

VOL.
27

NO.
2



**This Old
House**

IMPROVE
YOUR OUTDOOR
ROOMS

SUMMER
2022

OLD HOUSE, MODERN ADDITION / SAVING A FAMILY LEGACY / KITCHEN GARDEN FROM SCRATCH

GREAT OUTDOOR PROJECTS

Plant groundcovers ■ **Make a lounge chair** ■ **Put up a pergola**
Hang a window box ■ **Add a brick patio** ■ **Build a beehive**



Jenn Nawada at
Stonegate Gardens
in Lincoln, MA

First Look!

**IDEA
HOUSE**
MOUNTAIN
MODERN

Page 64

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BLUE-GREEN ALGAE AND HOW YOU CAN HELP PROTECT YOUR CUSTOMERS FROM IT

The dark stains you see on roofs all over the U.S. and Canada are often caused by tiny cyanobacteria called *Gloeocapsa magma* — commonly known as blue-green algae.

It's a bacteria that travels on the wind and thrives in moist environments — so if one house in a neighborhood has it, others have probably been exposed as well. The darkening effect can impact the appearance and resale value of a home, as well as the effectiveness of highly reflective cool roofs.

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Algae protection is important to customers. In fact, when GAF asked homeowners about it, 87% said it was very-to-extremely important to protect their roof from blue-green algae stains.² 89% said warranty length was very or extremely important when purchasing an algae protection product.²

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Proprietary GAF Time-Release Algae-Fighting Technology

At certain concentrations, metals like copper and zinc are toxic to blue-green algae, and can help prevent it from growing. In fact, on much older homes you may still see pitted copper and zinc strips tucked up under the ridge caps.

Using copper is also the idea behind traditional algae-prevention granules. They contain a layer of copper that leaches onto the roof. And that works for a while. But eventually, the granules degrade and release less copper, which makes them less effective at stopping algae growth.

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² Based on 2021 survey commissioned by GAF of 500 homeowners in areas with moderate to high amounts of blue-green algae.

³ 15-year WindProven™ limited wind warranty on Timberline HDZ® Shingles requires the use of GAF starter strips, roof deck protection, ridge cap shingles, and leak barrier or attic ventilation. See *GAF Roofing System Limited Warranty* for complete coverage and restrictions. Visit gaf.com/LRS for qualifying GAF products. For installations not eligible for the WindProven™ limited wind warranty, see *GAF Shingle & Accessory Limited Warranty* for complete coverage and restrictions.



50 RENO PLANNER: PUTTING IN A PERGOLA

What you need
to know about
adding this
airy outdoor
structure, just
steps outside
your door



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COVER Photograph by Bob O'Connor | Styled by Caroline Woodward

IDEA/FILE



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nuts&bolts



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Ways to enjoy your great outdoors more

If the kitchen is the heart of the home, the garden—a.k.a. the yard—is the soul. So says a recent British survey on outdoor-living trends. It's a nice idea. After all, we treasure the backyard as a place to relax and regroup, to connect with family and friends, to feel the earth beneath our feet, and to dig in and get our hands dirty.

For me, the photo at right captures so much of what we want in a backyard these days. Designed and installed by *TOH* landscape contractor Jenn Nawada at the start of the pandemic, this outdoor space has all the essentials: places to sit and gather, spots to prepare a meal and to enjoy it, and even a plot for growing vegetables, bordered by lush, easy-care plantings. There's still plenty of open area for kids to run around—and for the dog that joined the family during the pandemic too.

The pages that follow are also chock-full of outdoor inspiration, starting with colorful spaces behind a 1930s Los Angeles home, including a pergola-covered patio and a fire-pit seating area (page 20). With pergolas appearing on more and more wish lists, we explore what it takes to add this sheltering structure (page 50). A patio is another classic outdoor upgrade, so we delve into what you need to know about using a traditional material that's a go-to for *TOH* mason Mark McCullough: clay-based brick pavers (page 39). If you need to fill bare areas in your garden beds, Jenn has advice for using ground-covers in combinations that do the job beautifully (page 46). Looking for a hands-on project? You'll find step-by-step instructions for building an all-weather lounge chair from composite deck boards (page 81), crafting a window box from cellular PVC (page 90), and even making a hive for honeybees (page 69). And if you're hankering to start a vegetable garden, we've got a guide to setting up a kitchen garden that enhances the look of your home while it supplies you with fresh produce (page 56).

The house projects featured in this issue have a common goal of opening up to their natural surroundings, too, whether that means putting a contemporary addition with big windows and a back porch on an 1880 Cape in Concord, MA (page 11), or on a circa 1800 farmhouse in Dutchess County, NY (page 30)—or building a modern house in Denver with three levels of outdoor living space that maximize mountain views (page 64).

Regardless of how or where you live, outdoor living space is more treasured than ever. Here's wishing you a summer with time enough to kick back and enjoy yours.

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



“Earlier in the pandemic, people spent more time in their outdoor spaces because they had nowhere else to go. Yards are still being used like never before, and people want to put every inch of their outdoor space to work.”

—JENN NAWADA,
TOH landscape contractor



FEELS LIKE A SUMMER OF STYLE.

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Around The House

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



BUDDY SYSTEM

He goes where she goes

FOR SOME LUCKY FOLKS, every day is Bring Your Best Friend to Work Day. And happily for the *TOH* team, Jenn Nawada's "loyal, chill, peaceful, curious, and intelligent" Bernese mountain dog, Moby, is her constant companion. Moby takes his job seriously, too, jumping into the landscape contractor's truck each day, whether they're visiting clients or filming at

the job site. "The set can get pretty frazzled from time to time, and when it does... **MOBY BREAK!**" says *TOH* mason Mark McCullough, who, like the rest of the gang, appreciates the therapeutic powers of this particular four-legged fan. As Jenn says, "Moby makes everyone smile."



Moby with Jenn during our cover shoot (left) and in the driver's seat of her truck, ready to take on the day (inset).

The writing's in the wall

WHILE WORKING ON his 1864 Dutch Colonial in Saratoga Springs, NY—*TOH*'s newest project house, page 60—homeowner Evan Williamson found some surprising artifacts: two dozen or so papier-mâché flongs, molds used to cast metal printing plates in the early to mid-20th century. Typically discarded after use, they're seldom seen outside of museums. "Crinkled-up newspaper was often shoved into voids as insulation—finding these perfectly preserved and far more rare flongs was really special," says Evan.



A found flong, made to create a printing plate for the *Saratogian* newspaper in 1918.

WATERPROOF PLASTER

Old-world handiwork

AS THE CONCORD CAPE neared completion (page 11), artisan Pauline Curtiss got to work in the main bath, giving the walls



and ceiling a centuries-old Moroccan finish called tadelakt, from the Arabic word meaning "to rub in." It took Curtiss and two others 10 days to create the silky-smooth, water-insoluble surface, troweling on multiple thin layers of limestone plaster, then sealing it with olive-oil soap. Curtiss loves that the result has the warmth of Venetian plaster with the major bonus of being waterproof. "It's a labor of love to create such a beautiful handmade surface, but well worth it!"



1

GONE BOATING

Time to hit the open water

IF GOOD WEATHER'S AHEAD—along with some rare time off—these *TOH* pros head straight for the water. “When I can get away, I like to boat—it’s my release, to relax with good friends and family on the water,” says general contractor Tom Silva, who now captains his fifth powerboat named *Tool’n Around*. Home builder Charlie Silva feels the same: “Everyone needs an escape, and for me it’s going out on my boat.” Sailing-addicted Richard Trethewey, *TOH*’s plumbing and heating expert, likes going the distance—he’s raced competitively from MA to Bermuda at least six times. “Sailing is all about the journey,” he says. “You break off from the mooring, put the sails up, and get into the rhythm of the sea.” No surprise, home technology expert Ross Trethewey loves it, too—the family spent entire summers living on their sailboat when he and his brother, Evan, were young. For host Kevin O’Connor’s family, summer fun involves all things water related, especially fishing, in hopes of reeling in “a keepah!” The best day not on the job site for this crew? Behind the wheel (or reel) and offshore.



4



Tommy’s love of boating started young, on Long Pond in Plymouth, MA.



2

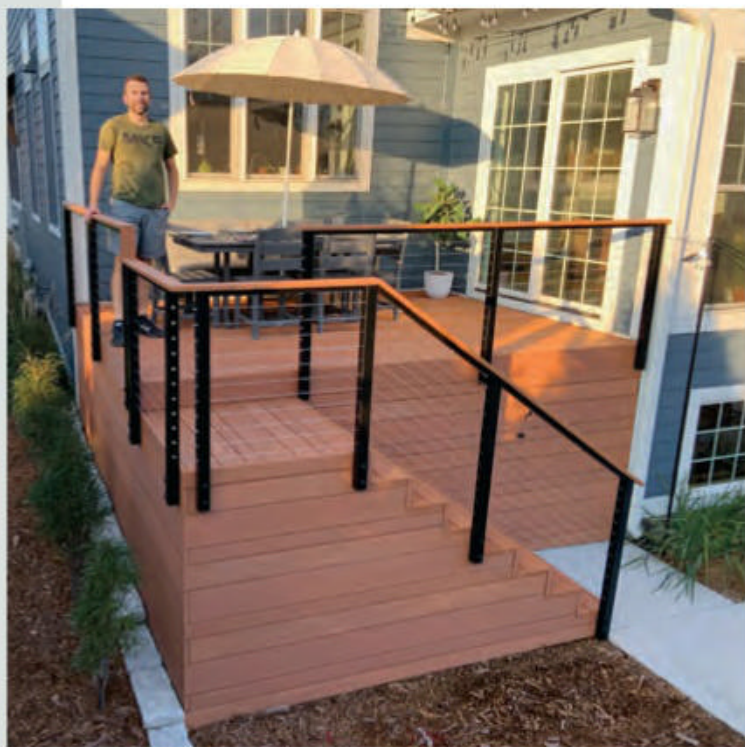


3

1. Tom at the helm of his Tiara Coupe, *Tool’n Around*. **2.** Charlie at the wheel of *Why Knot*, his Grady-White. **3.** Richard Trethewey, with sons Ross and Evan, on his Sparkman & Stephens sailboat, christened *Liberty*, in 2010. **4.** Kevin with his kids, Kaitlin, Liam, and Luke, and his father-in-law, Mike Feeks, on the chartered fishing boat *Harley*, a family favorite.

You did it!

Reader projects, tips,
and triumphs



Deck the house

TOH Reader: Darin Frerichs, St. Francis, WI

This deck is one of many projects I've designed and built for our house. I used varied-width composite boards and a cable-rail assembly; the frame is made of pressure-treated wood with butyl-tape protection on top. There's a hidden door near the bottom of the stairs to access waterproof underdeck storage, which we use in winter. We're very happy with how it turned out. It's one of several projects *TOH* has inspired me to build simply, but with a powerful outcome.



Planter appeal

TOH Insider: Greg Flessate, Chantilly, VA

I recently built two planters using pressure-treated fence boards rabbeted to create a shiplap effect. I tapered the sides, capped them with 1×4s top and bottom, and banded them with vinyl lattice molding and button plugs to simulate riveted metal. The feet are slices cut from a 4×4 post left over from another project. I drew inspiration from *TOH* projects over 40-plus years of being a fan. I hope Tommy would approve!

