VOL. 28
NO. 2

This Old House

WAYS TO SAVOR THE SEASON

SUMMER 2023

STONE WALKWAY / POLLINATOR PLANTS / BUILD AN OUTDOOR SOFA / COMPACT TABLE SAWS

Enjoy Your Backyard More

- Inspiring patio and pergola ideas
- Smart designs for outdoor entertaining
- Great DIY weekend projects

PLUS
Energy-saving upgrades that pay,
page 44

Plunge pools are making a splash! Details, page 35 →

In this landscape design by Jenn Nawada, a plunge pool blends beautifully with its natural surroundings.

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ASK THIS OLD HOUSE: BONUS HOW-TO

TOH mason Mark McCullough gives step-by-step instructions for installing a gravel-and-stone walkway

MCCULLOUGH: ALEX GAGNE

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COVER Photograph by Jon Caron/Courtesy Soake Pools

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PATIO: MATT WALLA; NAWADA: ANNA COLEMAN; GILBERT: ANTHONY TIEULI

SUMMER ENTERTAINING ESSENTIALS

From full furniture sets to à la carte outdoor accents, The Home Depot has a huge selection of comfortable and durable patio pieces. Find brands you'll love, mix and match different styles, and even customize your own collection at **homedepot.com/patio**.

Little things mean a lot

JON CARON/COURTESY SOAKE POOLS

They say the devil is in the details—but ultimately, so is the delight.

Take the aspirational outdoor retreat shown here and on the cover. Despite the space's natural appearance, every aspect was carefully considered and executed. Repeating elements used elsewhere on the site make the house and landscaping feel cohesive; all the details are both beautiful and functional, maximizing the square footage.

The project began with the homeowners calling on *TOH* landscape contractor Jenn Nawada to help them add a plunge pool. Jenn's design plan extended the existing fire-pit patio and its reclaimed granite cobblestones so the pool could serve as a focal point from the house and deck, enhancing the view out to the riverbank beyond. She elevated the pool so it doubles as a sitting wall, cladding it in fieldstone veneer to match the house's foundation, and easing the edges of the bluestone coping on top for comfort. A stepped-down wall extension offers more seating, transitioning the hardscape toward grade and framing the space. A zigzag planter on the other side repeats the pool's angles. The rustic fieldstone staircase, which matches steps in the front of the house, is bordered with boulders that help retain soil on the sloping site. Feathery ornamental grasses echo those in the distance and soften the hardscape. Subtle safety lighting at the base of the pool and along the steps allows the illuminated pool to be the star at night.

"In the evening, when the fire pit is lit, the setting is intimate and calming," Jenn says. "It's a little retreat, a place to relax and think, to repair mind and body—and that was the overall goal."

It's a goal we can all relate to.

This issue is chock-full of ideas to help you think outside the house (and the box) to create a place of your own to unplug and recharge. You might start small, by planting perennials that lure butterflies (page 48), or by building a simple sofa that allows you to linger longer outdoors (page 79). If you're ready to think bigger, we have a guide to putting in a plunge pool (page 35); a smart backyard makeover that has it all, with zones for cooking, eating, lounging, and play (page 24); a cottage compound that takes outdoor living to a whole new level (page 11); and much more. Throughout, I hope you find details to admire and adapt to projects of your own this summer. Enjoy!

KATHRYN KELLER,
EDITOR-IN-CHIEF
kathryn@thisoldhouse.com

A COHESIVE MIX OF MATERIALS
Natural fieldstone veneer on the plunge pool (1), sitting wall (2), and built-in planter (3) complements the reclaimed granite cobblestones underfoot (4). Big slabs of fieldstone serve as stairs (5) and stepping-stones (6). *Landscape design: Nawada Landscape Design Inc. Landscape construction: Frank Walsh Landscape Company Inc.*

Around The House

What's happening in the world of **This Old House**

IT'S (ALMOST) A WRAP!

Details, details

In the final, full-court-press weeks of *TOH*'s Ipswich project, we caught up with the team as they put the finishing touches on the 1720 house, rebuilt ell, and garage addition

TOP RIGHT: Heath screws down a metal channel for the light tape in a recess that was routed in the timber-frame beam. Once he installs the adhesive-backed LED strip (ABOVE), a frosted lens will clip into place to diffuse the light.

Lighting that says, "Look up!"

HOW TO HIGHLIGHT the beauty of a vaulted ceiling lined with 300-year-old wood—without detracting from it? That challenge kept Heath Eastman busy for days. Recessed cans definitely wouldn't do. So after some experimentation, *TOH*'s master electrician hit on the elegant solution here: LED strips along the tops of the exposed timber-frame beams to illuminate the ceiling and add ambient light—and three carefully placed pendants over the island to provide task lighting for the kitchen below. "With the ceiling so steep, it took time, planning, and a little luck—not to mention lasers—to pinpoint exactly where to install the junction boxes," says Heath. The results: just brilliant.

PHOTOGRAPHY BY ANTHONY TIEULI

Heath screws in the last of the LED bulbs for the three clear glass pendants. Their canopies are installed at an angle on the steeply pitched ceiling, which meant painstaking work to perfect their placement over the island.

1

2

3

4

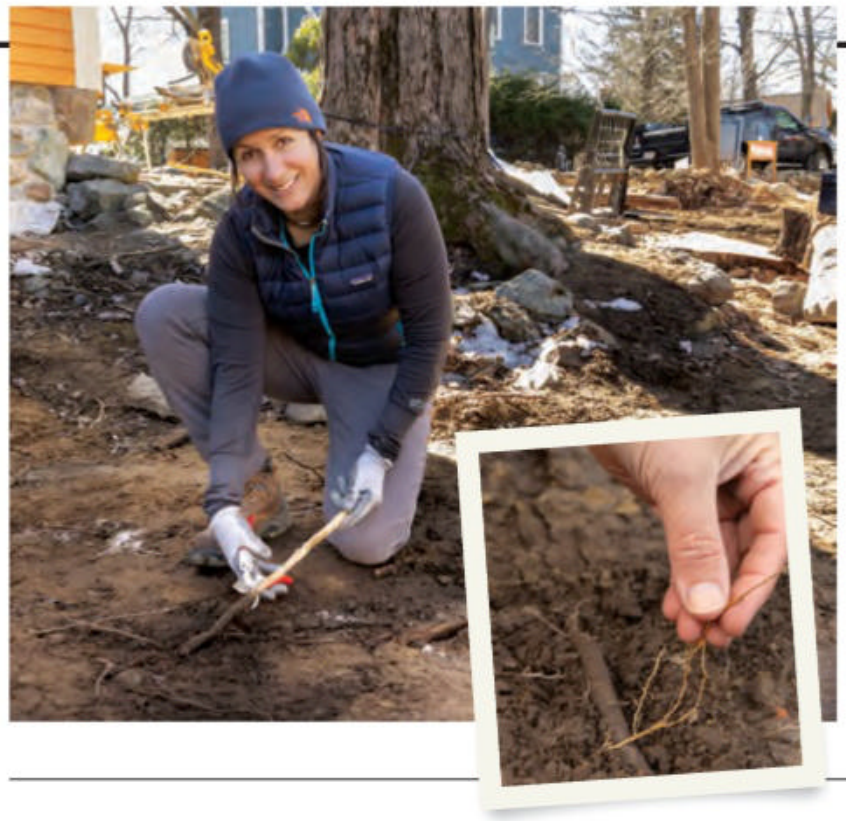
Back-in-time backsplash

THE PANTRY, just off the living room, will serve as a wet bar for entertaining, and with the cabinets, countertops, and appliances in, just one thing was missing: a backsplash. So homeowner Helen Moore von Oehsen turned to *TOH* general contractor Tom Silva to use a salvaged pine board for that purpose. "It's a beautiful piece of wood, and I love that we reused something from elsewhere in the house," says Tom, who first made a cardboard template, then cut the board to size, enlisting *TOH* painter Mauro Henrique's help in finishing it. The final touch: Tom secured it with 8d finishing nails hidden from view.

(1) Helen and Tom examine the weathered side of the 300-year-old pine board and measure the fit; the other, rougher side was never exposed to the elements, so it was a better choice for refinishing. (2) Tom cuts the opening for the electrical outlet. (3) Mauro buffs in five coats of paste wax for water resistance. (4) Tom and *TOH* host Kevin O'Connor get ready for installation.

Hidden in plain sight

THE STYLE OF the new paneling above the Rumford fireplace in homeowner Bill von Oehsen's home office—located in the original part of the house—is authentic to the 1720s. "The bead detail was the way Yankees dressed up the house," says Tom, showing Kevin the effect (below). The paneling also conceals some carpentry magic: two hidden cupboards, one on each side wall of the chimney. Each cupboard has a beadboard door with self-closing hinges and a discreet wood knob. A shelf inside each recess provides a bit of tiered storage, leaving only the decision of what to stow there.



TLC for a long-lived tree

AN OLD SUGAR MAPLE gracing the side of the original house caught *TOH* landscape contractor Jenn Nawada's attention when she noticed that small feeder roots (inset) were exposed during the site regrading. "Those roots absorb oxygen, water, and nutrients for the tree, so we definitely want to protect them," says Jenn, whose first step was to clip off a dead section of a larger lateral root (far left) to prevent disease and promote new growth. For long-lasting root protection, she devised a multistep plan: creating a boundary around the perimeter with strategically placed boulders, filling in with a mix of compost and soil, and planting ground covers to retain the soil and moisture. Adds Jenn, "That should keep this beautiful old tree healthy for years to come."

Customizing a stock door

TO GIVE THE GARAGE'S side entry—and its off-the-shelf, foam-core, metal door slab—a style upgrade, Tom and Kevin installed a six-light sash to match the new six-over-six double-hung windows throughout the house. "You can get a door with a window already in place, but it wouldn't match the other windows," says Tom, pointing out that it took good planning to order an extra sash when placing the original window order. Working at a sawhorse set up inside, Tom ensured the sash would be watertight, and draft- and rattle-free, by adding silicone caulk, insulating foam, and window trim on the interior side before rehanging the door. "It's sometimes overlooked, but consistent window design really adds to the overall aesthetic of a house," says Kevin.

(1) Tom and Kevin size up the sash placement. (2) After taping the outline for the opening to keep the metal face from chipping, Tom cuts it out with a circular saw. (3) To prevent drafts, Tom adds minimally expanding foam along the sash edges on the interior side. (4) Tom and Kevin add interior trim to the sash.

You did it!

Reader projects, tips, and triumphs

Turning out tables

TOH Reader: Harold Pinder, Key Largo, FL

Finding short lengths of cast-off cellular PVC decking in a dumpster compelled me to recycle them into something practical: weatherproof tables! PVC glue and a ¼-inch framing-saw blade made the material easy to work with, and saving the radius offcuts allowed me to dress up the raw ends. My "dumpster diving" find led to many hours of learning to work with a new material and many useful projects.

Coop dreams

TOH Reader: Mark Brogan, Havertown, PA

I made this home for our four chicks using Tom Silva's design on your website. The run is wrapped in galvanized hardware cloth, buried about 24 inches to stop critters from digging underneath, and a vinyl-tile floor inside the coop makes for easy cleaning. I'm always inspired by how you do projects and solve problems. Thank you, *TOH,* for the great content and fantastic people!

READER TIP

When using a posthole digger, it's a bother to keep measuring the hole's depth. So I used a permanent marker to add lines on the handles every 2 inches, indicating the distance from each mark to the bottom tips of the blades. This saves me a lot of time.

TOH Reader: Jeff Smith, Daytona Beach, FL

Shelf help

TOH Insiders: Rich and Hetal Lovria, Rochester, NY

My wife showed me a photo of a built-in bookcase with drawers and asked if I could make a similar one for her home office. I built the poplar face frames using a pocket-hole jig and made the center carcass and shelves from ¾-inch plywood. I used ½-inch for the side carcasses and shelves. To finish the top, I added crown and cove molding and a thin strip of poplar for extra height, then had the unit professionally painted after spending three days sanding and prepping it. This was a fun build for me because it tested my woodworking skills and taught me some good lessons (it's better to make one large drawer carcass than three separate ones!). Both of us are very happy with the result.

EDITED BY SUZANNE ZENKEL

Shade crusade

TOH Insiders: Steve and Heather Chastain, Seminole, FL

My wife and I designed and built this 12-by-14-foot pergola, which replaced our kids' trampoline, and they helped us with the build! After we dug and poured the footings, it took us four weekends. We used 6-by-6-foot posts with floor joists every 12 inches, all pressure-treated lumber. We installed composite decking that's cool on your feet and semitransparent corrugated roofing. It was a great project to do with the family, something I'll always be proud of. I have to give credit to *TOH*—I've watched since the 1980s and still enjoy it now with my kids.

Suburban farmer

TOH Reader: Ed Merians, Larchmont, NY

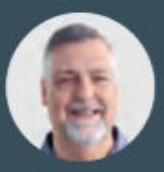
We turned our ⅛-acre backyard into a prolific garden with 22 feet of simple raised beds made from recycled-plastic lumber and paths made of bark mulch mixed with last season's straw. We produce a lot in a little space: Asian greens, kale, Swiss chard, asparagus, lettuces, spinach, garlic, Jerusalem artichokes, peas, squash, beans, rhubarb, almonds, peaches, pears, plums, figs, and pawpaw. Five varieties of potatoes and six kinds of tomatoes grow in cloth bags that thwart critters. The greatest moments come from sharing the bounty with friends and family. It's a magical spot and truly a wonder, about 20 miles from the heart of Manhattan.

Heirloom high chair

TOH Insider: Shelly Shown, Appleton, WI

My father gave me his 1930s high chair, and I refinished it for my grandchildren. I sanded it down, then gave it two coats each of mineral paint and a water-based polyurethane. After removing and cleaning the enamel tray and hardware, I was able to reuse them. The only addition is a safety strap I bought online for about $10. I am very pleased at how well it turned out!

READER TIP



How to create a crisp line where two paint colors meet: After taping off for a second color, roll the first color over the tape edge where the second color will go. This forms a barrier that prevents the new color from seeping underneath the tape.

TOH Insider: Scott Hoehn, Biloxi, MS

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IDEA/FILE

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INSPIRING SPACES, DESIGN DETAILS, AND FINISHING TOUCHES

A pergola outside the main house shelters a metal dining table whose base was salvaged from a St. Louis bridge. Star jasmine covers the columns, filling the air with fragrance.

House Tour

At home outside

A California couple renovate a trio of vintage cottages as a singular home where the rooms are linked by garden paths instead of hallways, and nature is always close at hand

BY FRED ALBERT | PHOTOGRAPHY BY MATT WALLA

If the whole point of having a vacation house is to escape your everyday life, why choose one that looks just like the place where you normally live?

That was the reasoning that drove Alan and Pam Grossbard to acquire a quirky, run-down compound in Montecito, California, a coastal enclave poised between the Santa Ynez Mountains and the Pacific Ocean less than an hour and a half from their home in Los Angeles. Hidden behind a hedge on a narrow lane, the scruffy lot measured just under half an acre and included a trio of Spanish-style buildings, the earliest said to have been built around 1930. Structurally sound, the modest main house, studio, and garage were clearly suffering from neglect, and bore traces of their years as a purported hippie hangout in the 1960s.

ABOVE: The rebuilt kitchen-dining area opens onto terraces on both sides thanks to folding multi-panel doors that were custom-designed to fit the scale and style of the 1930 home.

OPPOSITE: Four rooms were combined to create the new space. A fireplace anchors the wall opposite the sink; a dining table and extra chairs offer flexible seating in this indoor gathering spot.

"It was in some disrepair and a bit overgrown, but there was something charming about it," Pam recalls of the property. "Like if you pulled back the layers, you would find something interesting."

Since the compound no longer conformed to building codes, the Grossbards' options were limited. "If we took the buildings down, we could only build a single-family house," says Alan. "We thought, Why create what we already have? Let's do something completely different." Set on saving the original structures, they sought guidance from Kenneth Mineau, Paul Rubison, and Marc Appleton of Appleton Partners in neighboring Santa Barbara. After visiting the site, the architects proposed a novel approach: Why not think of the

STYLING: SUNDAY HENDRICKSON

entire property as the house, and the individual buildings as rooms within it?

The firm had employed a similar tactic in its restoration of San Ysidro Ranch, a nearby resort the Grossbards admired, so the couple gave the concept their blessing. "We were ready to take on a project, and seeing something like this that needed so much help really piqued our interest," says Pam, who, like her husband, works in the entertainment business.

Instead of expanding the existing structures, the architects agreed it made more sense to improve what was already there—or what they *hoped* was there. "The property had become significantly overgrown over the years, so we didn't know exactly what we were going to find," recalls Ryan Prahm of DD Ford Construction. "Some buildings turned out to be in better shape than others."

ABOVE: When the doors are open, the eat-in kitchen feels like a pavilion. The terrace is laid with sandstone pavers and furnished with laid-back Adirondack chairs.

OPPOSITE: A massive pergola beyond the doors on the other side of the kitchen shelters an outdoor dining area, which adjoins the primary bedroom, visible to the right of the pizza oven.

The 1,684-square-foot main house received the lion's share of attention. "It was just a rabbit warren of little rooms," Mineau says of the T-shaped structure. The architects converted the living room into a guest room, creating a dedicated bedroom wing, then gutted and rebuilt the kitchen wing, moving a basement staircase and raising the roof to create a vaulted kitchen and dining area. Custom folding doors composed of narrow, divided-light panels line the walls on either side, transforming the space into an open-air pavilion while remaining faithful to the period house.

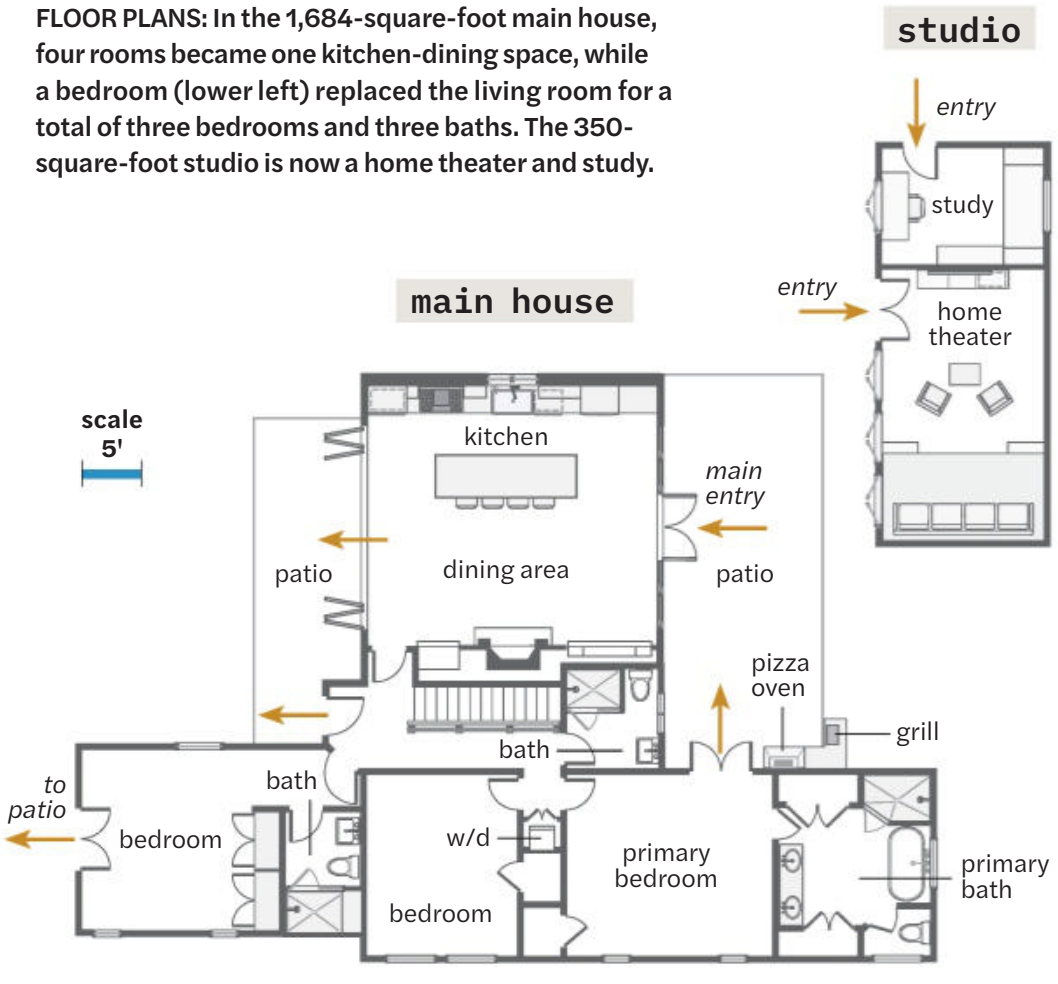
Casement windows that couldn't be saved were replaced with new windows modeled after

THE PLANS

The nearly half-acre lot was home to three buildings, the earliest built circa 1930. All were renovated and a new garage was built, for a total of five bedrooms and four baths spread over 2,934 square feet of living space, woven together by a network of pathways and plantings.

SITE PLAN: The driveway leads to the new garage (1) and a central path (2) toward the fountain (3). To the left, the path winds past an informal basketball court, to the guesthouse (4), the outdoor spa (5), and the studio (6). To the right of the fountain, terraces and paths lead to the main house (7), fire-pit area (8), and kitchen garden (9).

FLOOR PLANS: In the 1,684-square-foot main house, four rooms became one kitchen-dining space, while a bedroom (lower left) replaced the living room for a total of three bedrooms and three baths. The 350-square-foot studio is now a home theater and study.



the old ones. The Grossbards loved the ball shapes on the old crank handles, so all the working ones on the property were salvaged, then put to use in the main house. "We wanted these little artifacts to remain and be functional," says Rubison, whose team managed to find matching doorknobs.

One side of the kitchen opens onto a massive Douglas fir pergola laced with bougainvillea and jasmine. "The pergola makes it feel more like an intimate interior room, even though you're outdoors," says Rubison of the open-air dining space. A built-in pizza oven and grill beckon in one corner, while further exploration reveals a kitchen garden, a fire pit with seating, and a spa tucked into the surrounding landscape. "We set out to create spaces that would inspire you to spend time outside," Rubison adds.

Of the three buildings, the 900-square-foot garage-turned-guesthouse was in the worst shape. It had held a workshop and car bay, with maid's quarters tacked on in the back in the mid-1940s. Since the main house no longer had a living room—people tend to congregate in the kitchen-dining area—the architects put one where the car bay once stood. Old oak wine-vat staves were bleached and applied to the vaulted ceiling; the sandstone floor extends under accordion doors onto a

SITE PLAN, FLOOR PLANS: IAN WORPOLE

terrace facing the central gardens, creating a seamless transition between the two. The workshop was turned into a bunk room, connected to the renovated bedroom by a Jack-and-Jill bath. Cars now park in a new freestanding garage built in the same style, closer to the street.

The third and smallest structure on the property was the 350-square-foot studio, which hugs the rear of the lot and now features a small study for Pam and a home theater with tiered seating. (The candy drawer beneath the screen has turned out to be a favorite feature.) The vaulted ceiling is supported by original collar ties, which were repaired and duplicated to support Pam's study ceiling, too.

Although all three structures were essentially sound, there were enough alterations to doors and windows to justify stripping the exteriors to the framing, allowing for new insulation, building wrap, and sand-finished stucco. On the roofs, existing S-style terra-cotta tiles were traded for more period-appropriate two-part barrel tiles. At the same time, the old HVAC system was replaced with heat-pump units and the partial basement under the main house was enlarged to accommodate a new mechanical room, a laundry, and a storage area, alleviating the need to intrude upon the living space above.

Santa Barbara County doesn't get much rain, but last winter's torrential storms proved how vulnerable the area could be to flooding, so Prahm's team installed new site drainage throughout. "It turned into a fairly sizable civil engineering

OPPOSITE: The primary bedroom remained in the same spot, but was fitted with new windows suited to the home's style and age.

BELOW: The layout of the primary bath didn't change, saving money. Walls were refinished in subway tile, and a freestanding tub was added atop a new cement-tile floor.

The guesthouse holds the sole living room, with a terrace framed by lush garden beds in place of a lawn; they enhance privacy for the in-ground spa nestled among the greenery.

RIGHT: A fountain placed at the end of the central walkway off the garage draws visitors to the compound's main entry.

BELOW: Little more than a shed, the studio was transformed into a home theater, with its original vaulted ceiling and metal collar ties; it gained French doors, tiered seating, and a beverage fridge for refreshments.

project to get that whole house and that whole property to drain properly," he says.

Once that was done, the grounds were terraced to create patios that are on grade with the living spaces and several steps up from the landscape, which is knitted together with decomposed-granite pathways flanked by evergreen beds of bay laurel, pittosporum, and dwarf olive trees punctuated by agapanthus and marina strawberry trees, providing privacy and defining a multitude of outdoor rooms. "It's a small property," Rubison observes, "but there's a lot to explore here."

The Grossbards assembled the interiors themselves, with an assist from the Brown Design Group in Santa Barbara. "We wanted something that was not at all pretentious," Pam says. "We wanted it to be a place where anybody could come and put their feet up and have a good time." The pair incorporated furnishings from their childhood homes and mementos from their parents, like the vintage iron patio furniture they revived with powder coating and new cushions. "It's fun to get creative and look around and see what you have and how you can reinvent it," she adds.

While the total living space approaches 3,000 square feet, the couple say they never feel dwarfed by it when they're alone, since the space is divided between three cozy structures. Conversely, when friends or the couple's grown twin daughters visit, no one feels crowded. "Because the buildings are scattered around the property, friends can come and stay and we don't even have to *see* each other," Alan says.

Although the arrangement might not suit everyone, it offers the Grossbards an inviting alternative to their life in LA. "If we had torn it down and built a brand-new house," Alan says, "it wouldn't have the character that it has now."

BEFORE The back door leads off the driveway and into the 200-square-foot cook space, which had a workable, U-shaped layout but lacked period character and a place to sit and eat. The old cabinets were layered with paint; the laminate countertops and linoleum flooring had seen better days.

Before & After: Kitchen

All together now

A center island and more open passageways enhance function and flow in a kitchen and its adjacent spaces

BY NINA MALKIN

While homeowners Kristin Romens and Matt Eskin loved their circa 1917 Colonial Revival in Philadelphia, their fond feelings didn't extend to the kitchen's dated finishes and inefficient storage, or the circuitous circulation pattern that left it cut off from the dining room next door. "There was no way to connect or congregate with family or guests," Kristin says.

To the rescue: Airy Kitchens' creative director Sean Lewis, who kept the kitchen's basic layout, adding a center island with drawer storage and seating, and tapping an existing walk-in closet to hold small appliances, coats, and footwear (the back door is steps away). Removing a wall of kitchen cabinets made space for a new cased opening into the dining room, and a larger one into an existing butler's pantry, which Lewis turned into a cocktail/coffee bar and opened up to the dining room. "The cook space is significantly improved with the new island and countertops, while access to the dining room and bar area is seamless," Matt says. "Everything flows beautifully, whether it's just us or a party with twenty people. It truly brings joy and pleasure to our lives every day."

STYLING: ANNA MOLVIK. BEFORE: COURTESY AIRY KITCHENS

Photography by John Gruen

←

The new island offers seating for snacks, casual meals, and homework. "The walnut top adds a warm, natural element," says designer Sean Lewis, who brightened the area with large schoolhouse pendants.

→

A former walk-in closet that was previously a "refrigeration room"—a small sealed door to the outside may have enabled ice delivery—is now a pantry for small appliances and bulk goods on one side with outerwear storage on the other. The back door is seen to its left.

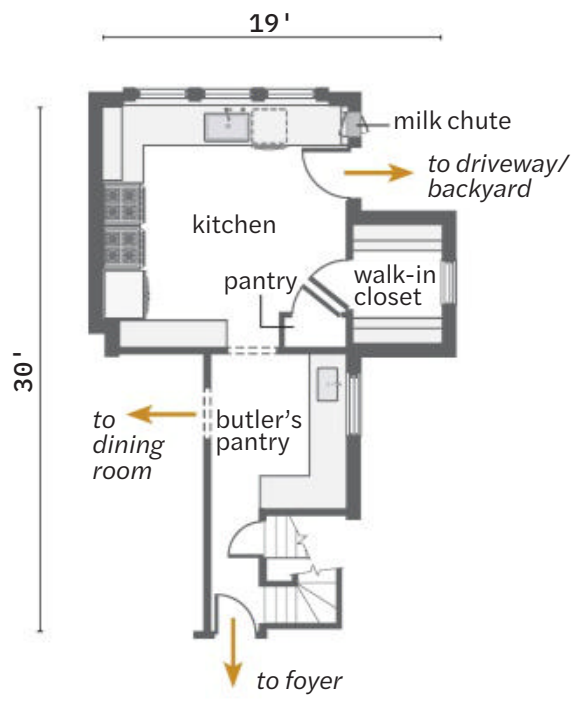
↑

While some base cabinets were removed, "the island's drawer storage is much more flexible and user-friendly," says Matt Eskin, here with his wife, Kristin Romens.

