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Contents OCTOBER 2018

features

44 **little green giant**

TOH TV helps transform a 1920s cottage into a four-season, net-zero family home

50 **vintage modern**

A couple of mid-century enthusiasts add their unique style to the 1930 house they love

58 **read this before you buy a tankless water heater**

Tired of being left out in the cold (water)? Get the lowdown on this accessible, energy-efficient, and space-saving technology



44
LITTLE GREEN GIANT

PHOTO: KEVIN O'CONNOR

Contents OCTOBER 2018



departments

- 9 **home solutions**
Create a seasonal entry display; stock up on firewood; keep mice outside for winter; patch a chipped sink; and more
- 18 **before + after: kitchen**
A 1930s Colonial Revival's dysfunctional cook space gets a smart, user-friendly overhaul
- 22 **before + after: bath**
A trough-style sink inspires a rustic look for a reconfigured master bath
- 24 **paint ideas**
A lacy stencil provides an easy, elegant way to embellish a plain set of drawers
- 26 **fix it**
With hand tools and a drill, TOH general contractor Tom Silva shows how to neatly repair chipped wood flooring
- 28 **get this look for less**
Combine heirloom-style furniture with a diverse array of textures and materials for globe-trotting bedroom decor
- 30 **budget redo**
Sticking to a budget of less than \$150, a busy mother pulls off a major kitchen makeover
- 32 **idea house preview**
Get an early look at the 2018 *This Old House* Idea House, a Craftsman-inspired shingled home in Narragansett, RI
- 36 **ask this old house**
How to keep a handsaw blade from rusting; determine the proper size for a firebox opening; deice a porch floor without damaging paint; and more

in every issue

- 5 letter from TOH
- 6 reader mail
- 64 directory
- 72 save this old house



on the cover



p. 44

pp. 26,
38, 32,
10, 58

Cover Photograph by
CARL TREMBLAY



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PHOTOS: (TOP) LAURA MOSS; (BOTTOM) COLLEEN McQUAID

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PHOTOS: (CLOCKWISE FROM TOP) SARAH CHASSE; COLLEEN McQUAID (3)

Realizing the promise of a cozy net-zero home

Sometimes, when I sat in my old house in lower Manhattan, I would dream about living in an energy-efficient building. This fantasy occurred with great regularity in the depths of winter, when the wind seemed to blow straight through my NYC Landmarks Preservation Commission–approved wood casement windows. It popped up frequently in the dog days of summer, too, when my six through-wall and window air conditioners clearly weren't up to the task of cooling all the spaces between their respective rooms.

And it was always on my mind at the beginning of each month, when it was time to write the mind-boggling check to our utility company, Con Edison.

But what could I do? Despite its climate challenges, I loved my 1842 house. As comfortable as a new, energy-efficient home might be, who wanted to live in one?

That's why I was so intrigued by *TOH* TV's newest project, the Jamestown Net-Zero House, previewed on page 44. Architect Don Powers and his wife, Dana, decided to add on to a 1,000-square-foot cottage in Jamestown, RI, built in the 1920s—and renovate it to net-zero standards.

In a nutshell, net-zero homes are houses that are so airtight, well insulated, and energy efficient that they produce as much renewable energy as they use over a year's time. They do this by combining advanced design and energy-efficient building systems with solar panels mounted on-site. This means a carbon-free existence for the homeowner, and no utility bill.

In Jamestown, general contractor Jeff Sweenor of Sweenor Builders lined the house's existing foundation and slab with a combination of rigid mineral-wool panels and rigid foam panels. Above the basement, his team filled the stud walls with spray foam, then rigid foam went on the exterior over a vapor barrier. And that was just the beginning.

The result: an old house that's as airtight and energy efficient as any new house could be. Now that's something worth dreaming about. I hope you'll enjoy reading about it, and watching the process unfold on *This Old House* this TV season, as much as I will.



SUSAN WYLAND,
EDITOR-IN-CHIEF
susan@thisoldhouse.com



This Old House general contractor Tom Silva and *TOH* host Kevin O'Connor talk net-zero building technologies with Jamestown project house builder Jeff Sweenor.

Reader mail OCTOBER 2018



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→ Include your full name, address, and phone number. Published letters are edited for clarity and length.

AN EYE FOR DETAIL *is a characteristic shared by many This Old House fans. Your appreciation for the finer points, whether reading our pages or watching renovations unfold on TV, is tough to beat. No doubt it serves you well in projects around your own homes, too!*

One more vacation must

I noticed that in “Before you leave for that vacation...” (Home Solutions, July/August 2018), you did not include one rule I always follow whenever I’ll be away from home for more than a couple of days: Cut off the water supply to the house. Fortunately, it’s a safeguard I’ve never needed in practice, but adopting it costs nothing. Better to do it and not need it than to need it and not have done it.

—RICK D. GARNER, LAFAYETTE, LA

THE EDITORS REPLY: *We agree—it certainly tops TOH plumbing and heating expert Richard Trethewey’s list. You can find a more complete vacation-prep checklist at thisoldhouse.com/vacation-checklist.*

Preserving a family heirloom

For most of the time I was reading about the TOHTV restoration project in Charleston (“Reclaiming Her Past,” July/August 2018), I was literally shaking my

head in amazement and saying to myself, “They’re doing *that*, too?” The extent of work needed would have been too daunting for most people, even with help from *This Old House*. The homeowners’ commitment to the rebirth of this property demonstrates the power fond memories can have. They deserve many new happy memories.

—PATRICIA BARTLETT, VIA E-MAIL

THE EDITORS REPLY: *The challenging “before” condition of the Charleston-Elliotborough House has certainly made the “after” that much more impressive. Wondering how it turned out? You can now take a video tour of the finished house online, led by TOH general contractor Tom Silva and host Kevin O’Connor. To see it, go to thisoldhouse.com/charleston-reveal.*

The right approach

I have been a fan of *This Old House* since back in the day. I have always appreciated the way you approach projects, salvaging what you can and reclaiming discards. When the surge of newer house-renovation television programs started, I was overjoyed by the opportunity to see what even more people could do to change a home. But I have become disillusioned by the way many of these programs will take down perfectly good cabinets that need “updating” or break up sinks and windows seemingly just to see things shatter. So I have made a vow to myself: If a show highlights that kind of destruction during the remodel, I won’t watch. Thankfully, I see more reuse and salvaging on your shows than ever before. Thank you for setting standards and holding to them.

—JANET MONTI, EMMETT, ID

READER
PROJECT
OF THE
MONTH

TOH-er in training

—JEANETTE NOWAK, VIA E-MAIL

Our family gets the magazine, and we enjoy watching *This Old House* and *Ask TOH* all the time. We wanted to share a picture of our 13-month-old, Maple, who loves to help out around the house with all of our projects!



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sprucing up your home's exterior to sell, or just giving it a cosmetic update, few projects can improve your home's curb appeal as quickly and affordably as a new garage door. In fact, replacing the garage door is one of the best home-improvement bangs for your buck, providing a nationwide average return on investment of up to 98.3% at resale.*

Not just functional, today's doors come in a variety of styles, making them an architectural element instead of an afterthought. And since your garage door can represent up to 40% of your home's curb appeal, it's important to find a style that complements—and enhances—your home.

Here are three steps to finding the perfect pairing.

1. Mimic Your Home's Architectural Style



2. Choose Your Materials

Construction: Garage doors can be made of aluminum, steel, wood, or a faux-wood composite material. Natural wood offers the most design flexibility for creating a custom look.

Energy efficiency: A well-insulated door keeps your garage 10 to 20 degrees warmer in the winter and cooler in the summer, for improved comfort and savings.

3. Add a Personal Touch

Decorative hardware, windows, or a unique color can really set your door apart.

Clopay faux-wood carriage doors in a custom coastal hue made for a dramatic entrance at the TOH 2017 Beach House at East Matunuck, RI.



Visit [imagine.clopay.com](https://www.imagine.clopay.com) to see how a new garage door looks on a photo of your home.



home solutions

Edited by Kate Wood

INSIDE

FIREWOOD SMARTS

DETER MICE

FILL SINK CHIPS

FABRIC FIND

MORE



Create a seasonal display in any space

Looking for a warm entry setup that packs plenty of punch while preserving floor (or step) space? Go vertical. Here, a rustic wood shelf unit shows off several couldn't-be-easier ideas to try. Not a master carver? Drill holes to make simple patterns in lit-from-within pumpkins. Cut round openings in gourds to host LED votives. Hollowed-out pumpkins make ideal containers for preplanted pots; for extra color, mix classic mums with long-blooming heathers and vibrant foliage—pink-and-green leaves are shown here, but a black-leaved plant like 'Black Prince' coleus is perfect for Halloween.

PHOTO: VISIONS/GAP PHOTOS

Burn this, not that

Planning to keep cozy this winter with a wood-burning fireplace or stove? When buying firewood, don't be afraid to ask what species you're getting. Dense, heavy hardwoods tend to boast the most Btus, burn a long time, and leave a nice bed of coals. Avoid soft or resinous woods that burn fast, generate lots of smoke, and coat flues with creosote. That said, proper seasoning is key to getting the best burn. Unseasoned, green wood has a moisture content (MC) of over 20 percent, is hard to light, and produces creosote-causing smoke. But let it air-dry for a year and it will burn fine next winter. Can't wait? Look for USDA-certified kiln-dried wood. With a 13.8 percent MC or less, it's good to glow right now. —THOMAS BAKER

Best wood to burn

- › American beech
- › Red or white oak
- › Shagbark hickory
- › Sugar maple
- › White ash

Wood to avoid

- › Eucalyptus
- › Fir
- › Poplar
- › Red alder
- › White pine



What to do with paint leftovers

Finished a major project? Here's how to deal with a little extra paint (or a lot).



NEARLY EMPTY CAN:

Safely dry up any left-behind latex by mixing in a hardener (try

Krud Kutter Waste Paint Hardener, \$2.28 for 3.5 oz.; lowes.com) or cat litter, then dispose. Some recycling centers will take empty latex paint cans, but containers that held oil-based paint are considered hazmat, so you may need to take them to a collection center.



A LITTLE PAINT:

Got enough to keep around for touch-ups? Ensure paint stays viable by

storing it in a sealable container that's just big enough to fill all the way with your excess. A small metal can (like Behr's 1-qt. Metal Paint Bucket and Lid, \$3.42; homedepot.com) is ideal; plastic containers may increase off-gassing. Make sure it's clearly labeled—paint brand, color, plus where and when you used it—and store in a cool, dry place.



ALMOST A WHOLE CAN:

If there's enough to justify keeping the can, be sure to retain the original

label, too (note what you painted and the date). Use a rag to wipe any excess paint from the rim, then tap the lid closed with a rubber mallet.



FULL, UNOPENED CAN:

Ordered more than you needed? Paint's often nonreturnable, so

consider donating. Contact the theater department at a local school or college to see if they'd like it for sets, or try PaintCare (paintcare.org), which recycles unused paint.

—SKYE McEOWEN

The mouse stops here

When temperatures begin to drop in the fall, mice start hunting for a warm place to spend the winter (and multiply!). Now's the time to get serious about plugging the cracks, gaps, and crevices that mice use to gain access to your home.

Think like a mouse Do a sweep of your home's exterior, and **look for openings** a mouse could slip through—that means spaces as narrow as ¼ inch. Likely locations include utility entry points, loose-fitting attic or exhaust vents, damaged weatherstripping, and the gaps beneath doors.



The right stuff(ing) Once you've identified potential entries, close them up using mouse-proof material. **Skip sealants and spray foams**, which mice can easily chew through. Though they won't gnaw on steel wool, it has a short life span as it dissolves into rust. Instead, **stuff cracks with a filler** like Xcluder Fill Fabric, which is made from a mouse-unfriendly mix of stainless-steel and polyester fibers (\$11 for three 1"×4' rolls; wildlifecontrolsupplies.com). If rodents are coming in under doors, you can **install door sweeps** that contain the same gnaw-resistant material (Xcluder 36" Pest Control Door Sweep, from \$50; wildlifecontrolsupplies.com).

Bonus! In addition to keeping furry freeloaders at bay, closing up these cracks and crevices will stave off cold drafts, too. —T.B.

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Prototype shown with options. ©2018 Toyota Motor Sales, U.S.A., Inc.

Fix a chipped sink

Whether it's a plumber's wrench or a heavy stockpot, slips happen—and vitreous china, fireclay, and enameled-metal sinks often bear the scars. Luckily, DIY repair kits that contain epoxy paints and fillers can heal chips in glossy ceramic surfaces. Here, tips for getting the best results.

1 Assess the color options. Some porcelain repair kits come in generic white only; others offer a range of pigments that can be blended for a custom match (Porcelain Repair Kit with Tints, \$30; refinishingonline.com). Porc-A-Fix (from \$12 for 15 cc; amazon.com) comes in colors to match popular fixtures made by 29 major manufacturers; to fill deep gouges, you'll also need Fill-A-Fix (\$12 for 15 cc; amazon.com).

2 Use an applicator smaller than the chip. For tiny dings, you may need a wood toothpick or tiny artist's brush. Use the tip to apply the product sparingly and spread it out to the chip's edges.

3 If you don't like the way it looks, just start over. The filler won't shrink or expand when it dries, so it won't look any different. If you're not happy with the repair, wipe out the product while it's still wet and try again. For large dings, you may need to apply the filler in layers, allowing 24 hours between coats. In some cases, using a blow-dryer as directed can speed dry time.

4 Don't overfill the void. Less is more to start; you can always add to it. If you do apply too much product, use the edge of a credit card to level the repair so it's flush with the surrounding surface. Kits may include sandpaper, but it's best used for roughing up the chip's surface, not smoothing the repair. —KATHRYN KELLER



GRILL ON CHARCOAL?
Learn how to put a kettle grill to bed for the winter at thisoldhouse.com/winter-grill

Prep your gas grill for winter

Barbecue season's winding down (yup, we're bummed too). To ensure your grill will be good to go come springtime, give it some extra TLC before you put it away.

FIRE IT UP > To get rid of food remnants, turn your grill on high and run it with the lid closed for 15 minutes. Once it's cooled, go over the grates with a nylon-bristle grill brush to dislodge any stubborn gunk.

DISCONNECT THE TANK > If you store your grill in a shed or garage, the liquid propane tank can't come with. Store the tank upright outdoors, away from potential heat sources like dryer vents. Cover the grill's regulator with plastic wrap to prevent critters like wasps from crawling inside to nest. Keeping it all outside? Double-check that the gas is off.

GIVE PARTS A DEEP CLEAN > Remove the cooking grates, heat tents or shields, and warming racks, and scrub them with warm,

soapy water. Remove and empty the grease pan, which should also get a scrub. Use your nylon brush on the dry burners, leaving the holes clear. Spray the burners, grates, and shields with cooking spray to prevent rust, and seal these and the grease pan in plastic bags—otherwise, spiders and insects may decide to spend the winter in them.

WIPE DOWN THE EXTERIOR > Grab a bucket of warm, soapy water to clean the outside of your grill before you pull the cover over it.

