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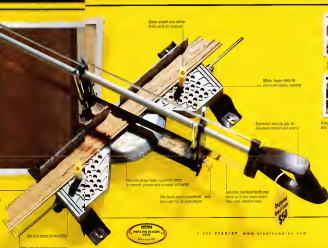


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breeze way

Many of the renovations at TDH's completed owner project in West Palm Beach, Florida, relate to the backyard, including the beautiful pool addition, the pergola, stone built, and the new pool. See "The Final Lap," page 96. BY JEFFREY KOSLER

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YOUNG, NEDDO P. 130



YOUNG, NEDDO P. 130



SPINSTER RETREAT P. 137

cover

This bright house is the gracious entry to a lovely built-in Southern California home—complete plenty of warm sunlight. Architect Greg Weaver used the owners' 1920s house as a template for the project. Discovering all what the family loved about it, and all the things they wanted to change, and turn it into a modern home. To see the house, visit the website: www.gregweaver.com. Turn to "Decor and Design," p. 110. PHOTOGRAPH BY SANDRO SCHULWOLF

AUGUST/SEPTEMBER 2009

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STEEL TRAFFIC, P. 22

"Steel can be used in a kitchen in many forms—people don't know how inexpensive it is to have a piece custom-made."
—Steve Thomas



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LETTERS



Missing the Challenge

I very much enjoyed your article "One for All Please Call With Stone, May 2001" about universal design. As an occupational therapist, I know that universal design is an important way to enable people of all ages to live as independently as possible. Your piece showed that it can also be attractive and functional for everyone, whether or not they have disabilities or special needs.

Dr. Rosemarie Conroy, M.D.

I just finished reading "One for All" and enjoyed the attitude of this article. Also for folks with special needs can be designed into settings that are lending to everybody. I wish I could get a room like the one described in this city brother's house!

Marcus Foster Hu, Eugene, Wash.

Top-Down

I enjoy the magazine and hope you keep up the good work. But the two articles in the May 2001 issue that show readers how to build kitchen cabinets—"Hanging Kitchen Cabinets" (Homeowner's Handbook) and "Cabinet Making"—have me confused. The former article shows Tom Silva putting in the top units first and follows with explicit how-to instructions that support this approach. The latter article has Tom and Maria attaching the base cabinets before the top ones are up. As of my year of watching TDH, I've always seen the top units secured first. I'm wondering if I may have missed a point somewhere.

MICHAEL L. BOWEN, BOWEN, COLORADO

You are absolutely correct and haven't missed a thing—usually, the top cabinets

should go in before the bottom ones, as shown in Homeowner's Handbook. But, in anyone retrofitting a house some learn, unforeseen circumstances have a way of turning things upside down. A little improvisation is sometimes necessary when materials are delivered late (in the case of the West Elm project, the top cabinet materials) and construction difficulties must be met.

Remembrance of Things Past

I'm a reader in high school who plans to study architectural conservation in college. I really enjoy your magazine and TV show because they encourage us to embrace the past while looking toward the future. Historic buildings are not only attractive, they are also an important part of every city's legacy. In my hometown of Pittsburgh, we are working hard to return the homes of the city's 19th-century brylants to their former glory.

I have just one suggestion for your magazine. Could you show us what has happened to some of the homes previously featured in Save This Old House? I always flip to that unit first, and I love imagining what it would be like to restore one of these great old places. I also intended to writing what the new owners have done to them.

ANNE K. BLAIN, PITTSBURGH, PA.

Many readers have expressed the same sentiment (and we're pretty certain, too). A feature article following up on some of these updated houses is in the works.



Address mail to: Letters, The Old House magazine, 1000, Avenue of the Americas, New York, NY 10020 or e-mail us at letters@oldhouse.com. Please include your full name, address, and daytime phone number. Published letters will be on the air and may also appear in other media.

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OUTTAKES

BEHIND THE SCENES AT THE 2002 EARTH SHOW



INSTANT OF LOUNGING ON A Mediterranean beach, TO H

Ahead of the Curve

plumbing and heating consultant Richard Zinkewer spent his spring vacation in chilly Frankfurt, Germany, at the 21st International Symposium and Housing (ISH) Fair from March 27 to 31. He witnessed the buzz generating show put on every other year by nearly 3,300 plumbing, HVAC, and kitchen-and-bath exhibitors from 42 countries. "It's ground floor," he says. "Manufacturers here forecast designers to develop products, which they sneak into the show under cover of night and unveil with great fanfare."

According to Rich, the prevailing theme this year was improving the environment—not only to protect the Earth's resources but to enhance a home's aesthetics. He was captivated by the many practical yet decorative fixtures, such as a marblelike radiator (above) that warms a space while serving as its artistic centerpiece—and a coat rack.

But Rich emphasizes his foreign counterparts' eco-

consciousness in the driving force behind many designs. "Europeans are crissed about conserving," he says. "One entire floor was filled with downspouts, tanks, and cisterns just for rain collection. And if a decade ago I saw basic geothermal heat pumps," he says, of systems that use the constant temperature of the earth to warm or cool a house, "I saw fifty or sixty this year." The event also showcased solar power, including one low-profile rooftop assembly with easily replaceable solar photocells that Rich admired. "Europeans are forced to consider alternatives because of skyrocketing fuel costs and increasingly strict emission standards," explains Rich. "Their dense population is taxing the natural resources. It's amazing how far ahead of us they are in their thinking on this stuff."

The first North American ISH show is set for fall 2002 in Toronto. Says Rich, "There maybe more of these products will be available here and we'll adopt an Earth-first attitude faster than we did the waste system." —Ryan Kabbash

PHOTO BY JEFFREY M. GOODMAN FOR ENR 10/1/02

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OUTTAKES



A Bit of Ingenuity

With the New Yankee Workshop a good 1,500 miles away, T.O. H. master carpenter Norm Aram found he had to improvise while building the pergola for the TV show's project in West Palm Beach. Norm needed to make X-rich-wide holes in the top rails to accommodate the heads of prefinished lag screws (see "Building a Vine Rack," May 2011, page 148). He'd been in his workshop; he would have filled traditional drill jigs with a Forstner bit (left). The attachment carved out flat-bottomed holes using two horizontal blades called chip lifters. General contractor John Kinn offered Norm his machine's Forstner to use on a hand drill, but Norm declined; the bit's short centering tip, which keeps its cuts flat, doesn't grab hold of the wood. "The drill has nothing to keep it in place," says Norm. "You can hurt the wood, and yourself, too." So plumber Dwayne (reading bit [right], slot in a scumbed-edge Forstner with one chip lifer) and a drill through framing when they roged in pipes, the accessory gave Norm power-supplied call holes for the screws. —Jordan Reed

On-the-Job Learning

"Cleaning up the job site is just as important as the finish work," said TQH contractor Tom Silva recently. "You have to put in your time doing the former before you can ever learn the latter." Tom was talking to Jerry Crocille (below), who with his partner, Carl Remens (right of frame, back row), runs Tripp House, a construction program at Lake Worth High School, near the Florida shore project. Nine students dropped by to get some hands-on experience and to chat with the show guys. The kids cleaned away some lumber, plaster, and packing materials (a no line

Crosbie and Romano started Trojan House in 1987, so far 98 students have completed the two-year course. The students work with licensed contractors, and they recently finished rebuilding a city-owned dilapidated house in Lake Worth with donated materials. "The program gives the kids a taste of what it's like to work in construction," says Crosbie. "When they graduate, they've earned apprenticeship hours toward a journeyman's license." Proceeds from the house's sale will fund next year's project.



Tom, who stopped working long enough to give the guys a pep talk and to pose for some photos (along with Norm Abram, Roger Cook, and Steve Thomas), is a big booster of such programs. "It's a shame that more kids aren't learning the trades," he told his capt audience. "Learn how to do a good job, pay attention, be honest and fair, and someday you can start your own business." —Jefferson Koile

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HOUSE CALLS WITH STEVE



Beauty on a Budget

Secondhand cabinets are the key to this sleek, chic kitchen redo.

W

hen Kelson and Sarah Oelson married and bought a starter house in the Park Hill section of Denver, Colorado, in 1999, they were stunned by its low price and its location—five minutes from both their offices—met by its design. Says Kelson bluntly of the 1935 brick bungalow: "There was really nothing else out or special about the place."

That was paradoxically true of the kitchen. The Oelsons were eager to create an attractive cooking and dining space, but they had a modest budget—around \$7,000. With the average kitchen renovation costing \$23,000 to \$30,000, according to the National Kitchen and Bath Association, and half of that typically going to cabinetry alone, they knew they were going to have to be creative. "The Oelsons weren't afraid to experiment," says *The Old House* host Steve Thomas.

PROBLEM

The 1,000-square-foot bungalow was large enough for the couple, but it was broken up into backside room, and they preferred more open space. At 5 by 12 feet, the kitchen had tall, narrow cabinets, but it was poorly organized and outdated. A run of cabinetry spanned each of the long walls, on a raised granite island close to the stove of the short wall, and a refrigerator dominated the other. "It didn't make sense to jump the old kitchen," says Kelson. "There wasn't much counter space or storage, there was no dishwasher, and the cabinets had white-laminate low-quality layers of paint on them. We decided to start it all over and start over."

Desires crisscrossing in efficient work space, the couple wanted the new kitchen to reflect their "industrial eclectic" taste, as Kelson characterizes it. "We also hoped to open up the room to the rest of the house," he says. Like many couples who renovate, they didn't want to be separated from guests while cooking, dining,



room, the inefficient layout and a dated look were among the reasons to renovate the busy kitchen. The new space is the dining area, the space is wider and the more functional, making entertaining easy.

BY MICHAEL WAGNER PHOTOGRAPHS BY GENEVIE WILSON



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HOUSE CALLS WITH STEVE



As seen in the 2002 brick bungalow, Kelson's new small and dark, open, in place of a wall that separated the kitchen and dining areas, the owners installed a custom-made steel breakfast bar—see backslash they designed themselves. The counter is of local stone.

SOLUTION

Kelson's original budget allowed \$4,500 for appliances and fixtures and \$8,500 for cabinets—although he hadn't figured out what he could afford for that window. That left \$1,000 to cover the work he could do himself, such as electrical upgrades and plumbing. As an architectural designer, he saved a lot by designing his own plans and drafting the working drawings himself.

He wanted to make one major structural change: eliminating the new load-bearing wall separating the kitchen and dining rooms. As a contractor, Kelson wanted his parents and some friends to help demolish it. To create more storage space and accommodate a new side-by-side refrigerator, he built out a portion of one wall to hold back the appliances and a custom pantry closet. A new stainless steel sink replaced an older preformed beneath a window, and a dishwasher was tucked beside it.

Some work had to be turned over. A plumber moved the gas line several feet across the room to accommodate a new range with a built-in downdraft vent, and installed floorwork under the tile to carry smoke and fumes out of the house. An electrician put in additional outlets, including one for the range. Then Kelson had the walls plastered. The cost of these three jobs was about \$300. Kelson could no longer delay on the cabinets. He discovered that even the least expensive stock cabinets in wood would set him

back more than \$5,000, so that was out. He turned to a firm in Denver that specializes in selling salvaged kitchen cabinets. "They had just got a bunch of 1950s stainless steel ones from an apartment building," Kelson recalls. That cost \$90. He had them sandblasted to expose the steel joint. \$120, then sealed them with a clear, water-based acrylic. "Most people would be unable to tell steel metal cabinets on a kitchen," says Kelson. "Kelson saw the possibilities in other people's ruins."

The dimensions of the recycled cabinets, as well as a steel file cabinet from flea market, acted as the guide to show materials and spaces, helped dictate the remaining layout. Once all the cabinets were positioned, Kelson found a kitchen space next to the dishwasher, so he designed a multi-purpose use of Baker brick plywood for a storage space, wood



BEFORE: The fridge and stove ate up too much floor space and made it hard for two people to move about the kitchen at once. AFTER: Tearing down the wall between the kitchen and dining areas made more for a range, which is flange and pantry found open along a former counter wall. Demolition revealed a chimney, whose brick they left exposed.

made. The kitchen bar cost only \$130, a fraction of the price to fabricate a similar piece in granite or marble.

All in all, the work was a success, says Steve. "A small kitchen, a small budget—the Delborn turned a challenge into an opportunity." ■

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ASK NORM

Fixes for bouncy floors, cracked walls, and broken glass

A POOPY POOP

When I had my house repainted, I told the painter to stop the peeling paint on the porch floor. But he painted over it and accused me of embezzling the job. Well, the new paint has already started peeling. What should I do?

BOBBY VAN DYKE, MINNEAPOLIS, MN

You were right to suggest that the floor be scraped first. And that's what you'll have to do now. If the bouncer is lucky, you could grind it all with a second floor sander, but if there's lead paint in those early layers, a chemical stripper or a lead abatement contractor would be the better choice. If the paint's lead-free and not too thick, painting contractor John Doe says a 3-inch disk sander with a 7-inch sanding pad and 36- or 50-grit paper, and follows with a pass with a random-orbit sander and 60- or 80-grit paper. But, he warns, it takes a practiced hand with sheet rocks to avoid gouging the wood, and you need to wear a good dust mask or respirator.

Once the wood is bare, Doe says needs that you prime with a low-solids (and lead-free) primer made specifically for porch decks. Those primers are more abrasion-resistant than most of exterior paint and are so slippery in the high-gloss types. Deck paints are self-priming, just don't let the first coat slightly with paint thinner before applying the first coat with one or two additional coats, as needed. Depending on the temperature and the relative humidity, you should allow each coat to dry overnight. Then go out and enjoy your porch.

PAINE-FULL GLASS REPLACEMENT

The front door of my 1980s bungalow resembles a garopane piece of Venetian-style glass that has been broken and glued with layers of flowers and geometric designs. Unfortunately, it's also cracked to shatters. The cracks show up when the door is pushed. The glass is plain and replaced. I was told that when I saw the damage, it was something I can do to replace the glass?

GLENN ADAMS, VANDERBILT, TN

I'm not surprised to hear the glass cracked. If the putty on the outside face of the door was bad enough to need replacement, the bedding layer between the glass and the door probably was bad, too. A slight push on the glass is all it would take to start a crack.

You could find someone to reproduce the design—that's what we did at the T.O.V. project house on Nantucket when we wanted to match a piece of white cut glass in an existing Victorian-era door—or you can have a professional re-glue the piece back together with lead, an epoxy formulated for just that purpose. That glue will make the cracks invisible, but it certainly will

leave them exposed to UV rays. A UV blocking window film or screen panel should help to slow down that process.

While the glue is being repaired or replaced, remove the old putty around the opening and lightly sand and prime its wood frame. Then, when it's time to replace the glass, lead is in fact glass putty, hold it in place with glass putty—cut too tight or you could crack the glass again—and cover its perimeter with glass putty. (See "Peeping Pretext," September/October 1998, page 63.)