Primo pizza paddle

TOH Insider: Joseph Gagnon, Lincoln County, SD

Happy to share my first try at a pizza paddle with you. It's made of purpleheart, bubinga, African padauk, and curly maple. For added stability, I embedded two ¼-inch stainless steel rods across the grain in the blade. To protect it, I applied a matte epoxy finish that's food-safe once cured and designed to withstand 500°F. The project was surprisingly complicated, but I'd say the result's not bad for a first attempt!



READER TIP



To allow both sides of painted shelves to dry at the same time, make a single-level rack by punching roofing nails through a sturdy cardboard base. Lay the shelves on the nail tips, with a nail positioned to support each shelf corner.

TOH Reader: Bob Bodnar, Oakland, CA



Screen time

TOH Reader: Patrick Fiorentino (with daughter Kimmy Fiorentino, shown), Oak Ridge, NC

Our open porch wasn't very useful in the evenings because of mosquitoes and other flying insects. So my daughter, Kimmy, and I decided to screen it in. We framed the openings with cedar 2x4s, stapled the edges of the fiberglass screening to 2x2s screwed into each section, and then covered the staples with 3/4-by-1-inch strips that can be unscrewed easily to replace a screen. To complete the porch, we dressed it up with corner brackets. Now that it's screened, we spend countless hours out there and love it. As an avid fan of *TOH* and *AskTOH* since the shows began, I'm excited to show you this project!

READER TIP



To make an air compressor easier to move, create a caddy from an old nylon carry-on roller bag. Remove the top, then attach the tool's feet to the bottom using 1x's and screws. Coil the air hose around the outside of the suitcase, securing it with a Velcro strap.

TOH Reader: Danny Greenfield, Calvert City, KY



Mobile hen haven

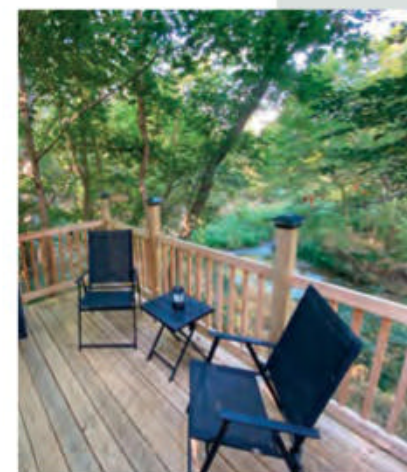
TOH Readers: Jennifer Ramsey and Dave Heishman, Saluda, NC

My partner, Dave, designed and built this chicken tractor for our four hens. We repurposed an old wood window that my mom had been saving and mounted wheels on levers to allow the coop to rest on the ground, protecting our girls from predators. The handle and the roosting rod inside are branches we trimmed from our crepe myrtles. The biggest surprise was how hard it was to staple the chicken wire so it would lie flat. We love the coop and will soon paint our house in the same colors.

Treetop retreat

TOH Readers: Allison and Tom Rode, Delphos, OH

Ever since we moved to my husband's family farm eight years ago, we've talked about building a little house in the trees near the home we live in with our two boys. In 2020, we built a 12-by-16-foot freestanding deck overlooking two creeks. Last year, with a birdhouse for inspiration and plenty of time at home, we completed phase two: a 12-by-19-foot house connected to the deck. We insulated it for year-round use and have enjoyed it for bird-watching, yoga, reading, games, and relaxing, plus as a kid hangout for sleepovers. We're proud of our "retreat" and grateful to *TOH* for all the inspiration.



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We're going to need to build a bigger shelf.



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INSPIRING SPACES, DESIGN DETAILS, AND FINISHING TOUCHES



 **This Old House**
CONCORD COUNTRY CAPE

With some help from TOH mason Mark McCullough and TOH builder Charlie Silva, the eating nook's existing fireplace got a new top course of brick, crowned by an oak-beam mantel.

From the TOH Job Site

Past meets present

An 1880 Cape gets a 21st-century update, providing the perfect balance of antique charm and contemporary style for a growing family



BY ROB WOTZAK | PHOTOGRAPHY BY JARED KUZIA



With a vintage Beatles LP playing in the background and dinner simmering on the stove, Megan and Lincoln Pasquina relax with their two young sons in their new great room, its floor-to-ceiling windows inviting in views of the rolling meadow, woods, and pond on their three-acre property in Concord, Massachusetts. The family moved in just a couple of weeks before, and “the tree-house room,” as Megan has dubbed it, is already their favorite hangout space.

The couple’s renovated Cape, built in 1880, wasn’t always so in tune with the land: When they purchased the place, it was a jumble of small rooms with an awkward flow and lackluster additions from the 1950s and 1960s. “We loved the coziness of the old house, but it felt a little claustrophobic,” Megan says. “And it didn’t open up at all to the property, which is spectacular and the main reason we bought the house.” The Pasquinas called on architect Andrew Sidford to update the existing 2,523-square-foot home with an open-concept living/dining area, a new primary suite, and two home offices to support the couple’s work-from-home lifestyle.

Sidford drew up plans for a bold renovation that

OPPOSITE: Homeowners Megan and Lincoln Pasquina and their sons enjoy the spacious great-room addition. Two walls of floor-to-ceiling windows make it the brightest, most inviting room in the house.

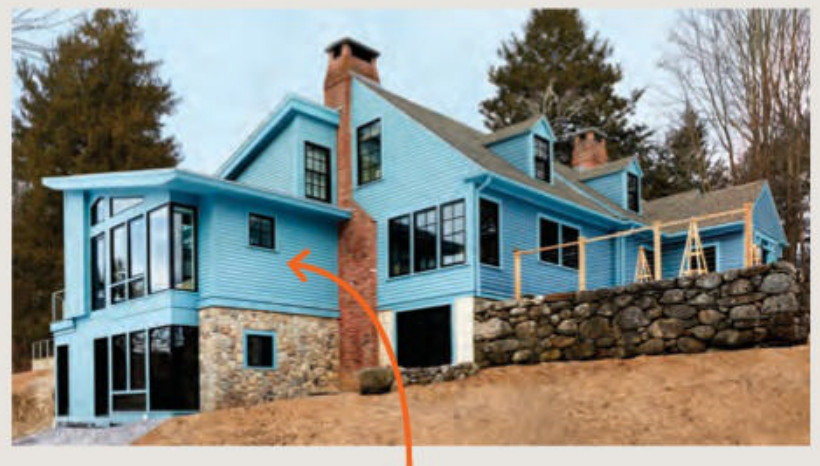
THESE PAGES
 EXTERIOR TRIM: **ACRE by Modern Mill**
 ROOFING: **GAF**
 WATERPROOFING
 MEMBRANE: **GCP Applied Technologies**
 EXTERIOR PAINT: **Benjamin Moore**
 WINDOWS, SKYLIGHTS: **Marvin**
 WINDOW SHADES: **Levolor**

CHANGING WITH THE TIMES

The street-facing facade of the 1880 house retains its classic Cape Cod appearance. But stroll around the back, and the striking new addition gradually reveals itself



Period-appropriate blue paint on the clapboard siding and six coats of black enamel on the restored front door make the old facade pop.



Low rooflines and smaller, more traditional windows help the street-facing side of the great-room addition blend in with the old house.



From the back, the tall, modern addition offers a striking contrast to the house’s modest facade, but balanced proportions make the two feel unified.



ABOVE: Nestled next to the whitewashed brick chimney in the great room, walnut cabinets hold a glass-front bar, plus plenty of space for Lincoln's extensive record collection.

LEFT: Traditional-style windows follow the contours of the built-ins, and the dueling shed rooflines.

THIS PAGE

SUBFLOOR: **Huber Engineered Woods**
 FLOORING: **Baird Brothers Fine Hardwoods**
 RUG: **Thayer Design Studio**
 RECESSED LIGHTS: **Lotus LED Lights**
 PAINT: **Benjamin Moore**
 CUSTOM WALNUT BUILT-INS: **Conor's Custom Carpentry**
 INTERIOR DESIGN: **Meghan Shadrack Interiors**

juxtaposes modern and traditional elements. The project, which kicked off last June and took eight months, is part of *TOH*'s 43rd television season.

The plan mostly preserved the house's existing footprint and its 19th-century spaces, while replacing the previous additions. From the street, the facade remains largely unchanged. Inside the original front entry, the staircase is now flanked by graceful, period-appropriate newel posts that Megan crafted with *TOH* general contractor Tom Silva in his workshop, conjuring fond memories of the wood-turning classes she attended years ago at Boston's North Bennet Street School. "It was fun to rediscover something I love with an expert who's amazing at it," she says of the experience. Nearby, Lincoln's office is tucked into a quiet corner with a bay window, located between a full bath and a bedroom turned music room.

The house's transformation begins to reveal itself as you head left off the entry, past a butler's pantry that backs up to a new powder room



and into the kitchen. Once the living room, the cook space is a warm mix of old and new, with neutral-colored cabinets anchored by a massive island painted a vibrant blue and topped with dramatically veined blue quartzite that has thick white swirls that remind Lincoln of ocean waves. The stone is framed on three sides by beefy bleached-oak countertops that appear to float, thanks to hidden steel brackets.

The Pasquinas kept the existing corner fireplace, adding a built-in seating area alongside it with views out to the front garden. “By taking out the back wall of the living room and reorienting the kitchen, we were able to take advantage of the morning light that comes in from the old front of the house,” Sidford explains. The new layout also helps link the original and modern parts of the house. “The built-in breakfast area feels like it’s in the old house, contained by the existing fireplace, while the kitchen feels like a bridge between the old and new,” he says.

ABOVE: The kitchen island, topped with quartzite and white oak, is framed by two walls of custom cabinets that hold fridge and freezer columns, a pro-style gas range, and a prep sink.

RIGHT: The new center staircase has oak treads and airy cable railings, and ushers sunlight into the middle of the house.

THIS PAGE

APPLIANCES: **BlueStar**
CABINETS: **QCCI**
CABINET HARDWARE: **Armac Martin**
COUNTERTOPS: **Stone Surfaces**
SINKS, FAUCETS: **Kohler**
PENDANTS: **Rejuvenation**
WOOD PANELING, COUNTERTOP: **Grothouse**
KITCHEN DESIGN: **New England Design Works**





Just around the corner lies that addition's great room, the most dramatic part of the house. With high shed roofs and 14-foot-tall windows, it stretches more than 20 feet into the sloping backyard, adding a large, lofty space that maximizes the views. Roof forms pitched in different directions connect it to the existing Cape, requiring complicated framing and flashing intersections, but the end result looks good from every angle. "There's an elegance to the space that masks the complexity of the construction," says *TOH* host Kevin O'Connor.

Off the great room, a modern staircase with an elevated landing anchors the center of the renovated house. "But because it uses stainless steel cable rail, there's no obstruction of the views," says Tom of the uninterrupted sight lines through the great room to the outdoors.

At the top of those stairs, to the right, are two bedrooms and baths for the children to grow into, with a built-in reading nook in the hall for story time. To the left of the stairs, past the second-floor laundry room, is Megan and Lincoln's primary-suite retreat over the new garage. To construct it, *TOH* home builder Charlie Silva and his crew demolished the existing single-story garage foundation and promptly discovered that the main part of the house had no footing. "Issues

ABOVE LEFT: The informal dining room features an eclectic mix of furniture and a whimsical stenciled pattern on the accent wall and ceiling. Sliding doors lead out to a new side-porch area.