OUTDOOR KITCHEN? > Follow these same steps for a built-in gas grill. Be sure to shut off gas and water lines, unplug any electrical items, and cover outlets. —S.M.

This Old House blueprint

Events, promotions, advertiser product news, etc.

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Save on designer upholstery fabric

Psst! Looking for top-quality upholstery and decorator fabric at up to 75% off retail? The husband-and-wife team behind Charlotte, NC-based **Modern Fabrics** (modern-fabrics.com) source their ever-changing stock directly from big-name furniture and interior design companies' excess yardage. By offering 1- to 5-yard remnants up to entire bolts, they've diverted thousands of yards from landfills—and helped savvy DIYers save a pretty penny. —K.W.

Painter's tape alternative

Masking off an uneven, porous surface—like this wood accent wall—is no easy feat. That's one reason we were intrigued by **Peel-Tek 150**. The green goo can be brushed on to any nonfibrous household surface that needs temporary protection from wet paint: Think stucco, stone, wood, or tile; skip carpet, fabric, and wallpaper. Peel-Tek needs to cure before you can paint over it; depending on the project, this may take less than half an hour or overnight (it should leave your surface clean, but we recommend a spot test first). It seeped right into both the shallow cracks and deep beveled grooves in the wood wall here. And after our paint dried, with a gentle tug the Peel-Tek came off in one clean sweep—taking the paint that missed the drywall along with it. *Peel-Tek 150, \$20 for 1 quart; peel-tek.com*



Fun fall fests

Celebrate the season with jack-o'-lantern displays, pumpkin-pie-eating contests, and more

The Great Jack O'Lantern Blaze

Croton-on-Hudson, NY •

September 28–November 24

Synchronized lighting, spooky sound effects, and upwards of 10,000 hand-carved, illuminated jack-o'-lanterns transform a historic Hudson River Valley estate into a Halloween spectacle (shown); hudsonvalley.org.

Pumpkinboat Regatta

Damariscotta, ME • October 8

At this enthusiastically wacky small-town event, competitors race across Damariscotta Harbor in boats made from enormous hollowed-out Atlantic Giant pumpkins, all grown locally by volunteers; mainepumpkinfest.com.

New Hampshire Pumpkin Festival

Laconia, NH • October 12–13

While a 34-foot-tall tower of blazing carved pumpkins is this year's claim to fame, there are also horse-drawn hayrides, pumpkin bowling, and more than 50 food vendors proffering everything from pumpkin pancakes to pumpkin ale; nhpumpkinfestival.com.

Circleville Pumpkin Show

Circleville, OH • October 17–20

Now in its 115th year, this blowout boasts floats and marching bands, midway rides, and a Giant Pumpkin Weigh-In (last year's winner hit 1,701 pounds!); pumpkinshow.com.

Pumpkinfest

Franklin, TN • October 27

By day, enjoy treats like extreme-pumpkin-carving demos and costume contests. After dark, go for a guided tour of the town's historic cemeteries; williamsonheritage.org.

—MONICA MICHAEL WILLIS

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How Safe Is Your Home's Wiring?

Your home and family may be vulnerable to easily preventable dangers. Read on for ways to protect them.



An Ounce of Prevention

More than half of the 28,000 electrical home fires¹ and nearly 70% of the 400 electrocutions that occur in the U.S.² every year could have been prevented with two inexpensive, DIY-friendly safety devices. And while these devices may look similar, the ground fault and arc fault dangers they prevent—and functions they perform—are vastly different. Here's why you need the protection of both.

The Ground Fault/Arc Fault Difference

Ground faults occur when electricity escapes bare, damaged, wet, or poorly insulated wires and takes a shortcut to the ground. If your body provides the path to that ground, you could be electrocuted. Arc faults happen when electricity crosses a gap between damaged wiring such as loose, corroded, overloaded connections in walls, appliances, and cords. The resulting high-intensity heat can ignite surrounding materials, including framing and insulation. GFCI (Ground Fault Circuit Interrupter) and AFCI (Arc Fault Circuit Interrupter) outlets detect these faults and instantly break the connection, reducing the risk of electric shock and fire.

Keeping Up with Codes

The National Electrical Code® (NEC) has long mandated that GFCI outlets be installed in kitchens, bathrooms, garages, outdoors, and other damp locations. More recent code changes require AFCIs in living spaces such as bedrooms and living rooms. In 2014, the NEC introduced additional AFCI requirements for kitchens and laundry rooms; so if you are remodeling or building new, you'll need to have both in place. If you need to upgrade, Leviton's SmartlockPro Dual Function AFCI/GFCI outlet offers shock and fire protection in one device and can be used to satisfy NEC requirements for modifications/extensions, replacement receptacles, and, in certain instances, new construction.

Why Choose an AFCI/GFCI Outlet Instead of an AFCI/GFCI Circuit Breaker?

The AFCI/GFCI dual function outlet is a more cost-effective option that works with any type of wiring and can be reset by simply pressing a button on the face of the device, eliminating the need for a trip to the breaker panel.

¹ National Fire Protection Association; Electrical Safety Foundation International (ESFi) ² Electrical Safety Foundation International (ESFi)

What Goes Where?

Now that you know the difference between the devices, here's where they should be installed in your home.



AFCIs

Living areas such as bedrooms, hallways, and family rooms to help **protect your home from electrical fires.**



GFCIs

Near water sources, such as bathrooms, basements, garages, and near pools and spas to help **protect you from electrocution.**



Dual function AFCI/GFCIs

Kitchens and laundry rooms or as a replacement option for any ungrounded outlets to help **protect from electrical fire and electrocution.**



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THE FUTURE IS ON™

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In short order

Eager new homeowners pull together a more efficient kitchen layout and a clean, classic look—in just six weeks BY NINA MALKIN • PHOTOGRAPHS BY LAURA MOSS



➔ **LIVE WITH IT FOR A YEAR.** That standard advice to new homeowners—allow enough time to get a solid sense of what you want from a remodel—just didn't work for Melissa and Dheeraj Maria. The kitchen that came with their 1936 Colonial Revival in New Rochelle, NY, was so unlivable, they had to act fast. "The range and dishwasher were broken, the fridge wasted space, and a peninsula blocked the dining room," says Melissa. Plus, geometric wallpaper and herringbone vinyl flooring were migraine inducing. "It was painful," says Dheeraj. "We avoided going in there."

So the couple designed their dream

kitchen. Staying within the footprint of 166 square feet, they relocated the fridge, added a coffee station, and scrapped the peninsula for a wall-hung breakfast bar. Dheeraj enlisted a friend to help empty the space and rip up the floor; they hired a contractor for the rest.

Gray base cabinets, white quartz counters, and classic subway tile make a refreshing change from the once dizzying decor. And did we mention they pulled off the transformation in six weeks? A major time-saving trick: They chose semi-custom cabinets rather than custom. But that didn't mean sacrificing on efficiency—or style. Says Melissa, "We love how warm and inviting the kitchen is now."



BEFORE Busy patterns wrapped the room; old maple cabinets felt dreary. Lining one wall with all the appliances wasn't the smartest use of space.

AFTER With a functional work triangle, a breakfast bar, and a coffee station, the room is more open and efficient. Bold brass accents create a warm contrast with clean white and soft gray cabinets. Cabinets: Touchstone Fine Cabinetry



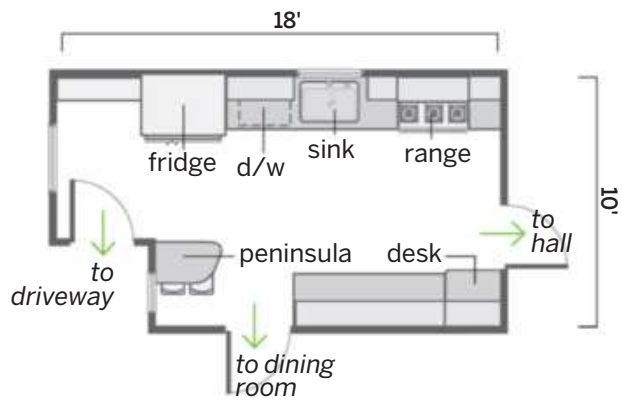
ABOVE: The couple saved about \$2,000 by doing the demo themselves, then splurged on high-end appliances. “The French-door fridge doesn’t block traffic or doorway access,” Melissa says. *Refrigerator: Liebherr*



RIGHT: A brass faucet and cabinet hardware offer a dramatic contrast to the neutral surfaces in the room. *Faucet: Rohl*

before

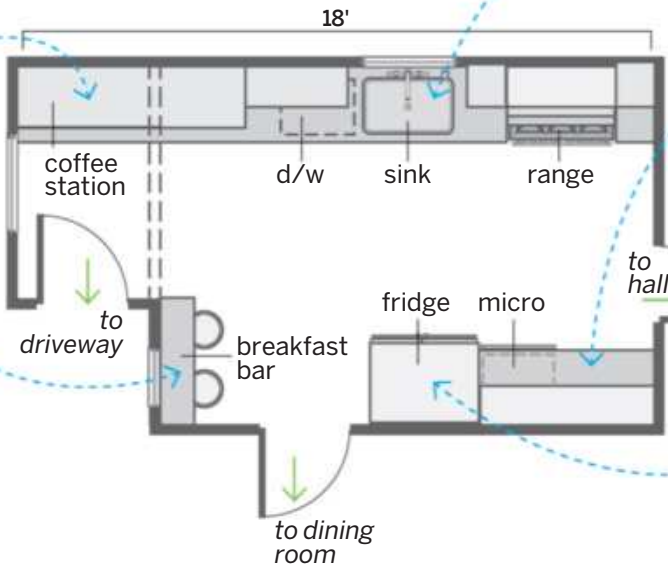
A full-size fridge closed off a back corner, and a table-height peninsula blocked the path to the dining room



after

The new fridge placement created a functional work triangle in the 166-square-foot space; placing the breakfast bar against the wall improved flow

- 1] Tapped an underused corner for a coffee station with open shelving and base cabinets with pullouts.
- 2] Replaced a traffic-stopping peninsula with a 15-inch-deep wall-mounted breakfast bar for unimpeded access to the dining room.



- 3] Kept the dishwasher, sink, and range in their same convenient locations.
- 4] Scrapped a built-in desk in favor of more counter space, banks of drawers, a built-in microwave, and more upper cabinets.
- 5] Moved the fridge across from the sink to create a work triangle and free up a corner.

• before + after | kitchen

To stay on schedule, “we had everything delivered in advance to avoid installation holdups once the cabinets arrived,” says Melissa Maria, here with Dheeraj and son Dhilan, now 19 months.



A brass-accented black-steel range suits the 1930s house, but this six-burner also boasts high-tech features such as an airflow system that keeps knobs, handles, and exterior surfaces cool to the touch—crucial with curious little fingers around. Range: Tecnogas

A floating shelf made from walnut butcher block and tucked between the back door and the dining room entry makes a perfect breakfast spot that doesn't obstruct traffic. Walnut butcher block: Rustica Hardware. Ceiling light: Barn Light Electric. Stools: Restoration Hardware



The corner across from the back door is now devoted to the couple's coffee cravings. Counter space offers room to brew; ample open shelves keep cups, canisters, and the like close at hand. Base-cabinet rollouts hold bulky items. Subway tile: Lowe's



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Same size, standout style

A wall came down and a new layout and amenities went in, turning a two-part bath into a seamless, one-of-a-kind space BY JILL CONNORS • PHOTOGRAPHS BY ELLEN McDERMOTT



➔ **SOMETIMES IT TAKES** a minor disaster to finally kick-start a major renovation. For Helen and Rich Rosselli of Trumbull, CT, it was a failing shower pan in their master bath, which resulted in a leak in the kitchen ceiling of their 1980s Colonial-style home. “The room definitely needed updating, and we put it off way too long,” says Helen. When the leak prompted them to call in architect Melissa Spoelstra, her first suggestion was to remove a wall that divided the bath in two: an awkward vestibule held a single sink, while the main area had a second sink, shower, and toilet. Spoelstra kept the shower and toilet locations the same and reused the sink plumbing lines to keep costs in check. The unified space freed up room for a soaking tub and a larger shower. One early design choice—a wide, trough-style sink—inspired the rest of the rustic-traditional finishes, including stone mosaic tile, a stained barn-style closet door, simple taupe-painted wainscoting, and wood-look porcelain plank flooring. Electric radiant heat, an additional window, and recessed lighting help bump up the comfort level in the newly stylish space. Says Helen, “Not only is the room much more efficient, it’s much brighter now too.”



BEFORE

BEFORE The two-part bath held two sinks separated by an outer vestibule wall.

AFTER Unifying the space made room for a soaking tub and a trough-style enameled cast-iron sink with two taps. The closet’s sliding barn door emphasizes the room’s rustic-meets-traditional style and saves space by eliminating a door swing. Sink and faucets: Kohler

The roomy new shower measures 4½ by 4 feet and is finished with handmade subway tile, stone mosaics, and frameless glass in place of a fiberglass stall with sliding doors. *Fittings: Kohler*



pro advice

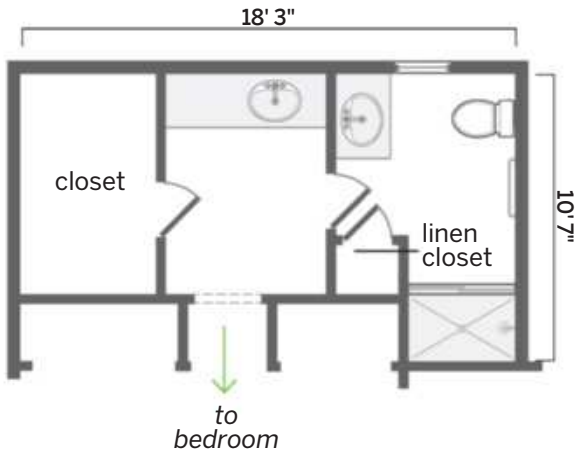
MELISSA SPOELSTRA
STRATFORD, CT

“A small detail can make a big difference in the overall look of a space. For example, in this bath we made sure the top of the wood wainscot lined up perfectly with the slate banding on the shower wall.”

Adding a window brightened the new tub area, which has a linear tumbled-quartzite tile surround in neutral tones. Electric radiant heat warms the pale porcelain-tile planks underfoot. *Bathtub: BainUltra. Fittings: Kohler*

before

A vestibule with a single sink wasted space in the outdated two-part bath

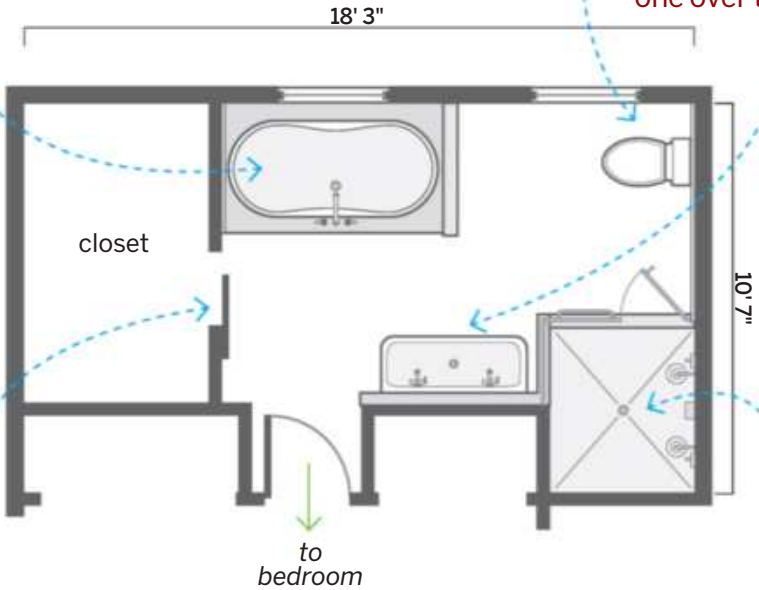


after

Removing a wall made room for a focal-point soaking tub, a two-faucet trough sink, and a spacious shower with two rainheads

1] Demolished the former vestibule wall, opening up space for a soaking tub and a large window.

