

This Old House

SEPTEMBER 2002

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AOL keyword: This Old House

SEPTEMBER 2000

features



Highly rated and restored by an earthquake, this once proud 1872 Isham house was moved and moved to a hilltop overlooking Monterey Bay. Restored and structurally bolstered, it now hosts an eclectic filled interior to match its exotic exterior. See "A Beauty Reborn," page 124.

Homeowner's Handbook: Installing a Picket Fence 85

An expert's guide to digging postholes and assembling panels. By JEFFREY KELLER

The House Detectives 94

Examining a house's structure to learn its history. By JEFFREY KELLER

Buried Treasure 100

A kitchen remodel reveals a long hidden decorative ceiling. By MAX ALEXANDER

Septic Happens 106

What you need to know about household waste systems. By MAX ALEXANDER

Living Fences 118

From evergreens to bamboo, there are many options for planting a green screen. By GAIL JANE VON THAM

A Beauty Reborn 124

Condemned after an earthquake, a stately Isham house is moved and lovingly restored. By BRYAN COLEMAN

Green Acres 136

The best turf types for your yard. By WARREN SCHWITZ



IDEAS BY PHOT FORD, P. 118



IDEAS BY FORD, P. 118



IDEAS BY A SEPTIC SYSTEM, P. 106

COVER A classic white picket fence defines a well-kept space. If you're taking prearranged guests, urban farms and vegetable gardens are a great challenge. For the best results, see "A Beauty Reborn" on page 124. PHOTOGRAPH BY BRADLEY KANE

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HELP WITH CONTRAST, P. 26

"One screwdriver
can't do it all."

TODD GEORGE, CONTRASTOR



CONTRAST, P. 26

departments

- On the Job** The TOH crew volunteers for AmeriCorps HomeFront Day 16
House Calls With Steve A 1790s farmhouse reappears in charm 22
Ask This Old House Rescue a damaged fence, plumb a specialty floor, more 28
Letter From TOH At the new TV project, "contractors" get a warm welcome 32

columns

- Levities** **Crowning Glory** 34
A semicircular cupola adds light and elegance. By Mark Alexander
Taking Shape **One Good Turn** 40
The screwdrivers carry building should have. By Clayton Kershner
By Design **Standing Tall** 46
Columns don't just play a supporting role. By Jefferson Kelle
Phonics **Get It In Writing** 54
A signed contract is renovation protection. By Jeremy Baumbach
Technique **No Smoking** 60
Tools for problem fireplace. By Dan DiCicco
Materials **Engineered Stone** 66
Tough countertops in colors not found in nature. By Brian Roberts
Technology **Smart Thermostats** 74
The latest in energy saving devices. By Zachary Garsner
Update **Closed for the Season** 78
Shutting down a vacation house. By Emily Richardson
Transformations **A Welcome Addition** 114
A Greek Revival-style house takes on a grand punch. By Laura Jarvis



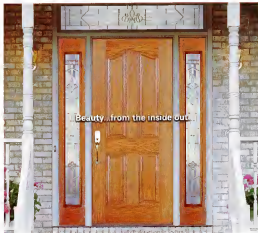
COLUMN, P. 34

plus

Contributors 44 Letters 14 Directory 645 Write to Find It 142 TV Listings 146 Glossary
 Program Guide 190 Save This Old House 194

REPSOL, P. 26

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ON THE JOB

AT THIS OLD HOUSE

Volunteer Army

The crew from *This Old House* lend their time and talents to a homeowner in need

Sheela started digging up the lawn at 7:14 a.m., and a thousand people the Saturday morning crowd. But it was probably the familiar faces of Steve Thomas, Norm Alban, Tom Silva, Richard Treleway, and Roger Cook that brought Flanner Venn's neighbors in Norwalk, Connecticut, out onto their porches to watch, as the gang from *This Old House* laid up her home.

Along with more than 45 volunteers from *This Old House* magazine, the TV show gave up its May 3 participation in the 15th annual HomeFront Day organized by AmeriCares, a nonprofit humanitarian aid and disaster-relief organization. They joined other teams of volunteers from businesses, churches, and schools assembled to pull up a total of 140 Connecticut and New York homes and community centers whose owners lacked the means to keep the buildings from sagging. Through some of the volunteers were students, their enthusiasm raved high with the TV show guys. "The reaction was amazing," says Tom. "And what some of the workers lacked in skill they more than made up for in motivation."

NBC's *Weekend Update* show stopped by, sending a live feed of the scene to viewers across the nation. But the payoff for the *This Old House* team lay closer to home. "Everyone said they got a lot from our being there, but I think we went the other way around the most," says Roger. "It was a group of people told up their sleeves and work that hard has to make you smile."

For more information on AmeriCares, call 800-497-7406.

—Alexandra Rodas



CLOCKWISE FROM TOP: The *TOH* crew gather outside Steve Alban's project house in Norwalk, Conn.; Richard Treleway and Tom Silva visit the home of another AmeriCares homeowner; Tom repairs a roof and window while Steve Alban installs a new bathroom; Steve Thomas prepares a front entry for a first visit of parent, Roger Cook teaches seven-year-old Justin Perry the art of bricklaying.



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ON THE JOB

BEFORE & AFTER

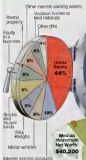


on have a permanent mobile residence. By adding one (and a 1/2) sq ft of place of the original mobile home, the 10-year old mobile is now a new house. The new house is located in the Westwood, New York, townships of Westwood and Albert McElroy Jr.

and a more traditional facade. Also making the entry more welcoming is a new front door, flanked by gracious porch columns and six over six windows. —Dan Gilmore

Home Sweet Home

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September 2002
This Old House
First and
Appearance
C. Linder

STEVE THOMAS
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Conference, Asolo
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Home Show
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Ball Corporation Center
Newark, DE October
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delawarehome2002.html

REWARD FOR TIPS

with a home-improvement task or showcase up ispound is dollars a cash reward? Then get out the good old paper. It's raining in Sand Dollar County, Calif. To choose the best one, or money-saving tip that also makes the completed project. To enter, submit your original idea in 100 words (photos and drawings are optional) by September 30. The winner gets \$2,500 cash or a week away at woodworking school, but take note: The contest is only open to home-fido do-it-yourselfers, so professionals need not apply. (Perry, N.C.) For full details, see Directory, page 141. —D.D.

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GRAB LIFE BY THE HORNS



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"STAY AT HOME
MOM?"

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Taking Piss Jaws
Thermocouple explosion has inspired method for making a mild flammable gas.



Before this part is in layout along a wall, which may not be straight, determine the room's focal point, the predominant feature you see when you walk in—be it a bank of windows, a bay window, or another doorway—and find its center. Run a string line out that center point perpendicular to the wall and use that as your starting line for the first row of tiles. Lay the row as flat either a grout line or the center of the tiles themselves, follows the string. This technique works for any flooring layout, from ceramic and linoleum tiles to hardwood planks. —D.D.

IT'S STANDARD PRACTICE to check a consumer's references, but finding downy post-therapy clients can be difficult and time-consuming. The Franklin Report, a regional "reader's guide to home services," checks the references for you, if you happen to live in New York or Chicago (Editors for Los Angeles and Johnson, among other locations, will be touched on in the coming year).



Must-read also the popular Zagat's restaurant guides. The Franklin Report—available in book form and at www.franklinreport.com—dishes out our views of local readers in nearly 40 categories, ranging from plumbing to architecture. Clients are sick on quality, cost, value, and how highly recommended they come, and these offer individual assessments

Some of these firsthand approaches look dismal, and there's little in the way of clever literary—no “They ruined my home!” for instance. Still, the guide is a valuable home-owners resource, especially for anyone who’s ever had to ask, “Can you recommend a good air-conditioning resource?” —D.B.

HAD ONE
HOMECOMING



MR. FIX-IT, DO YOU READ ME?

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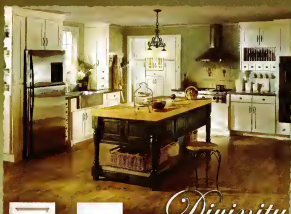
They've come up with a two-way transceiver device that'll send you expert help whenever you're stucked to tackle a fix-up project.

Using the same wireless Web technology that sends e-mail to your cell phone, the company has created a prototype for the "central home-environment assistant."

a small headset and app-based pocket-chip camera that will connect you to a remote professional, who watches you on a monitor and talks you through your task.

Though as yet they have no members lined up to license the technology, Accurate hopes that the "assurance" will be on the market within a couple of years. Then it will give contractors a whole new way to bill you while they up their morning coffee.

—A.B.



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1998-1999
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1997

HOUSE CALLS WITH STEVE



Heart of the Home

A 1780 farmhouse kitchen recaptures its old-fashioned charm

W

BY WEATHER SMITH MULLISARD

Inside the clayboard exterior of Lee and Mike Miller's 1780 seaside Cape in Toronto Heights, Maine, was in good shape, the owner needed upgrading, from the outdated lighting, plumbing, and electrical systems to the midcentury 1970s kitchen. The couple planned to install the kitchen of their dreams. To Mike, a personal home favorite, that meant a room evoking the house's 18th-century roots. Lee longed for a kitchen built around a French case with AGA cookstove like the one she had grown up with.

They turned their ideas over to kitchen and exterior designer Jon Storratt, who led the Millers to a secondhand AGA, which was priced as a "steal" \$9,000 compared with a new AGA's \$15,000. "Normally, it's not advisable to let a secondhand appliance have so much design influence, but the AGA is an heirloom-quality range that brings the appeal of an old-fashioned case even more to the kitchen," says Steve Thomas, host of *The Old House* (seen above right with Mike and his baby son).

Much to the couple's delight, skipping away the 1970s additions revealed original pine beams and walls with stand-pipe waterlogging. An island of custom topped with green granite balances the girth of the stove, and provides counter and storage space around a new sink. A built-in butcher block work surface dropped down several inches is both a baking counter for Lee, an accomplished pie maker, and a serving buffet for the kitchen table.

Family life centers on the crackling hearth—the 10-year-old AGA, whose coal fire (new AGAs have gas burners) is never turned off, to maintain an efficient radiant heat. In constant warmth is a nook in Maine, where cold days for counterpane warm suit. "This is a real Yankee farmhouse kitchen," says Steve. "It's practical in its choice of materials, open and historic in style." The successful renovation, which cost about \$70,000 (including the AGA), is proud that a kitchen can be functional by today's standards and still retain its inherent charm.

PHOTOGRAPHS BY SCOTT DORRANCE



The very industry and efficient 1970s kitchen (seen left) never faded out of place in the 18th-century farmhouse (seen left). The new kitchen blends original exposed beams and country-style shiplap, but it's the cast-iron stove that gives the room its homey feel.

A room searching for personality
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expert in the orange apron showed me



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HOUSE CALLS WITH STEVE

before: The old kitchen was poorly organized, with the work area jammed in a corner that also accommodated the main entry. The sink occupied the best spot, looking out over the back yard, but that left the eating area deprived of the view.

after: The new design plan separates the work and dining areas with an island, while providing counter and storage around a sink. Diners enjoy the view through an enlarged window, a new entry room houses a second sink and pantry.



In the entry room off the kitchen, a second sink, made of antique soapstone, handles heavy-duty jobs, such as flour sifting and fruit cleaning. Built in cupboards flank the sink provide extra storage for canned and dry goods. The historical paint scheme—highway, slate, mahogany, and ebony—are repeated in the project. The design of the door was reproduced from one in a 17th-century house.

A section of blackboard slate, salvaged from a historic schoolhouse where Lisa used to teach, serves as the family's message center. A painted wood enclosure with traditional metal panels, which frames the blackboard and houses the refrigerator, helps define the open eating area.

THE AGA COOKSTOVE

AGA cookstoves have warmed British kitchens since their introduction back in the early 1800s. These massive cast-iron "castles," as they're called in England, have around the clock, warming the room with a gentle heat and offering a range of cooking temperatures. The cooking features a warming plate plus a boiling plate and a steaming plate, which are covered by insulating lids when not in use. Each of the four separate ovens is dedicated to either baking, roasting, warming, or simmering. Some older AGA cookers, like the one in the Miller kitchen (see above, right), burn coal, but coal-burning AGAs are no longer made. In North America, new AGA cookers burn natural gas or propane (oil-burning and electric models are available in the UK).



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HOUSE CALLS WITH STEVE

IDEAS NOTEBOOK: MESSAGE CENTERS

Whether it's a simple chalkboard or a talking fridge, every kitchen needs a place for notes, lists, and daily reminders. "When planning a new kitchen or renovation, it's a good idea to dedicate an area for this purpose," says Steve Thomas. "Keep it outside the bundle of the work triangle, in a place where everyone will see it. While the refrigerator is a popular high-visibility spot, you might also consider incorporating a bulletin board or chalkboard into the cabinetry." (See page 24.) Of course, a pad and pencil by the phone works too, but as you can see from the new offerings here, the fridge still reigns as command central.



Handsome magnetic clips from Qor are perfect for posting notes on the fridge.



Magnetic chalkboard panels from Paper Design Products are easy to install or remove before an attractive message comes.



Whiteboard blackboard perfection: Bergman House makes an attractive surface for writing, drawings and white visual interest in a kitchen wall.



A flip-down chalkboard like this one from Annetts, from the coauthor and holds a chalkboard, notepad, and pencil.



Annetts's smart refrigerator not only enables you to leave warm messages it also lets you know if the fridge door has been left open accidentally.

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Ask THIS OLD HOUSE



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Host



TOM SILVA
Co-Host
Contractor



RICHARD TUDABARTER
Plumber
Plumbing Electrician



ROGER COOK
Landscape Architect



MARK ADAMS
Mechanical Contractor

CONSTRUCTION-DAMAGED LAWN

We've made a number of changes in our front yard over the past couple of summers—removed several large trees, rebuilt a stone wall, and added a bluestone walkway. The work was hard on our lawn and we've repaired the obvious damage, but with all the trucks and tractors driving around out there, I wonder if the soil has been packed down too much for the grass to grow. How can I tell?

—M. STEVE THOMAS, Sellersville, Penn.

Roger Cook replies: You're right—construction traffic is hard on lawns, even when it doesn't actually tear up the grass. You can pretty much assume that your lawn has been compacted, making it hard for roots to get air and water. If heavy machinery isn't the only culprit, compacted soil can turn soil as hard as pavement! You can tell whether your lawn is compacted by pushing a long screwdriver into the turf. If it doesn't easily slide in more than 12 inches or so, the soil is too dense. Slow-draining soil is another sign of compaction.



Roger Cook restores compacted lawns with a core aerator, the best fix for dense, slow-draining soils.

EDITOR'S NOTE

Welcome to Ask This Old House. Starting this issue, we're broadening the Ask Team column to include answers from all the experts at This Old House. You'll find the same great solutions for real-life problems, but on average under a range of topics. And don't miss our debut of our new TV series by the same name—Ask This Old House—premiering October 30 on PBS.

—MARK ADAMS
Mechanical Contractor

To correct this problem, you'll need to test if core aeration is the sure way to get the kind that removes spent plugs of earth from the lawn and creates loose soil over the grass. The holes it leaves behind provide a way for air and water to reach the root zone. Grass needs all the help it can get. The plugs disintegrate away after a month or so.