FLOOR PLANS

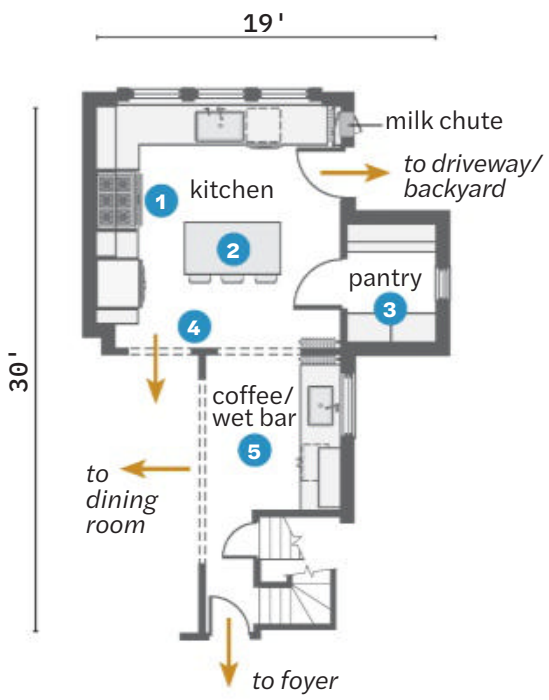
before

About 325 square feet



after

About 325 square feet



Wider passageways enhance function and traffic flow.

1. Upgraded with new appliances in the existing layout, replacing side-by-side ranges with one 36-inch range.

2. Installed a 5½-by-3-foot center island with seating, storage, and trash/recycling.

3. Gave a walk-in closet—the old icebox room—two functions, with pantry storage on one side and closets for outerwear and more on the other.

4. Removed cabinets and a pantry closet along one wall to create an opening 46 inches wide to the dining room and one 54 inches wide to the old butler's pantry.

5. Turned the butler's pantry into a coffee/wet bar with a drinks fridge, removing most of a wall to carve out an opening to the dining room more than 10 feet wide.

FLOOR PLANS: IAN WORPOLE

Widened to 54 inches, the cased opening between the kitchen and the new cocktail/coffee bar makes coming in and out a breeze. "I love having a second sink," says Kristin. "When the main sink is in use before dinner, the kids can wash their hands there."

An insert turned this stock cabinet drawer to the left of the range into a spice rack. The counters are quartz with marble-like gray veining. "We love the look with the blue-gray cabinets," Matt says.

A six-burner, dual-fuel, 36-inch range with landing space on both sides replaced two worn side-by-side ranges (with no vent hood) that butted up against the fridge—a definite upgrade for a couple who likes to cook. Taller upper cabinets now extend to the ceiling, gaining valuable storage space.

Once a narrow butler's pantry, this open drink-serving spot offers a striking focal point with its Art Deco–style wallpaper and unlacquered brass accents. "It makes a great bar with the addition of the wine/beer fridge," says Matt, who appreciates the "help yourself" vibe.

GET THE LOOK

Warm wood, bold brass, and clean white finishes combine with stylish shapes to create a welcoming feel

1. Brass and glass pendant / *SCHOOLHOUSE*
Taller but not as wide as the homeowners', the opaque white shade of this appealing pendant also works well in multiples. $349; schoolhouse.com

2. Farmhouse sink / *RUVATI*
A white fireclay apron sink is a period-appropriate pick for a century-old home. This one comes with the drain assembly and bottom rinse grid included. $549; homedepot.com

3. Cushioned seat / *WEST ELM*
Shapely and sturdy, with the back and seat curved for comfort, this stool's walnut finish brings warmth to a room filled with hard surfaces like stone and tile. $278 (with seat cushion); westelm.com

4. High-arc faucet / *BRIZO*
Brass needn't be, well, brassy: This elegant pull-down faucet has a delicate lever handle and a gold finish that's soft and rich. $683; qualitybath.com

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Outdoor Living

Designed for good times

Spaces for gathering, cooking, dining, and play define this family's backyard getaway

BY KATHRYN O'SHEA EVANS

Despite an earlier update to his 1923 home in South Pasadena, CA, Joe Davis's backyard still wasn't hitting a home run. "It was just kind of an afterthought for us," says the FOX Sports and LA Dodgers sportscaster. "We had a nice deck, but it felt fenced in." Adds his wife, Libby: "We didn't even want to be out there."

With two young kids—and another on the way—the family longed for a more free-flowing alfresco experience. So they turned to System Pavers, a local design-build hardscape company, for a patio revamp that would add an outdoor kitchen. They also enlisted contractor Abe Nabbout to open up the deck with wide steps for a better connection to the backyard and to add a second pergola over new dining and cooking areas.

Figuring out how the two overhead structures would mesh was particularly tricky. "You couldn't drop the pergola roof too much, or it would obstruct the view from the kitchen—and you would have to duck coming down the side steps to the patio," says Janine McCormack, a landscape architect with System Pavers. Arriving at an outdoor kitchen layout was equally challenging, says Joe, who used tape and lawn furniture to get a feel for the plan before signing off.

The results? "Just awesome," Libby says. Adds Joe: "We didn't realize how closed-in we were feeling until we saw how open this is."

BEFORE A wall of French doors facing the grassy gardenscape could have been lovely—if the deck railing hadn't blocked the view. "It *should* have been an extension of our house," Libby Davis says of the deck. But in the previous setup, it was anything but.

Wide steps replaced the view-blocking deck railing and lead down to a new wraparound paver patio that's zoned for entertaining, with a lounge area, a grilling station with bar seating, and a dining area. A second pergola forms a perpendicular extension overhead to define the cooking and eating areas.

BEFORE: SYSTEM PAVERS

Photography by Natasha Lee

The Davises wanted a second island for a prep sink and serving area away from the grill. "We usually set out cocktails and appetizers there," Libby says. It's also a convenient spot for their kids to wash up for dinner after playing outside.

after

About 1,500 square feet (deck and patio)

LANDSCAPE PLAN

With the improved entertaining spaces and indoor-outdoor flow, "it really feels like we added square footage to our house," says Joe Davis.

1. Removed enough decking and railing to allow for 14-foot-wide steps opposite the French doors; revised the pergola so that the rafters now cantilever over them.

2. Built a patio that wraps the back and side of the deck, meets the garage wall, and steps down to the lawn.

3. Set up a seating area below the new set of deck stairs.

4. Added a 16-foot island with two grills and bar seating; built a 5-foot prep island opposite it.

5. Put a dining table just off the deck's side stairs; built a second pergola just below and perpendicular to the first one to define and shelter the dining and grilling zones.

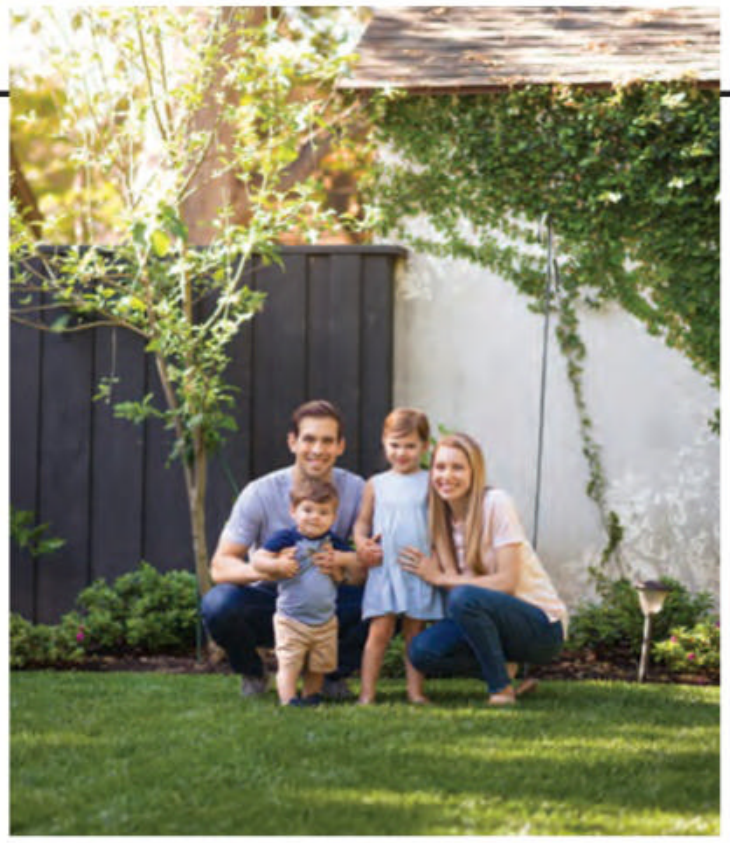
STYLING: ANDIE HUBER. LANDSCAPE PLAN: IAN WORPOLE

BEFORE The old patio was paved with basic concrete squares. The dining area lacked definition—and amenities—marooned at the bottom of the only stairs off the deck, along the far end.

Joe is dedicated to cooking on his kamado grill but finds the addition of an electric grill a welcome convenience—handy when he needs heat fast, for instance, when warming up his cast iron to put a sear on a tomahawk steak.

Traditional lantern-style pendants add ambient light over the dining table, while task lights brighten the grilling area at night. Infrared heaters installed snug against the pergola rafters keep things cozy all year round, a welcome amenity even in Southern California.

BEFORE: SYSTEM PAVERS



Joe and Libby with two of their three children in their backyard in South Pasadena, CA

Slate-look cast-concrete pavers jibe with the look of the 1920s house. Short risers make navigating steps down to the lawn easier for little feet. The patio steps transition to a path of irregular flagstone stepping-stones around one edge of the lawn.

FAMILY PHOTO: JARED SCHOENEMANN

MAKE THE MOST OF YOUR OUTDOOR SPACE

TOH landscape contractor Jenn Nawada's tips for designing outdoor living spaces that add beauty and function to your yard

1. Put pavers in context

"When adding a patio, you want to consider the look and feel of the house and landscaping," Jenn says. Smooth concrete pavers with clean edges have a sleek, modern vibe, while tumbled pavers or free-form flagstones add a more natural, aged look. Don't forget to check local codes—some municipalities' water-saving measures mandate permeable pavers that allow rain and stormwater runoff to percolate back into the soil.

2. Throw some shade

"Adding a pergola creates a sense of place and sets the stage for relaxing and entertaining," Jenn says. Whether crafted from natural redwood, traditional painted cedar, or weathering steel, a pergola can also provide shelter from harsh sun. You can filter the light with retractable fabric shades or by layering slats or lengths of 2× material perpendicular to the rafters; the closer they're spaced, the more sun they will block.

3. Cook up a kitchen

To bring focus to an outdoor kitchen project, Jenn suggests picking the appliances first. "Think about how you want to use the space, what kind of things you like to cook," she says. "Do you just need a grill and a countertop for setting out food and drinks? Or do you really want to add a refrigerator, and maybe a sink?" If you need to run electricity and plumbing to the kitchen, that may affect how far away you want to place it from the house.

4. Light the night right

With a little planning, outdoor lighting can really transform a space. "Lighting adds subtle drama," Jenn says. "So start by illuminating what means the most to you, such as a seating or dining area." Layered lighting, set at various heights, creates the most impact, so in addition to soft lighting overhead, consider adding downlights along the perimeter of paths and patios and uplights on ornamental specimen trees.

Kitchen-Plus Renovation

Warm and inviting

A thoughtful remodel delivers a new kitchen hub, a mudroom entry, and more—while honoring the 1929 house's classic bones

BY JILL CONNORS | PHOTOGRAPHY BY LAURA MOSS

Lots of space. Lots of wood. Lots of light. Sometimes too much of a good thing can be, well, too much. Especially when there's also too little openness, too little function, and too little flow. That was the case at Heather and Andrew Altobelli's gracious vintage house in Westfield, NJ, which came with a sprawling kitchen wing that lacked another essential ingredient: warmth. "I'm a foodie, and I need a kitchen that's a hub where we can all be together," says Heather, who loves to cook and entertain.

Enter builder Mike Mroz and his wife, interior designer Ellie Mroz, who were hired to rethink the existing space and exchanged walls of 1990s glazed-maple cabinetry for an eclectic mix of finishes that echo the home's original wood-paneled walls, handsome moldings, and weathered-brick exterior accents. The revamped kitchen is now open to an inviting breakfast room, and connects to a charming entry that leads to a large mudroom and an upgraded bath—convenient with a swimming pool just outside. An outdoor dining area and snack bar create a seamless connection between indoors and out. The result: renovated spaces that feel both modern and timeless. Best of all, says Heather, "we kept the integrity of the house."

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REMAKING AN ENTRANCE

"We paid attention to traditional details and materials," says Mike Mroz, who added a new Dutch door at a secondary entrance that now leads to a mudroom lined with brick pavers. The space's casual shiplap walls are in keeping with the home's stone-and-shingle Colonial Revival architecture.

1. A fieldstone path off the driveway leads to a portico that is Heather Altobelli's favorite way to enter the house, whether laden with groceries or accompanied by the couple's children—ages 12, 14, and 17—since it's close to both the kitchen and mudroom. Mike repaired the original slate roof; siding shingles were replaced or repaired and repainted.

2. Coming through the Dutch door, a turn to the right leads to the kitchen; to the left lies the mudroom. A series of new arched openings emphasizes the sight lines through the spaces.

3. The mandate for the 10-by-13-foot mudroom was to make it all about the kids' stuff—and to keep it out of sight. "With basketball players and a dancer, we have tons of sneakers and shoes," says Heather. The tall cabinets' doors are finished with leather handles that echo a leather bench in the center of the room. There's also storage for art and gift-wrapping supplies, and a fridge filled with grab-and-go snacks.

4. The mudroom's apron-front sink doubles as a convenient cleanup station for muddy sports shoes. Crisp white shiplap walls and marble counters offer a pleasing counterpoint to the dark-blue cabinets and the floor's veneer bricks, which are laid in a classic herringbone pattern.

4

COOKING UP TOGETHERNESS

Heather needed an upgraded kitchen with equipment for a serious cook and space for the three kids to gather. She also wanted an open layout that took advantage of the treescape outside. "The old kitchen was stuffy, with lots of cabinets that made it feel closed in," she says. Carpenter Azzam Ezmat varied the cabinet finishes to keep them from overwhelming the space, while a double pendant, simple sconces, and undercabinet LEDs were added to create more layered lighting.

5. The 15-by-19-foot kitchen features a wall devoted to cooking, with a 60-inch pro-style range under a zinc vent hood trimmed with brass. Granite-topped cabinets store pots and pans, with appliance-lift shelves for an air fryer and a toaster. The island holds the main sink plus a 5-foot-square table section that seats six and is used for homework, snacks, and some meals. A brick niche with open shelves echoes the mudroom floor and sits between separate 36-inch built-in freezer and refrigerator columns. New red oak floors match those in the rest of the house.

6. A play of colors and textures adds visual interest. Tall blue-green cabinets that echo the arched doorways offer a contrast to the white-marble backsplash and base cabinets; honed-granite countertops and wood floors add deeper tones. A new 12-over-12 double-hung window set into the marble-clad wall provides a view of the trees along the front of the property.

BEAUTY AND THE BATH

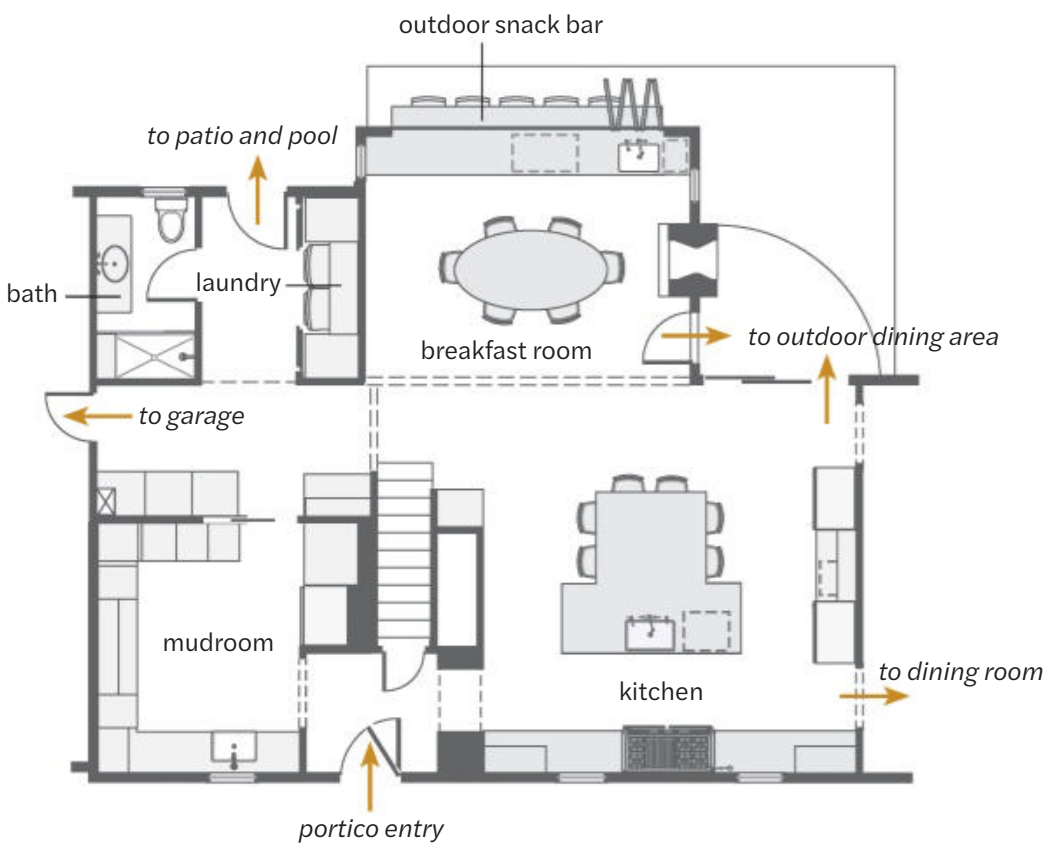
The existing full bath across from the mudroom was gutted and fitted with a walk-in shower for après-swim cleanup. Mike rebuilt the room with a slightly reduced footprint to accommodate a separate laundry closet he located across from it.

7. The pale-celadon vanity has a marble top and a washstand-style backsplash with curved sides. The three birds crowning the mirror frame are an homage to the three children in residence.

EXPERT ADVICE

"Using touches of marble—here it's the vanity top, the floor, and the shower tile—can make even a small bath feel luxurious."

ELLIE MROZ, *interior designer*



MROZ: ILYSSA MAISANO. FLOOR PLAN: IAN WORPOLE

FLOOR PLAN

The renovation reworked about 1,000 square feet of existing space, which includes the kitchen, breakfast room, mudroom, bath, and laundry. The mudroom now occupies the former scullery kitchen; the bath ceded some square footage to a new laundry closet that sits across from it. The kitchen's enlarged island and the breakfast area's relocated fireplace and wall-to-wall base cabinets—along with a flat ceiling sans skylights—improved those rooms' proportions, making them more inviting. Replacing a shallow window bay in the breakfast room with a 14-foot-long folding multi-panel window that services a new snack bar enhances the spaces' indoor-outdoor connection.

8

INDOOR-OUTDOOR DINING

The old breakfast room had a shed roof, skylights, and wraparound windows that made it feel like a greenhouse. Now a flat, beamed ceiling and a fireplace cozy up the space, while still capitalizing on the park-like setting. "I knew the minute I saw it we had to open up the back of the house and play up views of the property," says Mike.

8. The 11-by-17-foot breakfast room includes decorative oak ceiling beams, a two-sided gas fireplace, a wall-hung TV, and a generous oval table. But the real attraction is the foldaway window above a row of base cabinets that hold a refrigerator drawer, tableware, and an ice-maker—all close to the outdoor action.

9. When the accordion window is open, food, beverages, and place settings pass easily to the granite snack bar outside. "If the kids and their friends are hanging out at the pool, I tell them to stay there while they are wet and having fun, and I hand food out to them," says Heather.

10. The breakfast room's two-sided fireplace is designed to be enjoyed outside on the patio dining area as well; Mike was able to locate fieldstone for the chimney that's a close match to stone elsewhere on the exterior. "Our dog can sit outside near the fireplace and see us inside around the table," adds Heather. It's a nice bonus for a renovation designed to bring everybody together.

9

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nuts&bolts

SUMMER 2023

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KNOW-HOW YOU NEED TO GET HOME UPGRADES DONE RIGHT

This 16-by-9-foot plunge pool preserves plenty of backyard space for kids and pets to run around in.

COURTESY PLUNGE+ POOLS

Frost-proof tile lines the interior of this precast concrete plunge pool on MA's South Shore; travertine pavers finish its edges and form an adjacent patio. *Pool: plungepools.com*

all about

Prefab plunge pools

Shrink its size, and a pool becomes less time-consuming to maintain, more economical to enjoy year-round, and easier to weave into just about any backyard. Here's what you need to know about the plunge-pool option

BY SAL VAGLICA

For many, a plunge is the Goldilocks pool: bigger than a hot tub, though it also can easily be warmed to soothe achy muscles, yet shallower than a traditional in-ground pool, while still offering enough volume to submerge yourself on a sweltering summer day. Its just-right dimensions: roughly 4 to 5½ feet deep, in sizes as small as 7 by 7 feet and as large as 20 by 12 feet.

A plunge pool is a place to cool off and relax, rather than swim laps. It's a trend that gained traction early in the pandemic; people were looking to get more use out of their backyards—and they still are. "Homeowners are using plunge pools because they don't want the maintenance of a bigger pool, and they like that the pools can be hot or cold while still allowing for other spaces around them, like a patio, an outdoor kitchen, or a fire pit," says *TOH* landscape contractor Jenn Nawada, who has incorporated several in her landscape designs over the past few years. "Set off the ground a bit, they also act as a sitting wall, and when you light them, they make a great focal point at night."

Year-round use is one of the reasons Jenn's clients Doreen and John McLaughlin installed a heated 13-by-7-foot plunge pool (shown on the cover) in their suburban yard outside Boston. "We didn't want our whole backyard to be a pool," Doreen says. Since summer for her family means vacation travel, "the real value in the pool for us is for the months it's not hot out, so we can use it on a cool fall night or in winter."

While a plunge pool's smaller size is part of its appeal, so is the prefabrication, which means you can prep a yard for the pool while it's being made off-site. Some plunge pools can be ready to use a day or two after the delivery trailer shows up. Self-supporting steel and concrete versions can be installed above grade, in-ground, or tucked into a slope where a traditional pool might not work.

Ready to plunge ahead? Read on for the pros and cons of these scaled-down pools, and what you get back when you give up some square footage.

COURTESY PLUNGE+ POOLS

VITALS

What do they cost?

Precast concrete pools start at $28,500 for one 7'×7' and 52" deep; larger container pools start at $42,000 for one 20'×8' and 48" deep. These prices include basic pool equipment (no heater) but not shipping or installation, which can add up. Molded fiberglass pools begin at $53,200 for one 9'6"×6'11" and 54" deep, including pool equipment and installation.

Where to buy one?

While you can travel to a steel- or concrete-plunge-pool manufacturer to see sizes in person, it's easiest to research options and buy one online. Companies may be able to put you in touch with local pros who have installed their pools. Showrooms are rare, and most will likely have only fiberglass models.

What's the warranty?

Structural warranties are typically 1 year for steel pools; 2–5 years for precast concrete; and 25 years to lifetime for fiberglass.

How much maintenance?

Less water inherently means less upkeep. On a weekly basis, the pH balance needs to be maintained with chemicals—and frequent testing on a dropper chart—and the pool skimmed to remove debris. Chlorine and filter-media levels must be kept full. An unheated system in a cold climate has to be winterized to keep water lines from freezing and bursting.

Is a plunge pool right for you?

While its smaller size might make it the only way to splash around in some yards, a plunge pool isn't for everyone

Wide bluestone coping finishes this pool's top edges; the interior is lined with porcelain tile. *Precast concrete pool: soakepools.com*

PROS

✚ PERFECT FOR SMALLER SPACES
Not everyone has the room, or need, for a traditional pool, which usually measures about 30'×15', or an above-ground pool, which can be 24' across. A popular size for a plunge pool is 13'×7', about half that of a swimming pool.

✚ EASIER TO MAINTAIN Keeping a plunge pool's smaller volume of water balanced is easier—and gentler on the wallet, since it requires fewer chemicals.

✚ LESS COSTLY YEAR-ROUND In cold climates, heating a traditional pool can be cost prohibitive. With a plunge pool, keeping water warm all year—or adding a chiller for cold plunges during a Texas summer—likely won't break the bank.

✚ RIGHT HEIGHT A traditional pool is usually pitched to allow for children cannonballing into the deep end, while adults linger in about chest-high water. Plunge pools generally have a flat bottom that ensures a comfortable standing height.

✚ CAN DO DOUBLE DUTY Most pools can be outfitted with jets that turn the entire pool, or a walled-off portion, into a spa. A resistance current offers a space-saving option for swimming or exercise.

✚ SLOPE-FRIENDLY Self-supporting steel-container and concrete pools can be installed on slopes where traditional pools require expensive retaining walls.

CONS

✖ IT'S NOT ALWAYS LESS EXPENSIVE
Prefab plunge pools cost less to buy, but shipping and installation can quickly ratchet up the final expense, depending on the size of the pool and where you live. Shipping can start at around $3,000, and a crane to fly a pool over the house can be $10,000 or more. Factor those costs in, and a plunge might not be much less than a traditional 28'×12' swimming pool's average installed price of $55,000.

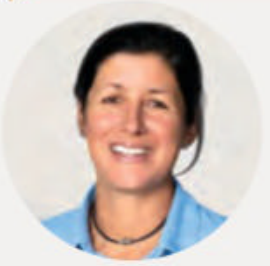
✖ IT MIGHT NOT BE THE RIGHT FIT
The American Red Cross suggests a depth of at least 9' for diving. In a house full of diving board– or waterslide-loving children, a plunge pool's shallow depth of 48" to 66" can be dangerous. If you like to host and have a dozen people in the water playing volleyball, a plunge-size pool won't work for you.

✖ LIMITED DESIGN CHOICES While in-ground swimming pools can be customized to take on a variety of organic shapes, prefab plunge pools are generally square or rectangular in a set size range.

✖ NOT MEANT FOR DOING LAPS
Without investing in special jets to provide a resistance current, plunge pools offer limited space for swimming.

✖ STILL NEEDS TO MEET CODE Just because the pool is smaller doesn't mean you can skimp on permits and adhering to safety codes.

TOH PRO TIP



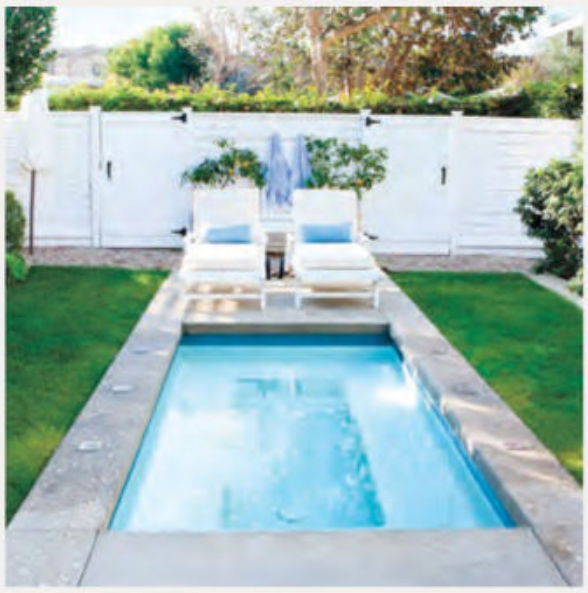
Jenn Nawada
Landscape Contractor

"Leave 18 to 22 inches of a plunge pool above grade, and finish the top edge with natural stone coping 18 to 24 inches wide. Then you can use the edge to soak up the sun or as a seat when you're not in the water."

LANDSCAPE: JON CARON/COURTESY SOAKE POOLS

PICK YOUR TYPE

Plunge pools come in a range of materials, each with its own unique attributes



CONCRETE

Around for about 10 years now, precast concrete plunge pools are made a bit like a poured foundation: Steel forms are used to mold a 4"-thick layer of masonry reinforced with steel rebar. Waterproofing is applied to the entire interior, then porcelain tile—designed to be submerged—covers the floor and walls. A concrete pool can rest above grade, or be installed semi-in-ground—including in a sloping yard—or fully in-ground, though any exposed exterior sections need to be finished. Preformed steps and benches are used for entering, exiting, and hanging out.

Site prep: Once the hole is excavated, a compacted gravel base is laid, and then trenches are dug to run lines for pool equipment, which usually sits close to the house. You'll need to run wiring for a pump and lights and potentially a gas line for the heater. If the delivery truck has easy site access, its boom might be able to drop the pool into place; otherwise a crane might be required.

