 44266; 330-297-1313. **Shaker:** Castine in mahogany, New England Screen Door Company, Box 128, Bristol, Maine 04539; 207-563-1588. **Ranch:** the Wood Factory, 111 Railroad Street, Navasota, Texas 77868; 409-825-7233. **Tudor:** 138 (Wallingford) in Douglas fir, Great Northwest Storm & Screen Door Co., $395. **Classical:** 3602-P in mahogany, Coppa Woodworking Inc., 1231 Paraiso Avenue, San Pedro, California 90731; 310-548-4142. **Farmhouse:** 3660 in pine, $120, Coppa Woodworking Inc. **Monterey:** 102 (Old Lace) in mahogany, $614, Touchstone Woodworks, Box 112, Dept. TOH, Ravenna, Ohio 44266; 330-297-1313.

WOODWORKER
pp. 86-93

To order furniture from Sam Maloof: 909-987-2805. Sam or Freda will probably answer the phone. **Further reading:** Autobiography, *Sam Maloof: Woodworker,* 1983, $50, Kodansha International; 800-451-7556. Maloof home, *Hand and Home: The Homes of American Craftsmen,* by Tommy Simpson, 1994, $50, Bulfinch Press. Chairmaking video, *Sam Maloof: Woodworking Profile,* Taunton Press, $19.95 plus $3 shipping, Taunton Direct, Box 5507, Newtown, CT 06470, 800-888-8286. **Our thanks to:** Slimen Maloof, Larry White, Mike Johnson, Dave Wade.

THE RIGHT ROOF
pp. 94-101

Slate: Vermont semi-weathering green, Greenstone Slate; 802-287-4333. **Slate substitutes:** Plastic—Perfect Choice, gray, American Sheet Extrusion Corp.; 800-776-8060. Clay tile—slate gray, Celadon; 800-235-7528. Fiber cement—(dark gray) Hardishake Fiber-Cement Roofing, James Hardie Building Products; 800-942-7343. (Vermont red) Eternit Slates, English Size, Eternit Inc.; 800-233-3155. **Wood:** Cedar—Materials available in lumberyards and building supply centers; for assistance, contact Cedar Shake and Shingle Bureau; 425-453-1323. **Wood substitutes:**

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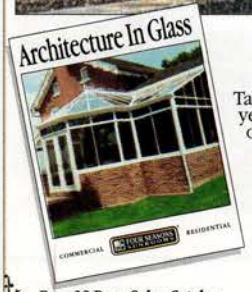

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Cement—Nature Guard, dusk, Louisiana Pacific; 800-579-8401. Plastic—Perfect Choice, rustic brown, American Sheet Extrusion Corp.; 800-776-8060. Metal—Rustic Shingles, pavilion green, Classic Products Inc.; 800-543-8938. **Metal:** Copper-asphalt—Toisite Copper Shingles, Siplast, Millennium Centre; 800-922-8800. Standing seam: Follansbee Steel; 800-624-6906. Vertical seam: ocean blue, Metal Sales Manufacturing Corp.; 812-246-1935. Lead—American Eagle Roofing; 205-942-4242. Copper—Accent Shingle, Zappone Manufacturing; 800-285-2677. **Tile:** Clay Kiln Flash Buff Bella, Deleo Clay Tile Corp.; 909-674-1578. **Tile substitutes:** Cement—Clay Flash 130, Dectile; 412-789-7125. Metal & stone—California Classic Stone-Coated Steel, Pacific blue, American Roofing Industries; 888-844-7663. Metal—Techotile, mission red, ATAS International; 610-395-8445. **Asphalt:** Standard asphalt—Tough-Glass Fiberglass Shingles; 800-284-5347. Laminated—Timberline Class A Fiberglass Shingles, GAF Materials Corp.; 800-766-3411. **Digital Imaging:** Randy Levere, Envision Group, 13-19 Stanhope Street, Suite 2A, Boston, MA 02116; http://.envision3d.com. **.For more information:** National Roofing Contractors Association; 847-299-9070. *The Slate Roof Bible*, by Joseph Jenkins, Chelsea Green Publishing; 800-639-4099. **Our thanks to:** Joseph Iacovo, Brian Stearns, Andrea Gilmore, Dale Mulfinger, Bruce Wentworth, Sharon Park, Dennis Wedlick.

