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APRIL 2001

After eight months of work, T.O.H.'s Charlestown project comes to a close. Take a tour of the renovated row house in "A Fine Finish," page 92.
 BY JEFFERSON KOLLE

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cover Sheet metal expert Rick Garcia hands up a section of a roof perimeter cap to his assistant, Joe Pebley, atop the portico of this quirky 1922 Los Angeles Colonial. The extensive renovation included extending the open-plan kitchen/family room, building a two-story addition, and filling the swimming pool with 150 tons of gravel and soil to create a new back lawn. See "L.A. Residential," p. 122. PHOTOGRAPH BY RUSS McCONNELL

PHOTOS, CLOCKWISE FROM TOP: JOSHUA MCPHUGH, BRIAN SMITH, JEREMY SAMUELSON, CRAIG RAINE



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—Joseph Edmon Cummins, consumer advocate

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PHOTOS: CLOCKWISE FROM TOP: PAUL WINGFIELD; DAVID CARLACK; BENJAMIN OLIVER; ILLUSTRATION: RANDALL CHOI

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JOSHUA MCHUGH photographed "A Fine Finish" (page 92), the final story about the fall TV project in Charlestown. "I love the bamboo flooring in the kitchen and the 360-degree view from the roof," he says. "I wouldn't mind having one of those gorgeous fireplaces, either." McHugh, who is based in New York, has been a professional photographer for six years. His work appears in *Metropolitan Home* and *Elle Decor*.

IAN AUSTEN, who reports on the conversion of a Seattle basement to a home office in "Wired for Work" (page 72), admires its final clean, sleek look. "The built-in cabinetry hides loose papers, and all the sprawling computer cables are hidden," Austen says. He works out of a cluttered home office in his 1920s bungalow in Ottawa, Canada, where he also writes for *Canadian Business* and the Circuits section of the *New York Times*.



Miami Beach photographer **BRIAN SMITH** gives readers their first in-depth look at the TV show's winter location in "Plan of Action" (page 104) and "A Stroll Through West Palm Beach, Florida" (page 110). "I'm envious of how quickly things get done when the show is involved," Smith says of the three-month renovation schedule, noting that it's taken two years so far to redo his 1934 Modernistic-style house. His portraits have appeared in *Time* and *Vanity Fair*.

Although frequent contributor **ERICA SANDERS** tells how to fix squeaky floors in "The Silent Treatment" (Upkeep, page 45), she prefers to leave her own noisy planks untouched. "For me, it's part of the charm of living in an older place," says Sanders, who rents an 1860s town house flat in Manhattan. "And as an added perk, I can tell when my husband is about." Sanders also reviews books for *People*, *Spin*, and the *New York Times Book Review*.



This Old House

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PHOTO OF ERICA SANDERS: ALEC FORD

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LETTERS



Stanley Steamers

Thank you so much for your informative and titillating article "Plover Play" [Talking Shop, January/February 2001] featuring a handsome spread of the New York Rangers. I believe this kind of article is exactly what *This Old House* needs. These "ice melters" can blow my snow any day.

ESTHER HOSS, ALLENTOWN, PA.

Not as We Do

The Belmont project house on the cover of the January/February 2001 issue is about four blocks from my home. I walked down and had a look today. It's holding up well—nice job! In the same issue, however, I couldn't help but notice the amount of overhead work being done by Tom Silva and others without eye protection in "First-Class Upgrades." What gives? As a weekend home-repair warrior, I won't pick up a tool (let alone a power tool) for any project without first putting on my safety glasses. I use laboratory-style clear wraparounds, which are very comfortable. Eye injuries are all too common and can be both catastrophic and permanent. Ninety percent of these injuries are preventable with the use of proper safety eyewear. With the large following of *T.O.H.*, shouldn't your staff be setting the example when it comes to project safety?

JEFFREY P. GEIGEL, BELMONT, MASS., VIA E-MAIL

You are absolutely right. Nationwide, more than 100,000 eye injuries requiring emergency room treatment occur in the home each year, according to estimates based on U.S. Consumer Product Safety Commission data. Many of these injuries are caused by tools, from hammers to weed trimmers, and by paints and related solvents. No one should start a home project without the proper safety gear. For a complete rundown of equipment, see the "Work Gear" poster in the March 2001 issue.

PHOTO: KOLIN SMITH

LETTERS

Copper Pipe Mystery

The article on the multiple uses of copper ["A Closer Look at Copper," Materials, December 2000] was very interesting. Copper is not only functional, it's beautiful; I love the decorative look of copper items inside my home. However, I've learned firsthand that the author's statement "Install copper plumbing, and water will flow freely for a century" isn't necessarily so! In my area of Maryland, pinhole leaks are occurring in the incoming cold-water copper pipes in many houses. Our 40-year-old house and its original copper piping system began developing this problem a few years ago, and after more than a dozen such leaks, we replaced all the incoming cold-water lines with new copper pipes. So far, no one has been able to explain this. Plumbers and water officials have offered various opinions. Have you any idea what could cause such a thing?

JOAN CAROL POOR, COLLEGE PARK, MD., VIA E-MAIL



Thank you for bringing this copper anomaly to *T.O.H.*'s attention. Unfortunately there are no answers—yet. According to Ken Geremia of the Copper Development Association (CDA), the Washington Suburban Sanitary Commission is well aware of the leaks that you and your neighbors in Prince George's and Montgomery

Counties are experiencing. The WSSC, with the help of the CDA and the Washington Suburban Master Plumbers Association, has been investigating this and hopes to have answers by summer 2001. For more information, visit the WSSC Web site at www.wsscwater.com. We're certain a solution will be found, and we're still confident extolling the virtues of copper!

Encore, Encore

I really enjoyed the article ["Look at Them Now," January/February 2001] about homes

that were featured in the past on the television program, but I wished you had given more space to each project. I believe this would be a great feature to add to your magazine on a regular basis. There were just too many things that I wanted to see in the before and after shots!

TERESA BUDZINSKI, SANTA FE, N. MEX., VIA E-MAIL

punch list

definition: a list of items incorrectly done or remaining to be finished on a construction job

In *Homeowner's Handbook*, January/February 2001, page 83, we stated that a prehung door's jamb consists of a main jamb and a split jamb. However, the entire jamb is best referred to as a split jamb, consisting of a groove section, which is installed first, and a tongue section, which is installed last. This is properly illustrated on pages 83 and 84. Also, the door should be attached to the jamb's groove section.

We would like to extend a special thank you to John Dee, who was shown in "Painting a Room," *Homeowner's Handbook*, December 2000. Contact info: John W. Dee Painting & Decorating, P.O. Box 1415, Concord, MA 01742, 978-369-8897, johndee@painting.com

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OUTTAKES

BEHIND THE SCENES AT THIS OLD HOUSE

BY JORDAN REED

Thanks to some enthusiastic fans, *This Old House* host Steve Thomas and master carpenter Norm Abram have taken a stellar field trip, shown recently on a West Palm Beach project episode. Along with a *T.O.H.* production crew, the pair toured the Kennedy Space Center on the central Florida coast; Norm tried out some spacewalking gloves and the tools astronauts use to make repairs in space, while Steve suited up and entered a module of the under-construction space station (RIGHT). NASA Space Station program manager Mike Hawes and astronaut John Herrington, who showed up to be a

Friends in High Places

personal guide, arranged the visit. "It was awesome," says Steve. "These trips give us a chance to see and get inspired by the extraordinary technical advances being brought to bear on homes away from home—whether in space or out to sea." In a case of the latter, in 1998 a naval officer who had waited in line to meet Steve at a home show offered to bump him, Norm, Tom Silva, and Richard Trethewey to the head of the waiting list for a jaunt aboard the nuclear-powered submarine U.S.S. *Nebraska*. They took part in mock missile drills, steered the sub, and spent the night in the officers' quarters. And seven years ago, an Air Force major got Norm a lift on a Lockheed Martin F16 Fighting Falcon jet, a treat usually reserved for film stars and local news media during air shows. Norm is convinced that, short of actually going into space, the experience can't be topped. "It was the most thrilling thing I've ever done," he says of his 500-mph flight. "People seek out the ultimate roller coaster, but no ride could compare to it." Celebrity does have its rewards.



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O U T T A K E S



A Grand Gesture

Fans of *This Old House* not only provide the cast with access to restricted locations, they also share their most cherished perk—the chance to reach out to others. During a radio interview in West Palm Beach last December, Norm found himself in a perfect position to do just that as he traded banter with J.D. Pelletier, the WIRK morning announcer and an avid T.O.H. devotee.

The master carpenter agreed to assemble a simple wooden train coin bank on the spot as a holiday gift for one of the underprivileged children who benefit from Pelletier's eponymous charity, J.D.'s Kids, but a quick-thinking listener called in and suggested the piece be auctioned off instead and the proceeds used to buy a whole Santa's bag of toys. After only an hour, the no-frills bank, inscribed with Norm's signature, fetched \$1,000 from a generous bidder.

Break Through

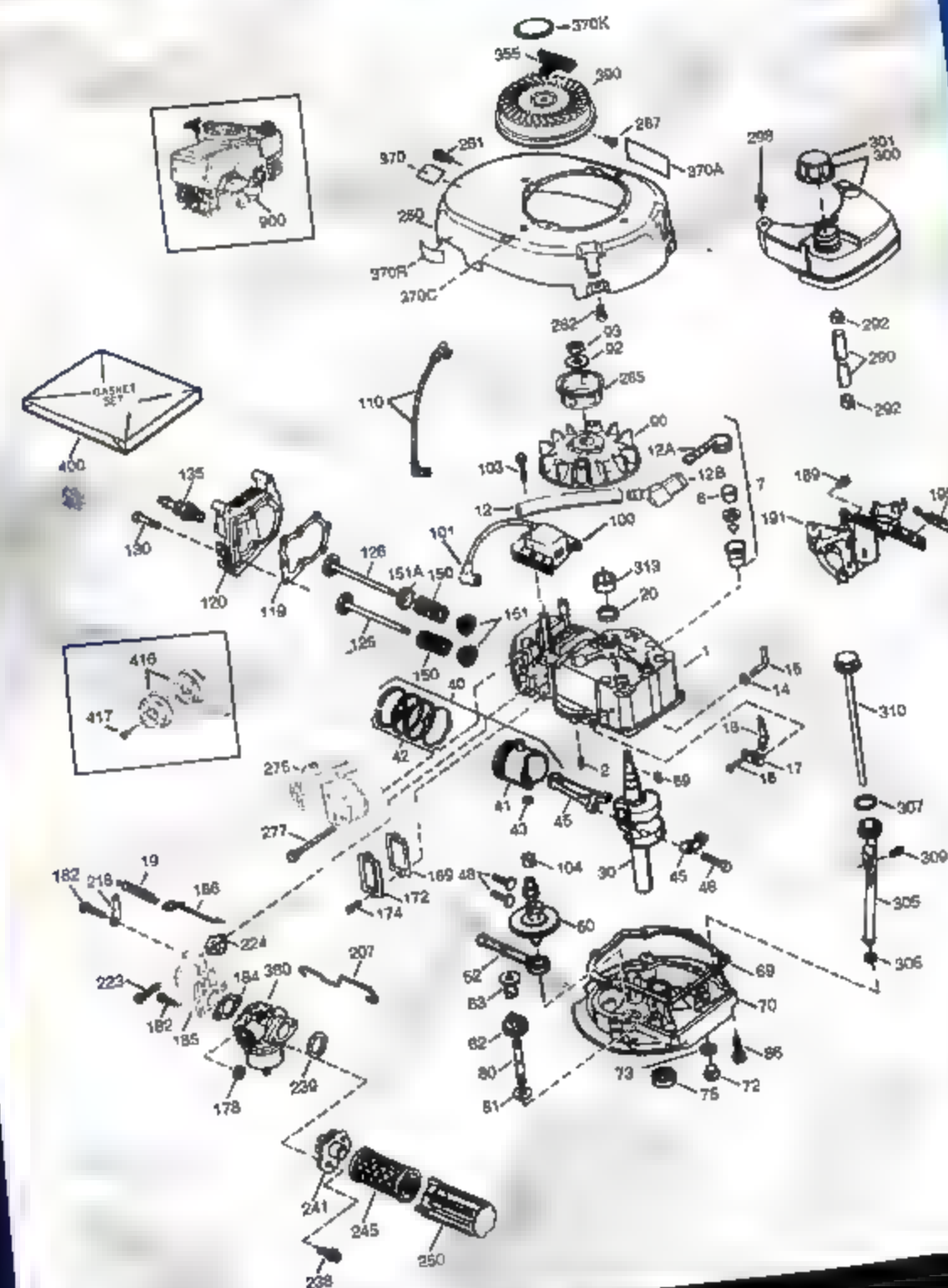
T.O.H. landscaping contractor Roger Cook has repeatedly praised the versatility and ease of use afforded by concrete pavers and stones. And when he installed them on the patio and walls in the backyard of the show's Charlestown project, he found that one tool really made the job fly. By choosing a manual wallsplitter made especially for cutting concrete products, he avoided the danger and slow pace that come with using a power saw.

"It would have taken five or ten minutes with a diamond blade to get through each of the 4-inch thick capstones," says Roger. In a mere 45 seconds or so, the wallsplitter chops any flat-surfaced concrete block between ¾ inch and 12 inches thick and it does so without spewing dust or, worse, letting out an ear-busting metal-on-masonry screech. Two carbon-steel blades provide four cutting sides; if one dulls, Roger just loosens the screws that hold it in place and rotates it to obtain a fresh edge. And beyond the need for an occasional trim with a chisel, the concrete splits cleanly—no scoring required. "I was amazed how fast the job went," Roger says. "Especially without a gas engine or electricity."



PHOTOS COURTESY OF J.D. & THE WAYUP CREW/WIRK TO 9 FM WEST PALM BEACH (TOP LEFT) ROLIN SMITH (RIGHT)

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HOUSE CALLS WITH STEVE



Second Chance

Grown-up kids and a remarriage inspire a kitchen redo

BY RHODA MURPHY



BEFORE, ABOVE RIGHT: For 10 years, Barbara Spittler's old kitchen served her needs but "was not at all suited to entertaining," says T.O.H. host Steve Thomas, above. The new room (TOP) is more open and welcoming when friends come to dine. With separate work zones, it is also more efficient.

F

amilies' needs change over time, and kitchens often need to change with them. Just ask Barbara Spittler, who has remodeled the kitchen in her century-old Queen Anne in Tiffin, Ohio, twice in 10 years.

In 1990, the newly divorced mother of three bought the house because it was expansive enough to accommodate her family. While it had fine architectural details, its kitchen was out of date, so Barbara added on, creating new cooking and breakfast spaces as well as a family room. Her goal was to "keep the kids where I could see them," she says.

"When Barb built this kitchen, she was being practical," says *This Old House* host Steve Thomas. "Dividing the room up into three autonomous spaces meant she could prepare meals in one place, while keeping an eye on the kids playing in another, and help them do homework in the third." Four years later, Barbara married David Spittler, a landscape contractor who is also an avid cook. Over the next six years, as the children grew up and began to leave home, the couple found they had more time and inclination to entertain. In a nutshell, the relatively small, sequestered kitchen area no longer worked for them.

PROBLEM

When planning the 1990 addition, Barbara placed the U-shaped cooking zone at one end, with a 3 by 4 foot island at its center. A counter separated the work space from a breakfast area. Three columns and a low shelf set off the family room beyond, which was also accessed by a door off the driveway—an arrangement that seemed handy since the kids could go straight into the room after school. If they wanted to get to the mudroom, though, they had to go

PHOTOGRAPHS BY SARAH STROUSS

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The Spitlers' Queen Anne (ABOVE) makes a gracious architectural statement, so the couple wanted to be certain their new kitchen was equally hospitable. One end of the island counter (LEFT) can be used for dining; the other end is near the fridge, making it a perfect staging area for serving drinks when friends gather.

around the house to another back door off the porch—or track through the breakfast area and kitchen. Barbara also replaced the butler's pantry with a powder room and a small pantry, both of which had been missing in the turn-of-the-century house.

Ten years later, she and David found the chopped-up space

inconvenient for the dinner parties they like to host. "You always sensed the divisions," says Barbara of the layout.

SOLUTION

To accommodate their newly sociable lifestyle, Barbara and David decided to remodel the first floor, opening up the interlocking spaces of the former kitchen to create a large, inviting eat-in kitchen and sitting room where guests could gather before heading into the formal dining room. They also reinstated the butler's pantry to provide more storage.

Because her former kitchen renovation had proved workable for a decade, Barbara returned to architect John Huss at Charles F. Effinger in Norwalk, Ohio, to come up with a revision. Working with kitchen designer Barbara Eager at Columbus-based Ellis Kitchen and Bath Studio, Huss replaced the old work zone with a new breakfast area fitted out with two corner cupboards. Then the team constructed a 10-foot-long multilevel island at the center of the new food

preparation area. The island houses a sink, backed by a narrow 52-inch high cabinet—"to hide our cooking mess," says Barbara—and a dishwasher, which is conveniently located near the breakfast area and the resurrected butler's pantry. The range sits across from the sink, while the refrigerator is housed in a new bank of cabinets at the oppo-

HOUSE CALLS WITH STEVE



Larger and more central than its predecessor (BEFORE), the new kitchen (AFTER) has been organized to make entertaining easier. Ancillary spaces include two pantries, a computer center, a coat closet, a powder room (located near the porch), and a potting area.

site end of the island, near the renovated family room. "Now it's a place that brings people together," says Barbara.

In her previous life, Barbara had wanted a kitchen that her kids "couldn't destroy." This one appears a little dressier—and not just for the purpose of entertaining. "Now that it's more open, the kitchen makes a transition between the formal Victorian front of the house and the informal Arts and Crafts-style family room,"

explains David. To visually link the two styles, the Spitlers papered the kitchen ceiling and walls with ornate William Morris-style wallcoverings and borders. "Now the kitchen reflects the elegance in the rest of the house," says Steve.

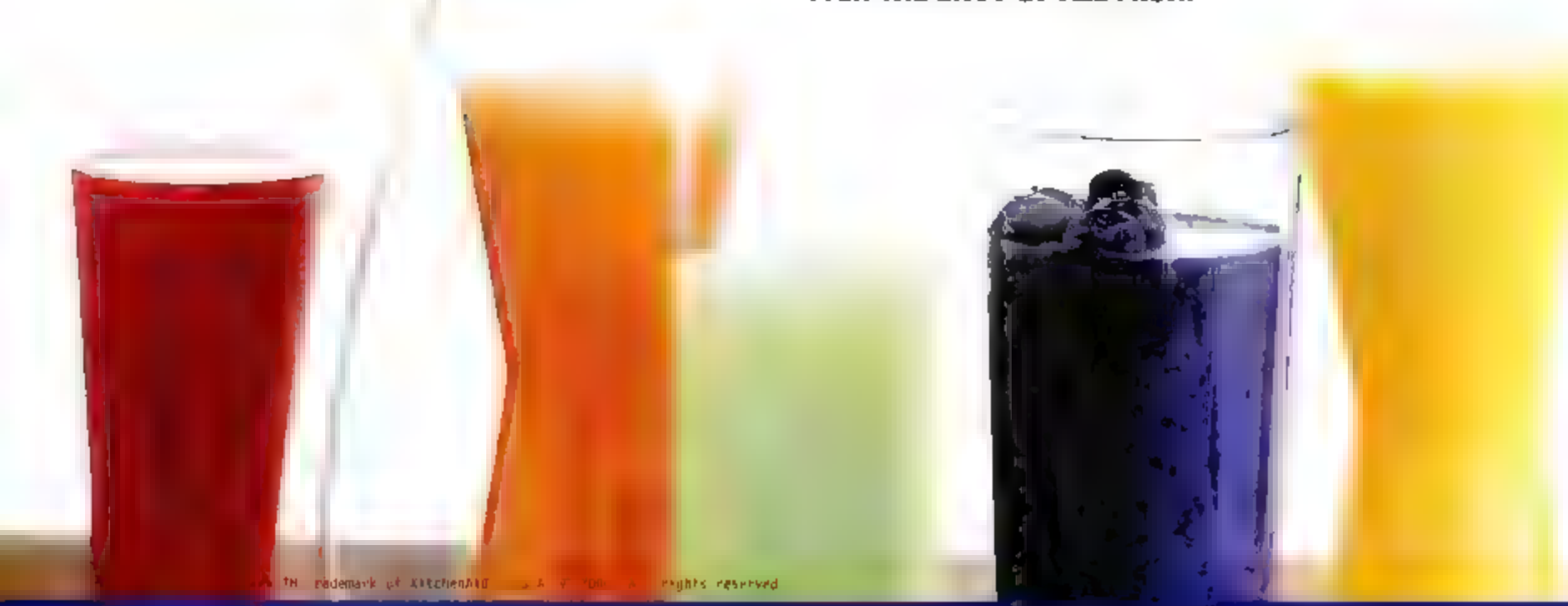
Eager selected white semicustom cabinets with beadboard detailing, button and bin pulls, and gray granite countertops for the heavy-duty work areas. She offset the stone with a slab of cherry on the section of the island reserved for eating or drinks. The choice of wood was purely sentimental. David grew up on a nearby farm, "the tree that provided this wood came from our property," he says.

FINISHING TOUCHES

Getting a second chance at her kitchen gave Barbara the opportunity to correct a couple of mistakes. For example, the couple found tile to be unforgiving underfoot, so they traded it for reclaimed oak. Another clue to their new stage in life is the transformation of the mudroom into a potting space for David, a passionate gardener. "The Spitlers have shown a real commitment to their home," says Steve admiringly. "They did what needed to be done—and made the kitchen a live-in place they can enjoy all the time." ■

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IDEAS NOTEBOOK

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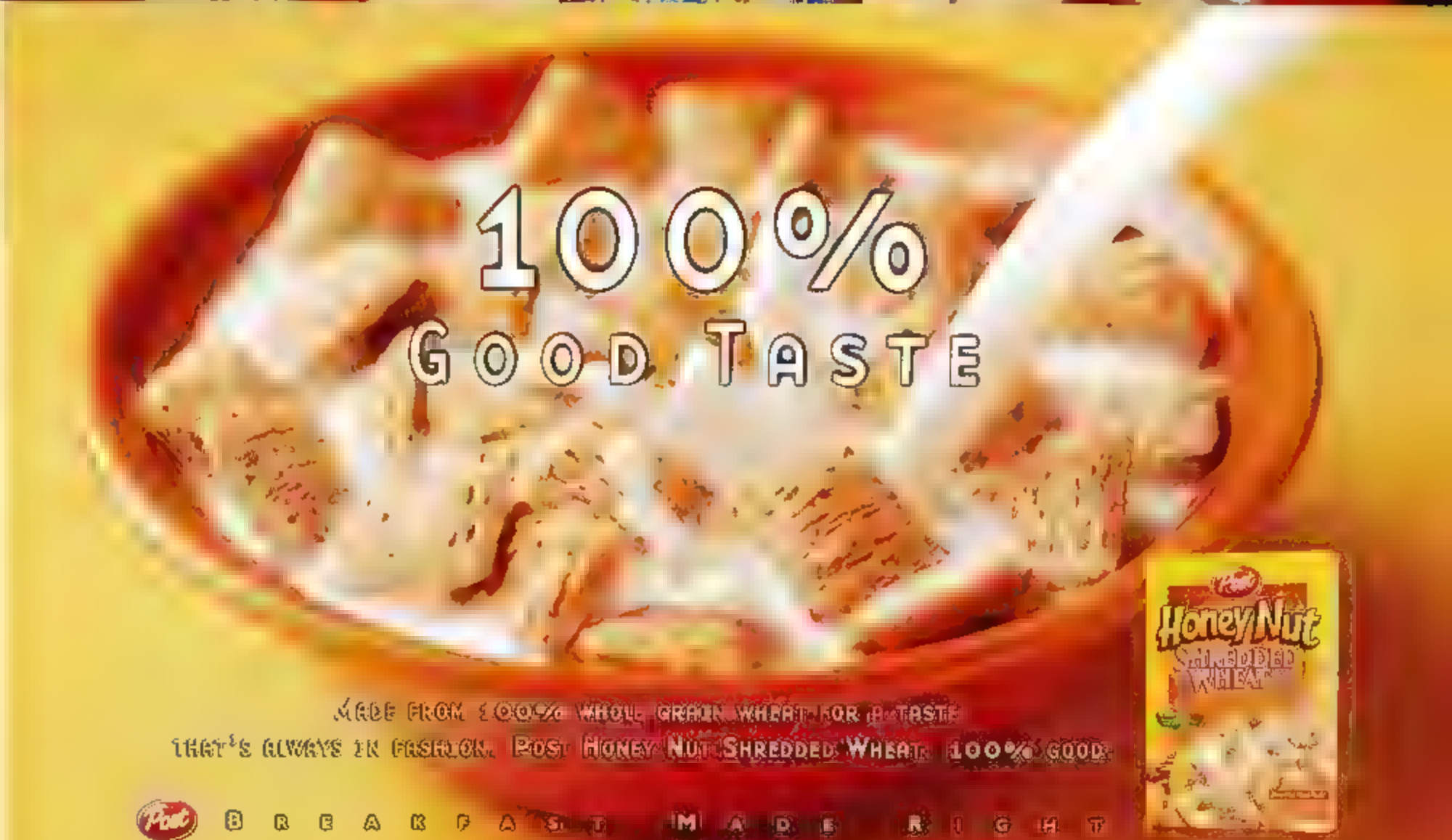
LEFT: A suspension motor is the secret behind the quiet purr of this dishwasher, which tests at only 46 decibels. BELOW: Eight place settings fit into this slender, 18-inch-wide machine.



ABOVE: With controls hidden in the top of its paneled door, this appliance blends seamlessly with cabinetry. RIGHT: The tub in this blue-paneled machine is 24 percent larger than the norm.



ABOVE: One of the special features of the Spillers' kitchen is the island dishwasher, which is raised 6 inches off the floor to ease loading and unloading.



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BACKYARD LOGGING

We have two huge white pine trees in our yard with trunks approximately 36 inches in diameter. Unfortunately, they are in the way of a future addition to our house. Is there enough value in these old trees for a mill to want them? Putting the lumber to good use would make me feel better about cutting them down. Offsetting the cost of removal would make me feel even better.

PETER LEHMAN,
RIDGEWOOD, N.J.

Eastern white pine (*Pinus strobus*) is a terrific wood. It's dimensionally stable, straight grained, and easy to work with. That's why it's a traditional favorite for everything from windows to shelving. While plenty big, your trees

actually have some growing to do. White pine can reach heights of more than 100 feet and can have trunks up to 6 feet across.

I think you have two choices: You might convince a local lumber mill to remove the trees in return for the wood. Or find a local sawyer with a portable mill to slice the trees into boards on-site for a modest cost. That's what Dick Silva did back in 1999 when his house burned down and scorched a couple of white pines on his property (see photo above). *This Old House* contractor Tom Silva says the 1-inch-thick boards are stacked behind his brother's house just waiting for the right project. Why not do the same with your trees? Once these boards have been air-dried to below 20 percent moisture content—which can take about a year for every inch of thickness—you could mill tongues and grooves on the edges and have some great white pine paneling for your new addition. (See also "Le Retro Feat," p. 74, this issue.) Then store the milled pieces indoors; their moisture content should go down to about 8 percent before you install them.

TO VENT OR NOT TO VENT

What are the benefits and disadvantages of venting a dryer inside the house? I see these kits in many home stores, and the packaging always touts the savings in energy costs. I remember from my childhood that a friend's mom had an indoor dryer vent, and it seemed to warm up the house



quite nicely. But surely there has to be a catch or two to this system.

PETER TINNESZ,
TRUMBULL, CONN.

I bet your friend's dad put a nylon stocking over the end of the dryer vent to catch the lint, too. That's what we had when I was growing up, but my mom used a clothesline most of the time, so the dryer never added much heat to the house. When she got older and started using the dryer more, my dad installed a vent to the outside to control the humidity.

And that's the catch with indoor venting. Although it seems shameful to dump a dryer's heat outdoors,

it's worse to exhaust all that water vapor into a house. Even in old, drafty houses, too much moisture can cause severe problems when it condenses on windows and in wall cavities and fosters the growth of rot, mildew, and mold. So I think it's always best just to run the dryer exhaust outside. (If you have a gas dryer, you have no choice—it must be vented outdoors.) If you want to save energy, don't dry the clothes more than necessary. Or do what my mom did.

PRE-PRIMER PAINT PREP

It's time to strip the clapboards on our 1920 Colonial down to the bare wood. I remember reading that some painters apply a wood preservative to bare wood before painting. Would you recommend this procedure?

AL WIEGMAN, BOSTON, MASS.

Absolutely. Weathering tests have shown that coating bare wood with a water-repellent preservative reduces the wood's tendency to shrink and swell. And the more stable a surface, the better it holds paint. There are water-based and solvent-based repellents, both appear to be effective. Make sure the repellent is labeled as "paintable," however. And if any lands on a painted surface, wipe it off before it dries.

Treating the wood this way is not a substitute for priming. Just be sure to allow the repellent sufficient time to dry (as specified on the can) before brushing on a good-quality oil-based primer.

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SAVE THE STOOP

My wife and I recently purchased a two-bedroom Cape, and one of the first things we had to replace was the brick front steps, which appear to have been damaged by water dripping off the roof. Our mason was Lenny Belliveau, who has also done a lot of work for *This Old House*, and he stressed the importance of keeping water off the new masonry. We wanted to install gutters, but our roofer said he has to hang them from metal straps attached to the roofing. He said the moldings just below the roofline prevent any other solution. We'd like to avoid the unsightly straps. Are there other options?

STEPHEN DATOR, ACTON, MASS.

What Lenny's afraid of here is that water pouring or dripping off the edge of the roof will eventually damage the mortar. Gutters could prevent this type of damage, but I'm not sure that gutters are the best looking solution here, anyway, regardless of how they are hung. (And straps *would* be the only way to hang them in your case.) Instead, I'd outfit the roof with a diverter, an inverted V that channels water away from the eaves and to either side of the steps. You've probably seen them on old houses in the area. If you choose one that blends in with the color of your roof, a diverter shouldn't be obtrusive at all.

This Old House contractor Tom Silva likes to make them out of a drip edge, the preformed metal flashing that is used under shingles along the edges of a roof. Tom flips a piece upside down so that its 8-inch side sits against the roof and its 1-inch side points up. Halfway from either end, he cuts through the 8-inch side only and bends the piece at that point to form the V. Then he gently lifts the corner of each shingle and slips the long leg of the flashing underneath. Two or three nails tucked under overlapping shingles secure each side of the diverter to the roof. To prevent leaks, Tom dabs roofing cement over the nailheads and secures the underside of each loose shingle with another dab. As with any roof flashing, it needs to be kept free of debris.

Neither a diverter nor a gutter will keep your steps from icing

up in the winter. When that happens, you need to resist the urge to spread de-icing salts, which eat into mortar, or to chip away at the surface with a shovel, which will damage the hard face of the brick. Building a roof over the steps would be the best way to protect your steps—I've seen this done on a lot of Capes, too—but that's a much more involved and expensive solution.

BORED OF THE FLIES

My wife, son, and I renovated a house that was originally built in 1898. We installed new windows, re-sided two walls, and insulated, rewired, and replumbed everything. Our problem now is with flies. When the weather gets cool outside, they come inside—in droves. We can't see how or where they're getting in and can't figure out what to do. Please help!

PAUL MERTZ, GOODWIN, S. DAK.

Good news: You can be rid of them with some caulk, some screening, and some patience. According to Fred Baxendale, professor of entomology at the University of Nebraska, you're probably dealing with cluster flies, harmless critters a little larger than a common housefly that usually appear in late fall and on warm days in early spring. Baxendale says that the adult flies, which start life as parasites inside earthworms, like to overwinter in sheltered areas. As a result, they're experts at finding cracks and crevices that lead into a house, especially into attics. (In fact, they're sometimes called attic flies.) Unfortunately, they're not so expert at finding their way out, so they accumulate indoors.

The best way to fight them is to keep them from getting into the house in the first place. Patch torn screens, seal holes around electrical or plumbing penetrations, and caulk even the tiniest joints between trim and siding, especially at the eaves. Do this during the summer and early fall, before the weather turns cool. Baxendale says that cluster flies don't breed indoors, so if they can't get out, they'll eventually starve to death. And because famished flies aren't very quick, you can suck them up with a vacuum cleaner.

NEW TILES OVER OLD

I'm about to move into a new house in which my contractor installed the wrong color of wall tile in the shower stall. I'd like to have him replace it with the color I originally asked for, but my mother-in-law is concerned that removing the old tile and retiling will damage the wall. What do you think?

