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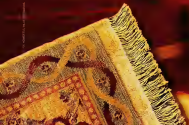
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HOMESWORK

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Fleeing office life brings unimagined freedom: No morning staff meetings that roll past the lunch hour. No need to put in "face time" just to please the boss. And every day is casual Friday yet without phoning in an at-home freelance career can become bogged down in troubles all its own—whether it's because the kitchen counter doubles as the front office, or because the filing system involves piling stacks of paper around the edges of the living room.

Working in cramped, ill-considered spaces like these wastes time and leads to dissatisfaction and may even result in painful injuries from work-related stress. The remedy is to create an office that will help your house pods enter the 21st century. To begin, what's needed most is a sense of style and order.

- Consider a spare bedroom, a den, or a habitable portion of a basement or attic.
- If space is tight, search instead for corners of rooms or even large closets—but try to get an area at least 10 feet by 10 feet.
- If you're in the sort of work where clients occasionally drop by, choose office space close to the front door and near the guest bathroom. This will help create a buffer between your professional life and family life.

Then before shopping for computer equipment and furniture consider the basic systems within the room.

- Luxurious heating and cooling systems are a necessity in the north. Upgrade them to make working life bearable—especially if your office is in the basement or attic.
- Windows and skylights brighten an office, but the glare can make it impossible to see computer screens and cause repetitive strain injuries and sore eyes. Think about adding recessed lighting to cause less glare than large dark lamps.
- To avoid frustration, you may need a second or even third telephone line for office calls, as well as connections to the fax and the Internet.

Once you've taken care of the basics, pick the furniture to hold the equipment you'll need. Home offices can be converted from the high end (kitchens)—and for those the same makeover can be a bonus addition to a big modular office furniture system. Unlike built-ins, these low-cost units can be added to or reconfigured as your business grows.

Hard work breeds corporate employees spend huge sums of money protecting their workers from repetitive stress injury. Working alone this becomes your own responsibility—and one too expensive to neglect. At home workers who sit up to the kitchen counter with their laptops or type with the forearms cradled between their head and shoulder risk developing back and neck problems, carpal tunnel syndrome.



The first Monday in September—Labor Day—has been redesignated as a celebration of the achievements of American workers and a day to reflect on goals for the future. If home is your office, make **Monster Talent Market** your home for career opportunities. Visit <http://talentmarket.monster.com>

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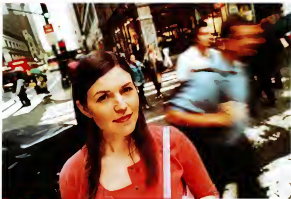
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covered ornaments
featured in our Poster
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flowering trees

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cover

The experts at the TOHS staff and members of the TOHS staff are the ones who have been working on the renovation of their 19th-century house in Charleston, South Carolina. But before they can do anything to their house, they must first get the house in good shape. And the rest of the TOHS crew is now in charge of the big job: getting the house in good shape. So, to check out the TOHS crew, see "Search Party" p. 92. PHOTOGRAPH BY GARY DELIN

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—Tom Mori, homeowner

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WITH THE PAGE 61

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DESIGN: JACQUE STICK; PHOTOGRAPHY: JACQUE STICK

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THE SLATE STORY, P. 80

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Concrete Solutions

I read the letter and your response about unsightly concrete with interest ("Concrete Conundrum," Ask Men, May 2000) because I have written at length about concrete. I am a decorative and sound painter and have done a lot of fine stone finishes, including some on concrete. About three years ago I did the work shown in these photos. The homeowners wanted to camouflage the concrete block surrounding their doorway. I covered the block with a good stucco primer called a pale beige, then mixed my colors into exterior paint. Even though you can still see the faint outline of the striped block, everything has held up very well to the elements and the project cost quite a bit less than the \$13,000 solution the letter writer was initially quoted.

DONALD D. BOHON, DONALD BOHON PAINTS, LLP

First Resort

While I told your professional opinion is high regard—as an architect I feel that you may be misreading the grille in "Low-Budget Design Help" (Ask Men, May 2000). For instance, in the state of New Jersey problems often arise in the manipulation of single-family dwellings because plans can be drawn legally by non-architects who may have little knowledge of fire ratings and energy conservation codes, egress requirements, zoning ordinances, and structural and strength-of-materials. Construction projects, no matter how small, are complicated enough without suggesting that a licensed architect be the "first resort" when preparing for such an undertaking.

DAVID DUNKIN, PRINC, NJ

A Touch of Glass

In the May issue ("Weathered Windows," Ask Men), you were asked what to do with a double-pane window in a shower. I faced the same situation at my 1950s home when I renovated. I finally felt that window opening with glass before—it got light and it looks good, but I no longer have the mold and

stains I had with the window. In fact, I find the glass looks so much better. I had to remove and I finished a glass block shower stall with the walls.

WILLIAM K. DRAVICH, HAWTHORNE, FLA.

North vs. South

I enjoy TDH very much and appreciate all the wonderful things that you do for the readers, especially your recent use of antique window panes in the Santa Barbara project. However, in the TV image for *This Old House*, I was startled to notice that my hometown of Greenville, North Carolina, had replaced a pine TV listing—Greenville/Spartanburg, North Carolina. While Greenville is native to both states, Spartanburg is in South Carolina. It's a common mistake, but perhaps you could see your way clear to giving the Greenville/Spartanburg listing back to South Carolina.

DAVID A. GROSS, GREENVILLE, N.C.

We apologize to all Carolinians for the geographic blunder. The Greenville/Spartanburg entry has been moved to its proper home in South Carolina.

Weather Resistant

Tom Silva chose marine plywood as the sheathing for his bath in a box ("Wrapped in Wood," May 2000). My understanding is that although there is no difference in the weather resistance of exterior and marine-grade plywood, marine is much more expensive. I realize that marine plywood does not have some gaps and is therefore structurally stronger, but this should not be an important factor in job sheathing.

JOHN ELLMAN, LANSING, WICH., 66104-0001

Radioed Cuckoo

I have been a reader for at least a dozen decades in as many different publications and I have never worked with a group of people so dedicated to getting it right as the staff of *This Old House*. Based on my experience ("Clearing the Decks," Update, June 2000), I honestly believe that whenever a person on the pages of TDH magazine has Don's certainty thought out, researched, checked double-checked, and then verified with the owner and had him endorse everything in our printed. In talking with the editors, I could tell that accuracy meant everything and that they would do whatever was necessary to ensure



technical engineers built at the Western Wood Products Association. Although there may be a small difference in today's wood compared with that of 100 years ago, younger trees perform just as well as old growth for structural/lumber purposes. The properties within the tree, not the age of the tree, determine strength. Also, old growth trees are not "gone." They're just off limits to logging because of governmental restrictions. In fact, more than 15 million acres of old growth forest stands today and increase every year. Our children and grandchildren will have plenty of old growth trees around in the future, they just may not be able to use them for logging.

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OUTTAKES

BEHIND THE SCENES AT THIS OLD MOVIE

BY JORDAN REED



Buying or renovating a new home is always an adventure, but some-

times it provides some treasure, too. Charleston's pregent homeowners Dan and Heather Belveria discovered some unexposed goodies worthy of *The Assassination of Jesse James by the Coward Robert Ford*, including an old piano, a 1940s kitchen stove, and some Kennedy family memorabilia. They've decided to sell the cooker (possibly to John Albright, one of the project's architects), but they'd like to restore the instrument and hold on to the political memorabilia. According to the show's producer, Bruce Irving, this isn't the first time T.O.H. has found interesting curiosities in a near-empty

Finders Keepers

house. The basement at the 1996 Savannah project held pieces of a large X-ray developing machine—evidently the previous owner was a radiologist. And the Milton project turned out to be a veritable gold mine: There, the guys discovered a 15-wall chicken roost and an old, pristine 19 Flier bike in the barn, plus some vintage 1950s pine kitchen cabinetry—baby-blue Formica counters still attached. While the medical equipment and fowl furniture were soiled, Bruce took the last home, along with the cabinetry. "I try to put old stuff to good use," he says. "It's a Yankee thrift thing I learned from my coworkers."

PHOTO: JAMES HARRIS

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Hipsters

WORCESTER, MASS. (UPI)—ON OMAHA WEDNESDAY'S PRICED EXTENS, best-dressed honorees at the Daytime Emmy Awards definitely go to T.O.H.'s Richard Trethaway and Tom Silva. Both attended the May 13 ceremony in black tie, but added a special touch: tool-belt cummerbunds. "I put the idea out as a joke," Tom says. "But then Rich and I decided we'd both wear them." The show didn't win any awards this year, so the guys' hip garb didn't take center stage. But the look was certainly a hit with the guests who attended the event. "People laughed their [heads] off as they walked by," says Tom.



Rich wears the belts as more than a fashion statement. "It was our little way to be true to our television roots."

A QUESTION FROM THE FLOOR

The floor in the dining room at the Charleston house displays an intriguing design: a rectangular field of southern yellow pine framed by a wide maple border. Though it looks decorative, the two-wood pattern was actually a cost-saving strategy brought to the States from England in the 19th century: the idea was to use cheaper wood in spaces covered by area rugs. As its name suggests, southern yellow pine was logged from Virginia to Texas. How did this 1500-year-old, built during the Civil War, come to sport wood harvested in Confederate states? One explanation, according to



Carol Goodwin of the Association for the Restoration of Long Leaf Pine, rests in the fact that southern lumber companies continued shipping timber north despite trade embargoes. More than likely, though, says design historian Gail Winkler of LCA, Associates in Philadelphia, the Charleston floor is not unique to the house. "The notion of combining an inexpensive wood with a more costly border wasn't introduced to the U.S. until the 1870s," she says. Paradoxically, yellow pine has become quite rare and valuable: the only way to get it now is from salvaged floors or long-lost logs found on river bottoms.

Aug/Sept 2000 Calendar

STEVE THOMAS
August 26: Minnesota State
Folk Museum, State Fair
Grounds, St. Paul, MN
612/681-1111 or www.mnstatefair.org

September 8: Cleveland
Summer House Library, Inter-
national Exhibition Center,
6200 Riverside Drive, Cleve-
land, OH 44131. Details:
216-476-6000

September 16: World of Log
Homes in Timber Frame
Expo, Albion Energy Center,
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Way, Madison, WI 53713
Details: 800-370-4290

September 30-October 1:
Home Show of the Rockies,
Denver Merchandise Mart,
401 East Fish Avenue, Den-
ver, CO 80202. Details:
303-512-5300 or www.
goldenrocksale.com

TOM SILVER
September 7: Austin Fall
Home and Garden Show,
Austin Convention Center,
500 East Cesar Chavez,
Austin, TX. Details: 1-800-346-1 or www.austinfohshow.com

September 26: Philadelphia
Fall Home and Garden
Show, Wilbur Foye Conven-
tion Center, 1315 First
Avenue, King of Prussia, PA.
Details: 610-264-6213 or
www.abnathome.com

September 30: Golf Coast
Home and Garden Show,
Mifflin Convention Center,
1 South White Street,
Mobile, AL. Details: 334-
288-2300 or www.
abouttheshow.com

July 1, 1980. Sucked from shell, enters parallel dimension or something.



May 27, 2000. Locust on Albion and fill hole in collection.

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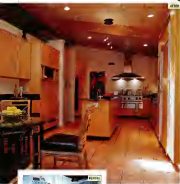
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HOUSE CALLS WITH STEVE

Thoroughly Modern Makeover

The update of a '60s-era kitchen increases the room's efficiency while retaining its period flavor



T

hese days, when so many people choose to transplant or tear down parent houses, the owners of this split-level in Chevy Chase, Maryland, looked the other way. After almost 25 years at residence, they knew their kitchen had to be updated, but they wanted it to integrate well with the rest of the house. They found a kindred spirit in architect Denise Bernemann of Washington, D.C., who respected their wish and told them he'd make it work. "As if it were done by the original architect—on his best day and with a good budget." He would not, he said, create a space that would look like an afterthought.

The homeowners, both doctors, had hoped to modernize the kitchen for years. But, like many busy couples juggling careers and family responsibilities, they didn't get around to making the project until their children moved out. "It makes sense," says The Old House host Steve Thomas. "Banning kids is such a full-time job that most people don't manage going through a six-month renovation—especially one that puts the heart of the house out of commission. But people never give up on maintaining them, and this couple felt they were at a point where they could tolerate the upheaval."

PROBLEM

The old kitchen was gloomy, dimmed by just one small window, and burdened with overbearing dark wood beams and trim. Floor lanterns made its round built-in table look like a prison cell. The layout was awkward as well. Two doors opened into the space and a third led outdoors, turning the room into a throughway, so that everyone passing through



BEFORE The old kitchen had long served the family's needs, but over the years it was out of sync. They found it awkward and unpleasant for entertaining. The new kitchen (left) was expanded to include an entry and entrance along one wall and a bar that includes a corner nook.

BY BRIGDA MURPHY PHOTOGRAPHS BY TIMOTHY BELL

PHOTOGRAPH BY BRIGDA MURPHY



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HOUSE CALLS WITH STEVE

would bump into the cook.

The wife, who lives in stock, had a very close wish list. "I wanted an island because I needed more counter space," she recalls, "and two dishwashers because I enjoy entertaining, but don't like cleanup, and a professional gas range for flexibility."

SOLUTION

Bennett's task was twofold: to expand the footprint as much as possible, to improve the traffic and work flow, and to update the kitchen while honoring its mid-century style. To create enough space for a separate breakfast area, he pulled the rear wall back 35 feet—the measure is allowed



ACTIVE The island sink captures the main sink (in background) when the couple entertains. A 36-inch Pro range and morning showers save the cooking space exceptionally useful and convenient, says the wife.



by code. He also angled that wall to follow the property's sloped seismic fault line. The angle opened up space for a large window such as exposure view of the garden along the newly lengthened side wall. Sliding doors replace the old window and back door. The angle of the wall also allows that of the gently pitched ceiling, an inclusive steel shell the couple decided to retain. "They wanted to keep the feel of the split level, and that ceiling was the most resource link to the original design," Steve explains.

This new breakfast area doubles as a gathering spot for decks with friends. Nearly as a side-by-side refrigerator, a wine cooler, and a bar-size sink in the island. "You can get the milk out of the refrigerator and set down to breakfast or serve drinks and keep it convenient without getting in the cook's way," Bennett explains. "This is a mid-century layout," says Steve. "You've got a cook's area, a food prep area at the sink, an area for someone at the island, and a hanging out space where you can chat with the cook."

A license key to San Francisco and a year to that city's Midtown

of Modern Art inspired the homeowners to go with crisp stainless steel and a black-and-blond color scheme for the room. Glossy black granite countertops and wall ovens with black glass doors stand out in sharp contrast to the red brick cabinets. To unify the various zones within the space, Bennett covered the floor with 12-inch-square terrazzo tiles.

Applied Bennett's perfect custom over semi-custom cabinets. "When you're renovating a house, the walls are never smooth and the floors are never level," he explains. "You've got to make perfectly round components fit, which involves extra labor. We've found that semi-custom is really no cheaper." Because the island didn't want to leave to last out a step stool to reach the top shelves, the wife insisted that the wall cabinets be hung at a lower than normal height.

To meet the couple's culinary needs, Bennett chose professional-quality appliances and in stainless steel, including a pair of warming drawers installed under the cooking. Nearly as a pair of stacking wall ovens and a microwave, plus a garage for small appliances.

FINISHING TOUCHES

Upgrading the lighting from the old recessed-in-lu fluorescent fixture "was tricky," recalls Bennett. "Because we left the original ceiling alone and this part of the house is only one story, we couldn't raise it early." His solution: recess point fixtures installed on securing plates, plus track lighting beneath the wall cabinets.

"Today the kitchen blends so nicely with the rest of the house—in the wife hoped it would. "We had 14 people over last Thanksgiving," she says, "and the kitchen made it easy." ■

BEFORE



AFTER



The former kitchen—measuring 135 by 15 feet—was cramped and inefficient with a single, but ventilation was a challenge, especially with a side and island in the center. Extending the room 35 feet expanded usable space from 236 to 324 square feet and improved movement through out the room. Walls at right angles and a broad new window bring the sun.

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HOUSE CALLS WITH STEVE

IDEAS NOTEBOOK

"In this kitchen, a wine cooler helps create a separate bar area that simplifies entertaining."
—STEVE THOMAS

HOT COOLERS

Once relegated to the basement, where temperatures were more apt to remain consistently cool, wine racks are now an indispensable feature of many kitchens. Even more sophisticated are appliances known as wine coolers, such as the undercounter unit in the Chevy Chase kitchen (right). They are calibrated to keep various types of wine at their "ideal" temperatures," says T.O.H. host Steve Thomas, even in models that hold over 100 bottles, including magnums. "If you don't like the look of them," he adds, "they can be dressed out with front panels that blend in with the cabinetry."



1997 Modeler notes: "It looks like this can be used as a personal item—or placed with wine." (Photo by Steve Thomas)

1997 The furniture style owner's cabinet, which holds up to 10 bottles of wine, can be used for wine storage.

1997 The 10-bottle wine cooler can hold more or be installed under a counter to store wine.



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HOT CEILINGS

My girlfriend insists that she has radiant heating in the ceiling of her 1930s craftsman unit, but the built houses for years and have never heard of such a thing—where just? Also, I've noticed that the caulking between the crown molding and the ceiling is badly cracked. Is there a particular caulk I can use to fix this?

Steve Doran, Seattle, Wash.