A KITCHEN WELL DONE
pp. 102-107

All appliances: Jenn-Air, 403 West Fourth St. North, Newton, IA 50208; 800-536-6247. **Cooktop,** Expressions Collection Triple Gas, CCGX2620, $899. **Double ovens,** 27-inch Pro-Style Double Electric, WW27430P, $1,599. **Refrigerator,** 19.8-cubic-foot designer line, JRSD209T,

$1,499. **Dishwasher,** Ultimate Quiet Series Pro-Style, DW861UQP, $595. **Microwave,** M170A, $327. **Soapstone countertop:** Thirty-in.-by-48-in. slab, 1¼ in. thick, $50.35 per square foot, Vermont Soapstone Co., Perkinsville, VT; 802-263-5404. **Butcher-block countertop:** Twenty-seven and a half in. by 75 in., $440, Counterwerks, Franklin, MA; 508-528-8610. **Cabinets:** Maple with Muslin stain (island with Indigo stain), birch plywood carcass, Huntington door style, Kraft Maid Cabinetry, Middlefield, OH; 800-315-2202. **Flooring:** 7 3/16-wide planks, Riviera Pine Russett USA5751, $8 per sq. ft., Harris-Tarkett, Johnson City, TN; 800-842-7816. **Wine cooler:** Model 15 WC, black trim, 32-bottle capacity, $871, U-Line Corp., 8900 North 55th St., Box 23220, Milwaukee, WI 53223; 414-354-0300. **Sink and faucet:** Both from Kohler Co., Kohler, WI 53044; 800-456-4537. Sink, $241, model K-6587S4, White Cliffs. Faucet, $439 model K-168, antique in chrome with spray. **Lighting system:** Radio RA radio frequency lighting control system, starting at $2,000, Lutron, 7200 Suter Rd., Coopersburg, PA 18036; 610-282-3800. **Designer:** Phil Mossgraber of Kitchen Interiors, 255 Worcester Rd., Natick, MA 01760; 508-655-4138, fax 508-650-1113.

Jenn-Air: 800-536-6247.

Cabinetry: Kraft Maid; 800-571-1990.

Dishwasher: Jenn-Air Pro-style; 800-536-6247.

Washer-dryer: Maytag; 800-688-9900.

Toilet and drop-in lavatory: Sterling; 800-783-7546.

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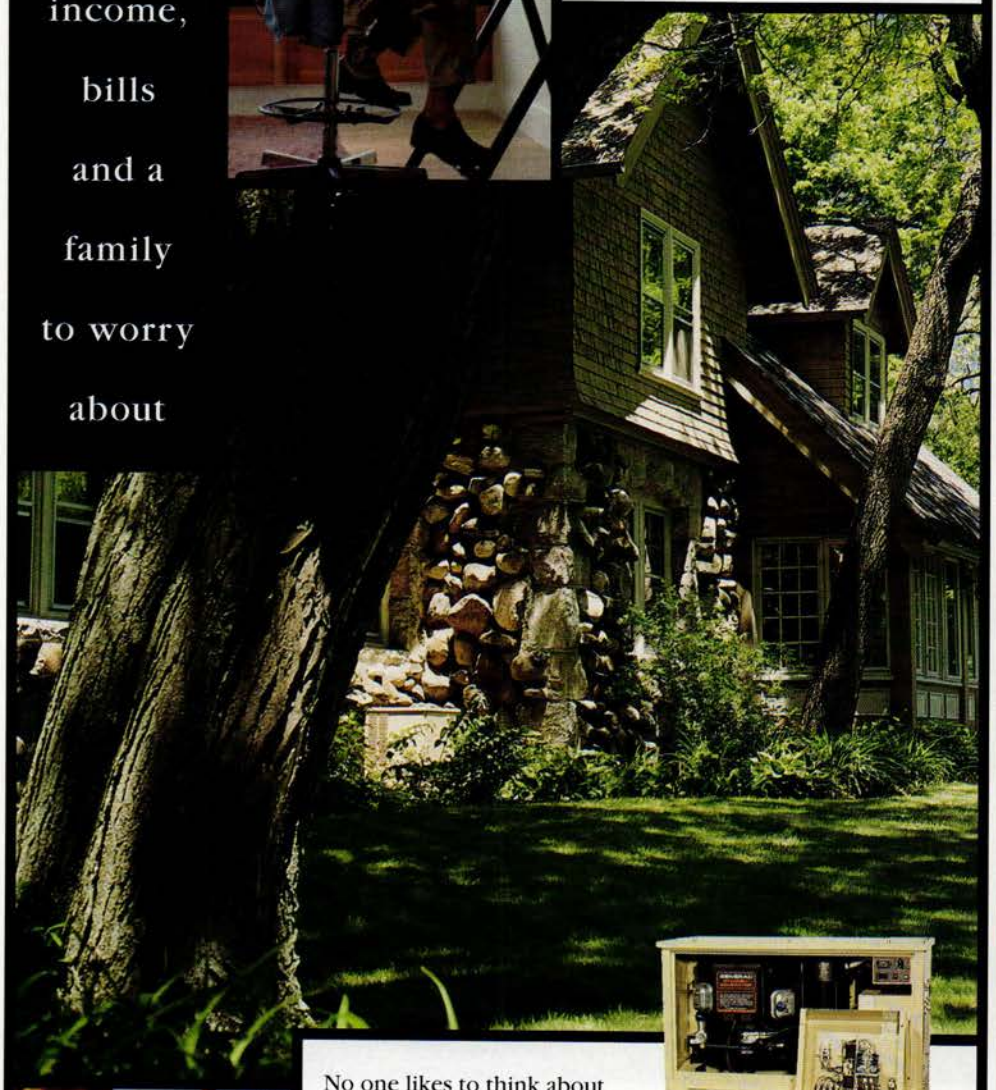