Eileen Russ Heltzer, Fort Lee, N.J.

I'd never bet against a mother-in-law, even if you think she's wrong. But in this case, she isn't. Tile setter Joe Ferrante, who does a lot of work for the show, says it's very unlikely that the existing tile can be removed without damaging the substrate it's adhered to.

You have two options. Rip out everything down to the studs and start over, or tile over the existing surface, a technique known in the industry as T.O.T. (tile over tile). If you go the less expensive T.O.T. route, Ferrante recommends scuffing up the tile surface with 80-grit sandpaper and leveling it with a coat of thinset adhesive. Then the new tiles can be installed as you normally would, capping any exposed edges with matching trim tiles. Ferrante has used this method

several times with good results. This technique does increase the thickness of the walls slightly, which has repercussions at the faucet valve. With any luck, you can just reattach the escutcheons or plate over the new tile, but then again, you may have to replumb and reset the valve. To check whether this will be necessary, take a few sample tiles and try to reassemble the valve handle and escutcheon over them.

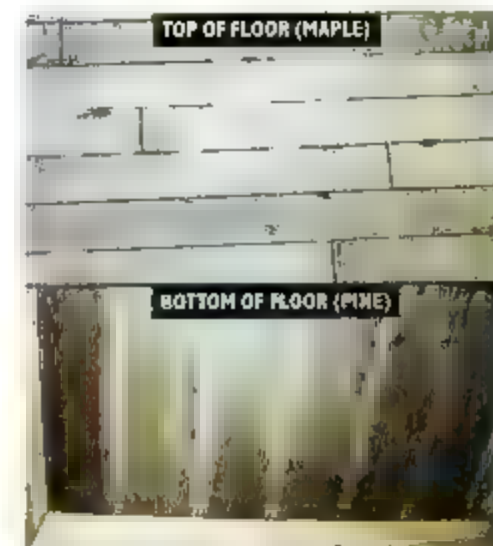
Just one more thing. Before you start correcting this problem yourself, talk to your contractor. A good one should correct his mistakes, and this sounds like a pretty serious mistake to me.

LEAVING WELL ENOUGH ALONE

I have a farmhouse that's over 200 years old and still has the original random-width pumpkin-pine floors. Downstairs, however, they've been covered with maple-strip flooring, which I'd like to remove so I can refinish the pine underneath. Is this possible, and if so, will I be able to reuse the maple anywhere?

JENA RAE, MILLINGTON, N.J.

When you think about how much abuse a wood floor gets, it's not surprising that so many people ask me about how to revive them.



In most circumstances, my advice is quite simple: Don't remove a floor unless there's absolutely no alternative. The underside of your pine planks might look great, but remember that the top side has experienced at least 100 years of wear—maybe more. And I'll bet it's worn beyond the point where sanding and refinishing could erase the damage. That's probably why the pine was covered over in the first place.

Even if you did remove the maple flooring—the chances of reusing it are next to none, by the way—you'd have to go back and add filler pieces that extend the bottoms of all the doors, which probably were trimmed when they installed the maple (see "Real Carpenters Hang Doors," July/August 1996). I won't even talk about all the nail holes you'd need to hide, unless it's a very rustic look you're after. As I've said before, sometimes the most valuable renovation skill is knowing when to leave well enough alone. ■

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. Published letters will be edited for clarity and length and may be used in other media.

chapter one
page one

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Toward the end of the two years that David and Donna Reilly devoted to the remodel of their prewar apartment in Manhattan, David decided that he wanted to convert his private, but outdated, 5-by-7 foot bathroom into a spa-like space, complete with body jets and steam. No sweat, said the Reillys' designer, Darren Henault.

Because the apartment enjoys good water pressure and a consistent water supply, he could give David that and more. Henault's design incorporated David's requests, plus a ceiling-mounted shower head, as big around as a sunflower in bloom, and a handheld shower. Henault also chose to make the base of the shower, and its liner, deeper than usual—22 inches rather than the standard 6 inches—so that the unit could do double duty as a Japanese soaking tub. As Henault noted, retaining a tub would enhance the resale value of the apartment if the Reillys ever wanted to sell.

Plumbing manufacturers have been producing multiple-option power showers (some incorporating in-wall TVs and CD players) in their repertoires for a decade. But these bacchanalian body blasters are increasing in popularity. "Face it," says Richard Trethewey, plumbing and heating consultant for *This Old House*, "in our fast-paced society, many people end up using a whirlpool bath only twice a year—during the holidays and on their anniversary. Other than that, they jump in the shower, and in a few minutes relieve stress, get clean, and get on with life."

This sort of aqueous luxury doesn't come cheap. Expect to pay between \$2,000 and \$12,000 for such a shower system, depending on its complexity and the number of options selected. Add to that the cost of a higher-capacity water heater and possibly rerouting or upgrading plumbing supply pipes and drains, which can necessitate opening up or tearing out walls and floors. And don't forget an electrician. Built-in lighting and electronics need 120-volt power and, possibly, their own outlet, and a steam

Power Shower

The ultimate spa experience pulses water on all sides.

BY JOHN RITA

For the head and neck, David Reilly's shower has controlled water jets; they can be used in concert or separately on their own. The head is here.

BY MICHELE
DOONAN PAUL

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generator, such as the one used for David's shower, requires a dedicated 240-volt circuit. Assuming there's space on your service panel, it can cost \$300 to \$600 to add a new circuit. If there isn't space, you'll have to install a new panel—thereby upping the bill for the electrician.

Henault designed David's shower spa from scratch and installed it in the, but for those who do not want to go the custom route, prefabricated shower stalls are also available; these are constructed of acrylic or fiberglass, with glass doors. In square, rectangular, or 45-degree corner configurations, the units come pre-plumbed with transfer valves for directing water to one or more outlets and control valves to keep water at a constant temperature. These prefab styles install either against studs or finished wall surfaces, and include trim kits for hiding gaps caused by out-of-plumb walls; some versions can be retrofitted to existing tub alcoves. Higher-end models

A custom-designed sliding glass door separates the mega-shower from the rest of the bathroom. Mosaic tile clads the entire space, even the ceiling. Valves for all fittings—including the four body jets—are consolidated on one wall for ease of use.

may be plug-and-play ready, with screw-on, laundry hose-type water connectors and standard three-prong plugs for electrical power. Clever installers may provide outlets hidden behind the shower unit.

When renovating an existing bathroom such as David's, a component system, which allows a designer or homeowner to mix and match individual showerheads and body jets—as well as the appropriate valves—and to configure them as desired, offers more flexibility. You can, for example, pick a system that has four, six, eight, or ten jets. David preferred to have four, and he wanted them all on one wall. These connect to water supply pipes and are regulated by two transfer valves placed on the opposite wall, close to the handheld shower, a lever on each valve adjusts the temperature and force—or pulse—of the water. The steam's thermostatic valve and the tub-filling faucet are also on this wall. The steam outlet is located near the floor on the same wall as the jets, while the steam generator is tucked into a bathroom cabinet.

The capacity of the valves partly determines the layout of a component system. In this case, the water first flows through a pressure-balancing or thermostatic-control valve (see "Water Micro-Managers"), and then through a transfer valve, which directs water to individual fixtures. By turning the transfer valve's lever or dial, the user may select a single water feature, such as body jet or showerhead, or all the features at once. For best performance, manufacturers typically recommend that a single set of valves serve no more than a conventional showerhead, a handheld shower, a tub filler, and four body jets. Additional jets and showerheads should be plumbed separately, using additional valves.

All the sybaritic extras that provide the ultimate shower experience depend on a single, crucial requirement: water, and plenty of it. "It's like putting a car wash in your home," says Richard Trethewey, laughing. "You can't ignore the source of your water." Richard begins plumbing a luxury shower by attaching a pressure gauge to an outside spigot. "I like to see at least fifty pounds of pressure per square inch," he says, "and sixty is better. If you



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don't have that, you might have to put in a new supply line all the way to the street." If pressure is adequate, Richard makes sure supply lines are big enough. He prefers 1/2-inch pipes in good condition running all the way from the water tank to the pressure-balancing valve.

To ensure enough hot water, Richard recommends replacing existing 40- or 50-gallon water-heater tanks with larger models or installing a second water heater to handle the load. "Do the math," he advises, noting that six 2.5-gallon per-minute body jets, coupled with a conventional 2.5-gpm showerhead, spew almost 20 gallons per minute. At that rate, even a family-size, 50-gallon hot-water heater will exhaust its supply in about five minutes. A 75-gallon water heater or two 50-gallon units hooked in a series should be adequate to the task. "It might add more than you like to the total cost of the shower system, and some annual operating costs to your energy bill, but who wants a sudden dive in temperature in the middle of a relaxing spritz?" Richard asks.

Another option, for houses with hot water heat, is an indirect



Henault constructed a ledge under the window to hold towels when the shower unit is used as a soaking tub.

tank. This superinsulated tank is filled with potable water and contains a heat exchanger coil. Connected to an existing boiler, a 40- to 120-gallon indirect tank yields more hot water with lower operating costs and longer life expectancy than tanks heated by a direct flame.

Manufacturers are concerned about providing enough hot water and water pressure while conserving water. Kohler, for example, addresses these issues with a shower system that recycles water stored in an integral footbath and then recirculates it up to two times per minute. After the user concludes a thorough hydro-massage using this recirculating water, a conventional showerhead provides fresh water for rinsing.

So, is retrofitting a bathroom to create a personal hedonistic retreat that incorporates all the attributes of a professional spa worth the expense? Just ask David Reilly. Taking time off to go away to a real spa costs thousands per week, so this one is quite a bargain. "It's also quite an experience," he enthuses. "Like a deluge, without the storm." ■

WATER MICRO-MANAGERS



Valves for pressure balancing and thermostatic control form the heart of the shower experience. Required by building codes for new construction, they employ sensing mechanisms designed to limit temperature fluctuation and prevent accidental scalding. They keep water temperatures constant—usually within 3 degrees Fahrenheit—and guard against drops or spikes in temperature caused by toilets being flushed or washing machines switched on. Most pressure-balancing valves use a device called a spool, which is suspended in a chamber with inlets for both hot and cold water. If pressure drops in the cold-water supply, the spool shifts in the opposite direction, restricting hot-water flow to maintain a consistent temperature. According to Eric Weber, project manager for Moen, response time is less than one second. Thermostatic valves sense changes in water temperature, such as when a hot-water tank begins to deplete its supply. When the temperature varies, a heat-sensitive copper-cased wax pill positioned in front of the inlet valves changes shape. If the temperature dips, the pill contracts to admit more hot water.

PHOTO, LOWER LEFT: DAVID HANLEY

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Compost Haste

BY CLAYTON DEKORNE

The lush vegetable and flower beds of *The Victory Garden* owe much of their verdant splendor to the humble compost bins our back. Throughout the growing season, Kip Anderson, gardener on the weekly PBS series (which was created by *This Old House* executive producer Russ Morash), regularly tosses vegetable scraps and plant trimmings into frames hand-built of wire fencing and pressure-treated 2x4s. Inside, billions of micro-organisms—nourished by air, rainwater, and those yummy bits of garbage—decompose the waste. While not safe for human ingestion (gardeners should be sure to wash their hands of the bacteria in the rotting foods), the result is rich with the nutrients that feed plants.

Anderson employs a hands-off method that lets compost evolve at nature's pace. The only thing he does, apart from collecting food and plant remains, is to periodically add layers of dry materials, such as straw or dead leaves, to the wet waste. This provides airflow, giving aerobic microbes—the most efficient compost-makers—enough oxygen.

"If you pile the wet stuff on without layering, air can't penetrate and you get a slimy mess," Anderson warns. Without air, anaerobic microbes—which don't need oxygen—take over. These also decompose organic matter, but the process takes longer and the mound emits a putrefying stench.

More aggressive composters turn their heaps regularly to add air to the mix and hasten pay dirt. An even faster, albeit more complicated, approach introduces red worms to the bin. But Anderson conserves his energy for the fall, when he hauls at least 10 wheelbarrows of black gold from each bin to spread over *The Victory Garden's* beds. There's no cheaper way to improve the texture of the soil and its ability to take up water and nutrients than to add backyard compost to the garden periodically. "It takes a full year for a season's waste to decompose," Anderson admits. "But in this case, the rewards of laziness are great."

A tumbler bin cures compost faster, containing the pile neatly and speeding aerating with the crank of a gear-drive handle. The galvanized-steel and high-density-plastic barrel shown here tumbles approximately 6 bushels (about two 30-gallon trash bags full) of organic waste.



BELOW This 10-cubic-foot, 60-gallon tub has a pest-proof cover, ventilation slots, and a sliding door for retrieving finished compost. The dark plastic absorbs the sun's heat, while pegs securing the bin to the ground prevent curious raccoons and blustery winds from toppling it over.



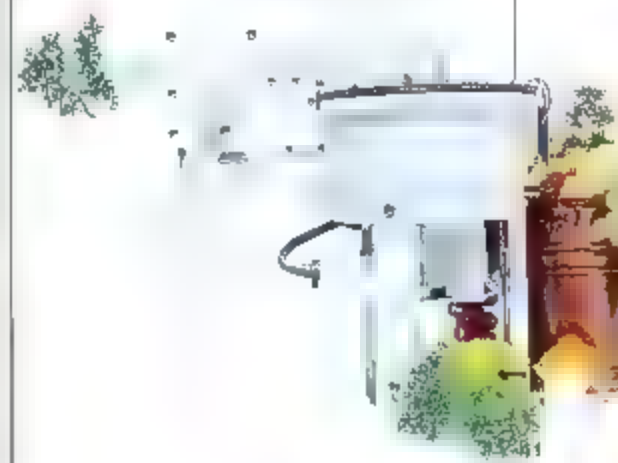
LEFT Vermiculture is composting with the aid of red worms, which rapidly munch through organic matter and leave behind nutrient-rich castings. This stackable tower can house 10,000 to 12,000 wigglers that consume 5 to 8 pounds of food (not yard waste) a day. A spigot dispenses liquid runoff, which, in a diluted form, is an excellent plant food.



LEFT Long-handled aerators break up matted compost and create air passages through the pile. This 30-inch model mixes and turns over compost with a stainless-steel coil and a crank that sports a handle made from recycled nylon.



BELOW Successful compost starts with collecting scraps in the kitchen. The 1½-gallon copper pail on the right has a lid to keep a few days' worth of vegetable discards from spreading odors. An under-sink separator, left, which attaches to a garbage disposer, spins the water out of pulverized waste, collecting up to 3 pounds of remains in a removable basket.



THE BASIC INGREDIENTS

Successful compost results from a careful blending of "greens" and "browns." Greens are wet, nitrogen-rich materials, such as vegetable scraps, small weeds, plant and flower trimmings, and grass clippings. Browns are materials high in carbon, including straw and dried leaves, dead plants, coffee grounds, tea leaves, and tea bags (the paper will decompose)—even used paper towels.

According to the U.S. Composting Council, a mixture of three parts browns to one part greens provides a balance of nitrogen and carbon suitable for feeding the microbes. Layer the dry brown materials in with the wetter green ones so air can circulate freely through the pile. If you detect an ammonia smell, aerate more actively.

Never add weeds that have gone to seed, ashes (too alkaline), barbecue coals (high in toxins that kill organisms), dog or cat waste, large pieces of wood, or bones. Animal products can only go in a digester, a bin with a slotted basket buried underground from which nutrients pass to the surrounding earth.

Vantage Point

A balcony extends a room to the outdoors

BY JOE CARTER



To maximize space on the balcony, architect Don Knerr specified French doors that open into the bedroom and screen doors that disappear into wall pockets. For the owners of this Queen Anne, adding a balcony offered another benefit: a sheltering overhang above their kitchen door.

or two from a facade—these platform projections play no greater or lesser role than the one these homeowners obviously enjoy, providing ready access to the outdoors without having to go downstairs. The elevated vantage point often offers a new perspective, too—here, of a church on the far side of the couple's backyard.

A true balcony is no mere cosmetic add-on; it demands careful planning and engineering. When Knerr began to sketch ideas for what was to become a balcony just large enough to accommodate a couple of chairs (it measures 10 feet wide by 3½ deep), he made every effort to design it so that it wouldn't clash with the style of the house. While its off-center placement may seem odd

Viewed from the street, the 1880s Queen Anne in Cambridge, Massachusetts, has always been beautiful to behold. Wide gable dormers, bay windows, and a portico framing the front door create a gracious facade. By contrast, the back of the house was built very plainly, only a shed dormer interrupted its flat exterior.

All that changed, however, when the homeowners retained Cambridge-based Charles R. Myer & Company to develop a design for a major renovation. The architectural firm's recommendations included reshaping the back dormer into a gable that matched those on the front and building a balcony outside a second-story guest suite frequented by the owners' mothers. Because one parent or the other often pays the couple lengthy visits, the architects wanted to make the room feel more expansive by connecting it to the outdoors. As project architect Don Knerr says, "We wanted the room to feel as if it belonged to a larger world."

When neither mother is visiting, the spare room serves as an extension of the master suite. "It's right across the hall from our bedroom," says the husband, "so we often sit out on the balcony with coffee and the paper."

Except when it comes to dramas turning around the likes of Romeo and his love, Juliet—whose name has been conferred upon balconies that protrude only a foot

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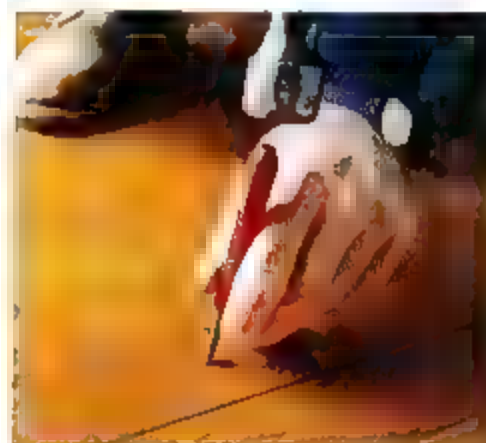
1) "Drill a pilot hole first," says Patrick Hunt, as he fits his drill with a $\frac{1}{8}$ -inch bit just a whisker narrower than the 8d finish nail he's using. "Otherwise, the wood will split." Positioning the bit at the center of the board and at least 3 inches from the end to prevent splitting, he slowly bores straight down through the wood until he hits the subfloor, about $\frac{1}{2}$ inch below. "Too fast and you'll create a sloppy, burred edge," he says. In the days before power drills, floor installers ran finish nails through their hair in lieu of a pilot hole. "The natural oils made the nails drive through the wood more smoothly," Hunt says. "Or you can dull the nail tip with a hammer so the nail cuts through the wood fibers instead of wedging them apart."



2) Hunt positions his $2\frac{1}{4}$ -inch finish nail in the pilot hole, then taps it twice to sink it just shy of flush with the board. "I'm lucky if I hit a joist, but it's not necessary," he says. (In houses that have no subfloor, Hunt has to make sure the nail goes into the joists, which always lie beneath the end joints in the flooring.) He's careful not to hammer the board lest he leave a crescent-shaped mark or divot on the wood. Instead he uses a nail set to drive the nail $\frac{1}{4}$ inch below the floor's surface (see "Tool Box: Nail Set," right).



TOOL BOX: NAIL SET



Hammerhead pockmarks, those annoying little blemishes in wood flooring and trim, are the telltale sign of an overzealous amateur who hasn't learned to pause and pick up a nail set before delivering the final blow. This 4-inch-long tool is nothing more than a spike of ultrahard steel with a dimpled tip sized to cup neatly over the top of most common finish nailheads ($\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, and $\frac{5}{16}$ inches in diameter). With just a couple of taps to the nail set, a hammer remains a safe distance from the wood and a protruding nailhead sinks neatly out of sight, with no damage to the surrounding surface. A nail set also comes in handy for driving hard-to-reach nails and for putting their paper-shredding heads beyond the reach of sanders.

3) Using his finger, Hunt fills the indentation above the nailhead with a tinted oil-based putty, then wipes the surface clean with a cloth. The filler doesn't require a finish and comes in a variety of wood hues to blend with the color of the flooring. "I may mix two or three together to achieve a perfect match from board to board," he says. "Plus, oil-based putty won't dry out and form a skin that throws off the color match."



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4) "Sometimes two boards may rub against each other despite my best efforts to stabilize them," Hunt says. As a short-term solution, he sprinkles the joint with a generous layer of baby powder, which eases the friction between the boards. Using a wide brush, he works the powder into the cracks, then sweeps up any excess so the area isn't slippery.

5) When the joists or subflooring pull away from the floorboards, every step causes creaks. If the joists are easily accessible from below, Hunt watches for movement between the subfloor and the joists as someone else walks across the floor overhead. Then he gently knocks a shim into the gap nearest that spot. "I like wood shingles as floor shims because they're flat and broad and finely tapered," he says.

RE-ADHERING

6) If a gap exists between the flooring and the subfloor, it can't be closed up from underneath; filling it with construction adhesive may stop the noise. First, Hunt drills a $\frac{1}{8}$ -inch hole in the face of the flooring strip. Then he fits the nozzle of the adhesive tube into it and squeezes until he feels resistance. He quickly wipes up the excess with a cloth soaked with mineral spirits. "The adhesive has to come off immediately, otherwise it will mar the finish," he says.

7) "Putty would pop right out of a hole this size," Hunt says, so he fills it with a wood cylinder drilled with a plug-cutting bit out of a piece of matching scrap. "I always try to use the same species," he says. He taps the plug in after the adhesive is dry, then, using a sharp chisel, slices it off close to the floor surface. Once he sands it down flush and reseals the wood with a dab of polyurethane, the repair is virtually invisible.



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Le Retro Feat

An Ohio farmhouse gets rebuilt with French flair



Inspired by homes the owners had admired while living near Paris, the addition of French doors, numerous windows, and a second story opened up this dark, low-lying ranch house. The result: a light-filled, airy dwelling with broad views of their 180-acre family farm.

In contrast to the sort of high-gabled farmhouse that so often ignites builderly passions, this one-story brick ranch wasn't notable for its character or charm—not even in the opinion of Marcia House, who grew up there. “Our house wasn’t meant to be anything but functional,” says Marcia, whose family raised cows on the surrounding 180 acres in Preble County, Ohio. “My father built it, and he was the type of man who only came indoors to eat and sleep.” The interior was cramped, stuffy, and dark, with minimal windows and three 10-by-10-foot bedrooms separated by a long, narrow hall from the kitchen, dining room, and living room.

Still, Marcia felt a deep attachment to the old place. Not that she expected to return there to live—she and her husband, Frank, a high school sweetheart she married in 1966, had moved away to Cincinnati and then Paris. But in the summer of 1982, while home visiting from France, Marcia found her widowed father out on the porch, negotiating to sell the farm to an insurance agent. “A lot of farmers make the same mistake,” she says. “They sell the farm, move to Florida, they aren’t comfortable and they move back.” Alarmed at the prospect of losing her childhood home, Marcia interrupted the transaction—much to the chagrin of the would-be buyer—and told her dad she wanted to keep the property in the family. When she asked Frank about buying it, he was agreeable, if mildly surprised, as they’d always assumed her dad would live there for the rest of his life. “We decided that we’d enlarge the house, get rid of those small, choppy rooms, and flood it with sunlight and fresh air,” Marcia says.

The homecoming went smoothly enough for both Marcia and Frank, whose family history in the county goes back



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BY LOU HARRY PHOTOGRAPHS BY MICHELLE MURPHY



Authentic barn beams cross the family room's cathedral ceiling and are bolted into rafters behind the walls (LEFT AND UPPER RIGHT). The family dragged loose limestone from their creek to make the fireplace and chimney. For the floors, Frank logged the farm's walnut trees himself and had the boards cut with a portable sawmill.

touches included French limestone bathroom floors and antique armoire doors for the entryway closet.

About three years before construction began, Marcia and Frank consulted architect Michael Pachan and worked on plans to add a second

to the early 1820s, when House was spelled *Hauss*. Frank was able to transfer his engineering job back to Cincinnati, 35 miles away, and Marcia taught preschool. Their three children missed their Paris schools at first, but soon "they loved everything about living in the country, especially their 4-H projects," Marcia remembers. The Houses also raised cows, sheep, and chickens; while neighboring tracts were getting subdivided, they were determined to keep their land intact as a working farm.

With all this going on, it would take 15 years before they found time to transform their 1,280-square-foot home into their 3,000-square-foot dream house, inspired by Gallic design. "I envisioned the windows placed as they often are in France, so you can see right through the building," Marcia says. She also wanted to capture the views, such as that of a ¼-acre pond with waterfowl. Finishing

floor, with two bedrooms and baths, and a family room with a cathedral ceiling. They'd convert the old living room into their master bedroom, enlarge the kitchen, and eliminate the central hallway, in the process taking down some interior walls.

Once the kids were out of college, the Houses found that the affordable moment for rehab had finally arrived, only to encounter yet another delay. "We really had a hard time finding a builder," says Frank. "They either had to do it their way, or if they did it your way, it was just atrociously expensive." The solution: a black-bearded, black-hatted local builder named Dave Oyler, who could do the work as they wanted it and for a lower price, based on his small crew—just himself, his son, and one helper. When it came to the Houses' desire for old barn beams in the new family room, however, Oyler balked, preferring the 2x12s encased in box beams that the architect had spec-

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ified. Frank and Marcia wanted to use 30-foot 10x10 beams from two dismantled barns in neighboring Butler County. It wasn't only the builder who disliked the idea; Marcia's dad hated it—he said he'd never come into the room. The Preble County building and electrical inspectors also expressed skepticism. "They could easily determine the load-carrying capability of 2x12s," says Frank, "yet they said they couldn't find the data for a barn beam."

The Houses persisted. At their urging, Michael Pachan consulted with another architect who had used barn beams in a project and could provide load-bearing data. To add strength, steel plates were inserted into 3-foot-long joints at the ends of each of the four horizontal beams, extending through the walls and bolted to the rafters. Once installed, the beams captivated everyone, including Marcia's dad, who had moved back from Florida and built himself a new house on their land.

For the 20-by-30-foot family room, the couple chose to use limestone around a 13-by-24-foot section of wood flooring, which they would produce from the farm's own walnut trees. Frank pulled the trees up with the help of a bulldozer-owning neighbor. He hired the operator of a portable sawmill to come and cut the logs into floorboards and, after having them dried at a kiln, took the boards to a wood shop to be milled into tongue-and-groove strips.

To anchor the family room, the Houses wanted a big fireplace made of the same color-flecked local limestone as that used in the original living room hearth. They knew where to find the stones—at the bottom of the creek that snakes through their property. Collecting these became a year-long family project; they hauled out 24 tons, taking care not to damage the limestone layers of the creekbed. A quarry cut and shaped the pieces for about \$1,200 less than if it had also provided its plain gray stone. Twelve tons went into the new fireplace, while the excess was used to extend the old fireplace chimney through the second floor, and for the path leading to the house and around its many flower beds.

The Houses were no less discriminating about the interior details. Over the years, Marcia had collected antique doors without a clear idea as to what she'd do with them. Now, in addition to the armoire doors that adorn the entryway closet, a row of old pecan wood doors covers a wall of the dining room and will soon hold sconces and pictures. The kitchen takes its creamy color scheme from French faience tiles. A one-piece butler's cabinet, which survived the Dayton flood of 1913 and came down from Frank's great-grandmother, surrounds the pass-through window between the kitchen and dining room.

In the all-new second floor, Frank and Marcia continued motifs, such as large windows and stone or wood floors, fea-



A butler's cabinet from "before the flood" frames a pass-through.

tured on the ground story. Both upstairs bathrooms have floors of French limestone, including a fossil-laced variety from the Jura mountains. The family saved money by doing their own painting, which brought a possible \$16,000 line item down to about \$1,000. Also with an eye on the bottom line, the two upstairs bedrooms—each with its own bathroom and extra insulation in the walls and

floors—were designed to put up occasional bed-and-breakfast guests. They recently had a successful test run during the local university's "parents' weekend."

The couple originally envisioned stucco for the exterior; the material would have adhered well to the old wire-cut brick down stairs but ran the risk of, in Marcia's words, "looking like a Taco Bell." They opted for shingles instead, which seemed more appropriate for their type of house. Frank and Marcia plan to retire next year, but not from home improvement. They're going to restore part of the barn and rebuild a log cabin that's fallen into disrepair. "There's plenty to do," says Frank. In short, there's no possibility that these farmers will be retiring to Florida. ■

INSECT-PROOFING WOOD

To make certain that the antique barn beams were insect-free, Frank called the Ohio State University entomology department. He learned that, by using propane heaters to raise the temperature of the wood to 130 degrees Fahrenheit, the task could be pulled off without insecticides. Frank first washed the beams with a power washer, then borrowed two portable heaters, a giant tarp, and a tractor to move the heavy timbers. He set 4x4s on the ground and laid the beams across them, covered them with the tarp, and held it down at the edges with stones, leaving a small tunnel for escaping air. He set a heater at each end, and they blew hot air over the wood for six hours. The result: dead insects and a dried-out environment that would prevent their return.



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MATERIALS

Among the 100-year-old redwoods at Big Creek Lumber in California are the saplings that will provide wood for the future. To have its 18,000 acres certified, Big Creek selectively harvests trees of varying ages.

The Forest for the Trees

Coming soon to the local home center: wood stamped with an environmental seal of approval.

The sugar pine lumber that rattles down the conveyor belt at the Collins Pine sawmill in Chester, California, amid the loud crunching of a debarking machine and the whining of a 9-foot band saw, looks, smells, and feels like ordinary wood. But it is, in fact, "certified" timber—having come from a forest managed according to strict environmental standards set by the

Forest Stewardship Council, a nonprofit watchdog organization based in Oxford, Mexico.

Such "green" lumber has been available for nearly a decade, ever since Collins became the first company in the United States to gain F.S.C. certification. But until recently it's been a specialty product, finding shelf space only at stores like the Environmental Home Center in Seattle and



In the months since, the nation's number-two home-improvement retailer, Lowe's Home Centers, made a similar announcement, as did Menard's, 84 Lumber, and similar chains. Big players in other parts of the lumber business, from home-building giant Kaufman & Broad

Saplings are growing out of a stump that's been covered with a layer of slash, debris from timbering. Loggers used to burn slash, but regional regulations now require that they break it up and spread it over the ground to provide nutrients and control erosion.

to window manufacturer Andersen Corporation, also promised to seek certified lumber. Suddenly, what had been a niche product with sluggish sales has become a hot commodity.

Increasing the demand for responsibly harvested lumber (and thereby curbing rapacious logging practices) was just what the international group of foresters, environmentalists, and community members had in mind when they met in Toronto in 1993 to form the F.S.C. They created a system that uses the buying power of consumers as leverage against the natural inclination of some lumber companies to turn a short-term profit at the expense of the forest's long-term health.

EcoTimber of Berkeley. Today, however, shoppers in some areas can walk into an ordinary home center and buy certified wood at the same price as noncertified wood.

Home Depot, the world's top lumber retailer, triggered this sweeping change when it announced as part of its 20th-birthday celebration in August 1999 that it would go out of its way to stock certified wood products. Specifically, the home-improvement retailing giant pledged to shift its business as fast as possible to suppliers whose wood bears the check-marked tree logo of the F.S.C. "We wanted to be a catalyst," says Home Depot spokesman John Simley. "And the market seems to be responding."

The F.S.C.'s program has three key components. First, it requires forest products companies to follow 10 fundamental principles, such as limiting harvests in particular areas to the amount of wood that actually grows there each year and managing forests so they support local economies—making sure, for example, that milling is done locally. National and regional "working groups" of foresters, environmentalists, and community members determine how those principles will be implemented and then codify them into regional standards. Second, the F.S.C. accredits independent inspection agencies, such as Scientific Certification Systems and Rainforest Action Network's SmartWood program, to conduct annual inspections that include checking the books and



PROTECTING THE PRISTINE

At the 1998 Western Wood Products Association convention in San Francisco, members of the Rainforest Action Network (R.A.N.) scaled the St. Francis Hotel, hung a giant protest sign, and then remained suspended from the building until police climbed up to arrest them. The R.A.N., an activist organization that helped found the Forest Stewardship Council, sees certification as the best tool available for insuring good forestry on commercial land. But in pristine (never logged) forests, the R.A.N. often works to keep any chain saws away, even those wielded by certified timber companies. "The United States has already lost 98 percent of its old-growth forests," says Mike Brune, campaigns director for the R.A.N. "We can't afford to lose any more." —J.H.