Core aeration is one of the best things you can do for a lawn, even if it hasn't been done over. I run the aerator over the entire lawn in one direction. Then make a second pass at 90 degrees to the first. Immediately afterward, I top-dress the lawn with 1/2 to 3/4 inch of aged leaf compost. If you don't have a compost pile, get it from a garden or local recycling center. I apply compost with a spreader if I can, but if it clogs up, I use my hand to flick the compost off the end of a flat shovel. Next, I scratch it around with a steel rake so it doesn't just sit on top of the grass. In areas where drainage is poor, I add sand.

Aerating is best done in the fall. In the spring, it encourages anaerobes. If you scratch and top-dress every fall for three years, you'll notice a substantial improvement in your lawn.

SQUEAKY FLOORS

The floors in our one-story house squeak. The noisiest when I'm in the basement, but there's no noise coming between the joists. Will the squeaks stop if I add cross bracing?

—MICHAEL GARY, Chesham, N.J.

Tom Silva replies: Probably not. Cross bracing—also called bracing—stiffens the floor and helps prevent joists from twisting. The reason most floors squeak is because either the finish floor or the subfloor is loose and rubbing against a pegged nail, not amount of cross bracing will fix these problems. Instead, you have to tighten up what's loose by bracing or screwing the floor back to the joists.

To pinpoint the source of the squeaking, have someone walk around upstairs while you're down below watching and listening. Have with you a drill with a bit slightly bigger than the shank of a 2x4-inch screw. In every spot where you hear a squeak and see the subfloor move at the same time, drill a pilot hole at a 45-degree angle into the side of the joist. It's easier done from the underside of the floor. Do not drill into the subfloor.

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Now have your buddy stand in that place while you draw a 2x4 inch screw into the joist hole through the subfloor and pointing into the finish floor (Joist is with care, you don't want the screws to go through the finish floor, or into your neighbor's head.) Driving another screw at the same angle through the other side of the joist should stop any further moisture wicking.

By the way, it's not unusual for a house to not have crown molding. Some building codes don't require it unless the joints are bigger than 3/4". On spans greater than 7 feet, I like to put solid planking the same depth as the joist down the center of the span.

ISLAND COOKTOP VIEW

We'll soon begin construction of a new home, which will have a



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timbers with an electric cooktop on a large island. The problem is as the kitchen will open to a great room, and the ceiling above the island will be about 11 feet high. We'd like to maximize the visual impact of the island, so the underside of it can be made of something clear, like glass or Plexiglas. I stumbled on a design and showed it to the custom designer at our local home center, but he said it might cost as much as \$15,000 to custom-build! Could it really be that expensive?

JOE SARRAS, MARYKIL, CALIF.

Steve Thomas replies: That doesn't sound any out of the box for a custom build. But since you haven't tried it and doing it something you'd rather not see, why not use an off-the-shelf standard vent hood? Some versions mount into the counter immediately behind the cooktop and simply pop up when needed, others are of integral part of the top. You'll have some additional space underneath to exhaust piping, and you won't capture all the steam and grease that your cooking generates, but you can't beat these units for their almost visual impact.

For what it's worth, if I were my kitchen, I'd move the cooktop off the island and place it against a wall that could accommodate a standard overhead hood and a proper backsplash—what would also keep the cooking steam out of full view. I put a hooding island in my kitchen, and I wouldn't do it again.

DOOR LEAKS

We live in a new Cape with cedar clapboard siding. When it's raining or through the exterior door in the gable end of our garage. I replaced the door's bottom gasket, caulked where the door frame meets the siding, sealed the seal on the door's glass by squaring it with a plane, and checked to see if the flashing above the door was installed properly. But no matter what I do, a small amount of water still comes in when it rains. Maybe a small overhang would help—can you tell me how to build one?

DAVID WILSON, INDIANA

Norm Abrams replies: A door on the gable end of any house is susceptible to leakage because the rains are too high to shelter it. But an overhang isn't usually the solution—that's more for sheltering someone fueling for kays on a rainy day.

Squirking the area with a hose is pointless. I've used that technique to try to find leaks in doors and windows, but no matter how much water I threw at them, I couldn't recreate the problem. Instead, see if you can pinpoint the

1 weatherproof door opening

Weatherstripping seals the door opening.



location of the leak by handing inside the garage the next time it rains. If water is coming in between the threshold and the bottom of the door, maybe the weatherstripping there isn't adjusted right or is damaged. Or maybe the water is flowing through the joint where the threshold meets the doorjamb. Caulk and a storm door will help in those cases.

But if water is entering beneath the threshold or between the door's jamb and framing, caulk and a storm door won't fix the problem. I'd be willing to bet that there's something wrong with the installation—properly hung exterior door shouldn't leak. New houses would

be better off in the long run if you remove the door along with its casing and properly waterproof the opening, as shown in the illustration at left. You'll need to remove the nails near the ends of the casings and trim the casings closely above the door opening. That way you can slip strips of builder's felt behind them.

Before removing the door, slip in the felt and flashing for the head casing and bend them up. Then apply a thick bead of caulk/mastic along the ends of the siding. After the door is put back, trim the felt flush with the head casing, lay a bead of caulk, and bend the flashing down into it. All that's left is to seal the ends of the siding. And that should be the end of the leak.

2 flashing after door is installed

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MYSTERY SHOWER LEAKS

Whenever anyone takes a shower in our bathroom, I notice water leaking onto the basement ceiling below. The leak doesn't start right away, but a few minutes into the shower. We had the ceramic tiles on the shower floor reglazed and then replaced the first couple of rows of the wall tiles, but that only helped for a few months. The shower pan is fiberglass, and one plumber told me it's part of the problem. Does that sound right?

Rene Esham Rasmussen, South Spring, Mo.

Richard Trethewey replies: Fiberglass isn't the best substrate for cement tile, adhesive doesn't stick to it very well and it can fail if installed incorrectly, causing the tiles or the grout to hold to cracks. Even so, the

pan shouldn't leak unless it's cracked or there's a problem with the way it's embedded to the deck. To find out, remove the drains, step up to the drainage, and fill the pan with water (it might help at this point to cut a hole in your basement ceiling to see if water is coming out.) If it leaks, you'll find out the pan isn't set and start leeching. preferably with a new shower floor made of pressed concrete or top-of-the-line acrylic, or while not in a thick bed of mortar applied on-site over a waterproof pan.

If the pan isn't leaking, and you're sure water isn't getting around the shower door or curtain, perhaps the drain itself is the culprit. Remove the plug and pour water directly down the drain through a funnel while someone stands in the basement with a flashlight looks for drips.

Noise? The valve or the supply lines leading to the showerhead could be dripping. Inside the wall cavity, turn on the shower and catch all the water in a 5-gallon bucket. If it leaks, appears, you'll have to go through the other side of the wall to make the necessary repairs.

If all these tests fail, water may be getting behind the-Houston plate, the waterproof that surrounds the valve handle. A plumbing supply store may have a gadget to fit it. It not check the seal between the pan and the valve. If it's also possible water is penetrating long cracks between the wall tiles, which means you should repair where necessary or when the entire stall

TWO-PIECE MOLDING

The headboard in our house consists of two pieces of wood, a flat lower piece about 4 inches wide and a top piece with a curved profile. We were beginning to snap joints off it when we noticed that the joint between the two pieces is opening, up in places. Should we remove the molding? And if we do, how can we reattach it to prevent the joint from opening up in the future?

Robert Turner, NY 14460

Tony Illi's reply: If the lower piece is solidly attached, I wouldn't mess with it. Besides, it should be fairly easy to strip in place using a saw-fume chemical paint stripper. You might not need to remove the upper piece—they may be loose anyway—so you can take them to be stripped in a container if you think. Use a couple of bits, with pry bars to gently lever them off the wall and a pair of pliers to pull out any embedded nails through the back of the molding. (This will cause less damage than if you try to knock them out the way they went in.)

After the paint is off, prime the front and back of the upper piece and the exposed edge and face of the lower piece. Then nail the upper piece into place, using old finish nails driven into the studs at a 45-degree angle—just driving into plywood is preferable. If the joint between

the two pieces is a simple butt joint, conceal it with a thin bead of paintable acrylic latex caulk. But if the top piece overlaps the lower piece slightly, you won't need the caulk.

STAINED STUCCO

We own a magnificent 1936 Tudor-style house, which we've been restoring for five years. But there's one nagging problem we can't seem to solve: The impregnated stucco exterior is stained in many areas, and a previous worker with a house cleaner hasn't helped. We're reluctant to guess (we don't want the next homeowner, and even if we did, we'd love to remove the stucco anyway. What do you suggest we do?

Dennis Winkler, Richmond, N.Y.



The window stains under the eaves of the Rochester, N.Y., house should disappear after applying a bleach-activated house cleaner.

Jim Clark replies: Judging by the color and location of the staining, I'd bet that you're dealing with mold, which is prob-

ably common under eaves. Pressure-washing with a house-cleaner generally removes it, so I'd guess you either used an ineffective cleaner or didn't use it properly.

When we clean stucco, or other kinds of masonry, that matter, we use a concentrated cleaner designed for exterior use only, such as Jomax, and activate it with household bleach. After spraying any nearby plants with water to protect them from the chemicals, I mix the cleaner with bleach following the directions on the cleaner bottle and squirt the solution on the walls using a pump sprayer. After the stuff has been on for a few minutes, I gently scrub it off with a pressure washer, starting at the top of the wall and working down. Don't start away with an aggressive nozzle or you could end up damaging the stucco surface.

Although I'm in the business of painting houses, I share your reluctance about painting stucco: you'll have less maintenance and expense in the long run if you leave it "raw" and finish it regularly.

Jim Clark, a painting contractor in Sudbury, Massachusetts, posted the last two "This Old House" projects. ■

Send questions to Ask This Old House, This Old House Magazine, 1183 Avenue of the Americas, 87th Floor, New York, NY 10003, or e-mail: askTOH@thisoldhouse.com

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Crowning Glory

A windowed cupola adds interior light and exterior elegance

WHETHER homeowners want to bring light through the roof, the native solution is a skylight. But skylights rarely

are anything but a modern intrusion and look glaringly out of place on a historic home. The old-fashioned way to open up a roof and illuminate the space below was to crown the ridge with a windowed cupola. In terms of traditional architecture and elegance, you could think of the cupola as the royal crown to the crown contains diamonds. A windowed cupola lets in far more light than a dormer while creating an elevated vantage point that looks both indoors and out. On the exterior,



cupolas lend distinction and interest to the facade. But building one can cost a \$1,800 and up, depending on price, while skylights can be installed for as little as \$500.

Consequently, the window cupola has fallen into the style bin. But sometimes a cupola provides just the right design solo too during a renovation. When San Francisco designer Lisa

Cupolas, shown here in a variety of styles, add a home like a *finch's* hat.



Ann Bauer needed to bring more light into the lofty remodeled kitchen of an 1879 farmhouse, she turned to a windowed cupola. "The kitchen has such a big cathedral ceiling," she says. "The cupola lets your eye go outside to nature, it's a very friendly way to light the space."

Located in Calistoga, California, a town known for its hot mineral springs and mountain views, the farmhouse is surrounded by vineyards and cooler forests. When owner Linda Marie Bauer (the designer's mother-in-law) looks up from her sight barrier La Crosse room, she sees the tops of Douglas firs through the cupola. "It allows natural daylight to gently filter around houses off the walls," says Linda Marie. "I really can't imagine when it would be like without a."

It would be dark, for one thing. Calistoga gets less in the context, so most of the kitchen's windows are on the north side. Plus, the town's 1,200-year-old outdoor made-roof hood light have left exposures under an enclosed ceiling. "We wanted to open up the kitchen," says Lisa Ann.

The house's windowed cupolas were mostly simple and square, says architect Art Sanders, whose firm, Hoffman Architects, restored the clip-on cupola on the Chapel House in Washington, D.C. Because the Cal-

istoga kitchen has such a long roof edge, Lisa Ann came up with a rectangular box measuring 31 feet by 65 feet. In keeping with the home's historic Victorian style, she had oval windows custom-made for the cupola's 4-foot-high gable ends. All the cupola's double-glazing is fixed—Linda Marie's one regret. "If we were to change one thing, it would be to have windows that open," she says. That's a good idea, because glass-enclosed cupolas naturally add heat to a house in the daytime, "though not the extreme heat or exposure in UV rays you'd get from a skylight," says Sanders. If Linda Marie had opted for operable windows in her cupola, she could have opened and closed them with the flip of a wall switch or by pressing buttons on a hand-held remote control.

In planning the Calistoga cupola, the most important consideration was safety, a common mistake in adding a cupola that's too small. "You can't design a cupola by standing on the ground and looking up," says Lisa Ann. "Things always look bigger on the ground."

Lourence Zechmeister agrees. In the 25 years of his Michigan-based business he has designed and installed hundreds of cupolas around the country. Each project begins with a scale drawing of the home's exterior

The four-sided cupola (above left), topped with an antique weather vane sitting in the house, adds a charming detail to the exterior of the Calistoga farmhouse (above right) and makes the walls of the kitchen (above) wash lots of natural light.



PHOTOS: THE HOUSE REMODELING SPECIAL; CUPOLA: LISA ANN BAUER; CUPOLA: LISA ANN BAUER; CUPOLA: LISA ANN BAUER; CUPOLA: LISA ANN BAUER

BY MAX ALEXANDER



"A cupola should look like an integral part of the roof, as if it grew there, not like a hard-hat perched on top," he says. "In order to do this it has to be proportional to the gables, the dormers, the pitch of the roof, and any surrounding trees."

Zachwaser says most any house style, from a simple ranch to a stately Georgian, can accommodate a cupola as long as its design is in keeping with the architecture. A custom cupola like Linda Marie's costs in the range of \$5,000; larger, staged design pieces such as Zachwaser's can run as much as \$20,000 (though pre-fabricated versions can be had for much less).

Because wind-dosed cupolas are large (averaging 3 to 5 feet in length and 24 to 48 inches wide) and sit atop the roofline, they must be installed carefully to keep from compromising a home's structural integrity. "Your ridge is tying the house together," points out Ken

Architect Peter Calhoun employed a wind-dosed cupola to bring additional light into the great room of a newly constructed home in Maryland. He also incorporated a cupola into the design of a New York City-style house (above). It also atop the two-story garage.

Sawyer, the contractor who built the Calhoun cupola. "So if you're thinking of building one, it's best to consult a structural engineer to make sure that the house being considered is up to the job."

As the crowning touch on a house, says Zachwaser, "the cupola should add a mark of distinction that enhances your home's beauty. If it draws eyes and raves, then you know you're done it right." ■

EARLY BEGINNINGS

Cupolas date back to long before the Victorian era. In Renaissance architecture, for instance, they were often cylindrical and mounted on domed churches. But the four-sided American version grew out of barn design.

Cupolas began appearing on American barns in the 1600s, according to Lee Fessell, an old-house historian and restorer in Maine. As agriculture became more efficient, barns got bigger, says Fessell, "and they started to require light and ventilation. The first cupolas mounted away heat and stale air through beamed slats; then they went to wind-dosed cupolas that pushed open from the bay side." Periodical cupolas likely served as "air conditioners" and lookouts. They were often used on New England seaport houses, where the cupola, known as a lantern roof, could be accessed by a stair and offered a view of incoming ships.