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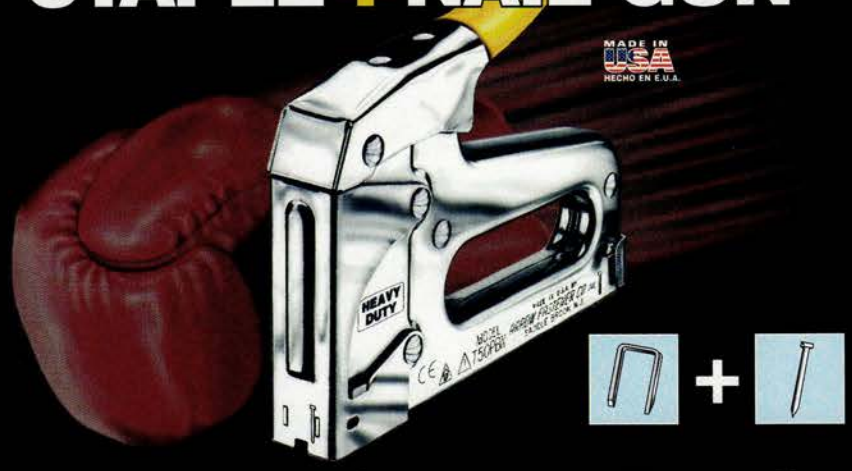

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Copper plumbing: Copper Development Association; 800-741-6823.

OUT ON A LIMB
pp. 108-115

International Society of Arboriculture, Box GG, Savoy, IL 61874-9902; 217-355-9411, Web site www.ag.uiuc.edu/~isa. **Our thanks to:** Lauren Coats, Terrapin Tree Care, Millwood, NY; 914-923-0735.

ONE FINE DAY
pp. 116-117

Christmas in April USA, 1536 16th St., NW, Washington, DC 20036-1402; 202-483-9083. To launch a Christmas in April affiliate, call 800-473-4229.