2] Gave the existing closet a space-saving sliding door; the cased opening to the bedroom got a hinged door for privacy.



3] Retained the toilet location, minimizing plumbing costs; replaced the 24-inch window with a 36-inch unit to match the one over the tub.

4] Removed a small linen closet and put in a trough sink with two faucets and a large medicine cabinet above it.

5] Kept the shower where it was but enlarged it by about 40 percent; also upgraded it with a frameless glass enclosure, an outswinging door, and two rainheads.

Dresser dress-up

A few repeats of a stenciled motif can give a flat-front chest of drawers a dose of individuality **BY KATE WOOD**

→ **THINK FAST:** You can transform a plain dresser into a one-of-a-kind find in an afternoon. Running down the front of these drawers, a large mandala design turns the idea of a runner on its head (or, more precisely, side). All it takes is the right-size stencil and some chalk-style paint.

Choose a stencil that spans the height of the middle drawer and overlaps slightly onto the adjacent ones to create a continuous pattern with a strong focal point and a sense of balance. With the drawers in place (empty them first!), lay the dresser on its back. Mark a vertical line down the middle with a soft pencil, noting where the center of each mandala will fall. Use low-tack tape or spray adhesive to keep your chosen stencil in place; this one makes half of the nearly 10-inch mandala, so you'll need to turn it 180 degrees to complete each motif.

Chalk-style paint's thick consistency provides even coverage with less risk of paint bleeding under the stencil. Good technique also helps keep it neat: Use a stiff-bristled stencil brush to "pounce" on the paint at a 90-degree angle. A small foam roller can speed up the process if you're using just one color, though a two-tone scheme, like this one in purple and green, really brings the stencil's intricate details into brilliant focus. ■

SHOWN: Eva Mandala Indian Motif Stencil in Size Small, \$18; thestencilstudio.com. Exclusive discount for *This Old House* readers: Get 20 percent off when you enter code EVA20 at checkout.



PHOTO: COURTESY OF THE STENCIL STUDIO LTD.

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START WITH



Patch a chipped wood floor

Using only hand tools and a drill, Tom Silva makes minor floor damage disappear with a simple and effective dutchman repair technique

BY THOMAS BAKER • PHOTOGRAPHS BY COLLEEN McQUAID

COST About \$25, at most, for the finishes; there will be plenty left over.

TIME 1 hour

DIFFICULTY Easy

Tom Silva explains how to select a patch that will blend in with the existing wood grain. Inset: The new patch fits seamlessly in the floor.

TOOLBOX

- > portable workbench
- > handsaw and block plane
- > clamp
- > 180-grit sandpaper
- > combination square
- > utility knife
- > Forstner bit and drill/driver
- > chisel
- > oil-based wood stain
- > wood glue



DUTCHMAN SECRETS

You don't have to replace an entire floorboard to fix a small chip or gouge. Instead, patch it with a new piece of wood, as Tom demonstrates here, and heed his advice for getting expert results.

- **Match the grain, not the stain.** Choose a patch of the same wood as the flooring, with a similar grain pattern.
- **Make the mortise fit the patch, not the other way around.** It's the smart way to get a tight fit.
- **Plane a slight bevel into the patch's bottom edges.** The patch will then slide easily into the mortise and still fit tightly.
- **Don't sweat matching the floor stain.** You can get the patch color to be close, but a perfect match? Not likely!

1

STEP-BY-STEP

1] Select the patch material Find a scrap of wood of the same species as the flooring—in this case, Tom used a leftover piece of unstained pine flooring.

2] Cut a patch to rough size On the scrap, locate a portion that's wider and longer than the damaged area and has a similar grain. Cut out a strip with a handsaw, as shown, and remove the saw marks with a block plane.

3] Rip and plane to final thickness Mark a cutline down the middle of the patch edge, and make a rip cut along that mark, as shown. Smooth the cut face with a block plane. Trim one end square, then, holding it vertically, sand the end on 180-grit paper laid flat on the workbench. Check the end for squareness with a combination square.

4] Mark the mortise With the patch placed alongside the damaged area, mark its length so that it's a bit longer than the damage. Crosscut the patch at this mark, and square up the end as in Step 3. Now hold the patch firmly over the damage and score the floor around it with a utility knife.

5] Cut the mortise Using a Forstner bit slightly narrower than the patch, drill a series of ¼-inch-deep overlapping, flat-bottomed holes within the score lines. Square the edges of the mortise with a chisel, then check that the patch fits and sits flush with the surrounding floor.

6] Stain the patch To ensure an even stain on soft or porous woods like pine or maple, wipe on a wood conditioner like Pre-Stain (minwax.com). Let the conditioner dry for about 15 minutes, then apply an oil-based stain and check its color next to the floor. If too dark, wipe it with paint thinner. If too light, apply a second coat after the first one dries.

7] Glue the patch in place When the stain is dry, cover the mortise's sides and bottom with wood glue. Press the patch into the mortise, and use a damp rag to wipe up any glue that squeezes out. After the glue dries, mask around the patch and apply two coats of polyurethane to match the rest of the floor. ■



Well-traveled bedroom

Global textiles and storied furniture create a sophisticated sleep spot

BY KATHRYN O'SHEA-EVANS

➔ **A BEDROOM** can cultivate more than sweet dreams. Take this inspiring retreat put together by designer Courtney Barton for her Houston home, and which is featured in the new book *Carolyn Westbrook: Vintage French Style*. “I don’t believe in going to a big-box retailer and buying a bunch of stuff that has no history just to fill a space,” says designer Westbrook. Illustrating that point, Barton filled the room with eclectic finds from her travels: a colorful patterned rug from India, fabric shades that suggest French ticking, block-print pillows that nod to the Greek isles, and Federal-style beds unearthed at a New York estate sale.

Here, stylish wares for an in-home getaway of your own.



four-poster bed

No heirloom twin-bed set? Search [Craigslist.org](http://craigslist.org) and Chairish.com for well-priced vintage beds. Alternatively, if you have the skills—or know someone who does—consider crafting your own, as Norm Abram did on *The New Yankee Workshop*, modeling it after this 19th-century antique. Turned Post Bed plan, Item 411, \$15; newyankee.com

PHOTOS: KEITH SCOTT MORTON AND ERIC RICHARDS; (BED FRAME) COURTESY OF CONCORD MUSEUM, WWW.CONCORDMUSEUM.ORG; (RUG, GRASSCLOTH, ROMAN SHADE FABRIC) DENISE SFRAGA



• **get this look for less**

graphic rug

Around the world, some of the most vivid sights are underfoot. This wool rug, handwoven in India, shows off an artful geometric pattern that grounds any space. From \$78; jillrosenwald.com



handsome dresser

Mimic the homeowner's 1930s steel Simmons chest with this sturdy wood model, with smooth-gliding drawers and oil-rubbed bronze hardware. \$180; jet.com

punchy pillow

Add a bit of casual Mediterranean chic with cushions covered in a Santorini-inspired block-printed indoor/outdoor fabric that resists sun fading—and spills. From \$60; caitlinwilson.com



grasscloth walls

Charcoal grasscloth echoes the dark window trim and wraps the room with warm texture. In hard-wearing vinyl, it's also worry-free. \$18 per roll; norwall.net

streamlined sconce

Swing-arm lamps allow readers to position light where they need it. Made of steel and aluminum, this hardwired option emits a cozy, candle-like glow. \$249; restorationhardware.com

rattan chair

A sturdy cane chair evokes exotic locales and adds a tropical touch to a traditional mix. \$98; anthropologie.com



relaxed Roman shade

Simple, tailored window coverings don't compete for attention; in gray and white, these striped fabrics recall French ticking. \$362 per custom 28-inch-wide-by-54-inch-long shade in fabrics shown; calicocorners.com

SEE IT DONE!

Watch Norm Abram make a turned post bed at thisoldhouse.com/new-yankeebed

Two-tone kitchen for \$125

Thrifty shopping and some fool-the-eye fixes give a small, dated cook space a brighter, more modern look **BY KATELIN HILL**



BEFORE Because the landlord planned to gut-reno- vate the house after she moved out, Sheena Tobin had free rein to transform the dark, dated space however she saw fit.

AFTER Even on a tiny budget, Sheena managed to pull the kitchen out of the 1980s and into the 21st century with a bold paint color and some quick-fix materials.



➔ **THE KEY** to keeping renovation costs low? Being flexible with materials that can be found for a steal. Take it from Sheena Tobin, who set out to update the kitchen of her Mobile, AL, rental home while sticking to a strict \$150 budget. Wanting a cheerier space in which to cook for her family of six, she kicked off the project by stripping the dreary striped wallpaper, removing the dated scalloped valance above the sink, and prepping the walls and cabinets for a white-and-green color scheme. After applying fresh coats of paint, Sheena found a peel-and-stick wallpaper with a subway-tile print at a local discount store

and hung it in place of a tile backsplash. She also bought a few low-cost products both online and around town, including a shade to dress up the ceiling-fan light, a mini pendant for over the sink, and a bamboo window blind. Finally, to help the dishwasher blend in with the cabinets' new paint job, she covered the door panel with leftover wallpaper, then painted it the same green. A few accessories, such as a rug and a plant from other rooms, pulled the design together for no extra cost. Sheena, who blogs at beaninloveblog.com, is totally smitten with the refreshed space, summing up, "It's brighter, cheerier, and way more fun!" ■

THE PROJECT TALLY

Stripped the existing wallpaper, then primed and painted the walls and cabinets..... **\$47**

Upgraded the cabinet hardware with brass pulls..... **\$25**

Removed the scalloped valance above the sink and hung a secondhand bamboo blind..... **\$17**

Made a DIY pendant for over the sink using a discounted light kit and a thrift-store glass vase; added a shade to the ceiling-fan light and dressed it up with leftover tassel fringe..... **\$10**

Added a faux-tile backsplash using peel-and-stick wallpaper..... **\$26**

Covered the front of the dishwasher with leftover self-adhesive wallpaper, then painted it to blend in with the cabinetry..... **\$0**

Appropriated a plant and a rug from other areas of the house... **\$0**

TOTAL \$125



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Beach-town bungalow

Hammers are swinging at the 2018 Idea House, where advanced materials and building techniques are creating an updated Craftsman-style house with a staycation sensibility

BY JILL CONNORS • PHOTOGRAPHS BY ANTHONY TIEULI



TOP: Innovative sheathing materials and hurricane-rated windows form a weathertight building envelope as the bones of the Craftsman-inspired home take shape.

INSET: A rendering of the 2018 Idea House shows off such Craftsman details as a full-width porch under a deep roof overhang, exposed rafter tails, and tapered columns on stone piers. The steeply pitched gable and cedar shingles are elements typical of New England shingled cottages.

➔ **IT'S A CLOUDY SPRING DAY** in Narragansett, Rhode Island, and the building crew is busy nailing up the shingles on the sweeping roof, trimming out the front door, and installing the porch ceiling. A passerby stops and smiles, nodding in appreciation at the look of the house: Craftsman style has that effect on people. The early-1900s architectural style exudes comfort, warmth, and familiarity, and that is exactly the goal of *TOH*'s 2018 Idea House—to combine traditional architectural details with the most-desired features for today's informal way of living.

“We were inspired by traditional Craftsman bungalows,” says Union Studio architect Christina Carlson, who collaborated with The House Designers to create the plans for the 2018 Idea House. “The house has a unique roof that gives the appearance of one and a half stories, creating a nice scale and a sense of coziness even though there is a lot of living space tucked under that roof.”

Indeed, the 2,700-square-foot house will have four



bedrooms, three and a half baths, a kitchen complete with a butler's pantry, a mudroom, a living room that opens onto a screened porch, an office nook, first- and second-floor laundry rooms, and a basement with a home theater, a sauna, and an exercise room. A detached garage has upstairs space to accommodate a guest suite.

General contractor Jeff Sweenor is committed to building a house with the feeling of a classic beach bungalow—one of the state's best stretches of shoreline is just blocks away—but with advanced materials that will add durability and protection from the elements. "The old cottages from the early 1900s were built without insulation," says Sweenor, who lived in this neighborhood as a college student at the University of Rhode Island. "We have modernized while being sure to give the house a traditional look."

Characteristic Craftsman elements include a full-width front porch tucked under an overhanging roof, exposed rafter tails, tapered porch columns perched on



ABOVE: Contractor Jeff Sweenor (on ladder) and his son, Ryan, frame the vaulted ceiling in the second story above the freestanding garage, creating a dramatic space for a future guest suite.

LEFT: Using a chalk line, father and son check the alignment of the framing's sharp outside corners, which they made by ripping and mitering $\frac{3}{4}$ -inch plywood.

EXTERIOR WALL SHEATHING: ZIP System Sheathing & Tape
 ROOFING UNDERLAYMENT: GCP Applied Technologies
 COMPOSITE ROOF TILES: DaVinci Roofscapes
 WINDOWS: Andersen Windows & Patio Doors
 WESTERN RED CEDAR PORCH CEILING: Real Cedar

SEE IT ALL!

Find more Idea House job-site photos at thisoldhouse.com/Idea-House



TOP LEFT: Sweenor Builders crew members install the front entry ceiling's stepped tray detail, crafted in cherry.

BOTTOM LEFT: Mason Buck Sharpe installs quick-to-go-up manufactured stone veneer on the precast foundation.

TOP RIGHT: The stairway in the main house is being installed in sections. Sweenor Builders built them at their shop, without stringers, to create a monolithic system of oak treads and poplar risers and skirts connected with epoxy. "It's a stronger, straighter, better system than a site-built one," says Jeff Sweenor.

ABOVE: A crew member lays the quartersawn white oak flooring on the upstairs hallway's plywood subfloor, which is treated with a liquid vapor barrier to minimize the wood's movement.

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LEFT: Mike Rich trims out a doorway with moisture-resistant radiata pine.

BELOW: Crew members install cedar-look composite roof shakes on the garage.