First of all, your girlfriend is correct: They've been making radiant panels to stretch across bome ceilings since the '30s. They are fast to install, allow each room to be controlled by separate thermostats, and don't need radiators or vents. I can remember my father working in the '40s on a new house that had a radiant ceiling system. A core strong resistance wires across each hole in old-fashioned plaster substrate that replaced wood lath, then plastered over the wiring. We don't see many heated ceilings around here these days because electricity is expensive (in your region, however, electricity is a relatively cheap heat source, because much of it comes from dams). Also, some people find that their feet get cold in rooms with radiant ceilings, particularly when they're sitting at a table or desk that "radiates" the heat.

Now you can understand why the joint between the crown molding is cracking. The ceiling heat is causing the wood trim to shrink. Don't try to seal it at all; plus, you might put a nail through one of the wires. About the only thing you can do about it is caulk with a paintable silicone sealer and hope that it keeps up with the movement. I'd install it in the summer when the ceiling won't be in heating mode for a while.

HOME SWEAT HOME

My wife and I live in the same 40-year-old home I grew up in. We used to call the basement—all 1,500 square feet of it—with a 3-ton air conditioner. Then, about two years ago, we built a 300-square-foot addition. When the existing air conditioner couldn't adequately cool the extra space, we added a 3-ton unit. All the ducts run through a crawl space beneath the floor. At the same time, we

had additional insulation blown into the attic and replaced the sagging insulation that had been put in under the floor joists earlier. Our problems began that summer. The pine flooring in the living and dining rooms began to sweat, especially under the furniture, and dark stains appeared in these wet spots. An energy-efficiency expert from the extension service at Louisiana State University advised us to cover the bare dirt in the crawl space with a plastic vapor barrier, which we did. Thinking we had solved the problem, we sanded and refinished the floors, but the problem resurfaced the following summer. Could it be that our house is too tight for Louisiana weather?

William R. Koon
Greene Springs, La.



I turn the "flow" over to Richard Trethewey, T.O.M. housing and cooling expert.

"Leave a cold glass of lemonade outdoors on a warm summer day, and what happens? Beads of water—condensation—form on the glass. Looks like it's sweating, right? I think the same process is at work in your house. Chances are good that the AC ducts running below your floor are leaking cold air to badly—one may even be disconnected—so the crawl space is getting cooler than the house. When you're in the room from the unbearably cold floors—beats!—they sweat, regardless of the new floor installation. And the problem will be worse whenever the air circulation is poorest, such as under the furniture.

"The other problem is that your system is oversized; you have enough cooling capacity for a 3,000-square-foot house. (The rule of thumb is that 1 ton will cool 600 square feet.) A properly sized system actually helps dehumidify a house, but yours is cooling everything so quickly that it shuts off before it has a chance to dehumidify moisture out of the inside air.

"Your first order of business will be to seal those ducts. Don't use duct tape, though, because even the good stuff will peel in humid weather. Instead, use a sheet metal mastic with aluminum tape. This makes sure the ducts are sealed in moisture. In rainy season, more ducts like yours, push for as much R-value as you can—R-4 is the minimum, R-6 would be better.

"Unfortunately, there's no way to fix the humidity-control problem that happens with oversize systems. The only thing I can

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suggests to install room dehumidifiers or go back to ceiling with one post 3-in. unit."

TAKE A BOW (RAFT)

We've lived in our 1940 Arts and Crafts house for 35 years. Recently, I've noticed that the floor at the center of the house is bowing upward. What's going on?

BOB FURNBERG, BURNING, KANS.

I can almost bet that your house has a post-in-timber-extended model, the timber that rests on the foundation and supports one end of the floor joists (We seem to find disarticulated models in almost every Tim Old House project). The floor is probably bowing because a support beam at the corner of your house is holding the floor at its original level while the exterior walls are crushing the joists all the more. Your joists are bending like a corner with a same wrecker in each area. The situation gets worse when the drainage extends into the floor and run joists. If you go into the basement and poke at the wood with a screwdriver, you'll probably see what I'm talking about.

To correct the immediate problem, you'll have to replace all the rotten wood. To prevent future problems, make sure the new model is properly treated and at least 4 inches above the dirt, which should be sloped away from the house to encourage water to drain away. On the other hand, if you find the sill is too rotten, the only other explanation for the bowing is that the foundation isn't settling. To correct this problem, you'll need to call a structural engineer or a foundation contractor.

DISPERATELY SEEKING STORAGE SPACE

I have almost 3,000 VHS tapes and need some way to store them. About the only space I have available is in an unused bathroom closet. I thought of building several floor-to-ceiling shelving units and stacking them inside the closet, with some sort of system for finding the front cover slide away so I could get at the back ones, but I can't figure out what hardware I'd need to make this work. With all your experience, I thought you could come up with something simple.

CAROL ANNAS, PLOM, ARIZ.

Wherever you store your tape at, I hope it's a big one. 3,000 tapes take up a lot of space. Shelves that slide from side to side could work, but they aren't the most efficient use of your closet space. Half the closet should be filled with shelves, but the other half should have no shelves. (The shelves have to slide somewhere.)

Here's another possibility. Instead of shelves, imagine the closet as a giant cabinet packed with deep drawers that are as

wide as the closet door. If you mounted the drawers on full-extension metal slides (readily available at home centers and in mail-order hardware catalogs), they'd pull out completely and still be able to support a full load of tapes.

Another approach would be to build pantry cabinets with rail, slide-out systems, like those used to hold canned goods. (For the hardware, check with a kitchen cabinet supplier or in mail-order hardware catalogs.)

If you still don't have room for all your tapes, look for additional storage space under your bed. It's just the right height for storing tapes in wide, rolling drawers, which you can easily buy or build. You should be able to fit about 115 tapes under a twin bed. Or, better yet, maybe now is the time to start collecting DVDs.

PAINTING YOUR NAILS

With painting the 1007

lightest house, but before we paint the exterior, I'd like to know how we should handle the rusty nails on the siding. Some nails are slightly countersunk, while others are not. I've received lots of conflicting advice on this and wonder what you think.

SHANE SOMMERS, BURNING, FL.

Rust is not only unsightly, it's also bad for wood. Mild steel nails—the ones used to secure siding when your house was built—expand as they corrode, which encourages water to seep in around their shanks. I've even seen the shanks rust away to mere sleeves on houses of your vintage and older. But let's assume that your clips are actually stainless and just need some cosmetic attention. For advice on these matters, I turn to painter John Doe.

"If a rust stain has penetrated through paint that is already adhesion, simply spot prime the rusty area with a good oil-based non-adhesive primer. If a rusty nailhead is above the surface of the wood, sand off the rust, sink the nail, apply your adhesion primer, patch over the hole, and spot prime with oil-based wood primer. For exposed nailheads below the surface of the wood, removing the rust would be basically time consuming. Instead, use a small brush to sink just the nailhead with a red-ox or white-made primer or a rust converter. After the rust converter dries, prime the nail and the hole with a non-adhesive primer, being particularly careful to seal the end grain around the hole. Then, fill the hole with putty, spot prime the putty, and paint."

When a discolored pops loose because the nails are rusted through, you'll have to tap the old rust out of the siding and replace it with good wood with stainless steel nails. Then just prime, patch, spot prime, and paint as shown—with these nails, you'll never have to worry about rust again.

ILLUSTRATION: MICHAEL DODD

Redwood Deck

Granite Countertops

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UNSETTLED

Our old house is a large 180-year-old Colonial with a limestone foundation that has settled over the years. Deep cracks have gradually emerged in the brick fireplace surround. Should we fill them in with colored grout to match the existing material?

—Gloria E. Lee, Toronto, Ont.

I'm afraid that the damage calls for more than cosmetic crack repairs. Judging by your photos and the description of the house, I'd say that the entire section of the fireplace is resting on a low masonry foundation while the cracking is supported by sagging wood floor joists. A look at the basement may confirm that's what the problem is.

You'll need to hire a mason to push the wing back into place and mechanically reconnect it to the masonry portion of the fireplace, rather



embedded in the masonry with heavy concrete grout might be just the thing. If the job is done well, with a great color match to the original, you'll hardly be able to tell where the new work ends and the old begins. While this may fix the crack, you should also consider installing L-shaped anchors under the floor joists to help support the wing.

FIN FANGLE

We have a 200-year-old house with a kitchen that was remodeled about 30 or 35 years ago and filled with recessed lights. I have a beautiful dining room with a matching light that I brought from another house, and I'd like to use it in the kitchen. But my electrician told me I can't hang the fan through the recessed lighting fixture. Is that true?

—MICHAEL MCKENZIE, MINNER, MINN.

Absolutely. In fact, electrical codes state specifically that

a ceiling fan shouldn't be connected to any recessed ceiling electrical box. It's not the electrical load that's the problem, it's that a fan is heavy and moves air and needs more support than a recessed box provides. There are several kinds of mounting boxes for fans, some designed specifically for retrofit applications. One type incorporates steel straps that support the fan between two adjacent rafters, while others use a system of steel plates secured so that the weight of the fan is supported directly by a single rafter. Both approaches move the fan's weight and eliminate the possibility of fixtures pulling loose. Assuming you have enough headroom, about 7 feet, you should be able to hang the fan in about the same location as the recessed light, but you may have to cut away some drywall to fit the brackets in. (See "Fan Fan," July/August 2000, p. 12.)

FIRST FLOOR, SOME DOWN

Our garage has a concrete slab floor, and the adjacent family room has a tile floor above it. Unfortunately, both floors have gradually settled since they were poured about 40 years ago. The garage is the worst. It is down about 3/4 inches in one area. The family room slab has settled about 1/2 inch. The lowest foot walls can be raised, and I know that they can be replaced. What would you do?

—JOE FLORENTINO, GAITHER, MD.

Slabs can sink if poured on improperly compacted fill or soil loaded with organic material, or if a broken water or sewer pipe

washes the sub-slab fill away. Slab-jacking (we call it mud-jacking around here) is a technique that calls for drilling a series of 2-inch-diameter holes through the existing slab, then pumping quick-setting cement and sand grout (the "mud") through the holes under pressure. The pressure lifts the slab as the grout fills voids in the soil. When the grout hardens, it supports the slab in its new position and the holes are patched. You can jack almost any slab this way, including driveways, sidewalks, and porches, as long as it's in good condition. But just because you can doesn't mean that you should. The settling is your family room doesn't sound that bad to me, I'd probably leave the slab alone or top it with a layer of self-leveling concrete. Mind is the consistency of grout is better and poured over a floor, it hardens to a surface smooth enough to accept finish flooring.

Whether you should go with slab-jacking or demolition on the garage floor is a tough call. Slab-jacking is less disruptive, but demolishing and replacing a slab can be cheaper, particularly where there's great access for piersmen, jacks and trucks to load off the debris. Your best bet is to get bids from at least four contractors and check their references. You might even want to call in an engineer for an independent evaluation. That way, all the contractors can base their bids on the same analysis. ■

Send questions to Ask Norm, The Q&A House Expert, 1100 Avenue of the Americas, 4th Floor, New York, NY 10020. Include a return address and daytime phone number. Publication editors will be asked for clarity and length and may edit your results.

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A Denver Nugget

A couple restores a Queen Anne by stripping away a century's worth of renovations

BY BALLY BUCH

Having purchased and restored 12 first-uppers over the years, Tom and Deborah Hart know all about remodelled houses. But "remoulded" is the word they like to use to describe the place they bought in 1990 near Denver's Washington Park. When they found it, "it was a mess of old work and misadventures," says Deborah, a restorer who specializes in older houses. Built in 1910 as a Queen Anne bungalow, the single structure was divided by a narrow, back-painted front porch with cast-iron cresting decorative touches. Tania, Colorado's state housing division, believes the inappropriate element was added in the 1920s—"probably during the area's Victorian building boom," he says. A kitchen and back porch had also been tacked on in the 1920s, and sometime in the 1940s an owner had subdivided the 1,839-square-foot house into three apartments—two on the main floor and one upstairs.

It took nearly eight years of restoration work, but the Harts, who once owned a contracting business, managed to restore the original floor plan (without adding square footage) and reclaim the Queen Anne aesthetic. "We weighed our needs against our time and budget," says Tania of the project's extended schedule. Over the years, the couple landscaped the back, replaced a door way, replaced the crumbling porch with a more period-appropriate porch, and updated the kitchen.

The Harts finished

their project in the summer of 1991 by creating a rear courtyard with three brick pathways leading to a central fountain (see "Follow the Red Brick Road," p. 38). In the fall of that same year, they tackled the cramped 4-foot-8-by-9-foot upstairs bathroom, a feature added in the 1920s to supplement an outdoor one. "It was so tiny, we previously had to step over the tub to get to the toilet," says Deborah. They broke through a wall and attached a small bedroom to create a 14-by-14-foot space with a wooden tub for two, a glass-enclosed shower, and a stacked washer and dryer.

(Continued on page 20)



With a porch that suits the house's era and a structure faithful to a more portable era color, Tom and Deborah Hart found a great way to style (above) into a city-at-large (left).

Tell Us Your Story

Do you restore your home and its old-timey architecture? We'd like to hear about your project. Please send photos and a brief description of the work you did to: theCHRONICLER@1500.com, 1500 Avenue of the Americas, 10101 New York, NY 10036. If your home is featured, we'll give you \$100 and a gift certificate for \$100.

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(Continued from page 10)

Once the patio and bath were complete, the couple put the renovation on the back burner and lived in the house as it was for three years. In 1995, weary of trudging through the living room and down in order to get to the study, they opened up the wall that separated it from the dining room. "For added fair number of hours," Deborah says, "we knew that the wall between the two rooms had originally had a doorway as a." Tom tugged the wall plates, leaving the pillars below back of drywall. Once he found it, he broke through the studs and installed French doors, which helped brighten the first floor.

Without losing momentum, Tom went straight to work making cosmetic changes made during a renovation in the 1940s. "I wanted to recreate the kind of visual details that would have been of great value at the turn of the century," he says. He squared off doorways that had been turned into arches, installed reproductions of Victorian pine moldings around the windows, and replaced an unsightly wren cabinet window in the front with a custom-designed 3-by-4-foot arched pine window surrounded by 12 oval pine panes.

Impressed by the results of their efforts, the Harts decided to tackle the front porch, which was in dire shape—its floor had deteriorated in places over the years. "This was the first time in five years of remodeling that we couldn't agree," says Deborah. To resolve their confusion, they turned to architect Steve Elkins, who suggested creating a small peaked porch to add and balance the roof's gable end. "To replace the missing porch with another of its kind, tongue-and-groove porch would have obscured the new front window," explains Elkins. He applied fish scale shingles and decorative details—similar to those on the original gable—to the porch to link the new work stylistically and supported it with wood columns in keeping with the Queen Anne motif. To appear and achieve the off-center 1930s pink stucco corner ("cast-in stone with a French knot chisel," says Tom), they overlaid it with a synthetic stone in a muted, earthy color that gives the house a Tuscan feel.

The Harts' final renovation project—an update of the 1970s kitchen—occurred in 1998, seven years after they bought the house. Authentic concerns made the renovation a more serious occasion. One corner was sinking into the ground. Tom called in general contractor Ted Sullivan, who discovered the cause. A part of the kitchen that had once been a porch rested on no underlaid floor, but had been made



arrow: By removing French doors in an opening that had been walked over, the Harts created the flow between the dining room and study.

red by poor drainage. He and Tom determined that the most economical way to reinforce it was to excavate part of the base of the floor and install a 6-foot concrete support pad below the front line. Above ground, Deborah designed a light-filled cooking space, with French doors leading to the patio and garden and a mezzanine pass through that opens onto a windowed hallway. The couple refinished the existing oak cabinets with a mahogany stain and replaced all the hardware with reproduction Victorian pulls and knobs in glass and brass, even placing the final piece of a metamorphosis that spoke to their affection for old homes. The house looks and feels more authentic, a slice of 19th-century Denver created in its glory. "Colorado doesn't have a rich architectural heritage," says Tom, "so we're glad that we were able to preserve a piece of it." ■

FOLLOW THE RED BRICK ROAD



The Harts' courtyard features on a three-tiered, tree-lined terrace, which they placed in strategic positions to define the backyard project. From there, they planned an elaborate set of brick pathways leading to the mezzanine. "It was important to us that you could enter the front door from the main path, still around it, and still without breaking your stride," says Deborah Hart. The couple used string to lay out a walking course around the fountain and three straight lines radiating outward. They then installed 4 inches of soil from the designated area and poured 2 inches of sand, which they pushed down with their feet.

Using a rented brick saw, Tom sliced 20-degree-angle triangles off the ends of 262 bricks so they would fit snugly in a circle. Finally, the couple laid the soil pieces and used the three legs with another 327 round bricks, filling in gaps with mortar. Inset: A brick walk.

—Randy Lechner



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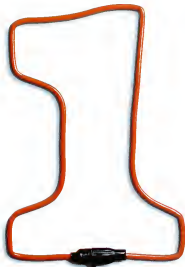
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BY RICHARD WEIN

Karen Caselli's Colonial home in Haverhill, Massachusetts, is barely three years old, but already its once unblemished drywall is sporting battle scars. A plumber repairing a ruptured pipe in the kitchen ceiling left a hole the size of a dark storm. A missing doorknob left a knob-sized dent in one wall. And along a staircase wall, drywall screws have pushed up like a mile-minor dentage.