A GOOD GUYLET

All the electrical outlets in our house were installed upside down. That is, the hole for the grounding prong is where the two slots fit the plug, not below them. This doesn't affect the use of any appliances, but I just don't like the way the outlets look. Can I turn them around again or should I hire an electrician?

BOB HERRINGTON, PEASLEE, TN

If you feel it all wrong around electricity, call a licensed professional. If you're careful, however, making this job yourself shouldn't give you any trouble. The only tools you need are a flat-blade screwdriver and a voltage tester.

Because you're working on a circuit that goes to the house, you might as well shut off the main power switch at your electrical panel. But if you want to work on one room at a time and just flip the individual breakers, always check outlets first with the tester; the breaker might be mislabeled. Once you've turned both sides of a receptacle (that's the proper name for the device that connects the outlet), remove the screw holding the cover plate and lift off the plate. Then remove the two screws that attach the receptacle to its metal or plastic electrical box so you can pull the receptacle out.

Turn it 180 degrees and push it back into the box, making sure to snugly seat the wires back in. After that, remove everything back in place and secure it to the metal receptacle, restore power to the panel where you're done. That's all you'll have to do to reset all the others in the house.

PUTTING PAINT TO METAL

In 1978, we installed steel siding on our house. Then, in 1980, we added a family room with limestone siding. The steel siding is inevitably bent and we'll be in pain the entire house. We don't know what kind of paint would be suitable. Can you help?

MIKE AND KAREN CONNOR, MOUNTAIN VIEW, CO

Unfortunately, there's no "one size fits all" solution here. You'll have to treat the limestone and steel differently. On the steel siding, fill



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choose a Portland cement topping. It won't be affected by moisture that seeps into through slabs. Because neither type of leveller is hard enough to serve as a finish floor, they should be covered with carpeting or wood. Portland cement can also be used.

The contractors who do this work start by finding the high point of the floor and marking a line at this height around the perimeter of the room. For large rooms, they might also drive a few masonry nails part way across concrete near the middle of the floor to help them gauge the level of the compound. To correct the lapid at each doorway, they make a boardline up to the high point line. Then they put your clevis over the slab up to the high point line and the nail heads, and spread mineral with a scraper. By the way, if the level line is higher than the door thresholds, you'll probably have to cut or raise the doors after the floor is finished. Depending on the product, you may be able to remove the carpet and bring in the couch within a week.

SCAFF JOINING

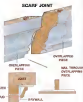
I'm going to install crown molding in our home, and the carpenter has to join sections of molding when the wall is too long for a single piece. Should I use a butt joint or a miter joint? Also, I'm planning to use a pneumatic nail gun to install the molding. Someone told me that nails without tips weren't likely to split the wood. Is that true?

BRUCE BOWMAN, Farm City, S.C.

The right way to split-wooding together on long walls is to use a scarf joint. Unlike a butt joint, the pieces of a scarf joint are lap, so if the wood shrinks after it's installed, there's no ugly gap. To make a scarf joint, just cut the joint over a nail in a 45-degree angle, cut both ends of the molding at opposing 45-degree angles, and spread a lot of yellow woodworker's glue over the mating surfaces. To lessen the odds of warping and cracking, drive a nail through the "overlapping" piece about an inch back from the edge of the scarf. This should prevent splitting; the nail joint will hold the "overlapping" piece securely.

You're right that a nail with a slightly blunted tip is less likely to split the wood than one with a sharp point. A joint tends to pry wood fibers apart, whereas a blunted tip merely severs them. You can blunt a nail

by holding the nail head over a hard surface and tapping the point lightly with a hammer. But if you'll be using a nail gun, it doesn't matter how sharp or blunt the nail is. Pneumatic nails are slightly blunter than standard nails and penetrate so quickly



than splitting, so it's a problem. Make sure you experiment with the gun's air pressure. You want the nail heads to end up just below the molding's surface; too much pressure could split the wood.

OLD FLOOR FIXATION

We live in a 1980 bungalow that we're remodeling ourselves. We want to keep as many of the original features as we can, but we're perplexed about how to handle the quarter-sawn oak flooring. We want to fix some holes, remove some stains, and refinish the floor. Are there some basic guidelines that would help us remove the floor in a way that would allow us to easily reinstall it?

BRUCE BOWMAN, New York, N.Y.

My advice is to leave the flooring in place. While it's usually possible to pull up a floor and re-lay it, I'd count the work as one of the most challenging and time-consuming jobs of remodeling. Even the most painstaking efforts will rarely do damage a few boards, and you'll unlikely find matching replacement unless you remove them carefully from another part of the house.

As for the holes and stains, you can take care of them without ripping up the whole floor. Cut out the damaged pieces



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SHED ROOF VENT

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and patch is flooring cut from an area to save area such as a closet. (See "The Beauty Bonanza," September/October 1998, page 124.) To help the patches blend in, be sure to stagger the layout of the new wood to prevent a floor being too obvious. Then have the floors refinished. A patch will never be invisible, and a lot of people are alarmed at how grainy some things seem to be when the room is empty. But it will fit the floor better than new wood ever could, and once you leave to the hardware and area tags and all that, it's really not really a big deal.

VENTING A SHED ROOF

We have a rumpus on our house with a shed roof. We know that we can lead the patch every now and then, but I wonder about how to install it, given that the upper end of the vent is attached to the house.

—GREGORY B. PAUL, WOODBRIDGE, NJ

Most roofs and roofing materials will last longer when the underside of the roof deck is ventilated. Proper ventilation requires three things: an opening under the eaves for air to enter, a covered vent at the peak of the roof for the air to exit, and a clear, unobstructed pathway for the air to flow in between. What you need at the top of the roof is a special vent that doubles as flashing where roof and wall meet. It also has a lower side a filter material that discourages critters from making a home in your rafters. One log fits against the wall under the siding and backing paper, the other log covers the shingles and a 10- to 3-inch-wide opening cut in the roof deck alongside the wall. (This opening should stop about a foot short of the roof's edge.) It'll add a layer of self-sealing waterproofing membrane under the log, covering the roof and over the sidewall log to prevent water from seeping past the seal holes. Then I'll recommend installing a gable vent on the eave above the shed so water won't splash into the vent's opening.

This will solve one end of your roof ventilation system. Just make sure you have a screened opening under the eaves that's the same length as the vent strip, and that there's an unobstructed passage for the air to move freely under the roof deck.

CRACKS THAT KEEP COMING BACK

One area of my living room wall always cracks to the same place. The crack starts low in a corner, travels straight up, then angles a bit. We've filled it with patching plaster

and tried all sorts of other solutions, but nothing seems to work. After our last repair attempt we wallpapered the area, but it immediately cracked the crack is back. The walls are plaster and the house is about 40 years old. Can you suggest a solution?

—ROBERT MORSE, BIRMINGHAM, MISS.

Filling a crack only covers up the problem temporarily, so make a permanent fix you'll have to go deeper, to the left beneath the plaster. There are several ways to isolate this problem, but I like the approach taken by Barry Berens, the interior-plaster consultant who worked on our Charleston project last year. Based on the crack's location, he suspects that the left probably is not secured to the framing and will have to be stabilized.

First, he says to remove the wallpaper covering the crack and push in both sides of it with your fingers to check for movement. Then find the stud in wood blocking nearest to the side that moves by tapping across the wall with a hammer or a hammer, or do exploratory drilling with a small-diameter bit until you find solid wood. At this point, drill through the plaster—the left—find a 10-inch square bit, then screw a plaster washer over the left strip at metal needs to snug it down to the stud in blocking. Increase steps to repeat the process along the length of the crack until the sides of the joint no longer move when pressed. Next, cut out the crack with a utility party knife, cutting under the edges deeply to form a "key" that will hold the patch and vacuum up every speck of dust.

Now coat the exposed left and the edges of the crack with a polyurethane (PU) bonding agent, available at masonry supply stores. This improves the adhesion of the patch to the wall and helps the old plaster from sucking the water—and the strength—out of the patch before it has a chance to set. After the PU dries for 30 minutes or so, spread a setting-type joint compound into the crack. These compounds, sold as powders with a mix of setting times, have low shrinkage and exceptional bond strength. For the kind of repair, a 45-minute setting time should be fine. Just mix the compound with water and smooth it back over the crack and the holes with a flat taping knife. Before it sets, lay in a wide strip of fiberglass mesh tape over the crack. When the first coat has dried, cover it and the tape with a coat or two of drying-type joint compound, whatever it takes to hide the tape and finish out the patch. This compound comes in a bucket, already mixed, and is easier to sand than setting-type compounds. Once dried, sand the area as necessary to make the patch invisible.

While you should take care of the problem, keep in mind that some cracks just won't go away. I remember one that repeatedly floored the same crack in the house I grew up in. It did end up being the rain or your house, or looking at the crack as part of its character. ■

Send questions to Ask Norm, One Ask House magazine, 1200 Avenue of the Americas, 20th floor, New York, NY 10020. Include a complete address and daytime phone number. Publications will be edited for clarity and length and may be subject to other edits.

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Bridging the Gap

Short-term financing can help you avoid the need for short-term housing when you're trying to time selling one home and buying another

The opportunity was too good for Nod Menon to pass up. In December, after two years as a customer service representative for a printing company, Nod was offered a higher-paying position as press layout for a publishing firm. There was one hitch, though: The new job was outside Whittier, Illinois, some 400 miles from Bloomington, Minnesota, where he lived with his wife Debra and their three children.

The Menons immediately put their house on the market and were shocked when it sold in only two weeks. But the couple then had to scramble to find a place in Whittier as they could clear out their old house and move into the new one almost simultaneously. Nod caught a break when, a couple of days later, his real estate agent showed him a three-bedroom ranch that hadn't officially gone on the market. He signed a contract on the spot.

Even with this bit of luck, however, the Menons weren't able to synchronize the two transactions. The couple headed over the

keys to their Bloomington house on December 22, but the new house wouldn't be there until the third week in January. As a stopgap measure, Debra arranged to stay with her biological work the moving company, while the family moved in with Nod's grandparents, who lived near Whittier, for the holidays. That didn't last long. "They're in their eighties, and we have three kids under the age of five. It was just too hard on everyone," says Debra. Nod managed to find an extended-stay hotel, but it proved too small for all of them, so Debra took the kids to her sister's in Milwaukee for a few weeks. "It was definitely a stressful time," she says.

The average American trades one home for another about every seven years. It's one of the most complicated financial transactions people make. If the sale and purchase aren't perfectly timed—and they almost never are—their already a hard, expensive, and time-consuming experience can become considerably more costly. There may be financial strings tied, too, for interim housing, as the

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Close Shave

Tom Silva tightens up and pares down a sticking door

The personality of an old door changes with the seasons. Puffed right in winter, it's a stubborn guardian against drafts and drafts. But by August, heat has driven moisture deep into the grain, and the once-yielding door has become swollen and stuck.

Tom Silva confirms a stubborn rain-swollen door with a jack plane and a level square. "You want to take off the maximum amount of wood necessary because the door is going to shrink again as the season," says Tom. "If you remove too much, it will sit loose in the opening." His rule of thumb is that the reveal—the space between the door and jamb—should be $\frac{1}{8}$ to $\frac{1}{4}$ inch wide, or about the thickness of a nickel.

Examining one sticky bedroom door at his house, Tom spends a little more getting a sense of its predicament. He opens and closes it to see where it catches, and he eyeballs the reveal. An uneven reveal may mean the hinges are loose or out of alignment. And, in fact, the screws holding the top hinge to the jamb have stripped their holes, causing the door to sag. But after fixing them, Tom finds that the door still sticks. Satisfied that humidity is the culprit, he pulls the hinge pins, lifts the door from the jamb, and gets ready to plane. As pine begins to cool off the door's edges, Tom's well on his way to restoring the entry's smooth swing.

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REPAIRING A LOOSE HINGE

To repair a stripped screw hole under the hinge leaf, first plug the hole and give the screw something new to bite into. Mix white or 2-part white, slightly tapered epoxies (it's not a cheap fix, so use a quality product). Then, use the epoxies to fill the hole and to seal the screw hole. As the glue sets, the plug will be formed, glue will not be too hard to push out of the hole, a good sign that it is sufficiently cured. "You don't want to have a dry spot," says says, as he wipes away the excess. "If you don't get good adhesion," he says, the remaining silver flash will be the hinge leaf. With the glue set, he removes the hardware, sliding the screw tight.



TOOL BOX: CHISEL

There's something about a chisel that tempts you to use it for all the wrong tasks. Maybe it's the beveled cutting edge, which resembles the flat tip of a straight all-around saw, suggesting that it's suited for light-duty jobs like prying the lid off a paint can. Or perhaps it's the teeth on the blade that inspire "putty knife" when the real object's not at hand. You buy little puttyknives for each other. "It's not a chisel, it's made to cut wood—period," he says. "You take the edge off, it's no longer square, put a notch in it, it's worse. Take a chunk out of it, and you could ruin the tool." That's a chisel right, though, and it could become an heirloom. That means taking the blade regularly to keep a sharp edge (grinding only when necessary), and storing the tool in a sheath or in its own slot in a toolbox drawer. After all, says Bie, "the whole idea is no nailing, planing, or any kind of unbecoming in the sheepshead of the tool. If it's dull, you're going to have to push harder to make a cut, opening yourself up to serious injury. A sharp tool is just safer."

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Wash Room

Beneath its high-pitched roof, a cedar-shingled outdoor shower lets beachgoers rinse off in style

After completing an exhaustive renovation that converted his summer house into a two-story party house residence, a Point Lookout, New York, homeowner turned his attention to the cumbersome shower shed out back. "From a practical perspective, I needed somewhere to rinse off sand or garden dirt so it wasn't tracked inside the house," says the 62-year-old married architect, who bought the property a block from the beach because he grew up by the sea and loves to conserve himself as it is every opportunity.

He could have replaced the crumbling structure with something plain but shingled, to match the house, or simply kicked off its worn asphalt roof, playing to the Spartans, no-frills image of most outdoor showers. But he had something more disparaged in mind, since the house was now oriented toward the bluestone patio where the shed stood. "Given that you're drawn to the private space behind the house, I wanted to make an architectural statement, something in the tradition of a folly," he says, referring to the landscape wherewith made popular in the 18th century—gleaming gazebos, fountains, and the like—that had captured his imagination as room in English gardens.

Fortunately, the existing shed's 6-inch-thick foundation walls remained intact, providing a stable footprint. On the downside, that left a slight, 6-by-4-foot area in which to work, and building-code restrictions prevented making a roomier space. "Since we couldn't build out, we decided to build up, giving it a tall, almost pent roof," says architect Andy Taylor, of Cameron, Cameron & Taylor in Brooklyn Heights, New York, who designed the structure. The packed elevation would provide visual interest and was also in keeping with the design of an English folly, which typically exaggerates its



The new showerhouse provides a fresh point for the bluestone patio.