PHOTO COURTESY OF THE RAINFOREST ACTION NETWORK (BOTTOM)



walking the forests to make sure that each company is living up to the regional standards established by the working groups. And third, to guard against having uncertified lumber being sold as if it were certified, the F.S.C. insists on a "chain of custody," a system that tracks the wood as it moves from forest to mill to wholesaler—and even, in cases where the lumber is not ink-stamped, to the retailer.

Certification is often construed as a ban on clearcuts or a way to protect old growth trees. But these short-hand descriptions are inaccurate. The F.S.C. doesn't prohibit clearcuts, as long as they are small (less than 20 to 40 acres, depending on the type of forest, and appropriate for the type of trees being grown). Neither does it automatically ban the felling of old growth trees, although it does preserve stands of untouched or lightly cut old-growth forest. Says David Arens, the F.S.C.'s marketing director in the United States: "F.S.C. is not about 'Save the trees.' It's about 'Use the forests wisely.'"

To show the impact certified forestry can have on the forest itself,

People think that cutting individual trees is best for the forest, but clearcutting can mimic the action of a natural forest fire and provide the direct sunshine some trees need.

Dennis Gomez, the sawmill supervisor for Collins Pine, invites a visitor to hop into his truck for a quick tour of a 96,000-acre forest near Chester, much of which has been owned by the Collins family since the early 1900s. After passing a thick grove of young pines

about as tall as telephone poles, the result of aggressive timber cutting by another company, he slows down at the point where the landscape changes abruptly. Here, firs and pines soar nearly twice as high, and they're ringed by sturdy young offspring of various

heights. This is land that Collins has been logging since 1941.

At that time, foresters calculated that this forest had 1.5 billion board feet of standing timber. Since then, loggers have selectively removed 2 billion board feet of lumber and kept 200 people employed year-round in the company's sawmill. Yet the land still holds 1.5 billion board feet of timber, and it still looks like a real forest, with towering trees, clear streams, black bear, and bald eagles. In other words, Collins's long and responsible stewardship of its lands has enabled both loggers and habitat to flourish.

When Collins decided to pursue certification in 1992, the F.S.C. found no major deficiencies in the logging operations, although they did suggest that the company leave more dead and broken-off trees in order to give woodpeckers and owls more places to nest. But the certification effort also pointed out that the company's aerial surveys of its 126,000-acre hardwood forest in Pennsylvania were woefully out of date, and that contract loggers there were sometimes hauling logs straight down hillsides, a practice that contributes to erosion. Consequently, Collins hired an extra forester and spent about \$175,000 on new aerial photographs and a geographic information system (GIS) to better track tree growth.

In Collins's California forest, the high-tech GIS system has helped managers solve a problem caused by decades of selective harvesting. Its expanses of ponderosa pine and sugar pine near Chester are being taken over by white fir—a more shade-tolerant but lower-value tree, and not the type historically dominant in that forest. So, for the first time, the company is planning to cut

The Forest Stewardship Council certifies tropical timberland worldwide, from Belize to Zimbabwe. In fact, concerns about shortsighted logging practices laying waste to equatorial forests are the foundation of the entire movement. Tim Synnott, outgoing director of the F.S.C., vividly recalls a 1993 trip to Bolivia that spurred him to action. Standing in the Chitmanes forest, a local logger explained his plan to first cut

THE TREE AMIGOS



all the mahogany out of the area, then lay off his workers, close his sawmill, and put his profits in the bank—so he could watch his money earn a "sustained yield." The statement stunned Synnott. "It was the most horrible mockery of the idea of sustainable forestry."

In the eight years since it was founded, the F.S.C. has certified more than 6 million acres in the tropics—more than a third of it located in Bolivia (above). Although this represents less than 1 percent of all tropical timberland, Synnott points out that any progress is significant. Compared to Europe and North America, certification in these areas is a time-consuming process, he says.

Consumers can help the effort, he says, by purchasing lesser-known certified woods. Not only does this practice support F.S.C.-approved logging methods that maintain a natural balance of forest species but the homeowner gets flooring of rugged *machiche* and moldings of brindled *chakte kok*. — Ryan Robbins

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2- to 5-acre blocks of trees—not just those ripe for harvest—in order to let more sunlight reach the forest floor and encourage more pines to sprout.

People often think of cutting individual trees as “the type of logging that creates the most disturbance,” says Bill Wilkinson, the F.S.C.’s head forester in the United States. But it means that, in time, only shade-loving trees will be left. “If you’re not already managing a shade-tolerant species, eventually you will be.” This is why he advocates a broad mix of harvesting programs, which go by names such as “variable retention cut,” “seed tree cut,”

and “shelterwood cut.” In Douglas fir forests, for instance, small clearcuts are warranted because they mimic the way windstorms and mud slides would clear an area naturally. And without a clearing, there’s no way to get these trees to thrive. “The cuts can be an acre or two, maybe ten acres,” Wilkinson says. “You don’t have to turn the forest into a moonscape.”

The F.S.C. is not the only program concerned with forestry practices in the United States. In 1994, one year after the F.S.C.’s founding, the American Forest & Paper Association, an industry trade group, established its Sustainable Forestry Initiative (S.F.I.), a competing certification program. The industry effort is much less restrictive than that of the F.S.C. For example, the S.F.I. allows clearcuts averaging as large as 120 acres, three times the maximum allowed by the F.S.C. And while the F.S.C. allows companies only limited use of pesticides, the S.F.I. simply obliges companies to obey the laws regarding pesticides.

Derek Jumper, a spokesman for the S.F.I., says that later this year, the group will come out with its own label. And the industry program, which until recently had no provision for independent on-site inspections, has now made them optional and has plans to require third-party inspections for any company that wants to

market its wood with the S.F.I. logo.

Still, the S.F.I. has no chain-of-custody system. “We believe the tracking is not necessary,” says Jumper. “If there’s a piece of wood with ‘S.F.I.’ on one end and ‘International Paper’ emblazoned across the front, it will be clear that it was brought to market by a company that abides by S.F.I. standards.” But the lack of any means to trace the wood is a serious shortcoming, according to Jeff Wartelle, director of strategic programs for the Forest Certification Council, an organization trying to increase demand for certified lumber. “What assur-

ance is there that the wood you’re buying is really from a well-managed forest?” Wartelle asks.

While the S.F.I. has enrolled a massive 72 million acres in its program, so far it has failed to win much retail support. In reference to S.F.I., Home Depot’s John Simley says, “We looked at their program, and we decided that the best system was the F.S.C.’s.”

The chief problem for the F.S.C. now is supply. At the start of this year, it had certi-

fied just 7.8 million acres in the United States, hardly enough to meet the huge demand for lumber in this country. Although many small suppliers have become certified, the lumber is hard to find in the quantities that big retailers need. At Home Depot, for instance, Simley won’t hazard a guess as to when certified wood will dominate the store’s shelves. Richard Donovan, chief forester and director of SmartWood, says his biggest fear is that people will give up too easily on certified lumber if they don’t find it on the shelves at their local home center. “It’s a bit of a chicken-and-egg situation,” he says. “Only if people ask for this wood will builders and stores figure it out and say, ‘Oh, this is important.’ The sooner consumers ask those questions, the sooner the forests will be healthier.” ■



Along with the Forest Stewardship Council’s check mark logo, the ink stamp on a piece of certified wood indicates the board’s origins. Like the code on a bottle of aspirin, the markings allow the product to be traced back to the forest where it was cut, a system known as chain of custody.

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The Realtor Truth

Your agent will take home at least 3 percent of the price you pay for a house. Does she really have your best interest in mind?

BY ELYSE MALL KLAYMAN

For Liz and Craig Shapiro, first-time house hunters in a hot Los Angeles market, their real estate agent's role consisted of occasional calls to rush and see a house "before someone else snaps it up." Bolting from the office or dinner, they'd arrive and find disappointment, even in their price range of \$350,000 to \$400,000, the houses needed renovation, and the couple had no extra budget for that. Finally, in the spring of 1997, they found a 45-year-old ranch house that seemed to be in good condition. They placed a bid, and it was accepted.

A few weeks later, their home inspector told them he was concerned about the septic system. He wanted to dig up the tank to take a look. "But the old couple living in the house objected to any digging in the yard, and the husband insisted that there had never been any problem," says Shapiro. "My agent didn't think I needed to worry and said no further investigation was needed, so we backed off."

Two weeks after they moved in, disaster struck. Water began overflowing from the washing machine and toilets. Fighting panic, Shapiro

called a plumber and soon learned that the whole septic system was defunct and would cost up to \$20,000 to replace. At this point, Shapiro started asking around on her block about the problem, and she discovered that the house had a history of intermittent flooding. Feeling sorely deceived, Shapiro threatened to pursue legal action against the sellers, who eventually agreed to pay the repair bill. But they weren't the only guilty party in this messy deal.

"The broker failed her miserably," says Curtis Hall, an Arizona real estate agent who chairs his local realtors' association's dispute resolution committee and frequently serves as an expert witness in court. "As Shapiro's agent, the broker should have done several things," Hall says. "She should have insisted that the septic system be examined, postponed the deadline for inspections if necessary, and chatted up the neighbors to find out what she could before the fact." For her part, Shapiro was infuriated. "My understanding was that my broker was loyal to me and would protect my interests," she says. "But, of course, brokers don't make money unless they get you to buy a house."

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RE-FI MADNESS

In 2001, refinancing a mortgage could replace playing the Nasdaq as the nation's favorite financial sport. By mid-January more than half of all mortgage applications were refinancings, according to the Mortgage Bankers Association. With the average 30-year fixed rate for a home mortgage sinking from a May 1999 high of more than 8.5 percent to below 7 percent in January, homeowners pounced on the chance to nail down a low-cost fixed-rate loan.

Should you join the refinancing frenzy? Not necessarily, says Ray Brown, author of *Mortgages For Dummies* (Hungry Minds, 1999). It depends on how much refinancing will cost, how much it will provide in monthly savings, and how much it'll delay paying off the principal on your mortgage.

Despite all the talk about "zero-cost" loans, borrowing never comes free. Even for a no-points loan, a homeowner might have to ante up about \$2,000 for new title insurance, an appraisal, an attorney, and document preparation fees. If a homeowner in the eleventh year of a 30-year \$150,000 mortgage at 10 percent is trading it in, say, for a new 30-year loan at 7 percent, he'll save roughly \$424 a month (see chart). Even after accounting for the tax break on mortgage interest, he's improved his monthly outlay by \$297 (assuming a 30 percent tax bracket). At those savings, he would recoup his

initial costs in seven months, so refinancing would seem to make sense, as long as he's planning to stay put longer than that.

But because he's trading 20 remaining years on his existing loan for a new 30-year term, the net result after 30 years would be some \$20,000 in added interest costs. And if he moved out of the house in, say, five years, his equity would be about \$8,000 less if he had refinanced, because when you refinance, you go back to square one on a mortgage, paying mostly interest rather than principal. The smarter bet would be to refinance for 15 years, thereby shortening the life of the mortgage by 4 years. This would provide only \$97 in after-tax monthly savings, but would save \$89,000 in total interest over the life of the loan. And after five years, the equity built up would actually beat that of the original loan.

Still, most people refinance to reduce their monthly costs. Doing this makes sense only if you're planning to stay in the house for more than a few years, and (a) during that time, the savings will outweigh the costs (use a Web calculator such as the one at bankrate.com), or (b) you currently have an adjustable-rate loan and want to lock in a low fixed rate, or (c) you've owned the home for no more than a few years and haven't left the starting gate as far as what portion of your payment is going toward paying down principal. —Maggie Mahar

Should You Refinance Now?



When considering a refinance, think beyond the monthly mortgage payment—look at the total interest paid over the life of the loan (on the original mortgage and the new one combined), and at the slower pay-

down of principal that will occur with a new 30-year term. A better option might be a shorter term, which won't save as much each month but will speed the payoff of principal and reduce total interest costs.



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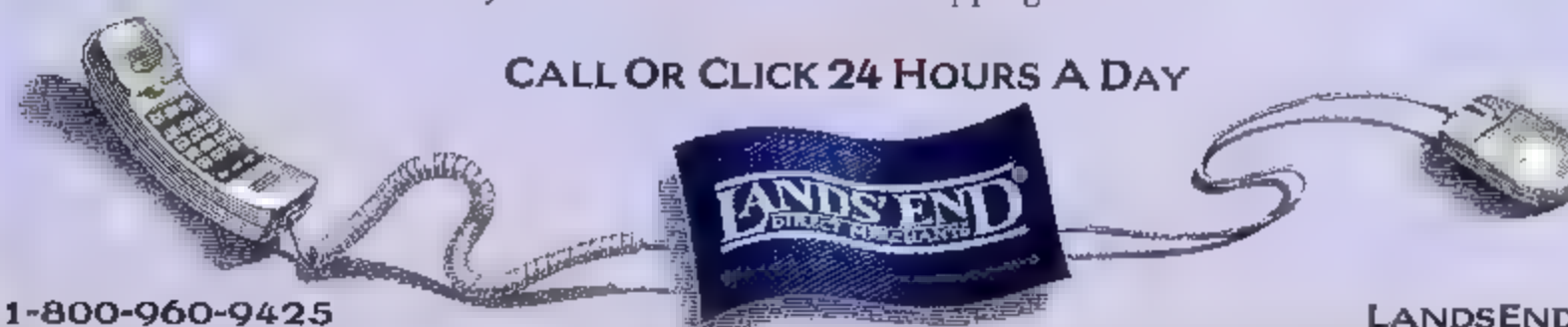
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REAL ESTATE REALITIES Because of the important role they serve—connecting shoppers with houses that match their needs and wants—real estate agents are a fact of life for most home buyers. The vast majority of the 5 million houses that changed hands in 2000 were sold by brokers, who collected about \$30 billion in gross commissions. As Shapiro learned, an agent's primary interest is naturally in making a sale, because she gets a commission on the price, says Stephen Brobeck, executive director of the Consumer Federation of America. As a general rule, the broker who gets the listing from the seller receives 5 to 6 percent of the sale price of the property—a sum paid by the seller out of the proceeds from the sale—to be split (usually evenly) with any broker who brings the ultimate buyer to the deal. So while a broker is driving you around chatting about schools, restaurants, and shopping, you've got to remember that it's a sales pitch. "In some cases, a broker will give information she learns about a buyer's budget to the other side during negotiations," Brobeck warns.

Until the late 1980s, all real estate agents worked directly for the seller and were actually obligated to provide to the seller any data about a potential buyer's finances, interest, and intent. Nowadays, however, many states have established rules for "buyer's brokers," who are legally required to protect their clients' interests in the negotiation and not to divulge what they know to the seller or his agents. In every state except Arizona, agents must disclose up front whether they're representing the seller or you, the buyer.

"A buyer's broker is always the best option if you can find one in your locale," says Joseph Eamon Cummins, author of *Not One Dollar More: How to Save \$3,000 to \$30,000 Buying Your Next Home* (John Wiley & Sons, 1999). Even though buyer's brokers typically don't get paid unless a transaction is concluded, "good ones recognize that most of their business comes from referrals," says Laurie Moore Moore, a former agent and publisher of *Real Trends*, a trade newsletter in Denver. "They'd owe a deal, but not if it undercuts their clients." While the broker does get a cut of the total price (or in rare cases charge the seller a fee for her services), she's generally got the bigger picture in mind. She wants to develop a reputation for getting clients good deals—even if it means earning a little less off your purchase.

PICK THE RIGHT PERSON Many house hunters find their broker by calling about a classified advertisement or visiting an open house. The agent who shows that property will ask if you're working with someone, and if not, they'll offer to show you some other great properties. "The agents are looking for customers," says Cummins. "That's why they ask you to sign in at an

open house—even in places where security is not an issue." A shady agent might actually run ads in the paper about fictional properties or stage open houses at places that have already been sold.

The best way to find a broker is through a personal recommendation from a trusted source—a friend, colleague, or relative. And brokers have a system of referring clients among themselves, so if your brother had a great experience in one town, his agent can recommend someone reputable in the place you're looking. Like lawyers, real estate brokers rely on these sorts of referrals, and a portion of the fee commonly goes to the referring agent. It's a great way to get a serious, focused agent with a good professional reputation.

You may not want to team up with the first broker you meet. Make appointments with a handful of people at different agencies. Spend an hour in conversation with each in order to assess her character, skill, experience, and commitment. Cummins advises, "You

want a broker who knows the town well, has a strong network of professional colleagues, and lots of happy former house hunters who can vouch for her."

Find out whether you're talking to a "salesperson" who might still be learning the ropes or an "associate" or "broker," who is more experienced, says Cummins. But experience isn't everything; a young agent wanting to establish her credentials may bring a special enthusiasm to the job. Bear in mind that the turnover in the real estate industry is very high; 90 percent of agents leave the profession within five years. It also can't hurt to ask whether a broker is a Realtor—most are, meaning that they are members of the National Association

of Realtors, a trade association, and have promised to uphold a code of ethics, such as clear disclosure about whether they are buyer's or seller's agents, beyond the sometimes toothless requirements of state laws.

ROAD SIGNS Before an agent shows you any houses, she's likely to request your signature on a form. Read it and pass it by a good real estate attorney. In addition to disclosing whether this particular broker is working for you or the seller, the agreement will usually state that if you buy a house that the broker shows you, she is entitled to the standard fee from the seller. That's fair. Watch, though, for "exclusives" stating that any house you buy—with or without her help—in her geographic territory for a set time period, typically two to three months, is also her deal. Here's where things get tricky. During the recent real estate boom, many sellers have been working without an agent to save the fees—so if you have an exclusive deal and you buy a house that's "for sale by owner," you could be responsible for the agent's commission. As a safeguard, Cummins suggests asking for a clause

A buyer's agent legally must make the buyer's interests paramount.



in any exclusive contract exempting private transactions. In some cases, the agreement states that the contract can be canceled with 24 hours' written notice anyway, in which case there's little risk in signing. If not, ask for a 30-day trial arrangement.

SHOW AND TELL Expect your agent to listen and respond to your priorities, showing you houses that fit what you're looking for, or at least come close. If you're not hearing from the broker for weeks at a time, frequently see houses after bids have been accepted, or are regularly spotting ads in the paper for houses you haven't seen that fit your profile and pique your interest, ask for an explanation. If they don't have a valid reason, it may be time to look for someone new, canceling the contract if necessary.

When you find a house you want to bid on, your broker becomes your negotiator. If you're working with a seller's agent, remember what that means. Many clients will sign a form stating they understand that the agent works for the seller, and still not hold their cards close to the chest in terms of what they can afford. "We unconsciously believe that the broker is acting in our best interest, but she legally can't," says Cummins. If you're working with a seller's agent, it pays to keep your own counsel, he says.

If you have a buyer's agent, and she's done right by you up to this point in the process, give her the trust she's earned. A good buyer's agent will help you resist the pressure tactics often employed by the other side—the supposed imminent offers and phantom parties that may or may not really be hovering on the sidelines. And all brokers, whether representing the buyer or seller on a deal, are required by law to pass along any bid you make—even if they advise you that your bid is "insultingly low." Cummins suggests allowing your attorney to review any agreement before signing if you're concerned about entrusting the task to the agent.

How can you be sure that a broker, even one that's supposed to be on your side, is telling you the truth? In the end, you have to trust your instincts. Don't be bullied or intimidated. Remember, it's your money and your home that are at stake—be prepared to walk away from the deal. In that sense, says Cummins, "it really comes down to the competence of the buyer." ■

WHAT TO ASK BEFORE YOU BUY A HOUSE

"If you want to know what you're buying into when you find a house you like," says consumer advocate Joseph Eamon Cummins, get a professional home inspection and "go out and knock on neighbors' doors to ask questions. Just say, 'Hi, I'm thinking of buying a house here, and I wondered how you like living here.' Most people will be happy to tell you things that you won't find out any other way."

Here's a research checklist. Ask:

NEIGHBORS whether there are any problem residents, safety or burglary troubles, or traffic issues on the block. Get a feel for the ages of children, the professions of the adults, and the general camaraderie of the community. Ask whether there are any unresolved disputes among homeowners or with the town over outdoor lighting or road signage. Inquire about any chronic problems with the house. A friendly resident can also tell you if there are any public amenities—a popular playground, great hill for sledding, dog-run, or top-notch hiking trails—that come along with the neighborhood.

THE REALTOR for a competitive market analysis showing recent sale prices of area houses with similar features. If you're ready to make a bid, have the agent ask the seller directly (or, better, do it yourself) if there are any ongoing problems with the house—or former problems that have been resolved.

A ZONING OFFICER whether any zoning changes or variances are being considered for the neighborhood.

THE TAX ASSESSOR whether there is a property tax revaluation scheduled for the near future and whether recent improvements made by the sellers have already been figured into the current assessment. Inquire about the possibility of major capital expenditures or big bond issues that could jack up tax rates.

A SCHOOL OFFICIAL whether any significant redistricting, school closures, or other major plans are in the works. — E.M.K.

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A basement furnace room becomes a comfortable home office for work and play

BY IAN AUSTEN

Extensive renovations were already underway in George and Claudia Moore's 58-year-old Cape Cod-style house when the couple came into a windfall: a 12-by-15 foot space in the basement, created when the original furnace and its octopuslike system of ducts were replaced by a compact gas furnace. The Moores decided to transform this space, located next to the kids' playroom, into an adults' workroom. "This way, we could be working and still keep an eye on the kids," recalls George, a Seattle-area software engineer.

Although George spends most weekdays in a corporate office and Claudia is a homemaker,

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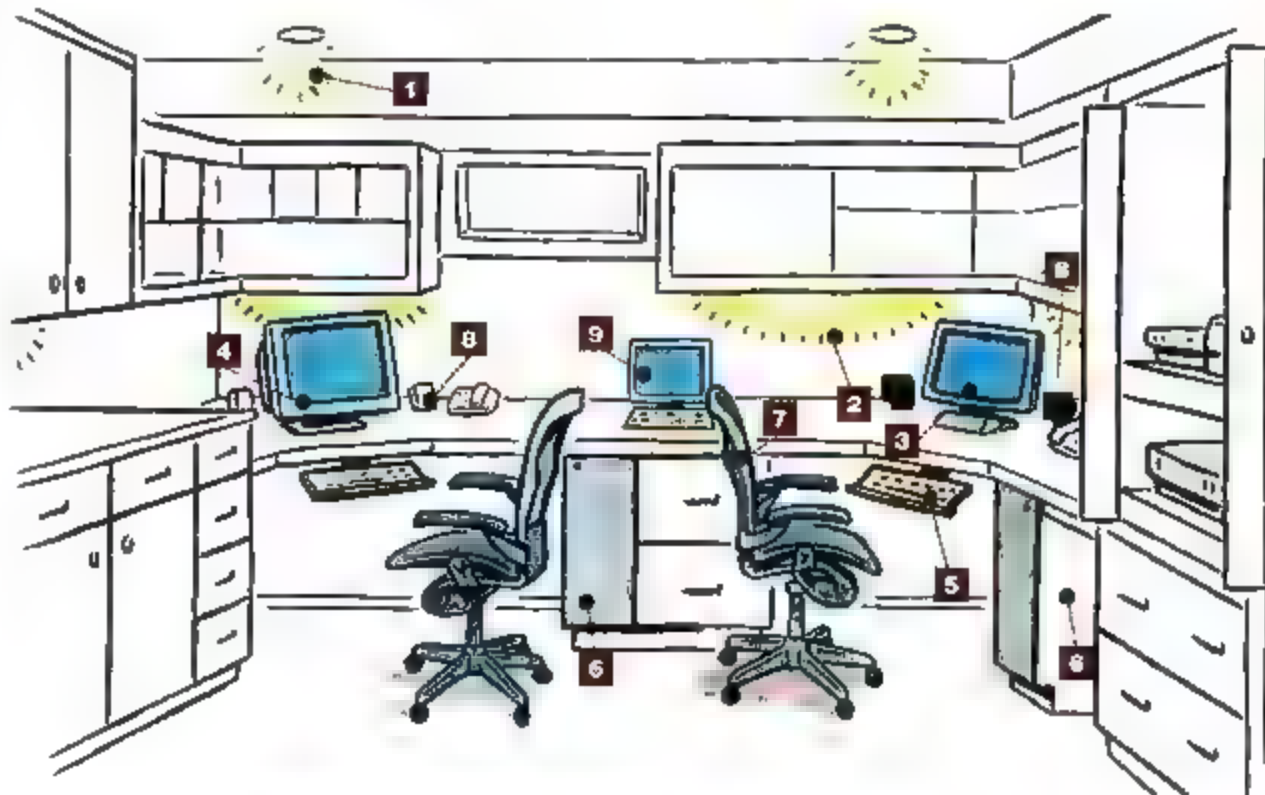
the decision to devote part of their residence to office space is one being made by more and more homeowners. An estimated 36 million people in the United States work out of their homes. But even people who don't are finding that they still need a home office to finish tasks that don't get done between 9 and 5, to conduct the business of daily life (such as paying bills), and to house the proliferation of personal computers that are now fixtures in most residences. "Work has really infiltrated our homes in a lot of ways," says Pam Brenner, manager of workplace issues for office furniture maker Steelcase. "But these domestic office spaces emphasize casualness and comfort."

For their makeover, the Moores hired a contractor, architect, and interior designer to strip the house down to the studs and create an entirely new and completely up-to-date structure. But the Moores handled the design of the office themselves. "I had seen a lot of other home offices and basically knew what I wanted," George says. Any office worker would recognize his essential requirements: good light, efficient equipment, plenty of storage and surface space, and comfortable chairs.

First came the 11 1/2-foot-long island salvaged from the house's former kitchen. The contractors carried it downstairs and set it against the wall, on the left side of the room. With this cabinet in place, George then sketched out a rough plan that would accommodate at least three computers, a fax machine, a scanner, and two printers, have lots of filing cabinets and drawers for storage, and still have plenty of open desk space. (According to Brenner, the minimum work area for a computer user is about 8 square feet, which includes a place to put the monitor.) George was determined from the beginning that the computers' central processing units and peripheral gadgets should reside in secure, lockable cabinets, beyond the reach of "small hands that might stick peanut butter in the disk drives." Finally, he also wanted to hide the cables and wires that link the CPUs with the other office equipment.

The task of translating George's notebook-paper sketches into an office fell to John Brown, the owner of Dog Star Cabinets.

"There was a lot going on in that little room," he recalls. "The challenge for me was dealing with such a small space and all the requirements without making it look like a hodgepodge." To give the project some unity, he replaced the doors and drawer fronts on the leftover kitchen island with ones made of painted poplar and MDF to match those on the new melamine cabinetry. "Painting all the doors meant that I didn't have to worry about grain direction," Brown says. "We weren't building furniture. It just had to be workable and look clean."



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1. Ambient lighting: Recessed Juno MR16 halogens. 2. Task lighting: Juno Trac 12 under cabinet-mounted halogens. 3. Flat-screen LCD monitor: 21-inch NEC Multisync. 4. CRT Monitor: 20-inch Sony Multisync. 5. Adjustable, slide-out keyboard tray. 6. Ventilated locking cabinet for CPU. 7. Chair: Herman Miller Aeron. 8. Speakers: Altec Lansing (left), Cambridge Soundworks (right). 9. Internet Appliance: Compaq PAQ.

It also had to provide a high degree of comfort. After all, no one wants to experience the nagging discomforts and sometimes debilitating injuries that plague workers in poorly designed corporate offices. For seating, Moore chose chairs with a cool, see-through mesh instead of upholstered foam. More important, they are engineered to provide a range of seat height and back adjustments to encourage the type of posture your mother promoted when you were a child: back straight, knees at a 90-degree angle or greater, and feet firmly on the ground. To reduce wrist and neck strain, key boards should also be positioned at a particular angle and height, one that keeps elbows at a 90-degree angle, forearms parallel to the floor, and wrists straight. That's why George installed pull-out, fully adjustable keyboard trays under the counter at each work station.

The Moores took equal care planning for eye comfort by following

ILLUSTRATION: GREGORY NEMEC

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Simple sets you free.

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Standing 75 inches tall and a full 41 inches wide, this custom cabinet neatly houses the gadgets that make this home office work.

FLIPPER DOORS

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SLIDING SHELVES

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PILING CABINETS

Drawers accommodate up to 150 letter-size hanging files, plus extra space for legal files and odds and ends.

A Hardworking Quartet

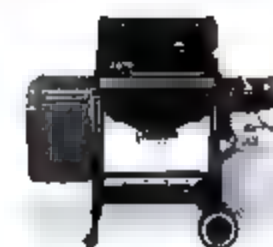
1. Flatbed scanner: HP ScanJet 5100C8 2. Combination printer, fax machine, and plain-paper copier: Brother MFC410 3. Color printer: HP PhotoSmart 4. B&W printer: HP LaserJet 4L

The Brains

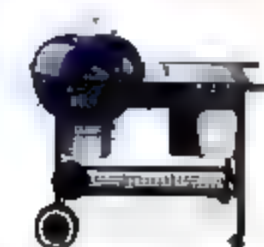
The Micron Millennia Max: 506MHz CPU with Pentium III processor, 10GB hard drive, 256MB RAM

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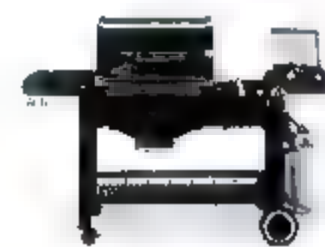
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the two key rules of office lighting. 1. No light source should be positioned so that it reflects directly onto a computer screen. 2) The screen should not be located so that users have harsh light spilling directly into their eyes when they're computer bound (see "The Eyes Have It," this page). Outside light isn't a concern in the Moores' basement. The task lighting for the work surfaces is supplied by 5-watt, low-voltage halogen track lights tucked underneath the upper cabinets. Recessed, 50-watt halogen ceiling fixtures equipped with diffusers provide glare-free ambient lighting. All are patched into a programmable system that allows them to be controlled from any point in the house. "I find that my home office is better lit than the one at work," says George.

To power everything, there are 10 electrical outlets throughout the room. A four-outlet power strip also sits inside the printer cabinet. "I figured we could never have too many outlets," George says. And because electronic equipment is notoriously sensitive to voltage spikes and dips, which can scramble data in an instant, George has a backup power system. In the event of brownout, a battery pack with an AC inverter responds instantly to keep the computers running without interruption. For full-fledged blackouts, the entire house is equipped with its own propane-powered generator.

Buried behind the walls, along with the wires supplying the office's electricity, is the Moores' multi-option, cover-all bases network, reflecting the current state of uncertainty about the way data will be transmitted in the future. The network includes high-speed Category 5 telephone wire, which links the basement computers with the others in the house; RG-6 coaxial cables, to connect with the Internet and download programs from the Moores' satellite and cable TVs; and ultra-high-speed fiberoptic cables. All are insulated from power fluctuations by a central surge protector. At this point, the fiberoptics aren't being used because the hardware that connects them to the com-

puter is too expensive. But two or three years down the road, George hopes to be using it to capture high-definition video broadcasts.

All the other connecting wires that infest the Moores' office—the power cords and the cables linking the computers to monitors, mice, keyboards, printers, and other peripherals—are readily accessible, yet none of them is visible. They rest in 5-inch-wide trays attached to the wall just beneath the laminate countertop. Unfortunately, George specified that the trays be positioned just 2 inches below the counter—too small a gap for him to get his hands in. "I have to use a wooden dowel to fish new cabling in there; it's not so easy." Setting the trays just 4 inches lower, he figures, would make the dowel unnecessary. The lockups that hide the two computers are also situated under the counter, while the printers, fax machine, and scanner reside in a large cabinet with two slide-out shelves and two large upper doors that slide out of the way into side pockets. To avoid a plastic and silicon meltdown when the doors are closed, discreet ventilation holes were drilled along the bottoms and tops of these cabinets to dissipate heat.