Most homeowners who are handy can repair these kinds of problems; only a few simple tools and materials are required. For Karen called in Lasso Wilhoit, the Tewksbury, Mass., contractor who originally installed her drywall. Lasso dispatched painter Bob Thompson, who arrived at the Casellis' with several patty knives in various sizes, a trowel, a roll each of wide fiberglass mesh tape and paper joint tape, a utility knife, a keyhole saw, a cordless

PHOTOGRAPHS BY DAVID GARMACK



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arrow. With a dollop of joint compound and a putty knife, Bob Thompson fills the dent created by a screw that has rusted from the stud. **NOTE:** Longer holes need something for the compound to adhere to, so Thompson applies a small piece of mesh before spreading on the compound.

doll, and setting eye joint compound—the “meat,” as Thompson calls it. In the course of a few hours, he made all the damage disappear.

LOOSE TAPE On the kitchen ceiling, a 6-inch length of joint tape has come loose after water from the burst pipe seeped between two sections of drywall. Using a utility knife, Thompson cuts the exposed tape as full as he can grip it and pulls it back about 2 inches beyond where it's loose, at which point he slices it off. After smoothing the edges of the new tape to fit in the groove left by the old tape, he scrapes off the adjacent rough, pitted surface with his taping knife. Then, with the same tool, he applies a thin layer of joint compound over the exposed seam. He folds the tape slightly along its length and presses the joints of the fold into the damp compound. This way, no one will be creeped as he smooths the tape down with the blade of his taping knife. After several passes—applying a fair amount of pressure to make the paper stick—he uses a trowel to cover the tape with a light coat of compound. “You’re not trying to bury the tape,” he explains. “If it shows after the mud dries, you can always put another thin coat over it.” Applying too much compound, he warns, will



leave as bulge that will be hard to sand down. Once the mud is dry, he smooths it with 120-grit sandpaper.

POPPED SCREWS Along the eaves, rotting of the house's ornithology of its wood framing has caused a row of screw heads to push up. Using the blade of a putty knife, Thompson carves out the rotted surface around each screw, exposing its head, and replaces it with a quarter-inch-thick drywall. If he would have replaced it with a 1/4-inch coarse-thread drywall screw, he would have replaced it with a 1/4-inch coarse-thread drywall screw. Adding a screw about 2 inches above and below each of the warped ones should prevent rotting again.

To hide the screws and drive his project, Thompson dabs on joint compound with a 6-inch taping knife. He scrapes the blade over the filled hole several times to remove any excess mud and to make

no deeper than 1 inch, one application of regular spackle will do the job,” says John Merlot, technical director at United Gypsum Laboratories Inc., a spackle manufacturer. For deeper a patching, Merlot recommends the lightweight grade, which doesn't shrink as much.

There are also two types of joint compound: quick-setting and ready-mix. “With ready-mix, all you have to do is open the bucket and you're set to go,” says Thomas, but you need at least 24 hours between coats. Setting-type compound is sold dry in bags and has to be mixed with water to a milk-thinner consistency before use. “It's great for such jobs,” says Thomas. “It hardens in 20 to 40 minutes, so you can do multiple coats in the same day.” —Jennifer Heffner

MUD RAP

Although spackle and joint compound both fill and are both used for filling holes, their characteristics differ markedly. Spackle, a blend of latex resins, clay, and ground limestone, is more elastic than compound. “It's used for smaller repairs. The plugging and holes and patching shallow dents,” says Charles Thomas, president of the Drywall Patching Council. Gypsum takes the place of limestone in joint compound, but it's the higher proportion of latex that makes compound the more spreadable of the two. “And because it breathes and cures so well, compound works the joints and fasteners in wallboard better than spackle,” Thomas says.

Spackle is available in regular and lightweight grades. “For holes



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Raising the Bar

Once the denizen of paneled basement rec rooms, the wet bar has moved upstairs with style

BY MAX ALEXANDER

Given that Melinda Yip's parties always began in the kitchen, cooking, clearing, and getting in her way while she cooked. So when Melinda and her husband, Victor, built their 5,000-square-foot dream house in suburban New York last year, they decided to lure visitors away from the kitchen by building a wet bar next to the dining room. The 4-foot-long bank of base cabinets built into a nook in the wall is topped with a rich hawthorn-wood crown and has a parallel bar rack and a drawer dishwasher, glass-fronted upper cabinets display the family crystal. Now, says Melinda, her company resembles at the bar to refill wineglasses, snack on hors d'oeuvres, and mingle. "It's also a great place for me to put the finishing touches on dinner plans before bringing them to the table."

Wet bars have come a long way from brass columns in basement rec rooms with neon beer signs and pictures of dogs playing poker. Today's bars are integral parts of the main living area—fully paneled counters-and-cabinets units situated within the dining or family room, or occasionally the library or den—where they, in effect, become mini-kitchens. "Cooking areas have been absorbing considerable drama for some time, and now the reverse is happening too," explains Melia Swartzman, a



Designed to look like a freestanding wet-bar island, the Rio, Pine Rock, distressed-pine-and-iron bar here is under-mounted with granite inset, and marble counter

PHOTOGRAPHS BY MICHAEL GRINN

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you. Wood panels just like the cabinet doors and drawer fronts cleverly camouflage an air shower refrigerator, 115L, and under-counter wine storage, 60L, which serves champagne and zyns as an optional temperature. 1000V. A suspension sink, countertop, and back splash provide a waterproof surface for the cherry and birch in Plyfield, Massachusetts. (You want to see sleek cabinets or sleek appliances—like the full size dishwasher and sleek computer here—your wet bar must be the standard 30 1/2 inches deep, but otherwise it can be as narrow as you like.

designer in Ridgefield, Connecticut. "Spaciousness for gathering are being designed to take on many functions of the kitchen."

A wet bar requires more of the same elements as a kitchen—cabinets, countertop, sink, and perhaps appliances such as a refrigerator and a dishwasher—just on a smaller scale. And that means it needs electricity and, more importantly, plumbing. The Old House construction team likes to pre-locate the bar near a kitchen or bathroom wall that already contains water supply and drain pipes, will drain and supply a mixer and expensive job. "The main thing is to make the whole area watertight," says Silva, who installed a wet bar in the 1994 TV-show project house in Weymouth, Massachusetts. "Make sure the counter has a lip-splash, and use silicone caulk around up the cracks. And if the counter is wood, finish it with several coats of varnish."

As with kitchen remodels, drastic like paneled cabinetry and period style lend a touch of historical style to a modern wet bar. To lower an antique appearance, most manufacturers are designing dishwashers, refrigerators, and other appliances that literally disappear into the woodwork behind cabinet doors or inside drawers. "It used to be that there was always some metal trim or ledge that showed," says designer Pamela White of Kitchens by Design, the Stamford, Conn., company that built the Vetus unit. "Now you can really accomplish that old-fashioned, no-appliance look."

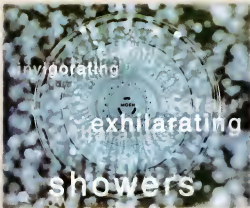
Good-looking as they are, these fancy appliances, along with other upscale options such as stone countertops and fancy faucets, will cause a wet-bar budget to soar. Carrie Deane Cooney, also of Kitchens by Design, says each item can easily cost more than \$10,000 to build and install. By contrast, a basic, no-frills bar—just a cabinet, countertop, and sink—can be installed for around \$1,000, says Deane, assuming plumbing lines are nearby.

The Vetus spent nearly \$5,000 for their wet bar, and it instantly became one of Melinda's favorite parts of the house. By using it as a staging area for food, Melinda can easily serve seconds without mixing any conversation. And when dinner's done, dry dishes get whisked away to the bar sink to be brought out later.

Homeowners want that a successful dinner party depends on the parties, but a good wet bar doesn't hurt either. ■

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Watts from a Hot Tile Roof

When the sun shines,
electric bills shrink.

The jet roller will glide to each end of the well, grapple up to 12 cubic yd of sludge in a sunny day. When used together with teams of other lifts, the tooling produces at least twice the bottom-hole output.

...an 1800s-style, 1 1/2-story, 1800-sq-ft ranch house in Palo Alto, California. The wood shingles weren't rustic or even lacking, but the family replaced them anyway with copper-clad roofing that does more than just add the element. Each five-strand coil is covered with fireproofed glass and a plastic, water-resistant, wood-grain finish that can last 40 years, about twice as long as cedar shingles. Even in winter, the roof helped slash the family's utility costs. "February was one of the pricier, snow-months ere, and the new roof cut our electric bill by a third," Freedman says.

The idea of using roofs as an environmentally friendly electric power plant new, solar-powered solar panels have been around since the 1970s. But using the shingles themselves to produce electricity—an innovation introduced in the mid 1990s—appeals to homeowners who'd rather not place big, bulky panels on top of their houses. These so-

over a handful of manufacturers selling non-relating roofing materials, including fiber-cement tiles, standing-ribs metal roofing and a sub-style divide. All are expected to last for 20 to 25 years.

Electricity is produced when sunlight strikes the thin pieces of silicon (either bare crystalline wafers or finished up like this) glued to the roofing's surface. The flow from one cell is modest—1 to 3 watts in full sun—but it adds up to a constant for decades with no significant maintenance or loss of efficiency. And when harnessed as an array with hundreds of other photovoltaic cells, the power becomes enough to supply as many watts as a household consumes, or more.

A family with enough solar-powered roofing could live independently of the public power grid (provided they had the necessary backup generators or batteries for nighttime power demand). For most people with photovoltaic roofing, including Brundman and Co.

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system finally hooked to the utility lines. On sunny days, when their array of shingles and traditional panels is charging and its maximum capacity—up to 5,185 watts—may exceed beyond what the local grid automatically comes to the grid. When this happens, a meter, usually connected to the electric meter, actually opens (backwards), sending them for their contribution to the public supply. Then, as the sun sets in the evening, the rooftop system draws down and the house automatically begins drawing electricity from the local utility, without as much as a flicker. Likewise, on cloudy days when the roof can't keep up with household demand, the utility covers the deficit. The grid, in effect, serves as their backup power source—a reliable, nice passive, and convenient way to go.

About 30 states allow consumers to sell excess electricity back to the power company through two-way meters. Bill Lund, who lives in Cape Fox, Mo., produces as much solar energy with his 306 square-foot solar roof that his average bill is just \$4 per month—the basic service charge. "A typical electric bill for a house like this would be about \$100," Lund says. "In the winter, it works even better—the sun is distant, and the angle of the sun is better for our roof." Also, cell efficiency improves in cold weather.

What's kept solar roofing from taking off is that the products are expensive to buy and install. An electrician for roofs is, in some cases, has to wire all the units together and then to carry into a home's electrical system. Bob Capaldi, a roofing contractor in San Willy, California, says his crew needs a full day to install two to three squares of solar tiles, the same amount of time it takes them to put in 25 to 30 squares of standard concrete tiles (One square covers 100 square feet of roof.) All told, the solar tiles

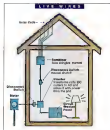
SINGLE POWER

Two types of photovoltaic cells have been light into electric current. Monocrystalline silicon, used in Alliant Energy's Sunstation panel, converts almost 45 percent of the solar energy it absorbs into electricity. That's almost twice as efficient as the thin-film amorphous silicon used on United Solar Systems' tile shingles (pictured). Thin-film does have a few advantages, though—it's less expensive to manufacture, can be applied to flexible substrates, and performs better in heat (which makes all cells less productive). When measured by wattage output, both types cost \$7 to \$8 per watt.

alone, this much roofing would likely offset about 150 kilowatt-hours per month of household electrical consumption. (A kilowatt-hour is the amount required to power a 100-watt light bulb for 10 hours.) When projected over three decades (the expected life span of the roofing), the cost of solar electricity in this example comes to 32 cents per kilowatt-hour, much more costly than the current price of about 7 to 12 cents per kilowatt-hour being charged by utilities. Even when you factor in the price you would have had to pay anyway for a conventional roof, the solar alternative is expensive.

But it wouldn't take much to tilt the accounts the other way, says engineer and architect Steve Strong, who designed Bill Lund's house in Maine (Strong also set up solar panels for the 1993 The GM Power project in Boston, Massachusetts.) If the price of electricity continues to increase—and Americans pay less than consumers in most other countries—would the savings from a solar roof. Also, some states and municipalities offer incentives, rebates or "buy-down" programs that cut the up-front costs substantially. Freedom and Gyn, for example, received a \$6-per-watt rebate from the city of Palo Alto, saving them \$14,000. (See Directory, p. 132, for Web sites that list rebates programs and allow you to calculate the environmental variables affecting solar-cell output.)

But Freedom and Gyn's decision to install solar roofing had less to do with economics than with their concern for the environment. "We did it because we felt it was the right thing to do," says Freedom, who also draws on electric car. "And the payback happened right away." ■



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Vanities Fair

Washstands with the look of furniture dress up the bathroom.



Although still considered the most utilitarian room in the house, bathrooms have definitely gotten serious. According to a 1999 design trend survey conducted by the National Kitchen and Bath Association (NKBNA), 61 percent of all bathroom jobs undertaken by homeowners that year were remodels. The object of their desire: a bath that's not only substantially larger than the traditional 5 by 6 feet but also well designed and beautifully decorated, with fixtures and fittings as attractive as they are practical. And with a mirror, television, or exercise equipment increasingly showing up alongside the shower, tub, and toilet, bath-

rooms are surpassing even the extreme conditions of home. The latest trend in baths, indeed, is to make them appear as if they were appointed with the same care and attention as any other room. One way to accomplish this is to build in or fabricate fixtures that resemble furniture. Thus, the bathtub may be encased in a wood surround (see "Wrapped in Wood," May 2000) and the toilet may be dropped into or balanced on top of a vanity that resembles a table, chair of drawers, or old-fashioned washstand.

"Nowadays people want all the rooms of their homes—including the bathroom—to be nurturing and awarding," says Barbara

BY KIRA L. GOULD PHOTOGRAPH BY MARTY FORDYTH

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TECHNOLOGY



Digital TV: The Next Wave

Sharper images, cleaner sound, but these prices—wow!

BY DAVID L. ELRICH

If you've gone shopping for a TV set lately, you've probably already heard about digital television (DTV). For the past couple of years, electronics manufacturers and retailers have been loudly predicting that this latest advancement in broadcast technology would soon make our analog TV sets obsolete. But even though digital televisions have been on the market since the mid '90s, consumers have been slow to embrace this new technology—usually because of its exorbitant expense and the relative lack of digital programming for it so far.

Over the past year, however, the hoopla surrounding DTV may finally be coming true: retailers across the country, it has been possible to race to co-program broadcast in a digital format—Monday Night Football, Chicago Hope, and The Tonight Show, for example. Even more significant, the cost of DTVs has dropped. Entry-level models cost under \$2,500, and top-of-the-line, wide-screen, high-definition televisions (HDTV) models start at

ILLUSTRATION BY KERIN IRBY

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110,000—half of what they were going for two years ago.

If this still seems like a lot of money, take one look at an HDTV and you'll immediately see how all the fuss is about. The screen tops up to 39 inches, the motion is so smooth, so convincing, a football game on one field is like you're *in* the crowd on the 50-yard line. Not only is the picture more like life—with the scuffed helmets, dug-up turf, and sweat on the quarterback's arm showing in crisp detail—DTVs equipped with Dolby Digital surround sound the same snarling territorial sound that rocks audiences at the local cinema.

The key to DTFV's greatly improved picture and sound lies in the way they are broadcast. In the analog system that has been in use for the past 35 years, television images are scanned line by line and modulated into electrical signals of varying amplitudes. These affect the brightness and color of the image being sent, much as the growler at your old second-hand store once affected the quality of the record he recorded on there. The video (and accompanying audio) signals are sent to your house in the form of electromagnetic waves via antennas or wires, or along cable lines.

Your television isn't clever enough to bring the waves back to electrical signals that are received across a phosphorescent screen, line by line, creating a picture that corresponds to the image that was transmitted. One drawback of this broadcast method is that you can't

200,000 pictures per second can create a 2 million-line image.

sort of interference—a tree, a mountain, or an electrical station—can during the signal and deplete sound and picture quality.

In a digital system, the image is stored into thousands of discrete bits of picture elements, or pixels, which are then scanned into discrete lines of electrical data—columns and rows, if you will. These signals (along with the sound component) are transmitted as electromagnetic waves, the same way as analog broadcasts, but are far less vulnerable to interference. At long as the data is received by your TV, there is no corruption beyond a certain threshold; the picture on your screen will be exactly like the one sent by the TV station. Digital technology also enables more information to be packed into the broadcast spectrum than ever before. This means, one exciting audio channel can cover up to 16 channels of good old-fashioned music.

DTV has been on the works since 1996, when the FCC created the digital TV standard. At that time, it approved 18 different broadcasting formats—although only three are in use at this time. To understand the difference between formats, you need to know how an image is displayed on a television screen. We'll examine analog images, a change is caused by a process called interlace scanning.

TV GUIDE

Paying a freelancer isn't in his name. This only demonstrates you had to make more than twenty dollars you wanted to spend and have made me realize in your doing some you were willing to give up. But from what I'd read TV, you also must weigh how much pleasure you'd get or risk effort. Guess is perfect. The truth is has me want. DIVE was only really seeing (seeing programming) but the last I'd read viewing experience, we'll have to see when it's not too late.