Sizes: 7'×7', 8'9"×5', 10'×6', and 13'×7', at 52"–60" deep (soakepools.com); 12'×7', 15'×8', and 20'×10' at 66" deep (us.plungie.com)

Prices: From $28,500 for 7'×7' to about $32,000 for 20'×10' (with basic pool equipment)

FIBERGLASS

Used for decades to make full-size swimming pools, preformed fiberglass is now being offered by manufacturers to meet the demand for smaller plunge sizes. A benefit of a fiberglass pool is a wider range of organic shapes. Unlike self-supporting options, fiberglass pools are typically installed in-ground or semi-in-ground, with no more than about 18" exposed to create a wall. Manufacturers offer various details molded into the pool, including steps, benches, and sun shelves. Unlike the other plunge options here, these are generally sold through a traditional pool company as part of a package that includes installation.

Site prep: As with a concrete pool, installation requires digging a pit and adding a compacted gravel bed. Electricians have to run wiring for the pump and potentially a gas line for the heater. And like with a traditional pool, the equipment is usually kept off to the side.

Sizes: 9'6"×6'11", 18'8"×7'5", 16'×8', and 20'×8', at 54"–60" deep (leisurepoolsusa.com)

Prices: From $53,200 for 9'6"×6'11" to $59,200 for 20'×8' (installed, with pool equipment; coolpoolsnc.com)

STEEL CONTAINER

Steel shipping containers are cut in two horizontally, and a pool is built out of the base. A closet usually houses the pool equipment (except for a heater) below welded-in-place steps at one end, behind the doors. Tough paint wraps the exterior; a multilayer coating covers the interior. The latest version is lined with a fiberglass tub that has molded-in steps and seating. Container pools can be installed above grade, semi-in-ground, or fully in-ground, including on slopes.

Site prep: These require footings as well as a crushed-gravel base or a concrete pad for support, and possibly helical screws at the corners to stabilize the subsoil. You'll need to run wiring for the pump and potentially a gas line for a heater. A telescoping forklift can move some container pools; more often, a crane is needed to drop it into place.

Sizes: 20'×8' and 20'×12', at 48" deep, with a coated interior (trekpools.com); 20'×8', at 57" deep with a fiberglass liner (containurpools.com)

Prices: From $42,000 for 20'×8' to $56,000 for 20'×12', with a coated interior (with basic pool equipment); $44,900 for 20'×8' with a fiberglass liner (with pool equipment and heater)

CONCRETE: TRINA CURCI/COURTESY MOLLY WOOD GARDEN DESIGN; FIBERGLASS: COURTESY LEISURE POOLS; CONTAINER: COURTESY CONTAINUR POOLS INC.

HOW BIG?

A smaller plunge pool doesn't have to mean missing out on the party

A good rule of thumb when sizing is to plan on about 15 square feet of surface area per person. A 13-by-7-foot pool can comfortably fit six people. While there are some variations in depth—48, 54, 60, and 65 inches are common, depending on the size and material you choose—the goal is generally the same: deep enough for an adult to stand in chest- or shoulder-high water.

TRY A KIT

Steel panels packaged with a vinyl liner allow you to build it yourself

Just because plunge pools are prefabricated doesn't mean you need a pro to install one. Endless Pools offers a DIY option with steel panels that bolt together and a waterproof vinyl liner held in place with a track. You have to cut holes for things like jets, secure the stairs, and make basic plumbing connections. A capable DIYer can install one above grade with minimal digging; decorative panels dress up the outside. You'll need an electrician to run a 240-volt circuit for the pump and heater. Sizes: 6'×6' to 16'×16', and 42" to 54" deep. Cost: $12,999 for 7'×7' (with pool equipment, heater and a cover); endlesspools.com

Plan it right

A plunge-pool project requires pros who will coordinate with the manufacturer to get the specs right

➡ GET YOUR TEAM TOGETHER

Typically a plunge-pool installation means working with a landscape designer, a landscape contractor, or a design-build firm. Once you've agreed on the location of the pool, the contractor will evaluate the site access for delivery and handle permitting, excavation, and hiring a crane (if needed), as well as subcontractors like a mason, an electrician, and a plumber. Once the pool is in place, the landscape pros put it all back together, with patios or decking, stonework, and plantings. Keep in mind: Prefab pools are made to order with a wait time of six to eight months for delivery. During that time, the site can be excavated, prepped with concrete or a compacted gravel base, and set up with utilities so that when the pool arrives it can be dropped into place. Making the plumbing connections and filling the pool can add a day.

➡ FACTOR IN THE CRANE

Buying a plunge pool entails several costs: the pool itself, shipping it, and getting it installed in your yard—a complex process made easier by hiring a contractor. The first two figures are straightforward. But who gets the pool from the back of the transport trailer onto the site depends on the size of the pool and how close the equipment can get to its final resting spot. If access to the yard allows and the trailer delivering the pool has a crane on board, the shipper might be able to hoist the pool up and drop it into place. Another option, for a small- to medium-size pool, is to ask if your contractor has heavy equipment big enough to move it, like a telehandler forklift. But with large pools, or on tight lots where a trailer can't fit, you'll need a separate crane operator who will, in some cases, have to lift the pool over the house.

➡ FOLLOW LOCAL CODES

Find out if your municipality will require your plunge pool to be fenced in; while most treat it like a swimming pool, some consider it a hot tub or spa. You'll have to respect property-line setbacks and secure permits in advance for digging and adding electrical and gas lines. A good set of plans, provided by the pool manufacturer, can help the site work move ahead while the pool is being made.

Coordinating stone veneers cover the sides of this plunge pool and grill island.

NAT REA

Once in its excavated hole, a concrete plunge pool that sits partially above grade (1) receives a layer of heat-retaining rigid foam (2) on the exposed sides. A concrete-block wall (3), sealed with waterproofing, sits 12 to 24 inches away from the sides and edges of the pool to provide enough width for the capstone. Crushed stone (4) fills the void. Exposed sides are finished with masonry, tile, or wood.

INSTALLATION CONSIDERATIONS

While a plunge pool can be put in a small chunk of yard, there are a few moving parts to manage. Here's what to know to avoid headaches on install day

PERMITS IN PLACE

Speak to your contractor about what permits your municipality requires to install the pool, which might include things like a dumpster in the street while digging. Make sure to communicate clearly with the landscape contractor or excavation team who is contacting the utility-locating service prior to sticking a shovel into the ground, and that the area where they'll be digging is clearly marked.

YARD ACCESS

As with a traditional-swimming-pool install, contractors will need a path from the street or driveway to the yard to prep the site. For larger pools, that prep likely requires big machinery that's too wide to pass through a standard garden gate, which means you might have to temporarily remove a section of fence. For smaller pools, some micro excavators can squeeze through openings around 28 inches wide. A good contractor will protect the path with sheets of plywood to avoid damaging sections of turf or patio. Typically, pros want to park the truck or container that hauls the soil away as close to the dig site as possible. This access is required from excavation to prepping the hole with stone or concrete, and again when the pool arrives. The pool manufacturer can provide guidance during the ordering process about what kind and size of equipment is needed.

PLACING MECHANICALS

Steel container pools store the basic pool equipment—pump, filter, plumbing, diverters, and the smart brains—in a mechanicals closet at the end of the pool. You'll need about 4 feet of space behind one of the narrow ends of the pool to allow for access. A heater is usually installed on the side of the house where it's easiest for the plumber to pull natural gas. It also keeps the noise, heat exhaust, and combustion at a distance from the pool. The heater sends water through buried lines, so you'll need a trench between it and the pool. Fiberglass and concrete pools stash mechanicals away from the pool, usually up near the house, as with a traditional pool. Typically, the location is one that is easy to run electrical and gas to, and close enough to make maintenance easy, but can go unnoticed. You'll need a trench to bring water from the equipment to the pool. Plan for a 4-by-4-foot area to host the basic pool equipment—more, if you have a heater.

Designate a 4-foot-square space for basic pool equipment: the pump (1), filter (2), and smart control system (3)—or about 4 by 6 feet, with a heater (4). ***Pool equipment: soakepools.com***

WI-FI RANGE

Most pool equipment is paired with a smart control system that allows you to adjust the temperature, jets, and lights from a smartphone. But it works only if the pool falls within your home's network. It's a good idea to run a speed test—search for it in any Web browser—from the location you're considering to check the connection to the network. To strengthen the signal, you can add a weather-resistant outdoor extender to broadcast the signal into the yard.

INSTALLATION: JENN NAWADA; MECHANICALS: NAT REA

PLUNGE PERKS

A heater can turn any plunge pool into a four-season escape, but that's just the start of the upgrades on offer

Finishes > Fiberglass pools typically come in basic colors (blue, black, gray, tan, white) without many options for customization; some can be detailed with a tile look at the waterline. With a concrete pool, you can pick from a sprayed-on liner or from a handful of large-format porcelain tile choices, or go custom with a mosaic. With a steel container pool, custom colors can often be made to match paint chips. Choosing a dark floor can help a pool retain the sun's heat.

Sun shelves > A platform about 1 foot below the surface of the water, a sun shelf offers a great spot to sit in a lounge chair without being fully submerged, or for pets to cool off in. A sun shelf also acts as a step to get in and out of the pool. But adding one bigger than what the pool manufacturer offers can get costly fast. Typically, fiberglass pools offer the most options.

Water features > A waterfall can turn a still plunge pool into a backyard focal point. Some manufacturers can integrate such a feature into the pool, but if they can't, a pool company or landscape contractor who installs ponds should be able to add one on-site.

Spa jets > Blur the line between a pool and a therapeutic spa with an upgraded package that introduces jets into the pool. Typically, in a smaller concrete pool, the spa option is built in with the appropriate number of jets that send in water and air. With a larger steel container pool, the manufacturer welds a wall inside the pool, separating the spa from the calmer waters, and outfits this smaller area with therapeutic jets. There are fewer spa options with a fiberglass pool mold.

A sheet of water cascading from a stone wall adds the elements of sound and movement, enhancing a plunge pool's role as a water feature in the landscape.

Resistance currents > Special powerful jets blast a current of water that you can swim or walk against even in a small space. These currents can move about 5,000 gallons per minute starting at the wall where the jets are installed, and some come with a flexible hose designed to soothe sore muscles. Starting at about $2,500, the jets are often installed in the side of the pool by the manufacturer, so it's a good idea to discuss the option early on. In some cases, having them added later could void the structural warranty.

Viewing window > Steel container pools offer the option of a window cut into the side of the pool and fitted with thick plexiglass, so those outside can watch the water action. This upgrade starts at $6,500 for a 24-by-80-inch window.

Wrapped in wood and accented with artwork, this workout pool, which has a swim current, blends well with its lush green setting. *Pool: endlesspools.com*

Site it right

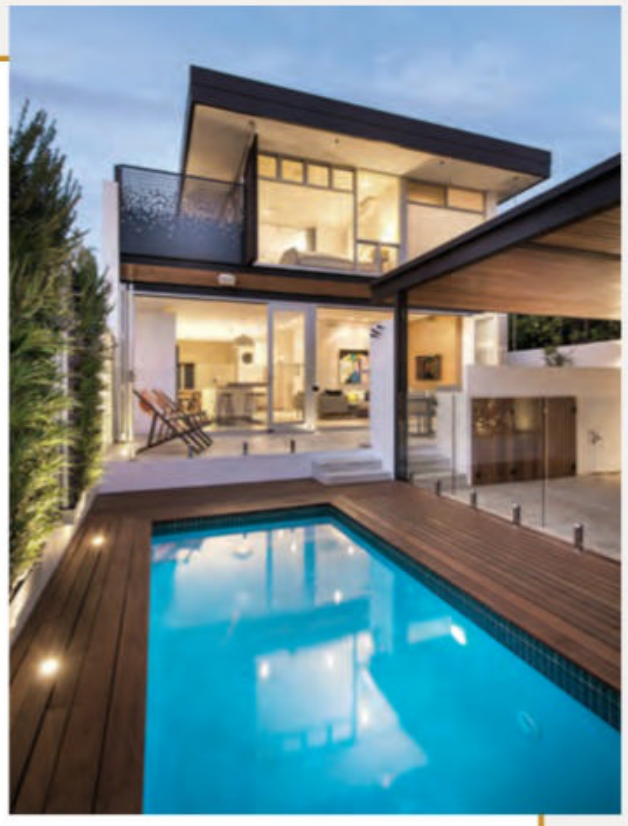
Location is important, preferably one with access to the sun, which is critical if you're not adding supplemental heat. Because these pools tend to be heated so they can be used in all four seasons, it's best to keep them close to the house and connected by a pathway. Just as important is the view from inside the pool while you're enjoying it. Whether your watering hole will be used mainly for lounging, maybe standing against the edge with a cocktail in hand, or for exercise, with a resistance current, it will likely come with a built-in bench or two. Orient the pool to maximize the view from those spots, preferably out onto an open area, so you're not left looking directly at a wall or at your neighbor's house.

WATER FEATURE: JON CARON/COURTESY SOAKE POOLS; SITE IT RIGHT: COURTESY ENDLESS POOLS

Creature comforts

Light the way > Some plunge-pool makers include LEDs that sit on one wall of the pool as part of the base package; for others, it's an upgrade. Lighting can turn a dark hole into a nighttime focal feature. A pool installer or landscape contractor familiar with lighting can add additional lights once the pool is in place. Since most plunge-pool equipment comes with a smartphone app from the pump manufacturer, consider that brand's lighting offerings if wireless lighting control is important.

Bring the heat (or cool off) > Most plunge-pool companies offer the option of a natural gas or propane-powered heater. An electric heater, sometimes packaged with the pool, can be slow to respond. The heater, like the pump and filter, should be sized according to the water volume. The 260,000-Btu heater appropriate for a pool up to 13 by 7 feet and 48 inches deep adds roughly $3,500 to the cost. And in the South, where ambient heat is abundant, a pool chiller that can drop the pool temperature by 10 to 15 degrees F starts at around $2,500. If you're interested in a therapeutic cold plunge that dips down to about 45 degrees F, you'll need to upgrade to a pool heat pump, which starts at $3,500.



A lockable pool cover made of wood slats is easy to roll up and stow, and blends well with other natural materials. *Pool cover: soakepools.com*

CREATURE COMFORTS: D-MAX PHOTOGRAPHY; MAKE IT SAFE: COURTESY SOAKE POOLS

Make it safe

A child can drown in as little as 2 inches of water. Falls can be a serious concern wherever surfaces get wet and slippery. Here's how to lessen the risk

PREVENT SLIPPING

Just about any paver, brick, or stone recommended for a patio can be a good choice around a plunge pool to safeguard against slipping. Tile decking should withstand freezing in cold climates and be rated DCOF 0.42 or higher to ensure good slip resistance. While cannonballers won't be splashing gallons of water onto a deck surface, wood can require regular maintenance, especially with saltwater pools, which can eat away at deck fasteners, making composite boards a solid choice. Code may mandate a handrail for support while stepping in and out of a pool. Some elevated plunge pools have an exterior step or two to make access easier, though if the sides are sitting-wall height, it may be more secure to sit on the wall and swing your legs around to access the interior steps.

FENCE IT IN

In municipalities that consider a plunge pool a hot tub, a fence might not be required. But if your plunge pool is deemed a pool—above- or in-ground—code will likely mandate that you add a gated fence at least 4 feet high around it. In small yards, it's not unusual to see the entire yard gated and fenced in for safety, rather than just the pool itself.

COVER IT WITH CARE

From a rigid foam topper to a wood mat to tightly knit mesh fabric strong enough to walk on, covers keep out debris, limit evaporation, and, if insulated, can help a heated pool stay warm. An automatic cover installed with the pool uses an electric motor to push and pull fabric taut, usually just below the coping, at the touch of a button. These work fast and start at about $10,000 for a 13-by-7-foot pool.

18+

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Home Finances

Projects that pay you back

Increase your home's comfort and energy efficiency with help from the new slate of tax credits and rebates

BY BETH BRAVERMAN

By now you've probably heard that the Inflation Reduction Act (IRA) of 2022 has plenty of good news for homeowners looking for energy savings. In fact, the 725-page bill puts $370 billion in funding toward promoting climate-change initiatives—including provisions that give hundreds or thousands of dollars back to homeowners for weatherization and energy-efficiency home-improvement projects.

That cash back comes in two buckets: tax credits and purchase rebates, which will be available through September 2031 or through 2034, depending on the program. The tax credits—extensions or modifications of existing tax credits, in many cases—are in place now, so if you complete a qualifying project in 2023, you can get a credit on your federal taxes, lowering the amount you owe at the end of the year. The newly created rebate programs, on the other hand, may not be available for use until late this year or early next year. Those programs will be administered by the states, which are awaiting guidance from the federal government—expected this summer—before they can submit their applications for funding.

"If you've been thinking about doing a retrofit to save some money on your heating bills, these tax credits and rebates make it easier to say yes to making those improvements," says Stephen Walls of the Natural Resources Defense Council, an environmental nonprofit.

Some of these programs are available only to or have more benefits for lower-to-middle-income households. The income thresholds vary depending on the median income in your area. You can check your own eligibility for all the programs by entering your income and ZIP code into the IRA calculator at rewiringamerica.org.

Once you've determined your eligibility, your next step is likely to get a current home-energy audit; there is a $150 tax credit available to offset the cost. Your local utility may provide home-energy audits, or you can find a certified energy assessor through the Residential Energy Services Network (hersindex.com). While a home-energy audit is not required for most programs, having one performed can help you zero in on which projects might yield the greatest energy savings now, and give you baseline data to help calculate future energy savings.

Here's a closer look at some key IRA incentive programs.

Illustrations by Andrew Joyce

TAX CREDITS

For tax credits, which are available now, you have to fund the project up front, but you'll receive some or all of that money back via a discount on the amount of taxes owed at the end of the year. If you don't owe any tax in the year that you spend the money, some credits can be carried forward.

FOR SMALLER, ONE-OFF PROJECTS
Energy-Efficient Home Improvement Credits pay you back for home-energy audits and on the purchase of specific items that meet predetermined energy-efficiency standards. (Get details on specific products' eligibility by going to the "tax credits for homeowners" page at energystar.gov.) There are no income eligibility requirements for these credits, and in most cases, you can combine credits for a total of up to $1,200 per year through 2032.

Credits you can qualify for each year:

- Home-energy audit: up to $150
- Insulation, uninstalled: no limit
- Heat pump, heat-pump water heater, or biomass (wood or pellet) stove, installed: up to $2,000 total ($1,200 annual limit does not apply)
- Windows and skylights, uninstalled: $600 total
- Central air-conditioning, installed: $600 per unit
- Natural gas, propane, or oil water heater, installed: up to $600 per unit
- Electric panel upgrade to at least 200 amps: $600 total
- Exterior doors, installed: $250 per door, up to $500 total

What you need to know: Since the $1,200 limit is an annual cap, you can potentially get a much higher amount back over time by filing for different purchases each year. For example, you might have an energy audit and replace two exterior doors and a few windows to get a $1,200 credit this year, and then next year replace a few more windows or upgrade your central air and your electric panel for another $1,200 credit.

COURTESY CARSON GROUP

EXPERT ADVICE

"Map out your projects and decide in what order and in what year you want to do the work. These are multiyear initiatives, and taking advantage of rebates and credits over several years will give you the most potential for savings."
ERIN WOOD, *financial planner, Carson Group*

FOR BIG-TICKET SYSTEM UPGRADES
Potentially the most valuable credits in the IRA, Residential Clean Energy Credits are worth up to 30 percent of the cost of qualifying clean-energy systems and their installation in homes. In most cases, there is no limit on the amount of the credit or the income of the recipient.

Projects that qualify:

- Residential solar-panel systems and solar water heaters
- Small wind turbines
- Geothermal heat-pump systems
- Battery storage for home energy, with capacity of at least 3 kilowatt-hours
- Fuel cells (which produce power using hydrogen)

What you need to know: While the 30 percent credit remains in place for projects started and completed between 2022 and the end of 2032, it falls to 26 percent for those put in place in 2033 and 22 percent for those done in 2034.

FOR ELECTRIC VEHICLE CHARGERS
The IRA includes several tax incentives for the purchase of a new, qualifying electric vehicle (EV), including a tax credit of up to $7,500 (depending on income and several other stipulations). Homeowners who install an EV charger at their home in a low-income community or a non-urban area can receive 30 percent of the project cost up to $1,000. To prepare for installation, you'll want to make sure that your home is electric-ready, and that your panel can handle the increased load in order to charge your EV at home. That may require you to upgrade wiring or install a new breaker box, projects eligible for electrification rebates.

REBATES

While the federal government will provide nearly $8.6 billion to fund rebates, each state will distribute them to residents as they purchase eligible items. Each state can create its own rebate program, pending federal approval, and states should begin rolling them out by the end of this year. Once your state has a program in place, you can find details on its energy department website or at dsireusa.org. While electrification rebates and efficiency rebates can't be used for the same technology, they can be used at the same time.

FOR GOING ELECTRIC
The electrification rebates are point-of-sale to homeowners when they purchase systems that run on electricity or items that make their homes more energy efficient and thus more electric-friendly. They include projects such as adding insulation, air sealing, and improving ventilation.

These rebates do have income limits: Anyone who earns less than 150 percent of the area's median income can get a rebate worth up to 50 percent of the purchase cost. With an income less than 80 percent of the area's median, individuals can receive a rebate worth up to 100 percent of the cost or the rebate cap, whichever is lower.

Covered projects (including installation) and their annual limits:

- Heat-pump HVAC system (space heating and/or cooling): up to $8,000
- Electrical panel/breaker box upgrade: up to $4,000
- Electric wiring: up to $2,500

- Heat-pump water heater: up to $1,750
- Insulation, air sealing, and ventilation (including ductwork): up to $1,600
- Electric range or cooktop (including induction), and electric heat-pump clothes dryer: up to $840

What you need to know: These rebates can be combined for multiple projects, but you cannot receive more than $14,000 total in electrification rebates. While manufacturers and contractors should be able to tell you which products qualify, you may want to check with your state's energy department once it publishes guidelines.

FOR WHOLE-HOUSE ENERGY-REDUCING PROJECTS

The efficiency rebates focus on large projects that improve energy efficiency, such as upgrading doors and windows, putting in LEDs, improving insulation, upgrading appliances, and updating HVAC to reduce the total amount of energy consumed by your house. You'll need a contractor who has software to model the potential energy savings to get the rebate up front; otherwise, you'll have to document the actual energy savings and file for the rebate after the project is completed. Or you can work with an "aggregator," a large contracting company, like Sealed or BlocPower, that shepherds homeowners through the rebate process by fronting the rebate cost for the project, obtaining utility data, and filing for the rebate on the homeowner's behalf.

While the states determine what type of documentation will be needed, for now utility bills will likely suffice. But measured energy savings might yield more benefits for some households, says Rewiring America's Sage Briscoe. "It can result in larger rebates and bigger reductions in energy usage—and bigger savings in the long run."

Those whose income is less than 80 percent of the median income for their area can get the most money under this program, but even higher-income households can get up to $4,000 if they reduce energy use by 35 percent or more.

Here's how energy-saving projects can pay back under this program:

- For at least 15 percent measured energy savings: for low-to-moderate-income households, 50 percent of project costs or $1,000 per 1 percent of energy saved, whichever is less; up to 80 percent of project costs, or $200 per 1 percent of energy saved, whichever is less
- For 20 to 34 percent in modeled energy savings: for low-to-moderate-income households, 50 percent of project costs up to $2,000; 80 percent of project costs, up to $4,000
- For 35 percent or more in modeled energy savings: for low-to-moderate-income households, 50 percent of project costs, up to $4,000; 80 percent of project costs, up to $8,000

What you need to know: The efficiency rebates don't come with any per-item limits, just a total project tally. You cannot claim two different rebates for the same item. However, you can combine rebates for a single retrofit, if they're for different items. You can claim both tax credits and rebates for the same item—but you can't get more than the total cost of the item. You can also combine IRA incentives with state and utility programs. If you're just replacing a single appliance or doing a smaller project, those other programs might be a better fit.

NOW OR LATER

Since some rebates may not be in place until next year, it may make sense to hold off on planned projects until 2024—or later. To figure out the best time for your project, ask yourself these questions:

IS YOUR PROJECT TIME-SENSITIVE? If you have a broken water heater or oven, you may not have the luxury of waiting for the state to put its rebate programs in place. That said, you may still be able to get incentives from your state energy department or your local utility department. Find a list of programs available to you at dsireusa.org.

HOW LONG ARE YOU GOING TO BE IN YOUR HOME? While you should see lower energy costs over time, some projects require a significant out-of-pocket investment, even after credits or rebates. If you're planning to move in the next few years, run the numbers to see how long it could take you to break even—you can use the Savings Calculator at energystar.gov to get a ballpark estimate. In general, payback periods are at least 5 to 10 years.

Keep in mind that improving home efficiency could also improve your home's resale value. Switching to electric energy can save households $1,800 per year, on average, according to Rewiring America.

DO YOU EXPECT PRICES FOR TECHNOLOGY TO COME DOWN? Just as the cost of solar-panel systems has fallen significantly, experts believe the cost of home tech like heat pumps and induction ranges could start to come down even further as they become more mainstream. In that case, waiting a few years may make purchasing them an even more cost-effective investment.

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Landscaping

Plants for pollinators

Bees, butterflies, and hummingbirds flock to these nectar-rich perennials, pollinating the plants as they go

BY MICHELLE GERVAIS

A summer garden buzzing with bees, butterflies flitting among the blooms—it's a heavenly sight, and a hallmark of a healthy environment. As they travel from flower to flower, feeding on their nectar, these insects are doing another necessary task: transferring pollen from one blossom to another, allowing them to morph into fruits and seeds, safeguarding the cycle of life.

Unfortunately, populations of these and other pollinators have been declining for decades. As a result, there's a movement to encourage homeowners to replenish pollinator-friendly food sources in their yards. While honeybees have gotten a lot of press—bees are the only species that actively collect pollen rather than transfer it passively—there are about 4,000 native bee species in North America, not to mention myriad species of butterflies, wasps, flies, beetles, and nectar-loving hummingbirds that are all pollination workhorses.

Here's what you can do to protect them.

> Create a natural, nurturing environment. Gardening for pollinators can be as easy as taking four simple steps: planting a few easily found perennials to attract and nourish these species, adding a water source to keep them healthy, waiting until spring to cut back perennials so pollinators can nest and overwinter among them, and avoiding pesticides. These changes can attract an amazing diversity of pollinators in just one season.

> When choosing plants, go native. Plants native to your region have evolved in a symbiotic relationship with local fauna. "Native plants need less supplemental water and fertilizer, as they are adapted to local conditions," says *TOH* landscape contractor Jenn Nawada. "They also support beneficial insects that can help control garden pests, reducing the need for pesticides."

> Stick to a plant's straight species. This is the version that evolved in the wild; cultivated varieties can also be useful, if they have not lost the properties of the parent plants that attract pollinators. For example, if a cultivar is an exceptionally double-petaled variety, it may not have the pollen or nectar levels of its parent, or its petals may be so dense that pollinators cannot penetrate them. When looking for pollinator-friendly plants, seek out the straight species; if you must choose a cultivar, make sure it doesn't differ too widely in appearance and color. Your local extension office can suggest plants that will thrive in your area.

> Last, keep variety in mind. Choose nectar- and pollen-rich flowers with a range of shapes, sizes, and colors. Each pollinator has its own techniques for sourcing nectar and transferring pollen, so flowers should be as varied as the pollinators that visit them. The more diverse your garden becomes, the more species you'll attract, and the healthier your garden, and the planet, will be.

Up ahead: some reliable, easygoing perennials that will lure pollinators of numerous kinds.

In this sun-drenched side yard, *TOH* landscape contractor Jenn Nawada incorporated a variety of colorful coneflowers, which will attract pollinators and birds summer through fall. Little Lime hydrangeas offer large green-to-white blooms up near the house, while dwarf boxwood will provide structure year-round.

ANNA COLEMAN

Blue false indigo
(*Baptisia australis* and cvs.)

WHAT IT ATTRACTS: Native bees, including bumblebees; butterflies; moths

HOW IT GROWS: Up to 5' tall and wide in full sun and well-drained soil; zones 3–9. Blooms from late spring to early summer.

PLANT PROFILE: This big, bold perennial is a wonderful border filler, its tall stems of blue-green leaves topped with spikes of blue pea-like flowers that are followed by dusky, dark-gray seedpods. Its deep taproot makes it exceptionally drought tolerant. Bumblebees especially love this plant, but it attracts any number of pollinators. New cultivars have introduced lots of interesting flower colors, and most seem to be just as attractive to pollinators as the original species.

Butterfly weed
(*Asclepias tuberosa* and cvs.)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies; hummingbirds

HOW IT GROWS: Up to 3' tall and 2' wide in full sun and fertile, well-drained soil; zones 4–9. Blooms from midsummer to early fall.

PLANT PROFILE: A species of milkweed without the characteristic milky sap, this perennial is highly attractive to monarch butterflies, who flock to the nectar of its domed heads of starry orange flowers. Found in dry, open fields and prairies in most of the U.S., it thrives on difficult sites. Once planted, it does not like to be moved or divided; seeds can be gathered from its pods and sown in fall to sprout in spring.