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One Good Turn

The screwdrivers every toolbox should have

HAND DRIVERS

For do-it-yourselfers around the house, a selection of manual screwdrivers will do the trick. From left: No. 2 Phillips round driver; No. 2 and No. 3 both slotted drivers with soft grip handles; magnetized No. 2 Phillips round driver with ergonomic rubber handle; No. 3 square-head driver with ergonomic rubber handle and magnetized 3-inch slotted driver with ergonomic wood handle.

Given the vast array of screws in a house—slotted, Phillips head, and square drive, in multiple widths and lengths—every homeowner needs to keep an assortment of screwdrivers at the ready. “One screwdriver can’t do it all,” says The Old House general contractor Tom Silva, whose collection numbers in the dozens. For most quick fixes, a hand driver—simple, multipurpose, and snagging—can do the job nicely. When stocking a toolbox, it’s a good idea to have a couple of each, for a range of tip styles and sizes. Go for ones with soft, ergonomic handles, which decrease hand fatigue while increasing leverage. Avoid handles that are too wide to hold securely or so narrow you have to clutch them in a tight fist. And use for quality: “Top-of-the-line screwdrivers are less likely to bend and break under pressure. Following is an overview of driver choices, including power models suitable for everything from jacking a picture to framing a deck, and Tom’s tips for the right way to use them.



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BASIC BITS

• SLOTTED

Slotted covers are available in widths from 7½ inch to 7 inch. Choose one with a blade that spans the entire slot and also tapers to its precise thickness. The blade is too narrow. It's likely to slip out and disfigure the surround.

REFERENCES

Phillips' clients are numbered in place from 1 to 4. Examine the lip closely: sometimes some carriers have slight variations in the corns faced dog's lip. A Poodle's lip, for example, has a blunt end, while a Toyman, point has a narrow, Whippet-like

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Eight-drive 314440-0000 is rated from 0 to 4. Preferred for power sliding, the square looks the driver is the corner making it less likely to slip or come out," under pressure.



a screwdriver for every job



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Many skilled ironworkers have all the tools in the bag the hole in the railing during use. However this new entry prevents the tool from reaching into a workpiece. For woodworking, use a cabinet tip block which has a straight shaft and can drive or remove screws recessed beneath the surface.



PATCHNET

A padded sleeve, which holds the hat in place while you burn. For inside neck fit, comfortable-fitting padding works well in light quarters where you can't see to regulate the glove with mouth burn. For the most versatility, choose one with a T-barrel and elastic ties.

INTERNET-RELATED

A low-target portable device is handy for hanging pictures, installing curtains. Or assembling furniture. Most are available with 2 H and rechargeable batteries. But this model from Iglo sure ain't ordinary. At bedtime, which means it doesn't have to be charged before it's ready to be used.

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High-torque drivers lend a hand with more torque than a power drill with a screwdriver bit. A cordless 1/2-in. model will provide more than enough power to make the required driving lots of screws, such as fitting a deck. Even a 1/4-in. tool will suffice for the majority of jobs around the home. Important features are variable speed for starting the screws easily and an adjustable clutch to prevent over-tightening.



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Abstract

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power screwdriving

drilling a pilot hole

Tapered wood screws can split a piece of wood before driving the screws, and a pilot hole helps a lot. But for a counterbore, which creates a recess for the screwhead, you'll need the best loading power. Choose a bit diameter slightly smaller than the screw shaft, at about 45 degrees.



setting the clutch

Always set the clutch when using a drill driver. The clutch disengages the spindle from the motor at a certain maximum torque, eliminating the possibility of overdriving a screw, splitting the wood, or stripping the screwhead. To find the correct clutch setting for the material you're working on, make a few test runs on a piece of scrap.



driving the screw

The hardest part of using a power drill driver is keeping the bit aligned with the screw. Before turning on the drill, move the tip of the screwhead to get a feel for how it reacts. Then, lower the bit, clamping it against the wood, which means the bit is not seated properly. Stand with your shoulder directly behind the drill to keep it as level while working enough force to drive the screw forward.



hand screwdriving

Before driving a screw, make sure you use a tip that fits perfectly into the slot, cross, or square. When a smaller tip fits in a larger drive, the rotational force won't be spread evenly across the screwhead and may strip it. When using a square tip, hold the screwdriver in line with the screw and your elbow as you push and turn at the same time. Make sure your weight is balanced and centered behind the screwdriver so you can exert maximum force without straining.



TOM'S TIPS

• PROTECTING BRASS SCREWS

Soft brass screws are extremely soft and difficult to drive without dulling the heads. To avoid marring them, always drill a pilot hole—make sure the bit is the correct size, and set the driver on a low speed with a light clutch setting. You can also drive a steel screw into the hole first, unscrew it, and then drive in the brass screw.

• DRIVING INTO HARDWOODS

Even with a predrilled pilot hole, it's difficult to drive a screw into some hardwoods. A little benzoin oil on the screw threads helps work it in—just be careful to keep benzoin oil from getting on the surface. If the wood will be stained or clear finished, don't use benzoin oil; it attracts moisture, which can cause rot.

PHOTO: JIM HUNT (P. 2) BY COURTESY OF DISCOVER

PHOTO: JIM HUNT



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Standing Tall

Columns can decorate a facade and play a supporting role.

Columns have graced public buildings and private homes since ancient times. Rising up elegantly, decorative columns call attention to themselves. Sometimes columns are structural as well as ornamental, supporting a roof, a floor, or a building facade. The aesthetic effect can vary. A row of columns adds formality to a building, while a pair points out an entryway or key detail. Although the classical designs of ancient Greek and Roman columns are as popular today as ever (see "Classical Columns," page 11), don't feel bound to build the expected. Eighteenth-century column shapes have evolved since the days of the Parthenon. Late-19th-century Shingle Style buildings featured stone or stone-glazed columns, and the porches of Craftsman bungalows often rested on dramatically tapered, pyramidal wooden columns.

On a house designed by New York architect Dennis Woodhull, columns around the porch's perimeter make the roof above appear protective and welcoming.

BY JEFFERSON KOLLE

PHOTO: GETTY IMAGES/STUDIO CITY; PHOTO: JEFFREY M. HARRIS

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The geometric emphasis of Johnson looks at home in a variety of architectural styles. The dramatic tower of the porch columns (110), LEFT AND RIGHT, is a simple house redesigned by architect Dennis Wolfelt under their approval after their shared battle. At the 2001 project (111) in Mendocino, Calif., columns made from red stained polymer formed around a galvanized steel pipe (not support and granular to the Shingler style house). A double height row of square columns in a Greek Revival house (112) is reminiscent of the ancient temple. Square columns blend in with a modern house, while round ones stand out.



PHOTOS COURTESY OF JOHNSON, LEFT: COURTESY OF DENNIS WOLFELT, RIGHT: COURTESY OF DENNIS WOLFELT

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Get It in Writing

A signed agreement with your contractor is the best protection against disappointment—or worse.

In San Diego, big news are precious, and Judy Casella would do anything on her location overlooking the ocean near of Point Loma. So, in mid-1999, she and her husband decided to add a third-floor master bedroom suite and a pair of decks to their two-story Mediterranean-style home. The contractor—well known locally for his frequent radio advertisements—told her the project would cost \$107,000 and be completed within three months. Casella eagerly signed the contract he gave her and paid him the requested \$30,000 to get started.

Casella didn't know that in California it's illegal for a contractor to ask for a down payment of more than \$1,000 or 10 percent of the job, whichever is greater. That wasn't the only red flag: Things began to go wrong from the scheduled first day of the job, when the contractor called to say that he couldn't get the lumber and would have to delay the project a few weeks. Then, during construction, workers ran the way all the gas water heater, which allowed carbon monoxide gas to escape into the house. Following that, the builder started the plans and framed the addition 1.5 inches taller than any codes allowed. Before it could be fixed, and while the roof

Rubber ducks

are just as important as china vases.

Jeanine Johnson LIBERTY MUTUAL SENIOR SERVICE REPRESENTATIVE



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was still open to the elements, the water runs **unrestrained**, soaking roads of the Corridor' possessions that weren't in good use.

Now, three years and a second \$30,000 payment later—and with the addition of an unfinished—Cortello is taking the contractor to court. “We messed up,” she acknowledges. “We asked a local contractor that had no firm specifics about what we expected from the project and how we would be protected if it didn’t work out the way we wanted. Then we ended up doing ourselves a big bad.”

Scenes like Cottrell's make real estate and construction professionals shudder these days in homeowners—mainly because of how common they are. Although a home remodeling project ranks among the biggest expenditures people make in their lives, in most cases the contract is little more than an afterthought, if it's considered at all. But a solid contract can be the closest thing to a mine mine that the job will ever see.

at the homeowners' expense. "People will pay \$100,000 for an addition, but paying for an attorney and taking another week or so to make sure the consequences are covered are often considered a waste of time," says

A contract doesn't have to be complicated. "You could just say—hey, I want \$1,800—a simple one-page agreement that outlines the project, schedule and cost should be sufficient. But even for big jobs, a handful of basic provisions is all it takes to protect the homeowner if something goes wrong with the project or, worse still, if the contractor flees the law. Many construction companies alter their own versions, and local bar associations or the American College of Construction Lawyers, in Washington, D.C., can help foreign investors in good areas who specialize in construction matters. But whether using pre-written contracts or

was made, backed by receipts. As for the final payment, "projects that go smoothly should add up with the homeowners saving about 5 to 10 percent, which should only be paid after he's examined the job thoroughly and is happy with it," says Mark Buck, who runs Bickel General Contractors, in Glendale, Wisconsin, and is president-elect of the National Association of the Remodeling Industry.

INSURANCE DOCUMENTS

- **Prove that the contractor is carrying out personal liability, workers' compensation, and property damage insurance.** Ask the contractor to attach copies of coverage certificates to the contract. This section of the contract should also provide a waiver that frees the homeowner from responsibility for any loss the contractor is incurring from the project. Surety bonds and so-called mechanic's liens, which contractors or suppliers who weren't paid if it should be specifically cited in the contract.

OTHER ESSENTIALS

- A **hazardous-waste** clause that establishes who is responsible for testing for materials such as asbestos and lead-based paint and



who will take care of removing anything that is found. Generally, contractors don't have expertise in this area, so it's often up to the homeowner to hire an environmental specialist. This previous problem both the homeowner and the contractor from the unexpected discovery of toxic substances after the job begins, which could cause delays and disagreements about who foots the bill.

• A guarantee system, which in most cases covers defects in the teeth and workmanship for a year after completion of the project. This should be the name and address of each company guaranteeing its portion of the job—subcontractors as well as manufacturers or distributors whose products are used.

acts were used. "This helps ensure the quality of the job while giving the homeowner some leverage if problems arise soon after the work is completed," says Elisabeth Gutman, an attorney in the Pomona, New Jersey, office of Seal Faring LLP.

- The procedures for handling change orders, which are alterations in the project requested by the homeowner or the contractor after work begins. Because changes affect so many critical aspects of the project—including fees, materials, extent and time, and design—change orders should be very specific with regard to the scope of work.



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FINANCES

and the additional cost, and be signed by the homeowner and the contractor.

• **Miscellaneous points** such as the approximate time workers will arrive and when they'll leave, how often the general contractor will provide a free-to-free progress report, how debris will be removed, and who will get all the necessary building permits (usually this is the contractor's responsibility). Also frequently included in this section are more tidily stated, whether the workers can use back rooms or places in the house, if they're allowed to put their ladders in the refrigerator, or even if they can talk to the kids or pet the dog. However, be mindful of the impact these requests can have on the contractor-client relationship. "If someone asks us when my people are going to eat and what time they risk their breaks and whether they are going to shut after every job, I'd probably pass up the opportunity to work for that customer," says Anthony J. LaPrade Sr., president of LaPrade Home Improvements, in Niles, Ill.

TOM'S TIPS FOR CHOOSING A CONTRACTOR

While fixed-cost contracts are the most common, they are not the only option. Tom Alvin, TDV general contractor, prefers to operate on a cost-plus-fee contract called time-and-materials-plus-fee, with a price cap agreed upon with the client. For each phase of the job, he provides a detailed cost estimate that includes his hourly fee and progress, he reduces these figures if necessary. "That way, there are no surprises at the end," Tom says. "It gives the homeowner security and confidence in the work, and it gives me flexibility." This way to making this arrangement successful, however, is finding an experienced professional and living absolutely certain of that person's ability and integrity. How can Tom's tips for getting the best contractor to work on your job.

• **Ask friends, neighbors, and coworkers** for referrals. "Word of mouth is the best advertisement," Tom says. A local handyman that asks for good words and custom-made architectural details is also a good place to inquire. "The proprietors of these shops know the contractors who do good work because they are the people who buy quality materials."

• **We just about marry our clients** for four months or more, and we don't want to get married to somebody who's going to want a divorce in three."

• **A provision for how contract disputes will be resolved.** Many states offer home-improvement arbitration, in which an independent third party breaks down a legally binding decision. The process is cheaper and faster than taking a contractor to court, but in agreeing to arbitration, the homeowner in most cases waives the right to a trial or judicial appeal.

• **Written confirmation of the homeowner's right to cancel the contract** within three business days after signing it. That window might be a good time to show the contract to a construction lawyer if one wasn't involved in drafting it. "We trained the contractor too much," says Carullo, who now wishes she'd had a legal adviser review the document up front. "It's far better to spend a few hundred dollars now, rather than thousands of dollars later."

• **Ask the contractor for references** from customers who have projects similar to your own. "You don't want a one-house builder to work on a renovation job," Tom says. And don't be satisfied with a list of names, talk to the homeowners and see the finished product. "We'll use of the contractor's current job sites, too," he says, "to see if the site is safe and if the workers are careful with the owner's property."

• **Get written estimates** from several contractors for the identical project. "These bids should be broken down into stages, such as demolition, cabinet removal, utilities, framing, insulation, and roofing."

• **Agree on start and completion dates, and write them into the contract.** Tom recommends also having a penalty clause that holds the contractor financially responsible for project delays.

• **Don't let price and timing rule your selection.** "If you are looking to get it cheap and get it tomorrow, you aren't going to find a quality contractor," says Tom. "The best contractors may charge a little more, and they can busy, so you may have to wait."

—Amy R. Higgins



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Smoke billows from the fireplace at the TV project house in Winchester, Mass., whenever it's lit. Fortunately, near smoke-belching fireplaces can be fixed.

No Smoking Fixes for problem fireplaces

A

The Old House TV project in Winchester, Massachusetts, is plagued by problems common in older buildings (and plenty of new ones, too). For starters, the fire is too small for the fireplace, chalking off the upward draft of hot air inside the flue, then a gaping hole that leads to a second flue for the basement heater, giving smoke a potential avenue to leak back into the house. Finally, a nearby lamppost juts over the house and pushes smoke down the chimney on windy days. For these problems together and on some days the damper may as well be closed.