THESE PAGES

WINDOWS AND PATIO DOORS: **Marvin**
 HVAC: **The Unico System, ZONEFIRST**
 WALL STENCILING: **Patina Designs**
 SCONCES: **Circa Lighting**
 RUG SUPPLIER: **Landry & Arcari Rugs and Carpeting**
 RADIANT HEAT: **Viega, Viessmann**
 INTERIOR DOORS: **Baird Brothers Fine Hardwoods**
 ELECTRICAL PANELS: **Schneider Electric**
 DECKING: **MoistureShield**
 ARTWORK: **Powers Gallery**



like these come up a lot—but my time frame doesn't change," says Charlie of the extra work involved. To connect the old foundation, now properly supported, to the new, his crew pinned them together by drilling holes and joining the two structures with epoxy and rebar. This type of problem-solving, he says, "is one of my favorite parts of the job." Despite construction delays—the house sits near wetlands, so the work was subject to environmental restrictions—Charlie met his deadlines and delivered a new two-car garage with a large finished basement below that holds a gym, a family room, and plenty of finished storage.

Above the garage, Megan and Lincoln's bedroom has a sloped ceiling like the two bedrooms in the original part of the house, but a higher ridge makes the space feel airy and modern. "I like that there's a lot of privacy and plenty of space, but that it's also very cozy," says Lincoln. In their bathroom, everything is about taking in the property. One tall dormer frames the open shower, with windows facing up the hill into the woods. A soaking tub is set into a lower dormer, which enjoys broad views down the hill and across the fields behind the house. A waterproof plaster wall finish called *tadelakt*—a mixture of troweled-on lime plaster and natural oil soap—covers the room from baseboard to ridge, adding a warm,



handcrafted element. Another detail that sets the bathroom apart: its radiant heating—not just in the floors, but in the shower walls as well.

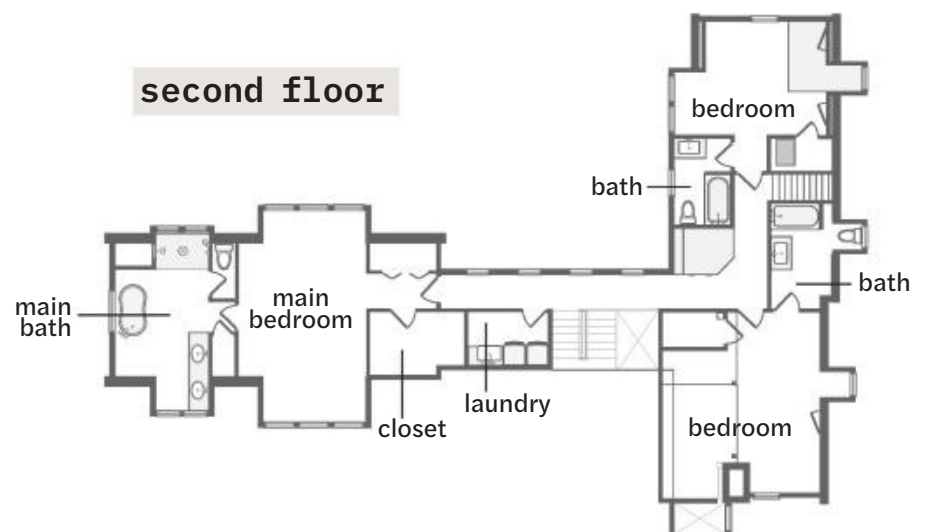
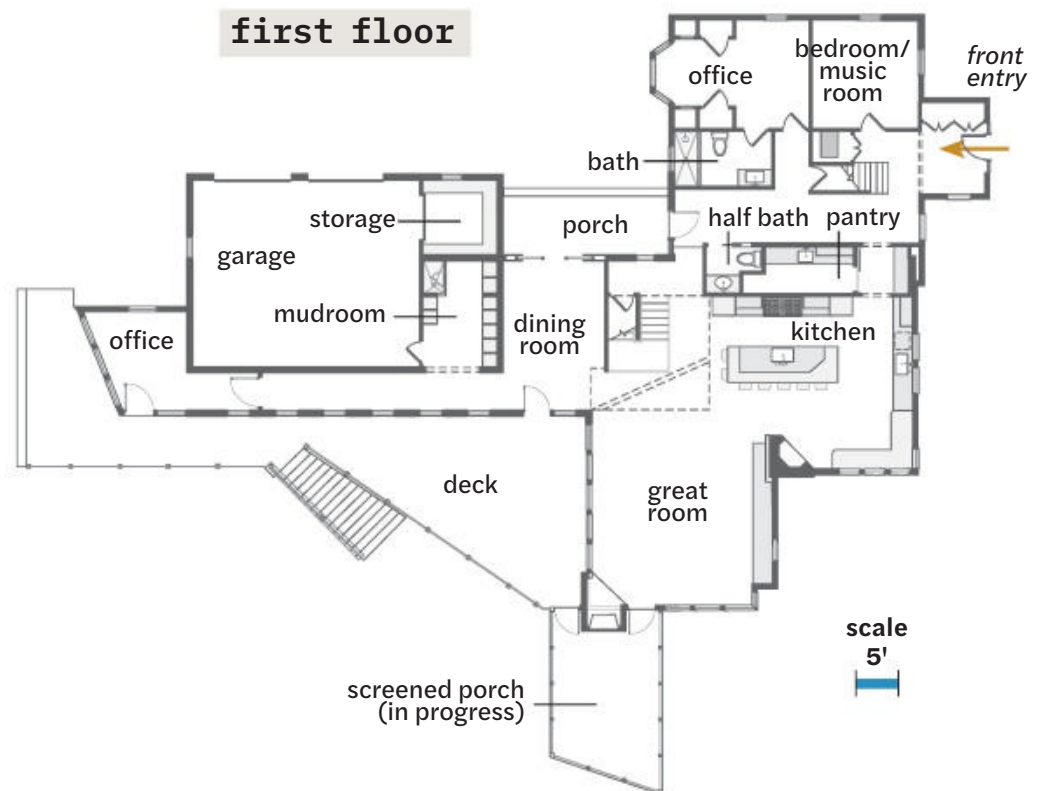
“There are times when radiant is worth every bit of expense and effort, and this is one of them,” says *TOH* plumbing and heating expert Richard Trethewey. Hydronic tubing runs through the floors in all four bathrooms, throughout the first floor, and even underneath the concrete slab in the garage, keeping the cars warm in winter as well as the main suite above. Radiant was an especially apt choice for the great room. “With all that glass, there was no obvious place to put ductwork and registers,” Richard says. “And radiant won’t create air movement in that big open space.” An ultraefficient condensing gas

OPPOSITE RIGHT: Lincoln’s office, on the north side of the original Cape portion of the house, has a bay window that frames the desk area and allows in plenty of afternoon sunlight.

ABOVE: Megan’s office is located at the opposite end of the house, off the garage and away from the main activity areas. Tall windows cover most of the three exterior walls, bringing the outdoors in. A wood pendant punctuates the high, sloped ceiling.

FLOOR PLANS

All but the new great room, Megan’s office, and part of the basement occupies the same footprint as the existing house, but the layout has been reimagined. There’s a spacious new kitchen at the front, where the living room once was. It connects to the open-plan great room, which extends into the yard for dramatic views. Putting the main suite over the two-car garage meant demolishing the previous addition; its foundation would not have supported a second story. The four-bedroom, four-and-a-half-bath house now holds 4,025 square feet of living space on two floors, plus a large finished basement (not shown).





boiler in the basement's new mechanical room sends the correct water temperature to a mixing valve, which then feeds all the radiant manifolds throughout the building. A nearly invisible miniduct system complements the in-floor heating, acting as a second-stage heating system while also providing cool air in summer; together they keep every corner of the house comfortable year-round.

Outside, garden designers Maria Wheeler and Mary Kincaid, together with Megan's mother, Cindy Barrett, added bluestone-edged vegetable beds with cedar obelisks and pea-stone paths to a neglected stone terrace outside the kitchen window. *TOH* landscape contractor Jenn Nawada and *TOH* carpenter Nathan Gilbert, along with his father, Bill, installed cedar-post-and-cable-rail trellises along one side. Jenn also convinced the Pasquinas that a large crab-apple tree was worth saving. "It was at least seventy-five years old and just needed some heavy pruning to be healthy," she says. "It adds lots of color, and wildlife love it—it's the perfect tree for this natural setting."

More than just an updated antique with a new modern addition, the home is a cohesive collection of unique spaces. "The different experiences you have as you move from room to room are what make the house special," says Sidford, who varied the room proportions so that natural light pours in from every angle. The Pasquinas are simply in awe of the transformation. Says Megan, "I could never have imagined that a house could feel this way." 🏡



TOP LEFT: For now, the Pasquinas' two young sons will share a bedroom at the front of the house. Where the old portion meets the addition, the architect took advantage of the room's idiosyncratic lines by designing an elevated play area that will accommodate a mattress later on.

TOP RIGHT: A skylight over a colorful built-in reading nook brightens up what would otherwise be a dark corner of the upstairs hallway.

ABOVE: The main bedroom's dramatically sloped ceiling meets low walls on two sides, making the room feel both airy and cozy.

WATCH Explore more of the finished project house at thisoldhouse.com/Concord-country-cape



LEFT: In the main bathroom retreat, a sculptural white soaking tub pops against sage-colored floor tile and the earthy lime-plaster texture of tadelakt-covered walls.

THESE PAGES

SKYLIGHTS: **Marvin**
CUSTOM BUILT-INS: **Conor's Custom Carpentry**
BATHROOM WALL
TREATMENT: **Patina Designs**
BATH FIXTURES: **Kohler**
BATH FANS: **Panasonic**
WINDOW BLINDS: **Levolor**
SCONCE: **Circa Lighting**
PENDANT: **Etsy**
ERV: **RenewAire**

Outdoor Living

Zoned for relaxation

Designated activity areas and low-maintenance finishes turn a neglected backyard into an inviting destination

BY NINA MALKIN

Where a mild climate allows outdoor living year-round, a thoughtfully designed yard can double your living space. That was precisely the case for Kelly and Jeff Mindell, who bought their 1930s Los Angeles bungalow in part for the good-size backyard. But the existing lot was “a wasteland,” Jeff recalls—and unsafe for their young son, with a decrepit pergola and defunct in-ground hot tub.

Happily, though, the existing features did suggest places for dining, relaxation, and play. So the couple resurfaced the patio slab alongside the house to lay patterned cement tile, and rebuilt the rotted pergola over it. They also swapped the patch of gravel around the hot tub for a fire-pit seating area paved with low-maintenance decomposed granite (DG). Then they turned to landscape designer Rachael Freitas for a planting plan. To minimize upkeep, she suggested a lawn of non-toxic synthetic turf—a smart option in a drought-prone area with water restrictions—and drip irrigation to help the plants she put in thrive.

The result: a backyard getaway that can host a neighborhood gathering or private family time. As Kelly says, “It’s our little oasis.”



BEFORE The broken hot tub was a hazard as well as an eyesore. With the tub and its masonry surround removed, the fire pit went in on top of a gravel base, which was covered with DG.

↑
“We didn’t love the idea of having synthetic grass right next to an open flame,” says Jeff of the decision to center the gas fire pit on an area paved with DG. Since a gas line already existed on the property, hookup was easy.



EXPERT ADVICE

“Clearly defining activity areas helps maximize an outdoor space, so think about how you really want to use the yard for kicking back, entertaining, and giving kids room to cut loose.”