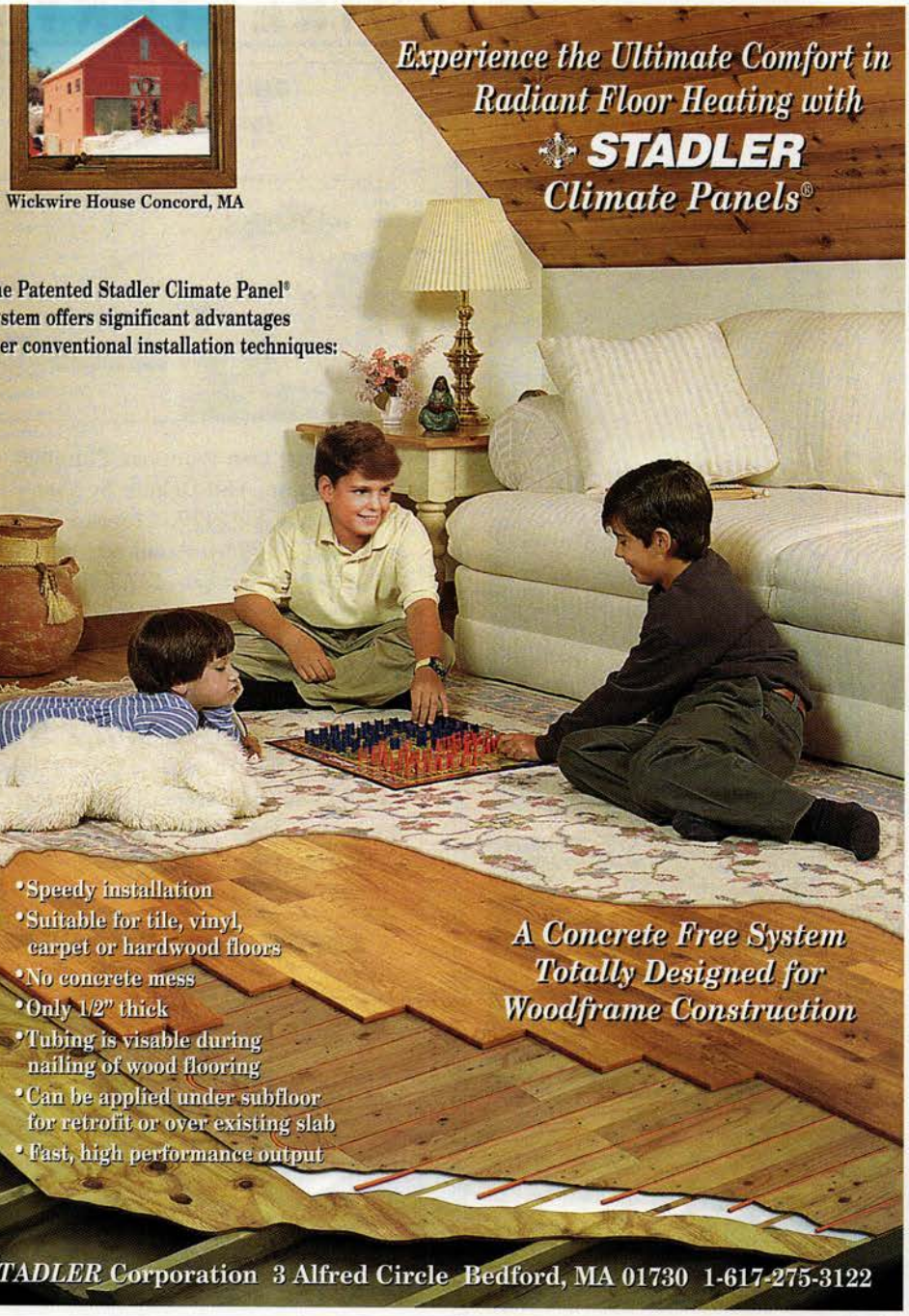
ARSENIC AND OLD WOOD
pp. 118-125

Wood preservers: Each of the three manufacturers of chromated copper arsenate also makes an arsenic-free wood preservative. Alternative formulas

and companies that manufacture them are: ACQ, Chemical Specialties Inc., 200 East Woodlawn Rd., Suite 250, Charlotte, NC 28217; 800-421-8661; a list of ACQ suppliers is available. Copper azole, Hickson Corp., 1955 Lake Park Dr., Suite 250, Smyrna, GA 30080; 770-801-6600. Copper citrate: Osmose Wood Preserving Inc., 980 Ellicott St., Buffalo, NY 14209-2398; 716-882-5905. Other suppliers of wood treated with ACQ: Pat Bischel, Northern Crossarm Co., Box 34, Chippewa Falls, WI 54729; 800-236-9663, Web site www.crossarm.com. Douglas Mancosh, BB&S Treated Lumber of New England, Devilsfoot Rd., North Kingstown, RI 02852; 401-295-3200. Other supplier of wood treated with copper citrate: Thunderbolt Wood Treating, Box 890, Riverbank, CA 95367; 209-869-4561. Kodiak Preserved Wood: ISK Bioscience, Box 9158, Memphis, TN 38109; 800-556-3425.

Soil testing: After a phone call to the company, mail samples and $50 for an arsenic reading (plus $10 extra each for copper and chromium readings, if desired) to Tony Bogolin, Ecology and Environment Incorporated, 4493 Walden Avenue, Lancaster, New York 14086; 716-685-8080.

Further information: American Wood Preservers Association, Box 5690, Granbury, TX 76049; 817-326-6300 (this group sets standards for pressure treated wood). American Wood Preservers Institute, 2750 Prosperity Ave., Suite 550, Fairfax, VA 22031-4312; 703-204-0500; www.awpi.org; group promotes the industry. Publications exploring safety and reuse of pressure-treated wood include: *Wood Preservation in the '90s and Beyond,* 7308, $45 for members, $55 for nonmembers; *Environmental Considerations in the Manufacture, Use and Disposal of Preservative-Treated Wood,* 7323, $35 for members, $45 for nonmembers; *Selection and Use of Preservative-Treated Wood,* 7299, $24.95; all are available from the Forest Products Society, 2801 Marshall Court, Madison, WI 53705-2259; 608-231-1361; $5 handling charge per order.



TO BUILD A FENCE
pp. 126-131

Fence components: Walpole Woodworkers, 767 East St., Walpole, MA 02081; 800-343-6948.

Landscape architect: Marc Schwartz of Evan Wayne Associates, 75 Glen Rd., Suite 305, Sandy Hook, CT 06482; 203-426-6637. **Gibbs digger:** Model DG-18, $74.75, Seymour Manufacturing Company, 500 Broadway, Seymour, IN 47274; 812-522-2900.

Further reading: *Wooden Fences,* by George Nash, 231 pp., $29.95, Taunton Press, 63 S. Main St. Box 5506, Newtown, CT 06470; 800-283-7252. *Feng Shui in the Garden,* by Nancilee Wydra, 1997, 224 pp., $14.95, Contemporary Books.