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Left: Installing the supply ducts in a mini-duct system can be as easy as taping a plastic seal and making the standard 2-inch hole in the ceiling and the right hole in the ceiling. The miniature 5-inch plastic insert covers the hole.

in the ceiling, floor, or wall. A thin, 5-inch-diameter plastic insert is the only visible part of the system, compared with the 14-by-14-inch grates common in old ducty rental homes. Each mini-duct can cool 10 to 700 square feet, helps reduce supply and return runs from the plenum and more noise. There is no need for a supplementary network of return ducts. Our 3-by-1-inch version per foot (or per handle) is all that's needed. Because it is often easier to have a system in the basement and the attic, most houses are two-handled, each with its own separate compressor, which minimizes the length of the duct runs and creates a two-zone system.

For homes with an basement or attic, the small size of the air handles allows them to fit into closets or crawl spaces.

The advantages of using smaller ducts go beyond ease of installation. They also provide more comfortable cooling. A standard A/C or heatless system about 1,200 cubic feet of air at 100 to 600 cubic feet per minute (cfm) "It's not being pushed out very strongly," says Richard. "Cold air comes out of the register and falls to the floor. You can end up with uneven temperatures throughout the room." By contrast, the air handles in mini-duct systems move about half that volume of air, but at a far greater speed—3,000 cfm. To-mey-ay, air moves the room air thoroughly and quickly in precise patterns, says Richard, overcoming the tendency of air to stratify into warm and cool layers. "The high velocity of the air rotates it, even pressure in rooms cools and even temperatures throughout the room, the Holy Grail of HVAC contractors," Richard says.

For all its simplicity, mini-duct air conditioning does have its quibbles. The location of outlets is critical in making these systems cool a house effectively. "It's not a real good idea to put them over moving areas or dining tables," says Richard. "You don't want that fast-moving air blowing directly on people." That's why most floor and ceiling outlets should be confined to corners, and those on walls should be at least 70 feet above the floor. The smaller also has to keep clear take on the length of the supply ducts. While most of 40 or 50 feet are possible, Richard says, ceiling—and there floor volume—declines with distance. "At 20 feet, air volume declines 20 percent; at 30 feet, capacity goes down 40 percent." Where long runs are unavoidable—due to a house's floor plan—and the air flow starts to fall below 28 cfm, the number of outlets or a room should be increased to compensate.

Also, says Moore, can be a problem if an outlet inadvertently leaks the tubing or breaks a rigid duct's duct seal. And the smaller size to use "connections," replace fabric-and-rigid ducts designed to muffle

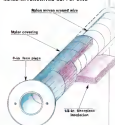
the sound of air rushing from the outlets. When the distance between the plenum and the air outlet is 33 feet or less, an expansion, which is the same diameter as the standard 14-inch duct, should be used for the return air. For longer distances, only the last 12 feet needs to be muffled. Properly installed, mini-ducts are quieter than conventional equipment, believe it or not. "You can't hear some systems you've put in. You'd have to put your hand over the outlet to make sure it is running."

Perhaps the biggest downside of going the mini-duct route is that they are 15 to 20 percent more expensive than conventional systems of equivalent size. An average new duct installation, including labor, ranges from about \$1,750 to \$2,500 per unit of output, enough to cool 400 to 600 square feet. For unusually complex jobs, however, prices can double sharply.

That said, there may be some savings on operating costs even conventional air conditioning. That's because mini-duct systems have outside-exposed copper coils, which are able to squeeze up to 36 percent more bandwidth out of muggy summer air than dry-to-ice coils that hang in, you can see them freeze higher and save some money on your electric bill. And with the right components—typically an additional set of heat exchanger coils—dry air can even be used as the heating system for a house when winter sets in.

Richard thinks the advantages of mini-duct systems go beyond simplifying older houses. "Mini-ducts are useful in afterthought installations," says Richard. "The people should consider them for new construction as well." Afterthoughts, in fact, he thinks couldn't be more pleased with his new system. "You don't hear it, you barely see it, and you hardly know it's on." Best of all, it keeps his house as cool as a cucumber. Bring on the heatwaves. ■

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Their Old Kentucky Home

A young couple restores and beautifies a waterlogged "Inghram"



On the last night of October, 1999, Kelly and Nita Grunewald celebrated the purchase of their Louisville home by sitting on the front porch, looking out onto the rain-soaked streets. But although the Grunewalds were all smiles, the crowded tables were reluctant to approach—frightened not by the young couple but by the house itself, with its broken windows and sagging front

He had been able to see beyond the house's significant flaws to its potential glory the moment he first spotted the place while jogging through the Cherokee Triangle preservation district. "We really like Arts and Crafts-style houses," says Kelly, "and I was excited about the idea of restoring it to the condition it was meant to be in." The couple also wanted to give the interior more of a period look, with Craftsman-style columns, bookcases, and an open staircase. The house's double lot (60 feet by 134 feet), rare for the neighborhood, added to its appeal.

Nita told a realtor friend about her interest in the property and learned that she had just gotten the listing to sell it. The price was

A rebuilt shed dormer and front door gave a face-lift to this 1920s brick Arts and Crafts house, but the interior had to be stripped and completely rebuilt. A new main-hall entry saved frame additions on back divided the original floor plan.



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TRANSFORMATIONS



The living room was garish (above) and put front hardwood floors (below). All new, but in Charles town style. Bookcases and surrounding floor in the back, a theme and pattern from the opened-up passage in the dining room. \$15,000 a design sleep by porch-to-dining room and deck were replaced by a 2,000-square-foot addition.

\$130,000 for the three-bedroom, one-and-a-half-bath home—half of what comparable houses in the neighborhood were listed for. Of course, those houses didn't need to be gutted from attic to basement in this one did. "We knew from the start that we'd have to replace everything," Nix says. They also wanted to replace an old sleeping porch addition with one that would double the house's square footage, and move a second-level garage from a corner of the backyard.

The Grimeses had tried three landlords at renovation before, rebuilding the kitchen of their first house across town. But that project was such a hassle. The place needed new electrical and plumbing systems, as well as new exterior walls, floors, and woodwork. "If the floors had been thicker, we might have been able to sand them," says Nix. "But it was impossible. You couldn't even walk on the third floor—it was like balis water. And when we pulled up the floors, we saw that the joists were rotting." So they turned up on This Old House school, filled with some home design computer programs, and brought in an architect (not, Moody L. Pinsky, of Pinsky Architecture at Louisville, as initially. Pinsky assumed the situation at the beginning, took measurements, and helped draft a proposal to the Littleton House Preservation District Landmarks Commission, which had to approve the renovation plan. This included Nix's layout of the addition, which would have a family room, expanded kitchen, bath, garage,



room, and porch downstairs, and a new master bedroom, bath, and deck on the second floor. The original third floor attic would be converted to include an exercise area and bath, with a large back bedroom, guarded by a window seat, as the addition.

After the plans were approved, the first step was clearing two 40-foot Dumpster's worth of garbage from the property. Then they hired a demolition contractor to destroy the crumbling garage and strip the house down to the studs. After the debris men withdrew, those who were not out of the original drywall left. The old plumbing and wiring was pulled out, as well as the deckwork and furnace.

With the house reduced to an skeleton, Nix, who at 33 had recently returned to college to study computer information systems, started the moment to work every room of the house for high-level interior scores (see "Wired for the Web, page 64). For this and other projects, the Grimeses turned to some of Louisville's home restoration—friends and acquaintances of Nix's from his days as a manager of local hotels. "Many moments find these day jobs in construction," says Nix. "I found a bass player who's also a great plumber, and a sound man who's a great decorator. A folk singer did all the brickwork, which was the fireplace." After some paid, some volunteered. To keep the materials from being, the refrigerator was kept well-maintained, and the Grimeses became regular customers at the local pizza parlor.

After Nix, Kelly, and the museum confirmed the exterior walls and neighborhood zoning laws and rules, they turned to the plumbing and deckwork. Around the foundations, they used a miniature hydraulic to dig a French drain, a crack filled with gravel, and a perforated pipe and then covered with earth, to drain rainwater runoff and keep the basement from flooding. (An idea they had picked up from T.O.M.'s Worcester, Massachusetts, project.) They installed new subfloors throughout, laid hardwood floors, attached the windows and other carpentry work,



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such as the mowed oval built-in bookcases, and started staining the poplar woodwork—at which point they took a brief hiatus to regroup. “It was taking forever,” Kelly says. “Finally we found a painter, who saved the day.” From that moment on, they weren’t shy about being help for the remodeling jobs.

Almost every step of the way, they found themselves consulting with the in-house contractors. “A contractor member was assigned to us, and she was very supportive. She helped us pick the exterior colors for the addition, which had to blend in with the rest of the neighborhood,” Nat says. That liaison also came to the rescue when the contractor questioned the Gussmans’ plan to replace the siding on the damaged front doors, which had been clad in the same clay tile as the original roof. “She explained to the contractor that we couldn’t find salvaged replacement tiles or a spec lot to supply it,” Kelly says, “and this we wanted



The old kitchen (above) became a small area with a sink in the main, extended one (right). Kelly and Nat added subway tile and an island designed by Nat.



to use the same poplar siding that we had put on the addition—not the vinyl or aluminum that some people try to get by with.”

While Kelly searched for a area that would match the poplar siding in the back facade, Nat grappled with his plans for the master bathroom shower on the addition’s second floor. “Our first house had only a narrow shower stall, and, as a tall guy, I felt cramped. I wanted a shower that was basically a separate room with two showerheads and hot and cold benches,” Nat says. He built the shower room, then tried to find a manufacturer that would custom-fabricate a 6 by 8-foot shower pan, but was quoted prices beyond the Gussmans’ already stretched budget. So Nat set out to build his own pan, having one idea at the time: The Old Farmer. He and a cousin found jagged rubber mats from a dime store in 4-foot-wide rolls, which meant that, to get the right length, they had to glue two pieces together with caulk. “It was almost a lost doing a night because the shower is directly above the main kitchen,” he says. He poured a deep concrete base over the rubber, knocking it out in the walls, and when it dried, applied three coats of a paintable waterproof membrane to the shower floor and walls.

Kelly was most successful in what would happen to the kitchen. “It needed to be expansive. We have a lot of parties, and everyone inevitably gathers there,” she says. The new design incorporated the bay window kitchen as an alcove. The counters were extended into the old room, and another sink was installed. “We decided not to build a wall between the kitchen and the family room, the only divider in the kitchen area Nat designed,” Kelly adds.

She wanted the same open feeling between the dining and living rooms. “Our first house had a walled-off formal dining room that we only used for hiding laundry in,” she says. So she had her contractor open a wall between the two dining rooms and the living room by replacing a wall with low Georgian-style poplar bookcases and half posts.

As Kelly had predicted, the kitchen was filled to its rim, expanded capacity where the couple celebrated the end of their 18-month renovation. Now, as the Gussmans move in, they’re already hatching plans for more projects. Kelly, who is studying urban planning and landscape architecture, has a pile of the old red tile in the backyard, which she’s thinking about turning into garden paths again. “Nat, on the other hand, is shopping,” she says. “While lightening-speed interior contractors in every room, all we need are the carpenter,” he says. ■

WIRED FOR THE WEB

The side-splitting walls of his gutted house presented Nat Gussmans with the chance to install a state-of-the-art home data network in one fell swoop, without inadvertently funneling through existing cabling. From a local electronics supplier, he purchased one to three 2,000 feet of category 8 wire for DSL (digital subscriber line) telephone and high-speed Internet service, as well as coaxial cable for satellite and cable TV and fiber-optic Internet access.

In what's known as a "home run" configuration, Nat and a friend used a surface of a set of the basement walls as the system's termination hub, or home base. Because the network wires from each room connect directly to the basement, rather than running from room to room in one continuous "daisy chain" loop, "if one computer goes down the whole system won't crash," Nat says.

From the hub, they ran the wires up into a basement ceiling joist cavity and through the attic, then threaded them from floor to floor between the studs. The wires ran under the doors through 1/2-inch-wide holes drilled in the joists, and up into the attic, where they were pulled horizontally through holes of the same size in the studs, to be connected to outlets in each room. "We were careful not to put the network wiring too close to electrical wiring, which can interfere with Web connections," Nat says.

From the basement to joist cavity to each floor, Nat also ran a PVC conduit through which the next generation of wiring can be easily threaded at a future date. "Now we're prepared for anything," Nat says. —Dorsey Lickness



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Take That Job and Stick It

Bonding with construction adhesives

BY JEANNE HUBER

Like all young carpenters of his generation, Tom Silva, *The Old House's* jocular contractor, learned to build a house with nails. By crisscrossing joists against wood fibers when hammered in, the thin spikes of metal allowed him the most efficient way to secure subflooring to joists, heavy beams of drywall to studs, and delicate trim to woodwork. On those few jobs where they didn't work—sticking tiles, for instance—Tom would open a can of mastic adhesive and spread the gummy black substance with a trowel.

That changed in 1964 with the introduction of Liquid Nails, the first construction adhesive packed in a caulk-gun tube. Initially, it was marketed as a way to stick paneling to walls, but builders soon learned that mastic adhesives they could use a third fewer fasteners and still end up with a stronger bond than with nails or screws alone. The tubes were also easier to control and less messy than scooping grout from a can. "We afraid, 'Gee, that's a lot easier,'" Tom recalls.

Today, adhesives in a tube have such a wide range of applications that virtually every building material can be stuck together with the stuff. (Polyethylene and polypropylene are rare notable exceptions.) Some products work best in combination with nails and screws, to stop drywall from popping, sag, or flexing from racking. Others hold up heavy corners or weak load-bearing loadboards to basement walls without fasteners. Some are so powerful that they help hold down roofs in hurricanes, even when the wooden haven's already under attack.

The binding power, or "bond strength," of construction adhesives is the result of a phenomenon called adhesion, the flowing into and gripping onto the myriad voids and fissures on a surface. These extremely strong bonds form only if both materials are tightly joined. "This is why all adhesives must be liquid at some stage," says Chip Young, of the Center for Adhesive and Sealant Science at Virginia Polytechnic Institute. "Only liquids can achieve the intimate contact that's required." After flowing into place, an adhesive must also cure and bond with itself. "That strength" is the measure of the toughness of these material bonds.