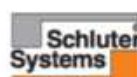
CHERRY TRAY CEILING AND WHITE OAK FLOORING: **Baird Brothers Fine Hardwoods**
WOOD GLUE: **Gorilla Glue**
MANUFACTURED STONE VENEER: **Eldorado Stone**
PRECAST CONCRETE WALL PANELS: **Superior Walls**
PLYWOOD SUBFLOOR: **AdvanTech**
RADIATA PINE TRIM, SOFFITS, AND CLAPBOARDS: **LIFESPAN Solid Select**
COMPOSITE ROOF TILES: **DaVinci Roofscapes**

stone piers, cedar shingle siding, and windows with a trimuntin detail evocative of the style. The modernization comes through in such materials as a precast insulated foundation that is waterproof, straight, and level from the moment it is set in place; manufactured stone veneer that goes on faster; a liquid vapor barrier applied to the sub-floor in the house's first and second levels to keep moisture away from the quartersawn white oak floorboards; hurricane-rated windows; an engineered wall-sheathing system; self-sealing roof underlayment; and weatherproof composite roof tiles that look like cedar shakes.

Interior designer Kristen Martone included distinctive touches that nod to old-house details and also tap the Sweenor crew's fine craftsmanship: A stepped tray ceiling inset made of cherry adds a focal point in the entry, as does a white oak herringbone floor inset outlined in black walnut. Bringing in a more contemporary feel are the linear limestone veneer on the living room fireplace, the open-plan first-floor layout with the kitchen adjoining the living room, and sliding glass doors that create a 12-foot-wide opening from living room to screened porch. "We are definitely bringing the outside in, and making this house the kind of place where people with overscheduled lives can just come home at the end of the day and have some time for themselves," says Martone.

The staycation mind-set is underscored by all the outdoor amenities, which include a plunge pool to cool off in, an outdoor kitchen for casual entertaining, and a fire bowl for gatherings under the stars. "This arrangement sets up a private enclave delineated by the house and garage," says Carlson. "We wanted a detached garage in the rear so that from the sidewalk, the house is most prominent—it's something you typically see in older neighborhoods." A covered breezeway connects the garage to the house, adding the modern convenience today's homeowners are looking for.

For evoking the Craftsman era, however, there's no better spot than the front porch, especially since the house sits in a walkable neighborhood in one of Narragansett's four historic districts. "This is a street where people still sit out on their porches and spend time in their yards," says Sweenor, "and this house will fit right in." ■



ask This Old House ▶

Q How does Tom Silva keep his handsaws clean and lubricated? Mine just rust!

—ROBERT BEAUDRY, HUDSON, NH

A One of the best ways to keep rust off a saw is to use it. Rust doesn't last long on blades that spend time cutting wood. You can scrub off light rust with steel wool and a lubricant like WD-40. Heavy rust might require Naval Jelly Rust Dissolver (loctiteproducts.com).

Once the rust and cleaning residue are gone, wipe or spray the blades with silicone-free Slipit (slipit.com). It inhibits corrosion, helps the blade slide through the cut, and won't contaminate the wood and spoil its finish.

Treat the blade with more Slipit after each use. Then store it in a dry place with plenty of air circulation, just like these well-cared-for backsaws at right.

—TOM SILVA, TOH GENERAL CONTRACTOR



36

tips, tricks, and
answers to
your home-
improvement
questions

Our cast of veteran experts



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General Contractor



NORM ABRAM
Master Carpenter



RICHARD TRETHEWEY
Plumbing and Heating Expert



ROGER COOK
Landscape Contractor



KEVIN O'CONNOR
Host



My big masonry fireplace doesn't have the best draft up the chimney. Its flue is 13 by 17 inches in cross section. How big should the opening to the fireplace be? —JERRY HALL, WILMINGTON, NC

MARK McCULLOUGH REPLIES:

Many factors affect the ability of smoke to draft up a flue, including the size of the firebox opening, the shape, size, and length of the flue, the airtightness of the house, and the height of surrounding structures. In some cases, the draft is so delicate that even the temperature difference between inside and outside can alter its flow.

Fortunately, scientists and masons have been studying and perfecting fireplace design for centuries, so we now have some good rules of thumb to follow. We know, for instance, that the cross-sectional area of a flue should be $\frac{1}{10}$ the area of the firebox opening. So your firebox should be 2,210 square inches, or 15.35

square feet, to match your flue.

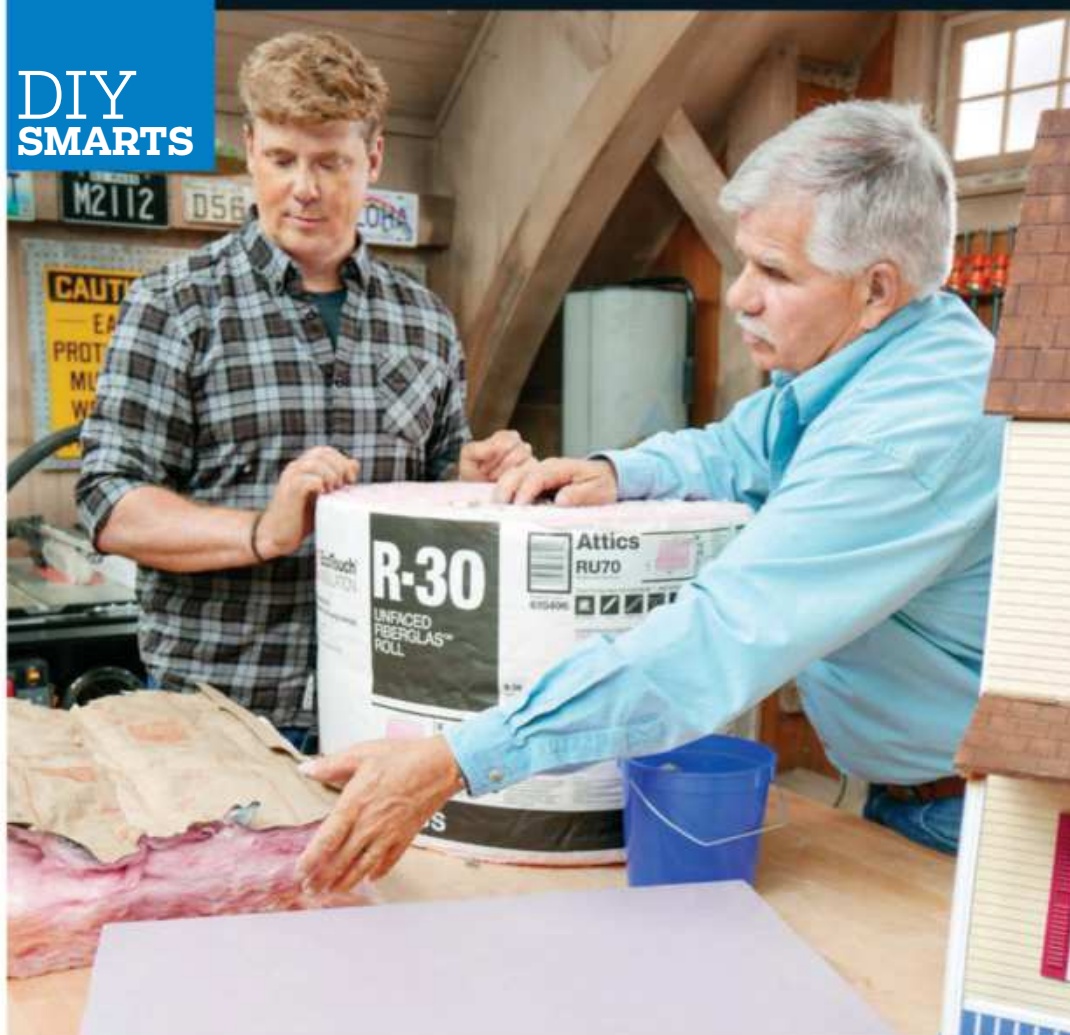
If your opening is too large, it's not too difficult to build a smaller one inside the existing firebox. But an opening that's too small for the flue is a harder fix. It might be easier to have the flue relined by a cast-in-place service such as Solid/Flue (solidflue.com). If you go that route, you'll end up with a cylindrical flue, which draws better and is easier to clean than a rectangular one.

The other rules of thumb involve the height of the chimney. At a minimum, a chimney should

Mark McCullough, the owner of MJM Masonry, has been the masonry contractor on a dozen This Old House TV projects.

When contractor Mark McCullough builds a masonry fireplace, he makes sure the firebox opening is in proper proportion to the flue so that smoke won't back up into the house.

DIY SMARTS



Tom Silva, near left, explains to Kevin O'Connor the options for upgrading attic insulation.

Q Upgrading attic insulation

The blow-in insulation in my attic has deflated over the last 70 years or so. Can I lay batt insulation over it, or would it be better to blow more in? —LEO FLERLAGE, CINCINNATI

TOM SILVA REPLIES: Either approach will work, as long as you pay attention to how the insulation is installed. If you're adding fiberglass batts, for instance, make sure they are "unfaced." "Faced" batts, like the one I'm reaching for with my left hand, above, have a vapor barrier that can trap moisture. That's bad, because when insulation gets wet, it's useless.

Also, if the roof has soffit and ridge vents, make sure the insulation doesn't touch the underside of the roof. Leaving an air gap above the top of the insulation helps prevent ice dams in the winter and mold in the summer. That's easy to do with batts: Just lay them at right angles to the rafters and push the batts tightly together. When putting in blow-in insulation, install foam baffles in the rafter bays first to maintain the air gap.

Now, if you're planning to pile batts over your existing insulation, then buy some bales of blow-in to bring the insulation level up to the top edges of the joists. A leaf rake makes a good fluffing tool for the compacted bales. You can skip that step if you're only adding blow-in stuff. (In either case, there's no need to fluff up the old, compacted material.)

Whichever insulation you use, be sure you're adding enough material to reach the recommended R-value for your climate. For guidance, go to insulationinstitute.org.

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DIY SMARTS ONLINE

Find more information about this topic—and many others—at thisoldhouse.com/diy-smarts

extend 3 feet above the point where it intersects the roof, and at least 2 feet above any structure, such as a dormer, within 10 feet of the flue. If there are tall trees or houses nearby, I'd go up another foot or so just to make sure there isn't any back drafting.

In general, the taller the chimney, the better the draft. If your chimney comes up short when you measure it, adding some extra height should be relatively easy.

Finally, there's the issue of makeup air. When there's a fire, every cubic foot of air that goes up the flue with the smoke has to be replaced by another cubic foot coming into the house from outside.

Back when houses weren't well insulated and weatherstripped, makeup air infiltrated with ease and carried away the smoke. But these days, houses are much tighter. That would make it harder for fireplaces to get enough makeup air, and easier for smoke to back up into rooms, if it weren't for the code requirement that masonry fireplaces be equipped with an external air supply "to ensure proper fuel combustion." If cracking open a window fixes your draft, then you need an external air supply.

For the fireplace I'm building in the photo, outside air comes in through a 3-inch hole I drilled through the firebox wall, close to the firebox floor. Steel ductwork connects the hole to an outside vent, and a sliding metal plate seals off the inside end.

Q Finish for old fir floors

We'd like to finish the Douglas fir floors in the second story of our 100-year-old house. But they're so soft and easily



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gouged; will a polyurethane finish be hard enough for a busy hallway? We have a large dog, cats, and a baby on the way. Or would it be best to cover it with a new wood floating floor?

—KATIE REINERT, HARTFORD, WI

PAT HUNT REPLIES: A floating floor certainly will protect your old flooring from harm, but it will also hide all that beautiful, tight-grained Douglas fir. As a hard-core wood-floor guy, I don't see the sense in covering a fine, solid-wood floor with what is,

Custom-milled wood products specialist Patrick Hunt of Hunt Hardwood has been working with This Old House since 1995.

What is it?

- A** Spider catcher
- B** Vibration isolator
- C** Drilling shroud
- D** Foot-operated air pump

FOR THE ANSWER, SEE PAGE 42

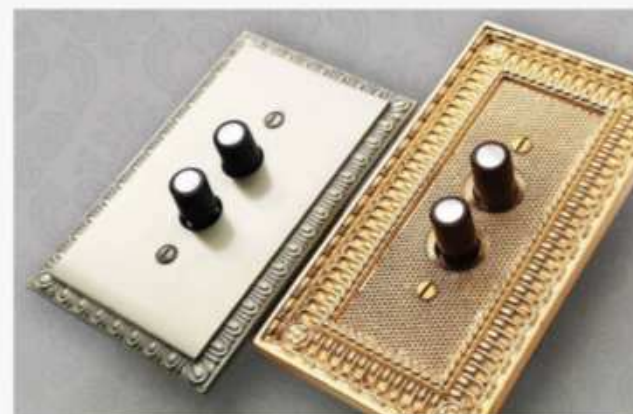


PHOTO: ROBERT HARDIN



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in fact, a thin, disposable one.

A film-forming finish like polyurethane would definitely be hard enough to withstand hallway traffic, but it's not the best choice for your soft fir. That's because the hard film can't flex with the wood, so an impact can break the bond between the wood and the finish. And once that bond is broken, you have to sand down to bare wood before a new finish can be applied.

A better finish for fir would be a two-part penetrating oil like HS 2K ImpactOil (loba-wakol.com), which soaks into the wood fibers, rendering them water and scuff resistant. It has no VOCs and needs only two coats, applied just 20 minutes apart. Plus, there's no long wait for it to cure; you can walk on it just 12 hours after application. Because there's no film to sand when it's time for a new topcoat, maintenance is as simple as wiping on Loba's ParkettOil when necessary. Floors last much longer when they don't have to be sanded.

Once the floor is finished, vacuum regularly to eliminate the grit that eats into wood and floor finishes. And consider enforcing a no-shoe policy upstairs to control abrasion, and a no-dog policy to prevent toenail scratches. But if that's not possible, putting down no-slip rugs in high-traffic areas like hallways will be a big help. Dings on wood floors are inevitable. Think of them as adding character, then swab them with some maintenance oil.

Q Slippery porch
My front porch has a painted pine floor that gets really slippery from ice in the winter. And the ice-melting chemicals I've used

deteriorate the paint so badly that it lasts only about two years. What can be done to make the floor safe from ice without harming the floor paint?

—RUTH WOLLENBURG, LAKE MILLS, WI

KEVIN O'CONNOR REPLIES: I asked Mauro Henrique, the owner of Mauro's Painting and a regular painting contractor on *This Old House* TV, what he would do to reduce the slipperiness of a porch deck. His suggestion: Apply a paint that provides better traction. You can either mix a gritty anti-skid additive such as Zinsser Skid-Tex ST30 (rustoleum.com) into the paint, or use a flat paint like Sure Step (insl-x.com), which has the nonskid already mixed in.

Both of these products use a grit made of clear quartz and crystalline silica, which won't show up as dark specks as the paint wears off. That's what would happen if you just sprinkled regular sand into wet paint.

Nonskid paint works great when it's exposed, but won't be any help if it's covered by ice and snow. So I called Diana Clonch, a consultant specializing in snow and ice management, and asked for her advice. She recommended treating your porch, steps, and walkways ahead of a storm—the same strategy that highway crews employ on roadways before the snow flies—with a liquid, potassium acetate anti-icer.

An anti-icer melts the first ¼ to ½

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What
is it?