[illegible]

WIDE-SCREEN HDV
(DOLBY DIGITAL 5.1)
Screen size: 35 inches
Aspect ratio: 16:9
Display: 2,000 horizontal
pixels
Type: Full chip-set
Cost: \$1,000
Notes: Magna 2000 provides 100,000
times more data than standard screen

HP 8014A, TV
(PANGLOSS CT-38X040)
Screen size: 36 inches
Aspect ratio: 4:3
Display: with progressive and 60Hz interlaced
Tuner: Digital set-top box; 31 GHz range
Cost: \$1,499
Verdict: Flat screen with a 24" wide built-in base
(expensive, but works beach-side, too)

TECH-SPECIFIC NOTES
(PROCESOR, APP, MEMORY)
Screen size: 6 inches
Aspect ratio: 16:9
Display: 450 ppi; processor: Intel i580; internal
storage: 16GB; expandable: 32 GB; 150-mAh
Crew: 100,000 (mobile only)
Notes: Some of the earliest mobile devices
were designed for the light reading culture
typical of the early 20th century. As the
technology of the mobile device has evolved,
the design of the mobile device has evolved.

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TECHNOLOGY

in which two fields of alternating horizontal lines are beamed by a cathode in a vacuum tube onto a phosphor screen. The format that creates this picture is called 480i. Some digital televisions also use interlaced scanning, but with more than double the number of lines. The only words or digital format currently being broadcast today is referred to as 1080i. The other two digital formats display a progressive image, like the one you see on a computer screen. Instead of the back-and-forth scanning of interlaced displays, a full frame of horizontal lines fills the screen all at once 60 times a second, giving the picture a clean, flicker-free look. The two progressive formats currently in use are called 480p and the sharper 720p.

No matter what type of display your DTV has, you'll be able to watch any digital broadcast in your area. That's because every digital set on the market today has a tuner (which built in or in a separate set-top box) that can receive all 18 types of digital formats, as well as sounds of analog signals, and convert them into the type of display appropriate for a specific DTV.

Used recently, one of the main drawbacks of buying a digital television was that there wasn't much digital programming to watch. As of June, however, 142 stations were airing live, over-the-air digital broadcasts covering 64 percent of households in the U.S. This number will increase over the next two years because the FCC has mandated that all commercial stations convert digital facilities by May 2002. That means that in less than two years, anywhere you can receive an analog broadcast, you should also be able to get a digital one. If you have a satellite dish, you don't have to wait. Last year, two top satellite TV providers, DirecTV and the Dish Network, began delivering digital programming.

While most DTVs are capable of converting to cable systems, almost none are able to receive the digital programs currently being broadcast. That's because the digital signals used by cable companies are created

for analog TVs and do not contain as many DTV features. Happily, this too will soon change. Last March, the Consumer Electronics Association and the National Cable Television Association agreed on a standard, and now cable-ready digital sets are expected on store shelves by late 2000 and early 2001. These TVs can only receive the new cable DTV broadcasts will be marked "Digital TV-Cable Connect." Best that can receive the standard broadcasts, plus other services such as pay per view, will be labeled "Digital TV-Cable Interactive."

Another shorter name—one that has yet to be considered—is the technology to make digital copies of HDTV broadcast. You can use your VCRs to make analog tapes, but there will be no digital copies on the market until the late 2000s. Hollywood studios, concerned about widespread piracy, are negotiating with electronics manufacturers to come up with a secure copy protection system before they add digital recording technology to their own copies of TVs.

For William Kennard, FCC chairman, digital television's promise goes far beyond viewing a four-ball game or watching the latest Hollywood blockbusters. At a speech last January before the Consumer Electronics Show in Las Vegas, he outlined a future in which "two-way, interactive TV has the digital agility of the computer but the display quality of a movie theater that can be summoned on demand." Such a device, which he called Interactive Personal TV (IPTV), would be "a single multimedia source of news, information, and entertainment" and "would marry the various platforms, whether cable, broadcast, satellite, or the Internet."

As access to these formats may be, manufacturers are banking on a single promise to sell DTVs in the near future: image quality. Says Peter Parnicek, a vice president at Menasha Electronic Corporation of Rochester, "Once people see digital TV, they're not going to have it."

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The Pro File GLASS BENDER

BY KRISTYNE KOWARRICK PHOTOGRAPHY BY PASCAL BLARON



NAME: Charles Flückiger

COMPANY: Flückiger Glaswerke, the only one-stop glass-bending facility in the United States, creates everything from curved Victorian-style bay windows to lighting fixtures in insulating packaging. With a staff of 25, the glassworks handles up to 70 projects at a time.

DISCIPLE: Although Flückiger's degree was in electrical engineering, he has been working with glass since 1974. In the early '80s he specialized in environmental stained-glass windows but was attracted to glass bending when taking a workshop with glass artist Sidney Cook. Flückiger founded his own glassworks in 1985.

WORKSHOP: Since the early 1990s, the glass worker has occupied a 7,000-square-foot industrial warehouse on Owl Wit-coo-pm in Brooklyn, New York.

THE PROCESS: Flückiger uses a specially designed kiln where infrared rays are directed to the surface of the glass only, in contrast to the traditional oven where the glass is heated through by the high air temperature. Flückiger method causes the glass to bend—or "drape"—against a steel mold, but without overheating, says Flückiger, "so we get better bending, surface quality, and structural integrity." Although the studio has about 6,000 metal molds, some dating back to the 1830s, "we don't always find what a client needs, so we do a lot of blacksmithing to a hot bending oven." When a mold is ready, Flückiger selects the type of glass he needs—it must have the proper thickness, color, transparency, and surface texture—and has it cut to size. "Whether they place the glass on the mold, which is set into the kiln. The length of time it finished piece is left to cool varies depending upon its size."

OTHER OPTIONS: Whether the customer goes by customizing or expanding its capacity, by carrying out custom designs into the surface, or by using various colors over the glass to match various design schemes.

10 YEARS OUT: Flückiger looks forward to designing and fabricating more lighting for his new company, Clyde Light—now, to working with an artist, a student of industrial design at the Rochester (N.Y.) Institute of Technology.



100, 100' samples of bent glass. Flückiger notes the range of curves the glassworks is capable of producing. "You can't do a glass bender like a sheet of bent glass glass on a mold, the bending like can be seen in the background," says Charles Flückiger. "It's a piece of bent glass into position on an angled wall screen."

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Spending for a Rainy Day

How to make sure the homeowner's insurance umbrella will protect you—without paying a fortune in premiums

Late September, when Hurricane Floyd slammed into the Southeast coast, floodwaters ripped Glad and Bobby Joyner's home off its foundation. The \$200,000 Farmville, North Carolina, home broke apart, and all of its contents, including tons of thousands of dollars worth of antique furniture, were destroyed. Worse yet, although the Joyners had been paying \$700 a year for insurance, they hadn't agreed for flood coverage, so they didn't get a dime for the loss. "I never thought anything like this would happen to us," says Glad. "It was devastating."

Like many homeowners, the Joyners had looked to keep their annual premiums in check. After all, the odds are that you won't have such a major catastrophe, even when all homeowners are lumped together as a group, we get about 60 cents back for every dollar paid in premiums, according to Bob Hunter, director of consumer for the Consumer Federation of America, a nonprofit advocacy group in Washington, D.C. But insurance isn't about rates on investment, it's a safety net against a disaster that could bankrupt a family. For this piece of mind, companies typically charge from \$200 to \$700 a year for a \$100,000 home, depending on state regulations and local risk factors. The sad story is that many homeowners—whether they buy through an independent agent, directly from the insurer, or on-line—lack vital coverage like flood insurance but see nonetheless overpaying on premiums. A little knowledge can save hundreds of dollars a year and insure better protection.

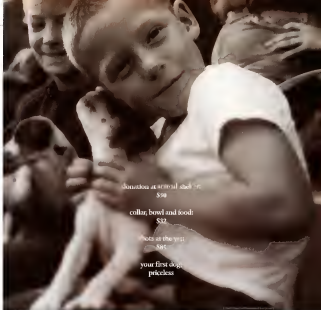
The first step is purchasing insurance at its best coverage amount, and this is where consumers often make their costliest mistake, says Hunter. (Although homeowners' insurance includes protection for the structure, the possessions inside, and liability from injuries on the property, the policy is built around the structure.)

When many folks go wrong is insuring to the full market value of the real estate. "There is absolutely no reason to insure for more than what it would cost to rebuild your house," says Scott McCarmey, of the McCarmey Agency in Audley, New York. Even if the home burned to the ground, the best reason to insure is to cover the cost of rebuilding.



ILLUSTRATION BY JONATHAN CARLSON

BY BETSY WANKENSTEIN



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to a consumer train station, or worse to a prison school district may mean that location, location, location represents a large chunk of the purchase price. One reason many homeowners overpay their coverage is because their mortgage lenders insist that they adhere to the full-loss replacement—typically the purchase price minus 25 percent—down-as-a-condition-of-appraisal. Look for a lender that doesn't require that much coverage, and if your existing one does, have your insurance representative conduct a professional appraisal, and then see if she can get the bank to ease their demands.

The next decision doesn't have to do with saving money but with getting the maximum payout in the event of a loss. The level of reimbursement depends on the type of coverage you buy. Like cost insurance, actual cash value coverage will reimburse the homeowner for the depreciated value of what's lost—say, \$28,000 for that 16-year-old slate roof that would cost \$71,000 to replace. If you're willing to shoulder premiums a bit higher (10 percent higher, replacement cost coverage, which is required by many mortgage lenders, will pay what it costs to replace your home and belongings—up to the dollar amount of your coverage. Extended replacement cost coverage, which is available for an extra \$4 additional per month but requires insuring to the full appraised value of the home, goes one step further. It will pay more than the coverage amount—usually up to 25 percent more—in account for sudden spikes in construction costs or shortages in building materials due to natural disasters. The best protection, says Haines, is guaranteed replacement cost coverage, which provides for the loss

you need to rebuild your home, with no payout limit on cost. It was a guaranteed cost policy that allowed Dick and Leslie Siro, whose Belvedere, Massachusetts, home burned in 1999, to build a new house with the help of lender Tom Siro and The Old House Foundation, because of a lack of exposure to natural disasters like hurricanes. Andere and Flagg, that type of policy is becoming hard to find. A few companies, though—including Chubb and Patriot's First—will offer it, and even at a cost of about 18 to 15 percent over actual cash value coverage, it's well worth the price.

Another crucial step is to make the three components that make up a basic policy to see if they offer enough protection for you. Even if you don't live on a fault line or collect modern art, you might need to buy extra coverage.

Structure. A host of problems, from earthquakes and floods to failed ramp passage and backed-up sewers, aren't covered in basic plans. Those require policy extensions called endorsements or riders, which should be selected based on your exposure to various risks, says Haines. The higher the risk in your area, the more important the coverage is, and the more you'll have to pay for the add-on. Earthquake coverage can cost thousands of dollars in places like Los Angeles but less than \$10 a year elsewhere. Flood insurance is only available in government-designated flood zones. The Jopsons, for example, did live in a designated flood area, but not one can defend high-risk. Their flood insurance would have cost only \$300 a year. Coverage for sewage clogs is "a \$15-a-year endorsement that I tell everyone to get," says N. Keith Stewart, a State Farm

MONEYCLIP

Affordable Housing

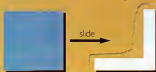
If you're struggling to find a reasonably priced house in, say, New York or Los Angeles, here's something to cheer you up—at least you're not looking in San Francisco. Third-out-of-the-gate housing affordability by comparing median incomes with median house prices, and in the fourth quarter of 1999, only 11 percent of San Franciscans who earned the city's median income of \$12,490

could afford the median house price of \$420,000. So when incomes rocketed in the most affordable places, with 84 percent of median earners finding the \$98,000 median house within reach. Nationally, 64 percent of median-income (\$47,900) families were able to afford the median house price of \$130,000—a drop of 2.4 percent from 1998, due largely to high interest rates. —Lucy O'Neil



The Housing Affordability Index has fallen relative percentages of median earnings each city's median income could afford the median house in that area. Based on the fourth quarter of 1999. We calculated a sampling of major metropolitan areas. To find out where your income ranks, the better to what it does, look to our table on the left. SOURCE: National Association of Realtors.

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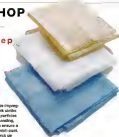
TALKING SHOP

A Clean Sweep



LEFT An accident air cleaner, such as this 50-pound, 400-CFM unit, can filter the air in a 20-by-20-by-8-foot room more than eight times an hour—and requires cleaning only once a month. John (see often flip me on the right) believes he picks to generate a dust-free room.

RIGHT These cheap, sand-bank slides grab the particles left by vacuum, helping to ensure a smidge less dust. They pick up household dust, too.



SLIDESHOTS Attached to an ordinary shop vacuum, the dry-well-sanding accessory picks microscopic amounts of dust through holes in the bottom of the sandpaper pad into a sealed bucket full filled with water. The water captures 95 percent of the dust before it reaches the vac.

SLIDE This water-lux vacuum sucks up both wet and dry debris with its powerful, 174-CFM motor. It starts automatically when connected to a tool and channels dust into a remote water bag. An ultrasonic filter leaves exhaust air 99.99 percent dust-free.



DUST DICTIONARY

Rated pressure, CFMs, water inches. In vacuum jargon, these are the numbers that describe the performance and features of shop and portable vacuums. Here's what to look for when comparing different models:

Meqron A sort of vacuum, used for particle sizes, equal to one-thousandth of a millimeter C.F.M. (cubic feet per minute) The volume of air a machine can suck in and expel. NOT to be confused with suction (see rated pressure, below). **Oil-jug volume** The amount of liquid an extractor can collect before it needs to be emptied. Usually measured in gallons. **H.E.P.A.** High-efficiency particulate air. A type of filter in which pleated non-woven fibers remove 99.97 percent of particles 0.3 microns or larger. Filter requires a motor strong enough to pull air through it and needs changing when it restricts airflow. Useful for finishing work or when hazardous materials like lead or asbestos are present. **Sealed pressure** Indicates maximum static pressure (indicates suction power, a vacuum's ability to lift a column of water through a plastic tube 4 inches in diameter. The higher the rating, the more complex water inches, the better the suction). **Maximum pick-up air flow** The basic, bare-bones CFM number rating for filters, bags, and hoses—all of which restrict airflow.

HEAVY The robust plunger filter isolates all the 20-inch rough surface push beams are tough enough to be made of stainless steel or steel materials, such as galvanized steel compound or plastic, from the working floor.



NOTE Designed to be carried like a backpack, this 5.5-gallon, 40.4-CFM backpack picks up 500 vacuums, has a built-in power outlet and a hose that connects to power tools—like the tender pictured here.



"You have to be diligent about dust until the very last coat of paint is dry."

—DAVE BAY

TINY BUBBLES

How fine is 100? As you know, the ordinary vacuum bag can handle standard, but a HEPA filter will be needed for finer jobs. Here's what some construction materials are at their best, shown at a scale of 1 mm to 1 micron. A human hair is about 100 microns in diameter, more than 100 times the size of the standard particle.



Fluorescent	Least dust shed	Drywall dust	Airborne
2 Microns	2 Microns	1 Micron	0.5 Microns

BY JORDAN REED

a proper paint job," he says. "The challenge becomes how to control it now, usually, it can spoil a finish finish."

Some battle dust with the equivalent of motorized candy powder, noisy shop vacuums that suck everything from loose nails to spilled liquids down their long ribbed gulfs. For others, dust control is a low-tech, snap-on operation. Dec wipers away dust that arrives after between-coat sandings with sticky tack cloths and seal the pin point through cone filter to be sure nothing has landed in the mix. TGO M contends that Silva prefers to fight dust with fire when wrapping dust on floors. "We soak the wetcoat in water and throw it damp across the floor," says Yam. "With a quick sweep of a push broom, that gathers all the other dust right up."

PHOTOGRAPHS BY JOSHUA BUSH

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Great Slate

This ancient stone makes a richly textured, durable choice for countertops, roof, and floors.

Modern slate and people generally think of roofing, and for good reason. It was once commonly used for this purpose. The material is usually impervious to rain and snow, and resistant to the sun's destructive rays or sparks washing out of a chimney, and good with uncommon good looks. But because it costs as much as 18 times the price of typical asphalt shingles, a slate roof is not an option for most homeowners. Consider this irony, however: For flooring, patios, countertops, and hearths—almost every other place where fire stone works best—slate is a star. It costs considerably less than granite, marble, or limestone, yet performs as well as better. And as polished granite countertops have become the costly choice for high-end kitchens, marble tiles have similarly worked their way into bathroom floors, slate stands out as something special. "It's textured, not shiny-smooth," like most other stone and tile surfaces, says Wade Pearce, of Tarrance & Stone Supply Co., in Bellevue, Washington. "Our customers love the earth tones it comes in."

Slate—wood taken from the French exfoliate, or "spice"—is one of only a few rocks that split easily into layers both thin and strong. Beverly Teitel, just of a fourth generation slate quarrying family in upstate New York, describes the simple, age-old technique for using the stone: "We take a chisel, hold it straight against the edge, and tap the chisel with a hammer. If it's good rock, it will pop right open." Many rooms with this property are called slate, but true slate has a fine, smoother texture. Slate formed from any period of clay and silt that deformed to act between hundreds of mil-

lions. Given slate serves as both the countertop and floor for the West Dublin, Virginia, business store. It creates a watertight sink, Renaissance Builders joined slate slabs with grooved channels, grout, and screws.