Despite the dozens of different labels on the tubes being home-craze-shed, construction adhesives break down into just four basic types: synthetic rubbers, latexes, polyurethanes, and silicones. The synthetic rubbers, also known as elastomers or solvent-based adhesives, are the versatile multi-bonders of the adhesive world. They're waterproof and somewhat flexible, work well in temperatures below freezing and up to 140 degrees, and can be used on a wide range of surfaces, from subflooring to concrete. "Even on a cold day at late fall, you can depend on rubber to adhere quickly," says Mark Skrzywicki, an adhesive specialist for Maxco, the maker of Liquid Nails. Solvents such as hexane, toluene, acetone, and other volatile organic compounds (VOCs) keep the rubber molecules in a fluid state. Once out of the tube, these solvents start to evaporate, allowing the real molecules to cure into a solid. While a full cure takes about a week, the surface of a bond can handle its stresses. That's why Tom Silva doesn't let his bonds air-cure. "You want to put the plywood subfloor down as soon as you get out the adhesive," he says. "If you wait too long, the stuff



When assembling a head-out of four pieces of 2x8, Tom Silva uses plenty of rubber-based construction adhesive. "I never let the glue air-cure coming apart." He joins the boards together on both sides with vertical rows of wide-spaced 1x4s every 4 feet.

PHOTOGRAPH BY KELLER & KELLER



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SILICONE
Silicone applications include concrete, brick, pavers, glass, and fiberglass. Some types are compatible with caulks and sealants. Unlike other sealants, silicone is unaffected by UV rays, but for long-term protection, it needs to be recoated.

WATER
Formulated for use on clear substrates like drywall, cement, brick, stone, fiberglass, and wood paneling. It's easily removed from surfaces by soap and water. It's also used during application. Closes up easily with water, but once cured, it's permanent.

POLYURETHANE
Has the highest tensile and bonding strengths of all the construction adhesives. Can be applied to a wide variety of nonporous substrates, such as brick, fiberglass, fiberglass, and concrete, as well as soft, hard, or treated lumber. Dries fast if you breathe UV rays can harden it better.



PHOTOGRAPH BY ERIC PIASECKI

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slowly over and you won't get a good bond."

The solvents, which typically account for more than a third of the contents in a tube, are also the major drawback of synthetic rubbers. Unlike butyl, neoprene, or any other VOC-free or low-VOC period of time can damage the liner or the control systems system. For safety, anyone applying synthetic rubber adhesives (even so-called VOC-compliant products, which contain less of these harmful compounds) should wear a respirator with organic vapor cartridges when working in a poorly ventilated indoor space. The evaporation of solvents is short-lived, however. Dale Zimmerman, a technical service advisor at Franklin International, estimates that a third of the solvent evaporates within 5 to 10 minutes, and 90 to 95 percent by the next day. Within a few days, all the solvent should be gone.

There are few if any solvents (up to 4 percent) in water-based latex or acrylic polymer adhesives. That's a good thing for indoor use, such as making vinyl trim to drywall or gromboard to wood studs. Latex also works outside, too. "They're just as versatile as solvent-based adhesives," says Zimmerman. But they're temperamental about the weather: High humidity retards the evaporation of water, which slows down drying, and freezing wet ingredients will prevent any drying from taking place at all.

For outdoor applications where an adhesive is likely to get wet, polyurethanes are the best choice. They cure by drawing moisture from the moisture in the air, which triggers the molecules to "cross-link," forming a dense network of very strong, stable bonds both with the substrates and between themselves. Thinking those bonds aren't very "rubbery" is a waste of time; in fact, anything that's temporary," says Tom Silo, who has bonded polyurethanes to mount deck boards on the "hot new TV show project." "For wood builders trying to cap our trim and corner boards that have been installed with it, and the wood gives up before the adhesive does." You can cut wood boards again with a hot knife or an oscillating saw, but, as Tom points out, "to most clients it's faster to start over with new wood." Polyurethanes can be unpredictable because the cure is relies them to be hard depends on the humidity. If the air is too dry, it may take days to cure. They contain only a minimal amount of solvents, but they also have inorganic, silica substrates that can trigger a strong allergic reaction in some people. To minimize the risk, wear rubber gloves, avoid skin contact, and wash the area well.

Silicone adhesives, the more expensive cousin of silicone caulks,

FOAM HOME

Not all construction adhesives are thick and gummy and squeezed from a cartridge. Polyurethane foam sprayed from a can represents the next great leap in adhesive technology. Little different from the cementitious foam used in insulation, these colored-foam substances reduce the need for nails, strip off bracing tape, shims and wet substrates, and form a structural bond far stronger than standard construction adhesives.



Even better, foam is fast and easy to apply. Remove the protective cap on the stick. Insert the dispensing gun, pull the trigger, and watch it shoot. The self-sealing gun eliminates the tedious exercise of squeezing a caulk gun, and there are no glue-to-chisel to chip up or work loose. At \$25 per 4-in. foam may seem a little pricey until you figure that one 30-second cartridge equals the equivalent of fifteen 36 tubes. (The guns range from \$30 to \$150.) But don't forget to don gloves before pulling the trigger; once foam hardens on skin, you'll have to work for it to wear off.

—David Zeitling

only to adhesives used for attaching adobe panels to wood joists, but the resin also covers another resistance, durability, and strength, and they estimate how well a product performs when tested in wet, dry, frozen, or exposed to cycles of high heat and pressure. The test for peeling is so high that these standards serve as a good way to judge the quality of any product, Zimmerman says. "You won't find a bad adhesive with these ratings."

For bonding materials onto wood joists, you also need to pay attention to the label, which lists the type of jobs a product is used for. Manufacturers do much better at formulating to improve performance for specific applications. An adhesive marketed for attaching drywall to metal studs, for instance, will contain ingredients to cut through oil residue, while an adhesive based only for attaching drywall to wood studs will not. Tubes labeled for use on both these materials or plastic substrates will be free of chemicals commonly found in other adhesives that can dissolve these materials. And adhesives for concrete have to have the right pH, or they might ruin the sheetrock. If you can't find what you're looking for on the label, there's usually a toll-free phone number straight to the manufacturer. "While you're in the store, walk over to the counter and ask to call," Zimmerman says. "We'd rather not have a customer say, 'Gee, I'll figure it out.'" Otherwise, you might get stuck with the wrong adhesive. ■



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On the Level

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ow many times have you heard a contractor brag about how level his work is? Despite the bragging, however, all contractors have a tool that can tell them if they're really on the level.

And, though we have this tool, we can't gauge level with the accuracy required for house construction. To build well means to build level—parallel with the horizon—and plumb—in line with gravity. "If a house leans, it will be noticeable—nothing will look as it ought," says Tim Giff, Housewright columnist Tom Igoe. "So at every step of a construction, we check for level and plumb."

Not surprisingly, most of the items Tim uses to do this—a water level, a variety of "stick" levels, even modern laser levels—all rely on the same principle that regulates balance in the river est: Once a body of water is always create a horizontal plane from one end to the other. In a simple water level, that means that the height of the liquid on one end of a pliable, water-filled tube is exactly the same as the height at the other end. In a bubble rail—the heart of any stick level and most laser levels—a bubble is trapped in a slightly curved tube of liquid. At level, the bubble rides perfectly balanced at the apex of the curve.

While the principle is simple, the construction of the tools is not. "A lot of professionals goes into making a quality level," Tom notes. The most accurate bubble levels are rated to a tolerance of .0005 inch per inch. Over 4 feet, a common level length, that cumulative error is still less than 1/16 inch. The degree of precision varies. Tim, for most jobs, has, he warns, not all levels are so precise. "It's worth getting the best tool you can find. You'll get more for one that is accurate and durable, and which can be adjusted if a new gear set of which," he advises. "When you're talking about things as important as level and plumb, only take my chances!"

STICK

These leveling gages combine steel with a solid spirit level bubble. As a significant portion of the material is by weight, a stick level is much heavier than a water level. It's also sturdier, and it's easier to use. It's also sturdier, and it's easier to use. It's also sturdier, and it's easier to use.

TOWNS

A different metal spirit level level from the bubble level features a wide metal frame. This metal frame supports the 10-inch spirit level. The frame is made of steel, and it's easy to use. It's also sturdier, and it's easier to use.

LASER

An all-precision laser level level features a heavy-duty frame. It's also sturdier, and it's easier to use. It's also sturdier, and it's easier to use. It's also sturdier, and it's easier to use.

PHOTO: JEFFREY M. HARRIS

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EXTENSIBLE RAIL

Some jobs, such as setting countermeasures, glomming a tall wall, or marking sub-structure of elevated bridges, require a level that can go the distance. This extendable aluminum Plumb & Level extends from 52 inches to 13 feet 10 inches and rests on the plastic shims of each end, holding level and bubble in top jobs and hot shots.

WATER

For precision levelling over long distances or over rough terrain, an ultra-accurate hydrostatic levelling system is the way to go. This system consists of a 100-foot tube, a 100-foot level, and a 100-foot level. The tube is filled with water and a 100-foot level is placed at each end. The water level is the same at both ends, and the level is used to set the grade.

TRUE RELIEF

"Grinding a level takes my time of all," says Tom Gley. "We do it all the time to make sure the level is true." Follow the procedure below to check level equipment as old level or a new one before purchasing it.

- Set the level on a reasonably level surface, such as a table or counter.
- Bubble the level and set the bubble.
- Spin the level and set the bubble again, and place it in exactly the same spot.
- Check the position of the bubble again. If the level reads true, it will be in precisely the same place.

A plumb line can be checked in a similar fashion by holding the line vertically from top to bottom at opposite ends.

If a line is reading to left, it can be adjusted. Some levels can be fixed by loosening a few screws and rotating the vials, while some sophisticated models have spring-loaded vials that move by rotating the fastener one way or another. Inexpensive replacement vials are available for some levels and can be repaired with little effort, but those with fixed vials must be sent back to the manufacturer for adjustment, or discarded.

OPTICAL

Both Tom Gley and Tom Hines (author of *Plumb & Level*) agree that a good optical level is a good level. Optical levels are used to set the grade of a building, bridge, or road. They are used to set the grade of a building, bridge, or road. They are used to set the grade of a building, bridge, or road.

For more information on levels, visit www.levels.com.

ILLUSTRATIONS BY MICHAEL GRIM



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Shady Business

At the peak of a business, Michael J. Serraglio gives a little shade to his business.

F

rom their North Salem, New York, farmhouse back atop the west face of a hill, Anthony and Barbara Maddalena and their family enjoy views of a horse barn, pastures bordered with oaks and flowering, a pond, and spectacular sunsets. The only drawback, as they discovered after buying the place two years ago, was that while their covered front porch provided some shade in the summer, it wasn't nearly enough to viscerally beat the heat and eye-dazzling sunlight that poured in each afternoon. "We looked elsewhere," says Barbara. It also got too warm indoors, Erica, 18, and Jenna, 16, complained. The solution arrived one day by mail: an advertisement for the services of a custom awning company.

Unfaded over large windows, a terrace, or a porch, awnings have provided cool cover for centuries, dating as far back as classical Greece. A stretched fabric in European villas and cafes since that time, they didn't see the light of day in America until the late 1940s, when architecture firms such as McKim, Mead & White dressed up many of their grand estate centers with crisp canvas as the European manner. With the advent of air conditioning after World War II, however, these protective coverings fell out of favor here.

BY DIANE DICOSTANZO

In these average-conditions times, awnings are popular once more, not only for their useful shade and decorative flourish but because they can reduce heat gain by 77 percent, lowering indoor air temperatures by as much as 15 degrees. That can mean considerable cost decreases in air-conditioning costs. "They make the air cooler and the lights cooler inside," says Tom Gray, of Dundas Awning Corporation, his family-owned company in Danbury, Connecticut. Late light also means less fading of interior fabrics.

The state-of-the-art difference today is that, even after this war, awnings are motorized rather than operated by a hand crank. Not only does mechanization save time and horsepower, it actually makes the coverings more useful. "With a crank, you're spending up to 45 feet. Anything wider than about 15 feet makes manual operation difficult," says Gary Wix, according to industry sources, motorized awnings are used 50 percent more often than manual ones. (Though as backup, all motorized systems also come with a crank, allowing manual operation—during a power outage, for instance.) The fabric, too, has evolved. Today it tends to be acrylic—weather- and fade-resistant and easier to clean than traditional pure cotton can-

PHOTOGRAPHS BY GRAIG RAINE

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vin, which digests most quickly and, when done, provides a more fertile breeding ground for mold and mildew.

As it turned out, the Middlehaus 36-foot-wide porch area was a prime candidate for motorized awnings, so Bill Garry (Tom's brother), convinced during an on-site consultation, the 10-foot-high roofline would permit awnings a generous 11-foot-deep white wall allowing for clearance of at least 7 feet under the front bar, the 1-foot-deep porch (awning) slope down and away from the house or a patch of 2-foot-6-inches per 10 feet to encourage rain runoff. "Any less than that and the space will feel claustrophobic," Bill Garry warns. While awnings are typically hung from a wall or, as in the Middlehaus' case, from the eave of roof eaves, no additional 18 inches or so in height can be provided by mounting them on the rooftop.

Given the width of the expanse to be sheltered, a single awning would have been too unwieldy, so Garry specified three 12-foot-wide awnings, each operated by its own motor. At the touch of a button on the wall or an optional hand-held remote, the Middlehaus' roof van would extend and retract, rolling up completely around a tube (for a detailed look at how each part functions, see "Unfurling Those Flying Colors," below). The awnings could also be stopped at any point in between, for a mixture of sun and shade. Brands choose from green fabric and white aluminum hardware to blend in with the house. "With this awning extended, it'll give you the scalloped green edge of the fabric under the eaves of the porch," she says.

Because of the awnings' size and weight (about 325 pounds each), the Middlehaus' system required steel rather than aluminum

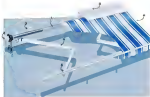


Stretching along the 36-foot western facade, awnings are undetectable when retracted.

A hand-held remote control (\$50) allows the Middlehaus to adjust their shade at will. To prevent children from playing with the device, Garry advises choosing one with a touch pad that requires the operator to key in a security code. Because they close wind sensors and sensors closed, the Middlehaus needed to install a programmable pressure box, that can add \$200 to \$700, depending on the area of the country and the wiring needed. The Middlehaus' system cost a total of \$193,000, including labor.

Today, under the variable flag of fern-green canvas, the porch is long and cool for the Middlehaus' parents, teenagers, and their friends. Now Brenda is riding a blue puma that matches her porch floor to the grounds in front, expanding her open-air living room by another 100 or so square feet. "Let the sun beat down—we've got it made in the shade," she says happily. ■

UNFURLING THOSE FLYING COLORS



The components of a motorized awning system include: (1) A roller tube that serves as a spool for the awning fabric wraps. Constructed with a 1 1/2-inch motor (2). It has an electrical cable that plugs into a standard 110-volt outlet or can be wired to a junction box. Supported by aluminum brackets (3) that attach the system to the house, a rectangular tension bar (4) runs behind the tube and serves as the backbone of the awning. The aluminum, spring-loaded retractable arm (5) attach to one end of the tension bar and of the other to the aluminum head bar (6). As the motor winds the fabric or pulls it back, the arms keep the fabric taut, avoiding a constant bow. When closed, the arms fold flat beneath the tension bar. The awning canvas (7) is usually acrylic, chosen for its durability and colorfastness. (7) In case of a power outage, a gear system can be fitted with a hand crank (8) (included). The protective plastic hood (9) is optional.

instead from, the "backbone" that supports the rest of the system. Quiet, top-of-the-line roller tubes would be stored inside the roller tubes.