C Drilling shroud

When attached to an SDS-Plus rotary hammer, the Dust Trap safely contains the dangerous silica dust generated by drilling into concrete and masonry. You can also extract dust by hooking it up to a wet/dry vac. \$20; milwaukeetool.com

inch of accumulation that hits it. As snow continues to pile on, the bottom layer stays slushy and doesn't bond to the surface the way that ice will; you can easily sweep or shovel off any buildup. The diluted solution goes with it, so you just apply more, if it's needed.

Potassium acetate anti-icers contain no chlorides, so they're considered safe for pets, plants, wood, and concrete, Clonch says, and they're widely used at airports because they're much less corrosive to metals than chlorides are. Clonch can't say what effect, if any, this type of anti-icer has on paint.

PlaySafe Ice Blocker (playsafeiceblocker.com) offers a liquid potassium acetate in homeowner-friendly 1-gallon containers. You simply apply it with a pump sprayer.

Clonch says that liquid potassium acetate is effective down to -15°F, and that it works as a deicer, too. Just spray the room-temperature solution on any residual ice buildup.

Q Crown conundrum
We'd like to add crown molding to some rooms in our house, but the ceilings are on two intersecting

planes: One ceiling is parallel to the floor and the other follows the pitch of the roof. After lots of head-scratching, I have no clue how to proceed. What do you suggest?

—JAY SWINDLE, NORTH RICHLAND HILLS, TX

TOM SILVA REPLIES: Crown molding is meant to be installed on ceilings that are parallel to the floor. When a neighboring ceiling slopes down, as yours does, the end cuts are very tricky to pull off and take lots of time.

But there's another, bigger problem: how it will look. Not only will the joints be at odd angles where the ceilings meet, the crown just isn't going to look good as it zigzags around the room. Better to leave it the way it is.

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Include a complete address and daytime phone number. Published questions will be edited for clarity and length and may be used in other media. We regret that, because of the volume of mail received, we're unable to reply to unpublished questions.



Norm's tricks of the trade

Q

When I lift a framed wall up into position, with the help of some buddies, how do I make sure it ends up plumb and straight?

—RICHARD VOLPE, SOUTHBURY, CT

A Plumb and straight are the goals for almost every wall-framing project. That's why I always make sure, after a wall is raised and the ends are braced plumb, that the top and bottom plates are straight.

Checking the wall's bottom plate is easy; it should line up with the chalk line that I snapped on the floor or sheathing before the wall was raised. Checking the top plate is a bit more involved. I use a gauge block and a mason line pulled tight over two spacer blocks, as shown below. All the blocks are cut from scrap 2×4s.

Slide the gauge block along the plate, and look for any place where there's a gap between the block and the line, or where the block pushes against the line. Use springboards to pull or push the plate into the right position—check it again with the gauge block to be sure—and to steady the plate until it can be secured. ■

HOW TO ADJUST THE TOP PLATE

Norm explains how to make and use a springboard at thisoldhouse.com/springboard

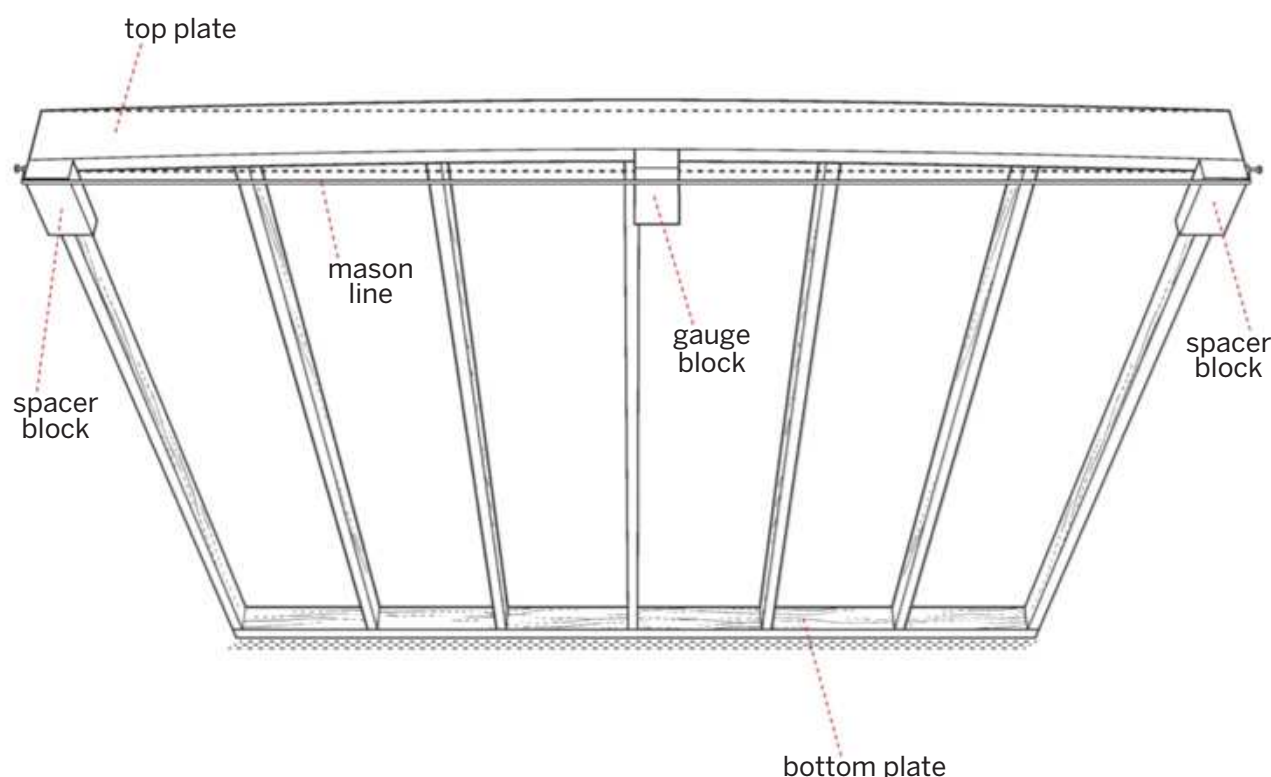


PHOTO: WENDELL T. WEBBER; ILLUSTRATION: HARRY BATES



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TOH general contractor Tom Silva and host Kevin O'Connor cut lumber for a screened porch that allows outdoor access from an addition that will double the size of the existing 1,000-square-foot cottage (top right). All-new systems will enable the renovated house to use only as much energy as it produces.



PHOTO: (TOP) KEVIN O'CONNOR



JAMESTOWN NET-ZERO HOUSE

Little Green GIANT

Traditional architectural details and a more open floor plan combine with the latest energy-saving—and energy-producing—technologies at a new *This Old House* TV project

BY JEFFERSON KOLLE / PHOTOGRAPH BY CARL TREMBLAY

One summer Sunday, as they reluctantly prepared to corral their two boys and hit the road at the end of another weekend at the Jamestown, Rhode Island, beach house they shared with their extended family, Don and Dana Powers confronted the question: “Why don’t we live how we really want to live?”

And with that they decided they would leave their house in Providence, where Don’s architectural office is located, and find a new home in the small island community across a toll bridge from Newport. Thus began a two-and-a-half-year hunt that ended with an accepted offer on a 1,000-square-foot cottage, built in the 1920s, in need of extensive renovation—now being documented for the 40th season of *This Old House* TV.

Don’s design goals for the house were multifaceted. First, he wanted to rework the floor plan and enlarge the house to accommodate their family of four. At the same time, he would keep the house recognizable as a Jamestown shingled cottage. “I didn’t want the house to be the sore thumb of the neighbor-



hood, with a big bulky addition. And I wanted to add some architectural flair.”

Just as important was energy efficiency, something Don knows a lot about from his work designing sustainable-community projects. The couple decided to build a net-zero home—a building standard that dictates that a house use only as much energy as it can produce. In the Powers house, photovoltaic solar panels and a heat-recovery HVAC system will supply the needed energy, while layers of insulation, Energy Star appliances, triple-glazed argon-filled windows, and LED lighting will keep energy use low.

The couple have a realistic outlook about living in the finished house. “Many folks in the net-zero world feel that any energy use more than absolutely necessary is almost morally wrong,” Don says. “We’ll be responsible energy users, but we’re not going to live like monks.”

The renovated house will grow in length, but not in height or depth, with a two-story addition continuing the eave line of the original house to keep the low, cottage scale of the neighborhood. The original roof carries unbroken onto the new construction, where the size and placement of existing front and rear shed dormers are duplicated. But the addition is not a mirror image of the original house. It’s more of an artful extension.

Inside, an 8-foot-wide opening will connect the kitchen and dining area to the adjacent living room. “We wanted most of the floor to be a big social space but with the intimacy of individual rooms,” Don says. In the living room, there’s a three-sided “music nook” for their son Nate’s baby grand piano. A den is tucked into a front corner of the house with a door separating it from the common areas. Upstairs, there will be bed-

ABOVE: Homeowners Dana and Donald Powers with their sons Theo, age 7, and Nate, 13.

RIGHT: The addition’s factory-made concrete foundation panels are insulated with foam and backed with steel studs.

BOTTOM LEFT: A crane unloads the panels, then lifts them into place on compacted gravel subfootings where they are bolted together.

BOTTOM RIGHT: Tom Silva and Jeff Sweenor, the builder on the Jamestown project, check the measurement for the step-down addition’s foundation height.

FAR RIGHT, TOP AND BOTTOM: Sweenor Builders’ apprentices at work. Mary McGuire Smith cuts rafter tails with a jigsaw; Kevin Barker helps frame a dormer.

FOUNDATION WALLS AND INSTALLATION: **Superior Walls**
JIGSAW: **DeWalt**





PHOTOS: KEVIN O'CONNOR; (OPPOSITE PAGE, LEFT) JOHN TOMLIN; (BOTTOM) KEVIN O'CONNOR



rooms for each of their sons, a shared bath, and, down a short bookshelf-lined hall, a master suite.

The addition's screened porch steps down to the yard. "Being outside is a big part of how we live here," Don says. "It's a Jamestown thing to hang around the fire pit at night," Dana adds.

Behind the house is a post-and-beam barn. Purchased as a kit and assembled on-site, the multiuse building has one garage bay and a small shop downstairs. "I'll finally have a place to use my father's woodworking tools," says Don. Upstairs is open space for an office/art room and a guest suite.

One step in achieving net zero is to ensure the building will use as little energy as possible, so the first challenge was to tighten up the existing structure as well as insulate the new addition. The house's existing foundation and slab were lined with a combination of rigid mineral-wood panels and rigid foam panels. Instead of a typical poured-concrete



ABOVE: Tom Silva and Kevin O'Connor discuss a vinyl-mesh wall wrap with builder Jeff Sweenor. The mesh helps the white cedar shingles dry from the back side, increasing their life span and keeping moisture out of the house.

RIGHT: A computer rendering shows how the finished house, with double the living space of the original cottage, will retain its neighborly scale.

WALL WRAP: **Home Slicker**
WHITE CEDAR SHINGLE SIDING: **SBC**
RED CEDAR ROOF: **Liberty Cedar**
ROOF UNDERLAYMENT: **Cedar Breather**
WINDOWS: **Marvin**
BARN: **Country Carpenters**
SOLAR PANELS: **Vivint Solar**
HVAC SYSTEM: **LG Air Conditioning Technologies**
VENTILATION SYSTEM: **RenewAire** and **Panasonic**



foundation, the addition's basement walls were factory-built insulated, reinforced concrete panels installed on-site. Above the basement, the stud walls are filled with spray foam, with rigid foam applied to the exterior on top of a vapor barrier.

The underside of the existing roof was also insulated with closed-cell spray foam; then a matrix of 2×6s and OSB sheathing filled with one 2-inch layer and one 3-inch layer of staggered rigid mineral-wool board was installed on top of the new and old rafter systems. "Basically, they built structural insulated panels [SIPs] on-site," says *This Old House* general contractor Tom Silva. "This saved time and money."

Though Sweenor Builders, the crew on the project, goes out of its way to build a tight house, all houses have air leaks. A blower door test on the Powers home showed 4 air changes per hour (ACH), considered to be tight. But a new air-sealing technology, first developed for HVAC ducts, reduced the house's ACH to less than 1, all in about 60 minutes.

Here's how it works: Lengths of tubing with spray-nozzle tips are set up inside the house on small tripods—several on each floor. Then, while a blower door pressurizes the house, a compressor pushes an acrylic-glue-like substance through the tubing and out the nozzles. The atomized gluey mist travels toward any air leaks, where it begins to collect around the holes. Glue particles stick to other glue particles, eventually clogging the opening. "This technology is



a game changer,” says *TOH* plumbing and heating expert Richard Trethewey. “It’s a faster and better way to air seal any building, old or new.”

Photovoltaic panels on the southern slope of the barn’s cedar roof will generate all the electricity used by the Powers family. An innovative heat-recovery system that monitors five zones in the buildings, and can actually move heat from one area to another, will provide ultra-efficient HVAC. It will also heat water for the faucets. An energy-recovery ventilation system will provide fresh air for the house but will harvest heat from the air before exhausting it outdoors.

Moving to Jamestown will mean lots of lifestyle changes for the Powers family. They will be living outside the city in a small, close-knit community near the ocean. The house is two-thirds the size of their previous home. Net zero means increased attention to electricity use and heating and cooling demands. “But the way we look at it, a net-zero house will enhance our life, not dictate it,” says Don. Adds Dana, “It’s all part of living the way we want to live.” ■

ABOVE: Red cedar roof shingles and white cedar sidewall shingles with woven corners (meaning no corner boards) are hallmarks of coastal New England cottages. Unadorned, flat exterior trim on rake boards, windows, and doors completes the look.

RIGHT: The post-and-beam barn arrived on-site in kit form. Cutting the barn frame at a factory, rather than on-site, saved time and money. After assembling the frame, the crew cut, then installed, the 2×12 rafters.







VINTAGE MODERN

A 1930 house gets an unexpected update in the hands of two creatives with an eye for mid-century finds

BY DEBORAH BALDWIN • PHOTOGRAPHS BY ELLEN McDERMOTT • PRODUCED BY NICOLE ESPOSITO-POLLY
• STYLING BY JENNIFER VREELAND McDERMOTT

YOU CAN'T ALWAYS GET WHAT YOU WANT. But in the course of trying, you may get something even better.

That's how two big-city dwellers, Nick and Heidi Gamma, woke up one day in a Depression-era house in an exurban town they had barely heard of before they pushed their search to the outer limits of commutability.

In terms of where to look, "we were winging it—we looked at about eighty houses," says Heidi, recalling their ever-widening hunt for something larger than the overstuffed 700-square-foot apartment they were renting in Queens, New York. "We needed to be out of the city. We just needed closets."

As a longtime collector of vintage movie posters and radio/turntable consoles and a certain type of honey-colored yellow birch furniture made by Heywood-Wakefield in the 1940s and '50s, Nick wasn't exactly in the market for a stone-and-clapboard house with a storybook roofline. Neither was Heidi. "We're huge

The traditional dining room proves a perfect foil for a vintage Heywood-Wakefield dining table, first issued in 1948, and a handful of Heywood-Wakefield chairs. The candleholders were made by homeowner Heidi Gamma's grandfather. Original 1930 corner cabinets hold vintage dinnerware; framed mid-century jazz-album covers hang on one wall. Chair fabric: Dwell Studio. Curtains: Crate & Barrel. Ceiling fixture: Rejuvenation. Paint (walls): Benjamin Moore's Horizon



mid-century lovers,” she says. “We would have loved a really cool 1950s ranch.”