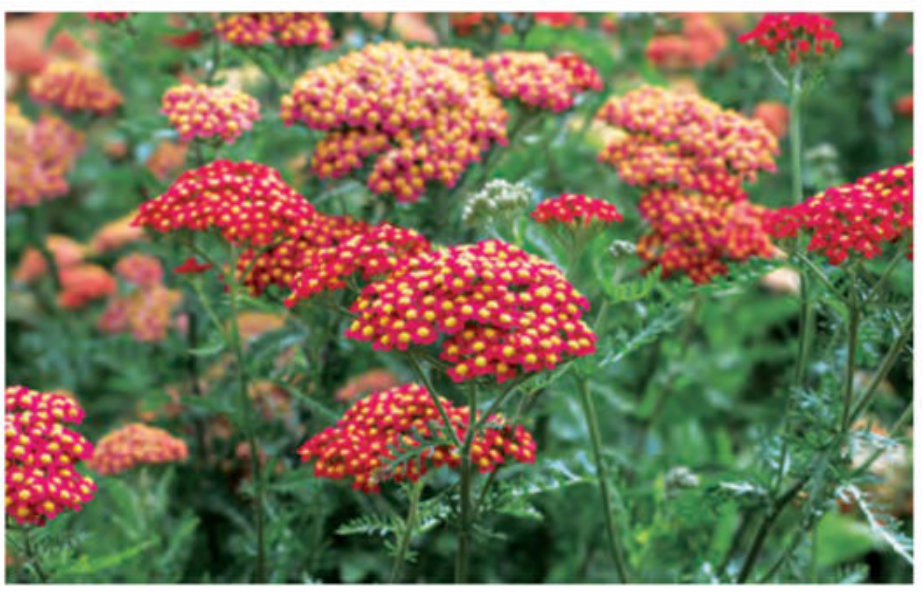
Spotted geranium
(*Geranium maculatum* and cvs.)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies; moths

HOW IT GROWS: Up to 2' tall and 18" wide in full sun to part shade and moist, well-drained soil; zones 3–8. Blooms from late spring to early summer, and sporadically through late summer.

PLANT PROFILE: Of the native hardy geraniums, this species has the largest flowers. In hot, dry summers and full sun, its foliage will yellow; cutting it back by half and watering deeply will encourage fresh, new growth. This plant might be a little harder to find in the nursery, but it is worth the effort for its usefulness in open, shady gardens.

FALSE INDIGO: HOWARD RICE/GAP PHOTOS; BUTTERFLY WEED, GERANIUM: NOVA PHOTO GRAPHIK/GAP PHOTOS; YARROW: GARY SMITH/GAP PHOTOS



Yarrow
(*Achillea millefolium* and cvs.)

WHAT IT ATTRACTS: Native bees, beetles, butterflies

HOW IT GROWS: Up to 3' tall and wide in full sun to part shade and moist, well-drained soil. Blooms early to late summer in zones 3–9.

PLANT PROFILE: Blooming atop aromatic, fine-textured, feathery foliage, yarrow's flat clusters of tiny, daisy-like flowers lure myriad pollinators. The original white-flowering plant spreads by rhizomes to form thick mats, and is best suited to the outer reaches of a garden. Cultivated varieties are better behaved, and sturdier. Yarrow is also highly deer resistant, and no one flower color is more attractive to pollinators than another, so you can pick from white, cream, pale-yellow, pink, peach, and rosy-red blooms.

Purple coneflower

(*Echinacea purpurea* and cvs.)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies; wasps

HOW IT GROWS: Up to 5' tall and 2' wide in full sun to part shade and well-drained soil; zones 3–9. Blooms mid-to-late summer.

PLANT PROFILE: This drought-tolerant native is tough and reliable. Coneflowers love full, baking sun but will tolerate a bit of shade, too. In autumn, when their petals fall, the central cones, which dry to brown, offer winter interest and provide seeds for foraging birds. You'll be hard-pressed to find the original species in a nursery these days. Avoid double-flowering cultivars, which are not nearly as attractive to pollinators, who show no flower-color preference.

Bee balm

(*Monarda* spp. and cvs.)

WHAT IT ATTRACTS: Native bees, including bumblebees; butterflies; hummingbirds; moths; wasps

HOW IT GROWS: Up to 4' tall and 3' wide in full sun to part shade and consistently moist, well-drained soil; zones 4–9. Blooms mid-to-late summer.

PLANT PROFILE: Hummingbirds and bees adore this easy-to-grow native, with its big, spreading clumps of aromatic foliage topped with tufted whorls of tubular flowers. The most common species, *Monarda didyma,* blooms red, but cultivars derived from a cross with *Monarda fistulosa* come in pink, lavender, and white as well, and are generally more resistant to powdery mildew.

Anise hyssop

(*Agastache foeniculum* and cvs.)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies; moths

HOW IT GROWS: Up to 5' tall and 2' wide in full sun to part shade and well-drained soil; zones 4–9. Blooms midsummer to early fall.

PLANT PROFILE: This member of the mint family is a magnet for bees, with spikes of lavender blooms that are key for honey production. The foliage tastes and smells of sweet licorice and is used for herbal teas. Plants self-sow prolifically but are easy to pull up if unwanted. While it thrives in full sun, it can tolerate a bit of shade. Pollinators do not flock to gold-leaved cultivars, but they love the showy 'Blue Fortune.'

Joe-pye weed

(*Eutrochium purpureum* and cvs., *E. maculatum* and cvs., *E. fistulosum* and cvs., *E. dubium* and cvs.)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies

HOW IT GROWS: Up to 7' tall and 4' wide in full sun to part shade and moist, well-drained soil; zones 4–9. Blooms midsummer to early fall.

PLANT PROFILE: These common native plants—often seen along roadways—are supersized, making them wonderful for the back of a naturalized border or along rustic waterways or woodland edges. They don't seem to have pest or disease issues besides an occasional touch of powdery mildew during damp seasons; their rough leaves are deer resistant.

CONEFLOWER: PERNILLA BERGDAHL/GAP PHOTOS; BEE BALM, ANISE HYSSOP: ISTOCK; JOE-PYE WEED: ANNETTE LEPPLE/GAP PHOTOS

Culver's root
(Veronicastrum virginicum)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies

HOW IT GROWS: Up to 7' tall and 4' wide, in full sun to light shade (in hotter climates) and moist soil; zones 3–8. Blooms from late spring to early summer.

PLANT PROFILE: This underused North American perennial fits into mixed garden beds with ease, adding lovely verticality; intriguing foliage; and delicate, branched spikes of tiny white or blue flowers. Adaptable and reliable, the plant blooms for almost a month, and cut flowers last at least a week in a vase. It is at risk in a number of states, so planting it is doubly beneficial—to the many pollinators it attracts and its longevity as a species.

Cup plant
(Silphium perfoliatum)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies; birds; moths

HOW IT GROWS: Up to 8' tall and 3' wide in full sun to part shade and any deep, moist soil; zones 3–9. Blooms midsummer to early fall.

PLANT PROFILE: This large perennial's 3"-wide golden flowers wave in the breeze above vigorous, rough-textured foliage. Its leaves are positioned on opposite sides of the stem, forming a cup that holds rainwater, so it serves as a water source even when not in bloom. It self-sows with abandon, so place it at the very back of a border or at the outer reaches of a garden, where it can thrive.

Blazing star
(*Liatris spicata* and cvs.)

WHAT IT ATTRACTS: Honeybees; native bees, including bumblebees; butterflies; hummingbirds; moths

HOW IT GROWS: Up to 5' tall and 2' wide in full sun and moist, well-drained, lean soil; zones 3–9. Blooms midsummer to early fall.

PLANT PROFILE: This native's tall batons of spidery pink-to-lavender flowers open from top to bottom. The plants are tough and drought tolerant, and look right at home in cultivated gardens, where their grassy foliage is a nice contrast to other perennials. While several species are attractive to pollinators, *L. spicata* and its cultivars are most commonly found in nurseries and garden centers.

TOH tip

"Many pollinator-friendly species reach an impressive height. As with any garden, place taller plants toward the back of flower beds and borders, and lower-growing ones in front. Planting in masses also creates a broad 'landing pad' that attracts pollinators. Choose perennials and shrubs that bloom at various times during the growing season. Having several different plants flowering from early spring through late fall offers pollinators a steady stream of food, while extending the life of your garden."

—**JENN NAWADA,** *landscape contractor*

CULVER'S ROOT: ISTOCK; CUP PLANT: MARTIN HUGHES-JONES/GAP PHOTOS; BLAZING STAR: TOMEK CIESIELSKI/GAP PHOTOS; FULL GARDEN: ELKE BORKOWSKI/GAP PHOTOS

Upgrading to heat pumps

Energy-saving, climate-friendly, and relatively easy to retrofit, air-source heat pumps are now a viable option for heating and cooling, even in cold climates. Here's how to put them to work in your home

BY JOSH GARSKOF / ILLUSTRATIONS BY IAN WORPOLE

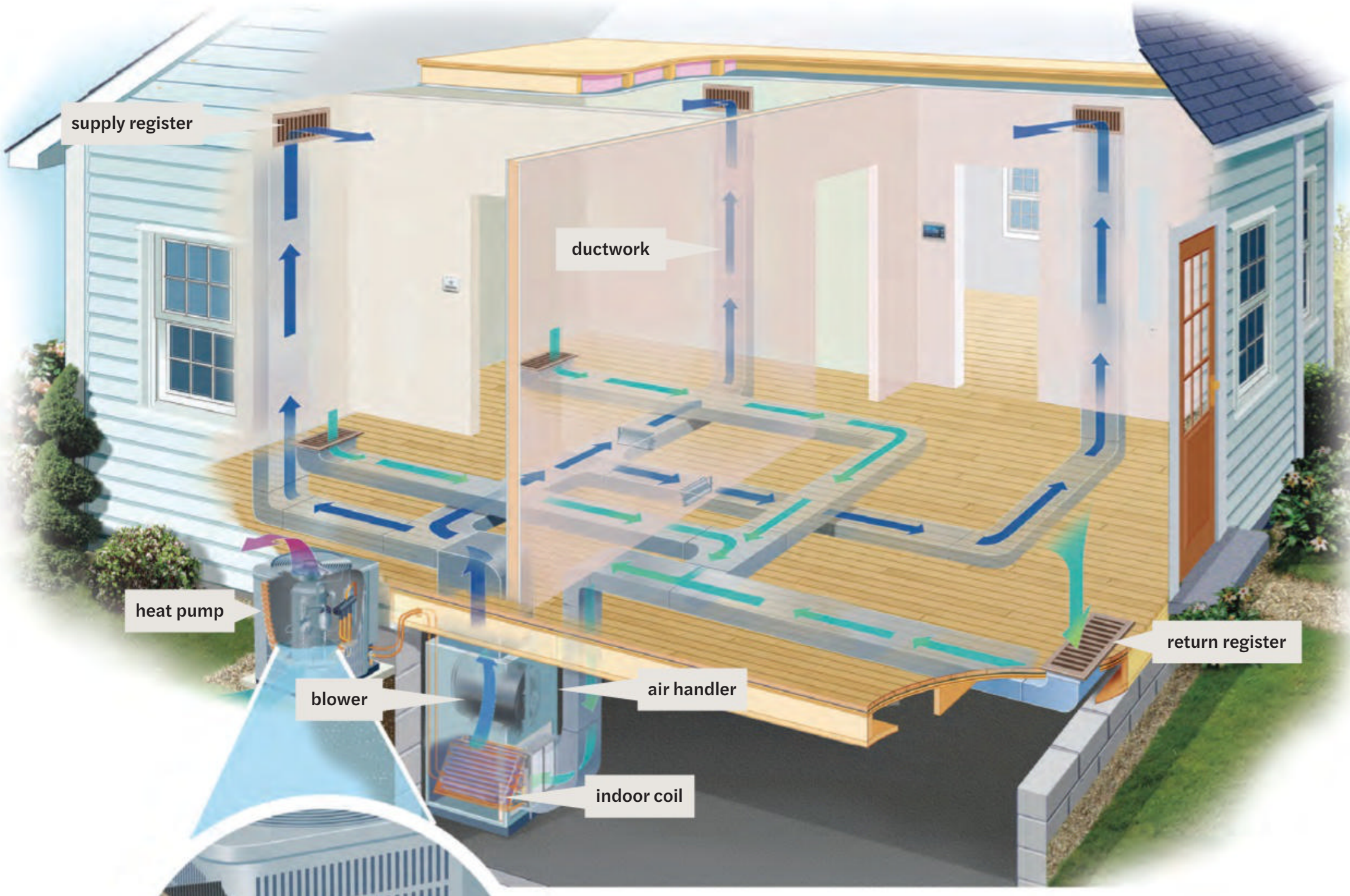
Thinking of adding or replacing an AC system? Maybe you want to take advantage of government rebates and tax credits available for installing energy-efficient HVAC equipment powered by electricity. The good news: In both cases, there's never been a better time to consider heat pumps, especially easy-to-install air-source heat pumps that deliver conditioned air to your home.

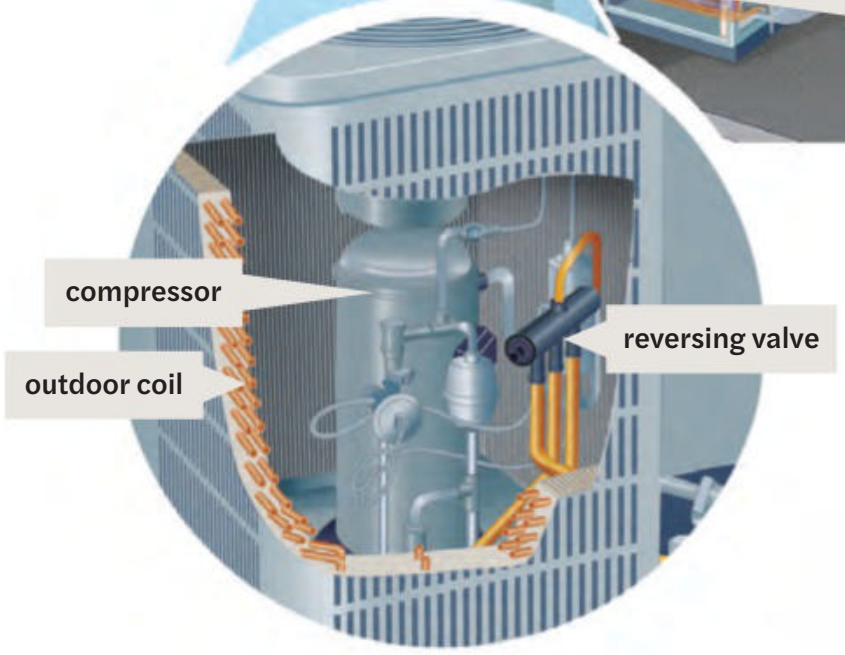
While the basic technology has been around for decades, these heat pumps have evolved significantly, delivering heating even in cold climates up to 50 percent more efficiently than conventional heating systems, and cooling with the same efficiency as new air-conditioning equipment. That's because rather than creating energy, a heat pump transfers energy. In summer, it works just like an air conditioner, pulling warmth out of the indoor air and dumping it outside. In winter, it does the opposite, gathering heat outdoors—even on an ice-cold day—and bringing it inside. Because the system is powered by electricity, it's cleaner and greener than home-based combustion systems that rely on oil, natural gas, or propane. And if you generate your own electricity with rooftop solar panels, it can make your heating and cooling nearly carbon neutral.

Many cold-weather air-source heat pumps now reliably work down to –15 degrees F, and there are water-source systems that supply heating, cooling, and domestic hot water. Government incentives can lower the cost of upgrading with heat pumps considerably, too, thanks to last year's Inflation Reduction Act (for more details, see Home Finances, page 44).

Here's what you need to know in order to make the switch to a heat-pump-based HVAC system.

> "Heat pumps are the way of the future. For very little additional cost over standard air-conditioning, you get a single system for all seasons that doesn't burn fossil fuels on-site."
>
> —**ROSS TRETHEWEY,** *TOH home technology expert*





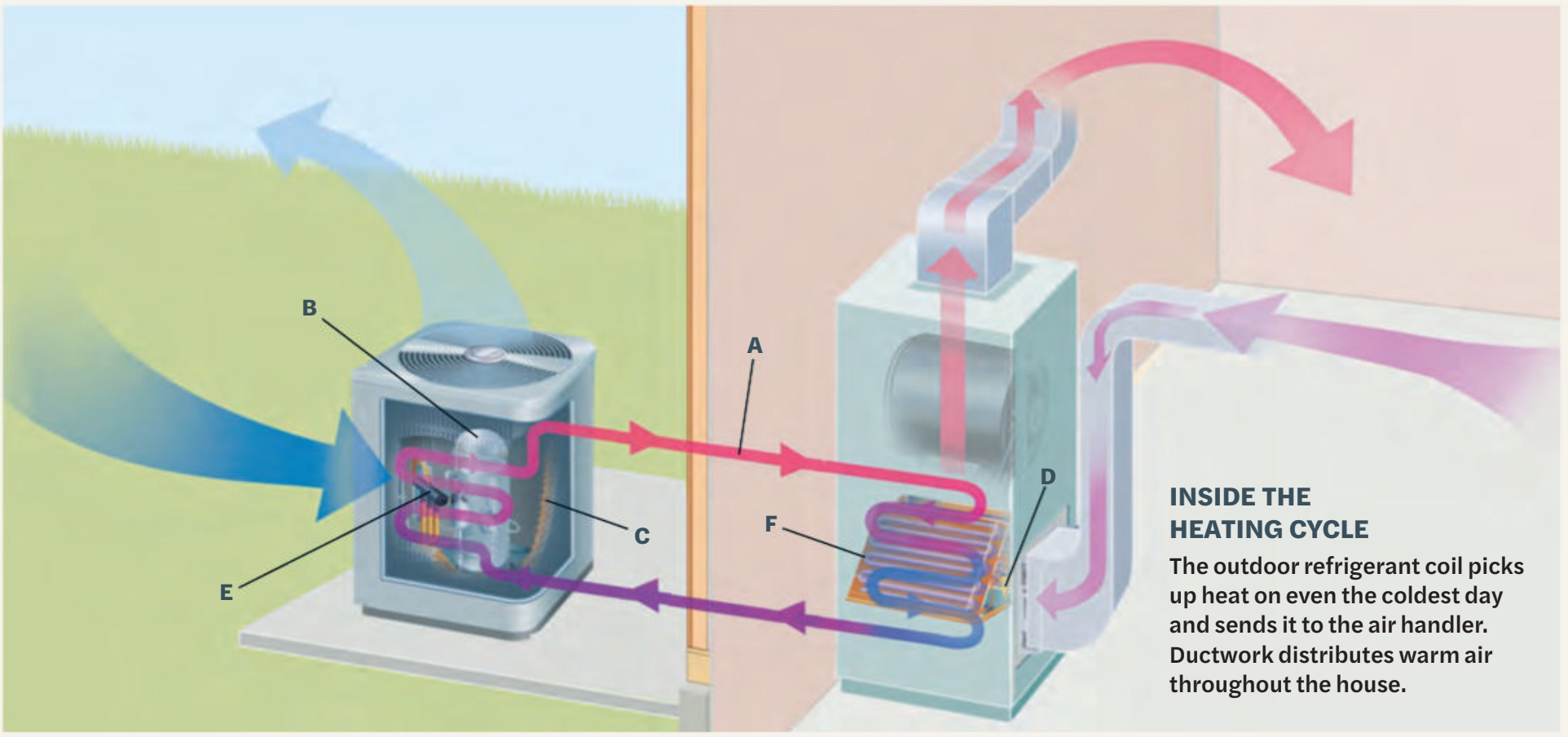
Heat-pump equipment resembles a standard central AC system and works the same way in summer. But a reversing valve changes the direction of the refrigerant flow in winter, carrying heat indoors.

Inside the cooling cycle

When a forced-air system powered by a heat pump is in AC mode, heat from indoor air transfers to a coil of cold refrigerant in the air handler. The blower pushes out that cooled air, which moves through the ductwork and is delivered via supply registers (return registers cycle indoor air back into the system). That refrigerant is compressed in the heat pump, concentrating the heat so that it becomes hotter than the outdoor temperature; that heat then moves to the less hot outdoor air. The whole system reverses in winter, so warm refrigerant heats up interior air, then gets expanded, dropping its temperature so low that it's colder than the outside air; it picks up heat outside, which gets compressed and becomes warmer than the inside air, and the warmth transfers into the cooler home.

A look at the main types

Heat pumps are defined by their heat source and transfer medium. Here's an overview of how air-source systems work, as well as the fundamentals of ground-source technology



INSIDE THE HEATING CYCLE

The outdoor refrigerant coil picks up heat on even the coldest day and sends it to the air handler. Ductwork distributes warm air throughout the house.

MOST ACCESSIBLE

AIR-TO-AIR

Air-to-air heat pumps are the most affordable type and easiest to retrofit into a house. While they have been in use for decades in milder climates, new technologies within just the last five years make them a viable option even in the snowbelt. No longer limited to locales with winter lows above 40 degrees F, today's cold-climate heat pumps can heat a home efficiently when the outdoor temperature dips as low as –15 degrees F.

Here are the main components of an air-to-air heat-pump system:

CLOSED REFRIGERANT LOOP (A) This liquid has a low boiling point, absorbing heat when it boils, or evaporates. The refrigerant travels in a closed circuit of pipes, absorbing heat from the house's interior (for cooling) or exterior (for heating), expelling it on the other side. In AC mode, the indoor coil acts as the evaporator; in heating mode, it's the outdoor coil.

COMPRESSOR (B) This super-pressurizes refrigerant, concentrating the heat absorbed into it and boiling it into a gas. In cooling mode, refrigerant becomes hotter than outside air and the heat is released outside. In heating mode, it becomes hotter than the inside air and is used to warm the house.

OUTDOOR COIL (C) Refrigerant passes through a coil with a fan blowing over it. In cooling mode, the hot, pressurized refrigerant expels heat outside. In heating mode, it is depressurized, becoming colder than outdoor winter temperatures and picking up heat outside.

EXPANSION VALVE (D) Once refrigerant has discharged its heat, the expansion valve releases the pressure, converts it back into liquid form, and drops the temperature so drastically that it can once again absorb heat—from the indoor air in summer and the outdoor air in winter.

REVERSING VALVE (E) This changes the direction of the refrigerant flow so it can heat as well as cool. Picture something akin to a window AC unit installed backward so it becomes a heater.

INDOOR COIL (F) Refrigerant passes through a coil in the air handler, where a fan blows indoor air across it. In heating mode, warm refrigerant heats the indoor air. In cooling mode, the cold refrigerant absorbs heat from indoor air (and also causes moisture to condense out of it).

ON THE HORIZON

AIR-TO-WATER

In an air-to-water system, the source is the same, but heating and cooling are delivered through water. That's a bit more efficient because water is a better medium for moving heat, says Ross Trethewey, *TOH* home technology expert. It also means you can retrofit a heat pump into a house with a hydronic heating system. A heat pump can also feed hydro-air systems (which use warm or cold water instead of refrigerant in the air handlers) and indirect domestic hot water tanks or tankless water heaters. In the summer, the heat pump reverses back and forth as needed to provide both domestic hot water and whole-house cooling.

"You're getting three for one," says Ross. "A single system is providing heating, cooling, and domestic hot water."

Common in Europe, air-to-water heat pumps are still unusual here—but that's going to change, says hydronics engineer John Siegenthaler, who has been designing air-to-water systems in upstate New York for about 10 years. For now, it can be difficult to find contractors familiar with the systems; you'll likely pay about $15,000 to $20,000 for one if the house has existing compatible heating, cooling, and domestic hot water systems—maybe $30,000 if those need upgrading, or for a complete system in a new house.

> "These systems offer the efficiency of heat pumps with the superior comfort of hydronic heat. With pending legislation in some areas that would ban new fossil-fuel burners in the home, boiler manufacturers are shifting their attention to all types of heat pumps, including air-to-water."
>
> —**JOHN SIEGENTHALER,** *hydronics engineer*

These are the main components of an air-to-water system that differ from an air-to-air heat-pump system:

CLOSED WATER LOOP

Copper, cross-linked polyethylene (PEX), or polyethylene pipes containing water—mixed with antifreeze in cold climates—carry heat into the house in winter and out of the house in summer.

HEAT EXCHANGER

This part of the heat pump transfers warmth from the refrigerant to the cool refrigerant to the water loop in winter, and the other way in summer. A stack of stainless steel plates has refrigerant traveling in the gap between two plates, water between the next two, and so on. While the two fluids never mix, heat moves through the metal from the hot refrigerant to the warm water in winter (and vice versa in summer). The heat exchanger also acts as the condenser, cooling refrigerant vapor back into a liquid state.

BUFFER TANK

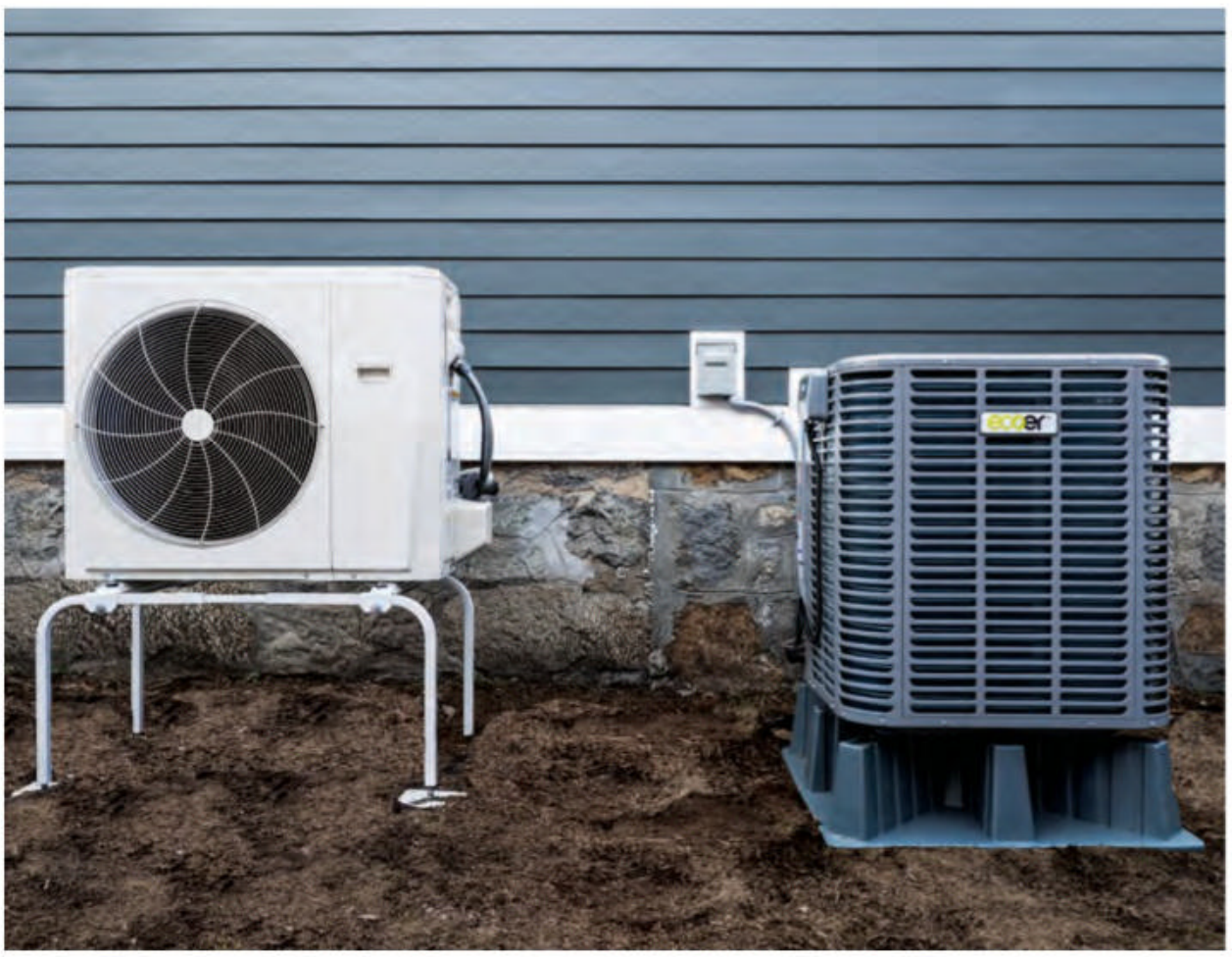
This holds warm or cooled water at the ready so the heat pump doesn't need to cycle on and off as often—and so the HVAC and water systems never need to wait for the heat pump. In some cases, the buffer tank doubles as a domestic water preheater, with a coil containing domestic water running through it; the warmed water then goes through an electric tank-style or tankless water heater when hot water is needed.

What about geothermal?