To protect their awnings from damage in gusty weather, the Middlehaus opted for wind sensors. Two small plastic whistles, placed atop each end, that turn when breezes blow. When the power sensors velocity is reached—usually above 25 mph—the awnings automatically retract. But because they can't read the up-or-down winds that also accompany storms, wind sensors aren't an adequate safeguard at very gusty weather, Bill Garry warns. As a rule, "When it gets too windy to enjoy being out of doors, then you should go in, and so should your awnings," he says. To prevent damage from sudden violent drafts, awnings should be holed when not in use.



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Each Rosefield clips the heavy rail of a framed shower door into the joints, which is already anchored to the wall. The aluminum frame is mounted with clamps to match the shower's panel finish.

BY JOSEPH TRUINI

"Do as right, nothing beats a shower enclosed in glass," says Rich Rosefield with obvious pride, as he wipes the glass-and-metal door to a sparkling shine. Rosefield has just spent an hour and a half installing this enclosure, one of about 40 he puts in every week for Turner Glass Shelving of Walkerton, Massachusetts, a company that has handled installations on *That Old House* TV show projects.

Tempered glass shower enclosures are permanent and easy to clean, and have a sleek transparency that can actually help make a bathroom appear bigger. And when properly fitted to their opening, they do a thorough job of keeping water where it belongs.

These enclosures come in two types: framed and frameless. The frameless squares, while elegant, require thicker glass, expensive hardware, and flawless fabrication. Framed ones weigh and cost less, and can take more abuse. Says Rosefield, "They're more rigid, so they'll hold up better against kids yanking and slamming the door."

He also says that frameless enclosures are much more challenging to install, whereas hanging a framed door and side panel is a project most homeowners can take place in an afternoon. His advice: Take the time to align the door evenly to its frame and to get a watertight seal at the strike plate and threshold. "There's a cut-and-thrust job," he says.

—Sharon Brady Moore

PHOTOGRAPHS BY DAVID GARNACK



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HOMEOWNER'S HANDBOOK

Framed shower doors come in a wide variety of sizes, styles, and colors—as well as prices. A high-quality 5-foot standard model similar to the one on these pages costs around \$260, installation not included. Low-end models start at less than \$175. Higher-priced units typically have thicker aluminum frames that won't bend when squeezed. Doors with full-length piano hinges tend to be sturdier than those with two pivot hinges. The most durable finishes are anodized silver and gold, which are actually fused to the aluminum. Colored, beveled- enamel coatings come in a rainbow of choices, but they can be scratched or chipped.

Materials

By law, the glass in a shower enclosure must be either tempered or laminated so it doesn't shatter, but you can choose between clear, frosted, or patterned finishes. Clear glass can make even a modest bathroom spacious, frosted and patterned glass offer more privacy. Low-cost units may use sheets of acrylic and polycarbonate, but these plastics scratch easily, even from routine cleaning.

It's best to look for shower enclosures in a glass shop or kitchen-and-bath showroom. Although they won't have every model on display, you can judge quality firsthand before picking a style from the manufacturer's catalog. And if you've sketched the shape of your shower stall—with measurements—you'll be able to place your order (See "Planning Ahead," p. 100).

"A homeowner might take four or five hours to install a unit, but they'll save about \$150 in the process."

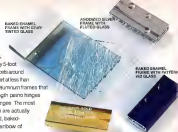
—RICK FERNFIELD

Tools & Materials

1. 4-foot track for anchoring the joints, door, and glass panel for gluing
2. 26-foot tape measure
3. Caulking gun (with stick, medium-viscosity silicone caulk) for sealing joints between frame and tile
4. Glass cleaner and paper towels for cleaning shower door and panel after installation
5. Isopropyl (rubbing) alcohol for cleaning walls and threshold before caulking
6. Pencil for marking joint placement on wall
7. Automatic pencil for marking holes in tile (alternatives: hammer and 3/16-inch nail set)
8. 10-inch single-cut file for removing burrs from aluminum pieces after milling
9. Flat-head screwdriver (with no. 2 Phillips and straight bit) for tightening screws
10. Plastic mallet for tapping in plastic anchors
11. Plastic wall anchors (3/16-inch diameter) and stainless steel screws (1/4 inch) for securing joints to walls
12. Drill (with 3/16-inch masonry bit) for boring holes in tile and 3/16-inch twist bits for pilot holes in aluminum
13. Cordless drill for drilling holes and driving screws
14. Hex screw (with 20-tpi threads) for fastening the aluminum base track and clip rail

ALSO NEEDED

Utility knife for trimming vinyl sweep
Canvas drop cloth for protecting the floor
Wet/dry vacuum for picking up dust and metal chips



STEP 1: SET THE BASE TRACK

- Measure the length of the shower threshold, then use a level to set the aluminum base track to fit tightly between the stall walls (100%)
- Smooth the cut end with a file. Vacuum up the metal filings immediately so they don't scratch the bathroom floor or shower base
- Place the track on the threshold and use a tape measure to make sure that it's centered from front to back (100%)
- With a pencil, mark the threshold along the edge of the track near each end. The lines may disappear if it slides around during installation of the joints



STEP 2: ATTACH THE HINGE-SIDE JAMB

- On the side of the shower opening that will support the door, hold a jamb piece against the wall so that its lower end fits into the base track. Without moving the track, use a 4-foot level to adjust the jamb until it's plumb
- Stick a pencil through the jamb's screw holes to mark the wall (100%)
- Remove the jamb, and at each pencil mark make a small dust cap using an automatic pencil or marker and wall set. (These tools chip the tile's glaze enough to prevent the drill bit from wandering.) Drill holes at each mark using a 3/16-inch diameter masonry drill bit
- Tap a plastic wall anchor into each screw hole. Use a plastic mallet to avoid marring the walls
- Hold the jamb against the wall so its screw holes align with the plastic anchors. Drive a 1/4-inch stainless steel pan-head screw into each hole (100%)

STEP 3: COMPLETE THE ENCLOSURE

- If a helper is being used, measure and cut to length as in STEP 1. Slip it over the top of the hinge jamb and slide panel (100%) Drill a 3/16-inch pilot hole through the inside face of the header at each end and into the corresponding jamb. Drive a 3/16-inch screw (100) into each hole
- Replace the magnetic strike rail on the glass jamb as it went, on the edge of the stationary panel. Adjust it so that the magnetic strips on the door and rail produce a watertight seal along their entire length when the door is closed. Slide the strike rail into the holes of the strike joints or stationary panel with the 3/16-inch screw
- Install the door handles that come with the kit. Align the caulked door handle with the holes in the enclosure. Attach the interior handle and tighten the set screws
- Stabilize the assembly by driving a pilot hole and driving a 3/16-inch screw through the outside face of the base track wherever it meets a vertical frame member (100%) Repeat the process on the inside face of the header. Center the screws on the aluminum sub-track to avoid tilting the glass.





In most shower enclosures, the shower door track is one piece that extends from wall to wall across the width of the shower opening. But in this third shower shown here, a built-in bench topped with a marble slab interrupted the opening. The enclosure's stationary glass panel was attached to fit around it, but because the marble overhangs the front edge of the bench by more than 1 inch, an aluminum filler strip had to be added to close the gap between the panel and the bench. (This extension is also used to correct for walls that are more than 1 inch out of plumb.) Here's how installer Rich Rosenfield used the filler to work around this protrusion.

First, he cut the filler strip to fit tightly between the threshold and the underside of the overhanging marble-top bench, and trimmed the metal so that it slid into the bench track. After drilling two 1/8-inch-diameter holes through it, he fast it in place with a torque knot to make sure it was plumb and, with a pencil, marked the screw

hole locations on the tile. After boring through the ceramic tile and cement backer board at each point, work with a cordless drill assembly drill bit, he tapped a 1/8-inch-diameter plastic wall anchor into each hole and fastened the filler strip to the bench with 1/4-inch stainless steel screws. Over this strip he fit a length of base track cut to extend from the track on the threshold to the top of the marble (jamb). Note that he tapered the top end of the piece to make a tight joint with another length of base—also tapered—that reaches across the top of the bench to the wall. Once the glass panel is installed, the difference between the width of the track and the filler strip is hardly noticeable.



STEP 3: HANG THE DOOR



STEP 4: INSTALL THE REMAINING SIDE JAMB

1 Lift the door with its attached hinge rail positioned to swing out, and slip the hinge rail into the jamb.

2 Hold the door in place and check the strike-side edge with a level to make sure it's plumb. If it's not, pull the hinge rail out of the jamb slightly at the top or bottom (sees). Once the door is plumb, the hinge rail should still be engaged in the jamb—there's a built-in inch of adjustment for plumb between these two pieces. (Note: It's vital to make sure the jamb is level and the filler strip is level.) See "Dealing With Exceptions," this issue.

3 While a helper holds the door in place, drill four 1/8-inch pilot holes through the holes in the hinge rail and into the mounted jamb. Fasten the hinge rail to this jamb with the 1/4-inch stainless steel pan-head screws provided.

4 If there is no glass side panel, slip the magnetic strike rail into the remaining side jamb and slide them to the magnetic strips on the door. Holding the rail and jamb in position, close the door until it lines up with the base track. Adjust the jamb until it's flush against the wall. With a pencil, mark the wall alongside the jamb. Remove the jamb from the wall.

5 Align the jamb with the pencil line on the wall and mark and punch the screw hole locations as in STEP 2. Drill the holes for the plastic anchors. Fasten the jamb to the wall with the 1/4-inch screws.

6 To install a glass side panel, slip the remaining jamb onto one of the panel's edges and the magnetic strike rail on the other. Then fit the bottom edge of the panel into the base track and butt the jamb against the wall. Close the door and grip the top of the panel and the door is now fast. With your other hand, mark the wall alongside the jamb. Remove the jamb and the magnetic rail from the panel and attach the jamb as above. Slide the panel back into its jamb and base track (sees).

STEP 5: FINISH WATERPROOFING

1 Pull the thin vinyl sweep out of the drip rail and set it aside. Then cut the drip rail with a hacksaw to match the width of the door. Round off the ends of the cut with a file.

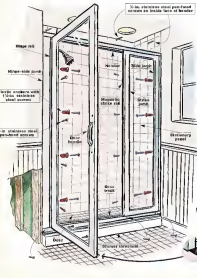
2 Slide the vinyl sweep back into the groove in the rail. Crimp the ends at the groove closed with pliers to hold the sweep permanently in place. Trim off its overhanging end with a utility knife.



3 With the vinyl sweep pointing down, hold the drip rail against the inside bottom edge of the door. Drill 1/8-inch pilot holes into the door frame through the elongated mounting holes and far enough to avoid hitting the glass, which sits 1/2 inch below the rail. Attack it with the 1/4-inch screws (left top). Before tightening the screws, tilt the rail down slightly toward the hinge side so that water will drain away from the strike.



4 Apply a bead of clear, mildew-resistant silicone along both the strike and outside edges of the base track and along the inside edges of both the jambs (left corner).



PLANNING AHEAD

- Before ordering a door, measure the width of the shower opening in at least three places: at the threshold, up 4 feet, and halfway in between. If the difference between the top and bottom measurements of the opening is more than 1/2 inch, check the walls for plumb with a level. Any wall that's more than 1/2 inch out of vertical over 4 feet will need a matching filler strip so that the door can be made plumb.
- From the point at the threshold where the door will pivot, measure the distance to bath fixtures or any other potential obstacles that are protruding over the door's path.
- Draw a sketch of the shower area in plan view (looking down from above) and in elevation (side view). Fill in all the measurements and take it with you to the shower-door showroom.

LETTER FROM THIS OLD HOUSE

Beating the Heat

E

verybody assumes that the planting season ends in June and that the landscaper spends his summer swimming at the beach. Well, that wasn't true 24 years ago when I started in this business—back then I spent plenty of scorching days building patios and mow with or mowing acres of lawns—and it's even less true now.

These days, I do things I could never have done a gross wage ago. It used to be that I couldn't plant trees and shrubs in hot weather; their roots, transversed by being dug up at the main job, weren't able to supply enough water to the leaves. Now, with the help of some recent innovations, I have plenty of hardy material to work with in July and August. I can buy plastic covers in containers, for instance, whose roots don't get exposed when they're transplanted. Or I can get trees and shrubs that were dug up in the spring, balled and burlapped, then given water and fertilizer until their roots occurred from the shock of harvesting.

I also have a much wider array of plants to choose from when I need to create a hot-weather landscape. While spring was once the only time you'd see the bushy flowering, low-growing plants have bred hybrids, such as the anemone 'Lemonberry' and 'Parade,' whose fragrant, bright blossoms don't appear until the weather gets hot. Best have also rediscovered summer-blooming native shrubs

and trees, like sweet pyracantha, fraxinus, and aspidodendron, that had fallen out of favor. And to create a vibrant landscape that changes through the season, we've learned to layer in perennials that bloom continuously—including malvaceae, Sedum 'Autumn Joy,' and caryopteris—and ornamental grasses or foliage chosen for their color.

We can even get a lawn sowed in July—or keep one going strong—with some new product developments. Highly absorbent pellets that hold up to 40 times their weight in water can be mixed into the soil, keeping the seeds hydrated without causing the granules to float. Likewise, buried drip irrigation systems like the one we put in at the West Palm Beach project house (see "Underground Watering," June 2004, page 42) conserve water and keep grass from going dormant. By sealing coverings or by laying down sod and making sure it's watered properly, I can give homeowners a vibrant expanse of emerald any time.

All these changes mean I get to spend more time doing what I love to do: work creatively with plants. That's the good news. The bad news is that I probably won't be taking a nice, long summer vacation until I retire.



TO H. Landscaping contractor Roger Cook waters green lawns and colorful flowers through the dog days of summer.

PHOTOGRAPH BY KIMBRA CLINEFF



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THE FINAL LAP

This Old House wraps its work on a sun-drenched Florida residence

Check out www.thisoldhouse.com for more information on The Old House South project, including the latest models of the renovation. This story is by

The last view of Rob Thompson's West Palm Beach house is from the back, overlooking the pool, toward the French doors that lead to the new back—but more home-out. The outbuilding on the left contains guest quarters.