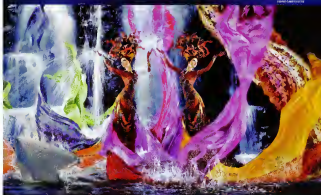
The good news is that this chimney can be put right—as can almost any smoke-belching fireplace. Often, all it takes to pinpoint the problem is a basic understanding of how chimneys work. It may require the help of a reputable chimney sweep or a master familiar with fireplace construction to provide the solution (in this case, some judicious leak pruning and rebuilding the flue). But, as we show on the following pages, there are plenty of affordable fixes available to homeowners. Installing glass doors, for instance, will help keep smoke from seeping into the living space, while adding a chimney cap will guard against wind-induced downdrafts. And don't forget an annual inspection and, if necessary, a cleaning by a chimney sweep. That's the simplest way to keep your fireplace performing at its best.

BY DAN DICLERICO

PHOTO: JAMES LAMBERTSON

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Smoke Signals What your fireplace is trying to tell you

"To figure out why a fireplace smokes, you have to think like Sherlock Holmes," says Mark Schaub, the owner of Chimney Sweepers in Hillsborough, New Jersey. Schaub, a frequent flue-floor for *This Old House*, says you've got to look for clues not only in the way the chimney is built but also in the profile of the surrounding terrain, the height of nearby structures, and the weather conditions when the fireplace misbehaves. Below, Schaub identifies

underlying causes for five common smoking problems and suggests ways to stop them. (A Chimney Sweep expert is shown installing one of these flue caps on page 64.) While these are most problems you can alleviate by yourself, most require the help of a mason or sweep to make an accurate diagnosis and implement a permanent solution that complies with local fire-safety and building codes.

■ SMOKES DURING START-UP

cause: A plug of cold, dense air in the flue creates the draft sometimes called "cold flue."
quick fix: Before lighting the fire, hold a burning oil of newspaper near the damper to send heat up the flue.

permanent solution: Install a flue-top cleaner* to keep the flue warm. (See page 64 for this and other flue markings with an *)

■ SMOKES ON RAINY OR SNOWY DAYS

cause: Humidity is cooling the flue.
permanent solution: Install a chimney cap* to shelter the flue.

■ SMOKES ON WINDY DAYS

cause: Surrounding hills, overhanging trees, or small buildings create turbulence.
quick fix: Trim the overhanging tree limbs.

permanent solution: Add a wind deflected chimney cap* or extend the flue.

cause: The chimney is too short relative to the house's roofline. (Chimney tops should extend at least 2 feet above a roofline and at least 3 feet above anything within 10 feet of the flue.)

permanent solution: Increase flue height by adding a chimney joint* or several more courses of bricks.

■ SMOKES AS FIRE DIES

cause: The flue is too large, so the fire can't generate enough heat to drive the draft.

permanent solution: Install glass doors and keep them closed as the fire dies, or install an air-tight flue at the top of the flue to increase draft, or reduce the flue to reduce its inside dimensions.

ANATOMY OF A CHIMNEY

1. Flue and fire
2. Smoke chamber
3. Damper
4. Firebox opening

■ SMOKES CONSTANTLY

cause: Nests or animals are plugging the flue.
permanent solution: Remove the obstruction, then install a chimney cap*.

cause: Cracked building is choking the flue.
permanent solution: Hire a chimney sweep, certified by the Chimney Safety Institute of America, to clean the flue. Then contact for an annual inspection and clearing as necessary.

cause: The damper is set too low (less than 12 inches from the top of the firebox).

permanent solution: Remove the old damper and install a flue-top cleaner*.

cause: Warm air escaping through the top of the house creates a turbulent draft that draws smoke down the chimney.
quick fix: Weatherstrip all top-story windows and keep them closed.

permanent solution: Seal or insulate attic, raise chimney height by adding more courses of bricks or a chimney cap*, or install a flue-top exhaust fan*.

cause: Flue is too small relative to the fireplace opening. (A flue's area should be 60 to 80 percent of the fireplace opening for square flues and 70 to 80 percent for round flues.)

quick fix: Attach a smoke guard to the top edge of the firebox to reduce the opening size.
permanent solution: Reduce the firebox opening by installing fireplace doors, or a fireplace insert* with flue liner or by lining the firebox with adobe flue tiles.

cause: House is too tight, slowing the flow of sufficient draft.

quick fix: Crack a flue-floor window on the house's windward side.
permanent solution: Install a vent to supply outside air to the firebox.



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FLUE-TOP DAMPER

Helps keep the flue secure and deterring animals when the fireplace is not in use. A cable that hangs down the flue into the fireplace controls the spring-loaded cover. A pull before the fire starts pops the damper open; another pull or flick and then it closes. Price: \$300-\$400



CHIMNEY CAP

An inexpensive cure for many smoking problems, including nesting animals, roof leaks, and wind-induced downdrafts. Mesh-covered openings also keep stray embers off the roof. Available in copper, stainless steel, and aluminum. Price: \$30-\$50



CHIMNEY POT

Adds up to 4 feet to a chimney's height, improving the draft and the appearance, if you're fortunate. The base diameter should be as big as or bigger than the existing flue, but the top must be smaller to reduce the effects of wind. Price: \$190-\$2,000



WIND-RAFFLED CAP

The standard steel "New York" is a fixed cap that flaps in the wind, regardless of its direction, past the fire, creating a vacuum that pulls smoke out of the chimney. Raising convenience and better-style caps also improve a chimney's performance when the wind blows—but they require lubrication. Price: \$75-\$245



FIREPLACE INSERT

If a flue is too small, one solution is to reduce the size of the flue by opening with a fireplace insert made of sheet metal or cast iron; many have automatic tile or enamel doors. An insert can also dramatically improve the amount of heat an old fireplace puts out. Price: \$2,190-\$3,100



FLUE-TOP EXHAUST FAN

Swiss makes up the flue. At low speed, it induces and uses as much electricity as an 80-watt lightbulb; the fan should be cleaned annually for best performance. (Note: In very tight houses, fans can pull heating systems exhaust into living spaces, a danger known as backdrafting.) Price: \$2,300-\$2,500



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For more Kodak moments from HomeFront Day 2002, visit the AmeriCares.org website.



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Share Moments. Share Life.™

Engineered Stone

Man-made countertops with the toughness of granite in colors not found in nature

BY RYAN HERRING

Though it's used primarily for countertops (left), engineered stone also makes eye-catching flooring, tub decks, shower stalls, even fireplace surrounds.



It takes a few million years for the earth to form a stone that's sturdy enough to become a kitchen countertop. Marcello Toscoff figured out a way to do it in less than an hour. In 1977, Toscoff, owner of the Italian manufacturer firm, patented a method for making stone scraps, polyester glue, and a pinch of powdered pigment into rock-hard slabs. The result, known as engineered stone, combines the durability of granite with the colorful palette of solid surfacing. Toscoff's process has since spread around the globe, with manufacturers busy creating everything from creamy limestone look-alikes and dark granite dopplegängers to cottage-style blends spiked with scattered glass, seashell, and figural fossils.

Engineered stone's greatest strength is its predictability, both structural and aesthetic. Because the material is cast from a homogeneous mixture of ingredients,

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every slab is flawless, which saves the customer from having to pore over showroom samples to find that one perfect piece. It has no veins or fault lines, so fabricators don't have to worry about its cracking or flaking as they work it. And because the material has no directional grain, seams between engineered slabs are easier to match than with natural stone.

It also makes a rugged kitchen countertop. The primary material is most engineered stone, quartz, is nonporous, won't stain, unless by heat, and unaffected by everyday acids like coffee, citrus, and vinegar. That, it's hard as steel. Drag a key across a quartz-based engineered countertop and a film of metal is left behind.

But not all engineered products perform alike. Those made from a base of limestone or marble are not as scratch resistant as those from quartz, and they're more naturally porous and vulnerable to acids. As with any natural stone, lighter colors and less polished surfaces are more likely to show its flaws. And it's always best to immediately mop up spills and save with clean water; sudsoam is its last best friend with a profile (see "Out, Darned Spot," January/February 2002).

RECIPE FOR A STONE SLAB

(1) Quartz granules, resin binders, and pigments are combined in a giant mixer at the Cambria factory in Pittsboro.

(2) The rough, asphaltlike "chunks" is pressed into a shallow mold, subjected to a vacuum, and then compressed. Finally, it's heated to 200°F for an hour for 30 minutes.

(3) After emerging from the oven, the slab is cooled, polished, and inspected before it's shipped off-site to a shop that fabricates countertops.

(4) Fabricators finish the countertop as they would real stone, cutting and polishing it with diamond-edged tools.



ENGINEERED STONE



NATURAL GRANITE

THE COUNTERTOP TEST

Engineered stone can look a lot like the real thing—that's Cambria's Bluestone Blue on the left and natural blue granite from Bahia, Brazil, on the right—and perform just as well. But not all stone, engineered or otherwise, is created equal. To determine if a sink is tough enough for kitchen duty, Anna Huxford, at the National Traffic Center for Stone and Masonry, suggests etching in a small sample and rubbing these two slabs. (1) Place a heavy weight (up to 50 lb) on the surface. After five minutes, both slabs should show etching, leaving the material unaffected. (2) Run a knife across the surface. No marks should be visible.

Hard Choices

One of the toughest things about engineered stone might be deciding which one to buy. The material comes in everything from bright primary colors to muted blends of marble and terra-cotta. Slabs high in quartz resist stains, scratches, and heat, which makes them ideal for kitchen countertops: limestone- and marble-based versions perform well in more protected places, such as bathroom vanities.



VENEER VERSION

For a similar performance with less weight and a thicker profile, Schrock developed Onitec (\$55-\$65 per square foot). The 1½-inch countertop has a quarter-inch veneer of quartz-based engineered stone affixed to a substrate made of glass foam. While Schrock says the material can withstand 2,000°F, it recommends protecting the surface from hot pots.



1. River Wrenna (with marble) by Wrenna Marble Co., \$36-\$50 per square foot
2. Silverline Dealer Dry by Cosentino, \$45-\$59
3. Silverline Made Onco, \$45-\$59
4. Crown Made Perla (pink study) by Wrenna Marble Co., \$40-\$45
5. Teonitec (with terra-cotta) by Darnell Impurities, \$40-\$45

6. Zodiax Vertex Black by DuPont, \$75-\$180
7. Gargen Field by Cosentino, \$55
8. Crown Green by Cambria, \$65
9. Bath Blue by Cambria, \$65

NOTE: Countertop prices per square foot. Prices vary depending on fabrication details and thickness, typically ½ inch (½ inch) or 1½ inches (2 cm).

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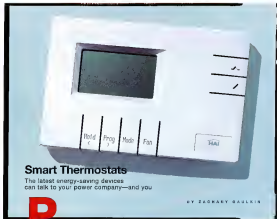


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Smart Thermostats

The latest energy-saving devices can talk to your power company—and you

BY ZACHARY WALSH

Popping off the cover of a typical thermostat and you'll find little more than a temperature-sensitive metal coil and a dollop of mercury sliding around in a glass tube. Cheap and rugged, as switches go, but not exactly the smartest, most energy saving device you can put to charge of a furnace or boiler. The introduction of so-called setback thermostats improved matters somewhat. They got rid of the toxic mercury and the coil, but enabled homeowners to do little more than manually adjust the temperature at night or when a house is unoccupied.

Now meet the real powermaster: "communicating" thermostats. They not only have the ability to talk to each other (and thereby adjust unnecessary on/off cycling by the heating and cooling system), they can tap aboard the Internet to send you a direct call to check the latest gas or electricity prices with your power company and adjust the house's energy consumption accordingly. Some even take phone-in instructions, a useful feature for when you want to alert your furnace to a set warning up the house before you get home. If these thermostats had any more brains, they'd be picking up the mail and watering the plants.

Smart doesn't come cheap, however. You'll pay anywhere from \$150 to \$400 or more for one of these high-end electronic thermostats. (For a sampling of some advanced but less exotic thermostats, see page 77.) And because installation is not as simple as attaching a couple of

Typical of the latest generation of "communicating" thermostats, the OneSistat, by INE (IN1010), can be adjusted remotely by touch-to-a-phone or through an "always-on" DSH, or online Web page. If the OneSistat detects a problem, such as the temperature dropping below a desired range, it can send out an alert by phoning you or posting an e-mail. And in case of a power outage, the device remembers all its settings, and resets the date and time once power is restored.



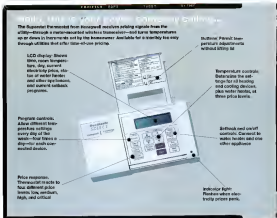
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with most manufacturers recommend that you have a trained electrician or HVAC contractor put in the necessary hardware. This includes an electronic "gateway," a digital transfer device that allows the thermostat to send and receive data over a phone line, cable, or wireless connection. A gateway can be the phone, a computer, or a central control unit that also operates other home automation systems. Depending on the type of gateway device required and how difficult it is to run the necessary low-voltage wires to your heating and cooling equipment, installation adds a another \$300 to \$1,000 to the cost of owning a state-of-the-art thermostat switch. Once it's "installed," though, your thermostat is never more than the push of a button or click of a mouse away.

One disadvantage that makes the high price of communicating thermostats more palatable is the mind-boggling "rate-of-use" energy pricing. Some utilities now vary what they charge for electricity throughout the day, based on fluctuations in the demand for power. For instance, Gulf Power Company, which supplies electricity to 370,000 customers in Florida's panhandle, only charges 29 cents per kilowatt-hour on a hot August afternoon, and only 3.2 cents per kilowatt-hour during off-peak hours (5 p.m. to 6 a.m.). Homeowners who subscribe to Gulf's rate of use pricing program for \$4.50 a month are equipped with thermostats that receive a wireless signal from the utility. When the price of electricity is going to peak, the thermostat responds by automatically turning up the A/C temperature by an amount predetermined by the homeowner and turning it up to two other predetermined appliances (such as a water heater or a pool pump). The customer reaps the benefits in lower electricity bills (between 6 and 10 percent, usually, if not by).

Those who also display when peak rates are in effect, so customers can choose to delay such electricity-intensive chores as dish washing and clothes drying. Steve Higginbottom, a Gulf Power spokesman, says customers in the program save an average of 12 percent on their electricity bill. Similar rate-of-use experiments are under way in New York, California, Washington, and other states to help homeowners get more control over their energy costs.

That's the ultimate inherent intelligence—knowing when to flip the switch and when to leave it alone. After all, the most eco-friendly appliance is the one that isn't running. ■

A New Breed of Digital Thermostats

More-efficient and easier-to-use controls for indoor comfort.

A thermostat doesn't have to be labor-intensive to make a difference in your energy bill. By automatically "setting back" temperatures when the house is unoccupied, programmable thermostats can save on energy costs—as much as 1 percent for every degree of setback over an eight-hour period.

There's just one hitch: You have to take the time to program them. "Some of the first generation of programmables were painful to use," says Tim Gid House plumbing and heating expert Richard Trethaway. "People got fed up. They'd just press the 'hold' button and do it manually."

Today's digital thermostats are a different breed. Not only are they easier to set up, with bigger displays and menu-driven options for every day of the week, they've acquired even more energy-saving and consumer-friendly smarts. For instance, there are models that can "learn" how long it takes to heat or cool a house and then how to most efficiently maintain a room's temperature within half a degree of the setpoint. Others automatically change setback times when Daylight Savings kicks in, and automatically switch from heating to cooling. And if there's ever a power outage or the batteries die, they remember and restore all the settings.