But in the early 2000s such cool classics were pricey. The couple didn’t have deep pockets—Nick was art directing and designing music CDs at the time, and Heidi worked in textile design. And they were thinking about having a baby. For two years they pored over listings looking for a place they both liked and could also afford, finally detouring to Trumbull, Connecticut, and a well-preserved earlier-period house—which suddenly felt just right. Situated on a nice lot not far from a train station, it held well-proportioned rooms, hardwood floors, and original details, including a wall-hung sink with legs and a tiled tub alcove in the one full bath. The house also offered a half bath and 1,076 more square feet than they had in the city—“a crazy amount of space,” Nick recalls naively thinking at the time.

There was no master suite, the previous owner made vague references to “minor puddling” in the basement, and the relatively new kitchen was not precisely to the couple’s taste. But the house did have two floors, three bedrooms, and access to good schools and public parks—potent draws even when daughter Lilly, now 12, was still just a gleam. The couple said yes, picturing an easy rearrangement of their vintage finds in more spacious, freshly painted rooms.

Heidi, who reveres old houses, recalls joy at finding many things right where the original builder had left them. She admits to being a bit obsessed. “I’ve

ABOVE: Nick and Heidi Gamma with their daughter, Lilly, then 10, and Cooper, their bichon frise. Vintage armchair: Heywood-Wakefield

ABOVE RIGHT: Vintage lamps and Heywood-Wakefield chairs and tables mingle with newer upholstered pieces in the serenely composed living room. Claiming the mantel are family photos and heirlooms and a letterpress print. Rug: nuLoom. Paint: Behr’s Toasty Gray (walls) and Benjamin Moore’s White (trim)

NEAR RIGHT: A mid-century-modern hutch in the living room holds collectibles, including Russel Wright tableware and a selection of British pottery.

FAR RIGHT: Homeowner Nick has a weakness for mid-century hi-fi and likes to crank up one of two vinyl-record-playing consoles, much to the bemusement of his daughter.

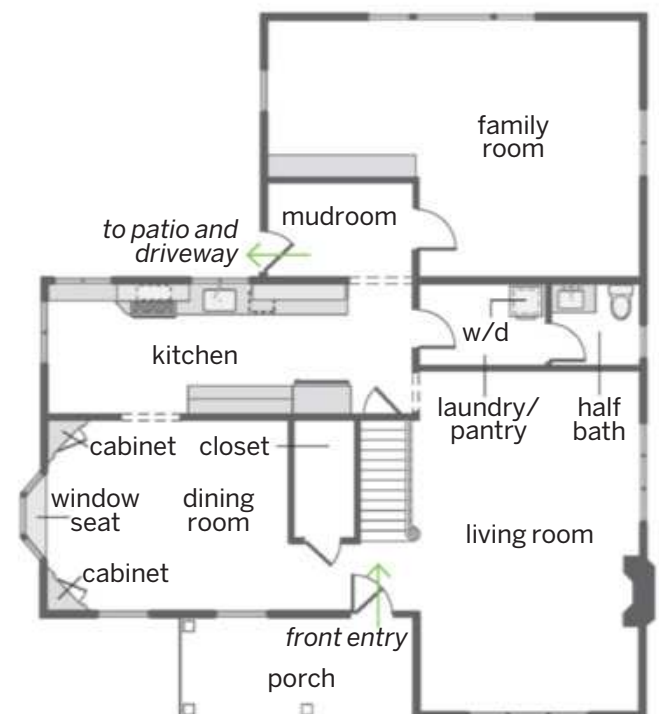




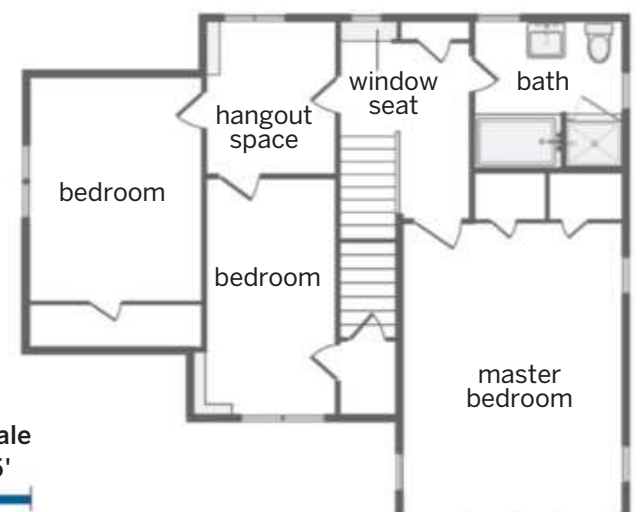
FLOOR PLANS

The homeowners preserved the existing layout and many of the finishes in the three-bedroom, one-and-a-half-bath house, built in 1930, ABOVE. The rear family-room addition dates to about 1950.

FIRST FLOOR



SECOND FLOOR



scale
5'

PHOTO: (TOP RIGHT) NICK GAMMA. FLOOR PLANS: IAN WORPOLE





THERE'S MORE!

See additional photos of the house—and the owners' collections—at thisoldhouse.com/vintage-modern



always wondered if it was a kit house, and what was going on in 1930," she says. "It's not a Tudor Revival, and it has a center-hall Colonial layout. Maybe English Cottage-Style Colonial?"

Though a rear addition went in around 1950, for the most part previous owners had worked to maintain the house without letting it go. Not everyone would find this ideal, but "we're big fans of keeping the original integrity," Heidi says. "You're not going to find that original 1930 mud-wall-type tiling now, and you'll never get it back again. If something is functional, then I want to preserve a little history."

The couple were also determined to keep the existing layout, rather than tear it apart and open it up, as is the fashion. "I can see the desire to live in a more modern way, but I don't think this house lends itself to it—there aren't enough walls!" Heidi says.

But before they could settle in and enjoy the way their Heywood-Wakefield beauties played off the golden finish on the oak floors, they had to put their first personal touch on the one space no one sees—the basement, where it turned out "puddling" was a euphemism for "you may need a sump pump." After one particularly hard rain, Heidi was on the phone with a mason, who had to dig out and paper

ABOVE LEFT: Enlarged by previous owners to hold a breakfast nook, over time the kitchen needed only new appliances. Brushed-aluminum Kromex canisters and a pot rack add to the period mix. Throughout, says homeowner Heidi, "we worked hard to make the juxtapositions work."

Range and microwave: Kenmore. Rug: Dash & Albert. Paint: Benjamin Moore's Linen White (walls) and Roasted Sesame Seed (wainscot).

ABOVE RIGHT AND NEAR RIGHT: The existing cabinets and quirky tile coincidentally complement the homeowners' colorful collection of Fiestaware, Pyrex, and Jadite.





and tar the culprit wall. He also had to regrade part of the backyard and lay down a French drain. “Then he added basement window wells,” Heidi continues. “Then he regraded another part of the yard and built a stone barrier with drainage against the back of the house.”

The clapboard siding called out for paint; porch columns and window trim needed work. Gradually, the couple’s hands-off M.O. became more hands-on. Wintry ice dams led to leaks over the family room. The homeowners ordered up a roofer and fiberglass-asphalt shingles advertised as “heavy-weight and extra strong,” and added a 3-foot ice shield over the family room and along drip edges.

As time wore on, kitchen appliances had to be replaced, along with the upstairs toilet and the chimney’s cracked lining. The dryer vent was not to code and had to be replaced and rerouted; the septic system became passé when the town supplied a sewer line. And then there was the new furnace,

ABOVE: Daughter Lilly’s room has an accent wall painted by her mom. “I nearly lost my mind,” Heidi says of neatening the chevron lines. The nightstand is an heirloom.
Artwork: Tad Carpenter.
Bedding: Pine Cone Hill.
Lamp: Target

RIGHT: The guitar belongs to Lilly, who plays double bass and ukulele as well.
Shelving: IKEA





water heater, attic fan—and central AC.

Which brings us to other water-related issues that sprang up in a house that was built, after all, some 17 years before you could buy a single-handle sink faucet. Along with the usual drips—the kind an apartment dweller can usually get the super to fix—the couple faced a phantom leak inside a wall behind charming peach and black bath tile. They really didn't want to replace the tile; as Nick puts it, "People either love it or hate it, but for me it is personal. It reminds me of my grandmother."

They turned to "this wonderful, patient plumber," Heidi says, referring to an enabler with more sympathy for a crazy quest than your average tradesman.

"It was challenging—Heidi wanted to keep it the way it was back in the day; you know she's pretty set on that," says philosopher-plumber Joe Tassitano, whose general observation vis-à-vis older houses is, "Each one has its quirks." After gingerly punching out a bit of tile and poking around, he tracked down the problem to a hole in a 1930 galvanized fitting. He was so taken aback by its location—"where it would never in a million years wear out"—he sent photos to his plumber friends.

More challenging was the full bath's American Standard China Shelfback sink, whose own leaks Tassitano traced to the faucet handles and fittings. Heidi wanted to save them. "We had to saw the valves off," Tassitano recalls, "and take the faucet apart and measure the length and diameter of the fittings and go online to find a company that still



ABOVE LEFT: Crisply patterned fabrics in a second-floor-landing alcove create a focal point that is visible from the front door.

ABOVE RIGHT: In the master bedroom, a vintage Saul Bass-designed movie poster for *Love in the Afternoon* hangs over a bed flanked by lamps with vintage fiberglass shades; the artwork on the adjacent wall is by Tad Carpenter. Lamp bases: IKEA. Rug: Dash & Albert. Paint (walls): Benjamin Moore's Classic Gray

manufactures stuff like that. Then we had to match everything up and put it together."

Mixed in among these projects was the fun stuff, namely smartening up the decor as only two designers would know how to do. Over time, plaster walls and ceilings were restored and painted; the wood paneling in the family room was softened by a coat of pale gray-taupe. Heidi, with a hand from her mother-in-law, reupholstered weathered seating. New lighting gave existing spaces a lift.

The household evolved, too, adding a rescued bichon frise, Cooper, about four years ago. Nick went to work as design director of an in-house creative and strategy group at Viacom; he also moonlights out of an armoire in the family room. Heidi continues as a freelance textile designer—and could



probably qualify as a general contractor, a good thing given the state of the vintage tub fittings. “The plumber is running from me,” she jokes.

There’s also the couple’s dream of adding on. At first sight 1,700 square feet was “awesome,” Nick says, “and now it’s a little small. We would love to extend the family room, with a master bedroom above. Then Lilly could take our bedroom, and I would have a studio.”

But that’s in the distant future for the owners of a starter house that is beginning to look an awful lot like a forever house.

“We’ve been in the house 15 years,” Nick says, and between its unique mix of old and new, and the town’s schools, family-friendly vibe, and ample green space, “we love it here.” ■

TOP RIGHT: Working with a sympathetic plumber, the homeowners replaced the toilet and fixed leaks in the one full bath while preserving its original sink, faucets, and peach and black tile. Toilet: Gerber. Sconces: Rejuvenation. Window blind: Pottery Barn

RIGHT: The reproduction shower fittings and the shower door are new. The tub and its fittings are original.

READ
THIS
BEFORE
YOU

Buy a Tankless Water Heater

Tired of running out of hot water? That's not a problem with one of these compact, ultra-efficient units that heat water as you need it. Here's what you need to know about choosing, installing, and living with one

BY THOMAS BAKER ILLUSTRATIONS BY DOUG ADAMS

Think about it: The way most households in this country heat water is absurdly wasteful. We fill up big 40- to 50-gallon storage tanks, then pour energy into them 24/7, year in and year out, to make sure we have hot water at the ready whenever we want it. But often it doesn't work out that way. If a teenager takes a long shower, or a spouse settles in for a tub soak, there can be a long wait for that emptied tank to reheat. Then there are the nagging worries: Is it filled with energy-robbing sediment? Will it spring a leak? Both are reasonable concerns, as tanks generally fail in 8 to 12 years.

These are the arguments for investing in a tankless water heater. It generates hot water only when you need it—and for as long as you need it—saving 27 to 50 percent of fuel costs over tank-type heaters. (A typical gas-fired tank wastes 40 to 50 percent of the fuel it burns.) And because there's no tank to fail, there's almost no chance of a catastrophic leak. What's more, since their introduction in the United States in the 1990s, tankless heaters have become increasingly sophisticated, with features like built-in recirculating pumps (for “instant” hot water), and wireless connectivity that tells you via smartphone exactly when a unit needs maintenance.

On the following pages, we'll explain how a tankless water heater works, tell you what you need to know before you buy one—and before the installer arrives—and let you in on the units' operating quirks, so there won't be any surprises if you go tankless.

THE BASICS

Frequently asked questions

HOW MUCH DO THEY COST?

Prices range from about \$170 for small gas-fired units to more than \$2,000 for high-output heaters that can supply two showers at the same time; \$1,000 is about average. Tankless electric heaters run between \$90 and \$900. First-time installation costs run more than a simple tank replacement. (See “Install It Right,” p. 62.)

HOW LONG DO THEY LAST?

Gas-burning tankless water heaters should operate for 20 years or more, two or three times longer than tank-type heaters. Tankless electric units have shorter life spans, on the order of 7 to 10 years.

WHERE TO BUY THEM?

Plumbing-supply stores, big-box stores, and online retailers all carry these heaters. Or order one through your plumber.

WHO INSTALLS THEM?

This is definitely a job for a pro, as it involves making leak-free water, vent, and gas connections, in the case of gas or propane units, or upgrading the wiring and circuit-breaker panel, in the case of electric units.

HOW MUCH MAINTENANCE?

Sign up to have a pro provide annual service, including cleaning or changing water and air filters and checking the burner. In areas with hard water, a vinegar flush every 500 hours keeps mineral buildup—scale—from clogging the heat exchanger. That 20-minute task can be done by either a pro or a homeowner.



PHOTO: COURTESY OF NORITZ

HOW IT WORKS

It all starts when you turn on the **hot-water tap (1)**.