Despite the hand-me-down fittings and its modest appearance, Moores' home office still ran up an impressive construction bill. George estimates its total cost at about \$20,000 (not including the computers) with about half of that coming from the new cabinets. Not that he regrets the expense. He describes his former home "office" as nothing but "a large table, a couple of chairs thrown about, and a lot of cables outside one bedroom"—inefficient and in the way. Yet their dream that this new basement office would provide a quiet spot where they could get work done hasn't quite turned out as they intended. "We end up playing on the computer with the kids," says George. Perhaps appropriately, the space that appeared by accident has become an extension of the basement playroom. ■

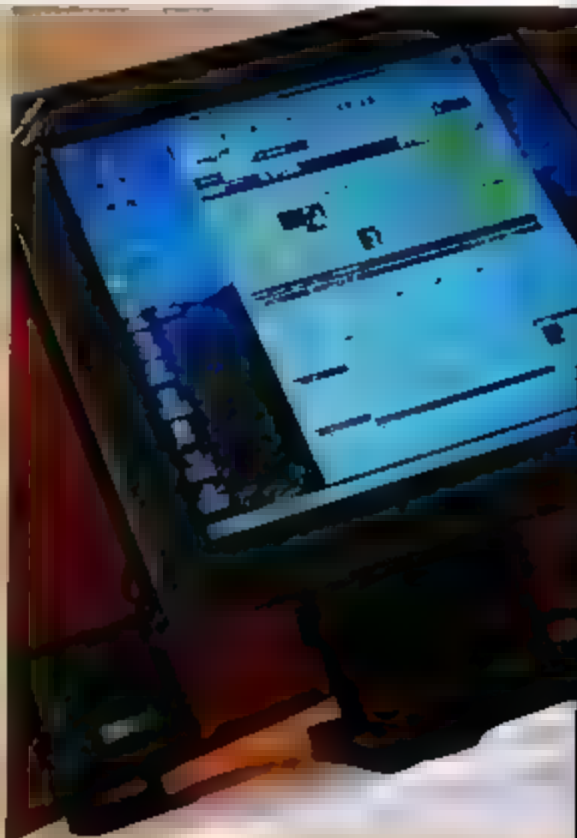
THE EYES HAVE IT

While there are formal guidelines spelling out the light levels for rooms with computers, Dr. James Sheedy, director of the University of California at Berkeley's Computer Eye Clinic, says they're not much use in a home office. In fact, the standards are about as obsolete as a PC that can't run Windows. "They're a holdover from the days when monitors had dark backgrounds with light characters," he says. "All they say, in essence, is 'Dim the lights.'" Dr. Sheedy suggests matching the room's light level to that of the screen instead. "The ideally lit environment is one where everything has about the same brightness," he says.

Few homeowners have the sophisticated meters needed to thoroughly evaluate and adjust lighting, so Dr. Sheedy uses another—decidedly low-tech—way for measuring illumination. "Look at the computer screen and shield your eyes from other light sources. If you notice an immediate sense of comfort, you've identified the problem: The room's too bright." And if you can't read printed text comfortably, Sheedy says, the room's too dark.

Overall light levels can be fine-tuned either with a dimmer switch or simply by changing bulb wattage, but it's best to make an office lighting plan in advance so that it will work with the intended layout. Dr. Sheedy emphasizes that lamps and fixtures should not be placed so they shine directly onto a monitor screen or directly into a computer user's eyes. Similarly, a desk should be located so that light pouring in from windows doesn't reflect off a monitor or shine into a computer user's eyes.

A lighting system doesn't have to be elaborate to get diffused, glare-free lighting, says Pam Brenner, a manager at Steelcase, an office-furniture maker. In her home office, Brenner relies on a freestanding torchere lamp (with a three-way bulb) that bounces light off the ceiling, a 60-watt task light shining on the desk, and two windows—one facing north and one east.



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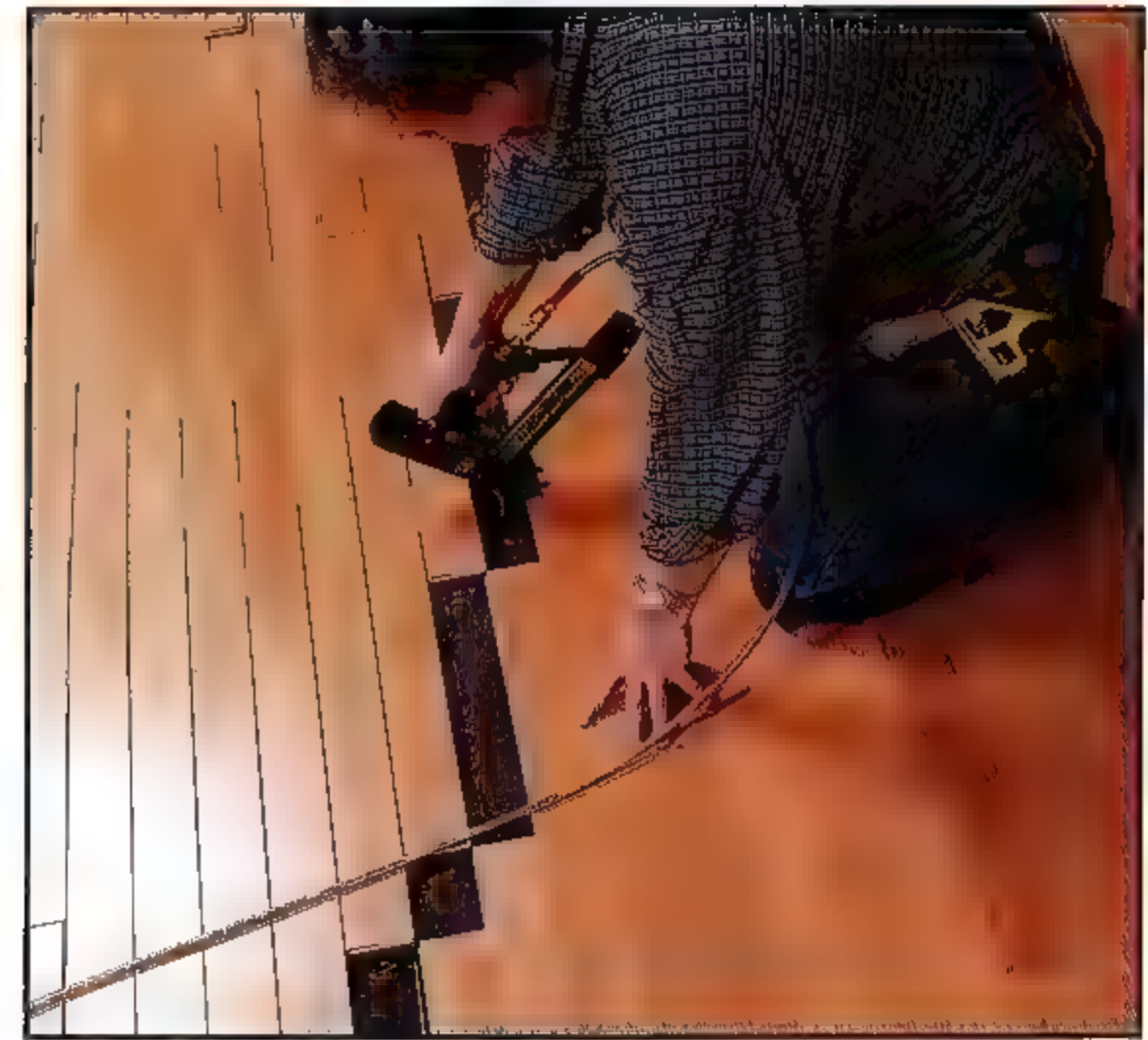
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HOMESOWNER'S STEP-BY-STEP PROJECT SERIES HANDBOOK

LAYING ENGINEERED WOOD FLOORS



Jeff Hosking sinks a staple into a strip of engineered wood flooring just $\frac{1}{8}$ inch thick. To speed the installation, he racks up several courses of loose strips in front of him, their end joints already fitted and randomly staggered. He then works diagonally across the room.

DETACH HERE

BY MARK FEIRER

Jeff Hosking, a hardwood flooring consultant for *This Old House*, first began laying floors 35 years ago, as an apprentice to his father. Back then, 90 percent of his work was installing long, solid strips of wood, fastened with nails. But now, about half of the flooring Hosking puts down is engineered—made of thin sheets of wood glued together like plywood.

Solid wood is classic and can last a century, but engineered flooring, which comes with a factory applied finish, offers a quicker, easier, and less messy way to get a new floor. All you'll need is staples (or glue), a few tools, and a day.

Because it's laminated, it's more stable than solid wood, so you can put it over concrete or radiant floors, or in a basement,

and not worry much about shrinkage or warping. And Hosking says the finishes are far more durable than anything he can apply on site. Still, buyers must be aware that the quality of this flooring varies considerably. Obtaining and comparing samples is an important first step of the installation process.

For top-of-the-line engineered strips, you'll pay \$8 to \$11 per square foot. That's higher than solid wood planks, but homeowners can offset the expense by tackling the installation themselves. "It's far easier than sanding and finishing a traditional floor," Hosking says. He tells his do-it-yourself customers to call him if they have any trouble, but 95 percent manage without a hitch. His advice: "Just take it slow."
—Shannon Brady Marin

PHOTOGRAPHS BY KINDRA CLINEFF



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HOMEOWNER'S HANDBOOK

There are considerable differences in the way engineered wood flooring is made, differences that affect its appearance and durability. Here's what to look for before buying. **Wear layer thickness:** "The life of a floor is measured above the tongue," says Hosking. In engineered flooring, this is known as the wear layer. A 1/8-inch wear layer, for instance, can survive only about three refinishing. A 3/8-inch layer, by contrast, can be sanded five times, almost as many times as a solid-wood floor. The life of a wear layer also depends on the hardness of the wood used (the harder the better) and how it is milled: A quarter-sawn layer is more stable and wear resistant than one that's flat-sawn. **Number of layers:** "More layers of wood means more stability," says Hosking, and a more stable floor is less likely to warp or have joints open up. **Overwood:** This noticeable variation in the thickness of adjacent strips is a sign of poor quality control. To find it, butt several samples side-to-side and end-to-end on a flat surface. **Edges:** On some floors, a slight bevel milled along the top edge disguises overwood and masks minor irregularities in the subfloor, but results in visible grooves between adjacent strips. Square-edged flooring has a smoother look but may telegraph any irregularities in the subfloor. **Finish:** Compare the number of coats and the details of the finish warranty, and inspect samples for sheen and smoothness.

Materials

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"You save so much money by laying flooring yourself that you can easily afford to rent the right tools."

—Jeff Hosking

Tools

1. 8-foot straightedge: for checking flatness of subfloor
2. Fine-tooth handsaw: for trimming door casing
3. Pneumatic brad nailer: for fastening the first courses of flooring (alternative: hammer and nail set)

4. Miter saw (with carbide blade): for cutting flooring strips to length (alternative: backsaw with miter box)
5. Jigsaw: for trimming pieces to fit around vents and other obstacles (alternative: coping saw)
6. Pneumatic staple gun: for securing flooring to subfloor (alternative: manual hammer stapler)
7. Notched trowel: for spreading adhesive for glue-down installations
8. Plaster trowel: for spreading filler to level subfloor
9. Combination square: for marking cut lines
10. Utility knife: for cutting felt
11. Rubber mallet: for tapping flooring together
12. Pull bar: for snugging together strips close to wall (alternative: pry bar)
13. Plastic tapping block: for nudging a strip tightly to its neighbor without damaging the fragile tongue
14. Hammer: used with tapping block to snug up flooring, and with nail set to set finish nails
15. Hammer tacker: for securing builder's felt to floor
16. Tape measure: for taking measurements
17. Masking tape: for holding together glued-down boards until the adhesive sets
18. Cordless drill (with spade bit): for notching flooring around baseboard heating pipes

ALSO NEEDED

Air compressor: for powering pneumatic tools. A 4.5-gallon, 1.5-hp model was used for this project.
Table saw: for cutting the last course of flooring



STEP 1: PREPARE THE SUBFLOOR

- With a pry bar, gently remove the baseboard trim. Also remove the end caps on baseboard heaters, the registers for forced-air vents, the plates for floor receptacles, and any other obstructions. Add a box extender to the floor receptacles, as code requires.
- Walk over every inch of the area to be covered and listen for squeaks. Wherever the existing wood flooring is loose, batter it down with ring-shank nails or Phillips-head screws, and set them flush. Fasteners should penetrate at least 1/2 inch into the floor framing. Repair loose or damaged sheet flooring. Over badly damaged floors, glue and fasten sheets of AC-grade 1/2-inch plywood, with the "A" side facing up.
- Check for flatness by sweeping a 10-foot straightedge across the floor. Mark the floor wherever light shows underneath the edge. Level humps with a belt sander. Fill depressions deeper than 1/8 inch with troweled-on patching compound (above); sand it smooth when dry.



STEP 2: LAY THE FELT

- Trim off (undercut) the bottoms of door casings using a handsaw lying flat on a scrap of the new flooring (above).
- Vacuum the entire floor to clean up all dust and debris.
- Cover the subfloor with 15-pound builder's felt and run it in the same direction as the new flooring (in line with the longest walls, typically). Butt the felt's edges together and use a hammer tacker to staple down each edge every 4 feet or so (inset). Trim felt to within 1/2 inch of walls.
- After the floor is covered, drive any poorly set staples flush.

TIP: Cut openings in the felt with a utility knife each time you encounter a vent or outlet. You're likely to forget where they are if you wait until the whole floor is felted.

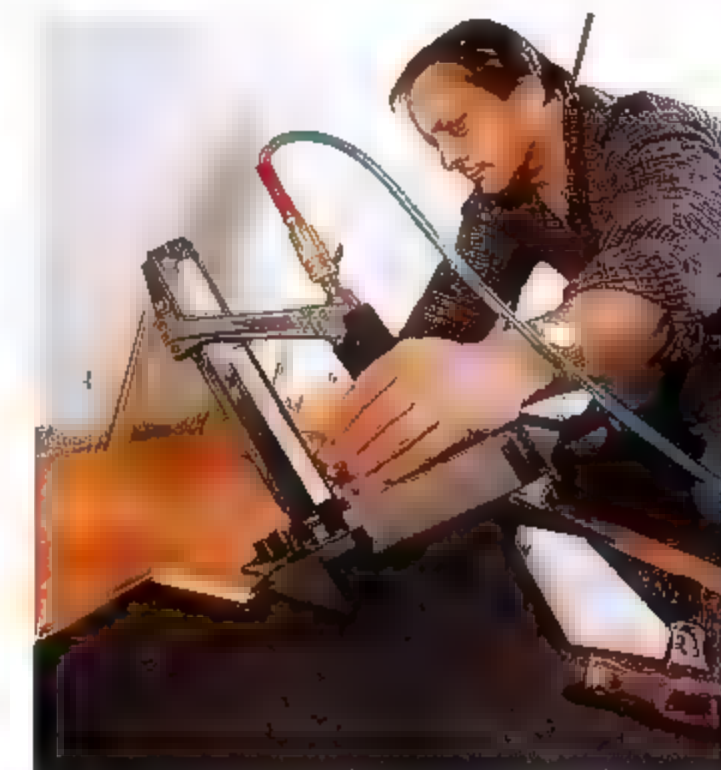
STEP 5: STAPLE THE FLOOR

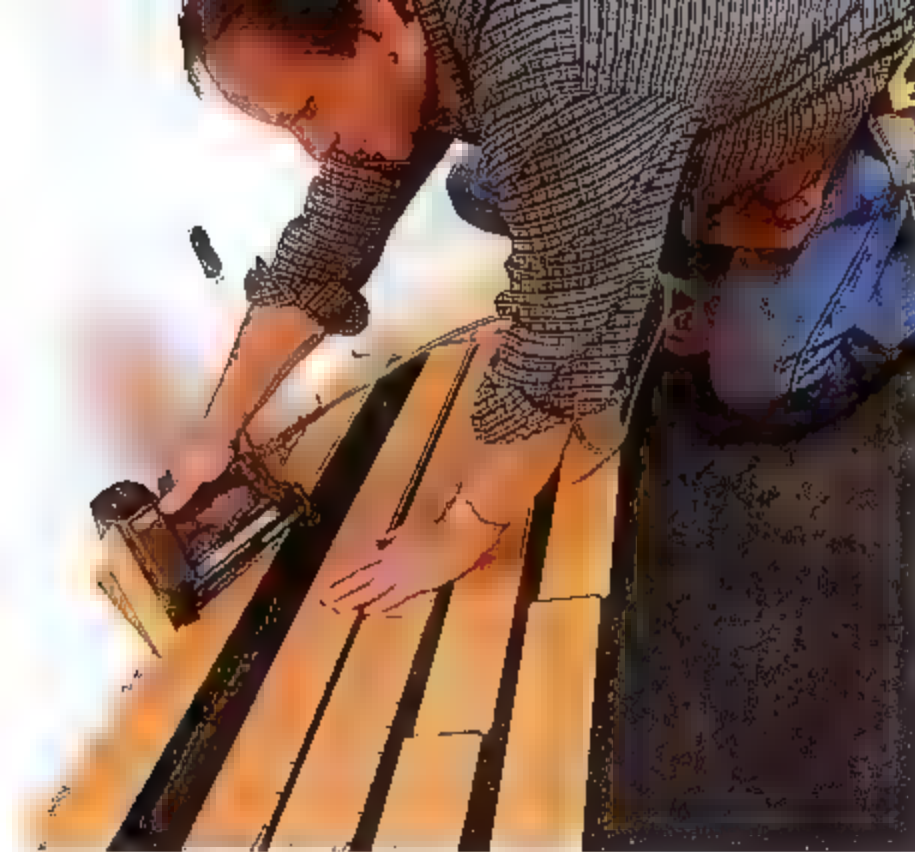
- Tap the next course snugly into place with hammer and block (left). If this course is too close to the wall to use a pneumatic staple gun, toenail it.
- Lay out the next five courses on the floor and fit the ends together. The goal of this process, called racking, is to stagger the end joints randomly across the floor's field. Offset the end joints in adjacent courses at least 12 inches, and the joints of every third course at least an inch.



- Staple the remaining flooring through its tongues using the staple gun (right). This tool shoots 1-inch narrow-crown staples, which hold better than nails of the same size. A shoe holds it at a 45-degree angle. Fire staples every 4-5 inches, and no closer than 2 inches from an end.
- Continue racking, tapping, and stapling until you reach the wall opposite your starting point.

TIP: As you rack the flooring, check each piece for imperfections, particularly at edges and ends. Set flawed pieces aside to use as cutting stock. Discard any that are warped or bowed.



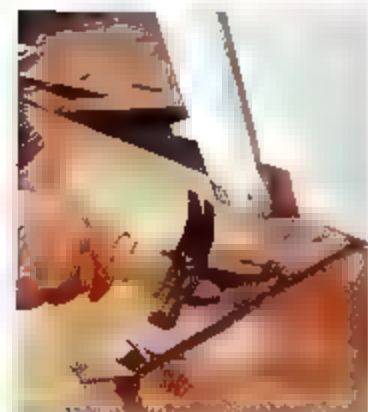


STEP 3: SET THE STARTER COURSE

- Start laying the floor in a corner, along the longest exterior wall, which is more likely than a partition wall to be straight and square.
- Place 1/2-inch-thick wood spacers against the starting wall and adjacent wall. This makes an expansion gap that prevents buckling. Butt the grooves (not the tongues) of a long strip of flooring against them.
- With a mallet, snug together the ends of more long strips. At the end of the course, fit a strip (no shorter than 10 inches) 1/2 inch from wall.
- When the first course is set, place a straightedge beside the tongues. Carefully move the flooring in or out until all the tongues line up precisely with that edge and all the end joints are tight.
- Using a brad nailer loaded with 1 1/4-inch brads, facenail each board every 8 inches and within 1 inch of the wall (above). Adjust the nailer to set the brads slightly below the floor surface. Check tongue alignment as you go.

STEP 6: FINAL FITTING

- With a jigsaw, cut flooring around ducts and outlets as you encounter them. Cover exposed edges with mitered trim pieces, which are supplied already finished by the manufacturer. Fasten trim in place with a brad nailer.
- When you reach the wall opposite the starting wall, and the stapler can no longer be used, toenail the next-to-last courses with the brad nailer.
- Using a table saw, cut off the tongue side of the strips for the last course. Be sure to leave a 1/4-inch expansion space between this final course and the wall.



- Slip the strips into place and force them tightly against the previous course with a pull bar or pry bar (left). Facenail them with the brad nailer.
- Vacuum the floor, then fill all facenail holes with colored putty blended to match the hue of the wood. Wipe off the excess with a cloth.
- Remove all spacers and install the baseboard and paint as needed. Put felt pads on the bottom of furniture and chair legs to protect the finish from scratches. Take a walk on your new floor (right).



STEP 4: TOENAIL

- Once the first course is in place, drive 1 1/4 inch brads at a 45-degree angle through the strip's tongue and into the subfloor, a technique called toenailing (above). Repeat every 4 inches. Don't nail any closer than 2 inches from the end of the strip.
- Slip the second course of flooring over the tongues of the first and snug up the strips with a mallet or a tapping block and hammer. As you go, offset end joints by at least 12 inches from those in the first course. Toenail them with the brad nailer as before, but don't facenail.
- Because there are tongues and grooves milled into the ends of this flooring, the ends shouldn't be cut, except when they meet a wall or obstruction.

TIP: Choose each piece of flooring for length rather than color or grain. "The farther apart the end joints on neighboring courses are, the better the floor will look," says Hosking.



WOOD OVER CONCRETE? NO PROBLEM!

Because engineered flooring is so thin and dimensionally stable, it can also be glued, either directly to a subfloor or one piece to another. By dispensing with nails and staples, both methods allow a wood floor to go directly over concrete, something totally inadvisable with solid wood. Planks that are 5 inches wide or more can be glued down or, in some cases, left to "float" over a vapor barrier. Narrow strips have to be glued down.

GLUED-DOWN FLOOR. Working like a tilesetter, Hosking spreads a gooey urethane adhesive over the concrete with a no. 9 notched trowel and sticks the flooring into it, place by place (right). Once the adhesive cures, in about 1-2 days, the floor is ready to use. The keys to success here are controlling moisture and using a dependable adhesive. A newly poured concrete slab should cure at least 30 days—"Longer is better," says Hosking—and existing floors must be tested (by taping down a patch of foil) to be sure water vapor isn't moving through them. He admits that gluing floors down is messier than nailing them. "And you have to work fast, or the adhesive will skin over and the flooring won't stick."

FLOATING FLOOR. With this technique, the planks are glued only to each other, edge-to-edge, using an aliphatic resin glue recommended by the manufacturer. The finished floor becomes, in effect, one large panel, so joints stay tight. A thin sheet of closed-cell foam under the floor allows it to contract and expand as a unit. The foam also provides cushioning, offers a small measure of thermal and acoustic insulation, and serves as a vapor barrier, all features suited to installations over concrete.



PLANNING AHEAD

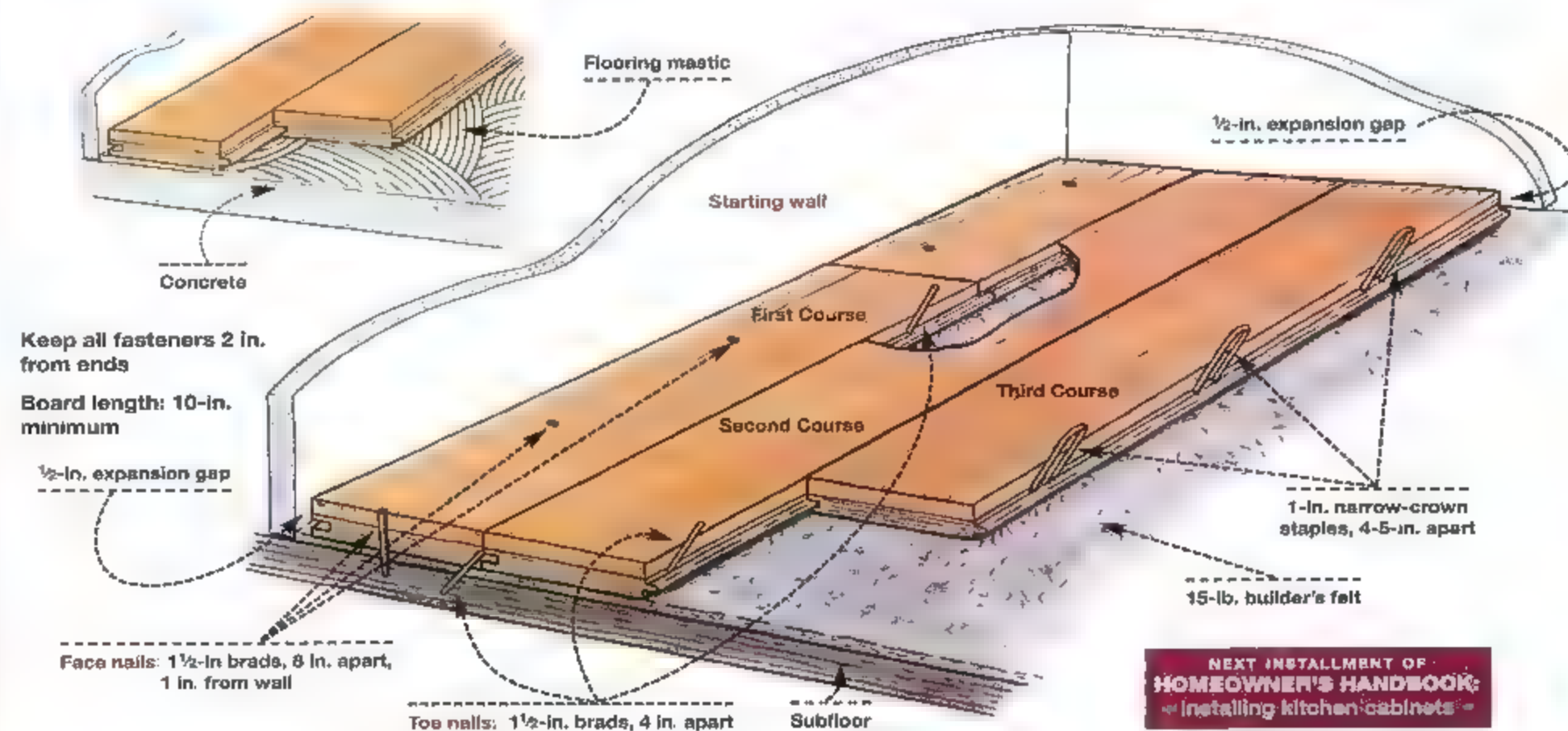
- To estimate how much flooring to buy, calculate the square footage and add a waste allowance: 5-7 percent for straight-course floors; 15 percent for a herringbone. For metric materials, 1 square meter equals about 10 1/2 square feet.
- Take an inventory of all edges that won't be covered by existing trim, including hearths, stairs, cabinets, or openings such as floor registers or outlets. Order enough

factory-finished trim to cover these edges.

- Let flooring acclimate in open boxes for 3-4 days in the room where it will be laid. Wait at least a week before opening boxes in areas with new drywall or plaster. Don't store flooring in basements or garages; it might absorb moisture.
- "Try to run the flooring parallel to the longest wall in a room," says Hosking. "It makes the space seem bigger."

Glued-Down Flooring

Stapled-Down Flooring



NEXT INSTALLMENT OF
HOMEOWNER'S HANDBOOK:
Installing kitchen cabinets

LETTER FROM THIS OLD HOUSE



Letting Go

F

or eight months, the T.O.H. fall project house on a sloping corner of Charlestown's Bunker Hill Street has hummed with human endeavor, our own little corporate headquarters. Day in and day out, we employees parked in the lot (empty spots scattered throughout the neighborhood), passed through security ("Hi, Tom"), found our cubicles (whichever room was under renovation at the time), ate in the caf (the scaffolding in the summer; a sunny corner inside in the winter), and worked diligently. The phone system was purely cellular, and the bathroom was, well, plastic and portable. Office supplies showed up daily, in Tom's trailer, in homeowner Dan Beliveau's SUV, or on a flatbed equipped with a 60-foot boom. As in every office, there were the early birds (Tom liked to pull in around 6.30 A.M.), the part-timers (the TV crew came in once a week, on average), and the workaholics (Dan was on an 8 A.M. to 10 P.M. shift).

For those of us who work on the show, it's always a bit of a shock to be reminded that each renovation is a temp job. The pink slips come with the wrap party, and watching cluttered workrooms metamorphose into a beautiful home brings on the classic mix of emotions that accompanies an end to many months of extreme devotion to an arduous task. There's disorientation (our keys won't work in the front door anymore, and sadness (all the fun times we had in this building are over). But there's also joy; since the job was often difficult, we're ready to say, *We're outta here!*

Two employees get to stay on, of course—the homeowners. But I'll bet Dan and Heather Beliveau are feeling much as we do. Having the whole place to themselves is probably a little disorienting; the absence of all the workers who have become fixtures in their lives may be causing them some sadness. Yet I have no doubt that they're experiencing joy, too, because the hard work is over (*They're outta here!*) and the remodeled row house looks great.

All of us share a common feeling of pride for what our little business accomplished. In front of 10 million weekly "customers," we brought new life to a 135-year-old house. Our products included good design, sound construction techniques, and a host of innovative materials and services of the highest quality. We may have only been in operation for eight months, but our efforts will have lasting impact—on that Charlestown corner, and in television reruns.

So now it's off to our new office in West Palm Beach. The commute's a bit longer, but the working conditions are awfully nice. We'd best enjoy it while we can, though, because we'll all be out of a job in three months. ■

PHOTOGRAPH BY BRIAN SMITH

Bruce Irving, producer of the show *This Old House*, finds himself and the crew switching "offices" twice a year.



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a fine finish

a 19th-century row house shines anew, thanks to 21st-century technology and a dedicated crew of skilled workers

The facade of the Second Empire row house sports new embellishments: hand-molded at the roofline, working PVC shutters held open with galvanized steel dogs, energy-efficient windows, and cast-concrete lintels replicating the brownstone originals.

BY JEFFERSON KOLLE

"H

ow would you like to help wash some windows? Or maybe make, coordinate, and hang a few more? That's the idea, says the show's executive producer and on-air host, Bob Vila, as he hands me a stack of papers and a roll of paper towels. I slip my notebook and pen into a pocket and pick up the work today, January 2, the big end-of-the-job celebration at Dan and Heather Beliveau's 1885 brick row house in Chelsea, Massachusetts. It's 10:00 a.m., and everybody—everybody!—is joining the fray to polish off last-minute projects. Electricians and carpenters, plumbers and painters, work through their punch lists as a never-ending procession of workmen cart tools and leftover materials out the front door and into waiting vans and trucks. There are some details that Dan and T.O.H. contractor Tom Silva will have to wrap up after today, but for the most part, the job is complete.

The Beliveaus' row house, located not far from the Bunker Hill Monument in Charlestown, Massachusetts, has come a long way since the T.O.H. crew showed up back in May to do a major restoration. What was once a crumbling building is now a spiffed-up two-family gem. Polyurethane shines on the patched and repainted exterior. New plaster and paint cover the formerly cracked walls and ceilings, and new draft-free windows and doors have already been cleaned—sparkle. The remodeled kitchen, long for Dan and Heather, now shows no evidence of the worn linoleum floors and chipped enamel appliances.

The new fixtures and appliances show up their tiny pink-tiled forerunners. The new windows and doors gracefully complement the house's original Second Empire style. Yet out of view, there are some improvements of another sort: state-of-the-art plumbing and roach traps, energy-efficient lighting, high-tech wiring, and rot-proof composite materials. Tom and the crew have made some important but unseen upgrades, all of which will

keep the house and dishes for their imminent arrival of new tenants. "It's the best anyone has put in such long hours," she says. "I'm going to keep the prize."

A week before the final, finishing-up melée, *TOH* master carpenter Norm Abram is standing quietly in a stripped-out closet off the dining room, holding a 4-foot level and contemplating his next move. He has come to Charlestown with the china cabinet he made for Dan and Heather at the New Yankee Workshop, and now comes the critical step: marrying the perfectly square-cornered plywood box with the less-than-perfect surfaces of the old row house. "This existing wall is so out of plumb that if I screwed the cabinet flush to the studs it would rack, and the doors wouldn't work," he says.

Norm began preparing the space on an earlier visit by enlarging the closet and fitting it out with new framing. So now, on the day of installation, it's only an hour-long job to shim and screw the box in place. "It was so much faster to build the cabinet in the Workshop, where I have all my stationary tools set up," says Norm. "Building this on-site would have taken forever."

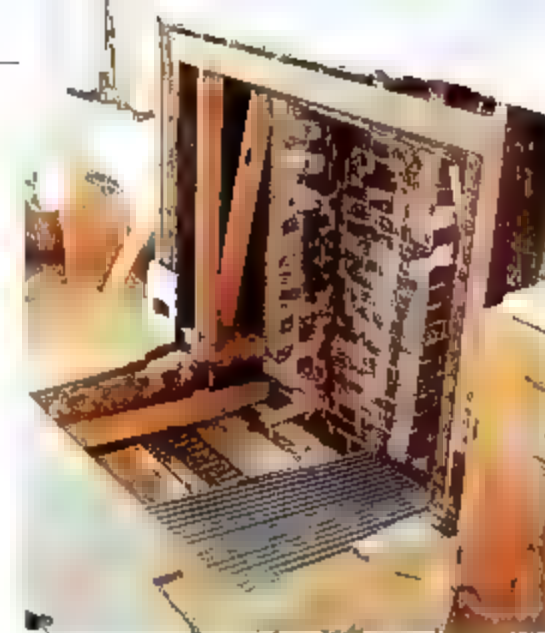
The china cabinet, a close copy of the one downstairs in the original dining room, has two banks of drawers below and shelves above that are fronted with leaded-glass sliding doors. For the new cabinet, Norm not only borrowed the design, he also borrowed its doors. "Dan wanted to use them up here," Norm says. "That old cabinet looks fine with open shelves."