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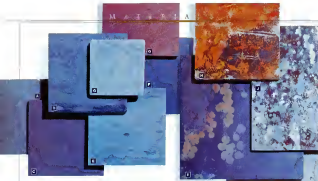
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SLATE

The hardest slates (left) are required for roofs and generally come in solid colors. Quarried mostly from the Appalachian Highlands, these stones come in solid greens, blacks, greys, purples, and even reds—a type which is mined almost exclusively in Grenville and Marble Gneissville, New York. (Left: white (right), imported from Africa and Asia, often features the swirling colors of a natural thanks to bits of mica and other minerals deposited as air in molten seas. These are extremely thin layers of mica that will scratch off if the stone is used as a horizontal surface without a sealer. (A) Shindler, McKel Green and Purple from Kuriku, Vermont; (B) Redding Purple, also from Kuriku; (C) Highland from Norway; (D) Tumbled Soapstone from China; (E) Harard Watermark from China; (F) Harard Soapstone from China; (G) Harard Undulating Red from Grenville, N.Y.; (H) Anders Multicolor from South Africa; (I) West Country from South Africa; (J) Copper Gray from Brazil; (K) China Gold from China.

from 70 years ago. The deposits gradually consolidated into shale, a soft, layered rock. Then, under the heat and pressure of the earth's crust (bedding and rising into mountain ranges, the shale was transformed into metamorphic rock called slate. Some beds are hundreds of feet thick. Whatever, one of slate's close look-alikes, also formed on igneous intrusions, but because it's composed of sand-size grains of mineral rock, it's technically a sandstone. Another music is quartzite—a sandstone strengthened by the same forces that turn shale to stone. Even among the true slates, characteristics vary considerably from region to region and quarry to quarry. "Some of the heaviest slates out of Africa and China are close to being shale themselves," says Klaus Lorch, general manager of Strasshof Slate Co. of Pennsylvania and a member of the industry committee that sets standards and dictates regulations.

For countertops, backsplashes, and floors at a home, the softer stones will hold up just fine. But on a roof or a highly trafficked cor-

ridor floor, only the hardest slates are worth buying. While there's no way to judge by looks alone whether a slate will flake away in a short time, doptoppr can check the stone's grade. The American Society for Testing and Materials (ASTM) applies a three-tier system (based on laboratory tests), in which S 1 is the best stone and S 3 is the worst. All can withstand 6,000 pounds of pressure per square inch—evidence of slate's incredible strength—but the lower grade could be nearly twice as much water and is seven times more susceptible to damage than the top grade. Up on a roof, this translates into a greater vulnerability to freezing weather and wet feet. As a result, S 3 roofing could fail in as little as 20 years, even if extremely rained, S 1 roofing should last for more than 75. For flooring, the mechanical factor is a lesser measure, measured in an approved ASTM scale that generally runs from 1 to 12 (and goes as high as 30). A flooring scale should rate 5 or higher, says Lorch.

Another characteristic of some types of slate that won't be ob-

vious in a short time is the tendency to change color—sometimes within just a year—when used outdoors. This happens because the tiny acids responsible for color are washed by such as the acid rain, says Jim Stachland, president of Maryland Slate Services. Domestic quarries can do the best "excluding" to disprove that they will hold up color for many years. "Fading" or "weathering" do it will usually become a lighter hue, but not gases from volcanic slates turn brown or orange.

Slate can be purchased in sizes that range from broad slabs for one-piece countertops to tiles, small squares that are as easy to install as ceramic tile. In slabs, it's about the same as other countertop stone. It's pounds per square foot when cut 1 inch thick, Lorch says. Slates being used for walls, tabletops, stair treads, and garden benches, and recycled roofing slates make useful counter-top slabs.

For flooring, backsplashes, or countertops, it's important to buy graded slates, which have been ground to a uniform thickness. "It's far easier to use," says Charles Healy, manager of American Slate Co.'s showroom in Seattle. The exposed surface, though, can be left just as it was when the stone was split at the quarry—with a rough natural finish known as natural cleft (shown and on floor)—or it can be honed flat (the usual finish for countertops).

Because stone at a counter or floor is susceptible to staining and scratching, it's generally treated with a protective finish. There are two basic types, resins and impregnators, such as available in oil and water based formulas. Sealers coat the surface with a thin layer of acrylic resin. Impregnators, also known as penetrating sealers, partially fill the stone's pores with resin, whereas, or fluoropolymer like Teflon. Sealers can be more difficult to maintain. The finish builds up and eventually will need to be stripped with solvent and a buffing machine. Impregnators don't build up because the surface is sponged off about five minutes after application. Andrew Levine, of Stone Care International, a manufacturer of some penetrating, non-toxic sealers, says they produce an air impermeable surface spot time because it traps dirt and dirt. Or leave the stone as natural. "One of the most beautiful floors I've seen was in a bank in Vermont from the 1930s," says Stachland. "All they had ever done was wash them recently with diluted Murphy's Oil Soap."

The price of slates varies depending on color, size, finish, and your distance from the quarry. Countertop slabs from 8 to 1 inch thick typically run \$30 to \$75 a square foot, including custom cutting and edging, but not installation. Flooring slabs start at \$2 a square foot. Backing slabs range from about \$3 to \$70 a square foot with the required grout and edge rail in. (Grout generally costs between 20 and 60 cents a square foot.) Add in the installation, however, it can only be long enough in a time by a skilled stone worker.

Slates are used in a variety of ways—and they generally price, as much as \$13 a square foot. Nonetheless, a growing interest in natural, durable building materials, coupled with a robust economy, is fueling a strong roof boom. Last year, slates were being on about 4 percent of all new roof jobs in the United States—an increase of nearly 30 percent from one year before—making it one of the most popular alternatives to asphalt shingles. "Slates roofs have



ABOVE: The "stepped look" roof, popular for Tudor-style homes, uses varying angles of slates and stones, and even three slates joined, to make the roof look solid. Below: Windows built in from slates of slate from a Pennsylvania quarry, circa 1870.

been on a resurgence for several years now," says Charles Seidel, owner of New England Slate Co., in Fitchburg, Vermont. The industry is working at full capacity to fill orders.

People who are renovating their home should use a commercially made roof stone, rather than, it's heavy, but many roofs are made of heavy slates, and that's strongly the same load on one layer of slates. The key stone is roof pitch. A steeper pitch effectively reduces the load on the slates (by transferring more load to the walls) and sheds rain and snow more quickly. According to Seidel, slates should only be put on roofs with at least a 5:12 pitch (4 inches of rise for every 12 inches of horizontal run). "A roof house with a lower pitch would be a challenge to cover in slates," says Seidel.

Slates' virtues have made it an obvious choice for floors, counters, and roofs, but that's not the limit in its possible uses. Seidel is in the Coast to Coast Historic Preservation at Roger Williams University in Rhode Island cataloged 50 ways slates can be used—on a wall or on a daily floor. State fountains, religious shrines, and floor tiles are undoubtedly still at the past, but slates live on in ways more modern. At Shelburne Slate Co., an upstate New York, they've even had orders for tombstones. Among the names that the company's slates have carried: John Ferginoff Kennedy and Jacqueline Lee Ferginoff Kennedy O'Connor. ■



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Adopt A House
HOMEFRONT

THIS OLD HOUSE

Well Grounded

N

ow that winter is winding down and the days are getting shorter, most people will start putting their lawns and gardens to bed and finally watch their lush ponds turn brown. As the landscape contractor for *This Old House*, I tend to approach autumn on a more optimistic note. I work at estimating the growing season and getting 12 full months of color—my fall I provide ongoing visual interest with asters, mums, and sedum; blue spruce and red- and yellow-river dogwood, and ornamental grasses like miscanthus as permanent work the wind heads left me. I give winter color too with evergreens and plants that have berries, like holly or winterberry. And spending a much longer time to maintain the landscape from April to September.

For me, the most part of the season is fall is the cool, crisp weather, which I cherish after three months of working in the scorching heat. Fall means the end of my busy season, when I can slow down enough to really enjoy what I'm doing. Those my weekdays are considerably easier, even though I'm still building gardens. I start thinking about planning bulbs that will bloom come spring, and construction and prep work for the next year keeps my crew working through winter.

The looking forward to the work I'll be doing this fall on the TV show's project in Cheltenham, because I'll get to create one, maybe two, beautiful garden spaces in an urban setting. The Bellevue would like to have a garden patio in their small backyard for the rental apartment, and hopefully their over deck on the roof—a common one at Boston's densely populated town. That means I'll be creating a container garden, which we haven't done on the show before. It's the best way to get in a small space; you can plant anything from vegetables to flowers to small trees, and you can time your containers to provide color and season long past the end of summer.

I hope that when I create for the Bellevue will speak to everyone watching *This Old House*, whether they live in the city, the suburbs, or out in a farm. I like to imagine that my role on the show is the one job most can really relate to. Not everyone can be a carpenter like Norm or Tom or a plumber like Rich, but anyone can do what I do. You can pick ups for all ideas from others who've had some success doing it.

I'll be using a few homeown tips and some acquired knowledge when I tackle the Bellevue's plot, and by this time next year, they'll be lounging on their deck, watching the late summer foliage and clouds bloom at their feet. But before I know it, February will be here and the work here will start to bloom, signaling that spring and a new crop of color and growth is just around the corner. Only a few months to go! ■



T.O.H. landscape contractor Roger Cook likes to let his work bloom all year long.

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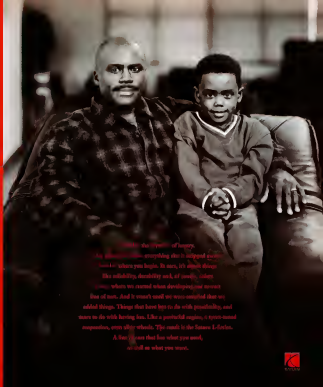
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SEARCH PARTY

The guys from *This Old House* give the new project a once-over before the work begins

Tom Silva measures a radiator in the floor of the show's project house in Charlestown, the cast and crew monitor will have to go. Tom determines, to make room for French doors that will separate the upstairs living space from the dormitory-sized main entrance. Norm Abram, Architect Dan Belliveau, Richard Tutheney, and Tom discuss the scope of the renovation ahead of time.

BY JEFFERSON KELLE
PHOTOGRAPHS BY CRAIG BAIRE

FALL TV PROJECT/CHARLESTOWN



Norm Abram, *This Old House* master carpenter, stands by the rear wall of the show's latest project, in Charlestown, Massachusetts, and looks up at the first-floor window's brownstone lintel. He shields his eyes from the mid-morning May sun and eyes a crack that goes through the stone and steps up the brick wall—sometimes following the mortar joint, sometimes going through a brick—to the window above. “If you look at the wall from the side rather than head-on, you can see a slight bulge,” he says. “Water probably came in at the second-floor window and worked its way down. Freezing and thawing cycles made the water expand and busted out the mortar, cracked some bricks, spalled the lintel.”

Norm is in Charlestown with T.O.H. contractor Tom Silva, plumbing and heating consultant Richard Tutheney, and host Steve Thomas for a job site assessment—a chance to figure out what needs to be done before the renovation gets started. They are going through all four floors of the house, the roof too, with architect John French and homeowner Dan Belliveau to determine what has to be done to get the 1885 brick row house in top shape for Dan and his wife, Heather. Unlike a formal house inspection, which details the status of certain structural and mechanical elements, an assessment—usually an informal, prebid process—allows a contractor to survey the job ahead and decide how and when (and for how much money) renovation goals can be met. By the end of the day, every key feature in the house, outside of the house, even under the house—including the plumbing, wiring, heating, windows, floors, and bathrooms—will be prodded, jiggled, reassured, and scrutinized, and everyone involved will have begun to propose how to fix any problems that are uncovered.

“Fix” is the operative word for the Charlestown house. Tom thinks its overall condition is pretty good, “considering the years,” but unlike projects past, when *This Old House* often gutted buildings in a effort to bring them up to modern standards, tight budget constraints will force the T.O.H. crew to work with what they’ve got. For instance, as far as the cracked wall is concerned, Norm doesn’t foresee a problem. “It just needs a little repointing,” he says. And French suggests using a cast-in-place concrete for repointing the damaged lintel.





A STROLL THROUGH

Charlestown, Massachusetts

BY NICHOLE BERNIE ARENS

Charlestown, a once working-class neighborhood located across the Charles River from the North End of Boston, gets called many things—a powder shed of American history, an economic godsend for middle-class housewives, a neighborhood, ethnic enclave. Dan and Hester Belasco simply call it home, the place they found the rowhouse they'd been dreaming of, an 1865 three-story building that The Old House chose for its fall project.

The Belascos had been looking at real estate for a year, and like scores of other 30-somethings, had traced their roots in Charlestown. They loved the charm of its quiet streets and the historic legacy that dates back to the Battle of Bunker Hill, one of the first significant battles of the Revolutionary War. They were drawn by its central location and affordability, relative to prices further Boston across the Back Bay and Beacon Hill. And they appreciated its roots as an Irish community, which helped shape it into the family-friendly environment it is today. People look out for each other, says Dan Belasco, a real estate design consultant. "We won't need a security system because the women next door knows everything that's going on. Since we're planning to have kids here, that's comforting."

Another thing the Belascos are happy about is that they know it's on the route of the annual Bunker Hill Parade—a commemoration of the battle—one of the highlights of Charlestown life. But residents have plenty of more recent events to celebrate, too. In the past 25 years or so, preservation has become a top priority, with organizations like the Charlestown Preservation Society and the Charlestown Historical Society keeping watch over the fate of historically significant buildings, such as the Federal period houses on Thompson Square and Warren Tavern, a meeting house-cum-restaurant built around 1793 that welcomed George Washington and Samuel Adams. Real estate values



The rowhouses of Massachusetts' Granite used at various times as the first place from Boston Hill. Residents are said to have a sense of pride in the area. A highlight of Charlestown's calendar is the annual Bunker Hill Parade, commemorating an early battle of the Revolutionary War. Among the participants are police and fire department ladders, which sometimes include weaponry, like the dagger on this marcher's coat. But since Charlestown's might have faded,

PHOTOGRAPHS BY ERIK HANK



ARTIST Chef Todd English decorated the neighborhood on the east side of the river, Olives, a local eatery that they, along with the historic Society, many historic homes from their original grandeur or more nearly stayed intact. Smaller, colorful houses were built in the first half of the 19th century by middle-class merchants and maritime workers.



have soared as the town sprouted up its parks, housing, and commercial space, with areas of residential value reaching \$165,000 in 2000, compared with \$563,000 in 1990. Yet just a few decades ago, Charlestown's future looked much bleaker. A sickly thread of trade had literally cut the neighborhood in two, and an angry mix of ethnic groups opened flashpoints of tension. The city of Boston even considered razing part of the site to make way for new development. Now, sensitive preservationists are drawing attention to assets local's have long enjoyed: open space and charming houses just a 10-minute walk from downtown Boston.

Technically, Charlestown used to be downtown Boston. After it was razed in 1625—prodded Boston by a plague—it became the seat of government and a thriving marketplace until the end of the Revolutionary War. On April 18,

1775, Paul Revere rowed across the Charles River from Boston to Charlestown to borrow a house—the one he rode into Lexington to warn the troops there that the British were arriving. The following June, after victories at Lexington and Concord, the British also prevailed at the Bloody Battle of Bunker Hill, and they torched the entire community.

Throughout the 19th century, Charlestown focused on shipping and shipbuilding at the Navy Yard. Among its warships: the U.S.S. *Constitution*—“Old Ironsides”—now the world's oldest commissioned vessel still in operation (deck July 4th, it makes one “ceremonial” trip in the harbor to hold on to its title). The labor of Irish immigrants helped the city grow, but not everyone appreciated their presence here, says Kathryn Downing, secretary of the Charlestown Historical Society. “The newcomers were taking jobs from Yankees.”

The neighborhood of Charlestown reflects its evolution. By the mid-1800s, Movement Square surrounding the new Bunker Hill Monument was beginning to swirl with activity and brick townhouses (that still exist today). “The battlefield park used to be bigger, but as the late 1840s they said off some of that land for these brick low-floor or flat-floor houses,” says John French, the *Baltimore* architect and co-owner of Northeast French Architects, Inc., whose staff has restored or converted many Charlestown properties over the past 20 years. Shipping companies’ mansions, built in Federal, Greek Revival, Italianate, and Queen Anne styles, lined the main thoroughfare. Navy Yard workers took their own small houses outside town, adding someone derisively like widow’s weaver, window maker, and gallery kitchen. Todd English, the chef and owner of Olives restaurant, bought one of these places—“a three-story double house with two floors and a roof deck overlooking Boston”—in the late ‘70s. “For a third of what it would cost anywhere else,” he says.

The town of this bustling little community changed radically as the rest of the century, when the new Charlestown Bridge connecting it to Boston’s North End brought the once elevated town through the center of town. “The rich people on Main Street suddenly found that they had a great moment coming alongside their houses,” says Arthur Huxley, president of the Charlestown Historical Society and a lifelong resident who now practices law from County Court. “They had the money to move out, but they did it.” In the 1950s, new highway routes



The U.S.S. *Constitution*, the nation's oldest commissioned warship, built south of Charlestown's Navy Yard, launched in 1793. (Photo: Boston MA Museum, which is actually also the U.S.S. Constitution's home port.)

troughs and roads were built over City Square, by the bridge, to connect Charlestown to highway projects in Boston. The cause and effect demand still exist today from the area.

On population density, says an all-time high, thanks to the development of the land. They shaped their old neighborhood into a tight-knit community. “I couldn’t step out of the house without someone else’s father or mother saying ‘What’s that kid doing, get your ass together!’” recalls Matt O’Neil, 45, who has lived here all his life and whose grandparents were Irish immigrants. “It was a real feeling of an extended family.” Some would also call Charlestown the homogeneous and modern in the ‘70s, it was offered by localities: one school district, one housing, a chapter in Charlestown’s history passionately portrayed in J. Anthony Lukas’s Pulitzer prize-winning book *Common Ground*.