Deep underground, the earth is a steady 50 to 60 degrees F all year round, providing a reliable heat source and heat sink. Ground-source, or geothermal, systems take advantage of this in a number of ways: Usually a closed loop of antifreeze and water travels down into the ground 100 to 400 feet or more, or horizontally across a large property 4 to 6 feet below the surface, or at least 8 feet below the surface of a pond or lake. A heat exchanger moves the heat between that transfer fluid and a loop of refrigerant. Geothermal is even more efficient than an air-source system since there is no outdoor fan unit, but installation is costly—$13,000 to $36,000, depending on the system, site conditions, and available land—and it can disrupt the landscape significantly. About 50,000 geothermal systems are installed in the United States each year. By comparison, an estimated 12 million air-source heat pumps will be installed in the United States by 2030.

MEG REINHARDT

Ross examines a geothermal heat-pump system.



Elevating a heat pump, whether for a ductless system (far left) or for ducted central air (near left), helps keep these mechanicals free of snow.

THINGS TO KEEP IN MIND

While heat pumps have many benefits, there are some fine points to consider

You might want a backup plan.

If you retain your original heating system, you have redundancy in case of a problem with the electrical grid or the equipment itself. Plus, you can hedge your energy bets—if electricity rates shoot up, you can fire up the old natural-gas furnace, for instance. Removing an old oil tank or radiators (and patching wood floors where they were disconnected) are examples of added costs that can result. On the other hand, if you don't keep your old heating equipment, you have only one HVAC system to maintain and to replace when it reaches the end of its useful life. In that case, a generator or whole-house battery tied to rooftop solar panels could keep you covered in case of a blackout.

Heat pumps respond slowly.

A natural-gas or oil-burning furnace heats up quickly, providing heat on demand. Not so with a heat pump. Heat pumps consume less energy in part because they operate constantly, at a lower level. That means their ramp-up time is slower. "It can take some time for a heat pump to get a house up or down to temperatures, but they are very good at keeping it there," says Ross.

Defrost mode requires a secondary heat source.

When the ambient outdoor temperature reaches around 32 degrees F and the heat pump has been heating for a long period, the outdoor coil may start to ice up. To prevent the coil from turning into a solid block of ice, cold-climate heat pumps go into defrost mode, which temporarily stops heating the house to melt the ice off the coil. This defrost cycle can happen a couple of times an hour under heavy demand. To prevent "cold-blow phenomenon," in which the system actually releases cold air during defrost, your installer should use a backup heat source like electric duct heaters installed in the duct system, electric baseboards, or a traditional fossil-fuel-burning furnace or boiler.

Heat pumps can cause significant vibration.

This can occur throughout the house, both through the house's framing (especially if, as with many older houses, the exterior walls are 2×4 construction) and through the piping. You can limit this problem by having the outdoor unit installed on the ground rather than attached to the side of the house.

You'll need to clear any snow.

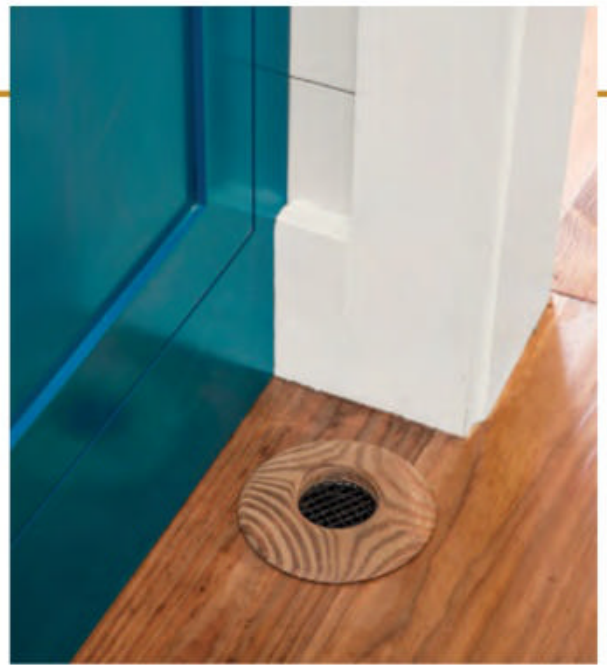
A heat pump needs plenty of airflow around and through it, or it won't be able to operate. Even with a snow stand elevating it a foot or more off the ground, you'll need to manually clear snow from the top if you want heat.

TOH PRO TIP

Ross Trethewey
Home Technology Expert

"If you live in an area where it snows, you'll be much happier if you install a heat pump along the gable end of the house rather than under the roof slope, which can dump snow on top of it."

HEAT PUMPS: ERIN LITTLE



COURTESY UNICO SYSTEM

Choose the right system

Your current HVAC setup is one factor in choosing a heat-pump system for your home

Best for houses with ductwork

A *ducted heat-pump system* can connect to existing ductwork—whether full-size or high-velocity miniducts (return register, shown above)—delivering heating and cooling through the existing infrastructure, with little or no retrofitting needed. These systems send refrigerant to a large central air handler that delivers conditioned air through a network of ducts.

Best for houses without ducts

If there is no existing ductwork, *a ductless heat-pump system (a.k.a. mini-split),* may be simpler, more efficient, and less costly to install. This system pumps refrigerant to compact indoor units placed within individual areas of your home, providing room-by-room zoning.

Best for multiroom additions, finished basements, and attics

A *short-run ducted system* delivers heated and cooled air through ductwork, but only to a small portion of the house. This can be ideal for a multiroom addition, such as an ADU or in-law suite.

Best for affordability

In a *packaged system*, both heating and cooling coils are located in the outdoor unit, with a small duct delivering the warmed or cooled air inside. This is a bit less efficient than the more common split systems (where there's an outdoor unit and an indoor unit), but is less costly up front because installation is less labor-intensive.

Money matters

Even though their most significant benefit comes in the heating season, heat pumps are really enhanced air conditioners, and the most common time to install a heat pump is when it's time for a new air-conditioning system. Whenever you do it, a heat pump can pay you back in multiple ways.

> How much does a heat pump cost? Air-to-air heat pumps typically cost $3,500 to $7,500 installed (not including adding or altering ductwork), but if you're replacing your air-conditioning system anyway, opting for a heat pump might add only 3 to 10 percent ($250 to $800) to your total costs. Air-to-water heat pumps cost about 30 percent more because the technology isn't as well established in the United States, and therefore you'll be paying a premium for both the products and installers. In any case, you can get a big chunk of your investment back—so long as you opt for a high-efficiency system—through a variety of incentives. You can take 30 percent of the total cost, up to $2,000, as a tax credit. And the Inflation Reduction Act provides a state-issued rebate of up to $1,750 on heat-pump water heaters and up to $8,000 on heat-pump space heating and cooling for households earning less than 80 percent of the state's median income (for more on these programs, see page 44). There are also likely local incentives: Take a look at the national Database of State Incentives for Renewables and Efficiency, at dsireusa.org, for state and utility rebates.

> How much can it save on utility bills? Air-source heat pumps are three to five times more efficient than natural-gas furnaces (for cooling, they offer the same efficiency options as new conventional air conditioners). So unless you live in a state with very high electricity rates (looking at you, New England) or very low natural-gas rates (hello, Idaho and Utah), you will see hefty savings on your heating bills. Of course, powering your system with rooftop solar could eliminate your heating-and-cooling power costs entirely—and if your existing heating system uses electricity, propane, or oil, a heat pump will slash your heating costs no matter your electrical rates.

> How long will a heat pump last? Like a new central AC system, the life expectancy for air-source heat pumps is 10 to 15 years (a bit shorter if you're immediately on the coast, as salt air can cause parts to corrode)—and you can expect a 10-to-12-year warranty on parts; the labor warranty typically runs out after about 3 years. You can prolong your system's life by having it serviced regularly, and some companies include no-cost labor on repairs with their service contract.

RECOMMENDED TECH

As with any complex household system, you'll have lots of chances to spend more on extra features, from smartphone system controls to HEPA-level filtration. Here are the most important tech upgrades, according to Richard and Ross Trethewey

Variable-speed, or inverter-driven, compressor

By operating at only the speed necessary for the conditions, these reduce energy use—and thereby prevent the system from cycling on and off frequently, which helps maintain consistent temperatures, improves dehumidification during cooling season, and increases indoor air quality because the air filter is engaged for longer periods of time. A good idea in any climate, an inverter is most needed in areas that experience big swings in temperature between the seasons, with both freezing winters and scorching summers. Variable-speed systems also start and stop gradually, leading to quieter operation.

Enhanced vapor injection

This is the tech that allows cold-climate heat pumps to pull warmth out of ambient outdoor temperatures of –15 degrees F or colder. It's a highly engineered device that pipes a portion of the refrigerant through a heat exchanger before mixing it back in at the compressor.

Dual-fuel, or hybrid, system

Rather than using electric resistance heaters to prevent cold-blow phenomenon when outdoor temps hover around freezing, these systems use a more efficient natural-gas furnace. "You could also just keep your old furnace—or possibly your boiler—and set up the two independent systems as a dual-fuel system with a single set of controls operating them," says Ross.

High-efficiency system

A heat pump's efficiency is determined by dividing the Btus of heat it moves by the electricity it uses—this produces a Seasonal Energy Efficiency Ratio (SEER) rating for cooling and a Heating Seasonal Performance Factor (HSPF) rating for heating. New in 2023, the minimum allowable SEER rating is 15 in the South and 14 in the North, but you can get systems rated as high as SEER 33. The range for HSPF is 8.8 to 14. You'll pay more for higher-efficiency equipment, but that investment should pay for itself several times over during the life of the system. It may make your project eligible for bigger incentives, too, and, with rooftop solar panels, could even make it possible to power your house's full electrical needs.

Consider heat-pump appliances

Not changing out your HVAC system? You can take advantage of heat-pump technology—and rebates—in other ways

COLLEEN MCQUAID

Heat-pump clothes dryers

A built-in air-to-air heat pump on the bottom draws heat out of the air in the room, concentrates it, and uses it to warm the air blowing over damp clothes. That air then passes through a second coil, containing the cooled refrigerant, which causes the moisture to condense; the resulting moisture gets pumped to a drain. There is no vent to the outside. These dryers recycle all the heat produced, resulting in at least 28 percent less energy used. Just be aware that they operate more slowly—in some cases a load can take twice as long—and they require more frequent lint removal, since it all stays in the machine. They cost about twice as much as conventional dryers.

Heat-pump water heaters

Available as both on-demand and tank-type domestic water heaters (the latter, shown at left), these house an air-to-water heat pump that draws heat out of the ambient air—typically warmed by a nearby furnace or other mechanicals in the utility area—concentrates it, and transfers it to the water. These heaters use up to 60 percent less energy than conventional heaters but cost about three times more. There are some limitations on where they can go, too: They require at least 1,000 cubic feet of space around them, and the ambient air temperature has to stay between 40 and 90 degrees F for the heat pump to work. That's perfect for a basement utility room, and if the furnace and other equipment keep things toasty warm, it makes the water heater even more efficient.

INSTALLATION BEST PRACTICES

> Hire an experienced pro As with any home-improvement hire, get referrals and check references before hiring an installer. Any HVAC contractor can install a heat pump, but you want someone with years of experience with the type of heat pump you're installing—air-to-water isn't prevalent in the market yet, for instance—and the specific brand, too, since the specifications and especially the controls differ widely between products. Check manufacturers' websites for certified installers in your area. Also, about 80,000 installers across the country use measureQuick, a network of automated sensors that checks your system right after installation, gauging the temperature and speed of the air and refrigerant flow, for example. The benefit: You get a diagnostic report in real time, certifying the system was designed and installed properly.

> Improve insulation and seal air leaks first Adding insulation in the attic and at the sill above the foundation, weatherstripping doors and windows, and even blowing insulation into the walls is a good idea before any HVAC upgrade because it will literally shrink the size of the equipment you need. With a heat pump, it's even more important. "Burning oil and natural gas gives you lots of heat really quickly," says Ross. "Heat pumps work slowly and methodically, so if you have large drafts or your house doesn't retain the heat, the system can struggle to keep you comfortable." Plus, in cold climates, heating loads are a lot bigger than cooling loads. "The difference between indoor and outdoor temperatures on a hot day might be 20 or 30 degrees," says Ross. "On a cold day, it can be 60 degrees or more." So a heat pump that provides enough heat may be a bit oversize for its cooling needs; improving the house's envelope shrinks that differential, allowing you to rightsize a system for both heating and cooling.

> Inspect and repair ducts and any equipment you're retaining Older ducts may not have been sealed or insulated to today's standards—or insulation may have degraded and ductwork rusted or separated at the seams. Your contractor should check and fix the ductwork before upgrading your system. Inaccessible runs can be misted with a liquid-rubber sealant from the inside. Keeping your boiler or furnace? Have it serviced and filters changed.

> Run a heat-loss calculation In the snowbelt, it's the heat calculation that matters. But if winter where you live means long sleeves, not parkas, your contractor will size the system for your cooling needs instead. A heat pump that's too small won't get the house warm enough, and one that's too big will cycle on and off so much it won't be able to properly dehumidify the space and will have a shorter life span.

Ross uses a thermal imaging camera to detect voids in insulation, which undermine heat-pump performance.

TOH PRO TIP

RICHARD TRETHEWEY
Plumbing and Heating Expert

"Beware of installers who specify a new system's heating and cooling capacity based on a rule of thumb or what you had before. They should perform a Manual J load calculation, which determines system size based on the local climate, your house's window orientation, and insulation levels, among other factors. Without it, you could end up with a bigger, more expensive system than you need."

Rebuilding Lives

ON THE ROAD WITH TEAM RUBICON

At my first op in Fort Myers, FL, I learned the ropes alongside five other Greyshirts as we cleared tree debris. The payoff: seeing how our progress buoyed the homeowners' spirits.

Pitching in with this volunteer disaster-response crew, I saw firsthand how they bring help and hope to homeowners going through the worst time of their lives

BY KEVIN O'CONNOR

Crushed rooftops, homes engulfed in debris and filth, huge trees downed sideways. Nothing can prepare you for arriving at a disaster scene. I was already nervous when I joined Team Rubicon (TR) in Fort Myers, Florida, after Hurricane Ian. I knew that I would mostly be working alongside veterans, people who had spent years volunteering to serve their country and were now volunteering to rebuild lives. I wasn't sure how I could contribute. But I soon realized the most important thing was a desire to help people put their homes back together. I had that desire, and the TR volunteers—known as Greyshirts for their T-shirt uniforms—filled in the rest.

Standing before a tangle of debris, we put our backs into swamping, pulling sawn tree limbs to the curb. Climbing onto roofs for tarping, we covered holes to stop water ingress. Wearing Tyvek suits in extreme heat and humidity, we spent short bursts of time mucking, dragging soaked belongings and mildewed house parts to the curb. Later, I earned certification as a Sawyer 1, able to use a chainsaw to cut up fallen trees.

After six months and many ops, documented in a new TV series, *Team Rubicon,* streaming on The Roku Channel, I'm overwhelmed with how impressive the TR organization is and the caliber of the people I met. I've done some of the hardest work of my life. And I have loved it.

TEAM RUBICON. (OPPOSITE PAGE) KEVIN O'CONNOR

I took this photo on one of our first days in Selma, AL, after January's devastating tornado. Sawn tree limbs and a tarped roof—signs of recovery under a stormy sky.

> “After twenty-six years in the Army, I didn’t know how to transition to civilian life. Then I joined Team Rubicon. I get to serve my community, and I get the support and camaraderie from everyone around me.”
>
> —**JENN WALKER,** *Team Rubicon Greyshirt, three years*

1 | Mucking all day takes a real can-do attitude, which Greyshirts always seem to have. It’s like picking apart someone’s life one lamp at a time, but we keep going until the house is clear.

2 | In a mucked pile from the house of a U.S. Navy vet and his wife, a U.S. Air Force vet, we were able to recover a cabinet that her father had built for her. While the cabinet wasn’t salvageable, we found treasures inside it that brought tears of joy: her Air Force bar, her husband’s Navy ribbon, and her late father’s U.S. Army insignia. As Team Rubicon often reminds volunteers: “We do hard work—and heart work.”

3 | My first tarping op was led by U.S. Army veteran Jenn Walker, who oversaw the loading of materials after we finished a temporary roof repair. Although it had been a long, hot day, the entire team felt pumped up by what we had gotten done.

TOP, BOTTOM LEFT: TEAM RUBICON; BOTTOM RIGHT: FERNANDO DECILLIS. (OPPOSITE PAGE) TOP: KEVIN O’CONNOR

A DAY'S WORK IN A LIFE OF PURPOSE

Every Team Rubicon operation, or op, follows a daily schedule that keeps the army of volunteer Greyshirts organized. It starts with a 6 A.M. wake-up, breakfast, and a morning meeting to receive orders for the day (1). After a day of exhausting, often emotionally charged work, it's back to base camp and the dinner chow line (2). Each day ends with a chance to share a story and unwind, usually around a campfire (3).

For the volunteers, this schedule is known as the "Battle Rhythm" (4), and there's a reason. The organization owes its start to military veterans. In 2010, former Marine Jake Wood, fresh from his service, rallied three buddies to help earthquake victims in Haiti. This dedicated cadre of four dubbed themselves "Team Rubicon" when they crossed from the Dominican Republic into Haiti by land, since the airports had closed. Without knowing it, they were launching a movement.

Thirteen years later, Team Rubicon has a roster of more than 150,000 volunteers, 70 percent of them veterans, and leads more than 100 disaster-response ops annually. The group's military DNA has proved to be the core of its success. "The veteran brings skills, leadership, safety, and process adherence—all incredibly important as you move through a disaster zone," says Art delaCruz, a Navy vet and Team Rubicon's CEO. He adds that the group's aid is more in demand than ever: "In 1980, the mean time between billion-dollar disasters was 83 days. By the end of 2022, it was 18 days."

Not only is the disaster-response work transformative for those whose homes have been damaged, but volunteering also helps veterans, some of whom struggle with reentry into civilian life. "Many Greyshirts say the daily routine and the ability to help others turned their lives around," says Kevin O'Connor, host of the *Team Rubicon* streaming series, who has done the meaningful work alongside them—with a few surprises. At one campfire, he was singled out for exceptional work with a Team Rubicon tradition, the gifting of a challenge coin (5). "I wasn't expecting it, I don't know if I deserved it, but I was proud to receive it," says Kevin. "And I'm proud to be a Greyshirt."

—Jill Connors

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“After I retired from the Army, I didn’t think I needed to serve in any way, but my dad told me: ‘Service to man and community never ends.’ He was right. I’m a Greyshirt for life.”

—**CRAIG COOPER,** *Team Rubicon Greyshirt, six years*

1 | Sacramento, CA, was my first op using a chainsaw. After certifying as a Sawyer 1, I started with a pole saw, slowly clearing huge eucalyptus trees under the watchful eye of Craig Cooper, Advanced Sawyer.

2 | I was later part of a team doing wildfire mitigation on a high-risk property in Niland, CA. I was psyched to put my sawyering skills to use.

3 | Tarping roofs is one of the things Greyshirts do over and over to stop water from entering after a severe weather event, which can lead to mold, mildew, and more damage. Here, we’re tarping in Selma after January’s tornado.

4 | Up on a ladder tarping in Fort Myers, I had a laugh with civilian Team Rubicon volunteer Kaden Flick, who grew up fixing houses with his dad, who was also on the op.

5 | That’s one of our Selma homeowners, thanking us for tarping her roof. As Greyshirts like to say, “We work for hugs.”

TEAM RUBICON (2)

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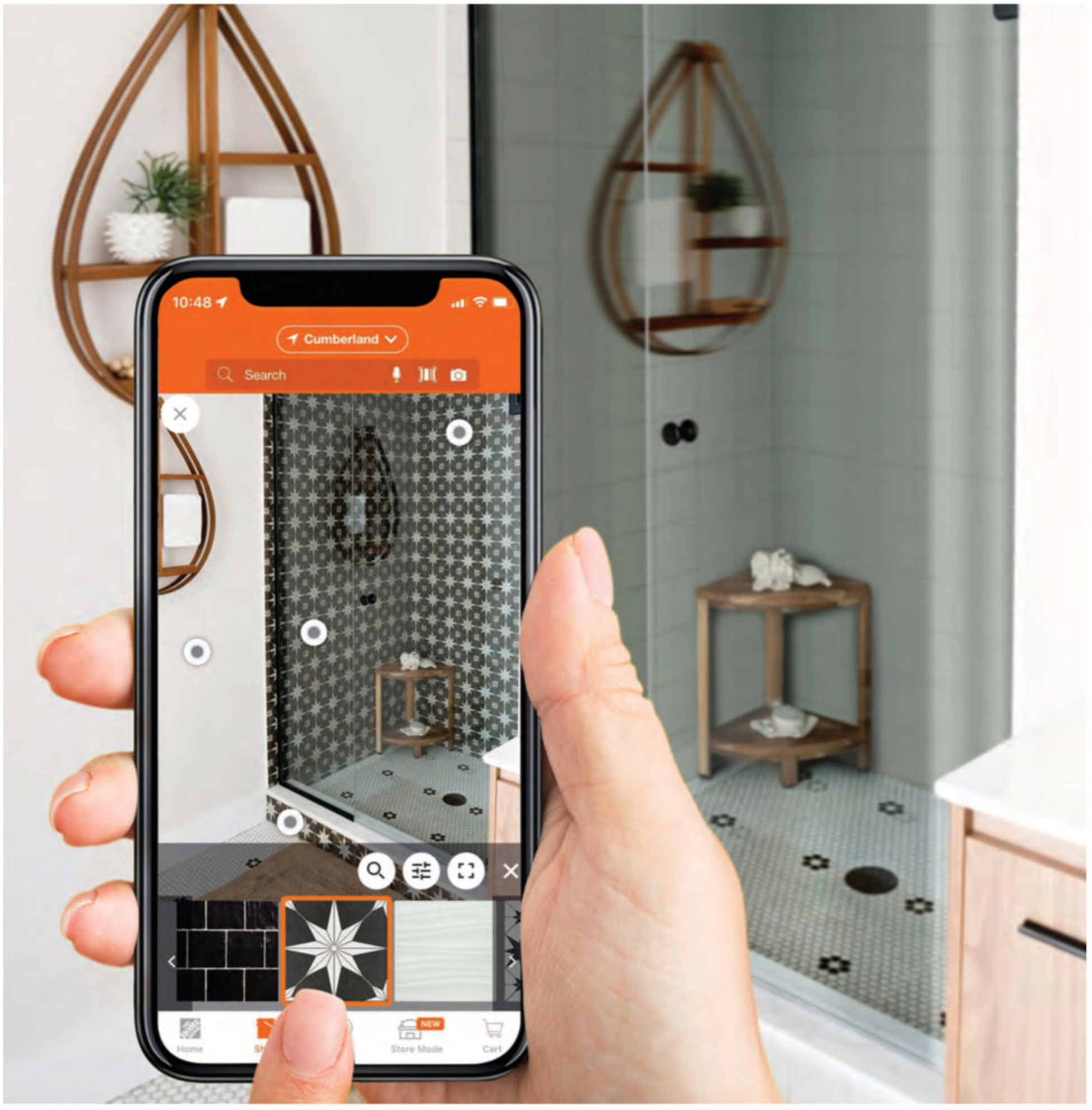
TOP LEFT, BOTTOM: CONNIE CHORNUK; TOP RIGHT: FERNANDO DECILLIS



ENVISION ALL THE OPTIONS

Don’t leave your look to the imagination. With The Home Depot app, try different materials and styles in your home with our room visualizer. Upload a photo of your room, choose your favorite tile, flooring and rugs, and see the selections in your space before you start your project.

WORKSHOP

SUMMER 2023

VOL. 28 | NO. 2

NEW PRODUCTS, PRO ADVICE, AND HOW-TO PROJECTS

MAKE (THEN TAKE) A SEAT
Tom and Kevin show off a not-so-simple milking stool, made from reclaimed lumber. Its four splayed legs meet horizontal rails with mortise-and-loose-tenon joinery to create a rock-solid base for sitting or reaching items from upper cabinets.

[Build It]

Milking stool

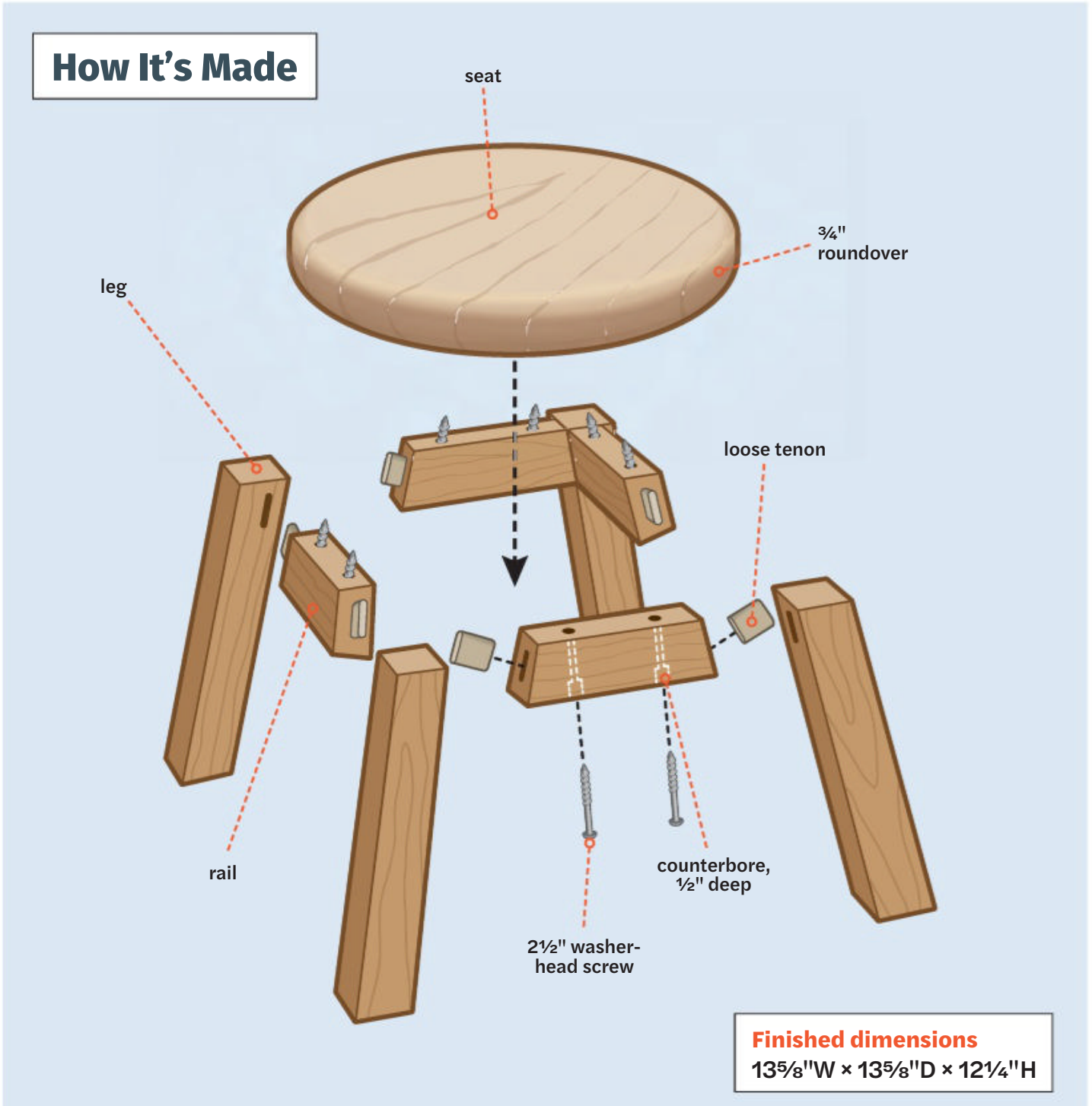
TOH general contractor Tom Silva and **TOH host Kevin O'Connor** transform a salvaged pine beam into a neat little seat that features four angled legs to make it extra stable

BY ROB WOTZAK | PHOTOGRAPHY BY ANTHONY TIEULI

Despite their sometimes rudimentary appearance, the three-legged milking stools found in antique stores are built on a solid mathematical principle: Three points are always on the same plane. Used on the uneven floor of a barn or out in the field, the trio of legs ensured the sitter a stable perch. While many such seats were made by simply driving three tapered posts into a slab of wood, it is not uncommon to see elaborate stools with delicately turned legs and shaped seats, too.

Tom designed his four-legged stool with an emphasis on looks and stability—for indoor use. "I had a nice old beam I saved from a job site a while ago," he says. "And my wife needed something to reach the top shelf of our closet." While a four-legged step stool would wobble on uneven ground, the extra leg establishes a solid base on a flat floor. Equally well suited for use as a seat, a small side table, or a plant stand, it can be tucked away when it's not needed. Building it shouldn't take more than a few hours. If you don't have stock stashed away or a source for reclaimed lumber, your lumberyard can supply you with thick (8/4) boards that will fit the bill.