RACHAEL FREITAS,
designer and owner,
UPCOUNTRY Plant + Design

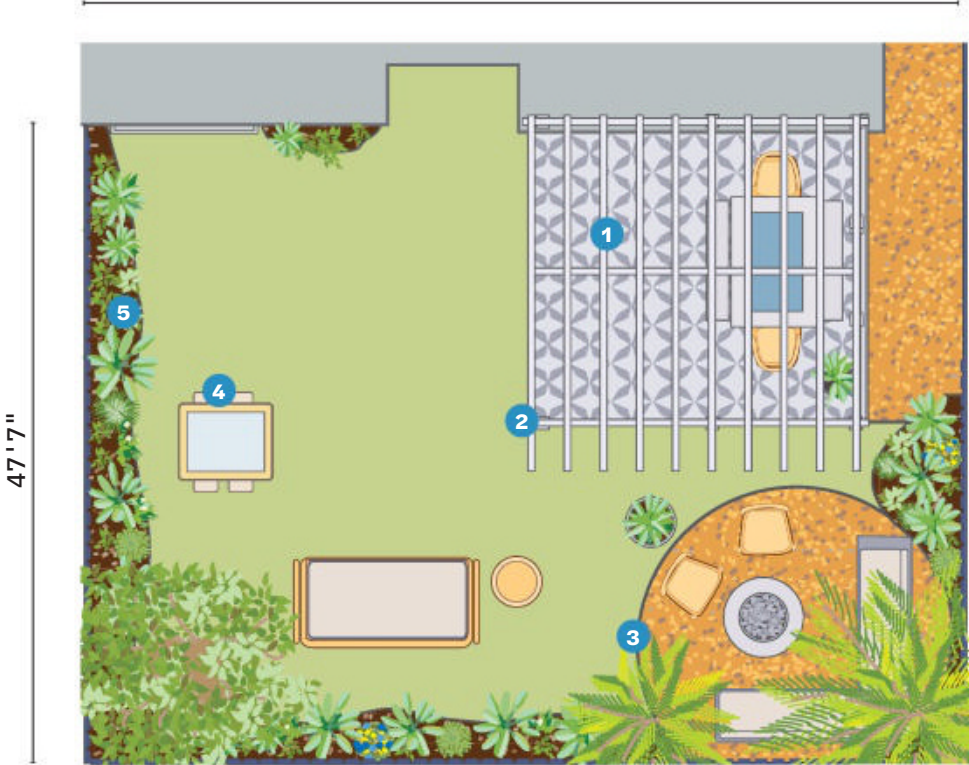


↑ Since the existing patio footprint was ideal for dining, a fire pit was installed to anchor a seating area in the yard’s back corner—an inviting place to gather after an evening meal. The rest of the yard is largely left open for play. “It’s the perfect spot for Slip ‘N Slides,” Jeff says, as well as for their son’s annual birthday-party bounce house.

after

2,300 square feet

48' 6"



LANDSCAPE PLAN

The Mindells’ yard features defined zones for dining and gathering, as well as an open area for play. Here’s what they did:

- 1. Kept the 353-square-foot patio, removed the mortared flagstone, and leveled the surface to accept tile.
- 2. Rebuilt the existing pergola, reusing the two 4×4 posts and the 2×8 beam closest to the house. The rafters are supported by an additional beam in the center; a slatted wall on one side adds privacy.

- 3. Removed an in-ground hot tub and its surround, dug out the area, hooked up the gas fire pit, laid gravel, and then topped it with DG, which was watered, rolled, and compacted.
- 4. Set up a kids’ crafts/snack table in the open area. Furniture covers protect the furnishings when it rains.
- 5. Replaced rotting pickets around the perimeter of the yard, stained the fence black, and added layered plantings in front of it.



↑ “We wanted a pop of pattern against the clean backdrop of the turf,” Kelly says of the patio, which was resurfaced and covered with 8-inch-square cement tiles. While the former pergola had a closed roof, the Mindells chose open rafters for an airy feel. Kelly created stationary sunshades from UV-resistant fabric. A plug-in pendant hangs from the center beam.



BEFORE When the couple bought the house, rustic flagstone covered the patio slab, and the pergola had a solid roof. The washer and dryer sat outside until an interior renovation brought them into the primary suite.

↑ A shade structure is a natural extension for a classic Southern California bungalow. Clean white paint refreshed the stucco exterior, which blends seamlessly with the rebuilt pergola. Open sight lines and similar furnishings and finishes unite the shade structure with the fire-pit seating area in the yard.



← The pergola's slatted privacy wall screens the view of the neighbor's garage while letting in filtered light. The ends of the 2x8 rafters were left square to accentuate the shade structure's minimalist style. Continuing the cement tile on the edges of the patio slab helps give the whole space a more finished look.



With rotted pickets replaced, the fence was coated in black stain to set off layered plantings of giant bird-of-paradise, asparagus fern, yellow kangaroo paw, philodendron selloum, green aeonium, and a spike-free agave attenuata. Faux turf and drip irrigation make upkeep easy.



The yard is big enough to include open areas for activity flexibility—handy for keeping little ones occupied. But the kid-size play table the Mindells bought is not weather resistant, so they cover it during infrequent rainfall. “Lesson learned!” says Jeff.



GET THE LOOK

These stylish finds stand up to the elements with sleek lines, earthy textures, and easy-care finishes

1. Sleek fire pit / LATITUDE

This concrete-and-stainless-steel gas fire pit lights with the push of a button and puts out 40,000 Btus of heat. 12" H Fiber Reinforced Concrete Outdoor Fire Pit Table, \$670; allmodern.com

2. Outdoor pendant / PROGRESS LIGHTING

This etched-glass pendant gets an airy look from an outer shade of synthetic rattan. Pawley Collection One-Light Natural Rattan Coastal Outdoor Hanging Pendant Light, \$268; progresslightingexperts.com

3. All-weather wicker chair / LENCO

UV-resistant resin wicker wraps a rust-resistant aluminum frame. All-Weather Wicker Outdoor Chair, \$350; worldmarket.com

4. Graphic tile / CLÉ

Bold pattern makes a patio pop. This cement tile takes both freezing temperatures and harsh direct sun in stride. Wonderful Copenhagen 8-by-8 Cement Tile, \$12.50 per square foot; cletile.com



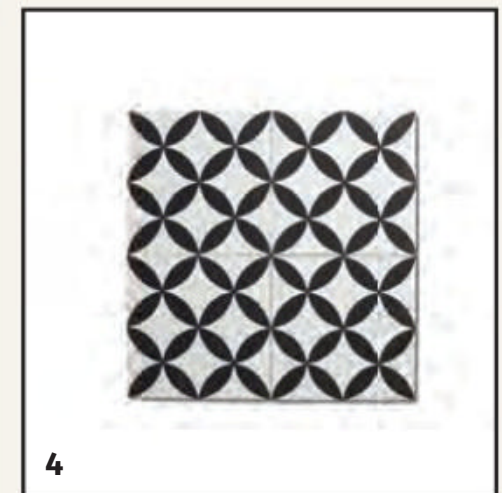
1



2



3



4

Before & After: Bath

Planning ahead

A thoughtful remodel creates a safe, stylish space that will allow a designer's parents to age in place comfortably

BY KATELIN HILL

When choosing a designer for a remodel, it's a good idea to hire someone who will consider your future needs as well as your present wants. Even better when that person is your daughter and knows your taste to a tee. While Catherine Williamson's parents wanted the 1950s Cape they bought near her family in Columbus, OH, to be their forever home, they could see that the second-floor primary bath (and the basement laundry) might not be doable for them down the road.

So they turned to Catherine and her designer-husband, Bryan, to improve the existing first-floor guest bath and find space for laundry nearby. Key to making the bath more accessible: ditching the tub for a curbless walk-in shower. Stealing a foot of space from the guest bedroom and sacrificing some of the bath's linen cupboard allowed the designers to achieve two goals: a larger, 4-by-5-foot shower with a bench seat in the bath, and a laundry closet that opens onto the hall. A second sink and a pair of medicine cabinets boost the bath's storage, while brushed-bronze faucets and brass hardware add a warm counterpoint to the new marble vanity top and floor tile. Now the space feels sophisticated, fresh, and—most importantly—much safer for Catherine's parents when they need it.



A mix of traditional and contemporary finishes gives the renovated bath a timeless feel. A soothing palette of soft whites and grays, paired with new crown molding and wallframes, adds a gracious, updated look in a bath that currently serves guests.



BEFORE While the basic layout was a keeper, the bath's mottled-brown floor tile, laminate vanity, and acrylic sink top and tub walls were dated and dreary.



Picture-frame molding applied to the warm-white walls echoes the lines of the vanity and adds an architectural touch. Reflected in the arched medicine cabinets are new linen-cupboard doors with similar molding details, built by Bryan.



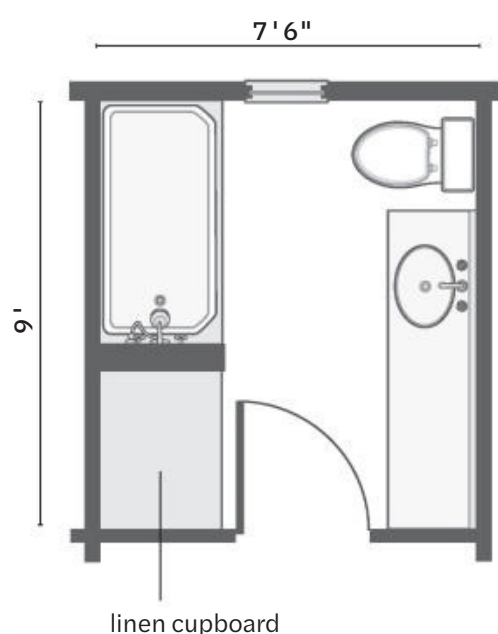
The marble-topped dual-sink vanity was a big-box-store score that got a fresh coat of gray paint; its rounded corners make maneuvering easier. Brushed-bronze faucets with lever handles are easier on aging hands; brass knobs add a custom touch.



FLOOR PLANS

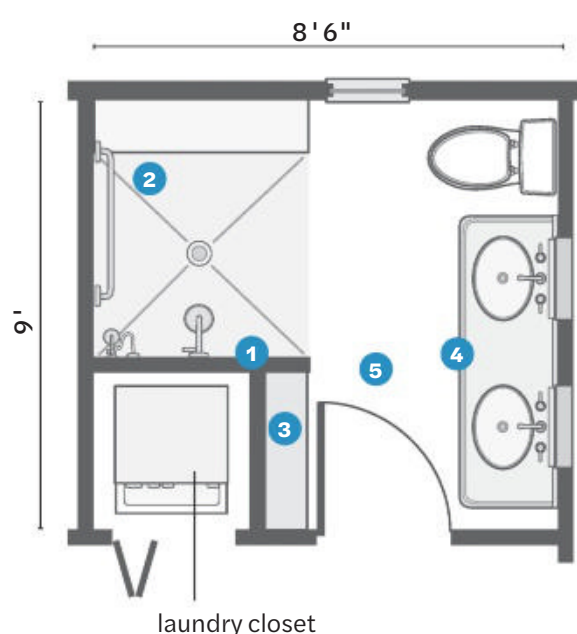
before

68 square feet



after

77 square feet



Planning ahead to enable first-floor living, the designers annexed space from an adjacent bedroom for a large walk-in shower in the bath and a hallway laundry closet.

1. Bumped the tub/linen-cupboard wall out about 12 inches, stealing square footage from a guest room.

2. With the old tub/shower gone, built a curbless walk-in shower with a built-in bench and a grab bar in the expanded footprint. A shower curtain contains errant splashes.