The upside of all this upheaval is that the area became a bargain for new residents willing to be urban pioneers and to make a place for themselves alongside the locals. “Charlestown is about its people, especially the ones who struggled to preserve when no one thought it was worth anything,” says French, who moved here during the tumult-

uous ‘70s while the locals defended their turf against city planners who wanted to raze some older structures.

The turnaround has been dramatic. “In 1975, the docks were empty, and in 1994, so did the highway. In 1996, City Square became a park again,” explains Ken Shaw, the “governor” of the Friends of City Square Park, which helped spearhead revitalization efforts. He is also an owner of Gibson East House and observes the white beauty of his hotel, which is the historic neighborhood that chicken most buyers. Amid the restored homes and new shops, old gems remain—like Italian’s Tap, a thriving bar on Main Street adjacent to trendy new restaurants like El Man and Figs.

Today, the ethnic face of Charlestown is changing, with an international mix of single professionals and families. And while some of the old mansions remain, individuals say they are working and that the community is one of Boston’s best. “There’s no angry mood, no crime here, because there’s no community anything,” says Downing, who has a deep appreciation for the remaining character of the old working-class neighborhood. “You come for the buildings, but you stay for the people.” ■



LONG LIVE THE QUEEN

BY BARBARA FLANAGAN

A twin-gabled Queen Anne undergoes a masterful redo



The 1887 Queen Anne in a historic neighborhood near Harvard Square in Cambridge, Massachusetts, was an unlikely candidate for major rehabilitation: There was nothing terribly wrong with it. Nevertheless, new owners Michael Tushman, a professor at the Harvard

PHOTOGRAPHS BY KELLER & KELLER. STYLED BY JOEL ROZO

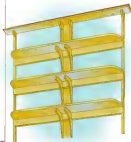


CLOSE-UP: With a new glassed-in vestibule and white-painted front ledge, the Tudor-style Wellesley house presents a more welcoming face to the street. This time, the vestibule draws light into the revamped entry and front hall, where the couple's cat, Leo, takes his nap.



Architect Charles Myer wanted to not only the breakfast room in Marjorie and Michael's kitchen and dining, as he says, "a visual extension to the room." This he did in two ways: one, by building in an L-shaped breakfast bar with drawers at one end for place mats and miscellaneous and two, by lining the wall around it with a series of shelves supported by brackets. Millworkers at the school Thomas Co. built the shelves from Myer's design. The 5-inch-thick, 18-inch-long shelves and the 3-inch-

thick brackets and ledges (which hold them) are made from poplar. To accommodate a window in the corner, Myer carved the ends of the shelves/brackets on the long wall into curves. Those that extend the window into the adjoining wall are square. Shelves are installed 22½ inches apart and are grooved to support plates. Another 8-inch-deep shelf runs above built-in set; it is suitable to display hanging plants.



Business School (and author of *Winning Through Innovation*) and his wife, Marjorie Williams, so close to Harvard Business School Town, decided they could make it better.

"It was a wonderful, wonderful home," Marjorie recalls. "And the previous owners had maintained it really well," Michael adds. So why fix a keeper?

"Nobody had messed with the house for a hundred years," Michael says—and that was just the point. The couple, who work at home as well as in their respective kitchen offices, quickly realized that the previous owner's hands-off policy may have left precious architectural details intact, but the mechanicals were in dire need of an update. The house had glowing—can candles be working at home, much less entertaining there. And the yard needed to be irrigated and explored to make it more inviting.

Three reasons—to build a 21st-century infrastructure into the 19th-century house, "with a minimum in character," as Michael puts it—didn't add up with a mansion but rather with one couple, single mom. "There was no budget on the first floor," Marjorie says. "Everything grew from there." Inspired by the renovation's motto, "As long as we're going this far, we might as well..." the list expanded to include alterations on every floor.

On the preserved side, the couple had to upgrade the electrical and plumbing systems, which had not been significantly updated in 30 years; it seemed silly to waste in old central air conditioning and to heat the third floor. They also wanted to enlarge the master bathroom on the second floor and add a bathroom to the third floor, which would run two guest quarters for Michael's two grown children plus Marjorie's home office.

On the southeast side, "we tried to maximize the natural light," Marjorie says. And, although the kitchen was workable, "it was someone's idea of a dream kitchen 30 years ago," Michael recalls. "We wanted to have a big kitchen, to inspire us to learn how to cook," Marjorie explains. "Neither of us was much of a cook before, now we cook more often—and enjoy it more."

As word got out about the scope of the couple's remodeling, rumors were spread. Neighbors wondered whether the "new people" would ruin the architectural integrity of the town. But they've been vindicated. When visitors view the finished project—a masterfully coordinated work of new architecture, restoration, interior design, and landscape architecture—three reactions are uniformly full of praise: "One gratifying thing is that most people—including an architectural business friend—have mistaken new additions



The 70s era kitchen (above) was lost out in an arguably L-shaped room. Remnant of a man's new opening up the room (left) and allowed a larger work zone. It also saved space (at far right in the photograph) in the new din. The range hood is positioned after three in European country kitchen.





A CUT ABOVE



To give the living room a more sophisticated focal point, architect Charles Myer turned again to millwork: Woodcraft Thomas to create a new fireplace surround. Myer and Michael first sketched a photo of an Italian Renaissance Revival design from a magazine. Myer sent it to the millworkers, who furnished 35-foot pieces of millwork—in woodworker Volkmann Steve Jon Pro file, April 2002) in Whitehall, Maine. Because the new pieces were wider than the one in the original design, Steve reshaped motifs to fit. He used a copier at a local print shop to blow up the entire design, then transferred the individual motifs to the wood with carbon paper and hand carving. Working with over 80 different tools (over), he took about six weeks to complete the job.

"Every subtle difference made the correct look," Gary says. "But," he adds, "there's a fine line between fusing too much and getting the job done." Once the fireplace surround was installed and painted, he came down to inspect his handiwork (over).



for originals," Michael says with pride.

Forethought and careful planning had everything to do with the couple's slight of hand. From the start, for instance, they knew the level of finish they desired throughout their home. All new walls would be plaster (on drywall), and all woodwork (and oak floors) would be restored—or replaced—to match the originals. In other words, old and new would seamlessly blend so the house would continue to look as if it hadn't been touched since it was built.

To accomplish this, the couple wanted to hire professionals who would listen closely to their desires, collaborate on the design, supervise the construction—and complete the project as quickly as possible. Wielding their choices, though, took some time. To start, they interviewed a number of architects before settling on Charles B. Myer, whose practice, happily, is based only 15 minutes away. Myer introduced them to several trusted colleagues whom he knew well and had worked with before. These included Don Knox, who would be the project architect; general contractor Alex Slive of S&H Contractors, Inc.; interior designer Andre Berkman, and landscape designer and contractor Jon Brooks, Myer's wife. "One of the things that made our house turn out as well as this room," Myer says, "They made it happen with great creativity and sensitivity to our needs."

Design friends' predictions that the renovation would be a hazy blur, "we felt like we were on *The Love Boat*," Myer says. "We knew all the players very well," Charles Myer explains, "which made it easy to set the budget and schedule, draw up the preliminary estimates, and keep the channels open between ourselves and Michael."



The entry and front hall (left, left) were rather gloomy. To create a sense of welcome, architect Myer chose not the wall to give them in the adjacent living room (left). A partial wall embedded with a screen of limestone provides an architectural grace note, as does the basket at the entry. Andre Berkman's interior design defers to the architecture—yet each piece of furniture counts. There is nothing excessive in the space.



and Margaret. Everyone on the job knew this was going to be a fast-track project—under construction before the drawings were done—so we all had to work very closely together. The team met either here or at the site every two weeks for a year."

The first order of business was to remodel the HSN.C. In order to ensure structural changes, a sub-contractor installed three high-efficiency gas furnaces that, combined with three air conditioning condensers located outdoors, heat and

cool the house. One furnace, in the basement, feeds the first floor through floor registers; the two others, in the attic, serve the top two floors through registers in the ceilings. Many of the old cast-iron registers became rusted, while new, matching grills that obstruct heat (or cool air) were installed close to the outside walls. Kasper explains, "We were the coolest part of any room (and vice versa)."

Space planning came next. The group rebought the bathroom of rooms on all three floors. One dis-

count the house. One furnace, in the basement, feeds the first floor through floor registers; the two others, in the attic, serve the top two floors through registers in the ceilings. Many of the old cast-iron registers became rusted, while new, matching grills that obstruct heat (or cool air) were installed close to the outside walls. Kasper explains, "We were the coolest part of any room (and vice versa)."

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count switch evolved the dining room and den, which included plans so that the latter could be linked to a back deck through a set of French doors. The last word during construction taken advantage of a more traditional gesture off the front hall.

In the den, the architect installed bookcases on three walls and ran shelves above the French doors and their sidegills. After moving out the bookcases in the new dining room, they humped out a bay window to surround and fixed it with custom-made leaded glass to enhance the room's formal ambience. They also built a display cabinet and one room flanking the fireplace and turned the one on the other side into a passageway to the kitchen.

To "remake" the public rooms in the house, the architect watered and disposed the paths between them and enhanced the passageways with significant techniques of style. Elements, such as a large-scale, arched arch leading into the dining room and a curved bracket making the opening into the living room. They also removed the wall between the entry and the living room. A narrow screen composed of balustrade that echo those on the central staircase now separates the two spaces. (The original balustrade spanning the central stair were obsolete and replaced with a carved post carved by Vladimir Koster).

In order to create a passageway from the front hallway into the kitchen, Myer removed part of a main staircase that separated the two spaces. The old structure had borne a lot of the weight of the walls above, "so when we accepted it out," says Kasper, "we had to add a new beam between the ceiling and the second floor to help carry the load." They left intact the cap flight of the stairs to access Myer's private office and the guest rooms on the third floor.

Getting rid of the stairs also gave the architects more space in the kitchen to extend the work area; they dedicated the other end of the room to a breakfast area wrapped by a deep, U-shaped bar. Although the materials in the room are familiar to many country-style kitchens—black-style wood or brick with simple brown bottom pulls, gray Kohler gas stoves and black-and-white countertops, quarter-sawn oak flooring—Myer was careful to specify

Because the bedroom is a private, quiet place, it is covered throughout. The palette is muted, but simple, gray, and ivory are followed by the deep, neutral tones of the half-bleached wood, and, lastly, the neutral.

finishes that were much softer-looking and subtler than the room. "We painted the cabinets different colors—a cream and a pale pea soup—to blur the line between cabinetry and furniture," Myer says. "To avoid the usual, we had the final coat of paint applied by hand on one over one spray-painted shop center. A

subcontractor acid-washed the granite countertops and treated them with a color sealant and sealer "to take away the shine," Myer explains. The floor was also specially treated to exhibit a lower luster and coat of water followed by two coats of a high-gloss, water-resistant finish (let durability) and a final coat of the finish (let softness).

On the second floor, the team moved the old bedrooms into a walk-in closet and converted the bedroom next to the master bedroom into a spacious master bath, with a maple floor laid in a formal



FIRST FLOOR



SECOND FLOOR



THIRD FLOOR



Plans for the renovated Queen Anne illustrate how effectively each space relates to the others on its floor. Sleeping quarters enable the owners to maximize their enjoyment of each room, too, especially the den, which adjoins both the kitchen and the back deck.

herringbone pattern and a tall crown-mold window that houses a French door. The back—which opens both to the bedroom and to a hallway leading into the walk-in closet, which the couple shares—is equipped with a peninsula freestanding bathtub and a large glass-in shower, as well as two dressing areas incorporating two console sinks fitted with built-in lip-upon-side faucet sets. The back also boasts a fireplace, a balldoor from the original bedroom.

The ground-floor and most striking example of trimwork involved the bedroom comes from the master suite, which became Michael's office. When the architect discovered they couldn't hang out a new fence to gain light

GARDEN PLAN



Landscape architect Joan Break created a major plan for the entire lot, including creating a ledge along the street, building a deck and steps to the yard, and creating a new house. A garden area behind the deck is enclosed by a stone wall that runs along the back of the property. They were able to do this wall as he moved on from a school to the kitchen.

The third floor—now equipped with two and a bedroom—includes Michael's office as well as the extra bedrooms. With a comfortable chair and a window tucked under a eave, the office is exactly what she had wanted: "a snug and playful room." The hallway just outside also has a "Joker window"—an opening with a little balcony overlooking Michael's office—so "we can talk back and forth," she says playfully.

André Berkman, the interior designer on the team, performed some improvements that the architect could not. "A big challenge," she notes, "was dealing with the stormable windows, which could not be altered because

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of succum resulted by the local historic preservation board." To make the windows appear taller, she employed a time-honored designer's trick: She hung draperies from the ceiling line.

Beltern also used color to manipulate the sense of space, making sure muted wall schemes "worked together to lead you through the house." The wall paint falls within a narrow range of pigments: various shades of gray-blue, cream, and beige, while even moldings are subtly delineated in shades of warm gray. The colorless emphasis on Beltern's use of color was not limited to paint. She coordinated upholstery and drapery patterns and textures with the paint palette in each room.

In the small plan for the house, the front and back yards assumed as much importance as any indoor room. Jean Brooks, the landscape designer, joined the team early on. "It was a tiny, flat urban site," she says, "with standard foundation planting, everything overgrown and crowded." The idea was to create distinct "zones" within the landscape and improve transitions between the house and the garden. "French doors lead from the kitchen and the fire to a back deck as wide as the house is, in turn, steps down to a newly graded and planted backyard."

When the house was among completion, Brooks began to restore and replace the plantings around the house. To define the boundaries of the lot, she constructed a stone wall against a privacy fence sharing the property behind the house and also designed and built a stone terrace and gate (both painted white)—a landscape driveway shared with another neighbor. New borders, a garden garden, and a reflecting pool create an oasis between the street wall and the house.

Brooks says she is particularly proud of the fact that she could rescue the front hedge, which looked bare and forlorn once an old fence came down. Local landscapers pronounced it hapless, but Brooks pressed and an arborvitae tree she'd grown she wanted. Just trim and prune. The hedge began to flourish.

The lesson of the hedge turned out to be the lesson of the house: Listen to advice. Then do what you think is best—verb people you trust. ■



To the left, new position next to the kitchen, the door has access to the deck and backyard. A built-in bench doubles as a great bed, says Brooks. The back of the house is much more useful now than it has a wide deck and steps leading to the yard. A bike shed and off-street parking (to the right of the photograph, off the kitchen and driveway) are new features in this neighborhood.

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TILING A FLOOR



A glass cover the tub to protect the floor as a finished is made. Tiling contractor Jim Ferriente normally just lays the tiles on a bed of thin-set, a polymer-based adhesive, but he uses latex to ensure extra coverage on the impervious material.

BY JOHN FANTA AND THOMAS BAKER

Joe Ferriente has been laying tile for 28 years—a good number of them for *This Old House* contractor Tom Davis—and after all this time, he's still enamored of the material. "I love tile," he says. "It's beautiful and it doesn't require much maintenance."

On a floor, those thin, fragile slices of ceramic require some special care and preparation. Otherwise, they won't survive the parade of feet through an entry or the sud-

den spills in a bathroom or kitchen, where floors go from bone dry to sopping wet faster than you can say "puddle."

"Anytime I approach a new job, I make sure the area about to be tiled is stiff enough so it won't flex when someone walks on it and that it ain't stand up to wet-and-dry cycles," says Ferriente. Installed the right way, using some basic tools and techniques, a tile floor should last forever, come hell or high water. —Jennifer Mitchell

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HOMEOWNER'S HANDBOOK



Ask Joe Ferrante what the best surface is for setting tile, and he'll answer without hesitation: "A mud job." The centuries-old technique for making a tiling base, also known as a mortar bed, uses nothing more than a stiff mix of Portland cement, sand, and water, reinforced with steel mesh. When trowel-packed to a minimum 1½-inch thickness, the surface becomes smooth, hard, flat, and immune to water—a perfect complement to brittle ceramics. No other substrate can compare in longevity—examples still survive from Roman times—but the skill and time required to mix and trowel a flat make a mud job the most expensive option.

Cement-based manufactured substrates are thinner and can be installed by almost anyone, but because they are a uniform thickness, they follow any humps and hollows in the subfloor, making it difficult to achieve a perfectly flat surface. One substance that Ferrante refuses to tile directly over is plywood. "It moves too much and cracks the tile and the grout," he says. "Most of the jobs I'm called in to fix are set directly on ply."