To reap the maximum benefit from any of these devices, which range in price from \$40 to \$300 and up, it has to work in concert with your heating and cooling system. A good first step is to call the local HVAC dealer who sells the furnace, boiler, or heat pump you own even to find out what your options are. If it makes sense to get a high-end programmable, then let the dealer install it as recommended someone who can. These units are not found at home-center shelves, in any case, and an expert installation will help ensure that your thermostat performs at its full potential, delivering all the comfort and energy savings it possibly can.



Wireless thermostats like Carrier's Multi-Stage Programmable (S200) allow you to control temperature from as many as four different locations, a boon for anyone who wants to work off the grid of a north-facing room is the heat from a south-facing exposure. Each portable thermostat sends a radio signal to a receiver, which is connected to the heating and cooling system. To prevent thermostat wars between family members, only one person can be in control at a time.



Carrier's sleek "Multi-mount" model (S170) projects from the wall just as both the thickness of two pennies. Like many digital thermostats, it allows seven-days-a-week, four-setting-per-day programming. It also can receive signals from an outdoor sensor and display them on its big, easy-to-read back-lit LCD screen.



For large rooms or zones that mean up to 600 sq ft, dual-zone zoning thermostats like Carrier's Climate Control Center (S270-S275) override multiple heat sources (or bring up air that) circulates throughout the house, in order to maintain a consistent and comfortable indoor temperature. This thermostat also monitors humidity, indicating when air filters need to be replaced, even when hooked up to an optional outside sensor, pairs the outdoor temperature on display.



Closed for the Season

Shutting down a vacation house

BY RENÉE RICHARDSON

S

ring, paid for a seasonal property is an annual ritual for the countless Americans who own second-home vacation homes. Falling temperatures can wreak havoc on plumbing, so pipes must be drained. Mattresses and bedding have to be protected or they'll stink deep into the critters. Kitchenware needs to be packed up tight, away from insects and dust, and appliances unplugged to guard against lightning strikes.

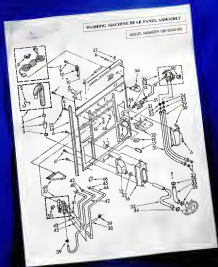
Some of these preparations require a plumber's know-how, but most call for a old-fashioned ingenuity. Storm McManis has been shutting down her lake-side cabin in central Minnesota for nearly 33 years. "It takes about a day," she says of the tidy-but messy scene shown in the following pages. "But once we're done, we set the alarm, and that's the end of it." At least until the sun warms and the clear lake water calls vacationers back next year.

PHOTOGRAPHS BY SHAD BOLDER

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Draining the Pipes

1 Pipes must be drained or freezing water will expand and rupture them. Reading the interior Plumber Jack Adams shuts off the water going to the circuit-breaker box, then runs all the faucets and flushes all the toilets to drain them completely. Next he opens the plumbing system's shutoffs in the crawl space (left)—hooking the wheel-shaped faucet handles near pipe joints or anti-siphon emptying valves (right). Finally, he connects a hose to the faucet at the bottom of the hot-water tank (lower) and opens the valve; the other end of the hose empties into the lawn.

Warding Off Ice

2 With the pipes and the toilets and tank empty, plumber Mike Seftonian pours an environmentally friendly sonicose caustic antiseptic into the traps to keep any remaining water from clogging. Kitchen and bathroom sinks, showers, and bathtubs get two cups of antiseptic each. The dishwasher, washing machine, and toilets and tanks get two cups.



Sealing Out Cold Air

3 Homeowner Sharon Halvorsen covers air vents along the cabin's foundation with rigid foam. The foam provides extra insulation to keep pipes in the crawl space from freezing.



Repeating Pests

4 To protect the rafters from pests, Halvorsen prigs them against the wall and another wall along the base of the wall and floor. A wooden shoe wedge off outside (left) hanging blankets, quilts and gloves in the closet fills over the most accessible mouse, looking for a cozy nesting place.



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Staving Off Mold

5 Crumpled newspapers and a large bag of charcoal briquettes stave off mold and mildew and eliminate odor in the neglected refrigerator and freezer.

Protecting Kiln-dried

6 Porcelain and ceramic goods are removed from what will be an unheated kitchen, and dishes and silverware get wrapped in plastic bags to keep them out of the reach of rodents.



Weatherproof Porches

7 The screened porch doubles as off-season storage space for outdoor furniture. Using a system designed by her father, Labrador retriever sheds of heavy-duty plastic butt between strips of 1-by-2-inch wood and covers the wood to the top and bottom of each screen's frame. This she wraps the entire porch in a layer of plastic to ensure the plastic against wind gusts. Finally she staples the strips of wood siding at the seams (left) to create a weathertight seal.



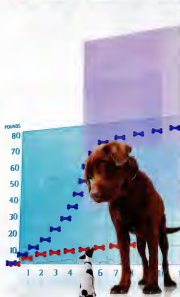
DID I REMEMBER TO...?

Before you hit the lights and turn the key in the lock for the last time, make sure you've taken care of these house-protecting tasks:

- ✓ Shut off the water
- ✓ Unplug all appliances—especially the television—and telephones in case of a lightning strike
- ✓ Turn off all circuit breakers except the ones for stoves
- ✓ Turn off the gas supply
- ✓ Empty the refrigerator and freezer: Food can attract animals, and canned goods can explode if they freeze
- ✓ Put away outdoor furniture, grill, and other accessories, including garbage cans
- ✓ Lock shed and garage doors
- ✓ Hang a few strips of flypaper
- ✓ Lock all windows and doors
- ✓ Take the last load of garbage to the dump

LESSON ONE

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HOMEOOWNER'S STEP-BY-STEP PROJECT SERIES HANDBOOK



Installing a Picket Fence

BY JEFFERSON HOLLE PHOTOGRAPHS BY KOLIN SMITH

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HOME BASICS

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ACE

Building a fence has been made much easier in recent years by the wide availability of preassembled fence panels, which eliminate the need to nail up pickets one at a time. Like any solid, long-lasting wood fence, this one uses durable materials, reliable connections, and deep postholes. Its panels are made of white cedar held in place by thick cedar

WARNING: Before you start digging, make sure to call 888-288-ORCA to have all buried utility lines located and marked.

Step by Step



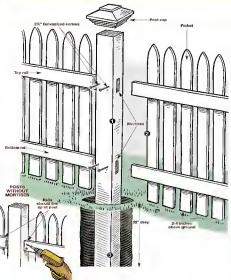
1

the spread a leg to catch excited and



2

- Add it more inches of soil to help. Check post again for plants and things around it. Repeat until hole is filled.



1
POINTS

Mortised joints provide the most secure rail-to-post connection. On posts with no mortises, the rails are held in place with screws or galvanized fence brackets (see inset drawing below).

Fasteners should be either stainless steel or hot-dipped galvanized.

PORTICOLES

Use concrete for gate posts with gates wider than 4 ft or fence posts in holes that can't be dug deeper than 2 inches.



5

- **Roll** the roller to the joint, then rock the panel so the rollers are seated and completely in contact with the glazing.



6

- Fill tube, as in Step 2. Check panel and picture for purity
- Remove needle and roll with 254 lock against lock

Tools

1. Level
2. Wood wedges for propping panels in a level position
3. 60-lb posthole digger for digging 10-inch-wide holes 32 inches deep
4. Mason's line
5. 7-foot tapping bar (or a 6-foot 2x4)
6. Shovel
7. 7-foot digging bar (flat end cuts roots; pointed end pries rocks)

NOT SHOWN

Cordless drill/driver for screwing through posts into rails
Circular saw for trimming posts and panels, if necessary
Tape for soil dug from postholes
Tape measure



3

Dig the next posthole

- Tack a mason's line to the post's outside flange, 8 inches above the ground.
- Measure from the post to where the fence's first corner will be. Drive a stake into the ground there. Wrap the line around it 3 inches above the ground; pull tight.
- Measure out from the post the length of the first panel and mark the spot with a screw (about).
- At the mark, dig another 10-inch-diameter posthole. Offset it enough so that the post's face will touch the line.

4

Set the fence panel

- Slide the panel's rails into the post's mortises.
- Prop up the panel's end with wood wedges (about). Adjust them until the top rail is level.
- On posts with no mortises, prop the panel so the top rail is level and the picket bottoms secure the post as it to 8 inches off the ground. Secure rails to post.
- If the picket bottoms sit at the top and are between 2 and 3 inches above grade, go to Step 6. If they're not in this range because the ground slopes, go to Step 5.

7

Set the gate posts

- Install first gate post (see Steps 1 and 3) at end of panel.
- Measure out the width of the gate, plus 1½ inches. Dig the hole for second gate post at this mark.
- Place second gate post. Plumb, tamp, and check for plumb.
- Double-check the distance between posts and make sure the post tops are level with each other (about).
- Install next fence panel to stabilize second gate post.

8

Hang the gate

- Use wedges to prop up and level the gate between the posts. Line up its pickets with those on adjacent panels.
- Leave ½-inch gap between gate and post on each end.
- Screw hanger lugs and gate (about).
- Remove wedges, check gate swing, and attach latch.
- Nail caps onto post tops.

On slopes, hang gate from uphill post

Problem Solving

IF PANELS DON'T FIT EVENLY:

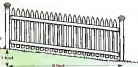
When a fence runs to, say, 50 feet and the panels are all 8 feet long, the solution is to trim one (or more) down by cutting through the top and bottom rails. You can hide a shortened panel behind a shrub to make it less conspicuous. Or, cut down two panels equally and put one at each end of a fence run.

Note: Cutting across a fence panel in the field works only if the pickets are all the same length. If the picket tops dip in a regular curve between posts, you'll need to have the panels custom-made.



IF THE GROUND SLOPES:

Pickets can be raked out of square (see Step 5) to form a drop (or rise) up to 12 inches for every 8 feet of run. That way, the rails parallel the slope, the pickets are plumb, and their bottoms aren't more than 6 inches above the ground. But if the slope is very steep, raking will force the pickets too close to each other. For such slopes, carefully pry pickets from rails, remove the rails between posts, and reset the pickets, using a level to make sure they're plumb.



A Winchester Welcome

THE UNIVERSITY OF CHICAGO



NewTV show project homeowners Bruce Lerner and Kim Whiteman found an abundance of inspiration when they bought The Old House in Woburn, Massachusetts.

Bruce and Kathy daydreamed about leaving This Old House renovation site home. We imagined the perfect house and when it would be like to work with the best talent and success from the show—the Evans Team of renovating, as it were. This show we moved around the country for our respective careers, from ag or building homes along the way, the most talented and compelling duo here became

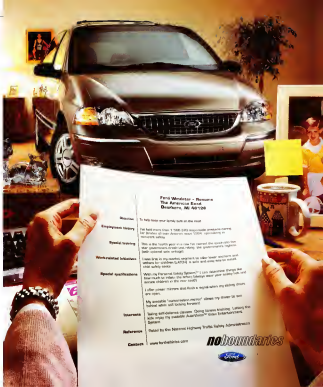
When France's pop psychology in the Boston area, we discovered nearby Waltham on a by foot from friends. Neither of us had ever heard of the town, despite our numerous visits to the area. Easily accessible from the city but with a Pacific, wooded feel, it immediately drew us in. And when we spotted "our" house and neighborhood—well, we were sold. The house just made us feel happy when we walked in, and we both thought it had great bones. The fact that it had been recently unoccupied over the past 30 years was a small plus to us, because we could easily choose and determine whether having to undo a lot of previous work. From the support of the crew from TOLN, we knew all of our dreams were really coming true.

But the one aspect of our experience we could never have imagined was the warm reception we got when we moved into this town—strangers with no local ties—and brought The Old House with us. We didn't anticipate the sense of homecoming our association with the show would bring with our lives.

Complete signage lists welcome on signs welcoming us to the neighborhood, while signs, both inspiring about our Alaskan history, plants, and history, were everywhere in their homes. People familiar with the owner's history and background have seen us books, stickers, and e-mails to help us in measuring the house's needs. Local residents have stopped by with helpful tips, detailing their own home's history. Everywhere we go people take a moment to smile and welcome us, even the kids stop by to wave or to tell us their favorite story. We have seen our own history in front of our house. In our short time in Whistler, we feel as if we have met many of the people who have lived in the owner's home.

It has all made me remember an occasion we once got drunk some friends who were throwing a party after purchasing and renovating a place in the city. The message on the card went something like this: "We now have a house, but it still takes all of you to make it a home." Although we just got here and we're still in the very early stages of our own renovation process, we can already say we have a home—thanks to *The Old Manse*. ■

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This Old House TV Project
[Winchester, Massachusetts]

the house DETECTIVES

Examining a house's
structure to learn its history

The front facade of Bruce Leisure and Kim Whittemore's 1922 house in Winchester, Massachusetts, the current *This Old House* TV project, is, at first glance, a study in Colonial Revival symmetry: The front door is centered and the windows line up, all under straight-corniced eaves. Walk around the back, however, and you see a hodgepodge of architectural elements. There is a variety of window sizes, an odd shed dormer, three doorways all at different elevations, and a weed overhang on half of the building. "The first thing Bruce and I thought was that the back of the house was a series of incongruous

Check out
www.thisoldhouse.com
for more about the Winchester
house's history, plus new-line
photos of the work in progress.

PHOTO: JEFFREY KOLLE



This general contractor Tom Sabo peers into the framing of a back door at the Winchester house, looking for evidence of alterations or inconsistencies over the years.



additions," says Kim. "We wanted to find out what was original to the house and what had been added on over the years."

Part of the allure of an old house is knowing its history, and tracking a building's changes over time can enhance the experience. Research costs of paint, layers of wallpaper, and fields of wild ivy will not only tell you what a house's past. With a little detective work, some keen observation, and a map in the local news offices, you can get an idea of how your house got to its present incarnation.

The Winchester house is full of surprises and recent moves, which TONY general contractor Tom Silver thought meant the place had changed often. "Houses of this period were usually built as just a big box, with a plain gable roof and maybe a small ell off the back," he explains. What immediately caught his eye was a change in the roof line—one built off the back roof's pitch got shingled over a previous 2-line-wide cantilever—that didn't fit the original style. Other oddities included a covered basement entrance to the left of the backdoor and an enclosed, windowless area—a loop of room to cantilever—on the right. "I was curious when we looked around we'd find an answer," says Tom.

For a home built in the 18th century, the recent moves often can yield a lot of information. Kim followed her house's paper trail to find out when things had changed, piece over time, census, and deed findings. But the building documents,

again, told elements that put that everyone included the three bump outs, a small oval dormer that didn't match the house's style, and a change in the roof pitch where an existing cantilevered off the back. The main door (LEFT) appeared to fit a later addition, but when the plaster was removed from the walls in the exterior sheathing was visible, Kim discovered that the house—as well as the wall and floor framing—were all original. (RIGHT: 10-11)



Evidence found inside a surprisingly enclosed room (LEFT). Exterior camp and threshold suggest the room was exposed to the outdoors, a patched-over door suggests it was a entry porch. Another patch (RIGHT) covered a window. Tom Silver found the outline of the sill and casing on the inside (RIGHT LEFT).

which keeps copies of permits back to the 1930s, had only a few for recent years. "I was hoping to find one for adding that fancy room on the back or changing the roof pitch," she says, "but I turned up nick."