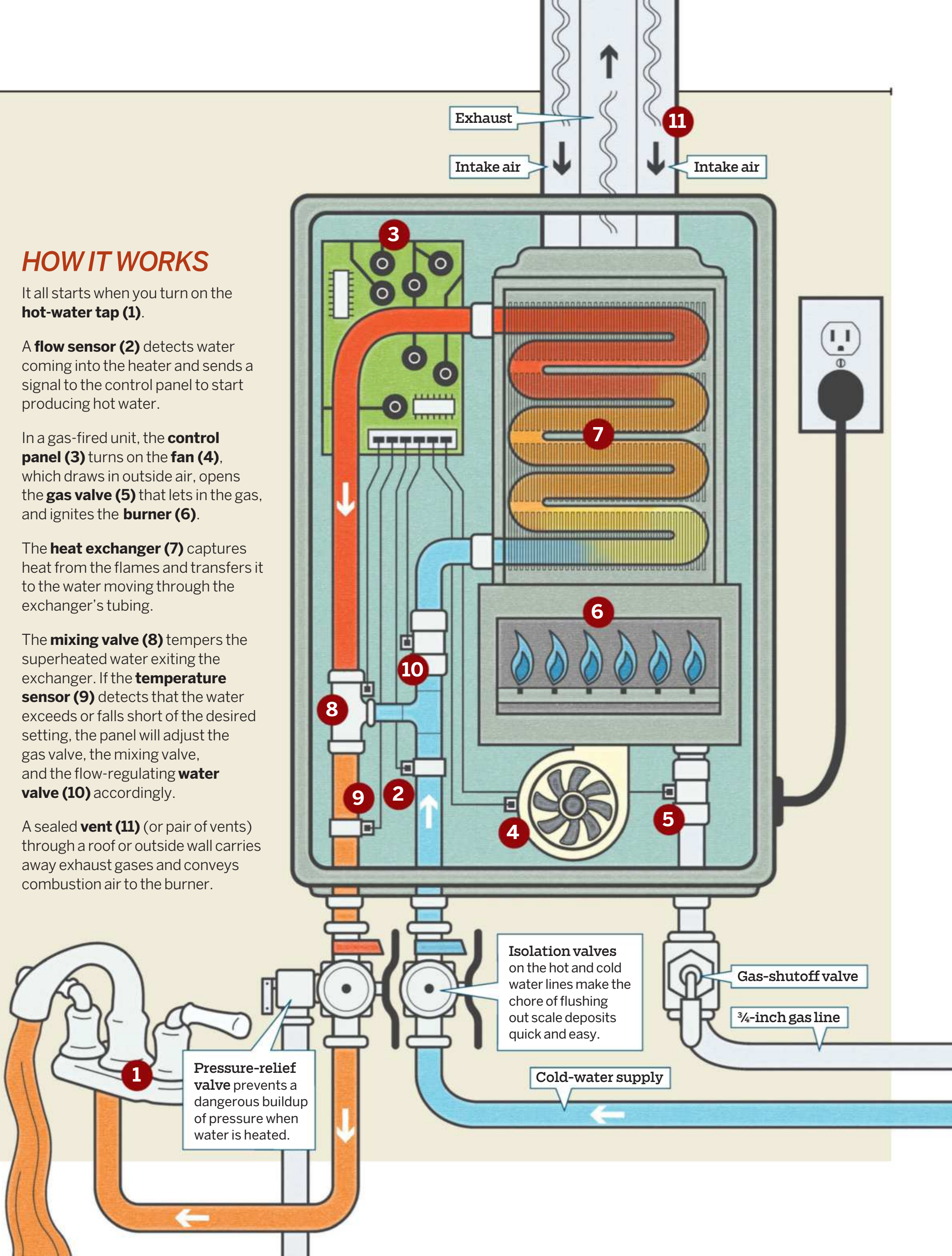
A **flow sensor (2)** detects water coming into the heater and sends a signal to the control panel to start producing hot water.

In a gas-fired unit, the **control panel (3)** turns on the **fan (4)**, which draws in outside air, opens the **gas valve (5)** that lets in the gas, and ignites the **burner (6)**.

The **heat exchanger (7)** captures heat from the flames and transfers it to the water moving through the exchanger's tubing.

The **mixing valve (8)** tempers the superheated water exiting the exchanger. If the **temperature sensor (9)** detects that the water exceeds or falls short of the desired setting, the panel will adjust the gas valve, the mixing valve, and the flow-regulating **water valve (10)** accordingly.

A sealed **vent (11)** (or pair of vents) through a roof or outside wall carries away exhaust gases and conveys combustion air to the burner.



Isolation valves on the hot and cold water lines make the chore of flushing out scale deposits quick and easy.

Gas-shutoff valve

$\frac{3}{4}$ -inch gas line

Cold-water supply

Pressure-relief valve prevents a dangerous buildup of pressure when water is heated.

PROS AND CONS: IS IT TIME TO GO TANKLESS?

PRO: They're compact

Newer tank-type water heaters have grown bigger as federal regulations now require thicker insulation to reduce standby heat loss. So they may not be able to fit into spaces where an old heater of the same capacity could go. Tankless gas heaters are about the size of a suitcase and hang on the wall.



PRO: They're safer

Unlike a tank-type heater, they won't spill gallons of water if they spring a leak, or harbor *Legionella* bacteria, or tip over in an earthquake. And because the air-supply and exhaust vents are sealed, carbon monoxide can't leak into the house due to backdrafting.

PRO: They're easy to winterize

Owners of vacation homes know well how long it takes to drain a water-heater tank before closing up a house for the winter. A tankless heater takes a few seconds to drain; then you just unplug it.

CON: They're sensitive to slow flow

If there's too much scale buildup in the pipes, or faucet and showerhead aerators are clogged, or a turned-down faucet reduces water flow to about 0.3 gpm, these units automatically shut off.

CON: The payback takes awhile

Compared with a tank-type heater costing \$400 or so, a \$1,000 tankless gas heater may save a household only about \$100 per year, depending on how efficient it is and how much hot water is used. But because these tankless gas units last longer, the savings kicks in after six years, about when many tanks are nearing their demise.

WHAT'S NEW

Tankless technology is constantly improving. Here are some of the latest refinements

Higher efficiency

Condensing gas heaters can extract up to 96 percent of a fuel's heat—a 17 percent improvement over first-generation tankless units—thanks to a second heat exchanger that captures much of the exhaust heat before it goes out the vent. They're about 25 percent more expensive than noncondensing heaters, and they create an acidic condensate that has to be neutralized. If a heater isn't equipped with a built-in neutralizing cartridge, the installer has to add one.

Instant hot water

Tankless units take about 15 seconds to bring water up to temperature, but you still have to wait for that hot water to arrive at your showerhead or faucet, just as you do with a tank-type heater. When the distance between heater and fixture exceeds 50 feet, look for units with a built-in recirculation pump, which saves water and reduces waiting time. The pump, which can be turned on by a timer, a push button, a motion sensor, a smart speaker, or a smartphone (above), pushes the cold water in the pipes back through the heater. After about a minute, the pump



shuts off and you get hot water seconds after opening the tap.

Wi-Fi compatible

Tankless units with digital connectivity let you adjust the temperature and monitor gas and hot-water usage on your phone. More important, the unit can identify the source of a problem. Relay that information to your plumber and he or she can show up knowing exactly what needs to be done. That feature also eliminates any guesswork about when it's time to descale.

PRO ADVICE

Save with rebates

"Condensing tankless water heaters are so efficient, they're certified by the federal Energy Star program, making them eligible for utility rebates across the country. These rebates are often enough to bridge the difference in price between the more expensive condensing units and the cheaper noncondensing ones. Then it's basically a free or low-cost upgrade that will save money for the next 20 years or more."

—Richard Trethewey, TOH plumbing and heating expert



What size do you need?

Here's how the pros make sure your heater delivers enough hot water

IT TAKES A BIG BURST OF BTUs for a tankless heater to turn cold water into hot water in just a few seconds. But if a heater's Btu output can't keep up with demand, it will cut back the flow, or, worse case, deliver lukewarm water.

To determine whether a heater will be able to meet a household's needs, a plumber looks at three factors: the **temperature of the water** coming into the heater, the **peak demand for hot water** in gallons per minute (gpm), and the heater's efficiency, as indicated by its **Uniform Energy Factor**, found in the product specs.

The first step: A pro finds out how many **Btus per gallon** a heater needs to raise the incoming water to 120 degrees (shown on the map below).

Next comes **peak demand**, the sum of the flow rates for every appliance and fixture that could be using hot water at the same time. (Those rates are listed below.) The total gets shaved by 20 percent, since we don't bathe or wash in 120-degree water. You can reduce peak demand by upgrading to low-flow fixtures and water-saving appliances, or by holding off on the washing when the shower is in use.

Total Btu output is calculated by plugging the Btus-per-gallon and peak-demand figures into the formula. If that output falls between two models, get the one with the higher Btu rating. And if the output exceeds 198,000 Btus, the maximum for residential gas heaters, you'll need two smaller units that work in tandem.



ELECTRIC OPTION

Homes without a gas line or propane tank can also enjoy the advantages of on-demand hot water by installing tankless units powered by electricity. These units, which heat water with thick copper rods, are quieter and about a third smaller than gas or propane tankless heaters. And because they don't need vents, they can be installed almost anywhere, including under sinks and in small closets.

One drawback to electric units is their limited output, which tops out at 36 kilowatts, or about 123,000 Btus. That may be enough to supply a whole house in areas with warm groundwater, but in colder climes they're better suited to point-of-use service, where the demand for hot water doesn't get too high. Whichever type you choose, it will need sufficient amperage at the main panel and heavy-gauge wires.

Also, electric heaters last only about half as long as gas units: Typical warranties are three to five years. Once the heating elements fry, it usually costs about as much to replace the entire heater as it does to swap in new elements.

TANKLESS INSTALLATION

Richard Trethewey walks through the steps of converting from a tank-type water heater to an on-demand unit at thisoldhouse.com/tankless-heater

SIZING FORMULA

Btus per gallon
(see map)

×

Peak
hot-water
demand
(gpm)
× 0.8
(see flow
rates)

×

60
minutes

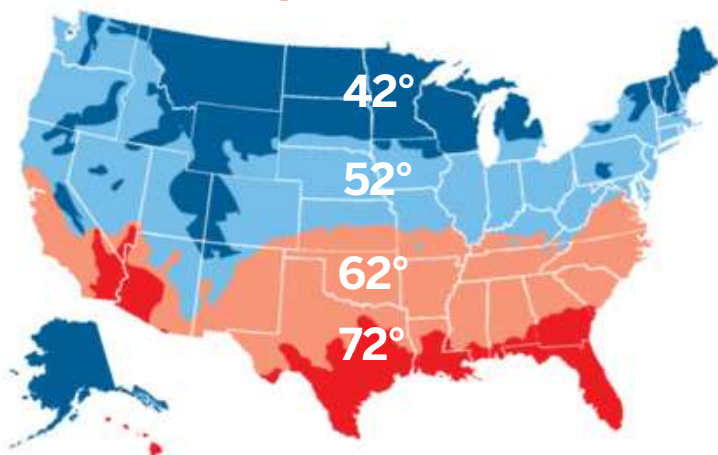
÷

Uniform
Energy
Factor
(UEF)
of
heater

=

TOTAL
BTU
OUTPUT

Average groundwater temperatures ± 5°F



Btus per gallon to raise water temperature to 120 degrees



Fixture flow rates

Showerhead

1.25–2.5 gpm

Kitchen or bath faucet

1.5–2.2 gpm

Tub filler faucet

4 gpm

Dishwasher

1–2.5 gpm

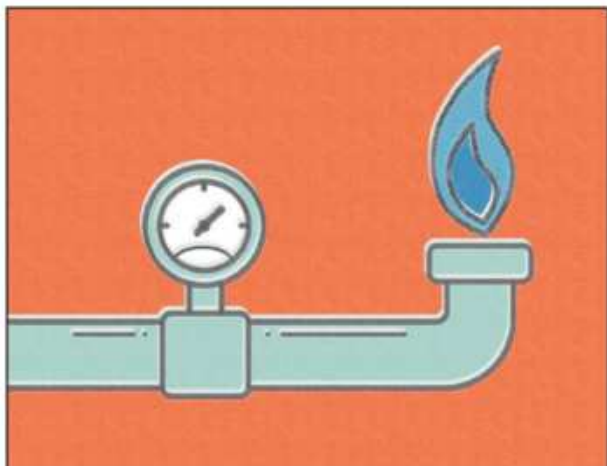
Washing machine

1.5–3 gpm

To find the actual gpm of a fixture, time how many seconds it takes to fill a bucket to a 1-quart mark. Dividing 15 by that number of seconds equals gpm.

INSTALL IT RIGHT

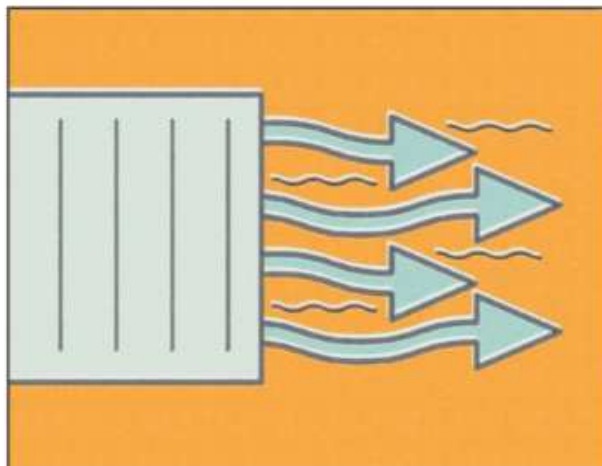
What you and your plumber need to assess before installation day



GAS LINE

For the burner in a tankless heater to perform properly, it has to be hooked up to a gas-supply line that delivers enough volume at sufficient pressure. In many cases that means the diameter of the supply pipe has to be increased to $\frac{3}{4}$ inch. And if the pressure falls short, the gas company will have to adjust the regulator on the meter.

FYI Some tankless units, such as those made by Rheem (rheem.com), are able to work with a standard $\frac{1}{2}$ -inch gas line, provided it isn't longer than 24 feet.



VENTING

Noncondensing tankless gas heaters use stainless-steel vents that can withstand high exhaust heat. Condensing units have a cooler exhaust, and use less expensive PVC pipes. A concentric vent, which has an exhaust pipe inside a larger air-intake pipe, simplifies installation because only one hole needs to be cut in the wall.

FYI Typically, vent runs have been limited to just 10 feet. But more powerful fans, like those in Rinnai's Sensei series (rinnai.com), now allow vents to run up to 150 feet.



WATER HARDNESS

Scale deposits that form in a heat exchanger (or on electric heating elements) slow down heat transfer and constrict water flow. Scale won't be an issue if you already have whole-house water-softening. But if your water isn't being softened, and its hardness exceeds 120 milligrams per liter, then it's worth investing in a treatment system.

FYI A dedicated, point-of-use cartridge like the TAC-ler water conditioner (stiebel-eltron.com) alters hardness without adding salt or other chemicals.



Take it outside

Consider the advantages of hanging a heater outdoors, if your climate and local codes permit

- 1] Saves space** That's one less appliance you have to make room for inside.
- 2] Simple to install** The built-in exhaust vent eliminates having to cut a big hole (or two) through the side of the house.
- 3] Easy to service** A plumber can get to it at any time, whether you're home or not.

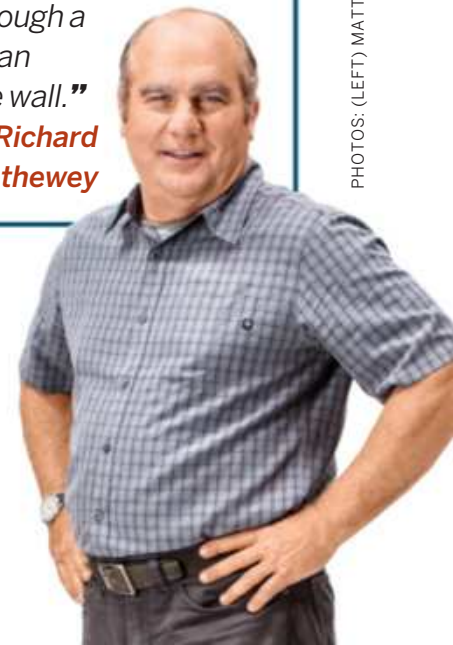
But keep in mind...