3. Rebuilt the linen cupboard, which ceded space to the laundry; it is now 8 feet tall, 40 inches wide, and a shallow 10 inches deep.

4. Swapped the 72-inch vanity for a 60-inch model with a second sink, and installed medicine cabinets with sconces above to compensate for some of the lost storage.

5. Widened the entry by a couple of inches and upgraded the door; installed a new vent fan and recessed lights in the ceiling to ensure a clean, bright space.

An adjustable-height shower wand keeps water within reach, while a generous grab bar adds stability. Gray subway tile with a handcrafted look wraps the shower walls, coordinating with the white tile that lines the sink wall.



Mesh-backed marble floor tile in a parquet pattern has an updated traditional look. A coordinating marble-topped built-in bench provides convenient seating when it's needed and plenty of space to set down toiletries.



DESIGNING A BATH TO SUIT ALL AGES

Thoughtful design choices are what make a forever home, as designers Catherine and Bryan Williamson demonstrate in this bath renovation. Here, they share some of their aging-in-place strategies

1. Factor in seating arrangements

A sturdy bench is a key feature for anyone who may become unsteady. Not only is the shower wand's height adjustable, but the Williamsons also made sure the hose could reach the bench when someone is seated. "It's one of those things that you may not realize until you actually try to use it," says Catherine.

2. Raise the bar, designwise

When it comes to style, grab bars have come a long way. The Williamsons chose a sleek, brushed-brass model that coordinates with the rest of the finishes, installing extra blocking when the walls were open in order to safely mount it. Since it also doubles as a towel bar for washcloths, guests are none the wiser.

3. Consider traction underfoot

The Williamsons strategically selected a parquet tile pattern that offers plenty of grout lines. Mesh-backed mosaics and small hexagons or penny rounds are other options. For a look with fewer grout lines, opt for textured or matte tile with a DCOF rating of at least 0.42 for good slip resistance.

4. Choose the grout color with care

More grout lines mean more to keep clean—a challenge for homeowners at any age. The designers knew white grout was out of the question for this high-traffic first-floor space (it currently serves as the powder room), so they finished the gray-and-white tile with a light-gray grout that is less likely to look dingy. 🏠

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Curb Appeal

Best face forward

With an upgraded entry, revised rooflines, and a sophisticated tone-on-tone color scheme, architect **Jeff Troyer** smooths out the awkward angles on a Colonial Revival cottage

BY JEREMY LANGE



It was the large kitchen and open floor plan that sold Meg Copley on her 1931 house in Norwalk, CT. But she’s not a fan of the blue vinyl siding or the awkward office bumpout in front, saying, “It just seems like an afterthought.”

So we asked architect Jeff Troyer to help Meg envision her Colonial Revival’s true potential. “My primary goal was to better integrate the front addition and to extend the entry to really accentuate it,” Troyer says. He simplified the roofline on the left with a shallow curve and added a second gable over the front entry, bringing that section forward by a foot and cladding it in brick to tie into the chimney. A curved portico roof over a new arch-top door offers some shelter from the weather and emphasizes the entry even more.

Copley’s reaction? “I love the return to wood siding and the portico roof—it’s just what I was looking for but couldn’t imagine,” she says. “The addition of brick on the entry and the new rooflines really bring the house together.”



FINISHING TOUCHES

“Timeless accents complete the upgraded look,” says architect Jeff Troyer. Colored trim looks modern but reflects the house’s colonial-era roots; the new entry elements boost its charm.



PAINT PALETTE

Arctic Shadows (siding, trim), Fieldstone (brick), Kendall Charcoal (shutters), Good Morning Sunshine (door). Aura Exterior Paint, \$90 per gallon; benjaminmoore.com



SHUTTERS

Simple Colonial-style shutters complement a number of architectural styles. Flat Panel Shutters, from \$1,200 per pair; timberlane.com



ENTRY LIGHT

This ceiling-mount fixture has an ultra-low profile. Astor LED Flush Mount in Oil-Rubbed Bronze, from \$499; rejuvenation.com



ENTRY DOOR

An arched door with antique glass accents the entry. Round Top Glass Panel Door in Spanish Cedar (slab only), about \$3,000; vintagedoors.com



A large porch wraps the
addition's first floor,
opening it to the outdoors.



House Tour

A new outlook

With a wraparound porch and oversize windows that frame the views, an updated rear addition embraces its pastoral setting—and readies a well-loved, almost 220-year-old farmhouse for another century of family life

BY DEBORAH BALDWIN | PHOTOGRAPHY BY AMANDA KIRKPATRICK

New clapboard siding matches the original, while black window sashes add a contemporary contrast.



Some folks like to joke that an old country house is held together with spit and baling wire. But Chris Colomello, a general contractor in Amenia, New York, doesn't kid around. "We do it all the time," he says, referring to the steel ties his crew tightened overhead in this once-quaking 19th-century house. "It keeps the exterior walls from pushing apart."

By all outward appearances the post-and-beam, timber-framed antique was fine. But dips in the floors suggested otherwise. "We did some investigating and found sections of floor joists that were cut out at some point to run ductwork," Colomello recalls. "It was a scary thing to find because by no means was this house structurally sound."

Homeowners Brian and Alexandra Tart waited 15 years before figuring the time was ripe to renovate. Their decision sprang less from fears the walls would pull apart and more from a desire to jack up the house's light and efficiency. "We didn't want a different house," Alex says. "Just a better-functioning one." The windows in back hardly captured the view, the kitchen felt dated and cramped, and there were just two bedrooms and a shared bath upstairs for the couple and their twin boys. The house, at 2,140 square feet, wasn't too small exactly, but it was disjointed.

The couple had acquired the two-bedroom, two-bath place as a weekend retreat, complete with a collapsing barn, after Brian's aunt, an architect, flagged the area as inviting. "She had bought property there and said, 'You should come up here—they just extended the train line,'" Brian



New heart-pine floorboards echo those in the old portion of the house.

TOP LEFT: The 19th-century house was built to face the road and, from the front, looks much as it did then. In an energy-saving move, an insulated steel roof was suspended over the original structure.

ABOVE: A bank of windows ushers light into the new open kitchen. The space feels bright and airy thanks to the absence of upper cabinets, an abundance of Carrara marble, and a vaulted ceiling that climbs above 9 feet.

says. They were newlyweds, living in a one bedroom in Manhattan, with busy jobs that called for a way "to unplug and recharge," as Brian puts it. It all happened very quickly. The two were so green that they not only bid the asking price but also thought nothing of nabbing a 10-foot dining table at a Midtown flea market, strapping it to the top of their Subaru, and crawling all the way upstate.

This neck of Dutchess County was pretty quiet at the time; at first their social life consisted of playing Scrabble with a 92-year-old neighbor. But they kept up the commute, which got them out of the city and away from work, while getting to know the house and its 2½ acres, quirk by quirk. "The well went dry immediately," Brian recalls. "It went down only 20 feet." They painted inside and out, retiled both showers, laughed off the



first floor's low ceilings (Brian is not short)—and hired a douser, “a psychic who works remotely,” Brian says, who guided them toward water—500 feet down. After twins Andrew and James arrived on the scene, and the family moved into a 1901 fixer-upper in Brooklyn, everyone was glad to have a yard where you could kick around a ball.

Over time, the couple patched the fencing and raised garden beds, replaced some windows, and restored the barn, where Brian now parks his table saw and log splitter. Nothing in the house was level or plumb. The first floor sank at the center, one exposed collar tie upstairs was visibly bowed, and the windows that hadn't been replaced blew cold air. The kitchen squatted in a one-story addition that went back to the 1970s or 1980s—no one knows for sure.

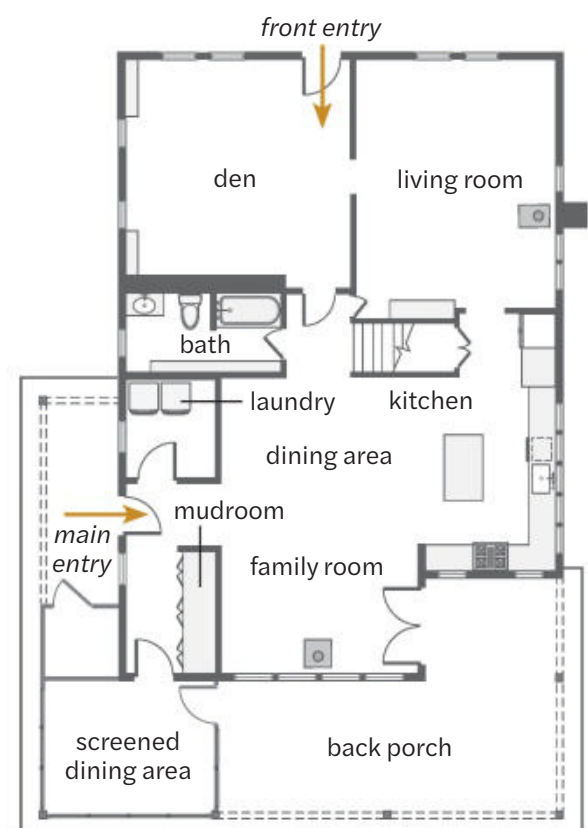
TOP: In contrast to the existing rooms downstairs, the first floor of the addition has an open plan and lofty ceiling heights.

BOTTOM: An energy-efficient woodstove grounds a new gathering spot off the dining area. The two-over-two windows' simulated divided lights evoke vintage style, while their generous proportions and black outlines feel modern, framing views of the porch and beyond.

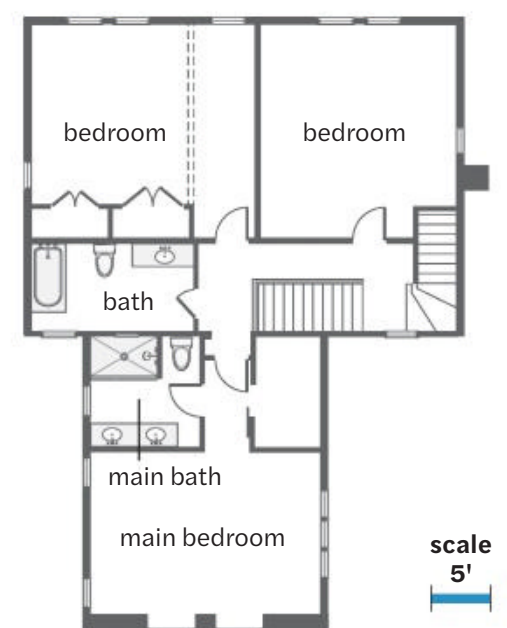
FLOOR PLANS

The former two-bedroom, two-bath, 2,140-square-foot house swapped a one-story, concrete-slab addition for a larger two-story one with an open kitchen-dining-living area, laundry, and mudroom downstairs, and a primary suite upstairs. A wall came down to open up the main staircase, and proper stairs went in to access an attic bonus room (not shown). The now three-bedroom, three-bath house holds 2,870 square feet of conditioned space.

FIRST FLOOR



SECOND FLOOR





The addition's history wasn't the only unknown. Town and county records are skimpy, with little documentation about when or how the house was altered over the years or even when it was built. Betsy Strauss of the Amenia Historical Society thinks a couple named the Reeds, who married in 1803, probably built the house around then to raise their family in what was an emerging hamlet near the Connecticut border, bristling with farms, mills, factories, and blacksmiths. Others have told the Tarts it may have been a meetinghouse—the rooms, baths included, are oddly large—and surmised that it may have been moved from another site, perhaps to house tenant farmers. With a chimney but no trace of an original fireplace or kitchen, and a mix of plaster and drywall, it's unclear what was done to the structure or when.