How It's Made



Finished dimensions
13⅝"W × 13⅝"D × 12¼"H

MATERIALS

- ❑ one 2×8×60-inch-long pine board (it can be as thin as 1¾ inches if already milled flat)
- ❑ eight 5×30mm loose tenons
- ❑ eight 2½-inch washer-head screws
- ❑ wood glue

TOOLS

- ❑ tape measure
- ❑ table saw
- ❑ jointer
- ❑ pipe or bar clamps
- ❑ hot glue gun
- ❑ planer
- ❑ circle-routing jig
- ❑ plunge router
- ❑ ¼-inch upcut spiral router bit
- ❑ jigsaw
- ❑ ½-inch template bushing
- ❑ ¾-inch-radius roundover bit
- ❑ miter saw
- ❑ random-orbit sander
- ❑ loose-tenon joiner
- ❑ hammer
- ❑ drill/driver
- ❑ ⅛-inch and ⅜-inch diameter drill bits

ILLUSTRATION: PETER SUCHESKI

WATCH See Tom and Kevin build this project at **thisoldhouse.com/milking-stool**

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TIP

FLATTEN A WIDE BOARD

Place the uneven board on a work surface, press down on one corner so it rests solidly, and hot-glue on a thin wood strip to support the raised edge. This strip will keep the board from rocking, enabling the planer to flatten the top face. After planing the top, flip the board and continue planing to the desired thickness.

STEP-BY-STEP

1] Make the seat blank. Chances are that you will have to glue two or more boards together to get a slab wide enough to make the seat; Tom had to use only a couple of pieces of his thick beam. On your table saw, rip enough pieces of wood to make a slab at least 12½ inches square and about 2 inches thick. If you're working with rough or uneven boards, be sure they are thick enough to plane them flat to the final thickness. Feed the boards over a jointer to straighten and square the edges; then use a couple of pipe or bar clamps to glue them together.

2] Plane the seat. Use a table saw to rip the seat blank to fit into your planer. Use a planer and guide strip to flatten the blank if it is especially bowed or twisted (see Tip). Removing equal amounts from both faces, plane the blank until it's about 1¾ inches thick.

3] Start routing the circle. After marking the center of your seat blank, set up your circle-cutting router jig to cut a 12-inch circle and screw it to the center of the blank. Working counter-clockwise, rout in ¼-inch-deep increments until the bit is fully extended or is about ½ inch away from completing the cut.

4] Cut off the waste. Remove the router jig, clamp the seat blank to your bench, and use a jigsaw to remove the waste, being careful to stay away from the finished edge of your seat.

5] Complete the circle. Flip the rough seat blank over and clamp it to your workbench. Using a bottom-bearing template bit, rout counterclockwise to complete the cut.

6] Make a soft edge on the seat. Use a ¾-inch roundover bit to establish a comfortable radius on the top and bottom edges. To avoid tearing out the wood, rout the edge in incrementally deeper cuts, lowering the bit until you establish a complete radius.

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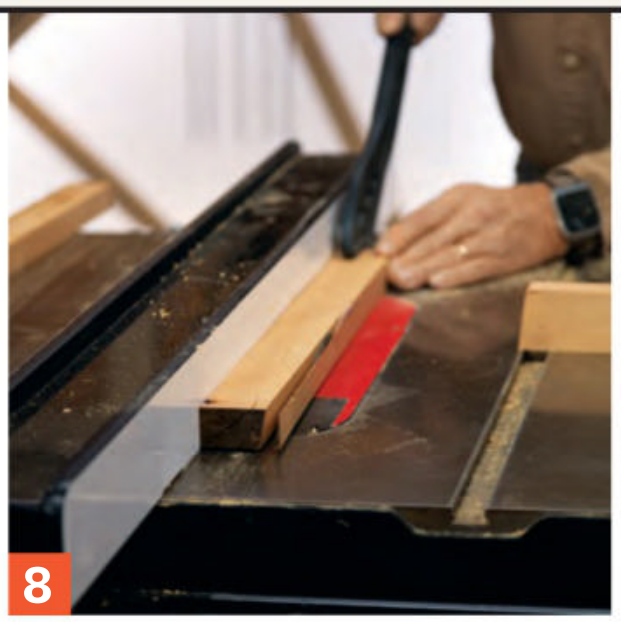
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TIP

SCAN BEFORE YOU SAW

In addition to having a story to tell, salvaged lumber often contains hidden pieces of metal that can damage blades and bits. To be safe, you'll need a metal detector (shown: Zircon MetalliScanner m40 Metal Detector, $43; leevalley.com). This model sniffs out ferrous bits up to 4 inches deep and nonferrous metal up to 2 inches deep.

STEP-BY-STEP (CONTINUED)

7] Rough cut the base parts. Use your table saw and miter saw to cut the remaining stock into one 1¾-by-1¼-by-30-inch-long piece for the rails and four 1½-by-1½-by-14-inch-long pieces for the legs.

8] Bevel the rails. Adjust your table saw blade to 8° and set the fence so that when you bevel the top edge of your rail stock, the widest face is 1¾ inches. Be sure to use a push stick when cutting these narrow pieces. Sand the leg and rail parts up to 220 grit before moving on.

9] Cut all the angles. Using your miter saw, set the miter angle to 8° and miter the ends of the rails as shown in the illustration. With the saw still set at that miter angle, adjust the bevel angle to 8° so that the blade tilts in the same direction as the miter. Cut the end of a leg, and then slide the piece against the fence and make the second cut so that it is 10 inches long. Repeat with the other three legs.

10] Make the mortises. Mark the top inside faces of each leg, 1 inch from the top. Using a loose-tenon joiner, make matching mortises at both ends of each rail and on the inside faces of each leg.

11] Assemble the base. Apply glue inside the mortises and to the mating surfaces of the legs and rails, slip a loose tenon into both ends of each rail, and assemble the base. Tap gently on the sides of the legs with a hammer and block of wood until the joints are snug.

12] Join the base to the seat. On the seat's bottom face, draw two perpendicular lines crossing at the hole where you mounted the router jig, and use them to center the base assembly. Next, drill pilot and countersink holes into the rails, and fasten the base to the seat with 2½-inch screws. Give the wood one final sanding and apply the finish of your choice, and your stool is ready to use.

METAL DETECTOR: COURTESY LEE VALLEY

The Roku Channel

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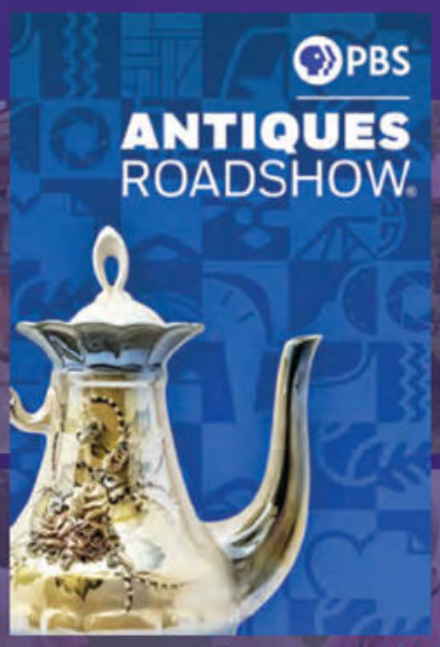

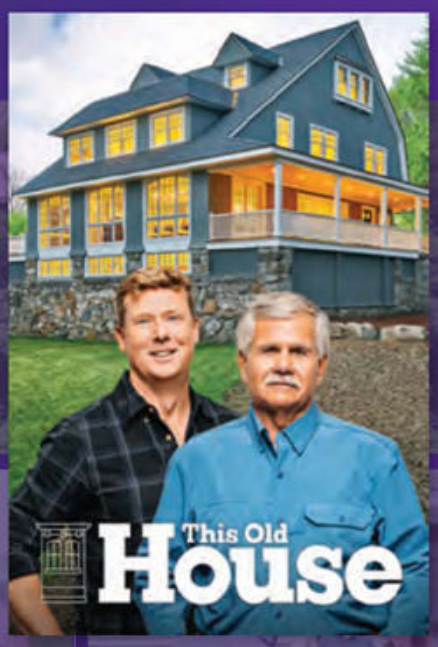

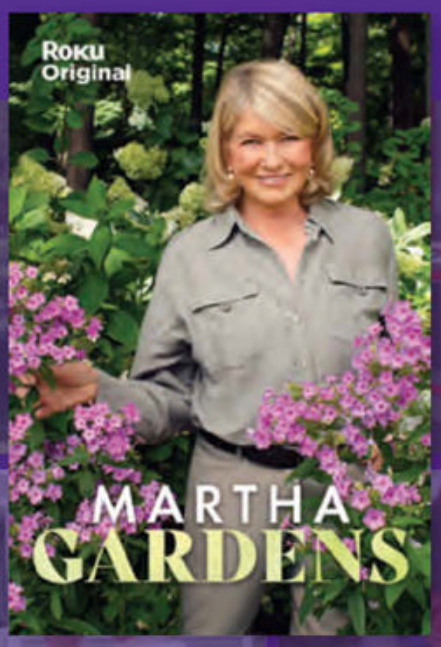

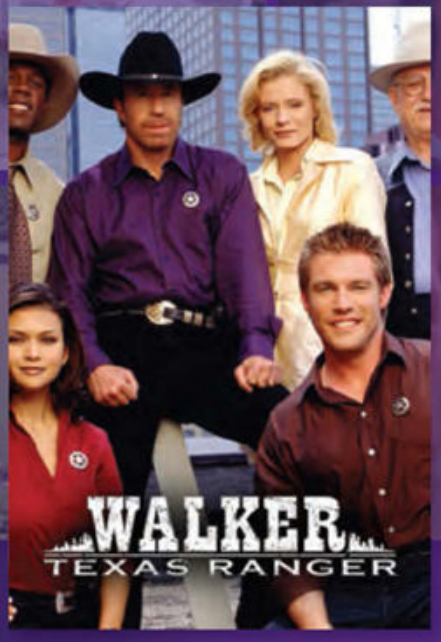

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[Tool Lab]

Compact table saws

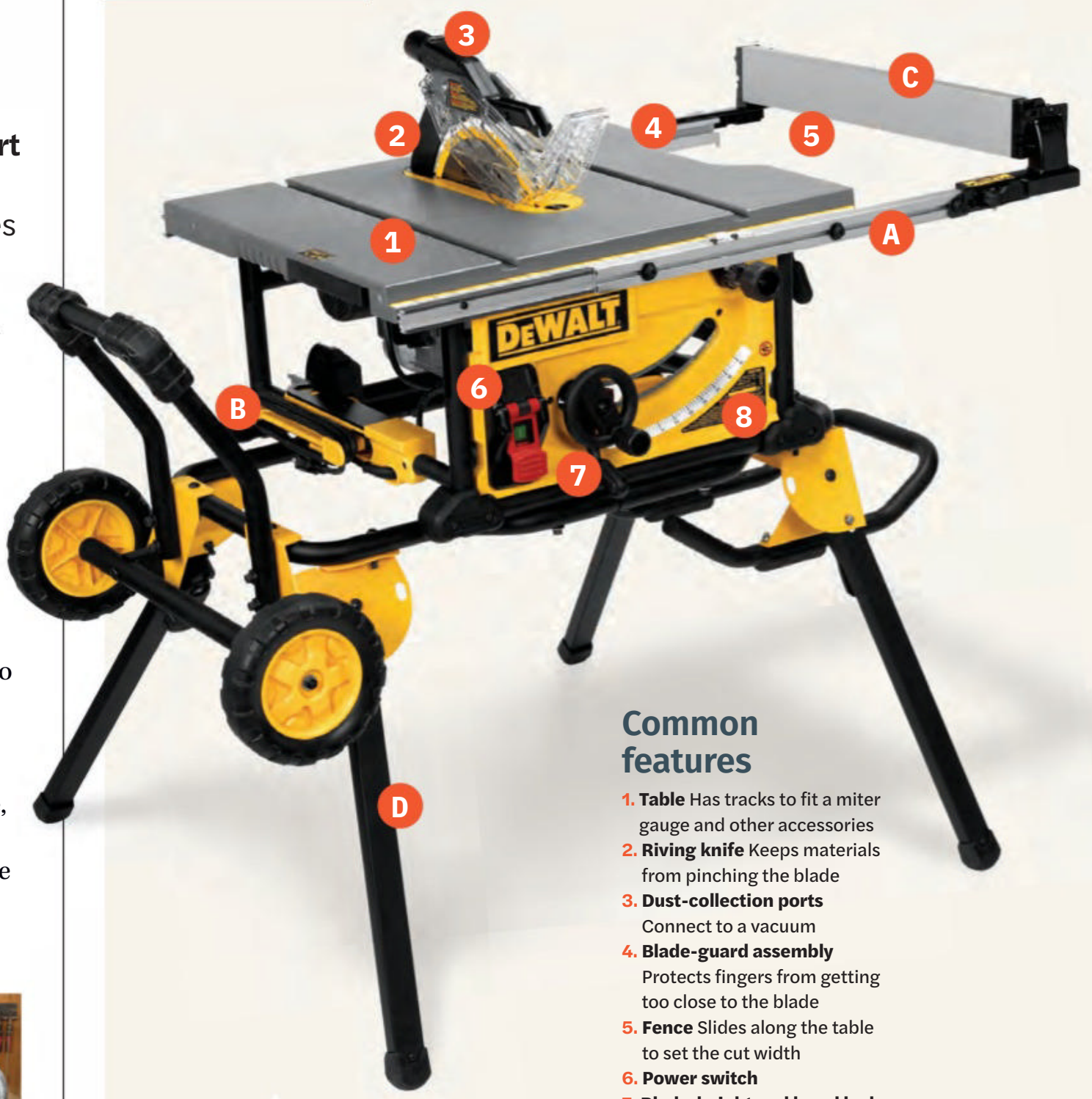
TOH carpenter Nathan Gilbert offers advice on choosing and using these handy workhorses

BY SAL VAGLICA

Pound for pound, a table saw might be the most versatile tool in a DIYer's arsenal. Up until now, these saws came in two sizes: massive cabinet saws and slightly smaller contractor saws. Today, there's another option for those who lack a large workshop. Designed to bring the tool to where it's needed, this newest generation of saws is smaller, lighter, and easy to set up or stow. While these smaller saws may lack power—they won't slice through 3 inches of maple in one pass—they have enough muscle, capacity, and adjustability to help tackle all sorts of projects around the house. Here's the lowdown on these indispensable tools.

MAKING THE CUT Portable, compact saws save time by allowing carpenters to bring the workshop to any work site.

WHAT TO LOOK FOR



10" Jobsite Table Saw

(DWE7491RS)

SAW-BLADE DIAMETER: 10"
MAXIMUM RIP CAPACITY: 32½"
NO-LOAD RPM: 4,800
CUTTING CAPACITY AT 90°: 3⅛"
CUTTING CAPACITY AT 45°: 2¼"
BEVEL CAPACITY: 0° to 57°
DADO CAPACITY: 8" at 13/16"
TABLETOP SIZE: 21⅞"×26⅜"
WEIGHT: 90 pounds with stand
PRICE: $649; dewalt.com

Common features

1. **Table** Has tracks to fit a miter gauge and other accessories
2. **Riving knife** Keeps materials from pinching the blade
3. **Dust-collection ports** Connect to a vacuum
4. **Blade-guard assembly** Protects fingers from getting too close to the blade
5. **Fence** Slides along the table to set the cut width
6. **Power switch**
7. **Blade-height and bevel lock** Rotates to set the blade height and blade angle
8. **Bevel gauge** Shows the blade angle in degrees

Worthwhile upgrades

A. **Expandable table** Extends up to 32½" for cutting wide sheet goods
B. **Onboard storage** Keeps wrenches and gauges close
C. **Flip-over fence** Lip supports stock when the fence is extended beyond the table
D. **Wheeled stand** Makes moving easier

GILBERT: ANTHONY TIEULI; TABLE SAW: COURTESY DEWALT

GUIDE TO COMPACT TABLE SAWS

Safety star

THE DETAILS: The most expensive saw in this category is aimed at users who are willing to pay more for less risk of injury. Within 5 milliseconds, the SawStop's built-in microprocessor will stop and drop the blade below the tabletop if it touches skin, resulting in a scrape instead of a severed finger. This ultracompact saw (it's the smallest of the bunch) holds its own with a rack-and-pinion fence and a high-quality stock blade. Unlike the other saws, this model will not accommodate a dado blade.

Compact Table Saw (CTS-120A60)
SAW-BLADE DIAMETER: 10"
MAXIMUM RIP CAPACITY: 24½"
NO-LOAD RPM: 4,000
CUTTING CAPACITY AT 90°: 3⅛"
CUTTING CAPACITY AT 45°: 2⅛"
BEVEL CAPACITY: 0° to 45°
DADO CAPACITY: N/A
TABLETOP SIZE: 23"×22⅝"
WEIGHT: 68 pounds
PRICE: $899; sawstop.com

Super value

THE DETAILS: SKIL's budget-friendly saw doesn't skimp on power or features. Like pricier models, it has a rack-and-pinion fence that consistently remains perpendicular to the blade, a generous rip capacity, and a powerful 15-amp motor. The bump switch covering the power button lets you shut off the saw with your knee while keeping both eyes on the work. The saw doesn't have wheels for easy transport, but it has integrated legs that fold into the frame for freestanding use or on a benchtop.

10" Jobsite Table Saw (TS6307-00)
SAW-BLADE DIAMETER: 10"
MAXIMUM RIP CAPACITY: 25½"
NO-LOAD RPM: 4,600
CUTTING CAPACITY AT 90°: 3½"
CUTTING CAPACITY AT 45°: 2½"
BEVEL CAPACITY: −2° to 47°
DADO CAPACITY: 8" at ⅝"
TABLETOP SIZE: 24"×25"
WEIGHT: 51 pounds with stand
PRICE: $299; skil.com

Best-in-class cordless

THE DETAILS: It comes up a little short in cutting capacity, but Milwaukee's battery-powered saw fares well against its corded competition. Fully charged, the 12-amp-hour 18-volt lithium-ion battery can rip 600 linear feet of ¾-inch oriented strand board. The saw can connect to your smartphone to track its performance and location, and can be locked to prevent unauthorized use. This saw isn't sold with a stand, but its compact size and light weight make it ideal for setting up a temporary shop anywhere.

M18 Fuel 8¼" Table Saw with One-Key (2736-21HD)
SAW-BLADE DIAMETER: 8¼"
MAXIMUM RIP CAPACITY: 24½"
NO-LOAD RPM: 6,300
CUTTING CAPACITY AT 90°: 2½"
CUTTING CAPACITY AT 45°: 1¾"
BEVEL CAPACITY: 0° to 47°
DADO CAPACITY: 6" at ¾"
TABLETOP SIZE: 17½"×22½"
WEIGHT: 41.6 pounds
PRICE: $599 with battery and charger; milwaukeetool.com

TECHNIQUE BASICS

How to set up a table saw

Calibrating is the first step to ensuring cuts are square and true. Here's how to do a basic tune-up for a new (or well-used) saw

1] Adjust the throat plate. To avoid encountering bumps or dips midcut, the throat plate needs to be flush with the table. Unplug the saw, then set a straightedge across the plate. Use a screwdriver or a hex key to raise the plate flush with the table. On some saws, the levelers may be located on the bottom face.

2] Square the blade. Set the base of a square or drafting triangle on the table and against the saw blade, between the carbide teeth. Adjust the bevel until there's no light between the blade and the square. To adjust the internal bevel stop, refer to the manual.

3] Check the bevel. Similar to the previous step, position a square between the teeth, unlock the bevel gauge, and tilt the blade until there's no gap between the two. Adjust the internal bevel stop and arrow on the bevel gauge as needed.

4] Back up the miter gauge. Adding a sacrificial fence to your miter gauge provides better support for workpieces and a mounting surface for stop blocks, and prevents chip-out on the back edge. Mount the fence so that one side can act as a sweep for moving offcuts past the blade. Add sandpaper to make it nonslip.

Safety checklist

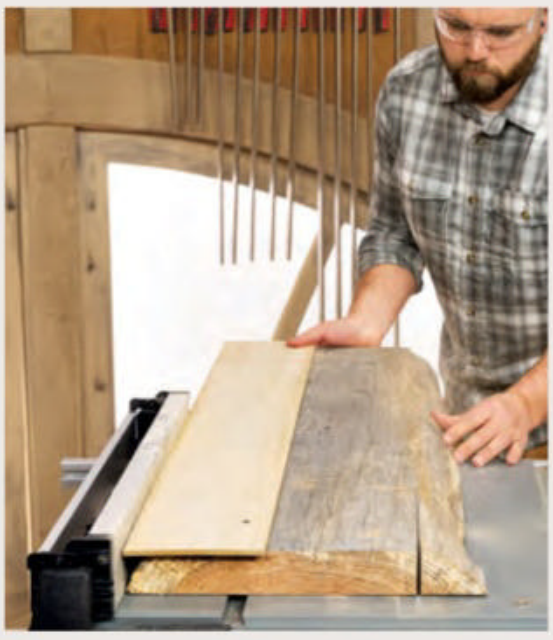
These tools' exposed cutting blades require extra caution. Read the owner's manual before switching on the saw, and remember:

- Always unplug the saw when making any adjustments to the blade or riving knife.
- Always wear eye and hearing protection.
- To avoid binding or kickback when making rip cuts, adjust the fence so that it's parallel, or cocked slightly from the back of the blade.
- To avoid being hit by a board if it does kick back, do not stand directly behind the blade when making a cut.
- Never let a helper try to steer or grab the stock. Have them support the workpiece with palms facing upward.
- Set the blade height no more than ⅜ inch (about the height of a saw blade's tooth) above the stock.
- Use a push stick or push block for any cut where the fence is closer than 6 inches to the blade.

FINGER SAVERS This three-piece set includes a push stick and a push block to feed material past the blade, and a featherboard to hold stock tight against the fence. ***Safety Kit, $38*; *milescraft.com***

SETUP: ANTHONY TIEULI (4); FINGER SAVERS: COURTESY MILESCRAFT

Tackling tricky cuts



Ripping a crooked board

Sawing a live-edge slab requires first creating one straight edge that can then be safely fed against the rip fence for subsequent cuts. To establish a straight edge, tack a guide board to the piece, then push the stock through the blade.

Crosscutting

When using a miter gauge, the rip fence should never be used as a stop; if the wood becomes trapped between the fence and blade, it can get kicked back at you. To give the offcuts safe space, attach a stop block to the fence, behind the blade.

Resawing

To slice a board across its widest dimension: Raise the blade height to just over the halfway point of the stock. After the first pass, flip the board end over end so the same face is against the fence, and make a second cut.

TRICKY CUTS, BLADE, GAUGE: ANTHONY TIEULI (5); SWITCH BOX: COURTESY IVAC; OUTFEED SUPPORT: COURTESY TOUGHBUILT

Table-saw accessories

Out of the box, table saws come with everything you need to start making sawdust, but these accessories can help you get better results and keep you safe

Thin kerf blade

Most stock blades don't show a saw in its best light. A 3/32-inch-thick blade removes less wood and requires less power, decreasing the chances of stalling and extending battery life. This general-purpose blade is designed for rip- and crosscuts. *$80; freudtools.com*

Auto-on switch box

Plugging your shop vac or dust collector and table saw into this multi-outlet box ensures that your dust collector switches on every time you turn on your saw and stays on for 6 seconds after you shut off the machine. Two plugs enable it to power two 15-amp machines. *$58; ivacswitch.com*

Bevel gauge

Attach this magnetic cube to your blade, and it will display the exact bevel angle within 1/10 of a degree. It's easier to use than the traditional triangle method for setting the internal stops, and more accurate than the fat pointer on the saw's front for angles in between. *$30; kleintools.com*

Outfeed support

When finishing a cut, long boards can tip, putting you at risk for an accident. Setting a stand behind the saw can support both the waste and keeper material. This multipurpose stand's head converts from one long roller to ball bearings to a solid stop. *$35; toughbuilt.com*

What's New

The latest tools and home-improvement products to help you tackle your to-do list

BY SAL VAGLICA

1

1. Track-guided multitasker

R185CCSX Multi-Material Cutting Track Saw

Equipped with a carbide-tipped blade that cuts wood, ferrous and nonferrous metal, composites, and plastic, this 7¼-inch-diameter saw is more versatile than many higher-priced models. It also comes with three tracks that can be connected to offer up to 40 inches of line-splitting accuracy. For longer cuts, you can purchase an additional 55-inch track for $95. *$160; evolutionpowertools.com*

2. Palm-sized planer

M12 Brushless 2-Inch Planer

This battery-powered planer is not much larger than a hand plane, but the rotating carbide cutters shave away wood and man-made materials with far less effort. The cutting depth can be set from 0 to 5/64 inch for sneaking up to a scribe line or removing material quickly. *$199 (tool only); milwaukeetool.com*

3. Cordless coiled LEDs

Snake Light

Equipped with LEDs at both ends, this 9-inch work light can be wrapped around a ladder rung or a wall stud, or stood up on its coiled body to direct light where needed. One tap on the control panel turns on the directional lights on the narrow end; two taps trigger the larger area light. The rechargeable battery's 4½-to-15-hour run time should keep it lit for the duration of most DIY tasks. *$40; blackanddecker.com*

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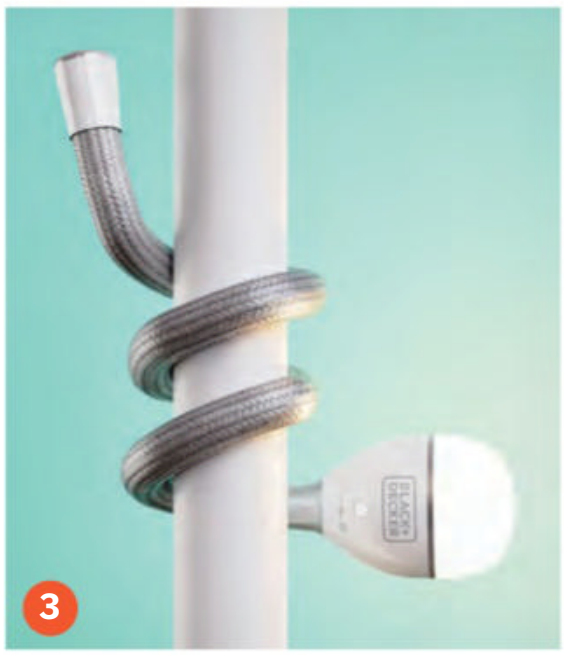
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4. Ultra-durable, no-sheen top coat

High Performance Dead Flat

Most flat finishes attract blemishes like a magnet and aren't scrubbable. Thanks to a new polymer technology, this super-flat clear finish offers the same durability as the company's award-winning satin polyurethane. Dry to the touch in 10 minutes, the water-based top coat has a UV stabilizer that defends it and any underlying stain color

Perfect for everything from tabletops to floors, this clear finish can be applied with a roller, a brush, or a sprayer and cleans up with water.

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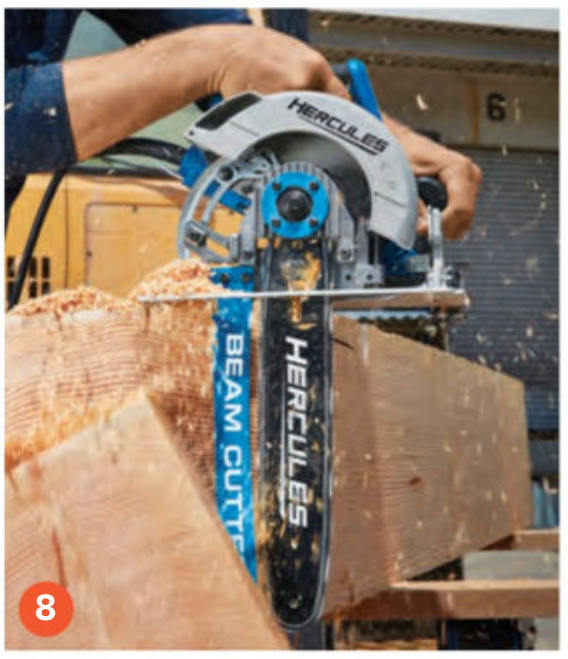

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Surrounding the motor with insulation drops this shop vac's volume from jet engine to casual conversation.