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CHURCH ESTATE
pp. 132-135

Contractor: Dan Plummer, Plummer Construction, 160 Delmar St., San Francisco, CA 94117; 415-313-2236; fax 415-621-7714. **Architect:** Barbara Chambers, Chambers & Chambers Architects, 68 Sycamore Ave., Mill Valley, CA 94941; 415-381-8326; fax 415-381-8321. **Salvage yards:** Urban Ore, 1333 6th St., Berkeley, CA 94710; 510-559-4455. Omega Salvage, 2407 San Pablo Ave., Berkeley, CA 94702; 510-843-7368. **Cabinet latches:** Kason Industries, 3883 Via Pescador, Camarillo, CA 93012; 800-935-2766.

POSTER: DRIVEWAY PAVERS
pp. 137-138

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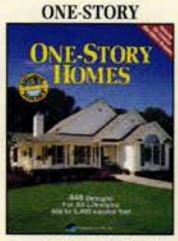

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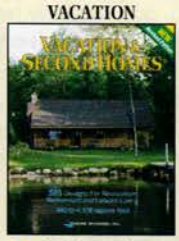

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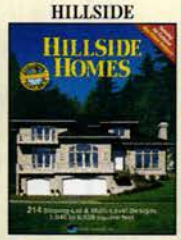

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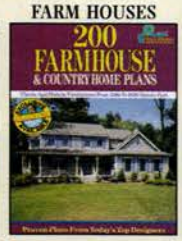

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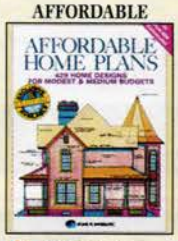

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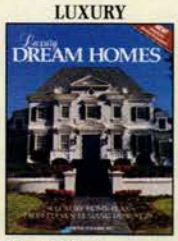

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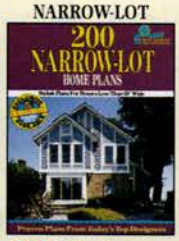

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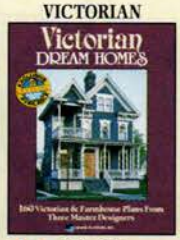

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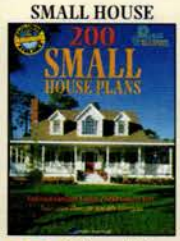

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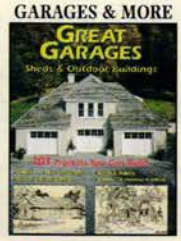

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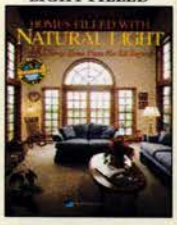

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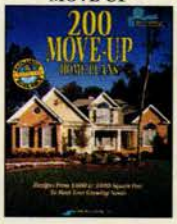

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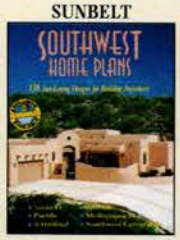

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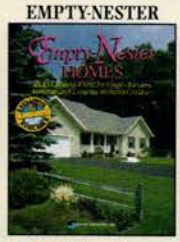

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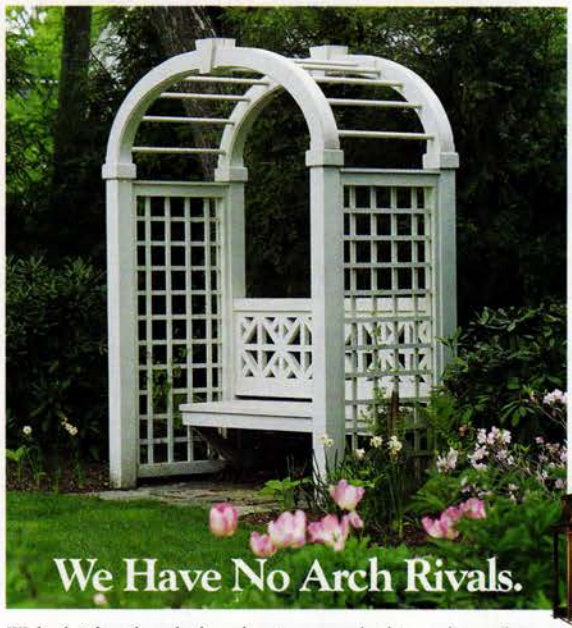

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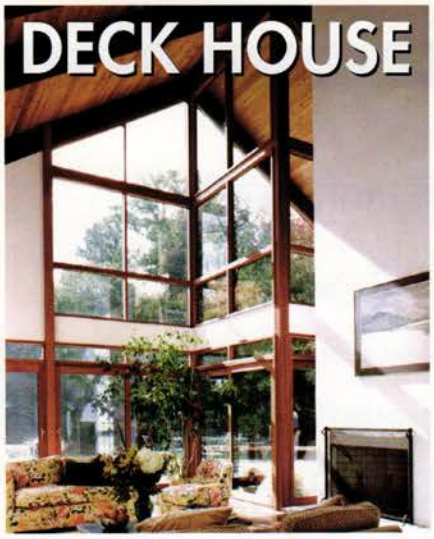