The town gradually moved up in the world, thanks partly to that rail spur—picture a modern-day milk train delivering folks from the city. In 2015, plans were laid for a luxury golf-course resort and gated community, and the rush was on. It made sense to enlarge and enhance a beloved old



ABOVE LEFT: The main staircase now has a light-channeling balustrade stained to match the original heart-pine floor. The exposed attic joists are believed to date to the early 1800s.

ABOVE RIGHT: Windowed attic space in one of the bedrooms was opened up by previous owners. New steel ties keep the centuries-old exterior walls from slumping.

house with stunning views and well-kept gardens.

As sometimes happens, Alex had met their architect, Jill Porter, on their kids' kindergarten playground in Brooklyn. Porter had renovated her own weekend place nearby. She got to know the couple's house, and they eventually started talking. "When I mentioned reorienting the views, Jill said, 'I see something glassy,'" Alex says. "She had me at that word. She also said, 'It's a humble house, so it's important to get the massing right.'"

"It sounds trite, but they loved their house," Porter says. "It's very deep, their affection for their home." So there would be no big alterations to the layout of the existing rooms in the original portion, only a seamless addition scaled and



EXPERT ADVICE

“It’s important to honor an old house like this one. We did that by paying attention to its scale and proportions, and keeping the addition smaller, with a lower ridgeline.”

JILL PORTER,
architect



ABOVE: Washed in natural light, the main bedroom gains extra airiness from a vaulted ceiling. Architect Jill Porter concealed a chase for the woodstove below by flanking it with cozy window seats joined with a continuous heart-pine top.

LEFT: Clean, simple lines and period-style finishes, including a Carrara marble-topped double console sink and hex floor tile, keep the addition’s primary bath true to the original house.

proportioned to pay homage to the 19th-century house—coupled with a few long-awaited fixes so discreet they look original, too.

The team soon included a structural engineer, Tim Lynch, who helped suss out flaws in the structure and ways to fix them. Colomello prepared for battle by moving the fridge into the living room and the coffee maker into the bath, then demolished the old addition and its patio, reinforced the exterior wall, and excavated a foundation for the new addition, which would hold the kitchen, sitting area, and mudroom under a primary suite.

Tinkering with the old portion of the house included sistering joists and pumping up daylight in an attic bonus room by way of two new windows. The team opened up the main staircase by demolishing a wall that enclosed it and inserting an airy balustrade. Creaky old stairs to the attic came out in favor of a proper staircase set against the rear wall that takes a space-saving turn.

Getting the old and new portions of the house to jibe involved shifting the location of an upstairs



Renovation recap

THE HOMEOWNERS: Brian Tart and his wife, Alexandra (above, with their Welsh springer spaniel, Chief). Weekend DIYers, Brian renovated the barn after consulting a book, and Alex fixed the fridge after watching YouTube videos.

THE HOUSE: A circa 1800 farmhouse that came with large rooms and a wide staircase, plus drafts, sags, no traces of the original kitchen or fireplace—and no first-floor closets. An existing one-story addition, possibly from the 1980s, had a slab foundation. “Every winter the pipes froze,” Alex says.

THEIR PLAN: Update the infrastructure and replace the unloved one-story addition with a “glassy” two-story structure, allowing for new kitchen-dining-sitting areas, and a mudroom under a proper primary suite. Then wrap the new first-floor spaces with a porch that looks out at the gardens and spectacular sunsets.

RENO REGRETS: Choosing a glitch-prone, status-brand fridge that’s hard to get serviced, and beautiful but blemish-prone marble countertops. “And I love to cook,” says a rueful Alex.

LESSONS LEARNED: “We lucked out with a contractor who was not only skilled but also willing to help us remain in the house during most of the renovation,” Alex says. “Considering the work took eight months, nonstop, that is something we would always want going forward. Not that we have plans for another project like this one!”



ABOVE: The architect designed the mudroom with to-the-ceiling storage and access from both the screened-in portion of the porch and the side entrance.

window to accommodate new rooflines. On the first floor, the team peeled up the original heart-pine floorboards to make way for a new HVAC system; instead of subflooring, they found joists made from hand-hewn tree trunks. The basement, bordered by a rubblestone foundation, kept its dirt floor but absorbed a new gas boiler and propane-fed water heater; an electric sump pump and new footing drains help keep it dry.

To reduce energy loss without weighing down the roof’s old hand-cut rafters, the crew suspended an insulated roof system right over the old one. The few original windows left were upgraded and several new ones added, helping seal up the place.

Previous owners had removed the attic floor over the larger of the existing bedrooms, yielding a cathedral ceiling while bringing in light from the attic windows and creating a loft space reached by a ladder tucked in a closet. That left a portion of the attic enclosed as a bonus room. The loft space, meanwhile, lives on, maintaining



airiness and light in a kids' bedroom.

Porter used new heart-pine floorboards to help everything blend in. The couple kept furnishings minimal and bathed the rooms in paint the color of old plaster, allowing the exposed old-growth timbers to hold court.

While Porter matched the addition's siding to the original clapboards, the oversize black-rimmed two-over-two windows she specified are a departure. "You want the materials to complement the feel of the existing home without relying on nostalgia," she says. "Rather than copy the existing twelve-over-eight double-hungs, we selected windows with minimal divisions. The juxtaposition is subtle but gives the addition a modern hue."

A therapist during working hours, Alex loves to spend time in the kitchen, where the only item on the glossy marble countertops is a stand mixer large enough for a small bakery. A slanted tongue-and-groove ceiling sets the kitchen apart from the dining and sitting areas while continuing into the

ABOVE: Weathered picket fencing, kept in good repair with periodic runs to the lumberyard, gives the vegetable garden a tidy look. The seating area is a favorite spot for enjoying the sun and gathering around the fire pit.

porch. An expanse of windows over the sink and prep area faces west, framing an ancient maple tree with a swing right out of a children's book.

The addition's wraparound porch steps down to a large, flat stone excavated on the property, leading the way to the vegetable garden and, beyond it, a greenhouse for seedlings.

Work on all this progressed smoothly, with care taken to allow the family to stay in the house for nearly the entire eight months it took till everything was done. The twins, now high schoolers, quickly colonized the old bedrooms while their parents moved into their new one. When Covid-19 hit, the family simply ordered a few desks and moved to their weekend house full-time.

Brian, a publishing executive, says he treasures his time at the house, despite its high-maintenance quirks. "The minute we bought it I thought, this is my new hobby—the endless amounts of little projects to keep it going," he says. "It's a living thing, and that's what's fun about it." ■



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KNOW-HOW YOU NEED TO GET HOME UPGRADES DONE RIGHT



Beveled edges define this brick's shape and protect its vulnerable edges from chipping.

This block was tumbled after firing to give it the antique look of a reclaimed paver.

all
about

Brick Pavers

Durable and low maintenance with timeless good looks, these clay blocks may be a smart choice for your next hardscaping project. Here's why



Today, paver bricks can be found in a surprising range of earthy hues with antiqued textures and unique surface treatments. SHOWN HERE:

A) Beveled-edge paver with spacer lugs in Tangerine, wgpaver.com **B)** EDL Light Grey square-edge paver, glengery.com **C)** Flashed Waterstruck paver, morinbrick.com **D)** Rumpled Full Range paver, pinehallbrick.com **E)** Common paver in Manufactured Used, pacificclay.com **F)** Steel City square-edge paver, glengery.com **G)** Metro Iron Spot paver, yankeehillbrick.com

BY CHARLES BICKFORD | PHOTOGRAPH BY MEG REINHARDT



A gently curving brick walkway laid in a classic herringbone echoes the traditional style of this shingled cottage.

THE NEXT TIME you find yourself in an older part of a city such as Boston, Philadelphia, London, or Rome, take a moment to look down at the sidewalks and streets. Most likely, they're paved with clay bricks that have been in place for more than a century, withstanding foot and vehicle traffic, sun, rain, revolutions, and parades. They show their age—their edges are rounded, their faces worn smooth—but they've stood the test of time.

Made from clay and/or shale, brick pavers are fired in a kiln at higher temperatures than wall or chimney bricks. As a result, they're stronger and better able to withstand heavy loads. The heat also changes the pavers' texture in a process known as vitrification, making them nonporous, so they don't take on water. Because they are always installed flat—to line walkways, front entries, patios, and driveways—these bricks are solid, too, with no holes in their bodies to lighten their mass and allow mortar to lock them together. A paving brick's color, from brownish red to earthy tan to deep purple, varies depending on the mineral content of the clay or shale used, and a range of surface treatments can be applied. Unlike products made with concrete, paving bricks' naturally derived color doesn't change substantially with the effects of time and the elements. "Brick pavers age much more gracefully than concrete pavers," says Chris Meyers, president of Mack Brick Company, a masonry supplier in Enfield, CT. "The sun will never fade a brick paver."

Most installations call for the classic 4-by-8-inch brick; its dimensions, exactly twice as long as it is wide, mean it's easily laid in countless decorative patterns, including ever-popular basketweaves and herringbones. Whatever type of outdoor project you're considering, here's what you need to know about choosing and using this traditional masonry material.

VITALS

What do they cost?

Paver bricks cost an average of \$2.25 to \$6 per square foot uninstalled; if they're handmade or have a specialty finish such as tumbling or distressing, the cost can be \$7.50 or more per square foot.

How long do they last?

The brick industry offers a conservative estimate of 40 years, but brick-paver sidewalks in colonial-era cities have been in service under constant traffic for nearly 150 years. Because brick pavers are impervious to most types of damage, warranties range from 20 to 100 years—to none at all.

Where to buy them?

A local masonry supplier will have the best selection and prices as well as knowledgeable staff. Some home centers carry a small selection of brick pavers. They are usually sold by the pallet, which may cover 50 to 120 square feet, depending on the type of brick. Due to high shipping costs, homeowners typically don't shop for brick pavers online, but there are exceptions; Gavin Historical Bricks sells antique pavers at historicalbricks.com; shipping generally costs \$8 to \$10 per square foot, and customers must arrange for their own forklift to off-load them.

DIY or hire out?

Smaller projects like dry-laid brick walkways or patios are well within the reach of many homeowners, but larger jobs or those involving mortared brickwork are best left to a pro. Depending on the scope of work and where you live, expect to pay from \$10 to 30 per square foot, including materials.

ARE BRICK PAVERS RIGHT FOR YOU?

Consider these pros and cons before heading to your local brickyard

PROS

✚ **DURABLE** The majority of brick pavers sold in the U.S. meet industry standards for compressive strength, resistance to cracking and abrasion, and minimal water absorption. Brick pavers rated for heavy vehicular traffic, for example, have a minimum compressive strength of 10,000 psi—the same as Belgian block.

✚ **EASY CARE** Brick pavers need no special upkeep—just scrub them with a stiff-bristled brush and a mild detergent as needed to remove moss, algae, and stains. And because they don't fade, they don't need to be sealed, either. Any chipped or broken bricks—often the result of a faulty installation—can be individually replaced.

✚ **ECO-FRIENDLY** Compared with other building materials such as concrete and manufactured stone, making brick consumes less energy and produces fewer emissions. Bricks also have a long life cycle—they can easily last a century or more—and are frequently reclaimed and reused.