- 1] Building regulations** You may need permission from your local building department to put it outside.
- 2] Cold weather** Internal heaters keep components toasty down to -22°F , but exposed water pipes must be insulated and wrapped in heat tape that turns on automatically in freezing temperatures. Frozen pipes are less of a concern south of the Mason-Dixon Line. ■

PRO ADVICE Vent it right

"Old tank-type gas water heaters commonly funnel their fumes into chimneys, but that's no place to vent a tankless gas heater. It must be connected to dedicated vent pipes that exit through a roof or an outside wall."

—Richard Trethewey



PHOTOS: (LEFT) MATT RISINGER; (RIGHT) CARL TREMBLAY

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directory

OCTOBER 2018

COVER See the listing for “Little Green Giant.”

HOME SOLUTIONS (pp. 9–14) **Burn this, not that** > *Thanks to* Grant MacDonald; vermontgoodwood.com. **What to do with paint leftovers** > *Thanks to* John Wagner; lowes.com. Robert Daguillard; epa.gov. **Prep your gas grill for winter** > *Thanks to* Barry Atwood, senior product manager, and Robert Hawkins, gas grills product manager, Char-Broil; charbroil.com. Justin Monroy, market development manager, DCS Appliances; dcsappliances.com.

BEFORE + AFTER: KITCHEN In short order (pp. 18–20) **Contractor:** Mario Cutelo, Cutelo Construction, New Rochelle, NY; 914-804-5139. **Floor plan:** KBS Kitchen & Bath Source, White Plains, NY; kbskitchen.com. **Semi-custom cabinets:** touchstonefinecabinetry.com. **Paint:** Cliffside Gray (base cabinets), benjaminmoore.com; Alabaster (walls) and Antique Red (exterior door), sherwin-williams.com. **Quartz countertops:** Big Apple Granite, Syosset, NY; 516-725-3050. **Vent hood:** Faber; faberonline.com. **Dishwasher:** Bosch; bosch-home.com. **Microwave:** Sharp; sharpusa.com. **Sink:** kohler.com. **Windows and door:** United Window & Door 4800 Series; lowes.com. **Oak flooring:** homedepot.com. **Floor stain:** Minwax Wood Finish in Ebony; minwax.com. **Hardware:** rejuvenation.com.

BEFORE + AFTER: BATH Same size, standout style (pp. 22–23) **Architect:** Melissa Spoelstra, Blueprint Dreams, Stratford, CT; blueprintdreams.com. **General contractor and custom barn door fabrication:** Dash Construction, Trumbull, CT; 203-261-3383. **Tile installation:** Custom Tile Installation, Trumbull, CT; 203-261-6119. **Glass shower enclosure:** Clearview Inc., Bridgeport, CT; clearviewinc.net. **Custom medicine cabinet and mirror:** R. Fusco Inc., Bridgeport, CT; 203-366-9445. **Windows:** Harvey Building Products; harveybp.com. **Paint:** Edgecomb Gray (walls), Smoky Ash (molding); benjaminmoore.com. **Window treatments:** smithandnoble.com. **Tile:** newenglandtile.com. **Towel hooks and shelf:** potterybarn.com. **Showerhead:** moen.com. **Sconces and overhead light:** hudsonvalleylighting.com. **Recessed lights:** wacighting.com. **Barn door hardware:** Crown MetalWorks; homedepot.com. **Barn door stain:** Minwax Wood Finish in Early American; minwax.com. **Radiant floor heat:** schluter.com. **Vent fan:** panasonic.com.

PAINT IDEAS Dresser dress-up (p. 24) *Thanks to* Nikki Kent, designer and creative director, The Stencil Studio Ltd.; thestencilstudio.com.

GET THIS LOOK FOR LESS Well-traveled bedroom (pp. 28–29) **Main image:** From Carolyn Westbrook: *Vintage French Style* (CICO Books, 2018). **Room designer:** Courtney Barton, Mela & Roam, Houston; melaandroam.com. **Roman shade fabric:** Zeppole Ivory (front) and Lansing Zinc (behind); calicocorners.com. **Wallpaper:** Norwall Pattern WF36300; swdecorating.com.

IDEA HOUSE PREVIEW Beach-town bungalow (pp. 32–35) **Architects:** Christina Carlson, Union Studio Architecture & Community Design,

Providence, RI, unionstudioarch.com; The House Designers, Monroe, CT, thehousedesigners.com. **General contractor:** Jeff Sweenor, Sweenor Builders, Wakefield, RI; sweenorbuilders.com. **Interior designer:** Kristen Martone, Sweenor Builders, Wakefield, RI; sweenorbuilders.com. **Mason:** Sharpe Construction, Kingston, RI; sharpeconstructionri.com. **HVAC contractor:** AGS HVAC Services, Westport, MA; agshvacservices.com. **Landscape contractor:** Jonathan Zeyl, Landscape Creations of Rhode Island, Saundertown, RI; landscapcreationsri.com.

ASK THIS OLD HOUSE (pp. 36–43) **Finish for old fir floors** > *Thanks to* Pat Hunt, Hunt Hardwood, Arlington, MA; huntcustomwood.com. **Slippery porch** > *Thanks to* Mauro Henrique, Mauro’s Painting, Somerville, MA; maurospainting.com. Diana Clonch, DW Clonch, LLC, Columbus, OH; dwclonch.com.

LITTLE GREEN GIANT (pp. 44–49) **Architect:** Don Powers, Union Studio Architecture & Community Design, Providence, RI; unionstudioarch.com. **General contractor:** Jeff Sweenor, Sweenor Builders, Wakefield, RI; sweenorbuilders.com. **HVAC installation:** Restivo’s Heating and Air Conditioning, Johnston, RI; restivos.com.

VINTAGE MODERN (pp. 50–57) **Plumber:** Joe Tassitano Plumbing, Shelton, CT; 203-924-1774. **Paint:** Macadamia (exterior) and Extra White (trim), sherwin-williams.com; Roasted Pepper (front door), behr.com. **Roof:** Timberline HD Lifetime Architectural Roofing Shingles in Mission Brown; gaf.com. **Kitchen** > **Range and microwave:** kenmore.com. **Faucet:** moen.com. **Sink:** franke.com. **Daughter’s bedroom** > **Paint:** Custom gray (accent wall) and Decorator’s White; benjaminmoore.com. **Hallway** > **Paint:** Beacon Hill Damask (window seat alcove) and Linen White (walls); benjaminmoore.com. **Master bedroom** > **Bedding:** Pine Cone Hill; annieselke.com. **Master bath** > **Sink trim kit:** Bathroom Machineries; deabath.com.

READ THIS BEFORE YOU BUY A TANKLESS WATER HEATER (pp. 58–62) *Thanks to* Phillip Maxwell, tankless product manager, Rheem; rheem.com. Eric Marzano, product training supervisor, Noritz; noritz.com. Freddie Molina, tankless product manager, Bosch Thermotechnology; bosch-climate.us.

SAVE THIS OLD HOUSE (p. 72) *Thanks to* Cindy Barton, archivist, Griffin-Spalding County, Griffin, GA; cityofgriffin.com. 🏠

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Leading Acid Reflux Pill Becomes an Anti-Aging Phenomenon

Clinical studies show breakthrough acid reflux treatment also helps maintain vital health and helps protect users from the serious conditions that accompany aging such as fatigue and poor cardiovascular health



by David Waxman
Seattle Washington:

A clinical study on a leading acid reflux pill shows that its key ingredient relieves digestive symptoms while suppressing the inflammation that contributes to premature aging in men and women.

And, if consumer sales are any indication of a product's effectiveness, this 'acid reflux pill turned anti-aging phenomenon' is nothing short of a miracle.

Sold under the brand name AloeCure, it was already backed by clinical data documenting its ability to provide all day and night relief from heartburn, acid reflux, constipation, irritable bowel, gas, bloating, and more.

But soon doctors started reporting some incredible results...

"With AloeCure, my patients started reporting less joint pain, more energy, better sleep, stronger immune systems... even less stress and better skin, hair, and nails" explains Dr. Liza Leal; a leading integrative health specialist and company spokesperson.

AloeCure contains an active ingredient that helps improve digestion by acting as a natural acid-buffer that improves the pH balance of your stomach.

Scientists now believe that this acid imbalance is what contributes to painful inflammation throughout the rest of the body.

The daily allowance of AloeCure has shown to calm this inflammation which is why AloeCure is so effective.

Relieving other stressful symptoms related to GI health like pain, bloating, fatigue, cramping, constipation, diarrhea, heartburn, and nausea.

Now, backed with new clinical studies, AloeCure is being recommended by doctors everywhere to help improve digestion, calm painful inflammation, soothe joint pain, and even reduce the appearance of wrinkles – helping patients to look and feel decades younger.

FIX YOUR GUT & FIGHT INFLAMMATION

Since hitting the market, sales for AloeCure have taken off and there are some very good reasons why.

To start, the clinical studies have been impressive. Participants taking the active ingredient in AloeCure saw a stunning 100% improvement in digestive symptoms, which includes fast and lasting relief from reflux.

Users also experienced higher energy levels and endurance, relief from chronic discomfort and better sleep. Some even reported healthier looking skin, hair, and nails.

A healthy gut is the key to a reducing swelling and

inflammation that can wreak havoc on the human body. Doctors say this is why AloeCure works on so many aspects of your health.

AloeCure's active ingredient is made from the healing compound found in Aloe vera. It is both safe and healthy. There are also no known side effects.

Scientists believe that it helps improve digestive and immune health by acting as a natural acid-buffer that improves the pH balance of your stomach.

Research has shown that this acid imbalance contributes to painful inflammation throughout your entire body and is why AloeCure seems to be so effective.

EXCITING RESULTS FROM PATIENTS

To date over 5 million bottles of AloeCure have been sold, and the community seeking non-pharma therapy for their GI health continues to grow.

According to Dr. Leal, her patients are absolutely thrilled with their results and are often shocked by how fast it works.

"For the first time in years, they are free from concerns about their digestion and almost every other aspect of their health," says Dr. Leal, "and I recommend it to everyone who wants to improve GI health without resorting to drugs, surgery, or OTC medications."

"I was always in 'indigestion hell.' Doctors put me on all sorts of antacid remedies. Nothing worked. Dr. Leal recommended I try AloeCure. And something remarkable happened... Not only were all the issues I had with my stomach gone - completely gone – but I felt less joint pain and I was able to actually sleep through the night."

With so much positive feedback, it's easy to see why the community of believers is growing and sales for the new pill are soaring.

THE SCIENCE BEHIND ALOECURE

AloeCure is a pill that's taken just once daily. The pill is small. Easy to swallow. There are no harmful side effects and it does not require a prescription.

The active ingredient is a rare Aloe Vera component known as acemannan.

Made from 100% organic Aloe Vera, AloeCure uses a proprietary process that results in the highest quality, most bio-available levels of acemannan known to exist.

According to Dr. Leal and several of her colleagues, improving the pH balance of your stomach and restoring gut health is the key to revitalizing your entire body.

When your digestive system isn't healthy, it caus-

es unwanted stress on your immune system, which results in inflammation in the rest of the body.

The recommended daily allowance of acemannan in AloeCure has been proven to support digestive health, and calm painful inflammation without side effects or drugs.

This would explain why so many users are experiencing impressive results so quickly.

REVITALIZE YOUR ENTIRE BODY

With daily use, AloeCure helps users look and feel decades younger and defend against some of the painful inflammation that accompanies aging and can make life hard.

By buffering stomach acid and restoring gut health, AloeCure calms painful inflammation and will help improve digestion... soothe aching joints... reduce the appearance of wrinkles and help restore hair and nails ... manage cholesterol and oxidative stress... and improve sleep and brain function... without side effects or expense.

Readers can now reclaim their energy, vitality, and youth regardless of age or current level of health.

One AloeCure Capsule Daily

- Helps End Digestion Nightmares
- Helps Calm Painful Inflammation
- Soothes Stiff & Aching Joints
- Reduces appearance of Wrinkles & Increases Elasticity
- Manages Cholesterol & Oxidative Stress
- Supports Healthy Immune System
- Improves Sleep & Brain Function

HOW TO GET ALOECURE

This is the official nationwide release of the new AloeCure pill in the United States. And so, the company is offering our readers up to 3 FREE bottles with their order.

This special give-away is available for the next 48-hours only. All you have to do is call **TOLL-FREE 1-800-595-1965** and provide the operator with the Free Bottle Approval Code: AC100. The company will do the rest.

Important: Due to AloeCure's recent media exposure, phone lines are often busy. If you call and do not immediately get through, please be patient and call back. Those who miss the 48-hour deadline may lose out on this free bottle offer.

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THE HISTORY Tax records date this four-bedroom, two-bath house to 1920. Its first known owner was one W. G. Norman of the Norman Buggy Company, a maker of horse-drawn carriages whose factory building still stands. In 1939, a longtime city employee named Charles W. McElroy bought the house and lived there with his wife, Annie, until his death in 1966. After she died in 1977, the house had several more owners before Atlanta artist and bar owner Grant Henry bought it in 2017.

WHY SAVE IT? The 2,738-square-foot house features a 10-foot-deep front porch and walk-in-size closets; it is located just six blocks from Griffin's charming town square. It retains original heart-pine floors, two-over-two windows, and decorative finials atop the stairway's newel posts. Griffin was founded in 1840 during the railroad boom; it lies about 40 miles south of Atlanta. It became a major textile center after the Civil War (it's one of the few places in the United States where terry-cloth towels are still made). Today, its old downtown district is a popular location for filming TV shows and movies such as *The Walking Dead* and *The Hunger Games*. **WHAT IT NEEDS** The building is sound, as is the roof. A local contractor has estimated that a renovation would cost \$70,000 to \$100,000, including new electrical, plumbing, and HVAC, as well as a new kitchen and baths. The plaster walls, pine floors, trim, and siding need spiffing up. "The structure and the bones are all there," says Henry, who is seeking a buyer with the time, vision, and resources to tackle the work. "It'll be a real beauty when it's done." —DEBORAH SNOONIAN GLENN



- 1.** The circa-1920 house features a hipped roof, two-over-two windows, and a welcoming full-width porch with square columns resting on brick piers.
- 2.** The dining room's wood paneling and built-ins were added sometime after the house was built.
- 3.** This bedroom fireplace is one of six in the house.
- 4.** Urn-shaped finials decorate the staircase; the second-floor landing is large enough to accommodate a desk or a comfy window seat.



GOT A HOUSE?

If you know of an old house that should be saved and is for sale, write to savethisoldhouse@thisoldhouse.com or This Old House, 262 Harbor Drive, Stamford, CT 06902.

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