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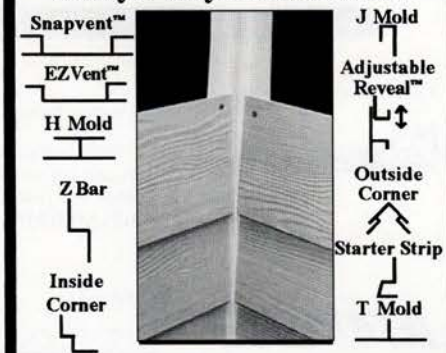

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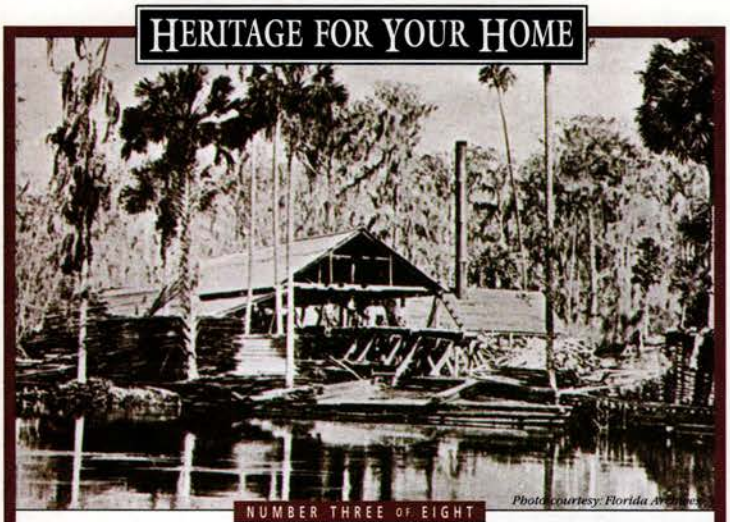

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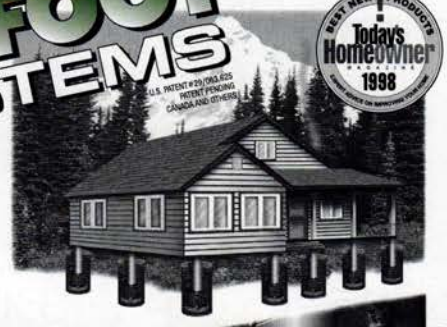

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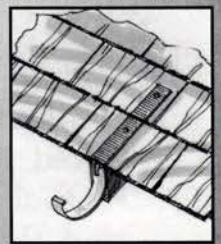

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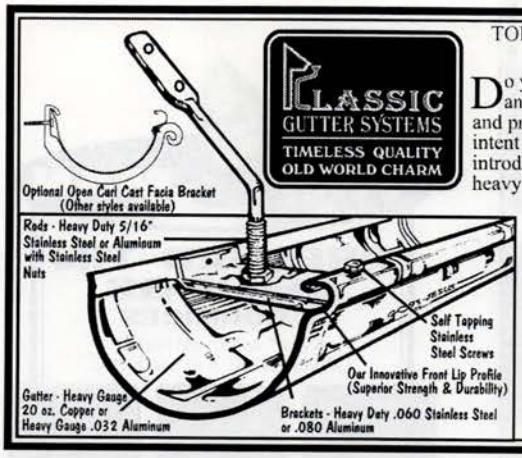

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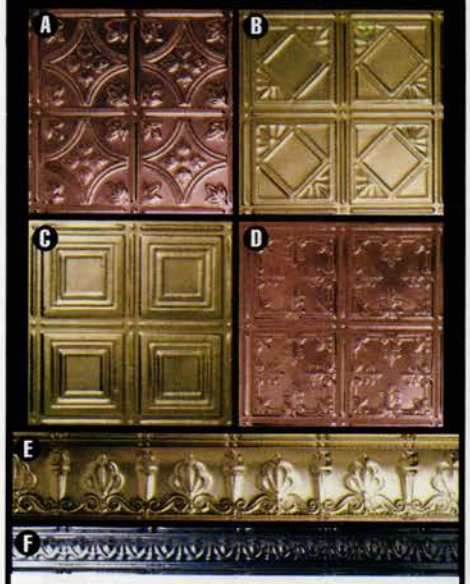