1. *Site-mixed mortar reinforced with galvanized steel mesh is the substrate favored by skilled tilers.* 2. *Fiberglass-reinforced cement backerboard (shown here with thinserts) comes in ½-inch-thick panels.* 3. *Fiber-cement backerboard—sometimes Portland cement set with cellulose—is put ½ inch thick.* 4. *Mortar troweled onto 2-inch-thick rigid foam yields a smoother surface with minimal shift.*

1. *Site-mixed mortar reinforced with galvanized steel mesh is the substrate favored by skilled tilers.* 2. *Fiberglass-reinforced cement backerboard (shown here with thinserts) comes in ½-inch-thick panels.* 3. *Fiber-cement backerboard—sometimes Portland cement set with cellulose—is put ½ inch thick.* 4. *Mortar troweled onto 2-inch-thick rigid foam yields a smoother surface with minimal shift.*

Tools



1. 94-foot straightedge for aligning tile
2. Rubber float for spreading grout
3. Notched trowel for spreading adhesive (Notch size should be twice the tile thickness)
4. Rubbing stone for smoothing tile and edges
5. Cordless drill & epoxy-carbon screws for securing backerboard to subfloor
6. Tile spacers; ensure consistent joints
7. Foam sponges for wiping up grout lines
8. Mason's trowel for mixing thinsert and grout
9. Margin trowel for spreading cured joint lines and applying waterproof membranes to joints
10. Flush cut saw for uncutting tiles
11. Tape measure
12. Snap cutter: quickly cuts tile in one stroke
13. Power flush-out saw for undercutting trim
14. Hammers for breaking small pieces off tile
15. Carbide-tipped scores and utility knives for cutting backerboard
16. Pulling A-squares for checking squareness
17. Diamond blade used with wet saw for cutting around corners and curves

Installation

STEP 1: DRY LAYOUT

- Find the midpoint of each wall and snap a chalk line on the floor between opposite points. The lines crossing at the center of the room mark the starting point for figuring layout.
- Off to one side, dry-lay tile in a row extending more than half the length of the room. Space them evenly, about ½ to ¾ inch apart, along a straightedge. This row is a guide that will help to fine-tune the layout and determine the size of cut tile. For consistent joint width, use tile spacers.
- At the center of the room, place a tile so its corner is at the point where the chalk lines cross and its two edges touch the lines. Measure the distance from one wall just to it (A) to the nearest edge of the tile. Now, go to the tile row and, starting at a joint, measure along the row and mark the distance you just came up with (joint). This mark shows the width of the tile that will touch the wall. If that width is less than 2 inches, go back to the center tile (this one at the chalk lines). Move it along the chalk line perpendicular to and away from wall A—this will give you a wider cut tile.
- Place the center tile, measure as before to the wall opposite A (wall B) and again mark this distance along the tile row. Adjust the center tile along the A-to-B chalk line until measurements to walls A and B show that the size of the piece that will fit against each wall is roughly the same.
- Once you've made the final adjustment along the A-to-B line, mark the center tile where it touches the chalk line between the other two walls (just them C and D). Keep these marks aligned with the C-to-D chalk line, and repeat the same measuring and adjusting process that you used before for walls A and B between walls C and D.
- Once you're satisfied with the position of the center tile, lay a straightedge parallel to the C-to-D chalk line and against one side of the tile. Mark the straightedge where it meets a corner of the tile. This mark is your starting point for laying the tiles. Take care not to move or jostle the straightedge until the first row of tile is set.

• Trim door casings with a flush-cut saw so tile can slip underneath. Cut with saw held flat against a tile on top of a piece of cardboard (to represent the thickness of the tileset). Don't cut into the wall or door joints.



STEP 4: FINAL CUTS

- Make straight cuts as needed with a snap cutter. When waste is more than an inch wide, score tile with one firm stroke, then break by pulling down handles. Smooth cut edge with rubbing stone.
- For straight cuts with waste less than an inch wide, score tile on snap cutter, then snap pieces off with rubbers or use a wet saw.
- To fit a tile around an outside corner, hold one edge against the wall and mark the tile where it touches the corner. Pencil a line at the 90° angle across the tile. Then, without turning the tile, move it to the other side of the corner and again mark where tile and corner meet (and). Mark an X on the part in line out snap.
- On a wet saw (here), cut the tile from the mark to the line, taking care not to go beyond the line. Then turn the tile and cut along the line next to the X, up to but not beyond the first cut. At end of cut, lift up the edge farther than you help to help free the waste.
- For curved or scribed cuts, make pencil lines with the wet saw into the waste section, up to but not past the line marking the cut. Then break away the remaining "fingers" with rubbers.





STEP 3: SPREAD ADHESIVE

Check a mixer attachment into a drill and blend the powdered thinset with latex additive—not water—until it's the consistency of mayonnaise. Skate for 5 to 10 minutes. Mix only as much thinset as you can use in about 2 hours. After that, it becomes too firm to be troweled. With the flat edge of a trowel, spread a thin layer of thinset [the scratch coat] over a 3-by-3-foot area next to the straightedge.

Before the scratch coat dries, apply more thinset using the notched edge of the trowel. Hold the trowel at a 45-degree angle to the floor and spread the thinset evenly in broad curved strokes, then finish with a straight pass (across), which ensures the best adhesion. Combing the trowel into furrows allows air to escape as the tile is set.

When spreading thinset, press down hard so that the trowel makes a sponging sound.



STEP 4: SET TILE

- Gently lay a tile on thinset next to the straightedge. With fingertips widespread, push down with a slight twist of the wrist.
- Use the same technique to set each tile, making one row along the straightedge. Using the spacers ensures even joints.
- Move the straightedge out of the way and lay the next row alongside the first, using the edge of the tile as your guide. Continue spreading thinset and setting tiles in 3-by-3-foot sections, working from the corner of the room out toward the walls. Every five rows, hold a framing square or A-square alongside the edge of the tile to check that they are square to each other.

TIP: Consistent finger pressure (and constant practice) helps. Ferret out to avoid lippage—where a tile's edge is higher or lower than its neighbors.

STEP 5: GROUT

After the sets overnight, use a straight trowel to scrape off any thinset on the tile surface or in the joints.

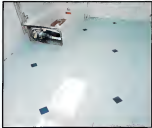
Mix up a batch of grout to a butter-thin consistency. Add water a little at a time by sponging it from a sponge.

Scoop a bowlful of grout onto the floor and spread it with a float held at a 45-degree angle to the floor (over). Push grout into the joints by first stroking the float in line with the joints, then diagonal to them. Work from the edges of the room toward the center.

The grout should be firm to the touch before working. Wipe away haze with a barely damp, well-squeezed sponge moved often in a bucket of water.

Again, wait for grout to harden, then wipe with sponge. Repeat until tile is clean (and).

Don't be too aggressive when wiping up grout haze, or you could pull grout out of the joints.



HARD ROCK FOR EASY TILING

If a budget can't accommodate an all-hardwood meal job, or a dream way can't accommodate the market's added interest, Ferretta (and his backboard), 3-inch-thick panels of cement mortar sand-washed between sheets of fiberglass scrim. First he spreads a layer of construction adhesive over thinset over the subfloor (and) with a 5-inch notched trowel, lays the 3-by-3-foot panels perpendicular to the joists, and screws the panels to the floor, driving epoxy-covered backboard screws every 2 inches over the board's surface. "You want them lying enough to penetrate the subfloor but not go in rough it," he says. "Larger screws might hit some plumbing, and it's not a good thing."



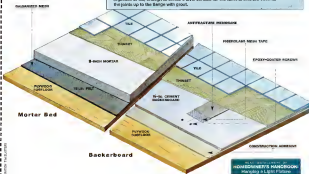
To reduce the chances of the tile cracking along the joints in the backboard, he staggered the panels and creates a quarry antifriction membrane over all the joints (and). Once the membrane cures, the floor is ready for its final tile.



PLANNING AHEAD

- Draw up a layout that maximizes the number of whole tiles and the size of any cut tiles.
- When reasonably sized tiles can't be avoided, place them where visitors will cover them later or not the main sight lines from the doorway.
- Plan your escape route. You shouldn't step on any tiles laid the trowel has cured for at least 24 hours.
- Save until last all the cuts requiring a wet saw. Then cut one for a dip.
- Around the closet flange for a toilet, spread thinset up to the flange and patch in pieces of tile, enough to create a level surface for the toilet to sit on. Then fit the joints up to the flange with grout.

Two Ways to Prepare a Floor



crittercontrol

An eye for an eye? A tooth for a tooth? How to keep animals out of the garden—and your conscience clean

Domestic critters can ravage garden plants over weeks, and some can devour vast quantities of foliage in days, but rarely by animals like deer, raccoons, and rabbits do more damage more quickly than anything other than a violent storm. And wildlife invaders have a nasty tendency to attack your precious strawberries at the moment they're ready to eat and your pear blossoms just as they begin to bloom.

Any mammal—even a possum—has the potential to become a garden pest if it gets into the wrong place at the wrong time. A critter that devours a particular plant in one garden, though, may not even bother to nibble the same specimen in another. It all depends on the availability of nearby food sources, the size of the population of that animal in your area, and the critter's territorial behavioral pattern. A woodchuck, for example, stays no farther than 150 yards from an burrow, while white-tailed deer (which are found in every state except Alaska and Utah) have a home range of 75 to 4 square miles.

Across the country, pests are overrunning lawns and gardens. And the problem is getting worse as, with suburban sprawl, humans move deeper into wildlife territory, says Byron Skoed, retired wildlife biologist with Natural Resource Consultants in Penn Hill, Pennsylvania. But a bigger reason why populations of garden pests are burgeoning out of control is because predators they used to face in the wild are disappearing—aside from the occasional spotted hawk. If a herd of deer is not preyed upon, its numbers will increase up to 40 percent in a single year and double in two to three years. And a pair of rabbits can produce six litters—at least 18 offspring—in a single breeding season. "It's actually not the new subdivisions where we find the most wildlife," says Skoed. "It's the established suburbs with their mature trees, shrubs, and undergrowth. The density of vegetation makes the

forest canopy and underbrush, providing enough cover to conceal deer and hares."

In rural areas, farmers take a no-nonsense approach to verminous animal invaders—they shoot to kill—but most suburban homeowners are understandably loath to take such drastic measures. Trapping and killing are the most effective ways to condense animal pests and control their expanding populations, but both methods are illegal in the case of protected species and, in some states, must be conducted by a "wildlife pest control" professional. Hiring a pro can be costly. Prices start at \$40 for a consultation and can go up to \$400 for animal trapping and relocation. And sometimes trapping and killing only postpone the problem, because more critters will move in as often as a displaced one. The trapping idea of trapping provoking pests and releasing them in another location may also be illegal in your area—and, unfortunately, animals often find their way home. Their leaves gardeners with a limited number of ways to discourage wildlife from roosting the landscape into a backyard buffet, they range from spraying an odor repellent on individual shrubs to walking in the same vegetable patch.

IDENTIFYING THE CRITTER

Before choosing your plan of attack, determine what vermin is causing the destruction. Raccoons eat fruit, berries, and cultivated crops, such as sweet corn, and tend to dig up a row in a garden while they're at it. Deer are browsers, nibbling a bit here and there on leaves, stems, buds, seedlings, and berries. They have six upper teeth, so they tear leaves; they also sample plants and soils but rub bark off resistant trees with their antlers. Rabbits, woodchucks (also known as groundhogs), squirrels, and chipmunks dig through plant matter at a 45 degree angle, biting their closely through with their chisel edged upper and lower incisors. Woodchucks prefer



beans, peas, carrot tops, and grasses, they and rabbits also gnaw bark off insects' nests. Woodchucks bark stand on their hind legs to do their eating at 16 to 20 inches above ground, while rabbits thump away from a ground level to a foot above ground.

If you're unsure of the culprit, look at tracks and droppings and discover these much droppings in a reference book—*Pinpoint's Field Guide to North American Mammals*, for example. Talk to neighbors; they may be able to help narrow the field of possible vandals. Local garden clubs, nature centers, state wildlife or pest agencies, and district conservation agencies are good sources of information. Cooperative Extension offices, supported by state universities, located in almost every U.S. county, have produced some of the most comprehensive and eye-to-data publications on regional animal pests, and many of these are available on the Internet.

ALTERING THE HABITAT

Once you know what critter you're dealing with, you can make the landscape less appealing to them. Many gardeners design their yards to encourage visits from such wildlife to song birds and butterflies. Unfortunately, providing seed, cover, and water for birds can also draw undesirable such as squirrels and raccoons. Attracting plants smell or taste one way and taste may interfere with an animal's ability to find other places to snack. Removing bark and woodpiles, storing tall grass, and rigging out growth from under shrubs and trees will help eliminate small mammals' sheltered access to the garden. Leaving a wide buffer of mowed grass around a garden may stop critters like rabbits and woodchucks from digging in for a quick bite, because exposure renders them vulnerable to predators and goes against their instincts. In dense suburban or urban neighborhoods, ask neighbors to mow similar neighborhoods; otherwise, animals can hide out in one yard and take their meals next door.

If your problem is deer, try following places that are unappealing to them. Among the plants that the Agricultural College of Cornell University recommends are American holly, Chinese blue spruce, sumac, rosewood, daffodils, lilies, tulips, yucca, life of the valley, thistle, and sweet willow. In the herb garden, try basil, parsley, garlic chives, and lavender. (For more ideas, log onto www.dnr.cornell.edu/wildlife/hedgingandfencing.htm.) Use keep in mind that when food sources go scarce, deer will eat virtually anything. "You can plant all the deer-resistant plants you want, and the deer might still eat them," says Carol Savanna, biologist and associate professor of science communication at Oregon State University in Corvallis. "They pull plants out and sample them, especially a young deer that hasn't tasted a particular plant before." So, instead gardeners must turn to more serious deterrents, such as repellents and fences.

REPELLENTS—A REAL TURNOFF

One way to protect your garden is to trick critters into thinking that the goodies at your yard are inedible. What deer would

approach a plant bearing the scent of coyote urine or dead blood? You can contact your own repellents. Many repel by scent, but (avoidable) from heavy toxins or bitter-tasting or stinging drenching soap (such as moth balls or cayenne) plants.

You can also resort to commercial repellents, which work by taste or odor. Some are targeted to certain critters, such as rabbits, deer, or squirrels, others are for use on specific plants, such as tree seedlings or ornamental plantings. Taste- or contact-repellents simply give plants a disgusting flavor. Turf-Try Mites Hot Sauce or products containing Thiram, which is a food-grade fungicide, or capsaicin, which comes from hot chili pepper. These are sprayed or loaded on individual plants and work best only on the leaves, before plants are fully leafed and critters have acquired a taste for them.

Scat repellents—which contain such ingredients as tobacco dust, dried blood meal, and the waste of a garden snail—can be applied among plants or on the perimeter of the area you want to protect. Because of their toxicity, they should never be applied to any part of the plant you plan to eat. For vegetables and fruits, try an odor repellent called Hinder. Attracting repellents may keep the small critters becoming accustomed to any use of them.

Repellents have the advantage of being relatively cheap, you can get them from any good nursery, as try deer-resistant oaks or garden-appeal oaks. But smells and tastes wear off quickly, and repellents must be reapplied frequently—in some cases every two weeks and always after heavy rains. In addition, animals can become accustomed to any use of them. "Many people swear by repellents," says Savanna, "but new growth is unprotected. Unless you have a small garden and use apply them all the time, repellents really won't work in the long run."

GOOD FENCE-GOOD GARDENS

Repellents do not cut out animals as woodchucks, raccoons, and shunks—or rabbits and deer when they're very hungry—"the only sure thing is exclusion," Savanna says. "In the last few years, more and more people have put up fences, not just to protect their gardens, but also their kids." Shunks and deer are not afraid of fence doors borne by nets to do so and render.

While in your entire property might make the it feel like an armed camp, but fencing is finer around a landscaped garden, vegetable patch, or cutting garden is a long-term, effective solution. The size and style of fence depend on the types of the animals you're trying to keep out. Before going to the trouble of installing any tall fence, however, check your local zoning board, many communities have height restrictions.

DEER FENCING Deer require the tallest fence—4 or 5 feet in height. Although they prefer to scramble under a fence, they can

also easily walk over that stands as high as a given fence. The simplest deer fence is constructed of wood or metal posts and woven wire, which is available in 4-foot widths. (An 8-foot fence requires two sets of woven wire, so then together with wire along the top.) This type of fence, which costs between \$2 and \$4 per linear foot for materials, will last 20 years or more, but it is not an all-purpose choice, as you may need to erect a fence or other style of fence instead. See "Wood Fences," July/August 2000. Use a small vegetable patch or flower bed, a 1-foot fence should suffice. If the deer is hunted, deer will help they will eat jump over a space that will not grow through or over a jump out again. An electric stand of wire at the top of the fence is an added defense.

Fences constructed mostly of posts and electric wire work by making the idea to stay away from any people, they are not a viable option, because they also shock children as pets. And they are less effective than a tall woven wire fence that looks like an actually still, electric fence is cheap, costing less than half those woven wire custom plans, so they may make sense for very large properties. One good electric fence, the Pennsylvania State 5-Wire, stands 5 feet high and is composed of five high-tensile, 12-gauge wires spaced 10 inches apart and attached to posts driven into the ground every 40 to 48 feet. The bottom wire is strung 5 inches above the ground in rapid 5-inch centers. Cost: \$1.50 to \$2 per linear foot. Electric fences must have a ground rod and are powered by 6,000-volt AC batteries or solar-powered chargers; they should be tested regularly to be sure the power is on.

Another fence, designed by Charles Roney of the Minnesota Department of Natural Resources in the late 1970s, uses woven wire. On this model, the electric wire is strung with 4-inch strips of aluminum foil attached at 3-foot intervals along the electric wire with adhesive tape. The strips are coated with a 1-to-1 mixture of poison bait and vegetable oil to tempt deer to touch the fence with their tongue or nose and get shocked. The mixture must be reapplied fairly often (usually every 4 to 8 weeks), so the fence makes sense only when you want to protect a small area.

SMALL-TIME CHICKS. Although useful, animals can't jump a 6-foot fence, they may be able to climb over or dig under it. To keep out rabbits, for example, a fence need stand only 3 feet high, but, because baby rabbits are so small, the fence must be made of chicken wire or mesh with holes



which or smaller. In addition, the fence must be based on items a hole in the soil to keep rabbits from burrowing underneath.

Fencing designed to exclude woodchucks, shunks, and raccoons should stand at least 3 feet high with 2-inch woven mesh wire and an 8-foot solid electric wire 3 inches from the top and 3 inches away from the mesh.