With the cabinet fastened in place, Norm bridges the gap between carcass and wall with poplar trim, which he custom milled at the Workshop to match the casing around the room's original doors and windows. He then scribes a complex taper on the back side of the casing so it lays tight against the out-of-plumb wall for a true built-in look. Last step is to install the doors. They slide by each other on little brass wheels mortised into the doors' bottoms. The wheels, in turn, ride on thin brass tracks screwed to the cabinet. Norm pushes on one door, and it whispers past its mate. "Looks like it's always been here," he says.

Through an ornate archway, the dining room connects to the living room, which is flooded with light from the 7-foot-tall, two-over-two windows facing out on the street. The crowning feature of this space is the wood-burning fireplace. With its carved white-marble mantle and curved cast-iron surround and grate, it looks like a remnant of

the 1865 construction. But, in fact, the mantle first framed a shallow grate for burning coal, which was unusable by the time the Beliveaus arrived.

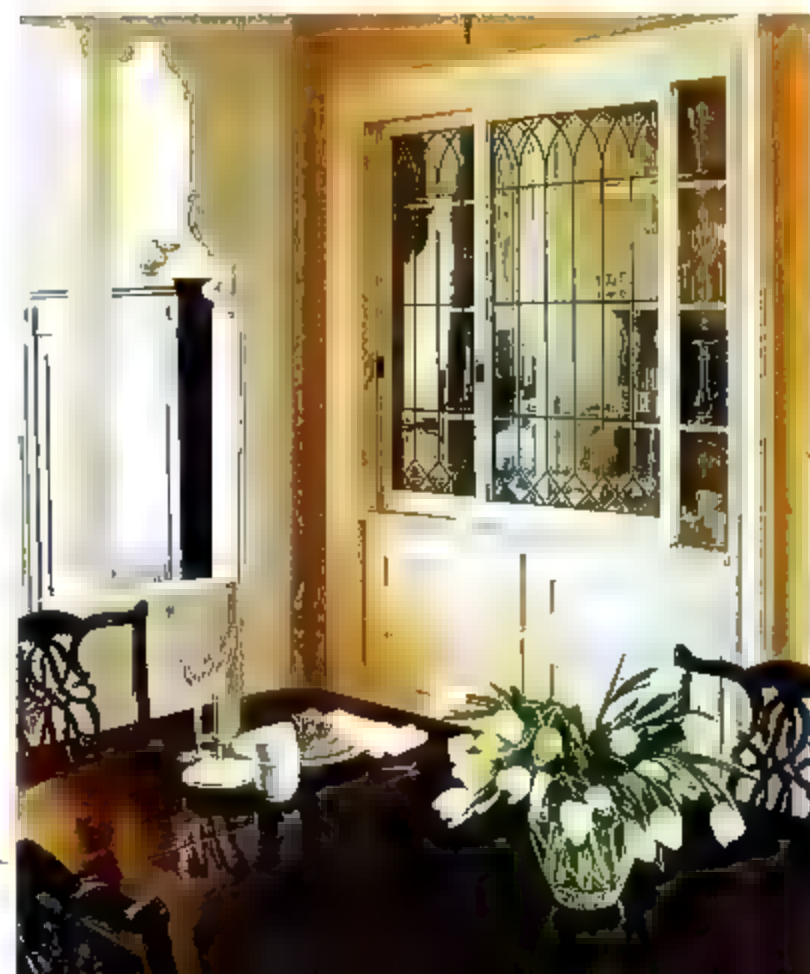
To create a real working fireplace, chimney-repair specialists Mark Schaub and Dan McLaughlin and the r crews had to start virtually from scratch. They cut back and rebuilt the floor framing, then laid a metal base between the joists as a form and poured a solid concrete pad up to floor level. On top of that, they created a firebox of refractory brick, which can withstand a wood fire's 2,100-degree temperatures, and laid the black slate hearth. After cleaning and replacing the mantle, the crew then reined and reinforced the entire length of the old brick flue by pumping a slurry of lightweight concrete down the chimney and around an inflated rubber bladder. "When the concrete cured, we just deflated the bladder and pulled it out," says McLaughlin. Once the cast-iron surround was ripped in and connected to the flue, the fireplace was ready to handle a blaze hot enough to cut through the coldest Boston winter. "The whole thing is a \$10,000 extravagance," Dan admits. "But every time we sit in front of a log fire, we'll be glad we did it."



The centerpiece of the Beliveaus' apartment is the grand living room, with its restored ornamental plaster, weathertight windows, and 18-light brass chandelier. The marble mantle is original, but the cast-iron surround and grate are replicas. In order to get a working fireplace, the defunct firebox had to be ripped out, rebuilt, and reined (above) so it could burn wood.



ABOVE Norm Abram fits old leaded-glass doors from the original china cabinet on the first floor into a matching cabinet he crafted for the Beliveaus' dining room on the second floor. The doors slide smoothly on tracked wheels, while the cabinet's six dovetailed drawers glide in and out on full-extension slides hidden on the drawers' undersides. Norm surrounded the new cabinet with a mitered casing (RIGHT), custom-milled to match the two-part molding profiles Tom Silva installed in the rest of the house.



Standing on the sidewalk near his gray work van, Tom Silva pauses from the frenzied cleanup for a second and looks up at the new master bathroom perched atop the kitchen ell. "That's the first mansard roof we've framed in a long time," he says. "Not easy to do with the off-square corners, but worth the effort." Indeed, from the outside, with its several courses of bricks, scalloped roof shingles, and copper flashing, the dormered mansard looks as though it's been there since the house was built in the 19th century. But from inside, the room boldly proclaims that it's pure 21st century.

When you reach the top of the stairs to the third floor and open the bathroom door, the first thing you see is the 4-foot-diameter skylight hovering in the middle of the ceiling. The original plans called for a typical four-sided opening, but Tom realized early on that a square would never work in this room because its footprint, like the kitchens below, doesn't have 90-degree corners. "It would have been impossible to make the skylight look square in a room that wasn't square itself," he says. "With a round opening, it's much harder to tell that the room's off."

Making big round holes in a roof isn't something Tom does every day, but he was up for the challenge. His first step was to frame the ceiling of the addition with engineered I-joists as headers. He then clipped each corner with a diagonal 2x12 member, in effect turning the square opening into an octagon. "Eight sides is a lot closer to a circle than a square is," he explains. After the roof framing was sheathed, Tom had only to saw out a circle through the plywood. "Once we installed the skylight, it was pretty easy to shim it out round for the josh and plaster," he says.

In the bathroom, Dan is sprinting through an extended punch list of finish work. "I was grouting the shower tiles last night," he says. "When we get the glass shower doors delivered, the room will be finished." On the shower walls, Dan laid 12-inch-square travertine tiles over a layer of 1/2-inch cement backer board. For the shower floor, he put in 4-inch-square tiles of the same stone over a pitched mortar bed in a soldered copper pan. The smaller floor tiles, along with the more numerous grout lines, make for better traction, an important factor when standing on a wet floor.

BELOW: To cut the opening for the big domed skylight in the background, Tom fashioned a simple jig by screwing one end of a board to the roof and the other end to the bottom of his router. By turning the jig around the screw in the roof, he plows a perfect circle through the sheathing above the master bathroom. ABOVE: A plasterer puts the finishing touches on the curved wall beneath the skylight.



PHOTOS: ROBIN SMITH

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“Ubatuba,” says *T O H* host Steve Thomas, running his palm across the gold-flecked green granite counter tops in Heather and Dan’s kitchen. “It’s a beach town in southern Brazil. It’s also the name of this particular stone. Beautiful.” The same could be said of not only the counters but every other detail in the Beliveaus’ kitchen, from the cherry cabinets and stainless steel appliances to the laminated bamboo floor.

In plan, the cabinets form a U shape, hugging the ell’s outside walls on two sides and terminating in a peninsula in front of the entrance with a 17-inch wide raised eating counter. “Great place to hang out on a stool and watch the cook,” says Steve.

With everything finished and perfectly fitted, there’s no sign of the difficulties cabinet installer Ken Oakes, working with Tom Silva, had to contend with. “Putting in the cabinets was a little tricky,” says Tom with characteristic understatement. “The inside corner of the room is racked out of square by about 5 degrees, so we had to do a little tinkering.” They had two options in dealing with the obtuse angle: cut the corner cabinet to fit more tightly against the wall or shim the cabinet out from the wall. “If we’d shimmed it out,” explains Tom, “we would have lost about three inches of floor space—not something you want to do in a small room like this.” The route they chose to take, cutting the side of the cabinet and removing some drywall, took longer than it would to shim, but as far as Tom is concerned, it was the right way to go. “That’s the difference between custom work and just another kitchen installation.”

The cabinets are finely fitted, and the materials good looking. But perhaps the most pleasant aspect of the kitchen is the abundance of light, both natural and man-made. “It’s not a huge space, only 16 by 10,” says Heather Beliveau. “But it feels bigger because of all the light.” Daylight floods in through the two double-hung windows and the eight-light door (leading to a balcony) on the wall across from the cooktop, and through three 8-by-16-inch windows above the upper cabinets on the wall with the refrigerator. “Everybody thought I was nuts when I wanted to put them in,” says Dan. “But I think that these little windows are one of my best ideas.”

At night, or on dreary days, a veritable constellation of electric lighting can be summoned

with a flip of a switch. “In the old days, this might have been the only light in the whole kitchen,” says electrical contractor Allen Gallant, pointing to a simple round ceiling fixture. “But not any more.” Gallant, who has come by to make a few last connections around the house, says the Beliveaus’ kitchen has no fewer than six different types of fixtures providing light for the space. Bright halogen spotlights are everywhere: four on the ceiling supplementing the large main fixture, three under the cabinets, and two more in the stainless steel vent hood ensure shadow-free work areas for the chef. Two hanging halogens with cobalt-blue glass shades brighten the raised eating counter. Behind the cornice molding of the upper cabinets, Gallant also installed xenon cove lights, superbright extended-life incandescents that bounce beams off the ceiling, creating a soft, indirect illumination for the entire room. “It’s like mood lighting for the kitchen,” Gallant says. “Even when homeowners say they don’t want them, I always run the wires anyway because they’ll see them at a friend’s house and call me back to put them in. If the wires are already there, it’s a no-brainer.”



After gutting the old second-floor kitchen, bath, and back staircase, Tom furred out the walls and leveled the ceiling to get a kitchen with the biggest possible footprint. ABOVE: Using a laser level, Tom and electrical contractor Allen Gallant decide where to rough in the kitchen’s wiring. RIGHT: Tom shims and screws a base cabinet to fit tightly against the wall.



PHOTOS: KOLIN SMITH (LEFT); DAVID CASIMACK (RIGHT)

“The kitchen’s not a huge space, but it feels bigger than it really is because of all the light.” —Heather Beliveau



Heather and Dan’s master kitchen is outfitted with rich cherry cabinets, imposing granite countertops, and pristine stainless steel appliances. A plethora of thoughtful details, such as the built-in wine rack and the discreetly placed indirect lighting, lend elegance and grace to the small space.

The caterers have begun to set up in the first floor kitchen. The green granite counters are piled with huge, plastic wrapped patters, a commercial saucepan, and a yellow basket filled with enough slices of French bread to feed all the ducks in Boston Public Garden. Dan pokes his head in, asks if there is anything he can do, and the chefs shoo him out of the room. "You know," he says, walking into the dining room, "I think it was a smart idea to make this kitchen almost the same as the one upstairs—countertops, floors, and cabinets. It saved a lot of decision making during a very busy eight months."

The bottom two floors of the house are set up as a rental apartment; the income it produces will offset some of Dan and Heather's purchase and renovation costs. "It's a great space," Dan says. "Cool kitchen, big dining room, a fireplace in the living room, all these plaster ceiling moldings, and period pocket doors. I wanted to make a place that I wouldn't mind living in. And wait until you see the basement, what we're calling the 'garden level'."

The house's biggest transformation has been on its lowest floor. Eight months ago, it was the kind of space where horror movies are filmed—dark and dank, a maze of dripping pipes, dirty coal bins, a rusting boiler, and a few bare bulbs hanging from the floor joists above. Yet, the first time Dan went through the house with his reactor, he could look past all that and envision the space with two big, comfortable bedrooms and a full bath. "Quite a change, isn't it," he says, carrying one more box down the stairs and into the back bedroom. "Light and bright are the key words down here."

He stows the box behind one of the sliding lowered doors. "The rooms down here have lots of closets, lots of windows, and this," he says, motioning with his arm to the terrace beyond the glass. "A private patio, with all the plantings and the ornamental cedar fence. I think we'll be able to rent out this apartment in a heartbeat."

The bedroom floors are covered with beige nylon carpeting, and the new stair treads and hallway floor are finished with honey-colored bamboo, the same material used in the kitchens and master bath. "Because the strips are laminated, like plywood," says flooring installer Bill Corcoran, "they're very stable and straight as an arrow." Technically, bamboo is a grass, not a wood, but it's harder than oak. Corcoran toe-nailed the bamboo—the same way he would conventional flooring—over a substrate of 1/2-inch plywood that Tom had attached to the basement's concrete slab with spring spikes. But because the bamboo is finished at the factory with three coats of satin polyurethane, when the last nail is driven, the job is done. The coating is warranted for 5 years, but even if it needs redoing in 10 or 15 years, "you can sand it just like any other floor," Corcoran says.

Tom walks into the bedroom and stands next to Dan. The two have worked side by side since May, making decisions, making changes, getting the job done. "Almost done, Tom," Dan says. "You did it."

"We always do, sonny," says Tom with a smile. "We always do." ■

Even as the floor was being prepped for concrete (ABOVE), it was hard to imagine that the dreary cellar could ever become a welcoming "garden level" in the rental apartment. Double windows set into an opening cut through the brick wall admit ample light into the unit's back bedroom (LEFT) and offer a view of the tenants' private garden patio.



PROCESS PHOTO: KOLIN SMITH

WHERE TO FIND IT — SEE DIRECTORY — PAGE 137

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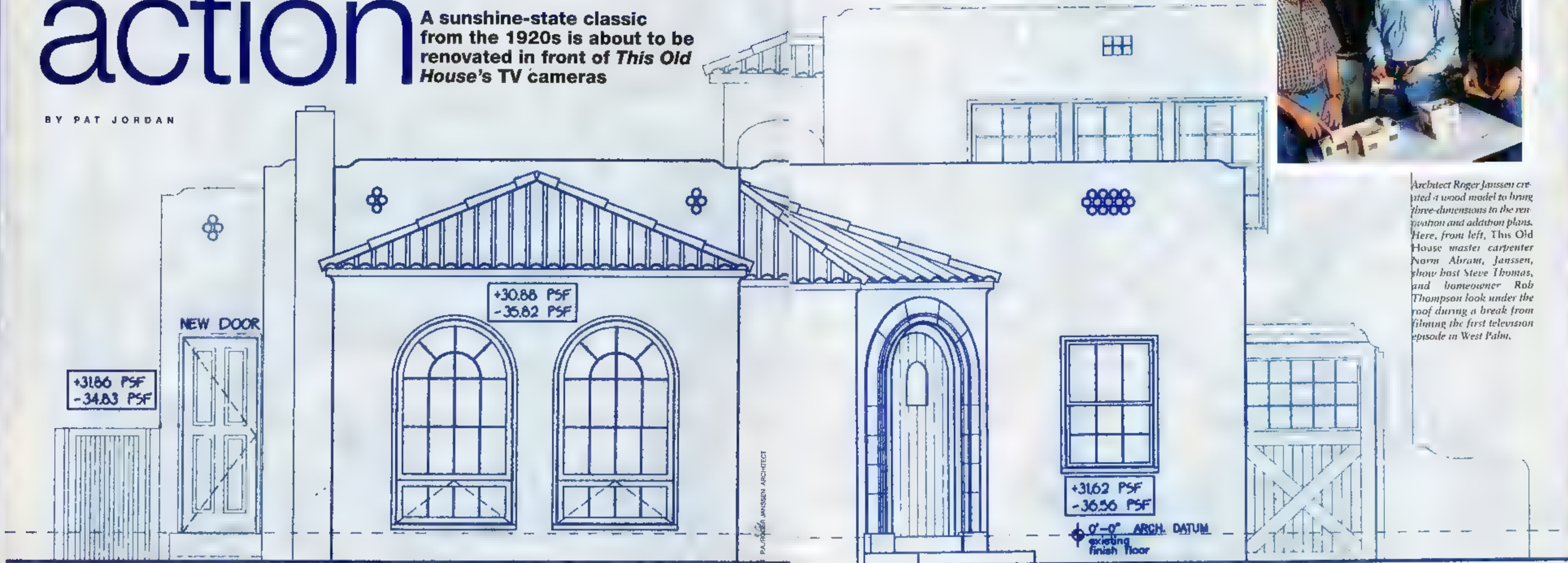
BY PAT JORDAN

TV PROJECT

west palm



Architect Roger Janssen created a wood model to bring three-dimensions to the renovation and addition plans. Here, from left, *This Old House* master carpenter Norm Abram, Janssen, show host Steve Thomas, and homeowner Rob Thompson look under the roof during a break from filming the first television episode in West Palm.



West Palm Beach, Florida Contractor Harley Edge II respects termites as any soldier would a worthy adversary that he's been fighting for years. "You can't blame the critters," he says, poking his finger through the rotted den wall of the house that he'll renovate for *This Old House*'s winter TV project. "They live to eat delicious wood, and to them a house like this is an all-you-can-eat buffet." The Mediterranean Revival's construction is wood frame covered with portland cement-based stucco, but whether termites have made a meal of this particular structure remains to be seen. It's not uncommon in Florida homes such as this one to find that the studs have been eaten away and all that's holding up the house is that half-inch layer of concrete, says Edge. "I have no idea what we'll find until we open up the walls. Maybe we'll get lucky."

T.O.H. master carpenter Norm Abram isn't worried. "If we find termite damage as we go, we'll fix it," he says. "But we can't gut the entire building. Hey, this house has withstood hurricanes and termites for 75 years. It's not falling down."

Homeowner Rob Thompson's biggest fear about his project is not termites but the thought of appearing in front of

the *T.O.H.* television cameras. "I'm so inarticulate," says the self-deprecating 59-year-old interior designer. "Will I get enough takes to do it right?"

The hill on which the house sits was an ocean sand dune in prehistoric times and, in the 1890s, a pineapple plantation. Now it's part of the West Palm Beach historic district of Flamingo Park, which is steadily getting by (see "A Stroll Through West Palm Beach, Florida," page 110). As evidence that the city's rough edges haven't yet been completely smoothed out, across the street is a Mission Revival house with an ornate facade that's obscured by overgrown ivy and two rusted-out 1970s Cadillac Coupe de Villes on the front lawn.

Rob's house needs work, too. With a flat roof and parapet walls, it looks like a miniature castle in southern Spain. But the landscape is overgrown, the kitchen and bathroom are in dire need of an update, and the large outdoor dog—a garage with a rental apartment upstairs—leans heavily under its own weight. For the design of his \$200,000 renovation project, Rob turned to a fellow Flamingo Park resident, architect Peter Janssen, of Dailey & Partners Architects.

south elevation

Janssen's plans begin with an expansion of the 1,250-square-foot home via a 200-square-foot bump-out that will hold a combined breakfast nook and laundry as well as a master bathroom. Edgell will gut the existing kitchen and build a modern one fitted out with additional Shaker-style cabinets, stainless steel appliances, and French doors that lead to the backyard. The added master bath (and the revamped existing one) will get new fixtures meant to look old—but not “too cutesy,” according to Rob. He plans marble shower-surrounds and wainscoting on the walls.

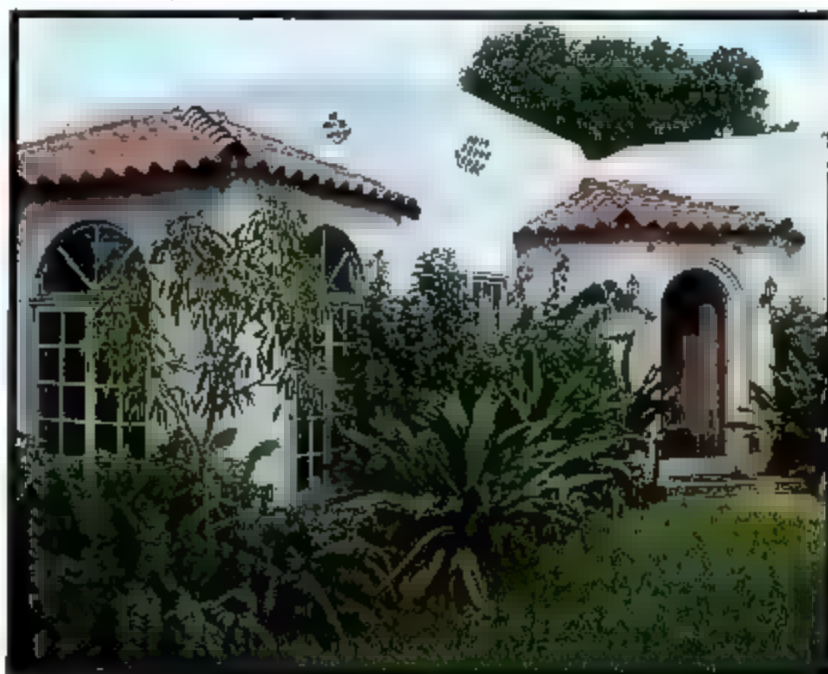
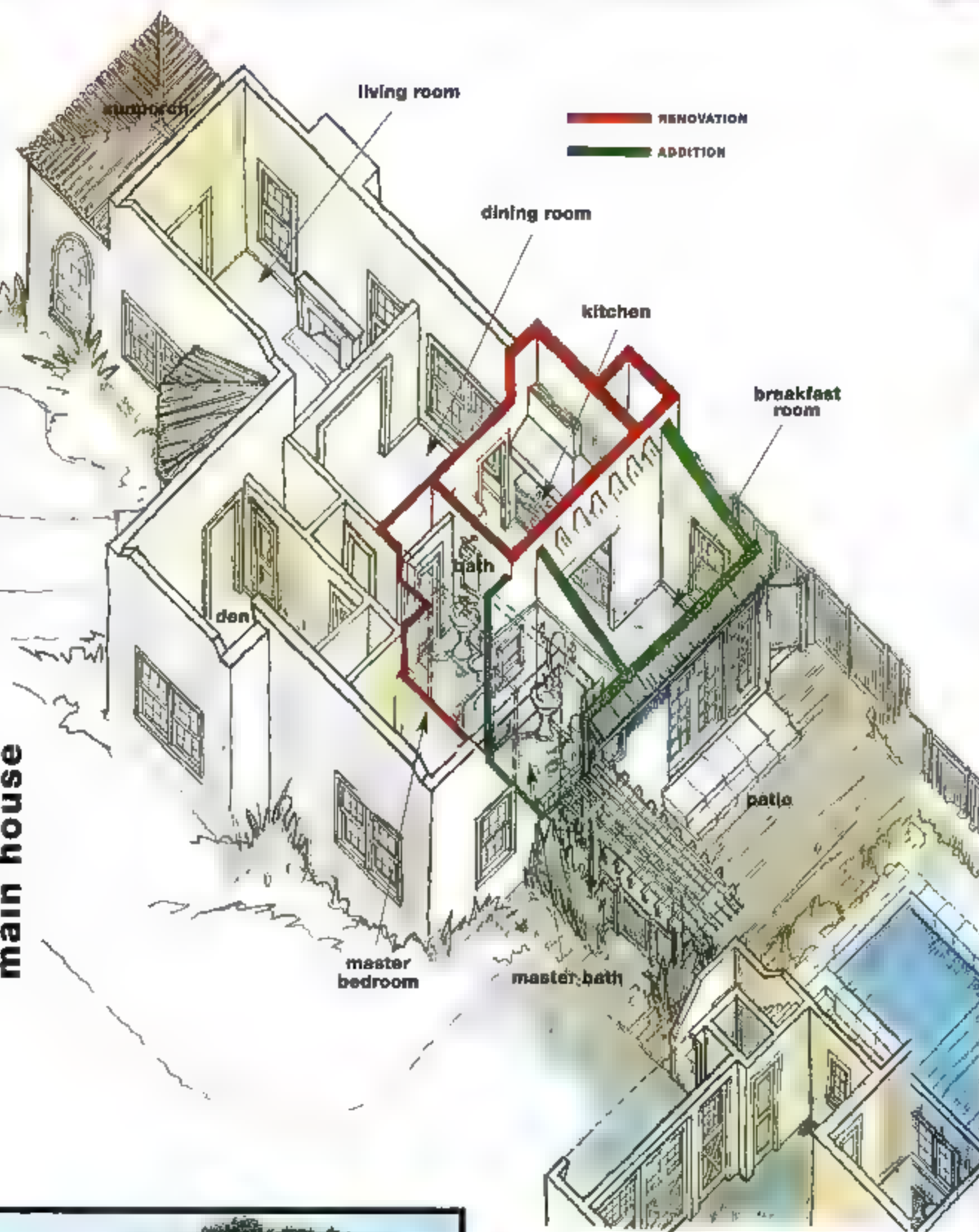
Since Rob is adding on to an old structure, he has to get the historic preservation board's approval for it. And he was surprised to learn that the board's regulations require that a new wing clearly look new. “As a carpenter,” says Edgell, “I usually try to blend additions into the original structure. But the board wants them to be distinct.” Janssen's solution: The addition will jut out from the footprint of the main building by a few feet—clear visual evidence of an add-on. Otherwise, though, it will match the home's style, with stucco walls and barrel-tile roofing.

The rest of the existing structure will get only a fresh coat of paint and, Rob hopes, new windows. He has applied to the historic preservation board for approval to replace the six-over-six, double-hung sash with matching hurricane-proof units. These are made from aluminum and safety glass that can sustain wind-blown debris traveling at 130 miles per hour. If the plan is rejected, Rob will have to use storm shutters, which are heavy and take hours to put up over every window in the event of a coming storm. “I want to retire here and I can't see wrestling those bulky things around,” says Rob. So, he's hoping to convince the preservation board that his plans won't detract from the building's period appearance.

One of the things that attracted Rob to his new home was the contours of the property, especially in back. A South Florida yard with any slope at all is notable in a place whose natives are sometimes

ILLUSTRATIONS BY NICHOLAS STANOS

main house



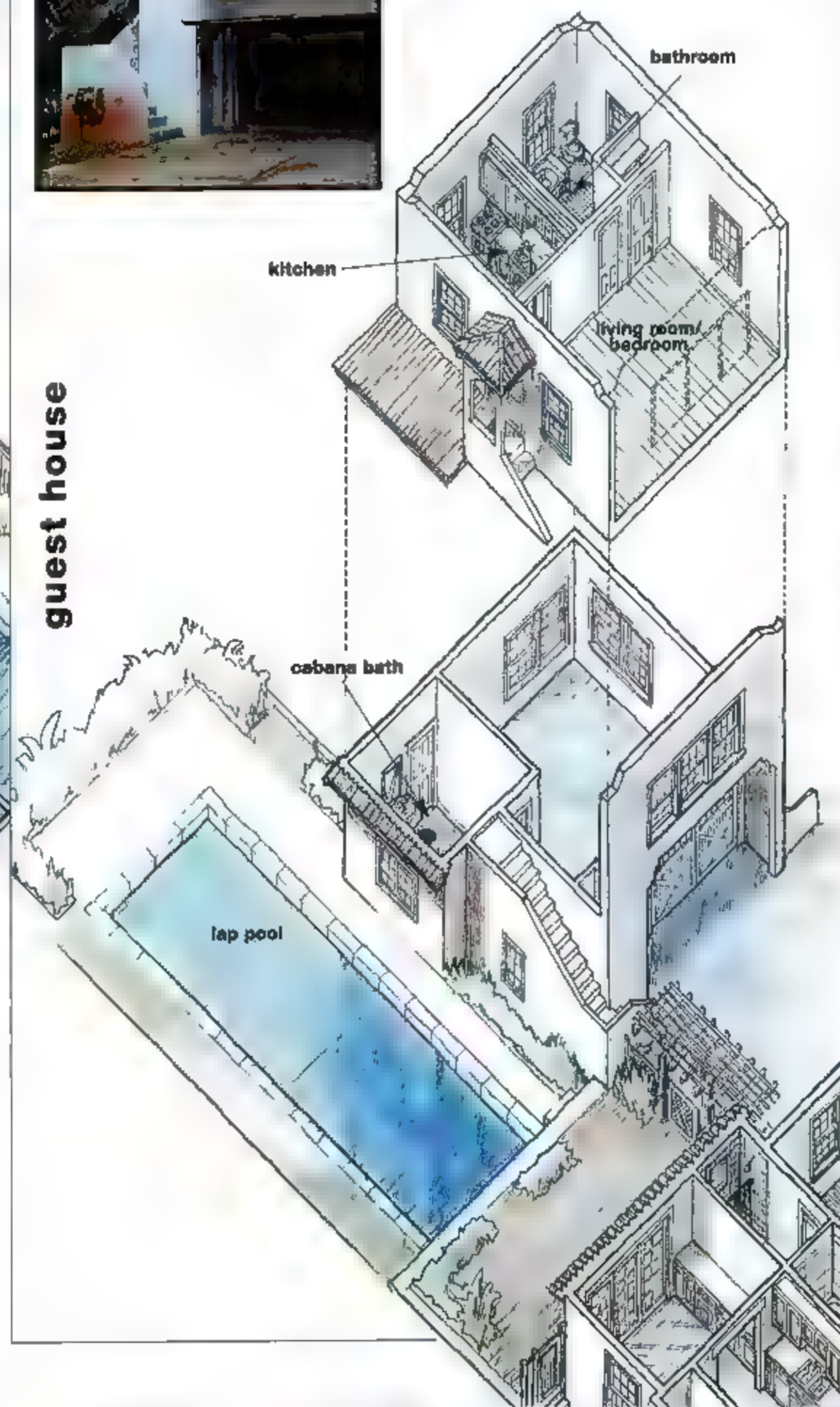
Rob plans to replace the relatively new S tile roofing on the entryway and sunporch with barrel tiles, the type probably originally used on the 1925 house. The traditional tiles derive their name from their shape, which is like half a barrel. Alternating them, curved side up then curved side down, achieves the repeating S-profile of the roof—twice as labor intensive as using a single S tile but also more authentic for 1920s Florida roofs.

PHOTOS: THIS PAGE AND OPPOSITE: DAVID ALBANESE

guest house



The outbuilding renovation represents about 20 percent of the project budget because the structure needs so much work. Its beams and sills are thoroughly rotted. Upstairs, Rob plans a modest 500-square-foot apartment where his adult children can stay when they visit. He'll clean up the garage work space and replace the metal door with wooden swing-out models, and the old windows with hurricane units. The metal awnings will be removed.



called “Flatlanders.” Rob plans to terrace the landscape with retaining walls and patios. Steps will lead down to a long, narrow lap pool (12 feet by 38 feet). The straight concrete driveway that leads to the two-story outbuilding will be torn out in favor of something more authentic for the house's time period. “I'm going to replace it with two concrete strips separated by grass, just the way it probably was years ago,” says Rob. And the new drive won't lead to the outbuilding—which will no longer be used to park cars. It'll meander instead to a parking area screened off with greenery.

The outbuilding cants two inches to the left. “Part of the problem,” says Edgell, “is that the bottom plate of the garage has completely rotted away.” (“This could also be termites,” adds Norm.) “The only solution,” says Edgell, “is to put in jack posts, take out the plate, and put in a new one of pressure-treated wood, and then pour a new foundation.”

The first floor of the building might have once housed Model T Fords, and the sloping, cracked concrete floor is stained from years of dripping oil. Rob plans to convert it into a garage work space and replace the metal pull-down door with old-fashioned garage doors that swing open. But first he will get rid of the stud walls that cut the room into two small spaces. “To do that,” says Edgell, “we'll have to add an engineered wood beam down the center of the garage.”