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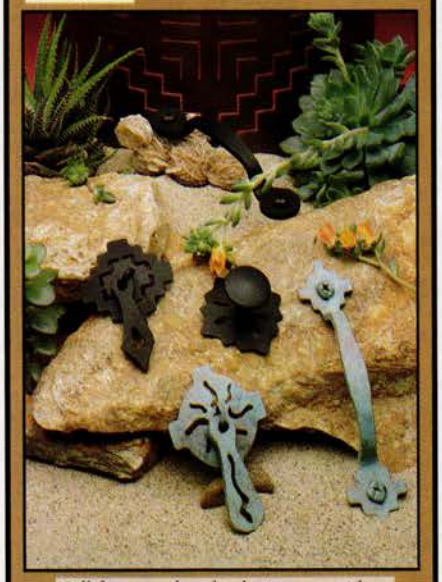

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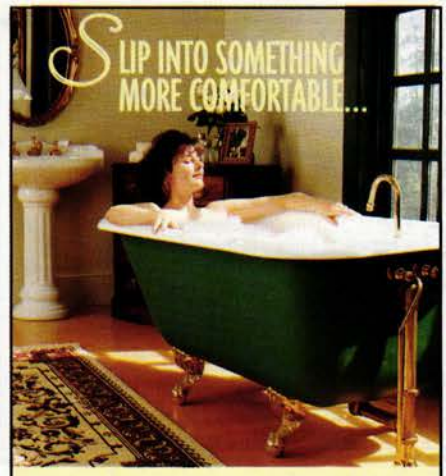

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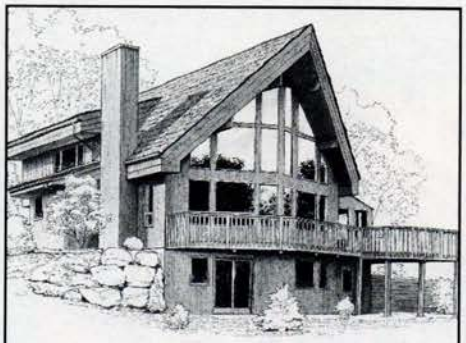

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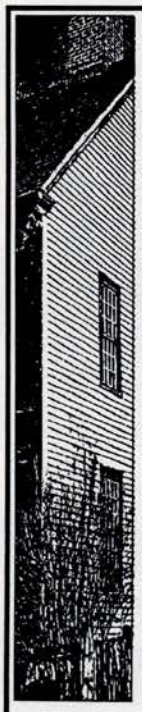

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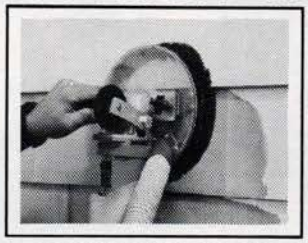

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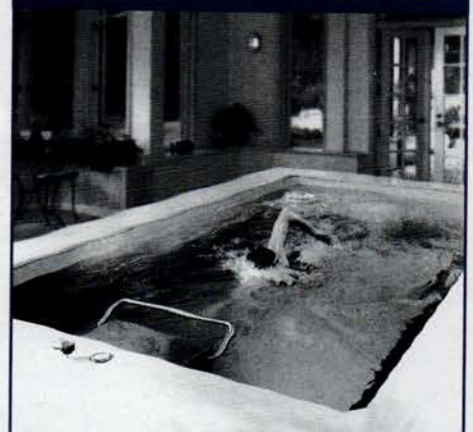

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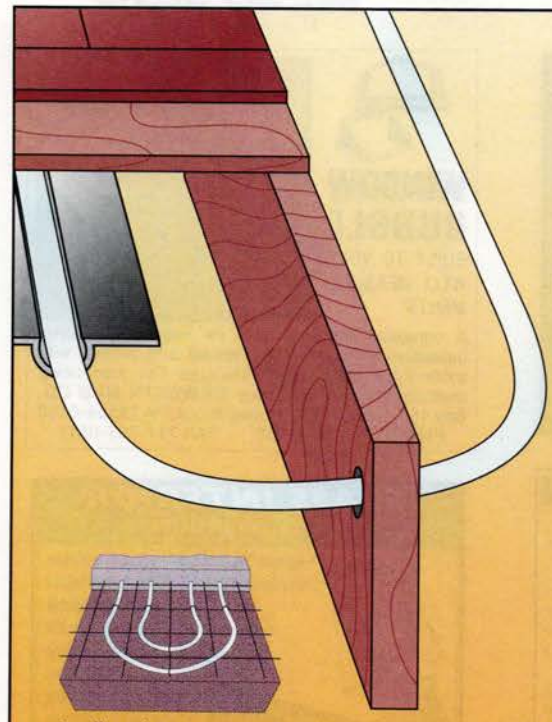

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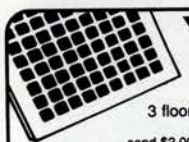

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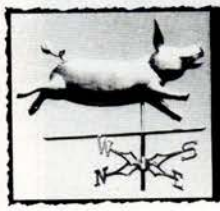

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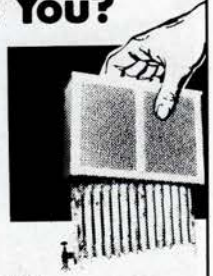

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LOCATION

1836-38 Baronne Street
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A once glorious Greek Revival house on Baronne Street is one of the oldest two-story residences in the historic Central City district of New Orleans. Built during the Civil War, when the neighborhood was an enclave of proud Irish immigrants struggling for recognition in a city dominated by French and Creole cultures, the 5,000-square-foot house was designed to accommodate two families. It boasted 12-foot ceilings, ornate plaster medallions, 10 fireplaces with carved cypress mantels and a two-story porch with elaborate wrought-iron railings.