FIRST IMPRESSIONS can be deceiving when it comes to Rob Thompson's 70-year-old house at The Old House's water project in West Palm Beach, Florida. Even though contractors Kern and Harley Engel labored six days a week from early January through late March, you'd be hard-pressed to notice more than a few details of the renovations from the sidewalk. You might see the freshly painted stucco, the topnotch landscaping in full, lush bloom, and the bright new mosaic tile around the arched front door that hides the sliding white concrete driveway around to the back, where before there was only a bland, unkempt yard. And you will discover a Mediterranean paradise: a pale-blue lap pool glimmering in the sun, a breakfast room addition cuffed with red barrel tile, and a sun-soaker pergola built by T.G.H. master carpenter, Steve Alvarez.

On this balmy March day, Rob stands on the porch, smiling. "You never would have guessed all this was back here, would you?" he asks. He walks up the new stone steps to the French doors leading into the addition. "We did a lot inside, too," he says. "Now, I'll give you the two-dollar tour."

BY JEFFREY KELLE PHOTOGRAPHS BY PASQUA GLADSON

“Wet towels,” says Rob, holding a pile of damp terrycloth as he walks into the breakfast room. “Ask anyone who has a pool, and they’ll tell you that’s what guests always leave behind.” He opens a cabinet door under the butcher block counter that runs along one wall, and there is the washer and dryer, hidden but accessible. “It may seem like an odd place for the laundry, but it is very handy to have it so close to the pool.”

Just one month earlier, on a balmy February afternoon, contractors Kern and Edgell were hard at work finishing the roof on this modest 1,140-square-foot addition. “They whole area used to be just an ugly little low-ceilinged back porch,” said Kern, standing on the new subfloor. “The house really needed this addition, not just for the extra space but also for an appearance.”

As he spoke, Kern lifted the tail end of a 4x8 Douglas fir rafter and handed it to Edgell, who was balanced on the top plate of the new exterior wall. Then Kern walked the rafter’s other end up a step ladder, set it on the ledger board fastened to the original exterior wall of the house, and secured it in place. Edgell passed out his tool so the rafter’s head—about a foot and a half—was in the gutter—fit snugly over the wall’s top plate, then he secured it with hurricane straps demanded by the local building code (see “Weathering the Storm,” May 2007, page 102). The rafters, which were left exposed, had been around almost of time. So, too, were the ceiling beams—1x6 tongue-and-groove pine—which Kern and Edgell nailed across the tops of the rafters. “Seeing the boards that served a lot of years,” says Kern. “Over the next few weeks, those 10-light doors went in, the drywall went up, and the quarter-round flooring went down.”

As its name implies, the new breakfast area is where Rob sits every morning at a small table with his morning paper, yogurt, and fresh fruit, and enjoys the unobstructed view of his pool and patio. “When the doors are wide open,” he says, “you almost get the feeling that you’re outside.”

This airy breakfast-cum-luncheon room also serves as his mail station, Florida style. “If someone comes out of the pool and wants a cold drink, that is as far as they have to go,” Rob says, pointing to the five-shelf wine cooler beneath the butcher block, right next to the backdoor. “The view from here.”

VIEW: Contractors John Kern, left, and Wesley Edgell along the addition’s aluminum-clad French doors. The decorative roller lock above the doors serves out on a rolling doorstop. **SCENE:** The room’s high ceilings have exposed rafters and pine beams and the light that flows in through the bank of doors creates an airy, airy feeling. The space also doubles as Rob’s laundry area, with a side-by-side machine tucked behind doors in the cabinet under the 7-ft wide black maple butcher block (LDT). “It’s not as though I’ll ever do my laundry on it, but it’s a good place to pretend food for people on the patio,” he says.



"It's as easy as changing the bulb," says Bob, closing a small white remote control at his kitchen sink. Above him, a skylight is open, allowing fresh air to enter, and you can feel a breeze rush into the room. Bob's renovated kitchen is sleek, polished, and thoroughly up-to-date. The contemporary and high-end appliances are pristine, the appliances stainless steel, and the floor dark stained oak. All the room lacks is a window. That's where the skylight comes in; it's the kitchen's only direct source of natural light, and a welcome source of fresh air.

"The whole thing comes in a kit, so it's easy to put together," said Edgell, as he installed the rooftop window in early February. He carried his color sensor in the blade fixed on backward to keep it from chipping—up to the roof. After making out the rough opening, he cut through the layers of non-structural roofing felt, exposing a couple of inches of the joists. "We measured the work by getting a 22-inch-wide skylight," he said. "Anything wider and I would have had to cut the roof trusses and put in new framing." To reduce the risk of water infiltration, skylights should be installed on an inclined surface. But Bob's roof is nearly flat, so Edgell assembled a sloped plywood curb that came with the kit, which he fastened to the roof with 3-inch galvanized decking screws. Normally, he just measures the skylight and the job's done, but this model had to be plugged into the house's wiring. There's a hole made back into the skylight's frame that opens a plastic sensor shade, which provides ventilation when a sensor detects rain. It also opens a plastic sensor shade, which provides ventilation when a sensor detects rain. It also opens a plastic sensor shade, which provides ventilation when a sensor detects rain.

Bob disappears for a minute and returns with a box of dark wires to wire in the cables. As he plugs the box on the corner, he notices the skylight's sensor control wiring there. "Now when am I going to get this so I don't lose it?" he asks. "New thing you know, I'll be using in the day working television, trying to click through the menus, and my skylight will be opening and closing."



AKING Edgell shows the skylight to a 22-inch-high plywood curb, meant to plug the hole enough to keep it from chipping—up to the roof. The skylight is connected to Bob's house's power and water and provides ventilation in the otherwise windowless kitchen below. At 100 square feet, the completed space is a kitchen. "It's very efficient," says Bob. "Some of my friends have their own kitchen when, in the course of making a simple meal, they walk a mile and a half between stove, sink, and refrigerator built in after hours."



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One of the first things Edgell and Kern did when they started work on the house was to protect the existing strip-oak floors in the living room with taped-together coats of red rose paper. It's a good thing they did, because the paper caught coffee spills, sandwich crumbs, sandalwood, wood scraps, mortar blobs, wine bars, and acris and screws that fell to the floor over the course of the 90-week project. Now the paper's gone, and the walnut-stained wood in Kall's living room shines with a finish coat of finish. "I really like the color," says Rob. "And it made it easier to hide the stains in the new oak floors in the kitchen and breakfast room."

The job of refurbishing the living room floor (and installing the new ones in the kitchen and breakfast room) left to contractor Chas Jordan. He and his crew sanded and stained the strips, then applied two coats of oil-based polyurethane. "One first coat is always high gloss," says Jordan. "It's tougher than the lower-shine products because of its higher solids content. Then we rub the gloss with a second coat of semigloss or satin."

Just refinishing the floor did a lot to improve this room's appearance. "It was very plain," says Rob. "As a decorator, I'm always thinking about where I can put different pieces of furniture to dress up a space, but I knew this room needed some good details to give it a bit more pizzazz." So before Jordan's crew showed up, Kern and Edgell installed some simple custom molding and capped out some heavy bookshelves on either side of the dark-painted concrete fire-



place. But the biggest project in this room was the eye-catching tilework on the new fireplace and fireplace surround.

Rob selected a large, handmade Moroccan mosaic to cover the surround, and a glassy black tile to encase the mantel. For color Richard Dwyer, the first step in installing the mosaic was to adhere a layer of meshing paper to the old concrete with mastic. "The paper isolates the new tile from the old concrete and keeps them from cracking," he says. "Plus, it's a great surface for making layout lines." The mosaic came already assembled with their faces stuck to adhesive-backed strips of plastic. To achieve a seamless, tiled effect, Dwyer began laying the tile at the center of the surround, then worked his way outward. He applied a layer of thinset mortar over the paper with a notched trowel, buttered more mortar onto the back side of each of the tile strips, and gently pushed them into the mortar, aligning them with the slightest of nudges. It wasn't until the mortar had set and Dwyer had stripped off the plastic that he could see his handiwork clearly. He then filled the gaps between the tiles with a gray-colored grout.

In front of his new Moroccan fireplace, Rob unfolds a sofa rug, then stands back to appreciate the look. "I think I'll find a different place for this," he says. "The ruglets and the carpet complement the tiles nicely, but something neutral might better highlight these beautiful floors."

Under Rob's creative eye, the once-faded living room (above) blossomed into a Moroccan-infused haven, shown here the moment new-mantle finishes, added mosaic molding, and those colorful mosaic tiles for the surround, which set the style for the rest of the room's decor.



TODAY

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by M. J. P.

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"get ready," says Rob. "It's a hole wild in here." As he pushes open the door to the guest bathroom, the vivid maroon-orange walls and black-tiled floor jump out like a tiger. "The ant of the house is perched laser-white. In fact I wanted to do something bold."

Below 20 maroon bays, the 45-square-foot bathroom, with a much larger all-white color scheme, was the only one in the house. So architect Roger Jensen installed a new master bath as his plan for the breakfast room bump-out. The two bathrooms are almost identical in layout, but Rob's use of color and materials gives each space a distinctive identity. In the master bath, with its white floors, marble floor tiles, and white-painted beadboard wainscoting, the look is traditional and understated. Rob took a decidedly more exotic route in the guest bath.

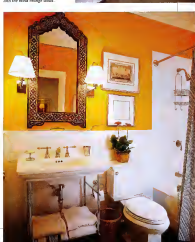
The makeover of this bathroom started with a full-scale, on-the-spot demolition. First to go was the floor. Rob hired the small when, he spotted "peppy tiles" that were in place when he bought the house, but they were in bad shape. After eight hours in January with hammer and wrecking bars, Edgell deposited the old floor in the Dumpster.

The existing wall tile soon followed, even though it was still in good condition. Standing in the rubble, demolition tools in hand, Edgell lamented the tiles' fate. "Seems a shame to rip all this out," he said. "The problem is this window. It's got to go." When the new master bathroom was added, what had been an entrance wall became an interior partition between the two baths—not the best place for a window. And because it's virtually impossible to tile over the opening and not have it look like a patch, Edgell and his wedding bar stripped all the old tile and mosaic-mosaic backs, hauled off the rubble and tore out the old window frame. "If you think it's a lot of work to put a window in, you should try taking one out," he says.

After he filled the window opening with rebar lengths at 2x6, Edgell screwed new sheets of 1/2-inch cement board to the subfloor, to the framing around the tub, and around the walls for the 4-foot-high tile wainscoting. Then it was time for the black floor to be laid. "This was the only color I lived in a cave and shape similar to the old tile," Rob explains. "I knew it'd go great with orange." For the walls, he chose a white 10-by-6-inch subway tile, laid in a bricklike running-bond pattern.

Wendy Davis Dine installed the new toilet and the matching pedestal sink with chrome-plated legs and faucet. Under the sink, there's a little rock for towels and washcloths, but there's even more room for each item in the linen closet, which Rob had Edgell open up by removing ugly built-in doors.

These moves add to the room's energy and good looks, but it's the wall color that takes center stage. "It looks like you took off, which is just what I wanted," Rob says.



Notes To fill in the window in the guest bath, Edgell had to tear away all the rubble hauled from the old maroon tile floor. Above: One of the new master rooms, a Moroccan interior infused with wood and tile, is polished gold complements the pretty tile floor and the most exotic walls.

CALIFORNIA CLOSETS

Life stuff storage



"m y kids are scared about the upstairs guest quarters," says Rob. "But they'll just have to wait a while." Three months wasn't enough time to renovate both the house and a guest house/office. So the main house got the lion's share of Kara and Edgell's attention, and work on the outbuilding was confined mostly to the outside. Even that was a trifling job, as it turned out.

Back in February, Kara stood with Norm Abram outside the garage, investigating on film. There wasn't considerable lean to one wall, and the concrete floor supporting the wall had buckled. Most of the studs had rotted away on the bottom, and the middlebills were only a memory. "It looks like a strong wind could blow the place over," said Norm. "It's a load-bearing knockdown." As if to underscore Norm's point, Edgell walked out of the garage covered with dust and dirt of rotting wood and delivered more bad news. "There's a section of the roof that's totally decayed," he said. "That plumbing vent must have been leaking for 20 years."

Norm's rule of thumb is that if the cost to renovate is more than 60 percent of the cost to build new, you might as well take the wacko down and start over. But Rob wanted to keep the structure, and with no time to get the necessary down permits, historic district approval, and a new construction permit, Kara and Edgell had no choice but to fudge, stand firm and restore it.

By the middle of March, they had poured new footings and a concrete floor, reformed the exterior walls, installed new windows, raised the eaves, added dormers with 2x12s, and secured a 300-pound brace of steel I-beams around the garage door opening to prevent the building from sinking in a hurricane. Aside from the rotten section of roof, the second floor was in better shape. There, at first, Kara and Edgell will replace all the windows, reconfigure the doors in the bathroom, install a new kitchen, and patch the floor in the living room, which will double as a bedroom.



ABOVE: To prevent the guest house from sinking in a hurricane, Edgell and Kara installed a welded steel brace around the door opening. LEFT: The outbuilding, tucked behind the main residence (LEFT), was a hardwired away from demolition when the project began. Now, after a thorough rebuild, it's ready for another 50 years.



They also found time to install the new carriage-style garage doors. Fans of eppur by Carl Tassig and his crew at Twenty Woodworks, the glass, outswinging doors add more than a touch of grace and elegance to the garage's craggy facade. On the March morning, Kara and Edgell have finished morning in the advanced wrap stage. Edgell lifts and wiggles the 60-pound door back and forth, and when the large knickles line up, Kara taps in the pins. Rob stands in the driveway as Edgell goes one door at a time, and it starts with a whinger. "What's your lightning touch," Rob says. "The doors, like all the other great stuff, are what make this place special. When my kids are here, not everything looks, they'll never want to leave. Can't think of it, neither will I." ■

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The new double doors open to the house's delightful atmosphere. It is illuminated by the natural light and the old-fashioned door and window, as if by magic. The house is a beautiful sight to see, and the new double doors are a perfect fit for the house's style.



The old house (2012) had a larger footprint than the new house (2014), which was expanded to the lot 10 feet to the south and 10 feet east to meet setback requirements.



once and again

They loved their house, but needed more space. So they built it again—bigger and better

The compact two-story house in

Silicon Valley, in the town where her husband spent his childhood, enchanted her from the moment he took her to see it in 1991.

So when the place came onto the market and they were able to buy it the following year, it seemed almost too good to be true.

The couple, who have four children, adored it for many reasons, but in large part for its lack of pretension. They also appreciated

first floor



second floor



LEFT: An eat-in kitchen with a butcher's pantry was just one of the items on the family's wish list for the new house project. Maintaining the continuity of the original house, all rooms open off a central hall (see **RIGHT**). **UPPER:** On the second floor, the four children each have their own beds.

in compact use, something that's becoming rare in this and other Silicon Valley towns, where new homes often stretch from one property line to the next. "I could go to the corner of the house and yell the kids' names and they all would appear," the wife recalls.