CONS

✗ **PRICEY** On average, brick pavers cost 15 to 20 percent more than concrete pavers. That translates to about \$320 to \$430 more in materials to build an average-size patio.

✗ **FEWER SHAPES** Although they're available in a range of earth tones, brick pavers come in only a few sizes and even fewer shapes—mostly rectangles and squares. Concrete pavers, in contrast, are offered in a wide array of colors, textures, and geometric shapes.

✗ **WEEDS ARE A NUISANCE** Many brick-paver projects are laid in sand, and weeds are a common sight in the joints between pavers. They're less of an issue when pavers are set in mortar, but they can work their way through even the tiniest cracks—and when that happens, the mortar makes it more difficult to remove them.



ORDERING

How they're made: two ways

All bricks start out as clay and/or shale mixed with water to a dough-like consistency. From there, differences emerge

➤ **EXTRUDED BRICKS**, also known as wire-cut, are the most common. They're made by forcing material through a rectangular die to create a block that's then sliced into individual bricks. Typically, wire-cut bricks have a smooth texture and sharply defined edges. They are kiln fired at temperatures between 1,700°F and 2,000°F, have a high compressive strength, and are suitable for both pedestrian and heavy vehicle traffic.

➤ **MOLDED BRICKS** are made using an older process. A looser clay mixture is pushed into molds and typically fired at a lower temperature than that of extruded bricks—usually around 1,600°F. The most common type, sand-struck bricks, are made by first coating the molds with sand. When fired, the sand fuses to the sides of the bricks, creating unique colors and textures. Water-struck bricks are also available; these are made primarily in New England from dense alluvial clay, which is sourced locally, and the molds are sprayed with water instead of sand. Homeowners who choose molded bricks value their rustic look and gently rounded corners. The pavers have a slightly lower compressive strength than extruded pavers but are appropriate for pedestrian and light vehicle traffic.

WHAT ABOUT THE COLOR?

BRICK PAVERS aren't limited to orangey reds. They also come in colors like cream, salmon, gray, purple, burgundy, and brown—determined by the mineral content of the raw material and proprietary formulas developed to achieve certain looks. "To get a buff color, we mix more clay into the shale," says Doug Rose of Pine Hall Brick. "Adding manganese creates dark brown." In addition, the way they're kiln fired—known as the flash pattern—also affects color. Quick bursts of very high heat result in dark-red tones, while lower, slower flashes create softer mauves and terra-cottas, Rose says.



Modular thin brick pavers are mortared in place on entry steps and even indoors as flooring. *SHOWN: Sunset Red, Saltillo, and Dark Iron Spot; pacificclay.com*

Shop smarter

Here's how to choose the right paver for your project

>> Make sure it meets ASTM standards (See "A Guide to Brick Classifications," right.) Most pavers on the market do, but it's worth checking; this ensures it will stand up to wear and tear. The highest-quality pavers don't just meet those standards; they exceed them.

>> Buy the right size for the job Classic 4-by-8-inch bricks are versatile and affordable, but pavers also come in 8-by-8-inch squares and larger 4-by-12-inch bricks. They range in thickness from 1¼ to 2¾ inches; the thickest pavers are recommended for heavy-use driveways. Many manufacturers also offer veneer brick pavers, a.k.a. "thin brick," which gets mortared into place over concrete and works well on front steps.

>> Decide on an edge treatment Pavers with square edges create a clean, uniform surface, but they're prone to chipping during installation. Beveled-edge pavers are much less likely to chip but have a manufactured look. To evoke a historical installation, choose a paver with irregular, slightly rounded edges, such as a molded paver or one that's been tumbled. Some pavers come with integrated tabs along the sides to facilitate proper joint spacing.

>> Get the right amount Use this simple formula to determine the number of 4-by-8-inch pavers to order: Multiply the square footage of the project by 4.5. Order 10 percent more than this to account for cutting and breakage.

A GUIDE TO BRICK CLASSIFICATIONS

ANY PAVER that meets ASTM standards will be classified by its ability to withstand freezing and abrasion as well as the installation method that should be used. These specs make it easy to determine if a paver can hold up to heavy vehicles or if it's better suited for a patio. But this level of detail is often not included in a catalog, so you or your contractor will need to request the information from the supplier.

WEATHER

- **SX:** Brick that may be frozen while saturated with water
- **MX:** Brick intended for exterior use with no freezing conditions
- **NX:** Brick intended for interior use with no freezing conditions

ABRASION

- **Type I:** Brick subjected to extensive abrasion, such as public sidewalks and driveways
- **Type II:** Brick subjected to intermediate abrasion, such as residential walkways and driveways
- **Type III:** Brick subjected to low abrasion, such as patios in single-family homes

INTENDED INSTALLATION

- **Type R:** Brick intended to be set in mortar and supported by a concrete base or a properly supported asphalt base
- **Type F:** Brick intended to be set in sand, with sand joints supported by a proper base



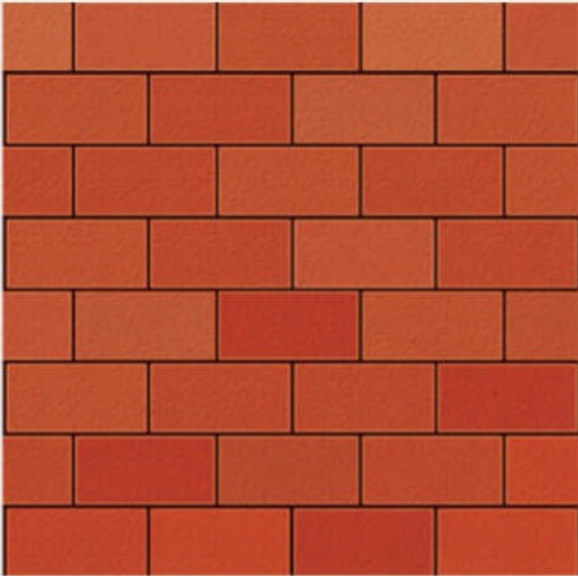
RUNOFF REMEDY: PERMEABLE BRICK PAVERS

PERMEABLE BRICK PAVERS are made the same way as other brick pavers, except they have large lugs along the sides to ensure they're spaced ¼ to ¾ inches apart, allowing stormwater to pass through rather than collect on the surface. This makes them a smart choice for a pool deck, too. They require a porous base material known as open-graded aggregate that has pockets of empty space to facilitate drainage into the subsoil.

SHOWN: StormPave Full Range paver, pinehallbrick.com

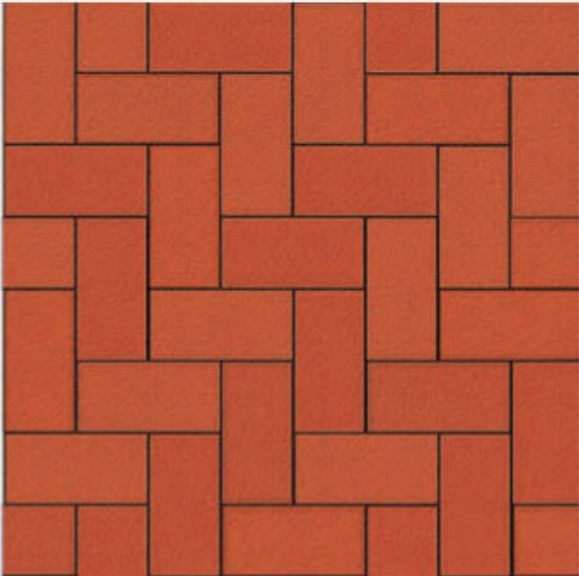
PICK A PATTERN

Some are quick and easy to install; others are complex designs that make the bricks' surface even stronger



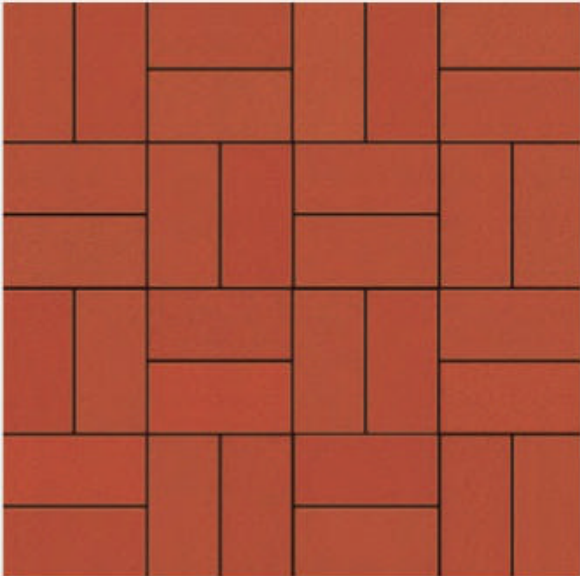
1. Running bond

To create this traditional brick pattern, simply arrange bricks end to end, staggered by half a brick over the previous course. Running bond can also be laid on a diagonal, but this requires 45° cuts at the perimeter. Used lengthwise on long paths or driveways, it easily adapts to gentle curves.



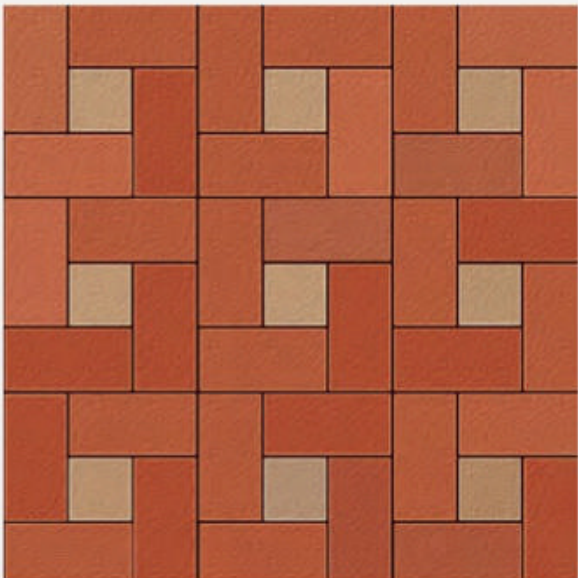
2. Herringbone

Arranged in a zigzag pattern that's either oriented at a right angle (shown here) or on the diagonal, the herringbone is an interlocking pattern durable enough to be used for a driveway. Creating the layout is labor-intensive, as are the required angled cuts at the edges for every course.



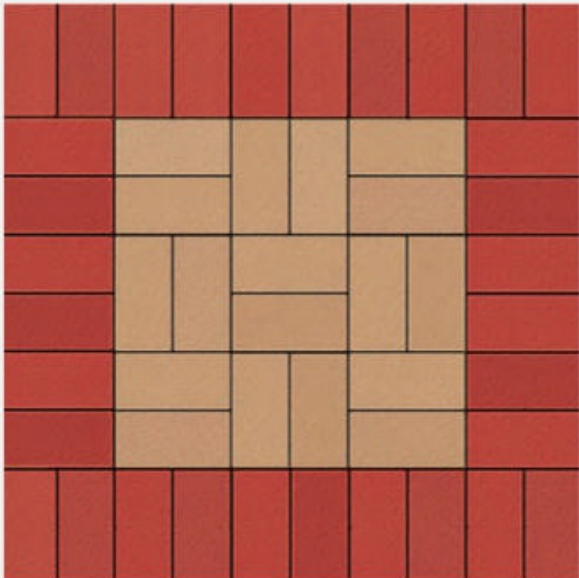
3. Basketweave

This pattern alternates pairs of bricks from vertical to horizontal, repeating the pattern every other course. It works well for a straight run where cuts, if any, are easier, but loses its cohesion on curves that open up angled gaps.