10

from breaking down or fading in sunlight. *$45 per quart; generalfinishes.com*

5. Fast and easy deck railing

Rapid Rail
This seven-component system seriously simplifies railing installation. After attaching the 2½-inch-square aluminum posts, slip on the bottom rail and balusters, then the two-piece top rail. The railing is backed by a limited lifetime warranty. *$164 for a 6-by-3-foot section; deckorators.com*

6. Stowaway saw

Folding Pull Saw
This cutter's handle splits and folds back to protect the teeth, making it safer and easier to squeeze into a toolbox or pouch. When open, the 10-inch blade offers 17 teeth per inch (tpi) on one edge for fine cuts and a progressive 7 to 10 tpi edge on the other for faster cutting. *$25; toughbuilt.com*

7. Puppy portal

Dog Door Collection
These solid-wood doors come with factory-installed doggie doors that limit air-conditioning or heat loss when Fido can't decide between squirrels or the sofa. The door can be customized by size, wood species, and glass type to match your home's style. To fit your pet, the saloon-style pooch portal comes in three sizes, for pets from 40 to 220 pounds. The door also comes with a 20-gauge steel plate that can be locked within the opening. *From $1,800; simpsondoor.com*

8. Timber tamer

Hercules Circular Saw Beam Cutter Attachment
Looking for an easier way to cut big beams or landscape timbers? Replacing a circular saw's blade with this toothy chain extends the saw's cutting capacity to 12 inches. This add-on works with most 7¼-inch sidewinder and worm-drive saws, too. *$70; harborfreight.com*

9. Quiet cleaner

DeWalt StealthSonic 12-gallon 5.5HP Shop Vacuum
This shop vac emits fewer than 65 decibels of noise—half as loud as the company's previous models and about as loud as typical conversation. Also available in 9- and 16-gallon versions, it has a diffused exhaust system to avoid kicking up dust. *$139; lowes.com*

10. Must-have multitool

Center-Drive Rescue
In addition to the standard blade, awl, and bottle opener, this multitool sports full-size pliers with wire cutters that deploy with one hand and a bit driver that feels like a standard screwdriver. The Rescue moniker derives from the seat belt–cutting hooked blade; it's also handy for opening plastic clamshell packaging. *From $145; gerbergear.com*

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[Easy DIY]

Sleek outdoor sofa

TOH DIY expert Jenn Largesse details how to build this handsome three-seater from 2×4 boards

There's no debate that all-weather outdoor furniture and accessories can cost a pretty penny—especially when shopping during the peak spring or summer season. Enter this clean-lined outdoor sofa. Made from inexpensive 2×4 boards, the project requires only a few basic tools. After you cut the lumber to size, pocket-hole joinery makes assembly quick and easy. For the cost of a few cushions—I found mine online for $35 per set (one seat and one back cushion)—and a few hours' work in the shop, you can have this comfortable couch for a fraction of what you'd pay in most stores.

Once assembled, stained, and protected with exterior polyurethane or paint, this sturdy outdoor sofa will let you focus on what matters most—entertaining friends and family—for many summers to come.

SIZE THE SEAT To design the sofa, Jenn measures across three bottom cushions, using their exact dimensions to determine the depth and width of the base assembly.

Photography by Mock Tuna

GETTING STARTED

For this project I hand-selected the best-looking 2×4×8' boards—sold as "studs"—from my home center. Using dimensional lumber is the most affordable option, but bear in mind that the boards come with rounded edges and grading stamps, so you'll need to spend some time sanding to transform them into stain-grade stock. If you have access to a workshop, you can run the boards through a thickness planer or use a table saw to remove the rounded edges. You can substitute a naturally weather-resistant wood, such as cedar or cypress, but keep in mind that this would double the cost of the wood used in this project.

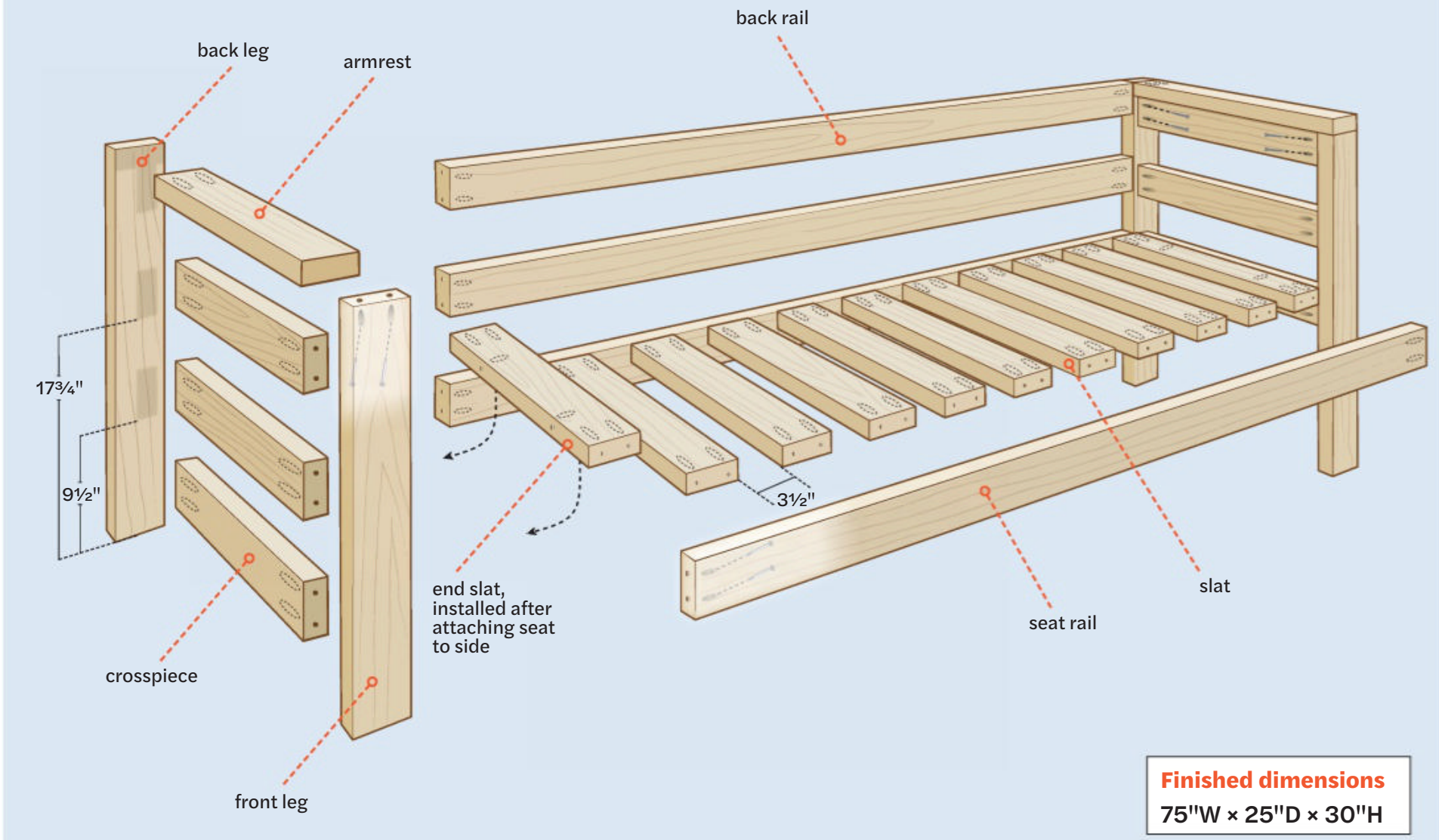
MATERIALS

- ❑ cushion sets (3)
- ❑ 2×4×8' boards (10)
- ❑ 2½" exterior-rated pocket-hole screws
- ❑ exterior wood glue
- ❑ sandpaper (various grits)
- ❑ stain (1 quart)
- ❑ polyurethane (1 quart)
- ❑ lint-free cloths

TOOLS

- ❑ tape measure
- ❑ miter saw
- ❑ drill/driver and driver bits
- ❑ pocket-hole jig
- ❑ random-orbit sander
- ❑ paintbrush
- ❑ 4" paint roller

How It's Made



Finished dimensions
75"W × 25"D × 30"H

WATCH See Jenn build this project at **thisoldhouse.com/house-one/outdoor-sofa**

Illustration by Peter Sucheski

STEP-BY-STEP

1] Cut and organize the parts. Following the cut list and cutting diagram at thisoldhouse.com, cut the boards to length. (Tip: Using a stop block for making repetitive cuts can save time and improve accuracy.) To facilitate assembly, arrange the parts in four stacks: two sides, base, and back.

2] Drill the pocket holes. After identifying the best, or "show," face of each board, use a pocket-hole jig to drill holes in the back and inside faces where shown in the illustration.

3] Assemble the side frames. With its pocket holes facing inward, position the face of one side's front leg flush with an armrest's front end. Apply glue and then drive 2½-inch pocket-hole screws through the leg and into the underside of the armrest. Next, attach the armrest's face flush to the end of the back leg. Repeat with the opposite side.

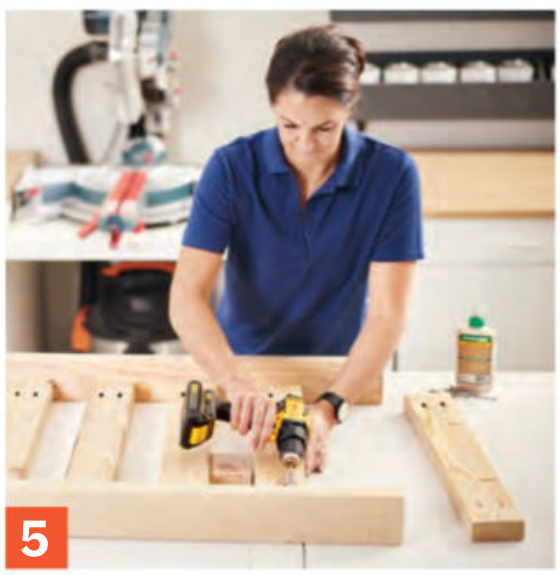
4] Add the crosspieces. Place the side frames on your workbench, outside faces down. Next, set the crosspieces on 2×4 blocks between the legs with their pocket holes facing upward. Attach the crosspieces to the legs where shown.

5] Assemble the seat. Position the two seat rails on a work surface with their pocket holes facing in the same direction. Arrange the slats between the rails about 3½ inches apart, with their pocket holes facing upward. Glue and screw the interior slats to the rails, but leave the two end slats loose for now.

6] Attach the seat to the sides. Stand the seat and one side on their back edges as shown. Align the seat rails with the top edges of the lower crosspiece, and then attach the rails to the legs. Repeat the process with the other side. Next, insert one end slat between the seat rails, butt it against the bottom crosspiece, and screw it to the side and seat assemblies. Repeat at the other end with the remaining slat.

7] Add the back rails. Clamp the top back rail flush with the top of the back legs, and then screw it to the sides. Similarly, position the lower back rail midway between the upper back rail and the seat rail, and attach to the sides.

8] Stain and seal the parts. Fill the pocket holes with plugs or wood filler and sand up to 120 grit. Apply stain (if desired) and then two coats of exterior polyurethane or paint. Make sure to thoroughly seal any spots where water can sneak in, including any exposed end grain, pocket holes, and the bottoms of the legs, to protect your piece from the weather.



Upkeep

Maintenance tasks to pay attention to this season **BY MATTHEW TEAGUE**

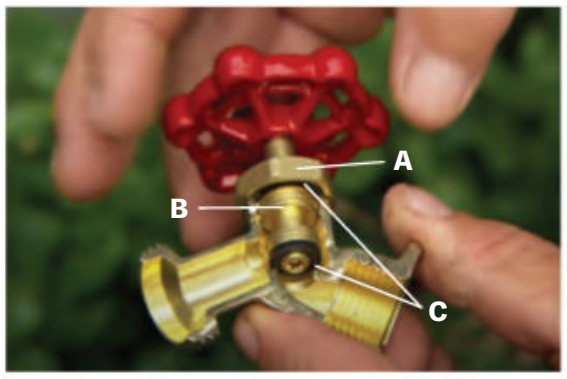
DON'T GET DERAILED

Wobbly deck railings aren't just unnerving; they're also unsafe. Toe-screwing rails to the posts by driving fasteners in at an angle offers a clean, hardware-free look. To do it:

- **Use 3-inch deck screws.** The fasteners need to be long enough to grip the post, since you're driving them diagonally.
- **Set a drill bit on the rail's bottom face** about 1½ inches away from the post, then drill a pilot hole up into the post at about a 45-degree angle.
- **Drive the screw into the pilot hole.** As it sinks into the rail, the screw should pull the two pieces together.
- **If the post itself isn't rock-solid,** use a metal bracket or wood blocking to reinforce the post-to-framing connection.

Power up outdoor projects

Give exterior GFCI outlets a test run to ensure plug-in yard tools have the juice they need. With exposure to the elements, these outlets wear out in as little as five years. To make sure the GFCIs are ready to run, test both receptacles by plugging in a fan and pressing the TEST button. If this fails to trip the circuit and shut off power, the outlet needs replacing. (If the fan stops turning, press RESET to restore power.) If a new GFCI continues to trip, the problem may be due to a faulty appliance or another damaged outlet or wiring on the circuit. If you can't identify the culprit, call in an electrician.



DITCH THE DRIP

Outdoor faucets always seem to start leaking in peak gardening season. If the hose bib is dripping near the handle, try tightening the packing nut (A) one-eighth to one-quarter turn with a wrench. If this doesn't work (or the leak is coming from the spout), shut off the water, remove the handle, loosen the packing nut, and pull out the valve stem (B). Bring this with you to the hardware or plumbing-supply store to find replacement parts, either a new washer (C) for inside the valve or at the base, or a waterproof string called valve packing. Install the new washer (or packing), and reinstall the valve stem. Reattach the handle and turn the water on. If the faucet's still dripping, gently tighten the packing nut until the leaking stops.

TOH PRO TIP

MAURO HENRIQUE
Painter

To check for rot before painting wood railings, poke around with a 5-in-1 tool. Look for spots that feel soft or sound hollow when tapped.

PORCH: MIKE CASEY

SPRUCE UP YOUR SIDING

Grit and grime buildup doesn't merely make wood and vinyl siding look dingy; when combined with wind and rain, it actually reduces the life span of these exterior surfaces. A store-bought house-cleaning solution applied with a hose-end bottle sprayer, and followed by a thorough scrubbing, will do a better job than power-washing alone, with less risk of damage to your siding.

Follow these steps to give your siding a fresh start:

1) To prevent suds from drying before you have time to scrub and rinse, schedule your cleaning sessions for mornings, late afternoons, or cloudy days.

2) To minimize damage to plants, avoid chlorine bleach. Choose a cleaner that contains ammonium chloride or oxygen bleach (hydrogen peroxide) instead.

3) Working from the top down, spray on the solution, wait a few minutes, scrub, and then rinse. Pay special attention to spots where dirt collects: the bottom rows of siding, windows, roof overhangs, and beneath windowsills.

4) Ladders can get slippery when they're wet. To help you scrub the high spots with your feet safely on the ground, use a long-handled brush like the one shown (Craftsman 10" Poly Fiber Soft Deck Brush, $21; lowes.com).

Clean the condensate line

One easy thing you can do to maintain your central AC: Make sure its drain line is clear. As it produces cold air, the evaporator coil in an indoor unit also dehumidifies. The resulting moisture flows through a drain tube that drips outside; it should be flushed regularly to ensure algae, dirt, and insects don't clog the line over time. Without a clear exit, water can overflow the drain pan, potentially damaging the unit or getting into your ceiling or walls. To clear the tube, first turn off the AC, then locate a T-shaped PVC pipe at the bottom of the indoor unit. Remove the cap or cover and pour in a cup of distilled white vinegar to remove mold or algae. If the line seems clogged, use a shop vac on the outside end to suck out the blockage. Then flush the pipe with water to make certain it's draining freely.

SHARP ADVICE FOR GREENER TURF

A dull mower blade can turn the tips of healthy turf grass brown and raggedy in no time; those torn ends in turn make your lawn more susceptible to disease. On average, a mower blade should be sharpened once or twice during the growing season. If you can't find a sharpening service nearby and haven't mastered doing the job with a file, a drill-powered sharpener like the one shown (Rotary Mower Sharpener, $17; leevalley.com) ensures a proper cutting angle.

Additional tips to keep in mind:

> Before you remove it, mark the blade's bottom face with spray paint to avoid reinstalling it upside down.

> Aim for butter-knife sharp; you should be able to touch it without getting cut. A thin, razor-sharp edge is more susceptible to damage from pebbles and roots.

> Before you reinstall the blade, hang it on a nail to check the balance. If it doesn't hang straight, remove material from the heavy side until it is balanced.

SIDING BRUSH: COURTESY CRAFTSMAN; SHARPENER: COURTESY LEE VALLEY

TOH PRO TIP

JENN NAWADA
Landscape Contractor

Edging garden beds is a quick way to spruce up your yard. Using a square shovel or metal edger, cut a V shape along the border, about 3 inches deep, and backfill it with mulch. This will create a clean definition between the grass and bed and prevent grass from spreading.

ask This Old House

Monitoring indoor air quality

With additional insulation, our house is now more energy efficient than ever. We're looking forward to lower energy bills, but should we be concerned about indoor air quality?

—JOHN URNESS, PLATTEVILLE, WI

TOH home technology expert Ross Trethewey: You've raised a valid concern. Indoor air quality (IAQ) research has shown that when the building envelope becomes more airtight, indoor air pollutants are more likely to accumulate and cause health issues. Here are some of the main pollutants:

- Carbon monoxide produced by gas-burning and wood-burning appliances
- Volatile organic compounds (VOCs) that are released when some products like carpeting, cabinets, and fabrics off-gas inside the house
- Particulates, including household dust and soot from fossil fuel burners, like ranges, fireplaces, and candles
- Excess humidity and odors produced by bathroom fixtures and cooking activities
- Radon, a radioactive gas that can emanate from soil or groundwater
- Mold spores as a result of water leaks or excess humidity

SEEING IS BELIEVING Ross shows *TOH* host Kevin O'Connor how indoor air quality monitors instantly identify and record VOCs and other pollutants.

TIP

Yes, there's an app for that

Smart IAQ monitors constantly collect and send data to your smartphone. Units like this one (getuhoo .com) can be programmed to send alerts when pollutants exceed safe levels.

The health risks associated with pollutants such as these range from minor irritation to serious respiratory and allergic reactions to, in the case of radon and other chemicals like formaldehyde and benzene, cancer. The good news is that IAQ problems can be resolved using a variety of mitigation strategies. Some are simple, like turning on an exhaust fan when taking a shower to get rid of excess moisture, which can lead to mold. Other issues, like radon, call for professional solutions.

I recommend installing an indoor air quality monitor in your house. These devices are designed to detect and measure the concentration of common indoor air pollutants.

If the monitor identifies spikes in any of the pollutants we've listed here, you may want to have an energy audit performed on your house. This comprehensive, whole-house evaluation can identify building characteristics that might affect indoor air quality, and suggest steps for remediating any problems.

TRETHEWEY, O'CONNOR: ANTHONY TIEULI; MONITOR: COURTESY UHOO

WATCH See Ross demonstrate how IAQ monitors work at **thisoldhouse.com/indoor-air-quality**

Installing a safe fire pit

What are the steps required to install a wood-burning fire pit? I'd like to put one in my backyard.

—TERESA DORE, ALPHARETTA, GA

TOH mason Mark McCullough: A fire pit can be a great addition to any backyard. Freestanding steel bowls or baskets are less expensive, but wood-burning fire-pit kits consisting of a steel liner, a masonry surround, and a screen cover are more durable. No matter what type you install, the screen cover is an essential safety feature, since it prevents sparks from escaping and causing a fire hazard.

Because you're playing with fire, it's important to select a safe location. Make sure the spot is at least 10 feet from anything that's combustible, including overhead tree branches. Ideally, you'll also want a fairly level site so that you can surround your new backyard hot spot with chairs or benches.

To lay out the excavation area for a round fire pit, drive a stake at the center of the desired location, attach a string to the stake, and use spray paint to mark the radius of the finished fire pit. Next, remove all the grass in the fire-pit area, dig several inches into the soil, and use a hand tamper to flatten and compress this base. Then spread several inches of gravel over the soil base, and tamp it level.

You're now set to install the fire-pit kit. The model shown here (Nantucket Pavers, $549; homedepot.com) has a full-depth steel liner and a precast concrete block surround. After placing the liner, rest your level on a flat board across the top. Using a mallet, tap the higher edge until the bubble shifts to the center of the vial.

When laying the first course, adjust the gravel base as needed to make the blocks perfectly level. Stagger the joints in adjacent courses, and adhere the blocks to one another with masonry adhesive. Keep checking for level as you work, tapping on the blocks or adding more adhesive as needed to keep the bubble centered between the lines. After topping it off with the capstone course, give the adhesive a day to cure, and you're ready to light up.

Stack the stones

A masonry fire pit is rock-solid and safe to use, and will last for decades. To simplify assembly, this fire-pit kit comes with precast blocks that encircle the liner without needing additional cuts. Having a helper or two makes the job go faster; *TOH* landscape contractor Jenn Nawada and the homeowner pitched in on this build.

TOP: Using a hand tamper, Jenn flattened the gravel base, once the area was excavated.

MIDDLE: With the first course of blocks installed around the steel liner, Jenn checks for level, while Mark stands by with the second course.

BOTTOM: Mark checks the first capstone for level, while Jenn is ready with a mallet to coax it into place.

FIRE PIT: MAKAYLA TOWNSEND (3)

WATCH See Mark and Jenn plan and build a backyard fire pit at **thisoldhouse.com/fire-pit**

Giving old sashes a lift

The windows in my 100-year-old house look good, but a few won't stay open. What can I do to fix this?

—DAN GAINEY, BIRMINGHAM, AL

TOH general contractor Tom Silva: When an old double-hung becomes difficult to lift, or won't stay open, it's probably because one or more sash weights have become detached and are no longer doing their job as counterweights. Old windows have a lot of parts—most are listed at right—but they were designed that way so that they could be repaired. Completely restoring a window is best left to an expert, but an experienced DIYer can reattach a weight that's been separated from its cord.

To start, you'll need to remove the two stop moldings. Using a utility knife or a window opener (see Tip), cut through any layers of paint gluing the stop to the jamb. Next, remove the fasteners, then carefully pry off both stops. At this point, the lower front sash can now be pulled free, but the sash cords may still be attached. Take note—or take a photo with your phone—of how the cord is attached to the sash. Then detach the cords and set the sash aside.

The upper sash is held in place and guided by a pair of thin parting strips. To remove this sash, you'll need to remove only one piece, but be careful not to break it; remove any nails, and then gently pry it out of its groove.

With both sashes removed, it's time to remove the sash weights. Unscrew the access plate at the bottom of each side jamb, pull out the four sash weights, and detach the old sash cord.

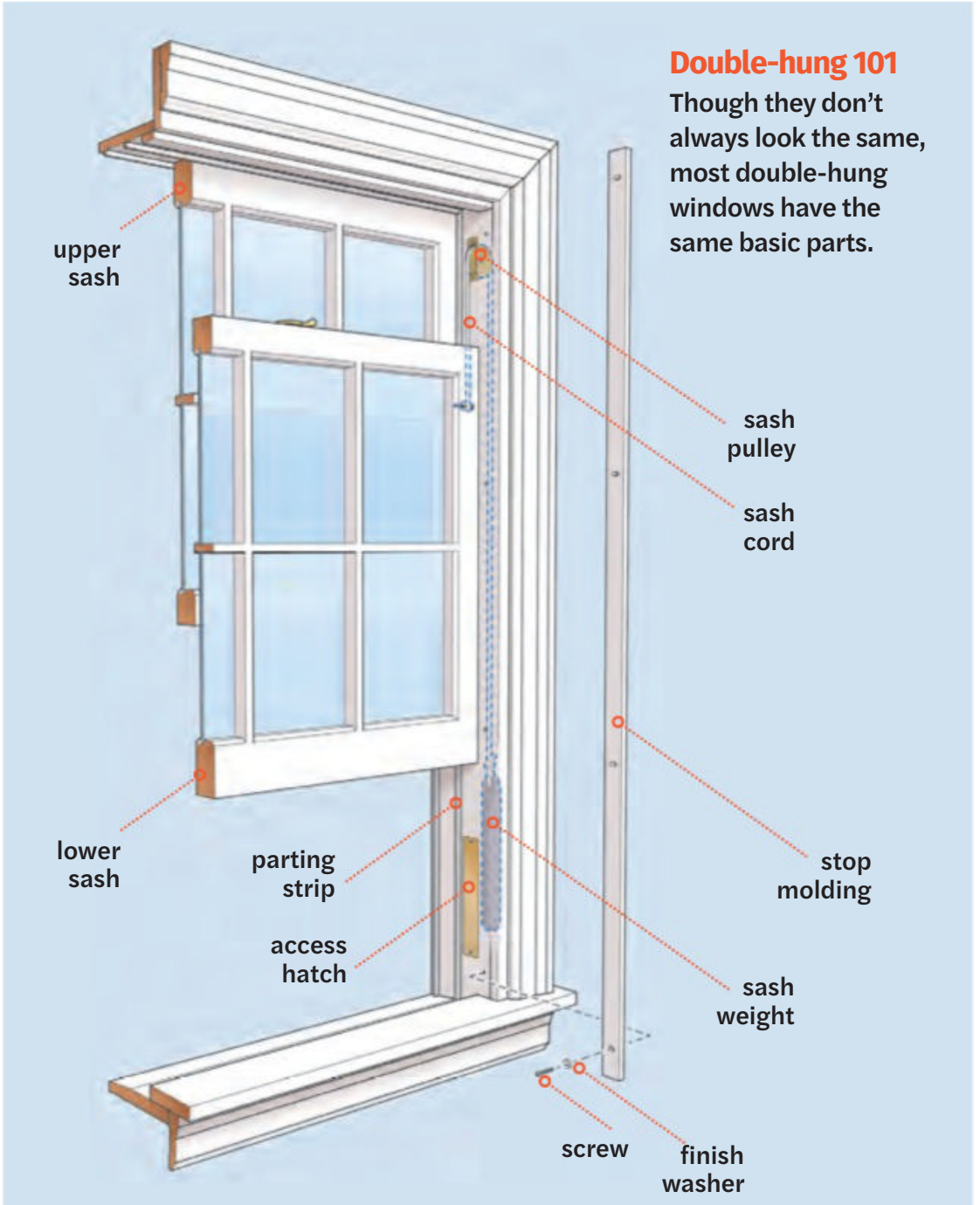
Starting with the upper sash, attach a short length of chain or other weight to the end of your sash cord—this will help you retrieve it through the access hole—and tie the other end to a sash weight. Have a helper hold the window in place as you cut the cord to length, knot the end, and screw down the knot in the recess along the window stile. Reinstall the parting strips to hold the upper sash in place, then repeat the sash-attachment procedure on the lower sash, and reinstall the stop-molding pieces.

PARTING COMPANY Using a small pry bar, Tom carefully levers out a parting strip from the side jamb to remove the upper sash.

TIP

Paint eater

Armed with tiny teeth, this window opener (hydetools.com) is made to saw through layers of paint sticking parts together.



Double-hung 101

Though they don't always look the same, most double-hung windows have the same basic parts.

PAINT EATER: DANA SCHIFFMAN. ILLUSTRATION: GREG MAXSON

WATCH Tom and a window-restoration expert revive an old sash at **thisoldhouse.com/window**

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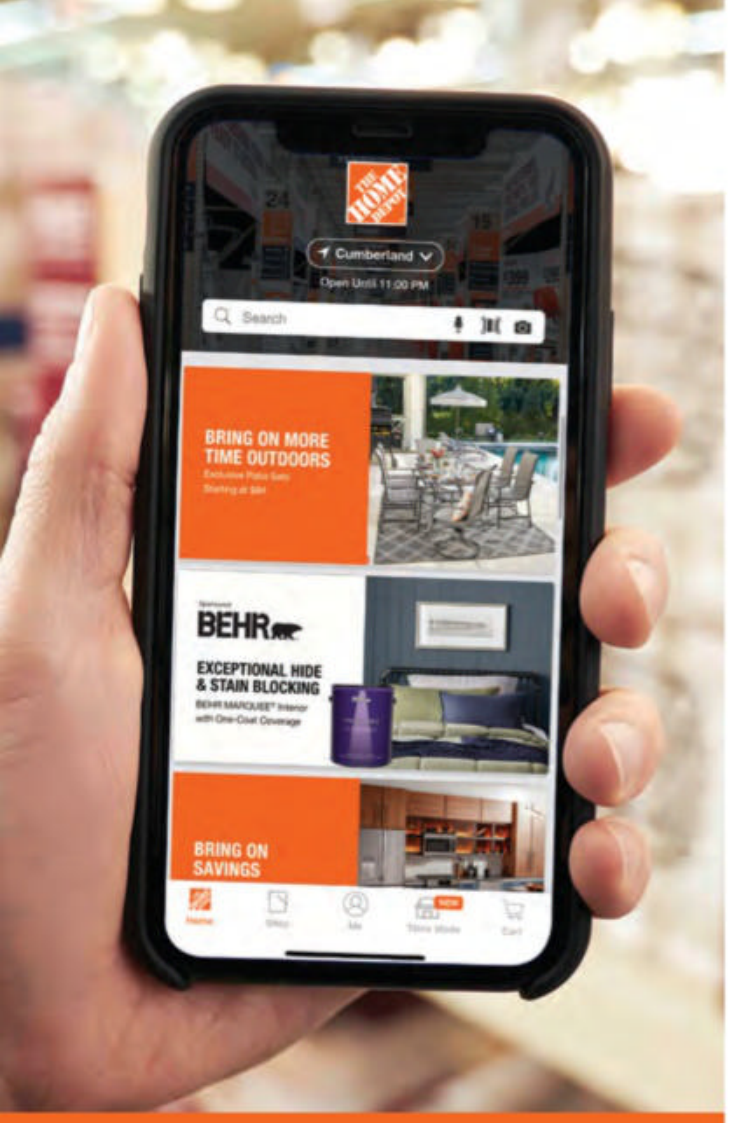

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DIY Smarts

Face-lift for a concrete foundation

After removing some big shrubs from the front of our house, we discovered that the concrete foundation is looking shabby. What do we need to do to ensure a good-looking and long-lasting paint job?