But during the years they lived there, the couple reluctantly came to see the faults and limitations of the place. Originally built in 1932 as a two-bedroom summer bungalow for a San Francisco firm, the house had been added onto so many times that it had grown, awkwardly, to 3,200 square feet. The wife winces at the results: that while the mix used in organizing the two-level kitchen from job sections back years apart, many of the couple's guests were not, sometimes with painful results. And by late 1991, when they'd lived in the house for nearly seven years, they'd gained a

new perspective on its cozy layout. Unfortunately, they'd outgrown the place. "It was just too small," she says. "With four kids during the late-upstairs bedrooms, those of them teenage girls, it just wasn't working." What's more, the second story had begun to sag. While the house had survived the legendary 1906 San Francisco earthquake, the husband was certain it wouldn't make it through another. "It was falling apart faster than we could put it back together," the wife says of their continuing repairs. The couple reluctantly concluded that they would have to tear it down and build a more modern home.

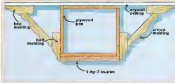
Then they had a sudden epiphany: Why shouldn't they drop the new place to look just like the old one, only better? Same location, same character, but with more space, a rational layout, and



GLASSING IN TO SAVE: The husband is now proud of the size of his postmodern but is more often proud of the fact that a custom-made table is built in the front and open to the kitchen as it also serves as an island. A wooden counter is built between the kitchen and the butcher's pantry. Built-in is effective and a conceptual green ceiling runs the kitchen on painted dark wood. **MOVING AND PROTECTING:** Moving in the house, some of the

BEAM THERE, DONE THAT

The decorative beams in the living room consist of a hollow plywood box (shown in photo) trussed with poplar cross members fastened to two end wall studs positioned in the attic of the box. The whole is anchored in 2x4 blocking between the ceiling joists. The beams lie in the wall openings and slide the ceiling into these notches, creating a "cathedral feel," says architect Anne Wilson.



POURING THE PATIO



The new expansion in concrete paving around the Silicon Valley pool and other house can support its own set of activity. "The idea all live to water, and up backyard and I have a lot of outdoor outdoor parties," says the wife. But the real action will occur beneath the paving, where the ground expands and contracts as much as one inch per year, at a force of 40,000 pounds per square inch. Fortunately, San Francisco contractor Aaron Borokhowsky is used to such relative soil movements, as much to respect the difference between soft and rocky. "With the paving as well as the pool, not all the measures we took were code-mandated, but they were highly recommended by our soils engineers," he says.

1. Borokhowsky's crew excavated 2 feet of clay-based loam, then installed and compacted 180 tons of aggregate base gravel to create a hefty, rock-solid buffer zone between the expanding soil and the concrete paving. Next they set down number 4 steel rebar in 18-inch-on-center grids, next here beneath a section of 4-inch base that will be used to pour the concrete.

2. To further contain the swelling soil, the crew set down 5-inch-thick plastic expansion joints in particularly high-risk areas,

for example, along the line where the pool meets the decking. "Three big structures are going to react differently to the expanding soil, so we needed to create a void between them to reduce the amount of friction and therefore prevent fractures," says Borokhowsky. The paved area here poured in large, 168-square-foot sections formed out by 2x6s.

3. After pouring the concrete, the crew dragged flat wooden boards (called screed rails) along the tops of the 2x6 forms, striking off any excess material. Next they began the three-step finishing process: They leveled the slabs with a motorized laser with two resistance wheels, then walked to aluminum bull floats (balanced here with their long handles) as the concrete hardened. Finally, steel brooms gleided a perfectly smooth, uniform surface.

4. Since lines that mark off the patio into a grid of 36-by-3-foot squares were made by running a 1-inch edger against a 2x4 set down inside lines created in the wet concrete with lengths of string, Borokhowsky on plywood knee boards to perform the new surface. Workers used steel brooms to smooth the edges of the squares. —Dave Dickinson

Nearly 4,000 square feet of 5-inch-thick concrete surrounded the pool and patio. After curing for three days, it was finished with a mild acid stain, so both the new and old sections of the concrete, meeting a weathered look and making the surface less slippery. And working with 120 square-foot sections could allow workers to schedule dry and wet-dry curing, making on the site and holding it up with water until the concrete was done throughout.



some situations the husband left they lacked—namely, "a great basement, a great pool, and a great stone garden, in that order" the wife says with a laugh.

The site made sense to Greg Warner, a principal in the San Francisco firm of Wallace/Warner, which is known for combining old-fashioned craftsmanship with a contemporary sensibility. Warner, along with colleagues Barbara Parris and Anne Wilson, used the original structure as a template for the design of the new house, combining both its exterior shape and its interior details. "We really studied the old house and tried to understand what made the family was in love with," says Warner.

The couple's client wanted and their architect's previous restoration experience help explain why the project moved along so quickly. It took only 14 months from the day the family left the old house to the day they moved into its replacement—an 8,000-square-foot two-story house with green-gray wood shingles, white trim, and Arts and Crafts detailing. Of course, a didn't hurt that they were working with the wife's, the "best contractor in the world," Aaron Borokhowsky, of Parris Borokhowsky Associates, in San Francisco.

The first order of business was to figure out how to get both more house and more yard, to allow for the new swimming pool. Shrinkage the most troubling factor cut the house's footprint by 30 percent and yielded enough space for the 16 by 66 foot pool. As for the family's need for more room inside the house, the main solution was to build down. "Three thousand of the 8,000 square feet are below ground," Borokhowsky explains. Building down is expensive, due to the high cost of excavation and construction of foundation walls, but it gave the family a bigger house without sacrificing any of their



property or bulking up the exterior.

Most design of hand was demonstrated in the two floors above the basement. The architects added 3,200 square feet of crucial bedrooms and bath space by expanding the second floor out over the first floor's hipped roof, yet the house doesn't look significantly larger from the outside. "We used board-and-batten to break up the mass of the house," Warner explains. Perforating the second floor with 41 windows also helped [it] more grace a facade that doesn't light into the entry foyer. The designers also managed to make the first floor feel less compartmentalized and more flowing, so the rooms are larger but still close together, and it's likely that if you called up the stairwell, you'd still be heard by everyone in the house. Since the husband, in particular, considers hallways to be wasted space, the designers eliminated them altogether. Disorienting, the entry hall, guest bedroom, living room, den, and dining room are situated around the central stairway. Upstairs, the four children's rooms each with their own built-in open onto a sitting area, the master bed room is linked to this space by a short length of hall.

Every room was positioned north-south, or the lack of it, in mind. Because the couple had lived on the property, they knew exactly when and where the sunlight fell and had the rooms placed accordingly. The 429 square-foot entrance and the husband's 309-square-foot, where, pointed out changed places to the women, now on the house's west side, would have a long dash of afternoon light while

The design goal was to make the pool at the back of the house. It is flanked by the entry room, left, and the new wing, right.

the den would stay appropriately somber.

Because this is California, earthquake-proofing was an important aspect of construction. The new basement is set on a 12- to 15-inch thick slab of concrete reinforced with two layers of rebar. For added strength, all concrete used in the house was a minimum of 3,000 psi, rather than the most commonly used 2,500 psi. To strengthen the rocky-windowed walls, the builders installed several steel "moment" frames, shaped like upside-down U's, around the walls. One was installed, for instance, in the living room-and den wall, which, along its 43-foot length, has four 6-foot French doors and one 8-foot-wide picture window. "If you look in the space between them, the largest section of wall is just four feet," Rozalisano says. So in the living room, a length of 12 by 6-inch 1-beam spans the picture window bay, the two hollow steel columns (12 by 6 inches in cross section) with 16-inch thick walls that support it are bolted into the concrete foundation with 3-inch diameter anchor bolts. "That one moment frame strengthens the entire wall," says Rozalisano.

Although the owners liked the look of the original house's relatively flat, gravel-topped roof, they wanted the idea of replacing it with the new structure. While living in New Zealand earlier in their marriage, the couple had admired the steel roofs commonly used there. So that was on their wish list when they started designing the house. They also wanted a "roof that will last a hundred years," Warner recalls. "As the plans progressed," says the



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wife, "we decided we liked standing on a copper base."

Getting the surface of the steel right was a challenge for the contractor. "We had to make sure the plywood sheathing that the copper sits on was perfectly flat, so there wouldn't be any dips or bumps in the metal," Bernadette says. "Even a nail head can be all the way down with cause a bump."

The husband was the guiding force behind the house's basement, which stretches the steel roller globe with 13-foot ceilings, concrete windows, and a decorative light well. Hidden behind a painted metal guard rail at the front of the house, adjacent to the guest room, is a stair leading down to a 4 1/2-by-10-foot area, explains Whelan. French doors on one side of the well open into a gym, access from there are two nearly floor-to-ceiling windows. In addition to the gym, the basement includes a 313 square foot, 1,500-bottle wine cellar that the husband designed. He's particularly proud of its moisture, sealed against damp, 36 inches wide and 3 inches thick. "I wanted it to look like a door in a French chateau," he says. Its hardware—a rich, dark lacquered metal—was hand-painted that ran the width of the door—was hand-painted, wood, and lacquered by a metal fabricator in a place in Maryland, near the house.

To create the wine cellar floor, the contractor sand-blasted the basement's concrete slab, then the owner and contractor poured red wine stain at "10 times it and gave it that great smell," as the husband puts it. The contractor kept pouring and spreading wine onto the concrete until it reached the aroma they thought a wine cellar should have.

The couple worked part in hand to make the basement in the new living areas seem old—or to improve on what they originally had. To ensure that the new project had the feeling of a home built long ago, woodwork was used throughout. Either wainscoting or floor-to-ceiling paneling was installed in every room. The powder room in the curving is visually "linked" to the old one," says the wife, down to its distinctive diamond-paned windows and the chime, one-inch hexagonal white tiles used in some of the bathroom's floor. In all, fish scale, well-insulated white porcelain tank, now with reinforced cross handles, was heavily recycled. Other salvaged details include the three glass-paned doors in the master's entry, which were taken from the earlier one. Finally, the wife wanted to spend when granite countertops in the kitchen and mudrooms, where there's a large sink, because she'd had them before. "It's okay if it rains," she says. "I love it that way." Where new elements had to be added, plans were taken to make them seem appropriate. Some striking challenge caps on the main doorway's metal posts were too small, so they were reproduced on each level—just larger. The original caps didn't go to the top, so they were used on the exterior staircase in the light well.

The triumph of this new house is that it's as good as an old one—and that's high praise. "A lot of people have said 'I don't think you could build old houses.' It takes patience and attention to detail," the wife says, "but it can be done." ♦

PHOTO: JEFFREY M. HARRIS/STUDIO CITY PHOTOGRAPHY



By taking advantage of the steel joists, the master bathroom enjoys a soaring ceiling. Above: Countertops in the master and one made of the same white granite used in the kitchen.

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Home and Harmony

Thomas Moore,
best-selling author of
Care of the Soul, shares

his ideas about building
a shelter for the spirit

BY THOMAS MOORE

Growing up in a family of plumbers, my father taught plumbing most of his life, and several of my uncles were in the business. I remember many Christmas dinners when the discussion turned to elbow joints and flanges. Over the course of his life, my father developed the skills to build a whole house from scratch. He used to teach me the rudiments when I was young, but I was determined to plumb the spiritual depths.

However, I did learn the importance of good craftsmanship from him. As a child, I watched as he made neat and complicated drawings of large plumbing plans, and one the pleasant he took to a well-made installation. Through my father, I came to appreciate the beauty, not just the functionality, of good wiring, good welding, and good carpentry.

Even as I pursued the study of religion and psychoanalysis, the love of house building never left me. When my family and I moved a few years ago, and we couldn't find a house we liked, we decided to build one. The Mississippi architect Ken Tate had wanted to see in response to my books and sent photographs of his work. I loved his classic yet playful style. He agreed to design a house that would look at home in our New England countryside and would have a timeless feeling. These two design elements—across work nature and stepping out of time—lay a spiritual foundation for a house by connecting with the eternal.

I see the house as a holy place, where deep feelings

The author in Ireland, where he is spending a year. To him, elaborate old stonework such as the ones at Trinity College, Dublin, represent "spaces for every no-past full of mysteries."

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PHOTOGRAPH BY GRANT BELIN

of belonging, safety, love, and family come together to create a comfortable type of spirituality. The architecture is not new, but the house, my wife and I became intimately involved in the work. A fine art painter, the most pigments by hand to color the walls. I helped select the wood and stone. Some of these natural materials had special meaning for us. I had a few builders from the crumbling house in upstate New York where my immigrant Irish family settled in the 19th century. I positioned them in the master of the living room fireplace to pay homage to my ancestors. Some of our foundation we built with stones salvaged from a historic church in Rome.

I spent 23 years in a monastery, where I learned to live with the basics. So the design of our house highlights the beauty of spare essentials: stone, honey-colored, wide-plank flooring; simple, painted pine doors, and plain window trim. As a result, people who visit often feel that our home has a monastic spirit. Yet, for the community around us, it is a cozy and friendly.

While building the house, our contractor, Ed Goff, introduced us to Richard Lawson, a carpenter who works with masonry in the Anglo-

Mary and her wife accompanied the large house in New England where they live and work, and in corporate many personal touches.

Norman style of the 12th century. Some of the stone oak beams and rafters he beveled by hand with a small axe. The wood is not large and rough, crafted into beautifully smooth molding. The matched beams that separate the

lucan from the living room, located on each side by the stone wall of a tree. The stone is painted large and visible, with chiseled, squares, and lap joints. The associations with church architecture evoked by the style of building add much to the monastic quality of the house, and the obvious handiwork reflects the hand of masonry over the years have always brought to building, believing that work is prayer.

Homes of Gothic that appeared so dramatically in stone of the doors and rafters also echo the church motif and even opened in a gothic design. We found several old doors in an antique shop. These doors, showing with a rich but unknown history, were less expensive than new ones, and yet they added to an aged-old character. Some are unique and mostly quiet occasions. Others have a powerful presence, bringing and individual, that makes an essential contribution to the spirit of a building.

A few pieces of Shaker furniture also add to the interior with a

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LOOKING FROM THE LEFT, Jacques (front doors and openable screen inside and out). The kitchen that chapel, the paragon of the natural corner of a tree. The lower the author spent following the old going, hand allowed him to participate in the creation of his home. Remains show in the Anglo-American style of the 18th-century English domestic architecture.



The library is finished in white oak, hand-painted, and contains the paragon. For those, in a 19th-century style, "a little chapel of the soul."

tailored richness. I made some of the poems myself and sent out of the way to keep them simple. For example, in making a small, all-encompassing, I used a bookshelf, glass, and scraps, and I avoided any modern devices, such as metal brackets or pieces of wood clasp. I finished the poem with a small, simple, and I covered with water. As I worked, I could identify with the 19th-century Shaker white houses and schoolhouses I used in my daily when I lived in the border all around New York and Massachusetts. In many of these devotional songs, the Shaker poem "true simplicity," which they emphasized in both the design and the process of making their houses. Simplifying like makes sense for the spiritual.