Off the garage area, there's a small room filled with plywood hurricane shutters that Rob plans to turn into a cabana for the pool. He'll also revamp the second-floor rental apartment, with its pecky cypress ceiling, into a refurbished guest apartment for visitors. The existing room layout will be maintained, but some of the elements removed from the main house, such as cabinets and appliances, will be installed there.

Standing on his front lawn, Rob stares lovingly at his future home. “Maybe I'll move the bougainvillea and lilies away from the entry, to show off the house better,” he muses. Even as he awaits his building permit, in his mind's eye the termites are history, the new addition's stucco has cured, and he's putting the finishing touches on this once-neglected piece of West Palm. ■

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West Palm Beach, says executive producer and director Russ Morash. "West Palm is where it's happening. There's a lot of optimism here." So forget about those butterfly ballots (the mention of which here brings a withering glare). It's latte time in West Palm Beach, and people just want to enjoy it.

The roots of West Palm Beach are fairly shallow, dating back only to the late 1890s, when Standard Oil tycoon Henry Flagler brought his Florida East Coast Railway to the barrier island resort of Palm Beach. His huge Gilded Age hotels, the Royal Poinciana and the Breakers, as well as his own Carrere and Hastings-designed mansion, Whitehall (now the Flagler Museum), created the need for a service community, and so, in 1893 Flagler laid out a 48-block town across the narrow waterway of Lake Worth. Most of West Palm's construction took place during the frenzied real estate boom of the 1920s. Builders imitated the Mediterranean Revival style of Addison Mizner's Palm Beach estates, or else they fashioned houses in the Mission, Craftsman Bungalow, or Shingle styles, all popular at the time.

These were primarily middle-class neighborhoods until the late 1960s and early 1970s, the beginning of a troubled period for the city. A migration away from downtown was fueled by the opening of the Palm Beach Mall and the growth of suburban developments west of the city. Stores closed on Clematis Street, once a thriving shopping district. Interstate 95 sucked traffic away from north-south commercial thoroughfares, and respectable tourist motels along those routes went to seed. To many, it seemed that decay might blight the city for good. When city commissioner Mary Brandenburg moved to the El Cid

neighborhood in 1974, she had trouble getting a mortgage. "Banks told me this was a declining urban neighborhood," she says.

Today it's hard to imagine any bank that would hesitate to lend in El Cid. On palm-studded streets named Barcelona and Granada, well-tended, stuccoed homes peek over clipped ficus hedges. Luxury sedans sit in driveways, and the trucks of gardeners, contractors, and pool service companies are parked at the curbs. Homes here often sell for over \$1 million. In more modest Flamingo Park, houses sell for between \$125,000 and \$495,000, though there's one now testing the market with an asking price of \$799,000.

El Cid and Flamingo Park are two of West Palm Beach's 11 residential, historic districts, which run in line from Northboro Park down to Belair, with downtown's Clematis Street business center (partially a historic district itself) and the new CityPlace development falling in the middle. The narrow organization of the city as a whole is emphasized by Lake Worth on the east and Clear Lake to the west, and by the railroads, which regularly send whistling freight and passenger trains through the city on two different sets of tracks. Homeowners are a mix of old-timers who weathered the rough years, enterprising fixer-uppers who came in the '80s and early '90s, and a later, more affluent wave of single professionals and young couples who were willing to pay higher prices for renovated homes. Many sought-after houses have the red tile roofs and stucco arches of the Mediterranean Revival styles. Coconut palms and black olive and mahogany trees shade the sidewalks. Some districts share common borders, while others are edged by rougher neighborhoods that give visitors an idea of what the historic districts looked like before residents reclaimed their neglected, crime-plagued streets.

The revival of a city whose downtown and residential neighborhoods were seriously failing was a complex affair. The most noticeable changes occurred in the last decade, but Margie Yansura, a 21-year Flamingo Park resident who has owned and renovated three 1920s homes here, says the renewal started in 1980, when Neighborhood Housing Services, a federal-local partnership, facilitated low-interest home improvement loans. Real estate broker Linda Callen points to the work of a grassroots preservation movement that was born in the early 1990s, partly in reaction to the demolition of such landmarks as the 1925 Pennsylvania Hotel, one of the last survivors from the city's pre-Depression boom.

Colin Rayner, co-owner of the Hibiscus House Bed and Breakfast, was a pioneer in the Old Northwood historic district. "Before we bought this house in 1986, it was filled with crack addicts," he says. "After we moved in, drug dealers and prostitutes used to drive in from Broadway and park in front of the houses. People had barricaded themselves in. It was pretty discouraging. But we knocked on doors and became politically active. We fought for street closures to stop through traffic. When we got them in

ABOVE LEFT: Clematis Street, West Palm's original commercial district, has been revitalized with such popular restaurants as Spoto's Oyster Bar. OPPOSITE, CLOCKWISE FROM TOP LEFT: The 20-screen Mavico movie theater in CityPlace was inspired by the Paris Opera House and includes V.I.P. seating with bar service and upscale snacks. The 30-block Flamingo Park Historic District is home to This Old House's current television project. Many of the district's 450 historic homes are surrounded by tall hedges to create private compounds on the small lots. Ragtop is a combination antique car dealership, souvenir shop, and, soon, 1950s-style diner.



1993, it was like a magic wand had been waved. A house sold for over \$100,000, and people became inspired to invest in improving their homes."

While homeowners were fighting for their streets, then-mayor Nancy Graham was working to revitalize the downtown core, commissioning architects Andres Duany and Elizabeth Plater-Zyberk to create a master plan. Duany and Plater-Zyberk's design embodied the principles of New Urbanism they had made famous at Seaside, Florida. It successfully encouraged a mixed-use, pedestrian-friendly redevelopment that integrated residential, retail, commercial, dining, and entertainment uses.

Graham wooed businesses back to Clematis Street with incentive financing and improvements to the streets, sidewalks, and public spaces. The strip has since become known for its lively restaurant scene. Each Thursday evening there's a city-sponsored street party, called Clematis-by-Night, and Saturday morning greenmarkets nearby offer a venue for farmers to sell heirloom tomatoes, artisan goat cheeses, and baby vegetables. Local retailers such as Pioneer Linens and J.C. Harris men's store, survivors from the early days, have been joined by upscale chain stores. Banana Republic now occupies the storefront of Anthony's, the pioneering West Palm clothier that popularized white shoes in Palm Beach.

The city faced a bigger challenge in redeveloping a 26-block parcel that bordered the downtown business district. The deteriorating homes and businesses there had been bought and bulldozed by a real estate partnership that later went bankrupt. After a Byzantine series of deals, proposals, protests, and compromises, the city began the first phase of construction for the \$550 million CityPlace—part mall, part residential development, with dining and entertainment uses mixed in, office buildings, a convention center, and a hotel will be added later. A 1926 Mediterranean Revival church, now a cultural center, sits in the middle. The surrounding plaza and side streets were designed to resemble a hill town in Italy. The facades of block-long buildings have been broken up into town house-like segments, with varied rooflines and trim styles.



TOP: Passenger rail service began running to the area in 1894, and West Palm Beach soon became a tourist destination. The Seaboard train station dates to 1925 and is the town's current Amtrak stop. ABOVE: A clipped hedge creates an artful entrance to an El Cid home.

Visitors' reactions to the pretty, palm-shaded complex depend on their attitudes toward chain-store consumerism. The Tuscan-inspired town center has a Starbucks wedged into the side of its desanctified church. An arched niche in the wall of a nearby building—which in Italy would showcase a statue of the Virgin Mary—displays a stylish chair from the Pottery Barn downstairs. The main plaza is fronted by Restoration Hardware and is punctuated by a clock belonging to FAO Schwarz, which regularly chimes "Welcome to our world of toys."

For some, the shopper-friendly, planned reality can seem cloying. Frank Cerabino, columnist for the *Palm Beach Post*, quipped that it looks so perfect, you wonder if it's "just one big movie set for a sequel to *The Truman Show*," the 1998 movie about a man whose life is a television program shot in a cute, fake town (it was filmed in Duany and Plater-Zyberk's Seaside). Yet the strategic nostalgia seems to be working. Months before they were ready for occupancy, all of CityPlace's 84 condominiums and town homes were sold, and half of its 502 rental units were leased. And it could be argued that themed environments have long been integral to growth in Florida, the home of Walt Disney World.

Before Henry Flagler and Addison Mizner lured wealthy northerners with their Mediterranean-styled version of paradise, this portion of the coast was called Mosquito County. "Florida in the 1920s had a lot of swamps

and hurricanes," says Linda Cullen. "Builders wanted a way to attract people, and they hit on this style. It looked old and had a feeling of permanence."

Eighty years later, most of West Palm Beach's homes are old and a drawing card for the town. Marilyn Mazur, a photographer who moved here from Port Washington, New York, four and a half years ago, says, "I'd lived in Florida before and hated it. Everything seemed transient; there were so many tract houses that looked as if they had come off an assembly line. West Palm made me love Florida. Having a piece of original Florida architecture opened me up to the history of the state. It gave me a sense of place." ■

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FENCING MATCH

A case study in post-and-picket installation, from choosing the style, wood, and finish to getting the job done right

BY MAX ALEXANDER

John and Alison Cariat love the timeworn features of their 1817 clapboard-covered house in Hingham, Massachusetts: the floors canting toward the back wall, the door latches rubbed smooth from generations of use, the exposed beams clearly hewn by hand. But the aging fence that surrounded the property when the Cariatis purchased it in 1996 wasn't so charming. "The pickets were completely rotten," says Alison, a part-time business development consultant. The eyesore didn't even function as a barrier. With a busy street just 15 feet in front of the house and two young children in the family, the Cariatis knew they'd have to make replacing the fence a priority.

From small towns to large cities, suburban neighborhoods to rolling fields, picket fences are a quintessential part of the American landscape. These wooden barriers are direct descendants of the stockades of sharpened logs that the settlers built to fortify frontier encampments.

PHOTOGRAPHS BY CRAIG RAINE



Pros in these parts don't use power diggers; the auger blades are no match for New England's famously rocky soil.

Over time, as the dangers of the wilderness receded, fences became shorter and more refined, and were erected mostly to contain livestock and establish property lines. By the early 19th century, when the Cariatids' home was built, the picket fence was being widely used as a decorative border for the residential yard.

Today's busy streets and small building lots make fences more practical than ever. In addition to defining property borders and screening out undesirable views, a fence can make a small front yard look bigger by separating it from the street or make a house the focal point on a big lawn by putting a frame around it. It can keep kids and dogs in, eliminate casual trespassing and shortcutting, and discourage crimes of opportunity.

Well built, well-styled, and well maintained, a fence can enhance the appearance of a house by providing a visual accent. Similarly, one that's inappropriate or falling apart can mar the look of an entire street—which is one reason many communities regulate height (and why homeowners should always check with the zoning department when planning a fence installation). Hingham, a historic suburb of Boston founded in 1635 that was home to Abraham Lincoln's ancestors, goes a step further: The Cariatids' fence design would need approval from the Historic Districts Commission. But first Alison and John had to pick a design.

"The choices were a little overwhelming," says Alison. She knew she wanted a picket fence, because she liked the look of the one being removed, but that still left many options. The pickets can be flat or square, with pointed, rounded, or arched tips. Posts can be smooth or fluted, with any number of decorative caps. Pickets can be topped with a cap rail, and the outside face dressed up with a fascia and kickboard (horizontal boards corresponding to the inside top and bottom rails). The Cariatids also had to select the picket height, which typically runs between 3 and 6 feet, and decide if the tops of each section would be straight, scalloped, arched, or staggered. In addition, they had to consider the width of the pickets and the amount of space between them.

The couple scouted for ideas by strolling through town. "We spent weeks really looking at fences in Hingham," says John, who manages a private investment portfolio. They also scoured catalogs from fence manufacturers, eventually settling on Walpole Woodworkers as their contractor. By the time Walpole design consultant Ron Brown arrived at their house with picket samples, "they had pretty much figured out what they wanted," Brown says. (For more ideas, see "Wood Fences," July/August 2000.)

The Cariatids decided on a 1½-inch square picket, in a straight topped shape that, like the old fence, included fascias and kickboards. "We discussed a flat picket, but when I got my hands on that square sample, I knew it was the one," says John. "It's much sturdier." The couple had intended to order 3-foot-high pickets (the same height as the existing fence), but Brown convinced them to go with a 3½-foot height to screen out a little more of the busy street. The backyard would be enclosed with a 6-foot-high solid-board privacy fence topped with decorative spindles. The Cariatids presented a catalog clipping of their proposed fence at a Historic Districts Commission hearing, and the plans were approved.

Walpole made the choice of wood easy for the Cariatids. The company uses only northern white cedar, which is naturally rot- and insect-resistant. Brown says cedar fence posts should last 20 years, although like most fence contractors, Walpole doesn't offer a guarantee; pickets,

The Boston Digger's lever-operated scoop (OPPOSITE) pulls soil neatly out of a narrow posthole. TOP RIGHT: Each 8-foot fence section has extra-long rails that slide into mortises in the posts. For a nice finishing touch, Alison and John Cariatid had fascias (BOTTOM RIGHT) and kickboards nailed to the pickets.



which don't touch the ground, are usually good for 25 to 30 years. Cedar is expensive: High demand and dwindling supply have driven the wholesale price up more than 50 percent in the last five years, says Peter Lanumert, a forester for the state of Maine. Including the backyard privacy screen, the Caratis paid \$20,000 for roughly 300 linear feet of installed fence, or about \$60 per foot. (The price included removal of the old fence in front.) Mark Bushway, regional sales manager for Walpole, says that's at the high end of their picket fence line, a rustic picket fence with simple round posts could run as low as \$20 per foot installed. In other parts of the country, western red cedar, redwood, cypress, and even mahogany offer similar durability, at comparable prices.

Picket fences can be built more inexpensively still by using pressure-treated lumber (typically southern yellow pine embedded with a preservative called chromated copper arsenate), which costs about one-fifth the price of cedar at lumberyards, bringing the

installed cost to as low as \$10 per foot. Pressure-treated pine can last more than 50 years in the ground, but it is prone to twisting and cracking. As a result, some people use pressure-treated wood for posts and a warp-resistant species such as spruce for the pickets; 8-foot sections of prefab spruce fencing sell for less than \$20 at home centers. Spruce doesn't age as well as cedar, lasting perhaps 5 to 8 years; so money you save in the short term may be spent later on painting or staining and on replacing worn pickets.

Pickets should be fastened to rails using high-quality, exterior-grade nails. Make sure galvanized nails are hot dipped; electroplate galvanizing is too thin and can wear off, causing nails to rust. Using stainless steel nails generally isn't worth the extra cost since they don't yield a longer fence life.

Time was when picket fences were installed one board at a time on the job site. Today, though, fence companies prefabricate 8-foot sections in the controlled environment of a shop. (These can be cut down for short sections at the end of a span.) Before hiring a fence contractor, find out if the company offers factory finishing of the sections, which can save the expensive labor of painting or staining on the job site. Walpole applies a latex solid stain to fence sections at its factory, flow-coating the liquid into every crack. Solid stain (the same stuff often used on house exteriors) is thinner and less durable than conventional paint, but it won't peel or chip; that means no future scraping, a tedious chore that's required when it's time to repaint a fence. In either case, expect to recoat a fence every two to eight years.

Cedar will weather to an appealing gray if left unpainted, although it should still be treated every two years with a linseed oil based preservative (see "In the Clear," March 2001). Pressure-treated wood has a greenish hue that makes it unsuitable for a natural finish. The green will disappear under a coat of oil-based paint or solid stain, preferably after letting the wood weather for a year.

Most homeowners leave fence installation to skilled (and muscular, pros like veteran Walpole foreman Joe Orem, who built the Caratis fence as well as the trellis fence at *This Old House's* Watertown project. Orem and a helper, Jeremiah Brow, pulled up to the Caratis' on a clear, crisp day last spring with a truckload of posts and fence sections, ready for the five-day project. First, however, they had to remove the old fence; since the posts were anchored in concrete, out came the sledgehammer.

Concrete is the subject of considerable controversy in the fence trade. Some builders swear by it, citing its undeniable strength for setting posts; but Orem cautions that as the wood shrinks, small gaps form between the post and the concrete, allowing destructive moisture to pool around the wood. By contrast, water drains away from posts set in backfill or gravel.) And, as Orem points out with a sigh, concrete makes fence removal hard. He only uses it for gateposts, which are subject to more stress and movement, and in situations where holes cannot be dug deep enough for conventional backfilling.

With the old fence out of the way, Orem chose to start digging the first posthole at the street corner near-

est the driveway. Surprisingly enough, pros in these parts don't use power diggers; the spinning auger blades are no match for New England's famously rocky soil. Orem prefers a lever-action manual tool called a Boston Digger. It's better than the standard clamshell digger, which is only good to a depth of about 2 feet before the hole itself blocks the handles from spreading. The Boston Digger operates differently, with a lever at the top that operates a small scoop at the bottom. It'll dig 3½ feet before the mechanism gets in the way. Boulders are still removed the old-fashioned way: with sweat and iron bars.

How deep is deep enough for setting posts? That depends on the climate (thawing and freezing of the earth is what causes posts to heave out of the ground) and the condition of the soil. In frost-free zones with reasonably firm soil, 2 feet is sufficient. In Massachusetts, 3 feet is the minimum—and the deeper, the better. Agricultural engineers calculate that every 6 additional inches of depth doubles a post's resistance to pullout.

With the first of their 3-foot holes ready, Orem and Brow hefted a 7-foot-long post into it, backfilling with the removed soil and using a level to make sure the post was plumb. (Plain posts can go in longer than needed and be cut to even height later, but intricate ones like these must be carefully set to height in the hole.) Then, to create a straight line, Orem ran a mason's line down to the next post position and repeated the process. Both ends of the rails from each picket section fit into factory-cut mortises in the posts, so he and Brow had to simultaneously jockey the position of the second post and slip in the first section to secure a fit. "You can't go around and put in all the posts first," he says. "You'd never be able to wiggle the sections in."

Orem had to follow the curve of an existing stone footer that runs along the front of the property under the fence, while maintaining a level fence over ground that was anything but. He also had to balance the desire to keep an even line of pickets with the need to follow the natural contour of the yard. It boiled down to old-fashioned eyeballing, which comes from experience. "Joe had to make a lot of decisions on the job," says Alison.

"The fence went up pretty



A portion of the backyard board fence is topped with spindles that match the picket fence. With the project complete, Alison began planting a perennial garden.

well," says Orem, "until we hit that ledge by the driveway." Ledge—a layer of solid rock at or near ground level—is a fencebuilder's biggest frustration. Sometimes special pins can be drilled into ledge and fastened with garonite, a fast-drying hydraulic cement; lag bolts run through the pin and into the post. At the Caratis', says Orem, "we just kinda hammered away at it with the digging bars and were able to get the posts down far enough to hold with concrete."

After the fence was assembled, Orem drove 3½-inch spikes into each mortise-and-tenon joint for extra stability, then nailed on the fascias and kickboards. Finally, Orem was ready for the crowning effect: the gates—installed with galvanized, black-powder-coated hardware imported from England. "We had Joe put the gate bolts too high for the kids to reach," says John. Now son Amos, 5, and daughter Hannah, 2, frolic happily in the confines of their yard, well protected from traffic. "We don't have to worry about their safety," says John, "and the place looks great." ■

BORDER PATROL

With apologies to Robert Frost, boundary expert Walter Robillard says, "Good fences on the proper line make good neighbors." Boundary disputes are common, although only about 1,000 cases wind up in American courtrooms every year by Robillard's estimates. "But they are charged with emotion precisely because they are between neighbors," he says, adding that most disputes concern differences of less than five feet.

Robillard, a surveyor, attorney, and coauthor of *Brown's Boundary Control and Legal Principles*, says fence positioning is governed by state property-rights laws. He recommends positioning your fence (including concrete, if you use it) an inch or two within your property line (as described by a survey), "so you have total control over it." Don't leave too much of your plot on the other side, he cautions, because over time fences can become the "boundary by estoppel"—a legal term that means building a fence led others to believe that was the boundary.

Robillard says replacing an existing fence is a safe bet, "because you're maintaining a history" of an accepted boundary. But if you're putting up a first-time fence and aren't sure of your boundary, hire a licensed surveyor to find it based on town records. If you build a fence and your neighbor says it's on his land, ask to see his own survey. "Surveyors are like doctors," says Robillard. "They can have different opinions. That's when people go to court."



Fence installer Joe Orem uses wedges cut from the scraps of 4x4 posts to stabilize the gate as he attaches it to the fence with strap hinges and screws. The X-shaped bracing prevents sagging that can occur because the gate is supported only on one side.



Sheet metal expert Rick Garcia hands up a section of steel perimeter cap to his assistant, Joe Pebley. Once installed, the cap will adorn and protect the restored portico roof.

When the author and her husband bought their Los Angeles house, it was—like a movie set—mostly a facade. Now a large addition in back balances its scale and provides much-needed living space for the family.



LAresidential

A 1920s Colonial near Hollywood is transformed into a picture-perfect home for a family of four

BY JULIA CLAIBORNE JOHNSON

In house shopping, as in the rest of life, you should be careful what you wish for—you may get it. My husband, Chris Marcel, and I moved from Brooklyn, New York, to Los Angeles in 1996 and spent the next two years looking for a place to call our own. After leaving about the fiftieth prospect, a ghostly, glitzy late '80s renovation that we couldn't afford and didn't even like, I remember thinking to myself, "All I want is an old house, preferably from the 1920s, that costs X and hasn't been renovated since the Eisenhower administration, so I can make it look true to its era."

We wanted to live in Hancock Park, a centrally located L.A. neighborhood where the homes, many built in the 1920s, are antique by local standards, and everything looks so movie perfect East Coast that most days you can walk past film crews carefully staging "back East" scenes while they try to avoid the palm trees that line the streets. The week after I'd wished my ideal wish, David Philip, our realtor (who, this being Los Angeles, had been the lead singer in a British punk rock band in the '70s), told us he'd found the place for us. Great location, between the country club and the tennis club, and across the street from the cinematic home of Kim Basinger's character in *L.A. Confidential*. Built in 1922, no major renovations since 1954, a huge lot. A nine-block walk from the studio where Chris works—commuting

PHOTOGRAPHS BY JEREMY SAMUELSON STYLED BY GIA RUSSO

DONNING THE STEEL CAP



The steel cap atop Julia Johnson and Chris Marci's portico roof is an arresting architectural detail—in more ways than one. "It stops moisture from seeping under the roof membrane, but it's also an attractive way to dress the outer edge," says contractor Jay Bruder. To prepare for installation, Bruder repaired the water-damaged deck, laid down a synthetic-rubber roof membrane, and removed a small section of siding. That cleared the way for Rick Garcia, who arrived from Broadway Sheet Metal with the pre-fabricated steel cap in tow. Garcia first nailed an 8-foot piece of galvanized flashing, called a reglet, to the house. Into this he snapped and secured a counterflashing, which seals the joint between the portico roof and the wall (FAR LEFT). Next, he nailed 8-inch butt plates around the perimeter of the roof. He then riveted the coping, in three 8-foot sections, to the plates. After soldering the seams, Garcia made the roof watertight by counterflashing the inner lip of the coping (NEAR LEFT). At that point, Bruder returned to reinstall the siding and touch up the paint. —Dan DiClerico

by foot in Los Angeles! And, the current owners might even take what we could offer, since it was a fixer-upper. How could we resist?

Then I saw it. It wasn't the ugliest house ever, but it was painted a jaundiced off-white and had columns out front holding up the roof of its suburbs-go-presidential, half-round portico. The realtors called it "Colonial" despite its crazy combination of stucco siding downstairs and clapboard up top, which I guess was the style of some colony I've never visited. From the street I could see holes in the wood-shingled roof and some boarded-up windows, overgrown landscaping and a buckling asphalt drive. It was going to need a mind-boggling amount of work. This was what I'd wished for? I drove away without even going inside.

But David, bless his punk soul, knew this house could rock and roll. When he took me to look at it, he pointed out that there were hardwood floors under the mustard-colored shag carpet. The back wall's extensive water damage somehow made it psychologically easier to tear it off to build an addition. The backyard was big, although what wasn't taken up by a pool was asphalted over. Most important, the bones of the place were good.

Still, the roof and the plumbing and electrical systems needed to be replaced, which wouldn't be cheap, and there was no air-conditioning, unless you counted the breezes that blew in between the glass and rotted-out window frames even when they were closed—or nailed shut, as most of them were. The building inspector told me that such an advanced state of disrepair made it the perfect candidate for a remodel—or a demolition. We went ahead and bought it.

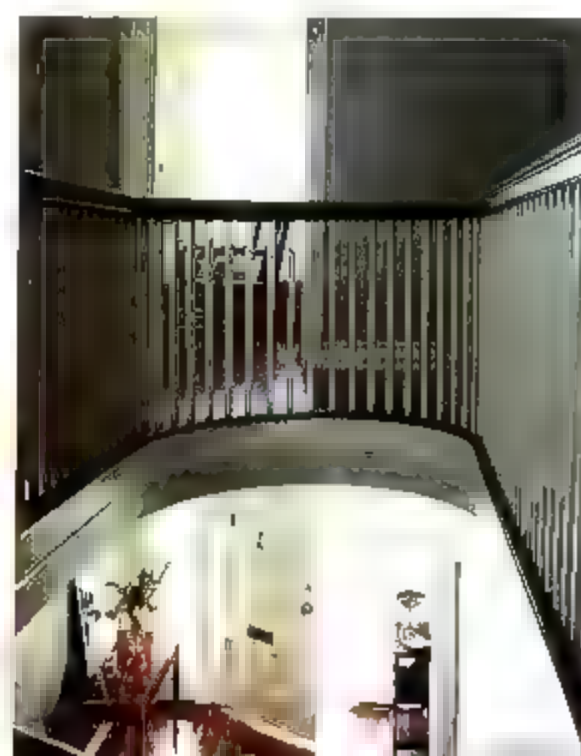
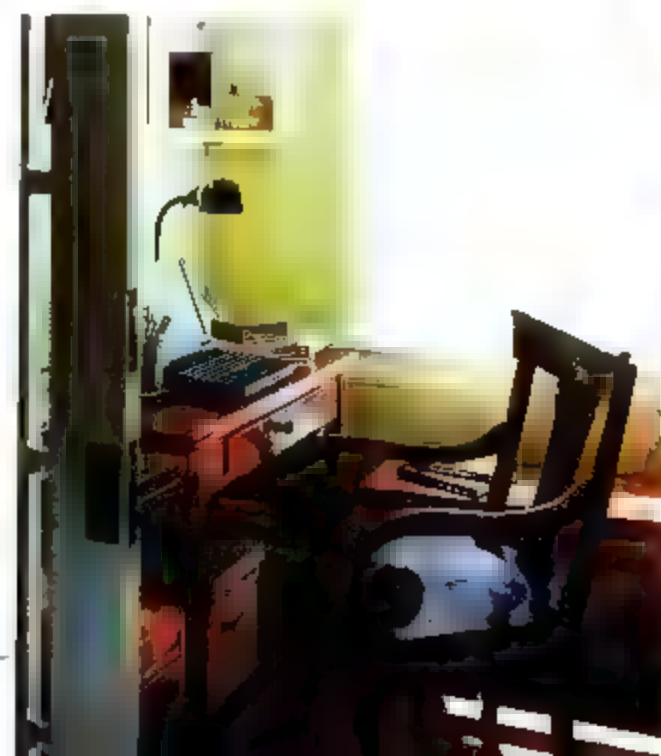
The funny thing about the house was that it looked big from the street. This being Hollywood, though, it was mostly a facade. There were just two bedrooms, one stacked over the living room, another over the dining room.

In back, behind the dining room, was a little addition that housed the 1950s kitchen/family room downstairs, and an office and a couple of closets above; the living room side of the house was only one room deep. Altogether, the place measured 2,610 square feet, which sounded good on paper, but almost a sixth of the living space was cored right out of the center by a grand staircase. Functionally, the place seemed smaller than the apartment we'd been living in, and we had to cram ourselves, two children, my mother, and two home offices into it. It was also dark. There were only two overhead fixtures in the whole house, and some windows had been walled in where closets were added, while others were boarded shut and covered up by pieces of furniture.

Then there was the pool. Dot, the 90-year-old owner who had bought and renovated the house with her husband and two children back in 1954, had had a deep one dug just a few steps from the back door—situated that close, she explained, because they liked to watch TV while sitting poolside. (The TV in question was still there, too, built right into the door of the basement, which made access to that space iffy.) The pool had to go.

Overall, we were looking at a couple of months for plan-

LEFT: Chris's study fits into a small room off the upstairs hall, where the grand stairway curves (RIGHT).



PROCESS PHOTOS (TOP): RUSS MCCONNELL

FLOOR PLANS: GORDON BOWYER



The old kitchen (BEFORE, LEFT) had not been touched in decades. In the new space, Julia moves for a retro look, with a restored cookstove as the focal point. The plans (BELOW) show how downstairs spaces were reshaped.



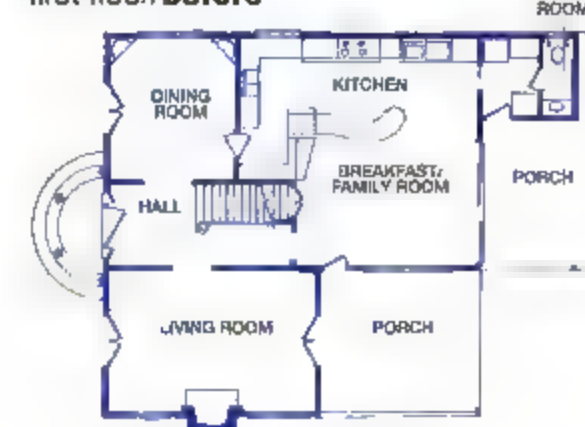
ning the renovation and designing the addition, and a minimum of six months of construction. In the end we would have a 3,726-square-foot, four-bedroom, two-office house with four and a half baths. We bought the house in December 1998

and hoped to be moved in by the following December.

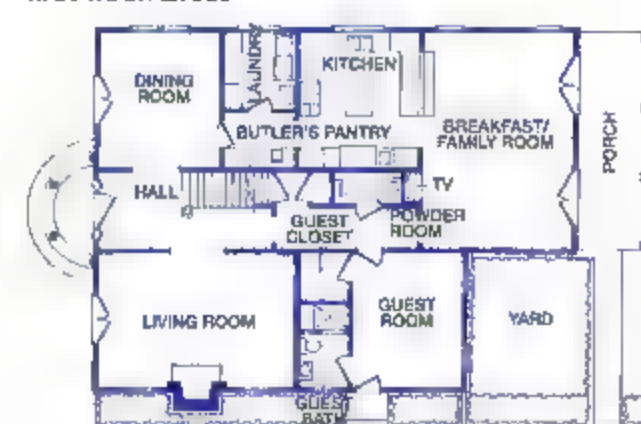
But first, I had to find an architect. I called the partners of a firm I had once interviewed for an article and had dreamed of using for the house I'd someday own. Booked solid. They recommended a friend from architecture school, L.A.-based architect Kevin Oreck. When I met Kevin, I fell for his period-sensitive work right away.

I asked him for a redesign with lots of light, plenty of living area, and a 1920s look, as long as it didn't conflict with our twenty-first-century need for convenience and comfort. According to Kevin, the easiest way to add these amenities was to extend the open-plan kitchen/family room pool ward, in the process making the small office upstairs big enough to hold a master suite (a total gain of 576 square feet, upstairs and down), and to open both rooms to the outdoors with double sets of French doors—to the porch downstairs and the balcony above. Given the L-shape of the house, enclosing an old concrete porch within its elbow seemed like a good idea, forming a two-story addition that would roughly square off the structure (and add another 540 square feet on the two floors). Kevin pulled back the corner of that addition a little, improving the house's back profile and

first floor/before



first floor/after





Architect Kevin Oreck's family-friendly renovation of the downstairs opened up the breakfast/family room to the outdoors with double sets of French doors. Glossy white paint gives the beadboard ceiling a visual lift.

making it look as if it had always been there—a nice touch that also made it possible to have windows on three sides of the family room. “The interesting thing about your house from a design standpoint,” Kevin told me recently, “was that it was so clear what had to go—the earlier remodel at the back of the house didn’t even try to blend in.” Well, at least one of us actually had a plan.

Adding up the construction costs came to a mind-boggling \$250,000. The addition for my mother’s room and my office raised that another \$80,000, but we figured it would save money and trauma in the long run if we could somehow get a big enough construction loan to do it all at once. Our realtor was also a mortgage broker (did I mention that his band toured Japan this past fall?), and he managed to squeeze \$359,000 out of a bank. The terms stipulated that we had to move into the house by the end of January 2000 or, at best, pay a huge monthly fine. At worst, the bank would foreclose on our property.