—JULIA HILTON, QUINCY, MA

TOH painter Mauro Henrique:
You can save some money by doing this job yourself; just remember that the prep work is the most important step. To get started, dig down about 3 inches around the foundation so that the paint extends below grade. To clean off the grime, dissolve half a cup of phosphate-free trisodium phosphate (TSP) in 2 gallons of warm water, scrub with a long-handled brush, and then rinse. Next, place some drop cloths against the walls and scrape off any loose paint. You'll need a variety of tools for this, including a painter's 5-in-1 tool, paint scrapers, and putty knives. After scraping, go over the foundation walls with a stiff-bristled brush to remove any remaining dust and debris.

Next, inspect the concrete. To fill cracks, use a non-sag concrete caulk. This type is thicker than those used on horizontal surfaces, like driveways or floors, so it won't ooze out, but you'll need to smooth it with a gloved finger or a trowel. Finally, pick up your drop cloths and dump your paint scrapings into a plastic garbage bag for disposal. Put the drop cloths back in place in preparation for applying paint.

It's important to select an exterior-grade paint formulated for masonry surfaces. Unlike regular exterior paints, masonry paint is more elastic to resist hairline cracks and more resistant to efflorescence, the powdery deposits that occur when water containing dissolved salts travels outward from the concrete. Although some higher-quality paints do not require a primer, for a good-looking finish you should plan on two coats.

You're now ready to start painting. Pour a generous amount into your roller tray, and use a 3-inch brush to paint along the ground line, along the bottom edge of the siding, and around foundation penetrations like dryer vents and pipes. Once you've completed all this cutting-in work, use a 9-inch roller with a ½-inch nap to paint the rest of the foundation. For concrete block or stucco, you might want to step up to a roller with a ¾- or 1-inch nap. Wait at least 3 hours before applying the second coat.

FORM AND FUNCTION **Besides boosting curb appeal, a fresh coat of paint defends the concrete from water damage.**

SARAH CHASSE

BROUGHT TO YOU BY THE HOME DEPOT

Get pocket doors rolling again

The pocket doors to our parlor have been stuck in the walls since the day we moved in. What will it take to make them operational?

—BARBARA BARROWS, DORCHESTER, MA

TOH carpenter Nathan Gilbert: Depending on what's broken, a skilled DIYer may be able to make the repair. Even if you're not successful, you've set the stage for a finish carpenter to complete the job.

The first part of this project is investigative. In order to remove a trapped door and inspect the rail the hangers ride on, you'll need to remove the door trim and jamb stock. To reuse the trim, use a nailset to sink through the wood, then carefully pry it off. Once the door is pulled free and detached from its track, you've got a good shot at making an accurate diagnosis. If the hanger hardware is complete, test the movement, tighten or lubricate as needed, and rehang the door. If the hardware is damaged or is missing a few components that can't be replaced with off-the-shelf hardware, then you may need to purchase a new pair of hangers (see Tip).

After replacing the hardware and rehanging the door, you will need to make a few adjustments to the roller mechanism to fine-tune the height. Once the door is even and rolling smoothly, you can reinstall the trim.

TIP

Replacement parts

While handsome reproduction hardware is available, it can get very pricey. For a more affordable option, look for pairs of salvaged hangers like these for about $175 (historic houseparts.com). Size matters, so look for a size stamp on the original hardware to ensure a good fit.

Hidden hardware makes it happen

TOP RIGHT: To start, Nathan removes the damaged hanger hardware from the salvaged door.

MIDDLE: After installing new hardware, Nathan and a helper lift the door back onto its track.

BOTTOM: Once the door is installed, Nathan turns the adjustment screw (inset) to fine-tune the door's height.

REPLACEMENT PARTS: COURTESY HISTORIC HOUSEPARTS INC; GILBERT: ALEX GAGNE (3)

WATCH See Nathan rehang a vintage pocket door at **thisoldhouse.com/pocket-door**

Repairing a ruptured sprinkler

While transplanting a shrub, I punctured a line in our sprinkler system. Can I repair the damage?

—MIKE ROSE, WINFIELD, IL

TOH plumbing and heating expert Richard Trethewey: There's no need to call in a pro; this is an easy fix you can do yourself. The black polyethylene pipe used in most irrigation systems is widely available, along with a wide variety of fittings. To make sure you buy right-size parts, cut out a short section of the damaged pipe and bring it with you to the home center or plumbing-supply store.

Once you have the parts, cut a longer section of pipe and a replacement pipe to fit, then use barbed couplers to connect the new and old pipes.

Bear in mind that these couplers are designed to fit tightly. Heating the end of a pipe can make it flexible enough to insert the coupler to full depth. You can do this by soaking the end of the pipe in hot water, or by using a heat gun or hair dryer.

Once your repair is complete, turn on the water and test the new connections before reburying the line.

LEAK STOPPER Richard cuts out the damaged section of pipe, preparing it for a barbed coupler (inset) to reconnect the line, made more flexible with a heat gun. To ensure a watertight joint, he will press the pipe up to the T-shaped flange.

BONUS HOW-TO

Walk this way

After a year in our 1880s home, my husband and I noticed that we're wearing a path in our lawn from our driveway to the front door. How do we extend our walkway?

—NEERU BHARDWAJ, WEST ROXBURY, MA

TOH mason Mark McCullough: Walkways should be beautiful as well as functional. I was really impressed by the way that the existing front walk at this house, made of bluestone pavers set in pea gravel, helps draw guests to the front door. Additionally, the cobblestone border set just above the grass line contains the gravel and keeps grass from invading the pathway. Creating an extension to match the foot-traffic pattern will add even more function.

The trickiest part of a job like this is finding new materials that match the old. After making a rough layout, take your plan and a small sample of the stone required to your local landscape or masonry supplier. Besides helping you find matching materials, they can help you estimate the quantities needed to complete the project.

This project isn't difficult; most of the work can be accomplished with basic landscaping tools. But considering that even a short path involves moving a few tons of dirt and stone, it's a good idea to enlist a helper.

LEAK STOPPER: ANTHONY TIEULI (2); MCCULLOUGH: ALEX GAGNE

STEP-BY-STEP

1] Dig the path. After marking out the path, remove the turf and start digging. Be generous in your layout to make sure there's plenty of space for the border. You can fill in the edges with soil and grass seed when you're done. Use the thickness of the pavers to set the depth of your excavation: The pavers should be at grass level when resting on 1½ to 2 inches of gravel. Dig the edges a few inches deeper to allow for the concrete used to set the cobblestones.

2] Pack down the soil. After removing any large rocks, rake the soil so that it's roughly level, then tamp it down with a plate compactor. If the soil is especially dry and dusty, you can spritz it with a garden hose.

3] Install the cobblestone border. If you're planning a straight walkway, stretch a string between stakes to establish the outside edges of your cobblestone border. Next, mix up some concrete in a wheelbarrow or mason's tub. Aim for a stiff mix. Working a few feet at a time, shovel enough concrete along the edges to create a 2-inch bed. Set each cobblestone in the concrete, then use a mason's hammer to make it even with its neighbor.

4] Lay down landscape fabric and crushed stone. To control weeds, roll a layer of landscape fabric over the tamped soil, then spread crushed stone over the fabric. Use a rake to spread the stone evenly, and pack it down with a plate compacter (see Tip).

5] Place the pavers. With the help of a willing assistant, position each paver according to your layout plan.

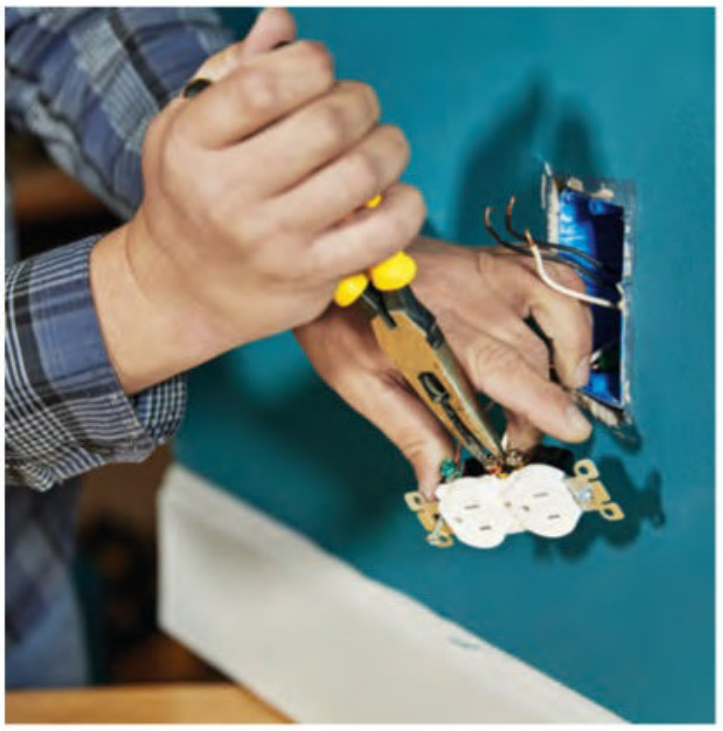
6] Spread and pack the pea gravel. Shovel pea gravel around the pavers, and use a bow rake to make it level with the top of the pavers. Finish up by using a hand tamper to compact this top layer, topping off any low spots with a few extra scoops.

STEP BY STEP: ALEX GAGNE (6); COMPACTOR: ISTOCK

TIP

IT'S ALL ABOUT THE BASE

To ensure that the pavers don't shift or sink a few years down the road, they need to rest on a solid foundation. Plate compactors use a combination of weight and vibration to eliminate air pockets in crushed stone. A 14-inch plate compactor can be rented for about $80 per day. If you have a truck to haul it, remember to empty the water tank before trying to lift it.



CONNECTING CONDUCTORS After hooking the curled wire over the screw, Heath crimps the connection to lock it in place.

Replacing receptacles

The electrical receptacles in my son's room work, but a few won't hold a plug. Can we replace them ourselves?

—DAVE MILLER, CLEMMONS, NC

TOH master electrician Heath Eastman:

Replacing a receptacle is a job you can tackle yourself, but I suggest checking with your local inspector to see if there are any new code requirements, such as AFCI protection. I also recommend working on one receptacle at a time to ensure that you duplicate the wiring details exactly.

To work safely, turn off the circuit for the room and use a meter or circuit tester (see Tip) to confirm that every receptacle is de-energized. Next, remove the cover plate and the two screws holding the receptacle to the electrical box, pull it out, and disconnect the wiring: black first, then white, and ground last.

Next, connect the conductors to the new receptacle in reverse order, starting with the ground. To keep them from loosening when you tighten the terminal screws, bend the exposed ends in an open loop and hook the screw in a clockwise direction. Carefully fold the wiring back into the box, and screw the receptacle to the box. Finally, reattach the cover plate.

TIP

Power tester, plus

In addition to confirming that the power's off, plug-in testers like this one (kleintools.com) use three small lights to identify common wiring problems in existing receptacles.

Ask This Old House

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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.

Cure for disappearing sand

When it rains, the sand washes out of my brick patio. Would polymeric sand be better—and would I need to remove the regular sand first?

—BERTRAND GARCIA-MOREN, BALTIMORE

TOH mason Mark McCullough: Because it's formulated to harden and bond to masonry, polymeric sand will outperform masonry sand. But if washout is the issue, you need to address that problem first. To start, look at your border. Patios and walkways that have some sort of edging treatment are better at retaining sand. Block and brick borders are preferred, but plastic or steel edging strips that can be anchored in place with steel spikes also work. Next, observe where the water is coming from during the next storm. Relocating a downspout might solve the problem.

Removing all the old sand from between your pavers is neither practical nor necessary. Simply clear out as much as you can with a broom or leaf blower, then sweep in polymeric sand. Brush off the excess, then moisten the joints with a garden hose to activate the bonding compounds and begin the two-day hardening process.

MIND THE GAPS Make sure joints are completely filled before sweeping away the excess.

CONDUCTORS: BOB O'CONNOR; VOLTAGE TESTER: SATOSHI KOBAYASHI; MCCULLOUGH: MIKE CASEY

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DIRECTORY Summer 2023

HOUSE TOUR **At Home Outside** *(pp. 11–19)* **Architects:** Kenneth Mineau, Paul Rubison, and Marc Appleton, Appleton Partners LLP; appleton-architects.com. **THROUGHOUT** > **Roof tile:** Two-Piece Mission Sandcast Series in Old Hacienda (#2351); redlandclaytile.com. **Sandstone pavers:** fossilcreekstone.com. **Windows and doors:** Architectural Millwork of Santa Barbara; archmill.com. **Exterior sconces:** Dublin Small Faceted Sconce; visualcomfort.com. **MAIN HOUSE** > **KITCHEN** > **Refrigerator:** subzero-wolf.com. **Double wall oven and cooktop:** bosch-home.com. **Lighting:** apparatusstudio.com. **Sink:** houseofrohl.com. **Faucet:** waterstoneco.com. **PRIMARY BEDROOM** > **Sconce:** Atelier Swing-Arm Sconce; restorationhardware.com. **PRIMARY BATH** > **Floor tile:** OMT 8"×8" (OMT88FLD2CLR); nsceramic.com. **Wall tile:** daltile.com. **Tub:** Celeste Freestanding Bath; jacuzzi.com. **Tub faucet:** Perrin & Rowe Edwardian Exposed Floor Mount Tub Filler With Handshower; houseofrohl.com. **Toilet:** St. George One-Piece Chair Height Elongated Toilet; dxv.com. **Pendant light:** Moravian Medium Star Lantern; visualcomfort.com. **STUDIO** > **SCREENING ROOM** > **Paint:** Agreeable Gray (walls), Dovetail (cabinetry); sherwin-williams.com. **Carpet:** Ebbtides in Davenport (#5330); dmifloors.com.

BEFORE & AFTER KITCHEN **All Together Now** *(pp. 20–23)* **Designer:** Sean Lewis, creative director, Airy Kitchens; airykitchens.com. **Cabinets:** airykitchens.com. **Paint:** Cyberspace (walls); sherwin-williams.com. **Countertops:** caesarstoneus.com. **Cement tile (floor):** villalagoontile.com. **Wallpaper:** wayfair.com. **Sinks:** build.com. **Faucets:** newportbrass.com. **Range:** subzero-wolf.com. **Range hood:** broan-nutone.com. **Beverage refrigerator:** xoappliance.com. **Pendants:** rejuvenation.com. **Stools:** build.com. **Cabinet pulls:** houseofantiquehardware.com.

OUTDOOR LIVING **Designed for Good Times** *(pp. 24–27)* **Design-build (patio, outdoor kitchen):** systempavers.com. **Landscape contractor (deck, pergolas):** Abe Nabbout, A.N.N. Contractors, La Habra Heights, CA; 562-572-8342. **Decking:** trex.com. **Pavers:** Avalon Slate; belgard.com. **Outdoor-kitchen components:** summersetgrills.com. **Natural-stone veneer:** montanarockworks.com. **Heaters:** infratech-usa.com. **Lighting:** Kichler; lampsplus.com. **Kamado grill:** biggreenegg.com.

KITCHEN-PLUS RENOVATION **Warm and Inviting** *(pp. 28–33)* **Architect:** Caesar Bustamante, Union, NJ; 908-875-3823.

Builder: Mike Mroz; michaelrobertconstruction.com. **Interior designer:** Ellie Mroz; elliemroz design.com. **Custom cabinetry and built-ins:** Azzam Ezmat, Ezmat Inc., Paterson, NJ; 973-417-6176. **MUDROOM** > **Cabinet paint:** Midsummer Gale; prattandlambert.com. **Faucet:** deltafaucet.com. **Sconce:** visualcomfort.com. **KITCHEN** > **Green cabinet paint:** Misty Moors; prattandlambert.com. **Refrigerator, freezer, range:** subzero-wolf.com. **Custom range hood:** Ezmat Inc. **Sink:** nativetrailshome.com. **Faucet:** brizo.com. **Windows:** pella.com. **Island light:** urbanelectric.com. **Stools:** fourhands.com; reupholstered with Ascot Stripe in Flint fabric, perennialsfabrics.com. **EATING AREA** > **Bar faucet:** brizo.com. **Bar sink:** nativetrailshome.com. **Dining table:** vandh.com. **Chairs:** fourhands.com; reupholstered with Ascot Stripe in Flint fabric, perennialsfabrics.com. **Chandelier:** visualcomfort.com. **Folding multi-panel window:** aamwindows.com. **PATIO** > **Outdoor sconces:** visualcomfort.com.

HOME FINANCES **Projects That Pay You Back** *(pp. 44–46) Thanks to* Kara Saul-Rinaldi, president and CEO, AnnDyl Policy Group; anndyl.com. Donald Hoffman, partner, Eisner Advisory Group LLC; eisneramper.com. Clare Doyle Dowd, director of policy and community, BlocPower; blocpower.io.

LANDSCAPING **Plants for Pollinators** *(pp. 48–51) Thanks to* Matthew Shepherd, director of outreach and education, Xerces Society for Invertebrate Conservation; xerces.org. Lora Morandin, associate director, Pollinator Partnership; pollinator.org. Marta Teegen, program manager, The Bee Conservancy; thebeeconservancy.org.

SAVE THIS OLD HOUSE *(p. 96) Thanks to* Dave Leske and Stacie Johnson-Leske. Paul Batsel. Tyler Daniels, assessor, Elk County, PA.

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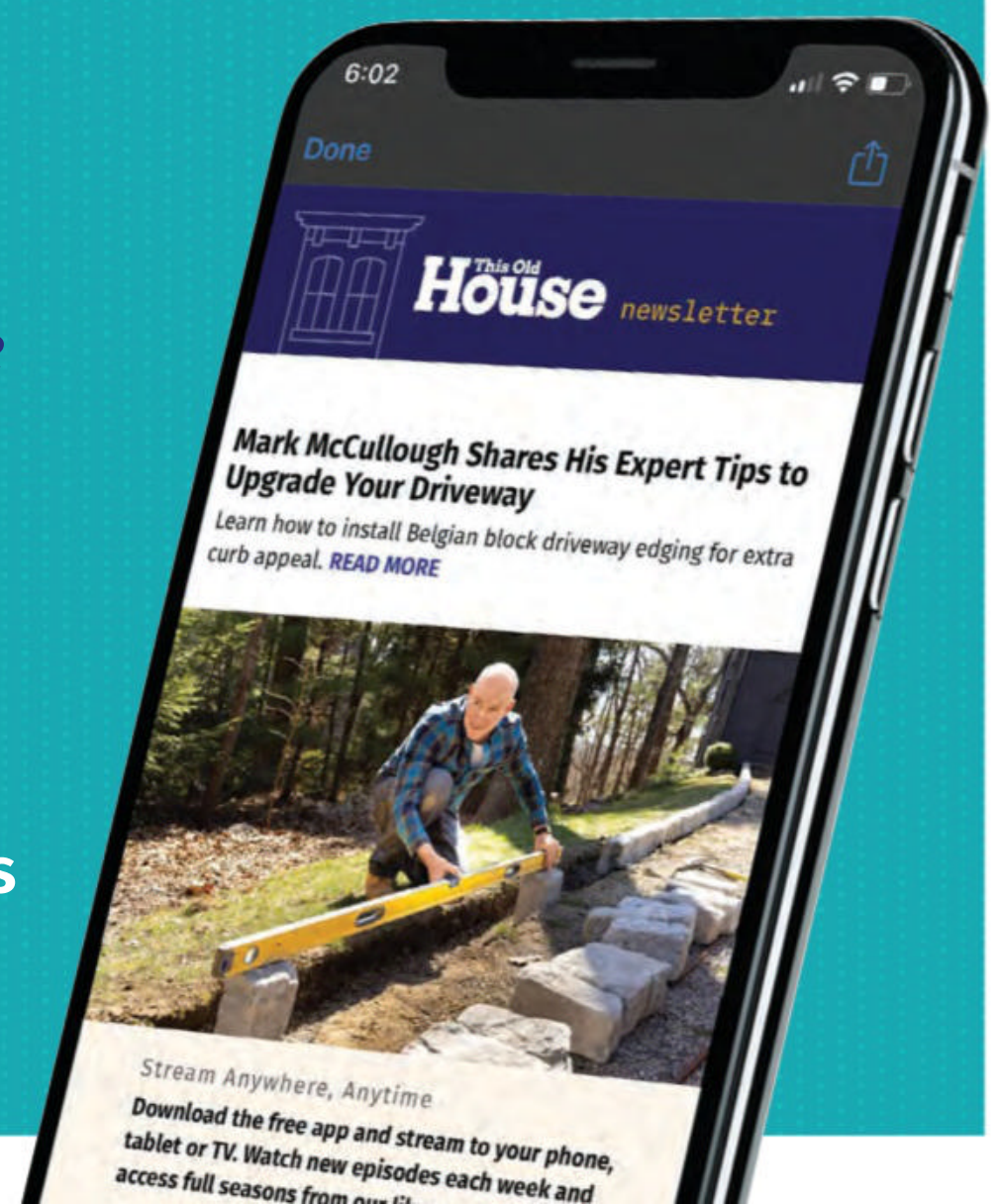


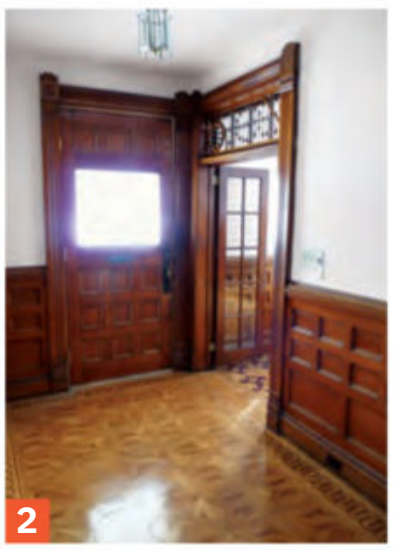
Fine Queen Anne with a noteworthy past

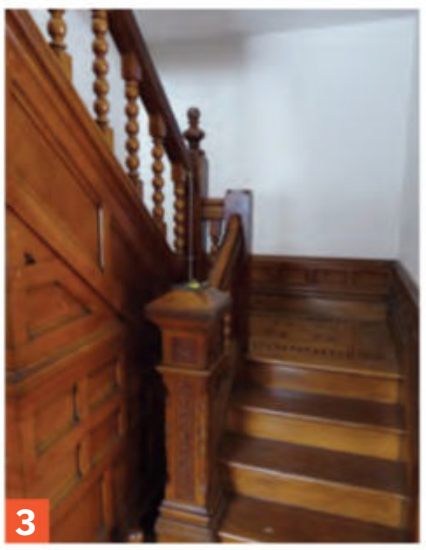
THE HISTORY Built circa 1886, when the local lumber economy was booming, this now-3,000-square-foot house was originally a simple clapboard box. As later additions were made, it took on its classic Queen Anne exterior. Much of its handsome millwork was made by the esteemed Hyde-Murphy Company, which had its headquarters in the town from 1884 to 1961. The house was later converted into three apartments, and in the early 1960s, one served as a childhood home of renowned soprano Renée Fleming. Restored to a single-family house in 2000, then used as a bed-and-breakfast, the house eventually suffered some neglect but has since benefited from significant improvements.

PRICE $129,900
LOCATION Ridgway, PA
CONTACT Gennaro Aiello, Anderson & Kime Realty; gennaro1216@gmail.com

WHY SAVE IT? Extensive Victorian-era millwork on the main floor survives, including the staircase, three mirrored mantels, and cherry wainscoting. Early parquet floors and fretwork also remain, as do leaded-glass windows. The 900-square-foot attic could be used as a bedroom, and an 1898 carriage house with two bedrooms offers rental potential. It is an easy stroll to shops and eateries in this small northwestern Pennsylvania town, where outdoor activities abound and the arts are strong.

WHAT IT NEEDS The main roof is new, but the roofs on five overhangs and the carriage house need replacement, as do some of the house's windows. The renovation work has been started: The attic, kitchen, laundry, primary suite, office, and two baths are reframed. Substantial plumbing, gas, and electrical work has been done, but projects remain, including adding a new HVAC system. This house is poised to hit the high notes again; it just needs a buyer eager to get it ready for its next act. —SUZANNE ZENKEL





1. Among the three-bedroom, three-bath house's characteristic Queen Anne features are the asymmetrical facade, large porch, and exuberant gable-end and porch details, notably displayed on and above the Juliet balcony (inset). It is located in a historic district filled with 19th- and early-20th-century buildings.

2. Cherry wainscot wraps the foyer, which also features ornate fretwork and parquet floors.

3. The main staircase is enhanced with elaborately turned spindles, a handsome newel post, and wood paneling.

4. The side parlor is one of two front rooms restored to near-original condition in 2000. A tile surround and mirrored overmantel adorn one of three fireplaces and exemplify the distinctive Hyde-Murphy woodwork details that survive throughout.

STACIE JOHNSON-LESKE (5)

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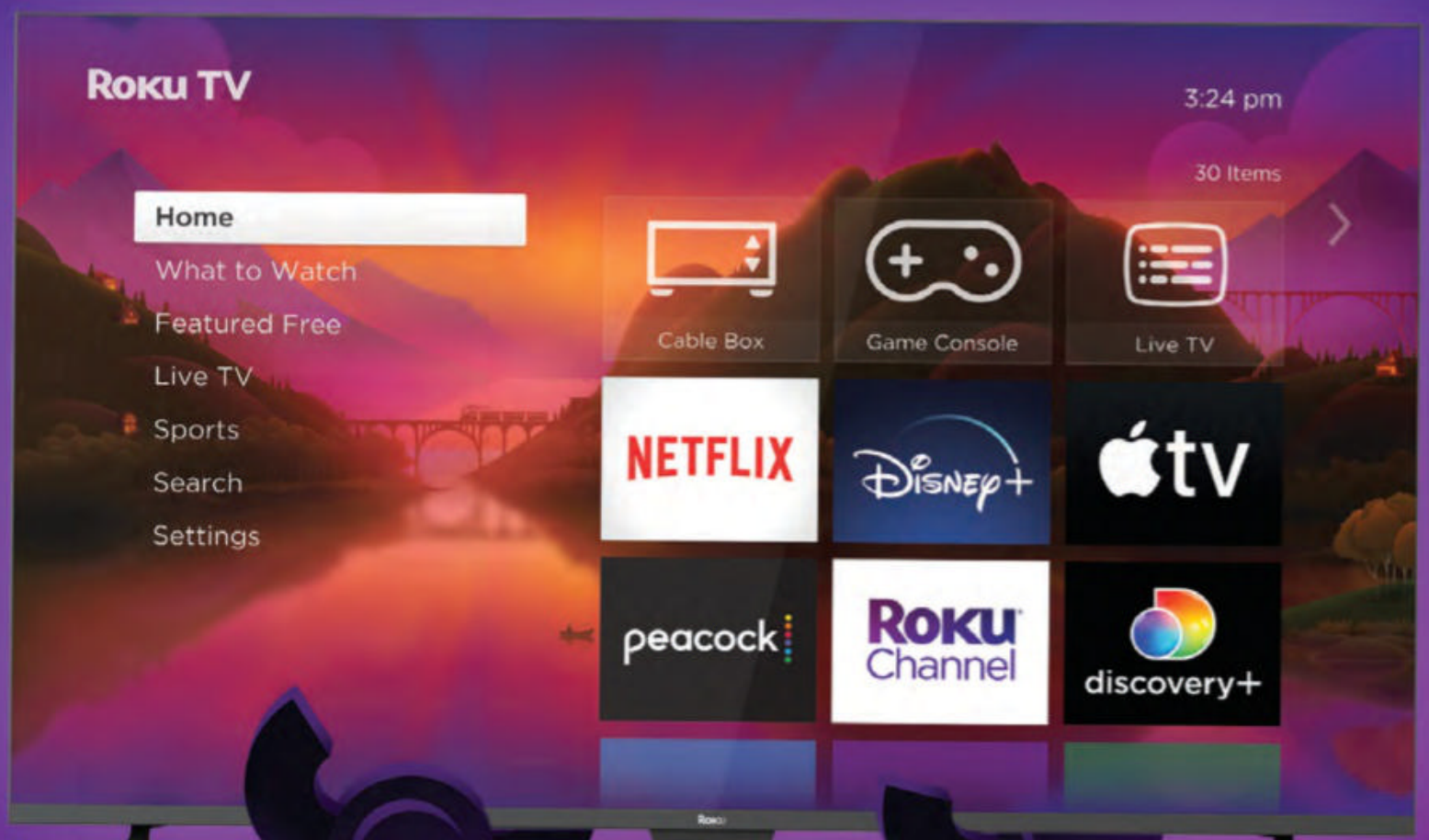

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