I have also made several elegant Shaker poems from excellent lines. Carefully selected wood screens, possibly painted and ready for assembly. I just prepare the wood, glue it, change together, and finish it with fine, oil-splashed to the left. To make, this is a challenge, but at least I have a hand in making the home in which I live and work. I'm not separate from it, not so hard and narrow but to create, which is, in Samuel Taylor Coleridge words, a way of participating in the great Creation.

Since my early teen years I have been a musician and have long been intrigued by the ancient idea that the world is built on tones of proportion. In Renaissance Italy, architects sometimes brought the whole of creation into a building by using the numbers found in musical scales. If you take the number of vibrations in a note and divide it, you get an octave. If you use the proportion of two to three, you get a perfect fifth, a pure and basic sound. Four to three, a fourth in music, is equally pure. Our living rooms is 14 by 30 feet with a 10-foot ceiling. You could play it as a chord on the piano using the notes C, G, and C, and the sound would be harmonious. People often comment on the pleasing feel of our rooms, though they would never know about the harmonies they were coming to us. They're among with their eyes the same harmonies as combinations of numbers they would hear in a pleasant piece of music; if you look along the lines of the 15th-century Italian architects, they also are grasping the divine method used in creating the universe and arranging the planets in their orbits.

Several years ago, on an early trip to Ireland, my wife and I visited a castle and were impressed by the little chapel placed in a corner tower. We realized that an ordinary person can still meaning in a home by giving it an altar. Since then, as we've moved around, we've always kept one room clear for meditation and have made a corner of our rooms a little chapel, with an altar representing two or three religious traditions. In our new home, the meditation room doubles as a guest room, but for the most part it's empty, except for a small rug and the little altar—a simple table with a book cover—done in homage with a Christmas tree and a Buddha, and, usually, a few fresh flowers.

Like silence and lack of clutter, darkness makes room for coloring thoughts and deep reflection. With two dogs,



two children, and a writer who always trails clouds of paper, she has an artfully understated, but the motion room is clean and quiet.

Once, my wife and I were at a convention where I was speaking and came across an impressive but now lost 20-inch gang. There always loved the rich overtones of such an occasion, and my wife was one when she cranes pogs and meditates. Traditionally the overtones of a gang represent the various levels of experience, resulting in sound that nothing we do is under-represented. We brought the entire heavy gang home on an airplane, and I built a white oak floor stand for it using hand tools. I cut the matched curved sides with a box saw and made through-cuts for the crisscross, then sanded it and finished it with oil and wax.

At several stages in building the gang stand, I wished I were using pine or something softer and lighter than dark oak, so that I felt all right about using power tools. But working by hand is quiet and allows me to experience the effort as a form of contemplation. I remember sanding that piece outdoors under a tree for hours on a hot summer day. The memory is part of the piece now and lends it special value every time I use it.

We also have a built-in library that is finished in oak, and my wife painted scrolls on the framework. It is like a month's suspension to me. I think of a library as more than just an information source. It's

Gothic touches, such as the pointed arches in Moore's study, create spiritual atmosphere throughout the interior.

a place of wisdom, thought, and the pursuit of meaning. If the books are cared for and possessed with some beauty, they inspire a meditative silence. Many small old libraries are finished with

wood paneling or, like the one in our little town, have a dome painted with images of the cosmos—each citing the who goes on there has spiritual implications. The library is a little chapel of the mind.

As a final touch on the house, we asked a neighbor, John Winslow, who is a fine sculptor, to make weather vane finials. He created a crescent moon and a gold-gleaming sun, both with lovely faces. The local volunteer fire department brought over their ladder truck to put them up. Now, every day I look up at them, and I'm reminded that our home lies midway between heaven and earth, giving us both shelter and aspiration.

To me, spirituality is not limited to the obvious things of church and religious tradition. The simple things of life—books, gardens, music, craft, and family life—are spiritual to me, and anything we do to make those things beautiful and special contributes to the holiness of the home.

In my work, I regularly meet people who are looking for meaning in their lives. They seem to be in search of a system, an idea, or a community that allows them to feel they might find what they're looking for by taking care of the simple details of their homes. ■

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DESPERATELY SEEKING SORREL

After growing a wide variety of fresh herbs and vegetables, a small cook decided to grow his own sorrel.

Joyce Wendre, a plant photographer who lives in San Francisco, loves to cook. But in 1994, when she first was drawn to organic foods, her local produce didn't have the variety of herbs she needed. So she started a small herb garden in Berkeley, California's Ghia neighborhood. She started in a rage in nearby food supermarkets for such interesting ingredients as squash blossoms, fingerling potatoes, pea vine shoots, lemon verbena, gooseberries, and just growing. However, it was one truly green vegetable, in particular that drove her to pick up her broom.

"I really wanted to make a sorrel soup, and I couldn't find it for sale anywhere," Joyce remembers. Though she had started a 20-day-a-week garden in her garage—and filled it with tomatoes, basil, zucchini, and other plants—"I didn't have enough space or sun for it to grow all the herbs, vegetables, and such I wanted," she adds.

In 1998, Joyce decided to establish a more comprehensive kitchen garden, as popular from the French. "For the 25th part," together with her husband Jim, a magazine editor, and their teenage daughter, today, she planted a new, 1,500-square-foot garden that could accommodate the climbing beans, herbs,

PHOTOGRAPH BY MICHAEL GELMAN



CONCRETE CREW In 1983, Joyce Serrano's plentiful produce included hot-pepper bushes such as *Fraxipara's* serranos, *Yuma Egg*® eggplants, and *Caliente*® *Morone*® tomatoes. An ornate rendering of the garden plan, highlighting some of the plantings in concrete.

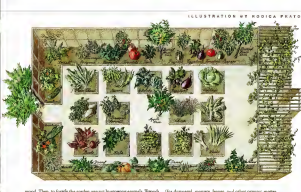


ILLUSTRATION BY RODICA PRATO

wood. Then, to fairly the garden space to harvesting needs, Tripodi dug a trench just inside the fence and tacked chicken wire to the bottom plates, burying it 6 inches deep in the soil. He installed corner-made lattice gates at the front of the east and west walls.

To give the fence an elegant, finished look, Tripodi sheared off the tops of the posts and covered them with ornaments, in some elegant under caps, which also protect the stone from protruding the wood grain on the east ends. (The posts at the east wall, which would support the pergola, were left unscathed.)

With the fence complete, the crew set about constructing the pergola's trellis roof. They fastened two 16-foot beams, one end to end, along the tops of the interior posts with 3-inch galvanized deck screws. In the same fashion, they secured two more beams at the top of the east wall. Then they spaced the two sets of beams horizontally with twenty-two 8-foot-long, 3-by-6-inch outriggers, spaced 14 inches apart. Tripodi finished the ends of the outriggers by cutting them at a 30-degree angle.

With these structural elements in place, Tripodi's crew moved on to laying the groundwork for constructing the beds, which would rise 4 inches above ground level. Using a rotary tiller, they broke up the earth enclosed by the fence to a depth of approximately 18 inches. To edge the 4-foot-wide border beds, which ran along each fence wall, and create the square frames of the *Espresso* 3-by-3-foot beds, they poured lengths of 100-cd-grade board with 3-inch galvanized deck screws, then screwed a 1-inch-square block of wood inside the corner of each frame for reinforcement. After spacing the square frames 2 feet apart to accommodate the paths, "we mark them two inches in the ground so they wouldn't move," says Tripodi. Once the frames were leveled, the crew filled the remaining 4-inch depth of each bed with a mix of topsoil and rich, slightly acidic composted soil, containing sand

(for drainage), manure, leaves, and other organic matter.

Rather than employ the *Espresso* or look sideways at the *Espresso* House garden, the Serranos opted to top their patch with a less costly, more *Concreto* tan gravel from a nearby masonry yard. To keep paths weed-free, Tripodi first covered the soil with a strip of felt cloth that stops seeds from sprouting by blocking out the sun's rays, then he filled it with the gravel. Where paths led to garden gates, he placed a series of large, flat stones (sourced in stone dust at each nursery, safeguarding the masonry from sanding critters). With the garden infrastructure complete, the Serranos laid an irrigation system to put in their automatic watering system (see "Regular Rainmakers," page 130). Then they commenced planting.

Beginning from the *Espresso* House garden, Joyce placed dwarf apple and pear trees inside the garden's border beds, shaping two of the apple trees to grow espalier style, flat against the wall. For both dwarf and standard variety, she selected "Sheldon" and "Bounty" (dwarf) pears, and apples such as English "Crisp Orange Pippin" and French heirloom "Calville Blanc d'Hiver." To add color against the fence, Jan put in sunflowers. Current and gooseberry bushes, tomatoes, basil, and other vegetables grew along the front edges of the border beds, while other crops took in planning, Joyce plans for successive harvests. For instance, the pears in sugar snap peas and broccoli in early spring, which are ready to pick in June, when the plants hole in their place for a fall crop.

In addition to the *Espresso* patch, the square beds contain a mix of vegetables. "Red Rivers" and "Luscious" kale, parsnips (a rare, fleshy, viscous-rich green), beets, chard, ruby and yellow Swiss chard, and succulent *Espresso* leeks alongside fragrant potatoes, "Ramon" and "Blue Bones" eggplants, mushrooms, garlic, and onions. Herbs from a local grower are scattered throughout. Adding more



The finished garden in midsummer shows off cherry tomatoes and asparagus growing vertically on trellises, and the purple flowers of chives and rosemary in bloom.

REGULAR RAINMAKERS

To handle the watering of their new garden, the Seymours turned to Raymond Radak, owner of R & R Irrigation, in Shelton, Connecticut. He drew up a plan for an automated system of six raised sprinkler heads, mounted on the fence at a height of 8 to 9 feet. "You want to place sprinklers above the highest plants, so they're showering them from above," Radak explains. "And you've got heating them up with rubber pressure."

Raised heads are an advantage in a vegetable garden "because they're out of your way when you're working," he adds. Radak knew that six sprinklers operating simultaneously would require water pressure of 10 gallons a minute—and that this might prove taxing to the Seymours' well. So he checked the yield and pump rate—information on file with the company that services the well. The Seymours' yield would only reach 6 gallons a minute, so Radak turned his design into a two-zone system with the sprinklers operating three at a time, requiring only 6 gallons per minute. Each zone includes two corner sprinklers that release 13 gallons per minute, plus one in the middle of the longer row that delivers 3 gallons per minute.

To supply the system, Radak and his crew installed 1-inch copper pipe to carry water from the well tank in the basement to a backflow preventer just outside the basement wall, which keeps outside water from siphoning back into the drinking-water supply. On the wall outside the kitchen, they installed the backflow control line. Then they dug a trench and ran polyethylene water pipe and multistrand controller wire 100 feet, to just outside the garden. There they set the cylindrical valve box in the ground, connecting the pipe and wire to the two valves inside (4). The controller wire pulses to each valve when it's



time to open, letting water through to each zone. Inside the garden, the crew mounted the six sprinkler heads in the fence using two-inch clamps fastened with lock-top screws to take (5). To carry water to the sprinkler zones, they attached 1/2-inch polyethylene pipes to the valves. Then, taping tape under the fence, they ran the pipes (6) to the sprinkler heads. Before connecting them, Radak turned on the water to flush the pipes. "But in the pipes can really clog up the works," he warns.

Finally, Radak set the control box so that the beds would be showered only five to eight hours a day in the morning (3). He also put a rain sensor on the roof, which automatically shuts off the sprinklers when the weather takes care of the watering.



col. interest in the center of each square are tall tufts of beans, sugar snap peas, and chervil. "Tomatoes," or "Sun Gold" tomatoes, all sealed in cages in handsome cages. A single "Miner" apple tree shades the central space, and "Strawberry" "Shirley" and other table grapes wind up the purple posts. Except for the slender horizontal shrubs that anchor the low corner-to-corner also borrowed from the Barrely House, the garden is mostly edible.

The delicious rewards of a large potager, however, don't come without a lot of work. "Most of these vegetables have to be planted every year," Joyce says. "Only the beans, leafy greens, grapes, and some of the wild greens and herbs are perennial." And when it comes to maintenance, "there's weeding, hoeing and staking the plants, and controlling pests," Joyce says. For the Seymours, the time and effort are worth it, but as a landscape contractor, Tropea has witnessed cases of overload. "Don't build something that you can't maintain," he advises.

Being organized and "not obsessed with perfection" helps Joyce cope. When harvest time brings conflicting jobs, the drive beans, frozen berries and potted vegetables, and endless asparagus bread and pizza await. As for the plants that inspired it all, Joyce reports. "The well—so potential—went crazy, so we made a lot of soups and brines. Luckily, this year, I've found some new recipes to try!" ■

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NICE CURVES, NICE BUTTS



With painstaking craftsmanship and up to two times the normal number of shingles, an ordinary roof can be given the rounded, charming look of thick thrust. The effect, commonly used on houses built in the Tudor style, relies on cedar shingles overlapped in narrow, wavy courses to create the illusion of an undulating rooftop. The thick curves at the roof's edges are no illusion, however. Roofers coax the shingles into a permanent bend (left) by softening them for 20 minutes in a hot steam bath.

The added cost—two to three times that of a conventional wood roof—is offset by an extra 15 to

30 years of roof life, says Barry Huber, president of C&H Roofing, which topped the Minnesota home shown at right.

A simpler, more straightforward rooftop embellishment is the use of "fancy butts," decorative shingles with geometric shapes cut into their exposed ends. Alternating courses of "arrows" and "rounds," for instance, will create a distinctive circle pattern (below). Because these shingles are at least twice the price of square-but material, they are often used as roof accents—typically along the ridge or eaves.



RX FOR SHINGLES

To get a long life out of a wood roof, maintenance is a must, as folks in the Pacific Northwest recognize long ago. They postponed decay by shingling their roofs with English oaks, but Norw. Abies and the U.S. Forest Products Laboratory suggest a more readily available—and less costly—alternative: UV-inhibiting, water-repellent wood preservative. Applied every five to seven years, it replaces the woods' natural resins and allows the wood to breathe. "Avoid sealants, waterproofers, and paints," says Ivers. "They lock in moisture and invite rot." A strip of zinc or copper nailed along the roof eaves or hips, the exposed wood rots less, building the roof in a solid mass—and fungus-killing solution every time it rains. If mold or moss has already gotten a foothold, a simple hot mix of bleach and water with a teaspoon of household detergent will remove it. Apply the mixture with a brushy power-spraying gun, change shingles or nails when every.



DIRECTORY

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It's back to the drawing board for a house in Altadena, California. For the full story, see "Once and Again."

PHOTOGRAPH BY MARIE FORSYTH

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