As with childbirth, no one can really prepare you for the pain of renovation. For starters, we were shocked, but not really surprised, by the contractors’ bids. The cheapest, \$379,000, came from Jay Bruder. He’d done work for my husband’s lawyer, and

there were no lawsuits pending, so he got the job.

Shock number two. When the back walls came down, one weekend while we were out of town getting our second child, Coco, baptized, the team exposed massive water and termite damage, which meant that studs Jay hadn’t expected to replace had to go. New flooring components were needed, too, thanks to a concrete patio along the back side of the house, installed many years ago some 8 inches above the house’s mudsill (a pressure-treated Doug fir framing element bolted on top of the foundation). Since the concrete of the patio was so far above the mudsill, it had been wicking in water for decades, and an unfortunate mix of moisture and termites had dissolved the mudsill, the rim joists that rested on it, and a roughly foot-long section of each of the floor joists. Jay’s bid hadn’t provided for replacing this stuff. Boom! Another ten thousand bucks. Kevin had made us set up an \$18,000 contingency fund within the contractor’s bid for emergencies like this, but we were hardly started and already it was more than half gone.

Then the foundation turned out to have over a hundred cracks, 12 to 18 inches long, each ¼ to ½ inch wide, probably caused by the higher cement-to-sand ratio used in 1920s concrete. Work

stopped while subcontractors delivered bids for the cost of gluing the foundation together again with injections of epoxy resin. The first bid, from a guy who drove up in a Mercedes, was \$800. How we laughed—until the others came in thousands of dollars higher. Mr. Mercedes got the job.

I agonized over every cent. I knew a kitchen could blow through a fortune quickly, but the period touches I liked happened to be the least expensive options. Forget granite countertops—square white ceramic tiles, grouted gray—were much more retro. The superdeep, superwide farm sink I craved might be out of our league, but I definitely could swing the classic double-bowled enamel-and-cast-iron number available at our local home center. The kitchen floor had to be linoleum, which is to limestone what a Buick is to a Bentley. Instead of a stainless steel professional range, I opted for a retrofitted Wedgewood—top of the 1950s-line, double oven, grill plus four burners—from a place called Antique Stove Heaven, for half as much. After talking to Kevin, and Peter Scholz, the cabinet-maker, we decided that white-painted Shaker-style custom cabinets in the kitchens and baths would be truest to the look we wanted. Painting rather than staining made good budgetary sense, too; we could use poplar, a cheaper lumber, in combination with medium-density fiberboard. The great thing about MDF, they explained to me, is that it takes paint smoothly (no wood grain to cover) and doesn’t warp. Sold!

Bathrooms can be budget-busters too, and ours (powder room downstairs, one full bath upstairs, plus what was essentially a closet fitted with a shower and toilet) were beyond outdated. Luckily, my thrifty taste extended to washroom decor. Hexagonal-tiled floors and rectangular white wall tile were reasonable—and I love them. The only tub was a salmon-pink number that had been ruined when it was drilled for acrylic shower doors. New cast-iron tubs were expensive—about \$1,000—and they didn’t have the shape or the patina of age I wanted. So I searched salvage yards for vintage examples in good condition. A week before my daughter was born, I found two white tubs at a salvage yard, about \$600 for the pair.

The whole family got involved in the house. My sister-in-law in Troy, New York, sent porcelain sconces for the bathrooms and brass ones for the living room, two from her local salvage yard cost what one did in L.A. My mother sat in the car with my children while I rushed through plumbing centers, tile yards, and hardware stores buying whatever—whenver—I could to save on the contractor’s markup. My architect and my husband each spent a day with me sorting through crates of filthy old crystal door knobs at the fabulous (and fabulously expensive) antique hardware store near the house. Most of the doors had apparently been removed in the last remodel, as there were only six interior doors with doorknobs in the whole house, including closet doors. Those worn knobs we sweated over worked wonders when it came to making our new doors look like they’d always been there.

And so Chris and I fumbled along, trying to make good decisions in situations where we hardly understood what we were trying to

second floor/before



second floor/after



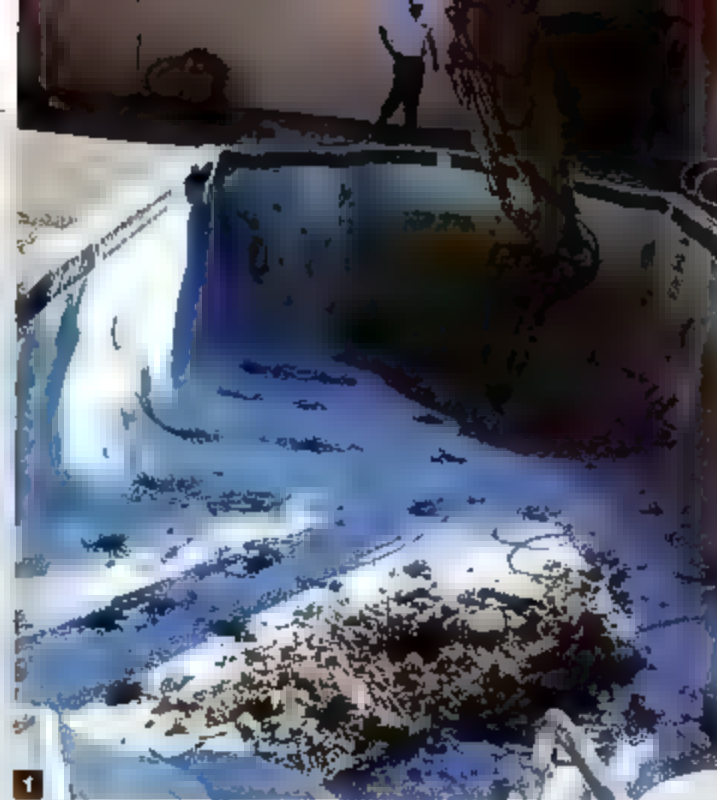
As the plans (ABOVE) illustrate, the upstairs was expanded to include an outside balcony off the master bedroom (BELOW). All rooms throughout the house were brightened considerably by new windows—and by a pale color palette.





FILL'ER UP

Since the Johnson-Marcil household includes two small children (and their plans called for a large back addition), the couple wanted to trade in their swimming pool for a kid-friendly back lawn. Doug Harpel, of American Demolition/Concrete Cutting, managed the process, which involved partial removal of the pool's shell followed by about 150 tons of gravel fill. "We could've taken the whole shell out before filling it, but considering the amount of concrete and steel rebar used to reinforce it, the job would've cost twice as much," says Harpel. "Where city codes allow it, partial removal is usually the better option." Our T.O.H. photographer caught up with Harpel's crew on a similar project to record how the job's done: 1. A backhoe fitted with a 2,000-



pound ram breaker punches one 3-by-3-foot drainage hole in the shallow end of the pool, another 4-by-4-foot hole in the deep end, and various smaller weep holes throughout. It then breaks down the top two feet of the 12-inch-thick concrete from around the upper rim; an acetylene torch cuts away the surviving steel rebar "fingers." 2. Trading in the ram for a 3-foot bucket, the backhoe scoops up the concrete scraps from the remaining basin. A truck hauls away the debris, returning with a load of class-2 base, the same ¾-inch rock and soil compound used to build highways. 3. A backhoe fills the pool as a Bobcat spreads the base material in even 12-inch increments. 4. A vibrating roller with front and rear 48-inch drums compacts each layer to roughly 9 inches. 5. At each interval, a state-licensed soil engineer tests for compaction. First he drives a steel bar into the ground to create a ¾-inch hole; then he inserts a special device called a densitometer to emit low-level radiation into the hole. The device measures the transmission of gamma rays through the soil to determine whether maximum density (95 percent) has been achieved. The final 12 to 24 inches of the fill are pure topsoil, creating a fertile bed on which to landscape. —Dan DiClerico

decide in the first place. All that I had guiding me in my choices were some photos I'd taken over the years in old houses I loved—a tile floor here, a shelf bracket there. And, thankfully, I got great advice from my architect and contractor.

Over the next few months, Kevin and Jay became like brothers to me, and they assured me that the job was going smoothly, despite unexpected surprises. Deliveries came late (windows) or not at all (special tile for my mother's bathroom floor, now hexagonal just like the others), and some were simply wrong (predrilled doors that should have been blanks and had to be patched on-site). Jay even managed to keep us from having a heart attack when the tile guy, who had decided mid-job to spend Christmas in Russia, vanished for weeks.

No, we didn't get into the house by the millennium. Yes, we had to get an extension on the construction loan and pay whopping penalties for the two months we went over the time allotted us. The contingency fee evaporated, and we overshot our budget by about 10 percent. Every time I felt unusually dejected, I comforted myself with this: We were practically rebuilding an entire house in the amount of time it was taking our next-door neighbor to redo her kitchen.

Most of the job really did go smoothly. And then there was the house. Once it started to look like something, it really started to look like, well, *something*. During the final few construction meetings, I would sometimes wander off to another room, ostensibly so my colicky daughter could scream her guts out in private, but really to just look around and think: Wow, we actually get to live here. Jay put our place on the cover of his company's brochure; Kevin walked prospective clients through regularly; and the cabinet guy and painting subcontractor asked if they could take pictures for their portfolios. Unlike me, they didn't seem shocked that it had turned out well.

Then a friend walked into one of the baths we'd worked so hard to make look original to the house and said, "So, you didn't have to do anything to this." Except, of course, build it from scratch. Who says they don't make them like they used to? ■

BEFORE



BEFORE, ABOVE: A swimming pool filled most of the backyard. BELOW: Removing the pool gave the family much-needed play space, enjoyed here by the author's husband, Chris, and their son, Will.





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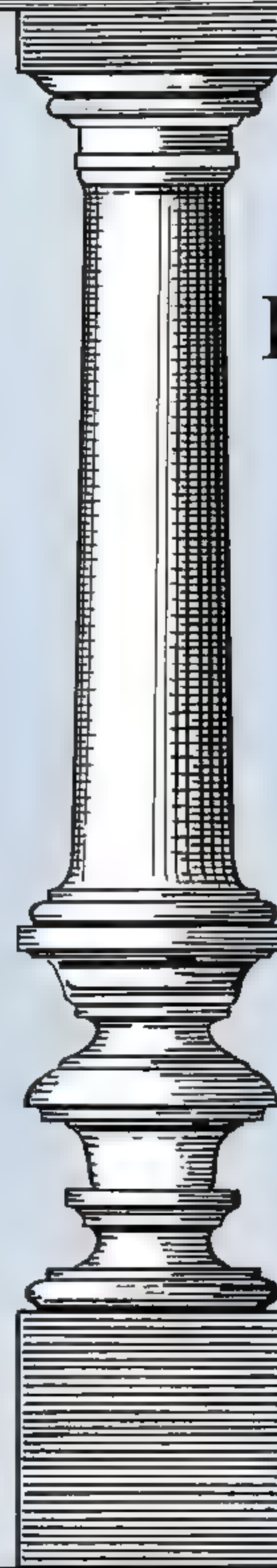
Stair Railings

BY BO NILES

ILLUSTRATIONS BY
RODICA PRATO

Life, we all know, is full of ups and downs—but taking a tumble on the stairs should not be one of them. “Most of us don’t really watch where we’re going, we intuit the distance between treads,” says Norman Smith, an architect based in Washington, D.C., whose own stairwell rises three stories through the center hall of his home. “But because we tend to take stair height for granted, and because the distance between treads sometimes varies, missteps—and falls—may occur.” One way to avert a miscalculation is to make sure that risers as well as treads are uniform when installing a new stairway. A handrail topped with a run of balusters—which together form a balustrade, or stair railing—provides further protection. Early stairs did not incorporate stair railings because they were not stairs at all, but ladders, which evolved into block-like steps that were affixed directly to the wall. Once risers and treads began to be constructed sawtooth-style in continuous flights, stairs assumed central importance in the design and construction of a home—as did balustrades.

By the early 18th century, the individual components of a staircase were designed and assembled with the finesse of fine cabinetry and the flair of fine art. Today, as in the past, multiple elements—including a handrail, balusters, and a newel post, as well as ornamental brackets and a skirting board, which covers the stringer, or support system—help a balustrade look handsome (see “Anatomy of a Staircase”) while code-regulated specifications (see “On Guard”) ensure that a stairway is safe.



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EARLY COLONIAL

Partially boxed in stairs with half length, turned balusters rising above. Simple, deeply carved handrail.



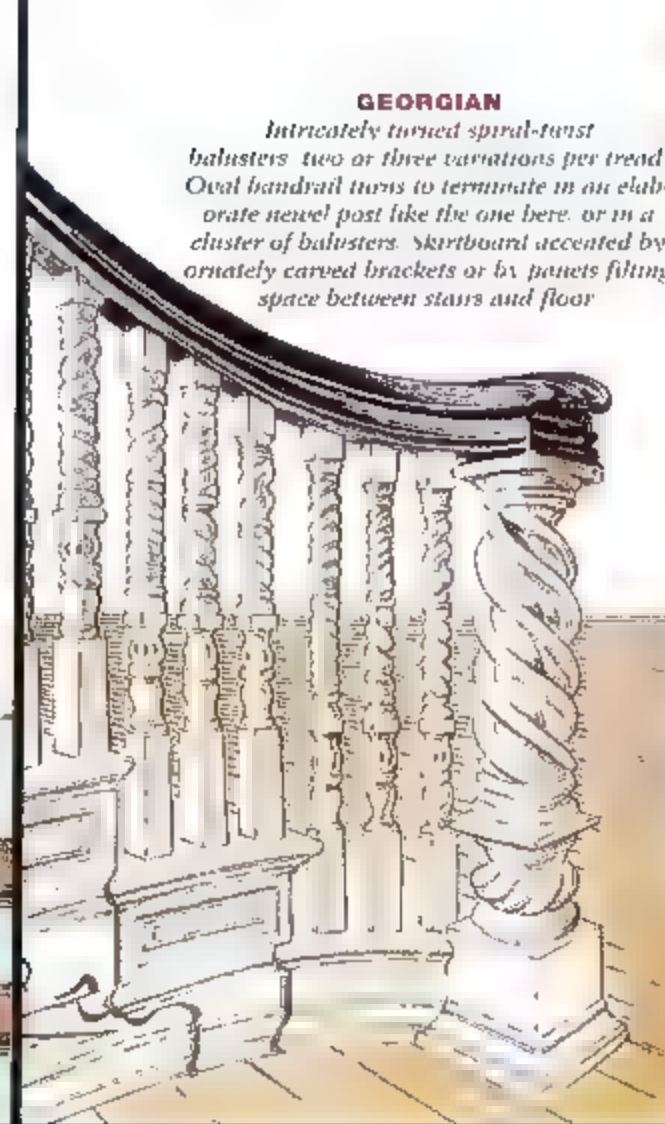
LATE COLONIAL

Widely spaced stick style or simply turned balusters, usually two to a tread. T-shaped handrail. Plain, squared off newel post may extend to ceiling. Skirtboard may be plain or overmounted with simple wavy brackets.



GEORGIAN

Intricately turned spiral-twist balusters, two or three variations per tread. Oval handrail turns to terminate in an elaborate newel post like the one here, or in a cluster of balusters. Skirtboard accented by ornately carved brackets or by panels filling space between stairs and floor.



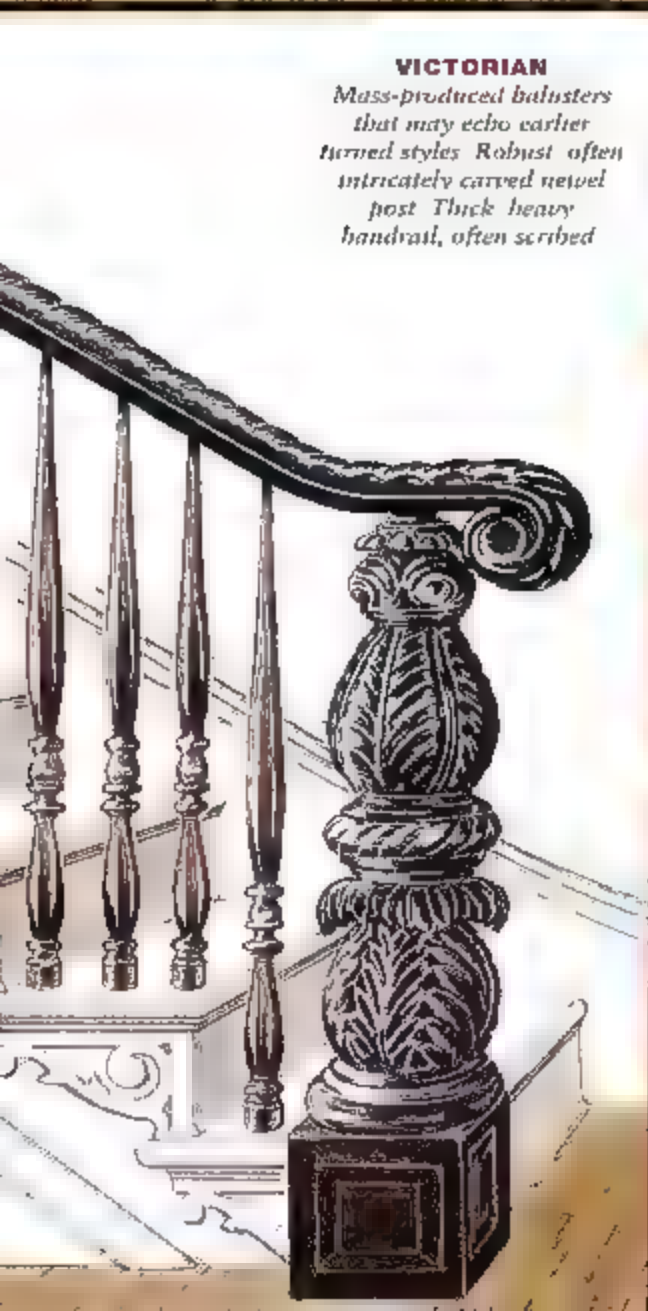
FEDERAL

A return to the Colonial model, with slender round or stick style balusters (or with flat ones that echo their silhouette). Oval handrail ends in a coil called a volute, which is supported by several balusters.



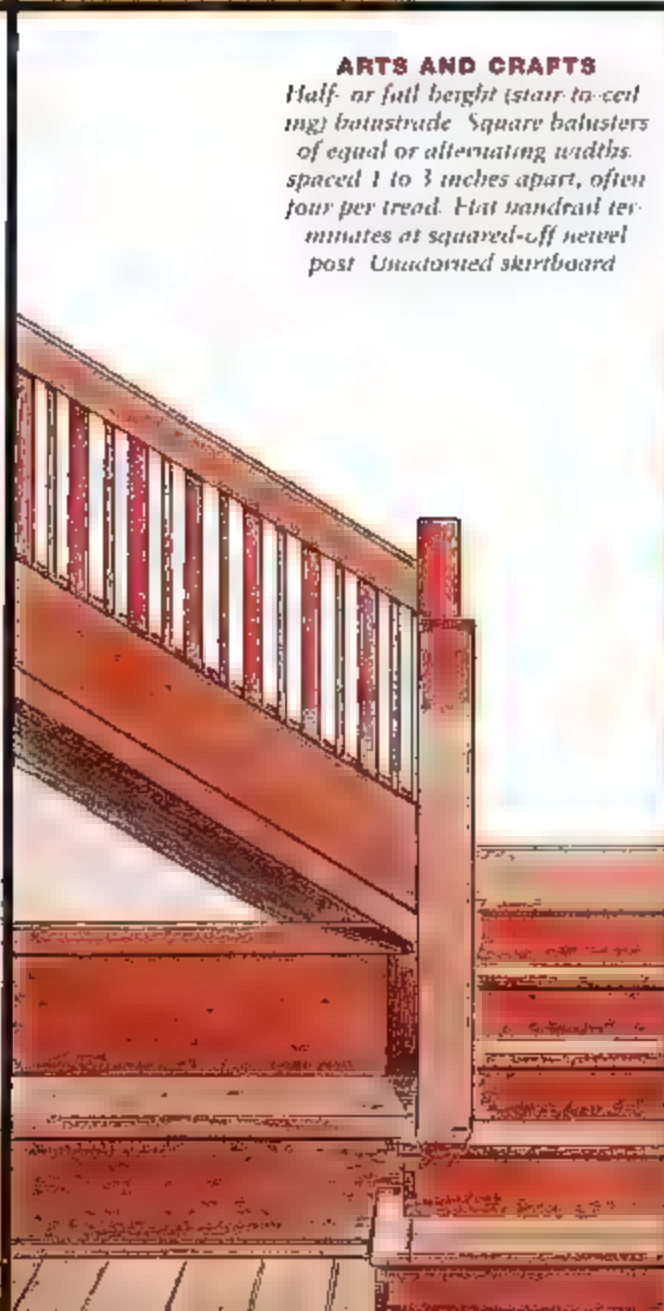
VICTORIAN

Mass-produced balusters that may echo earlier turned styles. Robust, often intricately carved newel post. Thick heavy handrail, often scribed.



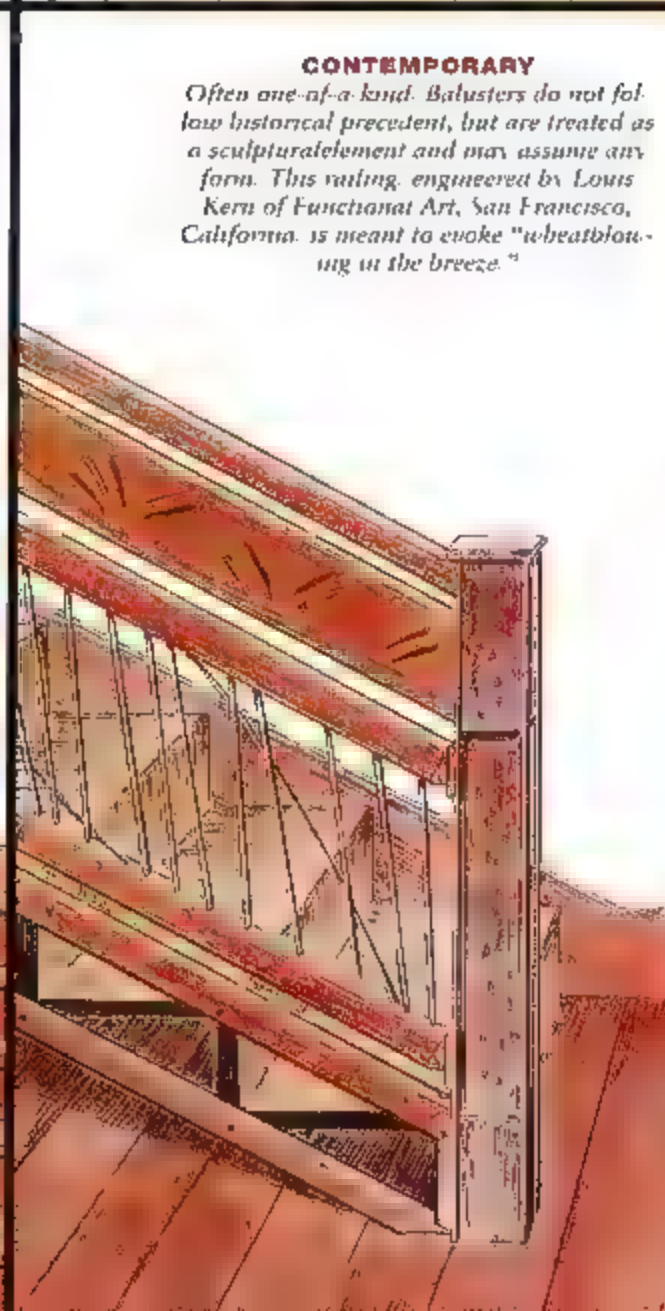
ARTS AND CRAFTS

Half- or full height (stair-to-ceiling) balustrade. Square balusters of equal or alternating widths, spaced 1 to 3 inches apart, often four per tread. Flat handrail terminates at squared-off newel post. Unadorned skirtboard.



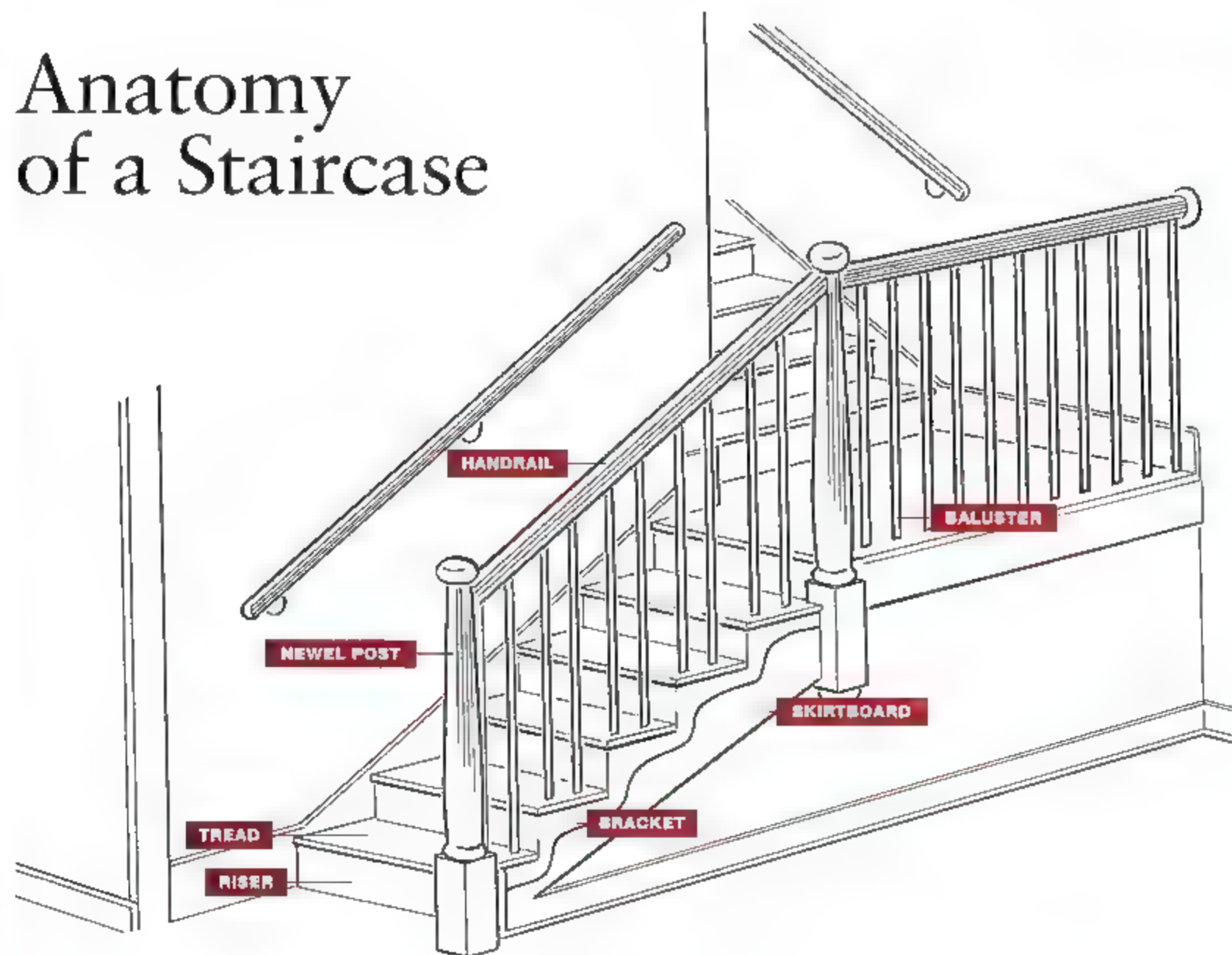
CONTEMPORARY

Often one-of-a-kind. Balusters do not follow historical precedent, but are treated as a sculptural element and may assume any form. This railing, engineered by Louis Kern of Functional Art, San Francisco, California, is meant to evoke "wheatblowing in the breeze."



balustrades

Anatomy of a Staircase



On Guard

The 1998 CABO (Council of American Building Officials) and 2000 ICC (International Code Council) building codes regarding the size and configuration of a balustrade and other components of a stairway incorporate recent modifications to 30-year-old statutes.

"Because code proposals are based on accidents—and their consequent litigation—regulations tend to grow stricter over time," says architect Norman Smith. "In the past, the space between pickets, or balusters, was 8 inches, then 6, now it's 4."

No longer can stair risers be open; as with widely spaced balusters, children could slip through the openings between the treads. Treads cannot be less than 10 inches deep (the norm used to be 9½ inches), and risers must not be more than 7½ inches high (8½ inches was the previous upper limit).

The height of a balustrade, from the

top of the stringer (which is covered by the skirtboard) to the handrail, may range from 30 to 38 inches; the most common height is 36 inches. A handrail must run continuously, without

interruption, the full length of the stair run. At the bottom of the stairs, it should terminate in a newel post, any jog or turn may also be marked by a post. The handrail should maintain a grip size between 1¼ and 2 inches. If the staircase is over 44 inches wide, it requires a second continuous handrail on the opposite side, with at least a 1½-inch clearance between it and the wall, if there is one.

Within the established parameters, designs can take flight—from an Arts and Crafts style such as Smith's own (LEFT), which features four sticklike balusters per tread and squared-off newel posts and handrails, to any of the more ornate styles featured here.