So Tom started looking at the house's structure—both what was visible and what was exposed by demolition being done for the renovation. Examining the foundation, he checked for seams or changes to materials from poured concrete to, say, concrete block. But it was clear that the foundation was poured all at once. "Back then, they laid up layers with horizontal boards," he explains. "You can follow the wood joint's impression in the concrete right around the house."

Moving up to the living spaces, Tom looked for changes on the moldings and millwork. "Sometimes something as subtle as a door hinge tells a lot," he says. "You might see munged and begun on one door and cast brass on the others." But all the doors were consistent, including those inside the cantilever.

That feature particularly vexed Tom. His first thought was that it was added on for more space off the master bedroom, or a nursery or maybe a dressing room. He investigated, however, uncovered a surprise. Contrary to everyone's hunches, the cantilever is original. The framing and the sheathing between the main house and the cantilever are contiguous. Some thing for the rafters. "The carpenter's built a simple truss to support the longer rafters over the cantilever, but it was all done by the same crew when the rest of the roof was framed," he says. "I never would have guessed it."

The "room-to-nowhere" wasn't as simple as that. Its doorway has a wide, sloped threshold—which means that it was not an exterior door—and the walls were tiled. Yet the room is completely enclosed.

It wasn't until the siding came down that Tom got some answers. A doorway to the living room had been patched over, as had a small square window into the kitchen. "The door gives purpose to the room," says Tom. "It would have been used as a small sitting area off the living room—was an uncomfortable Colonial Revival feature—much a nod to block the chimney run. And the window would throw some light into the back hall. It makes perfect sense."

Aside from this little room, it turns out that the Winchester house is largely unchanged from the way it was built, gutted and all. Still, Kim and Bruce are happy to have learned what they did. "Even though we didn't find any earth-shattering changes, we learned a lot about the house's history," says Kim. "And if we didn't know," says Tom, "we always would have wondered." ■

LOOKING FOR CLUES IN YOUR OLD HOUSE

Every building, regardless of its age, offers clues to any changes made over the years. Zones are critical, with others require a more forensic approach, such as the opening up of walls or the stripping of paint. Material information, available in local history or the local hall, or through a professional society, can also give you the right track. Remember: One clue usually begins another. Here's a list of what to look for:

- Different or patched-in sheathing
- Different brick and wall materials
- Changes in wall type—from red to white, or from uncured to cemented
- Changes in construction framing materials—from board sheathing to plywood
- Changes in construction methods—point-to-beam to balloon or platform framing

ON THE SURFACE

- Changes in architectural style
- Different windows, doors, hardware, moldings, or flooring styles
- Partitions built on top of finished floors
- Changes in foundation materials
- Changes in ceiling or floor heights
- Protected or shapely cut-off moldings

UNDER THE SURFACE

- Color changes among layers of paint and

concrete mixing earlier paint colors

- Different brick and wall materials
- Changes in wall type—from red to white, or from uncured to cemented
- Changes in construction framing materials—from board sheathing to plywood
- Changes in construction methods—point-to-beam to balloon or platform framing

THE PAPER TRAIL

- Changes in ownership, property lines, building rules, or assessment as recorded in town offices—e.g., assessments, registry of deeds, or town descriptions
- Past building permits
- Yellow or red ink drawings from the town planning or historical society
- Accounts of the house in its construction in family and local newspaper archives
- Family histories or photos from previous owners of the house

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6. Friday, 11/15/02, the selected "Dream Kitchen" will be announced on "Today."

7. If you are selected, "Dream Kitchen" work begins in late December. See page 146 for complete rules.

buried TREASURE

A kitchen remodel reveals a long-hidden decorative ceiling



a anyone who has remodeled a home knows that tradesmen often encounter surprises when they break into the walls. "When they find something, it's usually never good," says Susan Falls, South Dakota, homeowner Laurie O'Brien. But when an electrician broke out a small hole in the kitchen ceiling of the O'Briens' 1912 Prairie-style home, Laurie and her husband, Peter, a surgeon, got a surprise of a very different sort. Hidden above a 40-year-old drywall ceiling was an unusual vitreous lacework ceiling from a much earlier era. "I've never seen anything like it," says kitchen designer Mickie Severaty, who worked on the project with the O'Briens.



The elegant lacework ceiling, lost due to decades of drywall, became the crowning glory of this remodeled kitchen in this 1912 Prairie-style home. It was discovered by chance when an electrician pulled a hole in the drywall to run some wires.

BY SUZAN FALLS



The renovation of the old kitchen (above) resulted more than just the dream-like ending along the way, making the original and creating a new kitchen (below) that was the best of both worlds.

It may indeed be one-of-a-kind. The painted hardwood floor springs from a dense well-wooded and curves in graceful arches toward the center of the ceiling. Each piece of carved lattice was measured or soaked in water before being carefully bent into position below a plaster ceiling. Although the house is listed in the National Register of Historic Places, little is known about the ceiling. The O'Brian's assume that the lattice may once have been a porch, where a lattice ceiling would seem likely. One thing is certain: It was the work of a talented, now anonymous craftsman with an original vision.

AN ACCIDENTAL RENOVATION

Designer Swenney says that the discovery marked a turning point in what began as a straightforward \$11,000 kitchen remodel and escalated into a \$33,000 renovation. Initially, the O'Brian had two simple goals: Replace the existing rock cabinets and add a window seat and dining nook at the end of the 9 by 20 foot kitchen. They wanted to cherry cabinets in the Arts and Crafts style, a look that both complemented the original built-in in the dining room and was popular in late 19th-century homes of the early 20th century. Swenney even managed to match the period hinges and other hardware.

The cabinets were built and ready to go in when the electrician came to run some outdoor circuit down to the garage. "He poked a tiny hole in the ceiling," recalls general contractor Donk Thompson.

"Behind the insulation, he could see a little bit of the lathwork," Thompson says. "They told me there was something up there," she recalls, "and I thought they meant nails to something terrible." When they said it was some sort of lathwork, I said, "Well, yes, maybe we should take a look." Thompson made a hole large enough for his head and shoulders. "I peeked inside the insulation, got up with a flashlight and looked around," he says. "Some spots were damaged, but on the whole the lathwork was intact. Recall's Leslie: "Everybody was standing around trying to decide what to do, and I just said, 'We have to take the ceiling down.'"

Not everyone left as strongly. The O'Brian kitchen renovation

STORY: The L-shaped counter that functioned as a pass-through in the dining area was efficient enough, but the cheap, subterranean cabinets had to go.

AFTER: The new-work into occupies one end of the new kitchen, and a dining nook is located at the other. Instead of opening on a closed-in kitchen, the owners opted for extra-deep counter to create more work space.



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LEFT: The leaded stained glass above the window seat was patterned after an original design by Frank Lloyd Wright. The reproduction glass and-brass hanging lamp (below) is a design from the 1912 house (above).

MORE SURPRISES AHEAD

Had she known about the decorative ceiling or, at least, says Sweeney, she might have suggested the Officework consider a lighter ceiling style and color. But the difference would hardly be worth scrapping the new unit, and at any rate the dental molding is a most unusual element between

the color-covered walls and the latticework ceiling. Exposing the ceiling did cause another visit from the electrician, wiring that had been hidden above the false ceiling, now had to be rerouted through the walls. This led to another discovery in the top kitchen—a pair of 12 light side windows surrounding the corner door. The addition had been added up, probably to make more wall space for appliances.

So when the electrician tried to cut a hole through the drywall, small a junction box, he hit glass. By then it was too late to suppose that Laurie wanted to expose the windows. This, however, required some

reconfiguration of the ceiling, because a planned well unit would have blocked one of the windows. Sweeney found a way to cut the cabinet down and raise it so an open well space across from the dining nook. The final touch was the installation of fiber-optic cable lighting along the top of the dental molding, which bathes the latticework in a warm glow.

Laurie has lived through enough home renovating, for now, and is happy to just relax in her new kitchen. But she won't hesitate to speak up if another hidden historical detail crops up—which is quite possible in a house with so many pleasant surprises. ■

was nearly done, with cabinets scheduled for installation the very next day. Reconfiguring the job would be costly, messy, and a major hassle for Thompson, who had other work lined up. "David said, 'You won't be able to keep it clean,'" says Laurie. "And David, 'Look, I don't spend a lot of time cleaning my onlays anyway.'" Harris and Peter concurred.

As work ensued, Thompson's belief that the latticework would be hard-to-clean was confirmed. Besides the layers of grime on the lattice itself, the plaster ceiling behind it was also filthy—and sure to

be responsible to catch. "We were over it with a shop vacuum," he says. "Then we used an air compressor to blow dirt out from behind." Thompson believes the lattice was made of mahogany, which was used extensively at that time. And of course nothing was drilled on today's standard units. In the few places where he needed to repair or replace wood, he applied oak strips on a cable now to match the existing 7½-by-¾-inch lattice. Splices were made at the spots where the lattice crossed so the joints could be hidden. "We destroyed everything with carpenter's glue," he says, "because the old wood was so brittle this stuff or screws were necessary."



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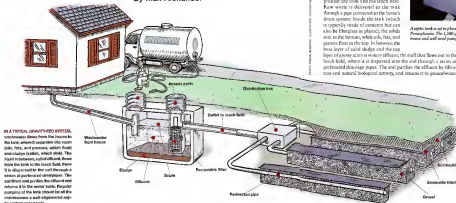


What you need to know about household waste systems

septic

HAPPENS

By Max Alexander



IN A TYPICAL GRAVITY-FED SYSTEM, wastewater flows from the house to the tank, where it separates into scum (oils, fats, and greases, which float) and sludge (solids, which sink). The liquid in between, called effluent, flows from the tank to the leach field, where it is dispersed in the soil through a series of perforated drainpipes. The soil filters and purifies the effluent and returns it to the water table. Regular pumping of the tank should be all the maintenance a well-designed septic system ever needs.

Like most septic-system owners, I didn't pay much attention to what was going on under my croquet field—until the day last spring, when black gunk started oozing up from the lawn. Since there are no crabs or deposits at this corner of Maine, I retained the most and most recently called septic maintenance company. Sure enough, the decade-old system that comes along with my 1810 farmhouse had in fact and had to be replaced. For first, I needed a gas-vacuum—no more prodding, ground-down—obstruction in the way of waste management.

A conventional septic system has two basic components, both underground: the tank and the leach field. Raw waste is delivered to the tank through a pipe connected to the house's drain system. Inside the tank (which is typically made of concrete but can also be fiberglass or plastic), the solids sink to the bottom, while oils, fats, and grease float to the top. In between the base layer of solid sludge and the top layer of greasy scum is watery effluent, the stuff that flows out to the leach field, where it is dispersed as the soil through a series of perforated drainage pipes. The soil purifies the effluent by filtration and natural biological activity, and returns it to groundwater.

PHOTO: PHILIP BLANKEN; ILLUSTRATION: GUY LAWRENCE



A septic tank is set in place at a new house in Scarborough, Pennsylvania. The 1,000-gallon tank serves a four-bedroom house and will need pumping every two to three years.

It's a brilliant system—even elegant, if that word can be applied to sewage—in which nature and gravity do all the work.

As I discovered the hard way, leach fields don't last forever. Over time they can become clogged with waste material, preventing adequate dispersion of liquids. When that happens, waste backs up onto the lawn or, worse still, into the house's drains. A chief cause of premature septic failure is the accumulation of solids that the tank every few years—in readily available services that typically cost less than \$100. In fact, experts say, tank-pumping is the only maintenance choice most septic systems need. (Although that supposedly guarantees good function, an unnecessary and possibly harmful if left to accumulate in the tank, sludge and scum eventually migrate out to the leach field, clogging it with the effluent, rendering the whole system

But not all septic blockages are necessarily cause for panic. The trouble could be something relatively minor, like a broken tight-line—the pipe between the tank and leach field—or a pipe clogged with root matter. And not every leach field problem requires tank replacement. Sometimes partial failures can be fixed by sealing out the perforated pipes, adding drainage ditches to aid rain-water runoff, or aerating compressed air to provide a beneficial environment for cleansing microorganisms. But if a professional can't diagnose the problem and correct it with a few simple solutions, it may be time for a new system.

SEPTIC-SYSTEM DESIGN

The basic concept behind a septic system is simple, but it takes careful planning to design a system that will safely serve a household's needs for years to come. Most states require that new septic-system systems be designed by licensed professionals; they may be independent engineers or contractors also certified to install the equipment. The first step is figuring out the best place to site the components. To a real consideration of water sources, leach fields must be set back from wells usually a minimum of 100 feet. No part of a septic system can be beneath a building if you're planning any additions to your house, be sure to discuss them with the designer—and another the tank and the leach field should be under a driveway or parking area. (Pipes used for vehicular loads can run under driveways.) Leach fields should also be clear of trees, to avoid future damage from roots. In ideal circumstances, the field will be below the level of the tank for a gravity feed, but more com-

ment, the effluent is pumped out to the field in metered doses. "That means that the effluent is distributed over the entire absorption area, instead of just trickling into one corner or at one end," says Dave Kneib, a soil scientist with Piedmont Environmental Group, in Leidschke, Pennsylvania.

SOIL TESTING

Once you've decided on a site, the next step is to analyze the soil conditions. How well the effluent drains, or percolates, through the soil affects the size of the leach field. Another key soil consideration is what's known as the limiting factor. In many parts of the country, the limiting factor is seasonal high water—the level of natural groundwater at its highest, typically in the spring. Because septic effluent cannot drain directly into the water table, the level of seasonal high water represents the limit of a system's depth. (In dry areas, the limiting factor could be bedrock.) Most states now set a minimum distance above the limiting factor that leach fields can be installed. That's a problem if your limiting factor is within 2 feet or so of the surface. After allowing for the minimum distance requirement, you may only have a few inches in which to lay the leach field—enough for the necessary gravel bed, pipes, and topsoil backfill. It's a common occurrence, and the usual solution is to build the leach field up above ground level, under a grassy mound. (Mound systems can also avoid a "perc test" or other soil analysis shows that the soil doesn't percolate well enough to allow for an exclusively below-ground installation.)

The final step is calculating the capacity of the system. Typically, designers look at the weather of bedrooms, which is a more reliable indicator of potential occupancy than, say, the number of bathrooms. The bigger the house, the bigger the tank and the larger the leach field. Throw in a garbage disposal, which adds more organic solids to the tank, and the requirements increase even more. When the design is finished, you might be shocked by the massive scale of the system—especially if it radiates a mound the size of a swimming pool in your backyard.

In addition to being twice the cost of a standard system, these septic mounds can be a landscape nightmare on small suburban lots. To construct one, the site must be built up with sand to the maximum depth required by code, then covered with a layer of gravel to make a bed for the pipes. By the time the whole mound is covered with topsoil, the height can reach 4 feet or more. Fortunately, engineers have come up with a variety of innovative ways to make mound systems a choice at last resort. All basically involve treating effluent before it reaches the leach field, to reduce or even eliminate pathogens. The resulting liquid is clean enough to be spread on the soil or even bare rock.