A century later, Central City fell into decline, and the house was divided into eight rental units. The last tenant moved out six months ago, and thieves in quest of antique architectural details ransacked the building. The owners recovered much of the booty—including mantels, door hardware and stairway banisters and railings—from a local salvage yard.

The cost of renovating the house could run as high as $200,000. But the recent conversion of a nearby four-story department store into artists' studios demonstrates that the neighborhood is a good investment. Because Central City is on the National Register of Historic Districts, the buyers will be eligible for a 20 percent tax break on construction costs even if they turn the rambling residence into an income-producing bed-and-breakfast.

CONTACT

Paula Hughes, Pottharst Realty
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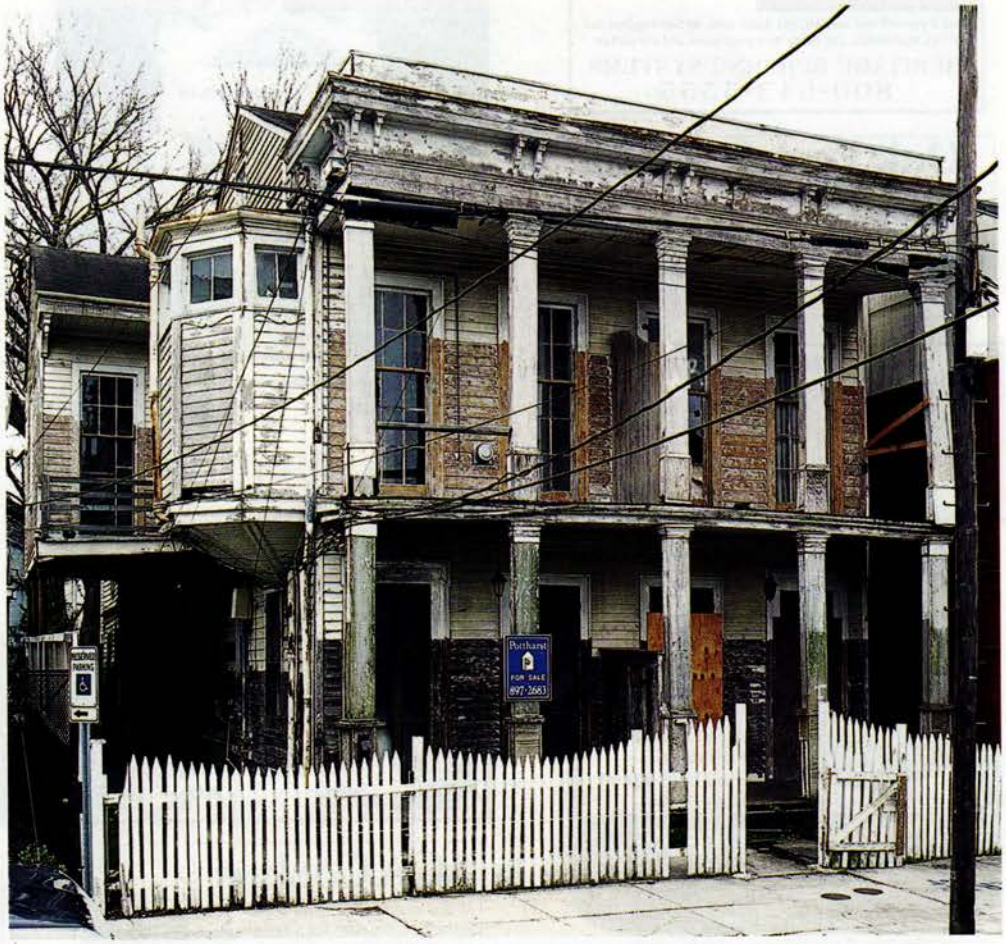

Stripped of its original wrought-iron railings, which were taken by thieves who traffic in architectural details from historic houses, 1836-38 Baronne looks like an underdressed Mardi Gras reveler. Some details, such as the wrought-iron fence, bottom left, proved more difficult to steal. The owners rescued others, including two carved cypress fireplace mantels, bottom right, from a local salvage yard.

PHOTOGRAPHS BY RICK OLIVIER

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