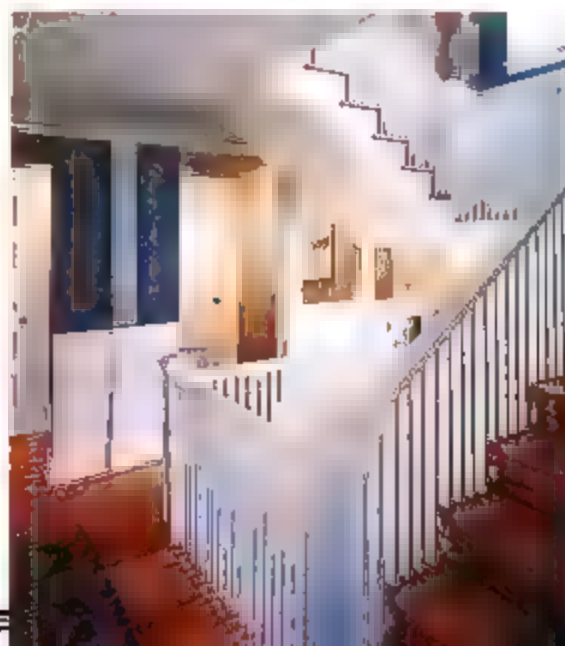
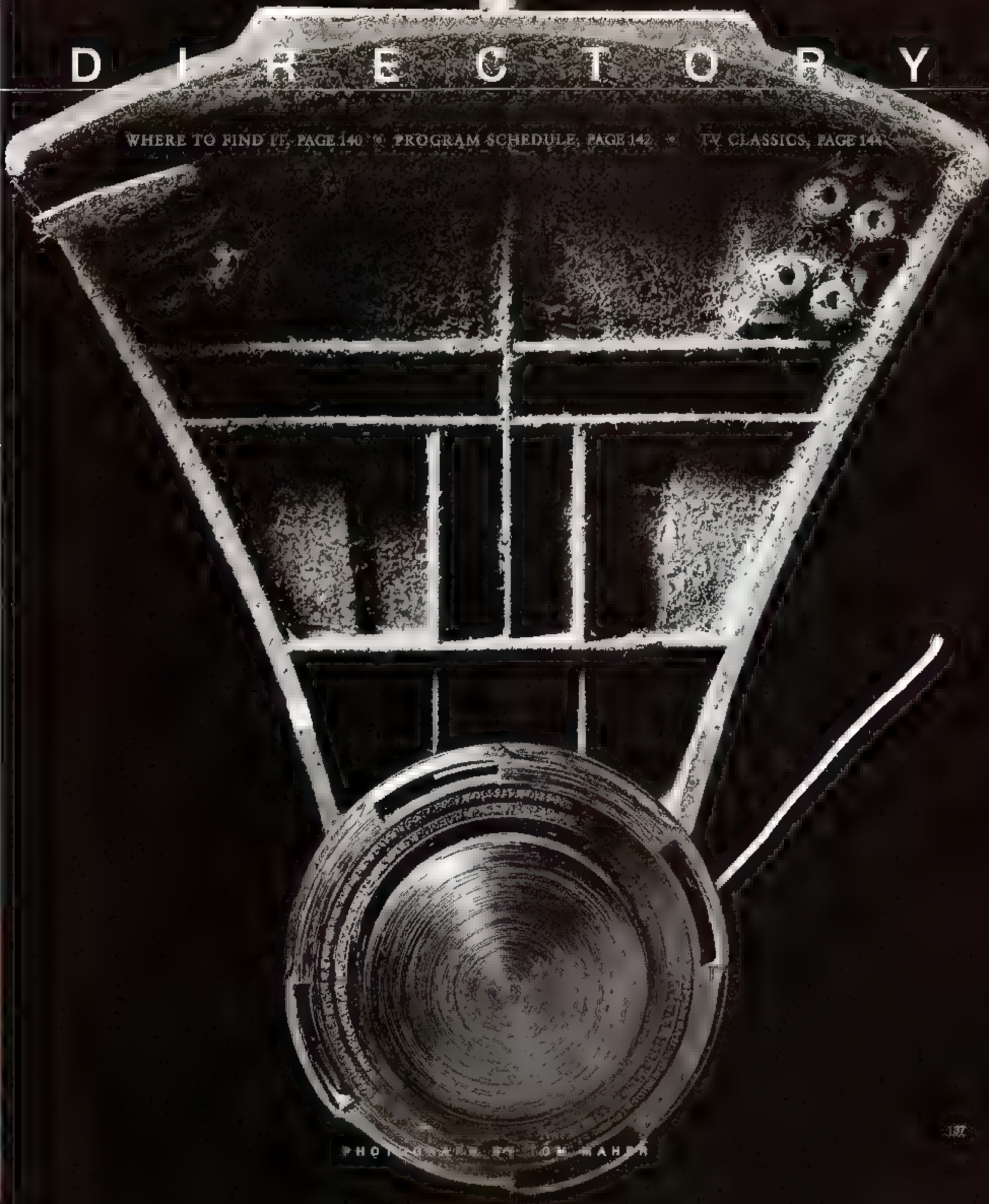


PHOTO: BILL REEVES

DIRECTORY

WHERE TO FIND IT, PAGE 140 • PROGRAM SCHEDULE, PAGE 142 • TV CLASSICS, PAGE 144



PHOTOGRAPH BY TOM MAHER

OUTTAKES
pp. 14-18

"Break On Through". WallSitter, Probst Tools, Prior Lake, MN, 800 728-3832, www.pavetech.com

HOUSE CALLS WITH STEVE
pp. 20-24

Architect: John Huss, Charles M. Effinger, Norwalk, OH, 419 668 1900
Kitchen designer: Barbara Eager, CKD, Ellis Kitchen and Bath Studio, Columbus, OH; 614-461-1218

Dishwashers: (clockwise from top), SHU 6800 series, Bosch, 800-866-2022, www.boschappliances.com G 811 SC Slimline series, Miele; 800 843 7231; www.mieleusa.com Fully-integrated dishwasher, Asko, 800-367-2444, www.askousa.com. KUDS01DJ Superba Designer, KitchenAid, 800-422 1230, www.kitchenaid.com D1996FI Fully integrated, Asko, Stained glass. Kara L. Bohach Punkett, Frank in Art Glass Inc., Columbus, OH, 800-848 7683, www.frankinartglass.com Hand-printed wallpaper: Bradbury &

Bradbury Art Wallpapers, 707-7461900 Reclaimed oak flooring: Aged Woods Inc., York, PA, 800 233 9307, www.agedwoods.com

ASK NORM
pp. 28-31

For more information on wood seasoning: U.S.D.A. Forest Service, Forest Products Laboratory, Madison, WI, www.fpl.fs.fed.us/

LUXURIES: POWER SHOWER
pp. 34-38

Designer: Darren Henault, Darren Henault Interiors, New York, NY, 212-677 5699 Shower heads and fixtures: Lefroy Brooks, New York City, 212-226-2242 Steam unit: Amerex; 800 331 0349, www.amerex.com Mosaic tiles: Tumbled Verde Laguna, Urban Archaeology, New York City; 212 431 4646; www.urbanarchaeology.com Thermostatic shower valve: Monticello ExactTemp, Moen, 800-289-6636, www.moen.com

TALKING SHOP: COMPOST HASTE
pp. 40-41

Compost bin with crank: The Compos Tumbler, Compos Tumbler Inc., Lititz, PA; 800-880-2345; www.compostumbler.com Compost bucket: item #692020, Smith & Hawken, Novato, CA; 800-776-3336, www.smithandhawken.com Food waste separator: Kich'n Komposter, Joneca Corporation, Anaheim, CA, 714 993 1707; www.joneca.com Five-tray vermicomposter: Expandable Worm Tower, available at composters.com, Laguna Beach, CA, 800-233-8438, www.composters.com. Digester: Green Cone Solar Digester, available at composters.com. Aerator: Compost Crank, Lotech Products, Tucson, AZ, 800-795 7316, www.compostcrank.com Compost bin: Earth Machine, Norseman Plastics Ltd., Toronto, Canada; 800-267 4391, www.earthmachine.com

BY DESIGN: VANTAGE POINT
pp. 42-44

Architect: Charles R. Myer & Company, Cambridge, MA, 617 876 9062, project architect, Don Knerr. General contractor: Alex Slive, S&H Construction, Cambridge, MA, 617 876-8286

www.bankrate.com; HSH Associates, www.hsh.com

SPECIAL REPORT: WIRED FOR WORK
pp. 72-80

General contractor: Mike M. Jer, M. and M. Construction, Bellevue, WA, 425-644-2253
Cabinet maker: John Brown, Dogstar Cabinets, Ellensburg, WA, 509 925 4333. Interior designer: Nancy Tobason, Tobiason Cates Interior Design, Bellevue, WA, 425-653 0793
Wiring contractor: Shaun D'Sylva, Wire

Ways Inc., Bellevue, WA, 425 643 1077, www.wireways.com
Electrician: Bell Red Electric, Redmond, WA, 425 883-7178; www.bellredelectric.com
Painter: Marty Egeland, Egeland Painting, Burien, WA, 206 714-6080
Lighting system: Iutron HomeWork's Interactive Home Lighting Controls; 610-282 3800 Under-cabinet and in-ceiling lighting: halogen track from Juno Trac, 847 827 9880; www.junolighting.com
Home network: 3Com OfficeConnect 100 megabit/sec data speed hub, 800-638-3266, www.buydirect.3com.com



"Vantage Point," p. 42. An 1880s Queen Anne in Cambridge, Mass., gets a new balcony with Chinese Chippendale-style railing.

UPKEEP: THE SILENT TREATMENT
pp. 45-48

Flooring contractor: Hunt Hardwood Floors, Lexington, MA, 781-862-3559
Nail set: Stanley, 800-262-2161; www.stanleyworks.com

TRANSFORMATIONS: LE RETRO FEAT
pp. 52-56

Architect: Michael Pachan, Cincinnati, OH, 513 761 1335
Contractor: Oyler Construction Company, Eaton, OH, 937 456 3060.

MATERIALS: THE FOREST FOR THE TREES
pp. 57-62

For more information on managed-forest certification: Forest Stewardship Council (FSC), Washington, D.C.; 877-372-5646, www.fscus.org. Lumber companies: Collins Companies, Portland, OR, 503 417 7755, www.collinswood.com Big Creek Lumber Co. Forestry Dept., Davenport, CA, 831-457 5026.

FINANCES: THE REALTOR TRUTH
pp. 64-69

For further information on realtors: National Association of Realtors, www.nar.realtor.com.
American Society of Home Inspectors, 800-743 2744, www.ash.org.
Mortgage rates: Bankrate.com,

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HOMEOWNER'S HANDBOOK pp. 83-89

Floor installers: Jeff Hosking, Hosking Hardwood Flooring, Walpole, MA, 508-668-8315; www.floorboards.com Chris Zizza, C&R Flooring, Framingham, MA, 508-620-7525 Flooring: 3/4-inch quartersawn oak engineered flooring, Listone Giordano from Van Lumber, 508-620-9090.

A FINE FINISH pp. 92-102

Architects: John French and Linda Neshamkin, Neshamkin French Architects, Charlestown, MA; 617-242-7422.

Electrician: Allen Gallant, Gallant Electric, Waltham, MA, 617-893-4636 Historic plaster consultant: Rory Brennan, Putney, VT, 802-387-4623; www.preservationplastering.com Painting contractor: John W. Dee, Painting & Decorating, Concord, MA, 978-369-8897; www.johndeepainting.com Lighting consultant and supplier: Susan J. Arnold, Wolfers Lighting, Wilmington, MA, 781-672-4201 Roofing contractor: Mark Mulloy,



"Fencing Match," p. 117 The Boston Digger's scoop uses a level to help prepare postholes.

Mulloy Roofing Inc., Gardner, MA; 978-632-7744 Floor installer: Bill Corcoran, Neighborhood Hardwood Floors, Waltham, MA, 781-894-3910 Window consultant and supplier: Jay Harman, Millennium Millwork Corp., Wilmington, MA, 978-658-8911 Chimney specialist: Solid Fuel Chimney Savers, Charlie Allen Restorations, Cambridge, MA, 617-864-7441 For franchises, call 800-444-3583

Mason: Lenny Belliveau, Lenny's Masonry, Stow, MA, 508-897-6256 Mason for rear exterior work only: Patrick Varian, Coachford Masonry Restoration, Charlestown, MA, 781-229-1141

Brick-stripping contractor: Dick Washburn, Washburn Associates, West Hartford, CT, 860-236-6028

Decorative painting: Patrick's Painting & Fauxs, West Barnstable, MA, 508-771-7205 Dining table and chairs: Antiques at Hearthstone House, Inc., Seekonk, MA, 508-336-6273 Ottoman, torchere lamp, table lamp, breadbox, Restoration Hardware, 888-243-9720; www.restorationhardware.com Candlesticks: Anthropologie, 800-543-1039; www.anthropologie.com Chandelier:

Nalco #2155-50, Wolfers Lighting, Waltham, MA; 781-672-4201 Ficus tree: Check the Florist, Providence, RI, 401-331-8984 Pendant light: Bruck #22078, Wolfers Lighting, Waltham, MA, 781-672-4201 Kitchen accessories: Amazon Kitchen Store, www.amazon.com/kitchen Kitchen appliances: KitchenAid, 800-422-1230; www.kitchenaid.com Sink: Franke undermount, Franke Kitchen Systems Division, Hatfield, PA, 215-822-6590; www.frankeusd.com Granite countertop: manufactured and installed by Cumar, Everett, MA; 617-389-7818 Kitchen cove lighting: Ambiance xenon 12 volt lighting by Seagull, 206-922-9934; www.seagullighting.com Kitchen cabinetry: Candlelight Cabinetry, Lockport, NY, 716-434-6543; www.candlelightcab.com Bathroom skylights: Fiore Skylights, Inc., Somersdale, NJ, 856-346-7310 Bathroom sinks and toilets: Toto USA Inc., Morrow, GA, 770-287-8686; www.totousa.com Shower and tub fixtures: Delta Select, Delta Faucet Co., Jackson, TN, 901-988-9003; www.deltafaucet.com Bath towels: Grand Patrician by Martex, 800-533-8229; www.martex.com Bathroom tub and countertops: Boston Marble, Woburn, MA, 781-937-5533 Travertine bathroom tile: Tile Showcase, Watertown, MA, 617-926-1100 Washer and dryer: full-size stackable unit, Neptune from Maytag appliances, Newton, IA, 641-792-7000; www.maytag.com Bamboo flooring: California Bamboo Flooring Co., San Rafael, CA, 888-548-7548; www.californiabamboo.com Vestibule doors: Tra-Stile MDF-Doors, 888-286-3931; www.trustile.com Period interior-door hardware: Emtek, 800-356-2741; www.emtekproducts.com Interior vestibule-door hardware: Barclay Entry Set, by Baldwin Brass, Reading, PA, 610-777-7811; www.baldwinbrass.com Exterior-door hardware: Circocast, Inc., San Francisco, CA, 415-822-3030; www.circocast.com Replacement windows: Pozzi Wood Windows, Bend, OR; 800-331-7319; www.pozzi.com Exterior shutters and shutter dogs: J&I Shutters, Memphis, TN, 800-238-2888; www.jshutters.com Interior shutters: Polywood by Sunburst Shutters, www.sunburstshutters.com; installed by Matt Pond, Hopkinton, MA; 508-435-6665 Polystyrene trim boards: Tech Trim, Timber Trading Group, Worcester, MA, 800-331-7319 Spring-loaded

PHOTO: GRANT RAME

Chimney dampers: Lock-Top Chimney Cap and Damper, Lyman Lock Top Inc., Jeffersonville, IN, 812-288-9953 Brick: M.J. Piroli & Sons, Inc., Watertown, MA; 617-924-0022 Granite for hearth: Absolute Black, Cumar Inc., Cubi, Everett, MA; 617-389-7818 Cast-stone lintels: Castcrete Inc., Warwick, RI, 401-821-1666 Paint stripper: Takeoff 2000, 800-765-1822 Paint: Benjamin Moore, Montclair, NJ, 201-573-6620; www.benjaminmoore.com Homeowner: Dan Beliveau, Back Bay Design Consultants, Charlestown, MA, 617-886-9090

PLAN OF ACTION pp. 104-107

Architect: Roger Janssen, Dailey & Partners Architects, P.A., West Palm Beach, FL, 561-640-5281 General contractors: John Kern and Harley Edgell, Kern Construction, Juno Beach, FL; 561-626-9582 Landscape design: Jeffrey Blakely, Blakey and Associates Landscape Architects and Planners Inc., Palm Beach Gardens, FL,

561-627-6145 Hurricane windows: PGT Industries, Venice, FL; 800-282-6019

A STROLL THROUGH WEST PALM BEACH pp. 110-114

For further information on West Palm Beach: visit www.westpalmbeachhdda.com or www.palmbeaches.com Our thanks to: Deb Murray, Palm Beach Historical Society

FENCING MATCH pp. 117-121

Fence installer and manufacturer: Walpole Woodworkers, Walpole, Mass; 508-668-2800; www.walpolewoodworkers.com Hole digger: Nu-Boston Digger, Northeastern Fence & Supply Corporation, Saugus, MA, 800-451-7880

L.A. RESIDENTIAL pp. 122-129

Architects: Kevin Oreck, Kevin Oreck

Architect, Inc., Los Angeles, CA, 323-692-0896 General contractor: Bruder Construction, Los Angeles, CA, 818-992-3315; www.bruderconstruction.com Pool-fill project manager: Doug Harpel, American Demolition/Concrete Cutting, Santa Ana, CA; 714-547-7181 Steel-cap technician: Rick Garcia, Broadway Sheet Metal, Santa Monica, CA, 310-829-3416 Cabinetmaker: Peter Scholz, Showcase Cabinetry, Van Nuys, CA, 818-781-7337; www.needsab.net Hardwood flooring: Hardwood Floors, Inglewood, CA, 310-672-1015 Linoleum flooring: Custom Inlay Floors, Los Angeles, CA, 310-474-1821

POSTER: STAIR RAILINGS pp. 131-136

Architect: Norman Smith Architecture, Washington, DC; 202-364-2248

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Come on down. Norm's dream workshop becomes a four-walled reality as the structure's custom-fabricated ceiling panels are lowered by crane.

Week 3 (March 31–April 1)

General contractor Tom Silva and his team tear out the floorboards of the Milton project's termite-infested barn as Tom tells show host Steve Thomas about his idea to convert part of the structure into a garage. Outside, the forms for the walls of master carpenter Norm Abram's workshop have been set and the concrete poured. Insulation specialist Graeme Kirkland fills Norm in on just how drafty the house is and proposes a way of injecting insulation into the walls through small holes that can be repaired easily. Steve, Norm, and Tom disassemble the kitchen to make way for a new media room. Steve examines the exterior surfaces with paint and coatings specialist Mac McCaw, who suggests ways to revitalize the color.

Watch and learn: Shaping and pouring wall forms.

Resources: Insulation: the Icynene Insulation System, by Icynene Inc., Mississauga, Ontario, Canada 800-758-7325; www.icynene.com. Paint consultant: Mac McCaw 800-344-8042 or 603-598-2712.

Week 4 (April 7–8)

Steve arrives at the project to find Norm measuring out the trenches for the workshop's ductwork. Norm shows Steve the panels of modified shingles that will be installed; then enlists him to help remove the old shingles and nails. Tom gives Steve

the scoop on what's being done to rid the house of moisture. Outside, the grading will direct water away from the house. Inside, both a ventilation system and a sump pump will be added. Tom and Steve join Norm in the new two-car garage to revisit the fast, easy, and accurate installation of the footers and support posts. Norm and Tom help the crew remove the main vertical corner support post for the second floor attic and roof and replace it with a horizontally positioned piece of engineered lumber.

Watch and learn: Locating posts and pouring footers.

Resources: Shingle system: Cedar Valley Shingle Systems, Hollister, CA 800-521-9523. Integral footing forms: Bigfoot by F & S Manufacturing Inc., Martins Point, Nova Scotia, Canada 800-934-0393. Floating laser level: Laser Beam Plumb Level, Eagle Construction Specialties Co., Matthews, NC 888-256-3245 or 704-338-1700. Engineered lumber: Trus Joist, Boise, ID 208-364-1200 or 800-338-0515.

Week 5 (April 14–15)

Construction is well under way at the workshop, where heating and plumbing consultant Richard Trethewey is on hand to guide the crew through both the structural preparation for and installation of radiant heat tubing. Steve meets with electronic systems designer

Steve Hayes, who gives structural and product suggestions for creating a well-equipped but modest media room. Steve joins paint stripping contractor Brooks Washburn in the house's front entryway, where beautiful original wood detailing is revealed beneath 30 coats of old paint. Steve visits Norm in the workshop just in time to catch him and Tom writing their initials in the newly poured foundation.

Watch and learn: Installing radiant heat tubing.

Resources: Radiant heat tubing: Wirsbo Co., Apple Valley, MN 800-321-4739. Rigid insulation: Styrofoam 2-inch tongue-and-groove insulation, Dow Chemical Co., Midland, MI 517-636-1000. Central vacuum system: Broan NuTone LLC, Hartford, VT 262-677-4340. Dust collection system: Air Handling Systems, Woodbridge, CT 800-367-3828. Audiovisual contractor: Steve Hayes, Custom Electronics Inc., Falmouth, ME 207-781-2326. Professional AV trade organization: Custom Electronic Design & Installation Association (CEDIA), Indianapolis, IN 800-669-5329 or 317-571-5602. Media systems consultant: Media Systems, Boston, MA 617-439-7004. Paint stripper: Take Off Inc., Geneseo, IL 800-765-1822. Concrete finishers: Syd March Concrete Construction, Tewksbury, MA 978-851-7200.

Week 6 (April 21–22)

Steve, Norm, and Tom are on site as the new workshop's fabricated wall panels are installed by panel system builder Jim LeRoy, who designed them specifically for the workshop. Norm explores roofing options with metal roofing specialist David Rowe. Steve does a bit of investigating himself as he speaks with furniture and finishes restorer Robert Mussey about how to revive the house's drab woodwork. At the workshop, Norm checks out the pipes that will provide electricity, water, phone, and heat. Knee-deep in the first floor renovations, Tom walks Norm and Steve through the structural improvements and additions, pointing out the foundation for the new screened porch and rotted beams now supported by engineered lumber.

Watch and learn: Installing an insulated panel system.

Resources: Structural insulated panels: Insulspan, Blissfield, MI 517-486-4355. Foam sealant and

insulation: Handi-Foam, Fomo Products Inc., Norton, OH 800-321-5585. Crane: Shaughnessy Crane Service, South Boston, MA 617-268-3000. Superinsulated heat pipe: Ecoflex, Rovanco Piping Systems Inc., Joiet, IL 815-741-6700.

Week 7 (April 28–29)

Steve follows Tom around the new laundry/mudroom and the kitchen, which features two new staircases. They discuss a few structural modifications, including an overhang for the mudroom and relocation of the electrical meter box. Steve proudly displays the house's chemically paint-stripped facade, with its fully intact 1724 woodwork. Norm tours the 900 square feet of workshop space, which is equipped with a 200-amp electrical panel that can provide juice for up to 48 power tools. On the workshop roof, Norm and Tom install a skylight before the final metal roofing is attached. Norm learns about the roof tiling machine that cuts the panels and gets a demonstration of how they are fit and installed.

Watch and learn: Installing a skylight and metal roofing.

Resources: Plywood and engineered: "Primetrim" wood trim contact: Charlotte Wood, Georgia-Pacific Corp., Atlanta, GA 404-652-6601. Paint stripper: Take Off Inc., Geneseo, IL 800-765-1822. Windows: Marvin Windows & Doors, Warroad, MN 800-328-0268. Metal roofing: Permetallic 2000 "weathered mill finish" coating over Galvalum by Englert Inc., Perth Amboy, NJ 800-343-5007. Roof panel former: Roll Former Corp., Willow Grove, PA 215-830-9757.



Before work starts, Norm and Steve check out the old barn, which will house a garage and home gym.

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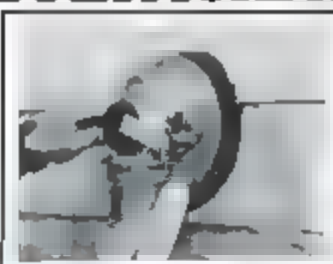
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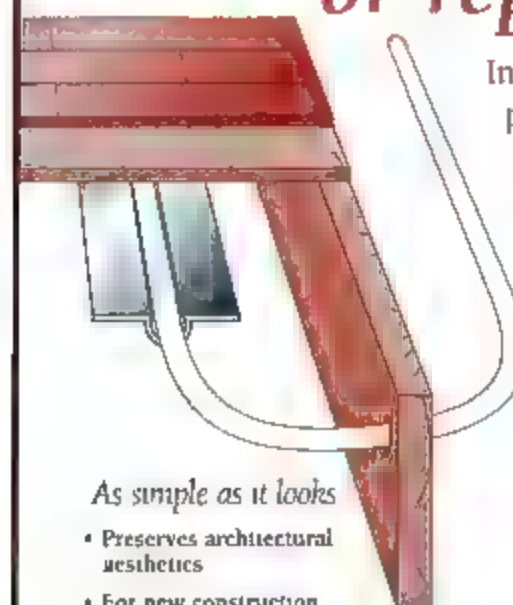
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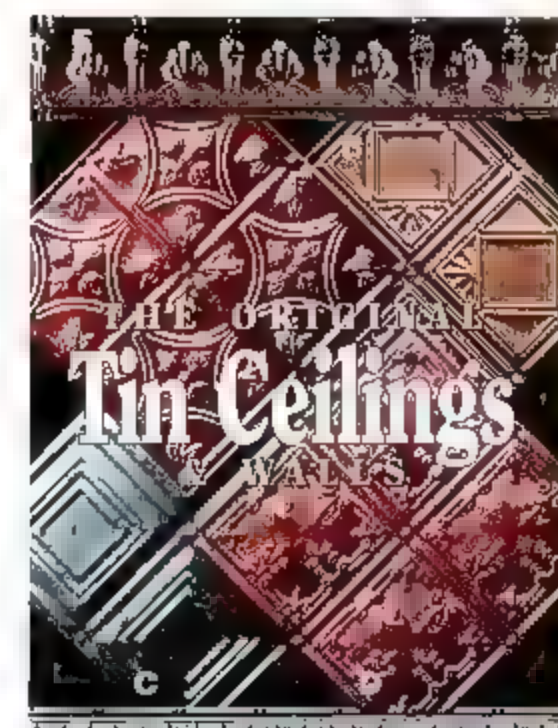
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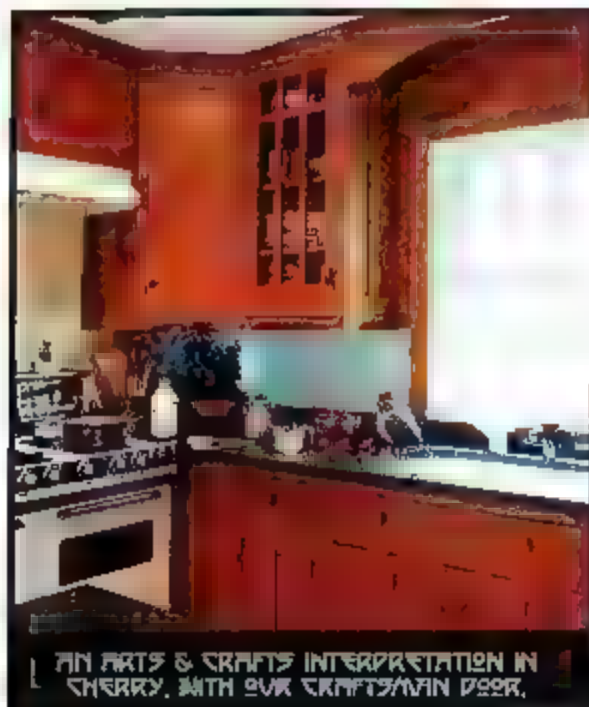
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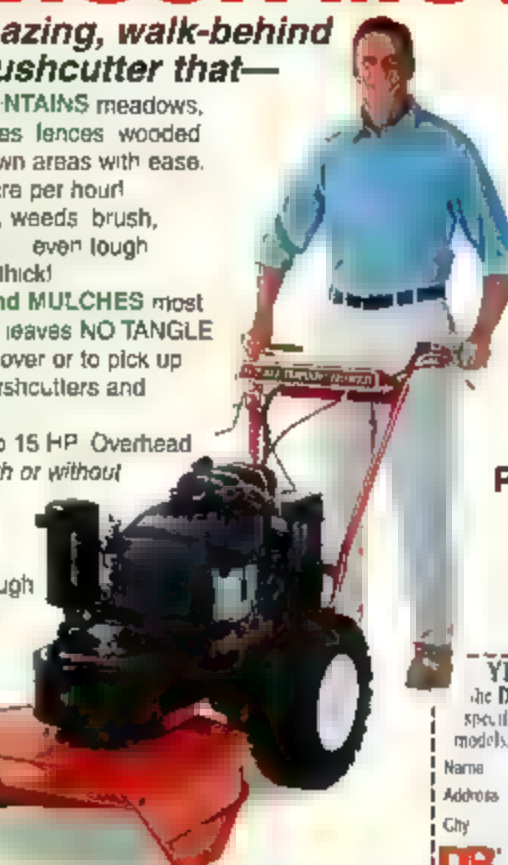


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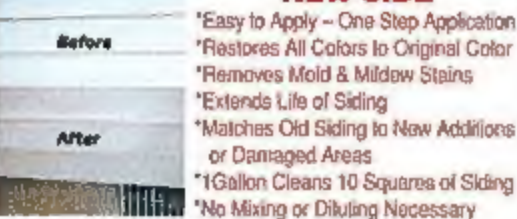
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LOCATION

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This stocky bulldog of a house, with its thick pillars and foursquare hindquarters, watches over one of the world's largest shrimping fleets, harbored a block away along the Brazos River. Stephen Perry, the great-grandnephew of "Father of Texas" Stephen Austin, built the home in 1916 from wood salvaged after a hurricane destroyed nearby structures along the Gulf Coast.

The straightforward 2,300-square-foot floor plan—four rooms up, four rooms down, plus a bathroom on each floor—was never significantly altered as its role shifted from the Perrys' private residence to a boarding house and, finally, a rental property. The current owners, who purchased the house from the Perry family in 1996, tore off a small shed-roofed addition that served as the kitchen. They continue to maintain the property but have never moved in.

The house has slowly settled to grade, and its plumbing and gas lines have consequently been disconnected. To prepare the structure for leveling, which will require new foundation framing and piers, the owners dismantled the chimney and both fireplaces; the bricks have been retained. The electrical system functions, but there is no central heating system.

The half-acre plot includes a 520-square-foot, two-room cottage. Both buildings may be moved.



While the vernacular Perry House's full-height entry porch and wide band of cornice trim (TOP) signal Greek Revival influence, its smaller companion's starkly contrasting bracketed portico (INSET) barks Victorian. Views of the upstairs landing and front bedrooms (BOTTOM LEFT AND RIGHT) show the main house's southern yellow pine-clad walls and ceiling. Originally covered by a cotton scrim to which wallpaper was affixed, the wood is still dotted with scraps of cloth snagged on tiny tacks.

CONTACT

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If you know of a house that should be saved, please write to: Save This Old House, 1185 Avenue of the Americas, 27th floor, New York, NY 10035.

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SEQUENTIAL FUEL INJECTION

REAR INTERMITTENT WIPER

AVAILABLE POWER-ADJUSTABLE DRIVER
AND FRONT PASSENGER SEATS

THIRD-ROW SEATS SLIDE, FOLD, TUMBLE
AND RECLINE

AVAILABLE REAR SPOILER

AVAILABLE SEAT HEATER

CLIP-STYLE NOTE PAD HOLDER

SEATING FOR EIGHT ADULTS

AVAILABLE ROOF RACK

DRIVER DOOR KEY-ACTIVATED
WINDOWS AND SUNROOF

AVAILABLE REAR AUTOMATIC DIGITAL CLIMATE CONTROL

AVAILABLE FOG LAMPS

SPLIT-FOLDING 60/40 SECOND-ROW SEAT

SECURITY SYSTEM WITH ENGINE IMMOBILIZER

FRONT DRIVER/PASSENGER ONE-TOUCH AUTO UP/DOWN
POWER WINDOWS WITH PINCH CONTROL

AVAILABLE INTERIOR METAL-TONE TRIM

50/50 SPLIT THIRD-ROW SEATS

3-POINT SEATBELTS IN ALL EIGHT SEATS

VERSATILE PASSENGER/CARGO ROOM

AVAILABLE LEATHER-TRIMMED SEATS

32-VALVE 240-HORSEPOWER V8

AVAILABLE OVERHEAD ACCESSORY METER

IT'S TAKEN US YEARS TO ENGINEER AND BUILD IT. NOW YOU KNOW WHY.

CHIP-RESISTANT PAINT

TOYOTA DIRECT IGNITION

FRONT VARIABLE INTERMITTENT WIPER

AVAILABLE CONTRASTING
PAINTED OVERFENDERS

AVAILABLE HEATED OUTSIDE MIRRORS

AVAILABLE SIDE CURTAIN/SIDE BOLSTER AIR BAG
SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

AVAILABLE DUAL ZONE DIGITAL
AUTOMATIC CLIMATE CONTROL

ULTRA LOW EMISSION VEHICLE (ULEV)

CRUISE CONTROL

AUTO-OFF HEADLIGHTS

OVER THREE FEET OF
FRONT-SEAT LEG ROOM

HEAT-ABSORBING GLASS

EASILY REMOVABLE THIRD-ROW SEATS

DRIVER/PASSENGER SUN VISOR WITH
SLIDING EXTENSIONS

AVAILABLE 6-DISC
IN-DASH CD CHANGER

CLEAR-COAT FINISH

OVER THREE FEET OF
SECOND-SEAT LEG ROOM

TEN CUP HOLDERS

VERSATILE CENTER CONSOLE

FRONT CAPTAIN'S CHAIRS

AVAILABLE MOONROOF WITH PINCH CONTROL

ADJUSTABLE STEERING WHEEL

POWER ANTENNA

TAILGATE WITH POWER REAR WINDOW

FOLDABLE SIDE-VIEW MIRRORS

DUAL POWER OUTSIDE
REARVIEW MIRRORS

i-FORCE V8 ENGINE

MULTI-REFLECTOR
HEADLAMPS

REAR DOOR PRIVACY GLASS

REAR WINDOW DEFOGGER
WITH TIMER

UP TO 6,500-LB.
TOWING CAPACITY

5-LINK COIL-SPRING REAR
SUSPENSION

AVAILABLE P265/70R16 TIRES

SIDE-IMPACT DOOR BEAMS

REINFORCED BODY STRUCTURE

AVAILABLE
MULTI-MODE 4WD

315 LB.-FT. OF TORQUE

INDEPENDENT DOUBLE-WISHBONE FRONT SUSPENSION

AVAILABLE RUNNING BOARDS

ELECTRONIC CONTROLLED AUTOMATIC TRANSMISSION

AVAILABLE ACTIVE TRAC 4-WHEEL
TRACTION CONTROL SYSTEM

FRONT CRUMPLE ZONES

VEHICLE SKID CONTROL (VSC)

ALL-WEATHER PACKAGE

CLOSED BOX FRAME

ANTI-LOCK BRAKE SYSTEM (ABS)

THE NEW FULL-SIZE SEQUOIA

It's the product of thousands of ideas and hundreds of thousands of man-hours.

Not to mention the commitment it took to figure out how to get it all in one SUV.

TOYOTA SUVs
THERE AND BACK.

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