Reducing mounds is just one benefit. Permaculture also makes it possible to build homes in places where conventional systems would never fly. The Old Moore Road Stone Cottage, for example, is being to install such a system—a two-tank Ceresium model that uses special bacteria and a series of micro-filtration membranes to do the cleaning—or for vacation homes in Maine. The treatment tanks can be installed underground, a boon because there is hardly any topsoil to Stern's rocky

DIARY OF A SEPTIC SYSTEM INSTALLATION

One black rock appeared in my backyard, I didn't take long for an expert to determine that any system needed reworking. The first step was to decide where to put the components. And so, on a warm day in June, site evaluator David Stader arrived at my house, carrying his most important tool: a 18-inch spade. "The soil is where it all happens," he said, plunging the shovel into the spot where we hoped to put the new leach field. "That's where the good bugs and the bad bugs." The good bugs are aerobic, meaning they require oxygen. The bad bugs are generally anaerobic, thriving in places without much air (like your gut) and causing disease. Soil purifies effluent by exposing the anaerobic microbes to a hostile environment, where they are consumed by aerobic microbes (and larger creatures like worms), led by exposure to air or trapped (the process of filtration).

Once he determined that the soil drained well, Stader's next step was to calculate the size of the system. For five bedrooms, I needed a 1,500-gallon tank and a field of about 1,500 square feet. Stader suggested a proprietary plastic pipe to cut the size of the leach field in half, to a mere 75 by 40 feet. The pipe, roughly 12 inches in diameter, is corrugated to increase surface area, with cone perforations perforating the soil, less length is required.

I paid Stader his \$200 fee, plus another \$100 for the plans for a permit, and sent the plan to four local septic contractors. Knowing that any installer would have to follow Stader's specs and submit to inspection, I took the low bid of \$5,547. (His's wheel happened next.



A FEW WEEKS LATER, the excavation contractor got to work. In a matter of minutes, he dug a narrow hole for the new septic tank, and in the first step in any septic system design, the soil at the proposed site must be evaluated. How it will absorb wastewater is first job. By observing the various layers and watching the dirt to a certain depth, he is able to determine things like, how wet it drains, and the location of the seasonal high-water mark, which establishes the limit of a leach field's depth.



A SPRAWLY-PIED SYSTEM requires that the site have the necessary pitch between the tank and the leach field—in this case, a 1/8-inch drop for every foot of run. After digging a trench for the pipe that connects the tank to the field, the contractor excavated the field itself. Because leach-field water table is only 18 inches below the surface, the drilled field will be built up to the same required minimum depth of 2 feet, under a grassy mound.



WORKERS LAY OUT and level the eight rows of perforated shingle pipe. Effluent flows in the leach field through a distribution box that reaches the pipe early in all pipes, so that none is overworked. The pipes are wrapped in a geotextile fabric, which keeps out the sand and silt in the direction of wastewater.



A CRANE OPERATOR lowered in the 3-ton concrete septic tank. After it was set in place and leveled, it was connected to the house with a line of solid sewer pipe. The tank holds 1,500 gallons, enough to support this five-bedroom Maine farmhouse.



THE NEXT DAY, the contractor backfilled clean sand over the pipes and replaced the topsoil. As a finishing touch, the leach field was seeded with grass and mulched with a layer of hay. With just per care, the system should last 40 to 50 years.

island. To add a conventional tank and launch field, he would have to haul in hundreds of cubic yards of sand and gravel and build a giant super-crown on the rugged land. "On an island, all that fill has to come by barge," he says. "It would be a massive construction project."

NEW TECHNOLOGIES, MORE-EFFICIENT SYSTEMS.

While high-tech systems like Star's are common in Europe, they are only beginning to catch on here. Suburban sprawl beyond municipal sewage lines, the trend of larger homes on smaller lots, and increasingly stringent state environmental regulations (plus an on-federal guidelines for private sewage disposal) have all combined to drive demand for more efficient, less space-consuming American manure-handling systems. American manufacturers have responded with a host of improvements, from more efficient distribution pipes to sensitive systems that handle decomposition in the tank to micro-sensors that monitor bacteria that kill pathogens before they reach the leach field. Many of these treatment systems function like miniature municipal sewage plants, typically circulating effluents through a filtering sump inside the tank. Like real sewage plants, they come complete with computerized controls and an automatic dial-up to a service technician. If any part of the system fails,

The downside is that such belt-and-whistle systems require more vigilance and are more expensive, adding perhaps \$10,000 to the cost of a typical surveillance in conventional systems can run from \$1,000 to \$10,000 or even higher, depending on type, size, site characteristics, and regional costs. Richard Chu, the vice president of applied technologies at Agros Associates, a Wisconsin engineering consulting firm, says homeowners should consider all the options before investing in a sophisticated water system. "There are many pressure sensors that do a better job at simply telling on the soil," he says.

The right type of system, installed and maintained properly, should not fail for decades—if at all. Even so, modern things are expensive enough that at least one company now insures them.



If you live in one of the five states where it currently makes patients (New York, Pennsylvania, New Jersey, ...)

sys, Comenconet, and Mapland), a company called Proforce will insure your new or old system for up to \$33,000. A three-year policy costing on the system's age. The policy will regulate pumping of the tank—way "It is really important that you frequently," says *Then Old House* in who has a group-based update system. "I try to do more every two years and get going." After spending and lunch field, I couldn't agree any

Septic animals are required when real conditions don't allow for a conventional behavioral system. By the time the acid, pencil, and paper are added, behavior can reach a fix.

CARE AND FEEDING

A little extra attention can prolong the life and health of any engine system. Here are a few guidelines.

AVOID ADDITIVES: "All the microorganisms that you need are right there in human waste," says Jay Hardcastle, the evaluator for Micro-B Business of Health. Additives that purport to provide bacteria are unnecessary, since our own contribute the good flora or along your health.

COMMON HOUSEHOLD PRODUCTS CAN BE HARMFUL TO SYSTEMS: Vegetable oil, for instance, tends to stay suspended in effluent and end up in the leach field, where it can eventually clog the soil. Mineral oil, in contrast, solidifies and floats in the tank. Today's hand-dishwashing soaps are especially good at "softening" grease, which is simply the process of suspending the grease molecules in water; eventually that grease ends up out at the leach field.

➤ **NEVER FLUSH TRASH** (such as cigarette butts, napkins, or cat litter) that can clog/damage lines in the tank or city pipes, or chemicals (such as paints, varnishes, and thinners) that could contaminate surface water and groundwater.

✓ OTHER SEPTIC-SYSTEM ENEMIES INCLUDE bleach and antibacterial soaps (they kill good bacteria), hot water (it's made costly of constant oil or a man-made equivalent, which can wind up in the leach field), guarded laundry (so the ingredients include fat particles that can clog leach lines), and toilet softeners (which have a lot of gummy contents). "We've become a nation of clean freaks," says Hancock, with a sigh.

Fortunately, you don't have to go back to dealing with hard or washing your clothes over a metal tub. Modern septic systems can be sized to take modern lifestyles into account. "All these things are done in moderation," Handville says.

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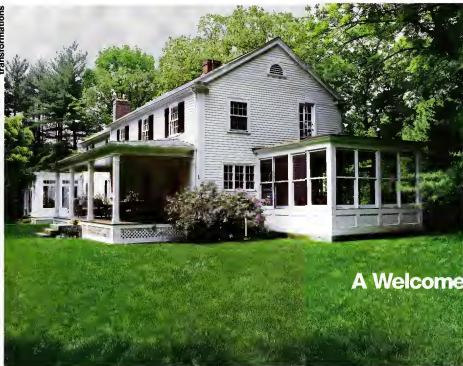
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The original house with two previous alterations (2007) had charm but still lacked a front porch. Using old-fashioned construction methods and made-to-last building materials, the owner seamlessly integrated the porch addition into the period style of the house.

A Welcome Addition

*A greek revival-style house
takes on a period-perfect porch*

BY LOUISE JARVIS
PHOTOGRAPHS BY FRANCINE ZARLOW



Despite the lovely additions, he missed having a second porchlike *de-soto* on his backdoor in Glendale, Illinois, where the sport countries summer evenings playing games and listening to the children. But there was only one place left to add it—on the front of the house—and that would radically change the facade. Meanwhile, Glazovop with the idea of building the porch on a fire-alarm structure behind the house. But he abandoned that plan when he realized that the low convenience a porch only south to be connected to a house. "You never tell

problem, one common to add-on porches. Glenn wanted a porch wide enough to accommodate a table and chairs, but he didn't have a lot of height to work with since the roof had to begin before the second-floor windows. The result is a grand 1,055-by-1,070-foot deck with plenty of sitting room, but it has a very low-pitched hip roof. That gives the porch a canoe look that suits, on the one hand, the house but the 3.10 slope

For two months of the year, the porch (sitio) functions as the family's outdoor "living room." Moreover, the Olsen family can sit together and gaze at the sea from the porch instead of the more typical front or back lawn as it looked more elegant that way. Newly installed French doors (2007) lead directly from the kitchen to the porch's dining table.



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An aerial photograph of a large, modern, circular building complex, possibly a government or institutional structure, surrounded by a wide, paved area and a body of water under a cloudy sky. The building features a prominent circular design with a central courtyard and is surrounded by a wide, paved area. A body of water is visible in the background, and the sky is filled with large, white clouds.

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Living

BY DARA JANE VON TRAPP

PHOTOGRAPH BY RICHARD FELSER



F E N C E S

From neatly clipped evergreens to rows of flowering shrubs to a stand of bamboo, there are lots of options for planting a green screen

Like a row of evergreen trees, shrubs and vines planted in a row can mark boundary lines, screen unsavory views, reduce foot traffic and provide privacy—all while creating a lovely, natural look. In addition, a screen of greenery can provide an effective outdoor windbreak, noise, and quiet. Hedgerows attract birds, espe-

cially when they yield the berries of holly or hawthorn. When plants are in bloom, they create a diversity of color and texture.

While classic hedge plants like privet and yew have long been the standard, there's a wide world of options to consider, and many are virtually maintenance-free. Choose plants that

are suitable for your site and climate, and take up the time to plant them properly. Take their space: A privacy hedge will need to be 6 feet or more, one buffering wind and noise will require even more height. Both will benefit from the presence of evergreen foliage. If the purpose is to reduce foot traffic, 3-foot-high shrubs may

suffice, and wide or berry shrubs may be ideal for dogs.

Be sure to choose plants that are hardy in your climate. Visit the neighborhood to see which varieties are flourishing, and ask a local nursery professional about other plants that would do well in your area, as well as their particular space requirements.

FORMAL HEDGES

A formal hedge comprises plants of one type placed in a single or staggered double line and sheared—that is, pruned to form a dense, flat plane (see “Shaping With Shearing,” page 122). Good plant choices (see below) tend to have thick, stiff growth and small leaves or needles. A sheared hedge has a symmetrical look and can provide an effective border where space is tight—but be aware that it may require a fair amount of upkeep to retain its geometric shape.



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ADORN: FLEET-FOGWEEDS GRIM-FLEETWEEDS
ON DECEMBER PLANTS These fast-growing
or small of these leaves in winter. *Eranthis* grows
poverty. (See *Liquidambar* *crassifolia* and *L.*
stolonifera) are the world's most of this type of
fast-growing because they grow fast and have a
vigorous, strong trunk. *E. grandifolia* is
with rather, leafy foliage in form of thick-
ness. *Phytolacca* *fruticosa* (Sapindaceae) with
yellow leaf foliage and reddish-brown that has
black or orange.



DECLARATION OF CONFLICT OF INTEREST

BROADLEAF EVERGREENS. Chamaecyparis is a small (*Juniperus horizontalis*), with its small, scalelike green leaves, has long been used to border formal beds and estate gardens because of neither a good but not colorful flowers and takes a lot of shearing and shaping. The upright larger-growing varieties can be used as hedges in any situation. These shrubby species are not yet in the best fall and winter, but they're worth giving to any formal and estate.



STYDIA 2014, 1(1) 107-120

YELLOW FLAMEWEED (GERANIUM) *Desfontainia speciosa* needs no fire (although subjects) and forays require 10 feet in width but provide the payoff of glorious spring bloom. Old-fashioned lashed-wash spikes (*Spines* *gracilis*), coated with white spring flowers, also make an elegant hedge with its greenish-yellow branches. Thanks to its narrow, upright form, summer flowering rose of Sharon (*Hibiscus syriacus*), with its large, ruffy flowers, forms a very attractive fence up to 10 feet high.



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ORNAMENTAL GRASSES: A stunning display of spiky plumes of ornamental grass makes a wonderful focal point in a garden where temperatures never dip below 50°F and grasses stay evergreen. For instance, gaura grass (*Ornithoglossum ovifolium*, also called *G. ovifolium*) is a densely tufted evergreen grass with weeping blades and silvery bluish-pink flowers. It provides a dramatic, dense backdrop with lower plantings in front, but is equally effective growing in a single row.

RAMBLING Because of its leafy, upright growth habit, this is one of the hottest plants used as screening today. For lower maintenance, plant the clumping types; they spread very slowly. The roots of "rambling" honeysuckles will grow rapidly unless contained by thick plastic or steel plates sunk 10 to 24 inches belowground all around them. Because they have varying degrees of coldhardiness, it's important to consult a local nursery professional to choose one that's right for your area.



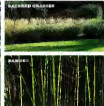
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Keywords: *workplace spirituality, organizational commitment, organizational trust, organizational identification, organizational citizenship behaviors*

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INFORMAL HEDGES

Planting rows of one type of small tree, shrub, grass, or flower in a screen but allowing the plants to retain their natural shape is another way to create a neat and uniform look. It can also provide an opportunity for showy displays of flowers and foliage. (Showing flowering shrubs and grass shapes not only underlines their inherent beauty, it reduces their ability to produce biomass.) Above are some plant categories to consider for informal hedges.

LAYERED AND MIXED SCREENS



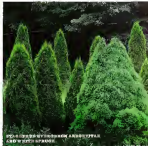
DE-DENSED AND EVERGREEN TREES WITH PERENNIALS AND SHRUBS IN FRONT



A "SCREEN" IS "WHAT APPEARS" IF "WHAT IS BEHIND ALSO" THEN "ADD" IT



SHEDD PERENNIALS AND SHRUBS LACKED BY FAVOR



SHEDD PERENNIALS AND SHRUBS LACKED BY FAVOR

screen. Starting with large trees that shade requires a large budget, so for a quick screen, plant inexpensive fast growers instead with more-expensive top-level

plants. Strong bordering plants like spruce and maple will be reaching maturity (in 12 to 20 years) just as inexpensive fast growers like *Lonicera japonica* (*Japanese honeysuckle*)

are spent and ready to be pruned out. A natural-looking screen includes plants that are indigenous to your region (or improved varieties of them). Include small

trees, both evergreen and deciduous, that you especially see growing by the roadside. For a more cultured look, *Black holly* (*Ilex*) (*Black holly*) (*Black holly*) (*Black holly*) (*Black holly*)

pine (*Pinus strobus*) or better-growing (but not wind-tolerant) white pine (*Pinus strobus*) (*Pinus strobus*) (*Pinus strobus*) (*Pinus strobus*) (*Pinus strobus*)

don't like to be overpriced. Mix in shrubs, and add wildflowers or native ground-covers to the front. A layered planting like this will be good through all four seasons.