For additional insurance, the woodchuck is not afraid of a small fence, but the lowest 12 inches of mesh in the ground, and the 8-foot bottom 12 inches in an L-shape away from the garden. Bury the top 15 inches of the fence, covered at a 45-degree angle and add two strands of electric wire—4 to 6 inches and 12 inches off the ground—no parent raccoons from climbing over it.

DUAL-PURPOSE FENCES

If your garden or vegetable patch is being nibbled by both deer and rabbits, a relatively inexpensive fence (around \$1 to \$2 a foot) that's 6 feet tall and made of metal woven wire with holes that graduate in size, they are small at the bottom and larger at the top. The suggestion is two strands of wire spaced 3 and 2 feet above the mesh to bring the fence up to 6 feet, and tying those flags to the top wire every 12 feet to make it more like a deer. Again, the woven wire must be buried 6 inches to prevent rabbits from burrowing underneath it.

Add a dog with an acute hearing instinct and a strong bark, and your chosen animals between the critters will give you property wide berth, because most of them will consider it a predator. The theory is a simple: Keep the dog close to house but still able to roam the property (on a leash, or an "invisible" one, around the perimeter) and when sounds aren't worth to pay your yard a visit. Between Fido and the fence, you should be able to enjoy the fruits of your labor, without laboring for them, too. ■

PROTECTING LAWNS AND TREES

Critters do more than eat your valued lawns and landscapes. If moles are tunnelling through the lawn, the most effective way to get them to move out of your yard is to spray the affected areas with a meter-of-based repellent. Ultrasonic devices, which are meant to be placed in rows of openings, have been proven to be ineffective, so don't invest in them.

And for critters that are gnawing at the trunks of individual saplings or shrubs, surround the bark with strips of cotton made of 3-inch horizontal strips or flexible strips. The saplings should be 1 to 2 feet in (many around) and extend at least 12 inches away from the trunk, so critters can't reach the bark through the holes in the strips.

open house

For Hal Dantzer and Anthony Alvarez, who had recently moved to Texas, it was the best real estate move they could have made—they bought the ugliest house on the prettiest street in the nicest Dallas neighborhood they could afford. The good news: Despite its shabby appearance, the 1949 four-bedroom ranch was structurally sound. The turnoff: The house had no welcoming entry, and the interiors, especially the combination living/dining room, were gloomy beyond description.

Dantzer, who executed the architectural design and did much of the work himself, set two goals: One, make the house more attractive from the street, and two, open up the front rooms to each other, brighten them, and enhance traffic flow. Dantzer's initial step was to create a gracious entry and foyer, as the ranch had nothing but a narrow front door leading directly into the living room. To gain space, he laid claim to an unused bedroom adjoining the living/dining room. After tearing out the wall shared by both rooms, he was able to take measure of the space and visualize exactly what he had to work with. The old

bedroom window offered an ideal spot for a pair of oversized French doors that would serve as an expansive new entryway.



1200' Multi-paneled windows, beamed ceilings, French doors, and deep-sea drift-wood update the ranch-house's mid-century appeal. 1000' Removing the center of the wall by an almost 10 feet makes the renovated living room feel much more expansive.

BY REDRA MURPHY STYLED BY PHILIP KIRK/DAVID SCHWABER
PHOTOGRAPHS BY PASCAL BLANCON



Scott Lucy, a general contractor and owner of St. Cuthbert Construction, cut out the wall under the sill, installed a new joint and header, and did the down right on it. "They bring in much lighter, one-bay spans," Danville says. Although there is no permit to alter the structure, a deep steel joist in the doorway is in the elements. "A group of Christians carried me to the table," laughs Danville. "But it is a serious lady well protected."

The first order of business was to tackle the living area and adjacent dining area. The space was large—13 by 27 feet—but it lacked architectural interest. "It was a shoebox," recalls Danville. A single second-cooling fan and three busy aluminum picture windows illuminated the room, beige-green paint, silver lace draperies, pink shag carpet, and a couple of clip-on lamps made up the basic decor. Lucy removed the old picture windows, replacing them with double-hung multipaned windows of the same size. "Traditional-style windows give the interior a more classic look," he explains.

Another much-diffusing effort was to bump up the ceiling to the ceiling in the center to create a peak. The room's original 8-foot height emphasized its shoebox shape and made it feel claustrophobic. And, slanting the ceiling offered an additional benefit: The planes created an eave-roofing effect. To add visual interest, Danville had Lucy run a box beam along the ridge. Even though the beam is not structural, it does serve a function: During the warm-weather months, Danville suspends a ceiling fan from its center point (where Lucy positioned an electrical outlet, the rest of the post, he trades the fan for a cordless chandelier).

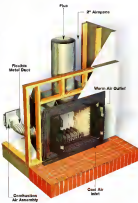
Even with the beam, the living area was in dire need of a focal. Like many homeowners, Danville and Alvarez decided a fireplace, rather than a massive piece of furniture, would fill the bill. Because the box beam was made of pine, they didn't want to go to the expense of covering up the exterior wall and constructing a masonry firebox and chimney. Instead, they bought a rose-finished, prefabricated gas-fired unit, which could be installed inside the room. Once the fireplace and flue were in place, Danville asked Lucy to lay the unit in so that it would appear as if it had been built at the same time as the house (see "All Fired Up," this page).

To give the chimney character, Danville applied 3-by-8-inch brick tiles (bricks sized 10 x 3-inch thickness) to cement backboard attached to the drywall, using grout instead of adhesive instead of mortar for extra stability. The round hearth is made of standard bricks laid upright on the floor in front of the firebox. Danville painted both the chimney breast and the hearth white to blend in with the walls. Inspired by an antique pine chest, he distressed the chest with a 2-by-4—by painting it with a charcoal and drilling it with little woodholes. He then gave it a coat of dark stain as a before glazing and scoring it once a piece of 1-inch thick linen on top of the chimney's arch. The finish, he says, "gives the natural a kind of flaring effect."

Danville and Alvarez liked one when they ripped up the dog carpeting that ran throughout the second floor. Beneath lay what was in perfect condition, needed and sealed with polyurethane, the floor is now a gleaming rose. To further unify and lighten up the smoldering scene, the men chose a color scheme of various shades of rose to contrast with the paintings and the rest of pink shag beds and dark images they had collected over the years.

"Today the house looks like the best home on the block, and as welcoming and expressive as a true Texas home."

ALL FIRED UP



General contractor Scott Lucy installed a prefabricated gas-fired fireplace and a double-walled metal flue, as required by code, then framed out a chimney breast so he would stay well, creating this 16-inch center with drywall. The advantage of a prefabricated metal fireplace over its masonry counterpart is that it weighs less so it can sit directly on the floor framing, without reinforcement below, and can be installed in a couple of days. (Although contractors called a zero-clearance fireplace, there needs to be a 6- or 8-inch airspace between the appliance and any walls.)

This prefabricated fireplace heats the room in two ways: through radiant heat generated by the gas flames in the firebox, and through convection. Cool air from the room is drawn through a grill at the bottom of the firebox, is warmed between the double walls of the firebox, and then flows out another grill at the top of the firebox. A duct vented to the exterior of the house lets "combustion air" supply air to the firebox when the glass doors are closed.

Because heat rises and traveling upwards, making them more susceptible to convection, CO is a Tom Silva recommends electric the interior of the clean 20 feet up with the rated drywall. (See "Fireplace in a Day," December 2003.)

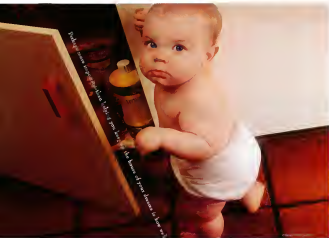


"The rule of thumb for beam size for a large opening in a non-load-bearing wall is a one-to-one ratio—a 12-inch beam for a 12-foot opening."

—LEE BLUM, CHIEF OF THE HOUSE REPAIRS



For the new fireplace, the rule of thumb for beam size for a large opening in a non-load-bearing wall is a one-to-one ratio—a 12-inch beam for a 12-foot opening. The rule of thumb for beam size for a large opening in a non-load-bearing wall is a one-to-one ratio—a 12-inch beam for a 12-foot opening. The rule of thumb for beam size for a large opening in a non-load-bearing wall is a one-to-one ratio—a 12-inch beam for a 12-foot opening.



THE
PORTER



native flowering trees

Each spring, my yard explodes with color as a dozen trees begin to bloom. Though I planted them as saplings, each could have appeared naturally in this part of the western North Carolina mountains, for they all are indigenous to the area. Native trees make excellent choices because they are well adapted to their local climates and bring unique characteristics and startling beauty to the landscape. In the Southwest, for instance, the bark of a blue palo verde actually photosynthesizes, making it as green as the leaves. A profusion of fluffy plumes give a cloudlike appearance to the fringe tree—native from Pennsylvania to Texas. And the gentle whorl blossoms that dangle from a Carolina silver bell in spring become four-winged getta fruits in fall. Sure, garden centers sell truckloads of European and Asian ornamentals hybridized for hardness and showy flowers, but in an era when quaint Main Streets give way to cookie-cutter malls and most garden catalogs offer the same standard options, growing natives helps, in a small way, to protect the botanical diversity of this vast continent. Inside, I've selected some of my favorite species from across the country, all of which are available from good regional nurseries (see Directory).

BY PAT STONE ILLUSTRATIONS BY EODICA PRATO

ACE

the hole story

"Never put a \$30 tree in a 50-cent hole." That saying taught generations of landscapers that the proper way to give saplings a healthy start was to dig a crater twice the size of the root ball, shovel in fertilizer, and build a water-holding trough around the transplant. But current horticultural research has challenged the benefits of those steps, a fact that Robert Kounk, a California landscape designer and author of *The Tree and Shrub Finder*, had to

see to believe. "I'd read the reports, but I was skeptical," he says. "Then I noticed that the trees with the most soil amendments were the most likely to blow over. I investigated, and all their roots were still in the planting hole!"

It turns out that if the soil in the hole is looser and richer than the surrounding earth, when the roots hit the edge of the hole, they'll circle back for the easier nutrient source. But it's vitally important for roots to spread out. "People think roots grow down. But most grow shallow and wide—so much so three times farther than the branches—and make the tree stable," says Kounk. Spreading roots help the tree survive droughts because they cast a wider net for

groundwater and they draw nutrients from the rich topsoil.

So Kounk changed his approach to tree planting.

Using a digging fork, he makes his hole no wider than the root ball and just deep enough to remove sod and weed roots. He pokes the fork into the sides and bottom of the hole to loosen the surrounding earth and then builds a mound inside the hole that rises 6 to 8 inches above grade and slopes

to the bottom of the hole. After shaking off the soil on the roots and tamping them over the mound, Kounk covers them with 2 to 6 inches of earth. Mulch forms a 2-to-4-inch layer over that soil but doesn't come within 6 inches of the trunk (that would encourage rot). He supports the sapling with two stakes shorter than the lowest branches, and rubber straps available at nurseries. For the first watering, he soaks the mound heavily, but from then on Kounk only waters underneath the ends of the branches, forcing the tree's roots to reach out for moisture. "The wider the roots grow, the less dependent they'll be on your care," he says.

PHOTOGRAPH BY BENJAMIN OLIVER

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CERISE BLOSSOM (CERCIS CANADENSIS)

Prunus: Drooping clusters of purple, tubular flowers in early spring.
Other features: Bark is smooth and gray, turning reddish-brown with age. Small, round, green leaves are 1 to 2 inches long.

Height: Up to 20 feet. **Spread:** 10 to 15 feet.



DOGWOOD (CORNUS FLORIDA)

Prunus: Tidy, upright shrub with white, bell-shaped flowers in early spring, and leaves turn orange in fall.
Other features: Bark is smooth and gray, turning reddish-brown with age. Small, round, green leaves are 1 to 2 inches long.

Height: Up to 15 feet. **Spread:** 10 to 15 feet.



CERISE BLOSSOM (CERCIS CANADENSIS)

Prunus: Drooping clusters of purple, tubular flowers in early spring.
Other features: Bark is smooth and gray, turning reddish-brown with age. Small, round, green leaves are 1 to 2 inches long.

Height: Up to 20 feet. **Spread:** 10 to 15 feet.



MADONNA (ARISTOLICHIA MENZIESII)

Prunus: Drooping clusters of small, white, bell-shaped flowers in spring.
Other features: Bark is smooth and gray, turning reddish-brown with age. Small, round, green leaves are 1 to 2 inches long.

Height: Up to 15 feet. **Spread:** 10 to 15 feet.





CAROLINA SILVER BELL (*HALESIA TETRAETALA*)

Flowers: Small, bell-shaped, white flowers about 1/2 inch long hanging from the ends of the branches. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



HAWTHORN (*CRATAEGUS*)

Flowers: Small, white flowers in clusters. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



RED BUCKEYE (*AESCULUS PAVIA*)

Flowers: Large, red flowers in clusters. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



PRINCE TREE (*CHIONANTHUS VIRGINICUS*)

Flowers: Large, white flowers in clusters. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



COMMON WITCH HAZEL (*HAMAMELIS VIRGINIANA*)

Flowers: Small, yellow flowers in clusters. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



FRANKLINOA (*FRANKLINIA ALBATAMHA*)

Flowers: Large, white flowers in clusters. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



BLUE PINES (*Pinus strobus*)

Flowers: Small, blue flowers in clusters. The flowers are very fragrant.

Other features: The tree is a small, spreading tree with a rounded crown.

Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



BLUE PINES (*Pinus strobus*)

Flowers: Small, blue flowers in clusters. The flowers are very fragrant.

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Height: Up to 20 feet. Mature width: 10 to 15 feet.

Showering orange: Zones 7 to 10



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DIRECTORY

TV CLASSICS, PAGE 104 • PROGRAM SCHEDULE, PAGE 102 • WHERE TO FIND IT, PAGE 136



PHOTOGRAPH BY ERIC ARNE

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FINANCES: SPENDING FOR A RAINY DAY
pg. 70-74

Insurance companies: Chubb, 800-983-2000, www.chubb.com; Firststar Fund, 800-327-5787, www.firststarfund.com; First McGraw-Hill, McGraw-Hill Agency, 814-693-1508, www.mcgrawhillagency.com; Consumer Federation of America, www.consumerfed.org; Insurance Information Institute, 800-331-3146, www.iii.org; Independent Insurance Agents of America, 800-225-7913, www.independentiaa.com.

TALKING SHOP: A CLEAN SWEEP
pg. 76-77

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Tack title: Datto International Inc., 800-822-5724; www.datto.com
Backlog: does collect #426 from Makers USA, La Mirada, CA; 800-462-5492; www.makers.com
Broadband retail vendor: #B3620 from Makers USA
An cleaning system: #W463, \$179, from Penn State Industries, Philadelphia, PA; 800-727-7257; www.penstatesystems.com
Hairline custom shower: ENTHNE from St. Nick's Bath Co., a division of The Howard Jucker Company, Boston, OH; 800-799-1260; www.stnickshower.com
Care clinics re: Dr. George Kiri, INM, Evansville, Ind.; and Kathleen Owen, Kenneth Thacker Insurance.

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no. 89-83

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 American Mule Company, Seattle, WA, 206-936-3748, www.americanmule.com
 Bucklin Slack, Middlebourne, NY, 815 643-1240
 Recycled Slack: South Mountain Company, West Tibury, MA, 508 893-4450, www.smcusa.com
 John R. Ahrens, Chikadee, MA, 508 673-4450
 Horse sales: John Tuley, Sheldon Farm, Monmouth, NJ, 201 897 3615
 Don Charles in Tennessee: Benders, Harrisonburg, VA, 821-434-4477

CHARLESTOWN TV PROJECT:
SEARCH PARTY
pg. 92-95

Architects: John French and Linda Nyschka, Nathaniel French Architects, Clarkstown, MA, 417-242-7422
Developer: Dan Bellina, Buck Bay



"Search Party," p. 32. At the fall TV premiere hour, *True Blood* announces a large audience that will be expected to make room for a set of French doors.

Design Consultants, Charleston, MA
617-884-9898

CLASSIC NOISE: LONG LIVE THE
QUEEN
pp. 100-110

Architect: Charles R. Myers & Company, Cambridge, MA, 617-876-8902, project architect, Don Kearn.
General contractor: Alex Siro, S&H Construction, Cambridge, MA, 617-876-8286.

Interior designers: Andre Berkens, Wellesley, MA, 781-235-7073
Landscape designers: Jane Brooks Landscapes, Cambridge, MA, 617-351-0645
Mailboxes: Woodward Thomson Co., Portland, ME, 207-774-8298
Custom woodcarvings: Mary Woodcarving, Wildomar, CA, 951-311-6166

**NOMEOWNERS' NANOBOK:
TILING A FLOOR**
pp. 112-116

The contractor, Joe Barnum, Porters
Tile, Medford, MA, 781-596-6317.
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Consider that 12% of solid waste could be reduced if everyone who composts.

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The only surviving residence of its style in town, the "Gothic House"—as dubbed by locals—was built in 1849 for John Norriss, co-owner of a local hotel and confidence laundry. The two-story, 2,300-square-foot brick dwelling features an 1820s Queen Anne-style addition containing two bedrooms, a bathroom, and a kitchen. The house was divided into two rental units in the 1970s but has stood unoccupied for the last six years.

Complete interior rehabilitation is a key priority, including an update of the electrical, plumbing, and heating systems. St. Joseph Foundation, Inc. purchased the house in 1995 and will provide floor plans for converting the structure to a three-bedroom, 2½-bath, single-family residence. The group recently replaced some of the brickwork, replaced the roof, and will repair the chimney, trim, porches, patios, and windows for an additional \$35,000.

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