SHAPING WITH SHEARING

"The biggest mistake people make is to shear a hedge into a V shape," says The Old House landscape contractor Roger Cook. "That V needs to be turned upside down so that the sun can reach the lower branches." Light-deprived lower branches turn brown and die off, not only becoming unsightly to look at, but no longer serving their purpose where privacy is an issue. To ensure the right shape when forming a formal hedge, Roger cuts two level string lines along its length to guide his shears (whether electric or hand tools). One string line marks the desired height, the other which stands a few inches out from the top line, marks the desired width at the bottom. Both lines are secured with stakes.

How often a hedge needs shearing depends on how fast it grows. A green hedge will need trimming two or three times a season, while barewood will require only one shearing. "And at least once during the growing season, you need to go back and hand prune a hedge, taking out big woody stems down at the base," says Roger. "That way you're rejuvenating the plants to encourage new growth."



PHOTO: GARY HARRIS/ARTISTBYNIGHT.COM; ILLUSTRATION: GARY HARRIS

PHOTO: GARY HARRIS/ARTISTBYNIGHT.COM; ILLUSTRATION: GARY HARRIS

A SAMPLE PLANTING PLAN

The layered living fence plan described below combines evergreens, deciduous, and flowering specimens that will thrive where temperatures don't dip below 16°F. It requires a bed at least 8 feet deep. Grouping plants of the same species and staggering them in their area will make it look more natural. After the first year, prune wayward, broken, or dead branches once a year and fertilize in spring to keep plantings in shape as they fill in.

Back (up to 10 feet high):
Hickory (*Carya*) (*Carya*) (*Carya*) (*Carya*) (*Carya*)
Oak (*Quercus*) (*Quercus*) (*Quercus*) (*Quercus*) (*Quercus*)
Kousa dogwood (*Comus kousa chinensis*)

Middle (4 to 6 feet high):
Peking hydrangea (*Hydrangea pinnatifida*)
"Grandiflora"
Lanceol hydrangea (*Hydrangea macrophylla*) (*Macrophylla*)
Dwarf lilac (*Syringa patula*) (*Syringa patula*) (*Syringa patula*) (*Syringa patula*) (*Syringa patula*)

Dwarf Serbian spruce (*Picea serotina*) (*Picea serotina*) (*Picea serotina*) (*Picea serotina*) (*Picea serotina*)
"Mona"

Front (2 to 3 feet high):
Daylily (*Monarda*) (*Monarda*) (*Monarda*) (*Monarda*) (*Monarda*)
Dwarf spirea with pink flowers (*Spiraea japonica*) (*Spiraea japonica*) (*Spiraea japonica*) (*Spiraea japonica*) (*Spiraea japonica*)
Wintercreeper (*Euonymus fortunei*) (*Euonymus fortunei*) (*Euonymus fortunei*) (*Euonymus fortunei*) (*Euonymus fortunei*)
"Moonshadow"

Asiatic such as peonies, geraniums, impatiens, or begonias

Check out our state-by-state "Plant and Shrub" lists in the "Resources" section of www.OldHouseLandscape.com.

The Italianate style of the house was popular in the 19th century. It was a blend of the Greek Revival and the Roman Revival styles. The house was built in 1872 and was one of the largest houses in Watsonville at the time.



Condemned after an earthquake,
a stately Italianate is moved
to a new site and lovingly restored

a beauty reborn

BY REGINA SOLEMAN
PHOTOGRAPHS BY MARK LUTHINGER

The grand Italianate was once the social center of Watsonville, California, a family home where the town's tourist guests frequently gathered in the spacious, high-ceilinged parlor. But over the decades, the 1872 house—and the neighborhood around it—fell into despair. By the late 1980s, the veranda and the roof sloped, and many of the distinctive exterior details—the



Carved brackets, tall windows with pediments, and elaborate porch railings distinguish the Redwood's exterior.

gables, brackets, and porch railings—were obscured by layers of peeling paint.

The coop de grace came in 1999 with California's Love From earth-

quakes, centered near Watsonville, which shook most of the plaster off the exterior walls and made the place uninhabitable.

For eight years the house stood empty. The city of Watsonville wanted to buy the land for a park but couldn't afford to restore the two-story mansion. In 1997, with the owner's blessing, the towns announced a plan to give away the house to whoever came up with the best proposal to move it and return it to its former glory.

Julie Rowan, a resident of nearby Santa Cruz who had renovated two period houses with her husband, Doyle, and her brother, Bob, Lake City designer Dana Bell, and the newspaper story and music-duo began making plans. "I've always had a passion for historic houses," says Julie. "Even though this one was in a bad shape, I knew it was a very special house." The city had been in and out of the place—usually from people who thought the house would be a fine place to live—but Julie and her brother came up with a detailed proposal to move the 2,750-square-foot house and restore its original features. Three months later, they were awarded the house for \$1.

It took the Rowans nearly a year to get all the permits in place to move the structure, and to find a lot that would share it off. That

year just the beginning of a painstaking, three-year construction, in which the owners, began looking. There was no time for plans, except an early one to a shell enclosing the house and Santa Cruz (see "On the Move," page 131), and given a new lease on life.

Rebuilding the Structure

Referred to a halfway in the town of La Selva Beach and located in a new downtown, the house received little more than its title, the original for floors, and some exterior doors and window details that Julie had been determined to save. Before it was rebuilt, the entire house was sprayed and vapor sealed inside to protect the old timbers from mold and rot. The house originally had 2x6 joists framing—redwood studs running up through the second story—which had been cut during the move. To reconstruct the two stories and conform to earthquake code, local general contractor Jim Becker cut a gap in the framing to accommodate two 2x6 Douglas fir joists. He then locked the joists together with threaded rods and industrial grade corrugated steel and applied the same treatment to the framing on either side of every door and window to take seismic loads. To support the roof on the 52-foot-high house, he set two 6x6 posts in concrete piers and ran them through the exterior partition walls (a far code possible by the 2x6 framing) to the rafters. Finally, he attached plywood to create shear walls that bolster the trusswork, then hung blueboard and plastered over it. "Everyplace

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backwards—you're working from the outside in instead of the inside out," says Buxton. "I had to think inside the box on this one."

All the house systems had to be replaced. Plumbing, pipes and electrical wires were routed through spaces in the old structure, and radiant heating coils installed beneath the original polished floors. The chimneys were rebuilt with steel flues encased in masonry up to eave height, with a separate flue added for a new fireplace in the master bedroom. Fire sprinklers were installed, and the old asphalt shingle roof was replaced.

The two-story front porch, which had been taken apart board by board, was as difficult to reassemble as Buxton found the "Restoring the Porch," below. To meet code, and to improve the load-bearing capacity of the second story, the balloon framing was beefed up with

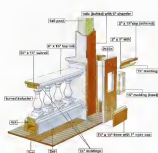
solid 6x6 posts set in concrete footings and bolted with strong connectors. For the decking, he ran the floor joists on L2 steel channels to reinforce beams. Now the porch is strong enough for the Powers to sit in rockers on the upper level and admire the view—checking out the tall windows to get their, as in an old New Orleans house.

Making Changes for Today

"The biggest challenge was to make a house built in 1932 functional for a contemporary family of four without compromising its original architectural intent," says Jeff Dwyer, owner, a long, dark hallway connected the formal rooms. There was only one bathroom upstairs, and no clear space except for a built-in linen closet.

Julie and Jeff decided to open up the downstairs hallway with a

RESTORING THE PORCH



For general contractor Jim Pender, the devil was in the details throughout the historic restoration—and nowhere more so than in recreating the intricate front porch. Before the move, Pender spent two weeks documenting and labeling his 1,000-plus parts. To avoid splitting the weathered material by pulling out the nails, he gingerly pried each one through with a nail set.

Reassembly proved even more painstaking, requiring more than a month's work. Only half the material was salvagable, so the rest (including all the balusters) had to be recreated from scratch

reduced by a variety of mill shapes.

The balusters (also L&V) reveal the layers of woodwork that add up to the striking column and railing (and more). To assemble the components, Pender used polyurethane glue wherever possible, since metal fasteners are vulnerable to the trust salt air at coastal California. When metal fasteners were necessary, he went to the expense of using stainless steel nails to attach the balusters (1/2" x 6") and stainless steel screws to tie the balusters to the post.

—Don Chiswick

ILLUSTRATION: ANDREW L. ROBERTS; PHOTO: BOB BARNETT/REUTERS

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wide arch into the living room—areas they came up with during the move, when the house was stripped down to the ribs and they could see the bones from the living room. They didn't want to lose that view and sense of openness. "That archway opening to public rooms was a feature we found in other houses from the period," Bell says. They also added a powder room behind the entrance.

Upstairs, the original floor plan is basically the same, with a master bedroom, guest room, two children's rooms, and a hall bath. But they decided to take chunks out of two small bedrooms to fashion closets, which created alcoves that raise the bedroom's occupantcy of the main space. They added doors and a bath off the master bedroom, again taking chunks of space from corners to retain the symmetrical lines of the room.

Finishing Touches

In contrast with the Irishman's level exterior, the inside was relatively plain. "No doubt the architect would have liked the interior to be just as simple," says Bell, who speculates that the original owner probably ran out of money. "So we tried to

show. The bright, airy kitchen, painted a fresh green, has custom panel cabinets that echo the very cool built-in cupboard. Marble countertops flank a farmhouse sink. Small and simple. The dining room's white ceiling ceiling panels is the living room's table set for guests. The bar down ceiling, which was added during the renovation, is dressed up with period-style lighting fixtures.





Plans show the opened-up living room wall and new powder-room dimensions, the added closets and master built-in space.



enclose the interior that would have been."

In the dining room, he and Julia designed a coffered ceiling, which is consistent with the period and also conceals four load-bearing

beams. A French carpenter wrapped the structural beams in redwood and then added a grid of bass beams to create the coffered effect. Julia found a personal tin stove, decorated with a classical garden, for the living room.

The 3-foot-long, peachy walls were glued and nailed in place, their edges finished by electrician, and made them ready for paint. She added crown molding, ceiling medallions, and ceiling brackets throughout the house. The master's

entry to the living room is a small alcove—just a storage for coats by the former owner—and Julia found a nice coat as a storage rack to put in the living room.

She gave the walls of the living room, downstairs hall, and master bedroom a dull golden tone to recall the opulence of the house. "The richness of the architecture called for a rich but neutral palette," she explains. The rooms are furnished with a mixture of antiques, including a 19th-century French brass chandelier, an English Empire sideboard, a Gustavian secretary from Sweden, and lovely carved French antiques. New upholstered pieces are classically styled.

In the kitchen, Julia tracked down a 19th-century and had cabinets made to fit in with some original built-ins. She added a plaster front to the fresh green walls, and a costly sleigh bed to serve as a couch. The rock flooring, installed over the original lin in the '20s, was refinished.

Perched on a hill above Monterey Bay, the house is visible from all sides, and every corner has views of forest fields and ocean. "The house finally has the setting it deserves," says Julia, with obvious satisfaction. "It's been preserved for life."



ON THE MOVE



The house (top) and surrounding and boarded up for eight years. To make moving it more affordable, it was cut into five pieces and loaded onto trucks. The upper sections were lifted and lowered by cranes attached to steel I-beams (above and right).



to prepare the Italianate house for the move, Jim Reister, of Cypress Construction in Watsonville, California, took away several additions stacked up in back—including a kitchen that was barely holding on by three nails—all made in the 1950s or later, some with historical value. Then the two existing chimneys, old plumbing, and crumbling plaster were removed. Because the front porch would have collapsed if moved with the house, Reister took it apart, cataloging each board and baluster to reassemble later.

Moving a house doesn't always require cutting it up, but by seeing this one into four chunks, Ron Campbell and his crew at Fresno House Moves were able to drive it under a series of utility lines, toppling some \$130,000 in wire-removal fees off the bill. All told, the move cost \$41,500 (not including assembly).

Reister and Campbell took great pains to prepare the rocky structure for relocation, building temporary support walls where the cuts were to be made, bracing up the sheer strength of existing walls by replacing the false plaster with plywood, and carefully removing exterior claspboards along the staked foundations. Rather than use chainsaws, which are quick but rough, they made their disconnections with slow-cutting reciprocating saws, isolating whether to cut along and disassemble, though they couldn't avoid cutting the second staircase. "This wasn't a job," says Reister. "It was a delicate operation."

The movers then slid a pair of steel I-beams through the second-floor windows. Two more were placed on top, perpendicular to the first, and anchored to the wall framing to create a solid grid. A crew—hooked to the first row of beams—then hoisted the sections up and eased them onto dollies. Hydraulic jacks lifted the ground-floor sections off the haling foundation. It took four wide-load vehicles these hours to drive the five pieces to the house's new home, traveling in the previous hours to avoid traffic.

The soil at the new site had already been compacted and leveled, and the rough footprint marked with pins. But the crew encountered and panned the new foundation only after the bottom sections had been rolled into place and set on 5-foot-high cribbing. A prepared foundation was all that was required: the use of more costly cranes to set down the sections. But more important, with the house hovering directly overhead, the crew could be precise in laying out the footprint. "You have to marry the foundation to all the tiny imperfections of the house and then lower it down," says Campbell.

Not that no machinery could squeeze under the hovering house, the crew was forced to dig it by hand. It took two weeks to get the house locked in place, extending the total length of the move to over three months. But for homeowners Julia and Doyle Downs, who are now attended unannounced views of the sea from their kitchen window, it was well worth the wait.



GREEN ACRES

One-bag-fits-all seed mixes won't always yield a perfect lawn. Here, the best turf types for your yard

Now's the time to raseed your lawn.

So which seed do you choose? Looking at the idea selection in most garden and home centers, you'd never guess that there are hundreds of varieties available today, bred to address any problem you're likely to encounter: drought, damp, disease, heavy traffic, insect infestations, and too much or too little sun. You can even customize your turf for solar and other decorative effects.

Plant scientists, including those at the University of Rhode Island, home of America's first turf research program, have turned out an amazing number of approved turf grasses over the past three decades. "Right now, if homeowners took advantage of current

plus breeding resources, they could have a consistently beautiful lawn with a high degree of insect resistance and traffic tolerance, even under the most challenging circumstances," says URI

professor of plant sciences W. Michael Sullivan, Ph.D.

The key is finding the right grass variety—or mix of varieties—for your conditions. In the U.S., turf grasses are divided into two basic categories: cool-season grasses for the North and warm-season grasses for the South. While all northern grasses can be grown from seed, many southern grasses, especially the improved ones, can only be grown as sod or from plugs—small, rooted plantlets. If your lawn has mixed conditions—some sun and some shade, some spots where water collects—consider a species that grows reasonably well on various sites (such as a fine fescue for sun and shade). Or combine the strengths

of two or more species with similar color and texture (for example, mix perennial ryegrass, for its quick germination and wear tolerance, with Kentucky bluegrass, for its longevity, cold hardiness, and sheer good looks).

options: In a yard that has both sun and shade, choose a turf grass that grows pretty well in a variety of conditions, or make a custom mix for your conditions by combining the strengths of two or more species.

BY WARREN SCHULTZ