4. Pinwheel

A square pattern that consists of four bricks surrounding a central half brick, the pinwheel is attractive and works well on straight runs and slight curves. It does require one cut for every two pinwheels, and like the basketweave, it doesn't work well on tight curves.



5. Grid

This is a larger rectilinear grid of bricks that encloses squares or other shapes containing patterns such as basketweave (shown here) or pinwheel. A straight line or gently curved layout shouldn't involve many cuts.



6. Whorled

This circular pattern requires intensive planning and laying out, but the end results are stunning. It makes for a showstopping patio, and it can accommodate driveway turnarounds.

ILLUSTRATIONS: IAN WORPOLE

THREE WAYS TO CUT BRICKS

No matter how you do it, always wear safety goggles and ear protection

⇒ Quick and precise **MASONRY BLADE**

Mark's go-to method is to use a worm-drive circular saw or an angle grinder fitted with a diamond masonry blade. Be sure to wear a respirator to protect yourself from silica dust. Start by marking the cutline all around the brick with a square and pencil. Make a shallow cut, about $\frac{1}{4}$ inch deep, on the top, then increase the depth of the blade and make additional cuts to a depth of about 1 inch. Turn the brick over, and repeat the process. Tap off the waste end with a hammer, and then if necessary, clean the cut end with hammer taps on a cold chisel.

⇒ Slower, but less dusty **WET SAW**

Readily available at most rental centers, a wet saw cuts fairly slowly, but it's quiet, and the water-cooled blade keeps dust to a minimum.

⇒ Good for small jobs **HAMMER, COLD CHISEL, AND BRICK SET**

This traditional, time-tested method is the slowest, and because it can be difficult to get a precise cut, it's most appropriate for mortar-set installations. After marking your cut, use the hammer and cold chisel to score a shallow groove along the cutline, all the way around the brick. Now place the brick set on the groove with the blade's bevel facing out and tap the set with the hammer to complete the cut.



Level the base



Place the bricks

How to lay brick pavers

Whether your project is a front walk, a back patio, or even a driveway, these basic steps still apply

Before starting a patio, walkway, or driveway project, decide whether to set the pavers in sand or mortar. Sand is more popular by far: It's affordable, DIY-friendly, and longer lasting, as it allows the pavers to shift with the soil over time and through freeze-thaw cycles. Friction between the sand and the pavers locks the bricks together into a strong, flexible structure. Here

are the basic installation steps:

- 1. Remove the topsoil.** Typically, you'll excavate to a depth of about 8 inches, although your paver manufacturer may recommend a specific depth, and driveways may require a deeper excavation.
- 2. Run a plate compactor over the soil.** Add stone pack (a mixture of

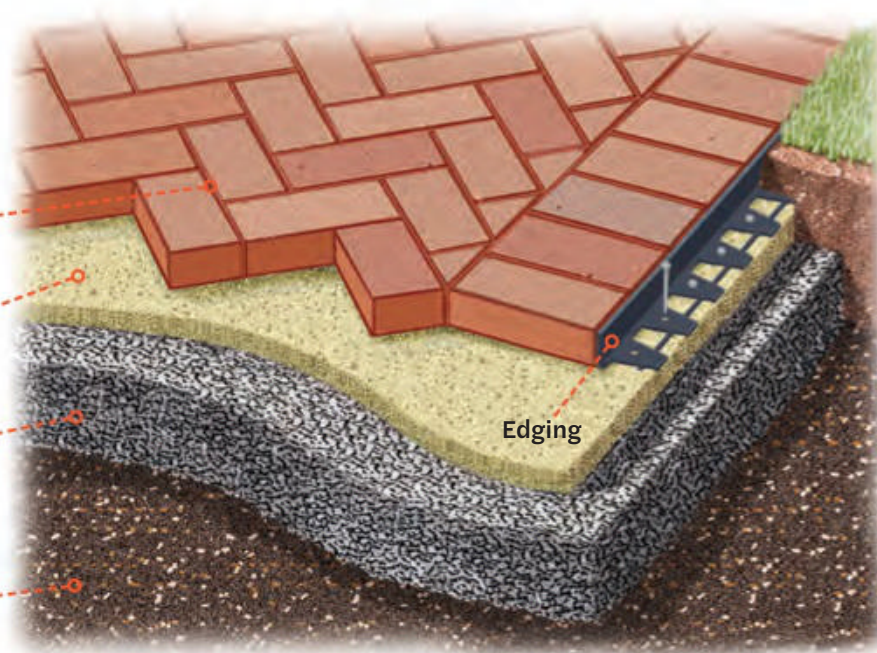
HOW TO BUILD A BRICK PATIO

$\frac{1}{16}$ - to $\frac{1}{8}$ -inch joints filled with polymeric sand

1 inch tamped and screeded concrete sand

Compacted stone-pack base that's at least 4 inches deep

Topsoil excavated about 8 inches deep



WATCH See Mark McCullough redo a brick pathway at thisoldhouse.com/lay-a-brick-path

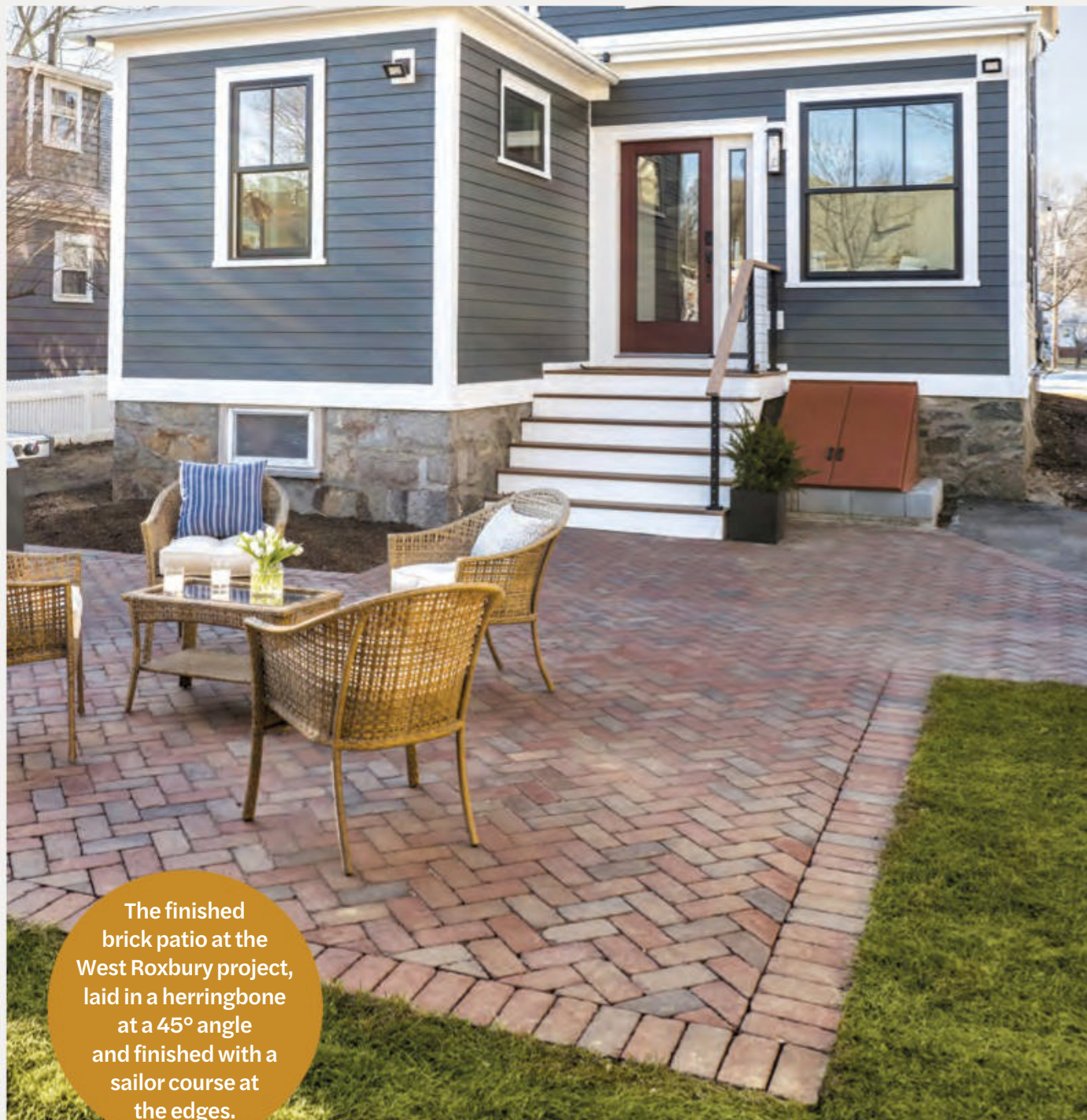


Add the edging

$\frac{3}{4}$ -inch crushed stone and stone dust), and compact it to create a base that's at least 4 inches deep, and at least twice that for a driveway.

3. Install your edging. This could be pressure-treated wood, plastic, metal, or more pavers—then spread a 1-inch layer of concrete sand and level it with a screed. Concrete sand's coarse particles grind together as they're compacted, which facilitates interlocking.

4. Lay pavers in the pattern of your choice. Set each full or cut brick squarely, tapping it into place and leveling using a rubber mallet. Sweep sand into the joints, typically $\frac{1}{16}$ to $\frac{1}{8}$ inch wide. *TOH* mason Mark McCullough prefers polymeric sand, a combination of fine sand and additives that act as a bonding agent when watered in. It stays in place and discourages weeds and ants, but can be challenging to work with: It



The finished brick patio at the West Roxbury project, laid in a herringbone at a 45° angle and finished with a sailor course at the edges.

can stain the surface and won't set properly without the right amount of water. Mason's sand, which is finer than concrete sand, is another option.

5. Go over the entire area with the plate compactor. Then sweep more sand into the joints. If using polymeric sand, water it in with a hose.

➔ When mortar is required

Front steps, and some walks and patios, call for mortar over concrete, a job best done by a pro. Bricks are laid in about 1 inch of mortar, then more mortar is used to fill the joints. 🏠

TOH PRO TIP



"A herringbone pattern on a narrow walkway requires a lot of cuts. To eliminate some of them, I don't use borders—I call it the 'infinity look.' Normally, a 4-foot-wide walk has an 8-inch border on each side. Leaving those out lets me continue the pattern so the cuts are right on the edge of the walkway and get covered with grass as it grows in." **MARK MCCULLOUGH** *Mason*

Landscaping

Creative groundcover combos

Why settle for a one-note planting when there's so much variety to try? Here's how to weave a tapestry of low-growing perennials that will beautify your yard

BY MICHELLE GERVAIS

Workhorses in the landscape, groundcovers spread to knit a tight, low-maintenance carpet of foliage that densely covers bare earth. Not just pleasing to look at, they serve a number of practical purposes as well: "Groundcovers can stabilize the soil, help it retain moisture, and prevent weeds from taking hold," says *TOH* landscape contractor Jenn Nawada, who prefers them to mulch where she knows they will thrive. And while there are times when filling a bare spot with a swath of a single plant provides a welcome rest for the eye, she loves the idea of combining two or more species for a pleasing mix of foliage shape, color, and texture, turning groundcovers into a design tool rather than just a backdrop.

What constitutes a groundcover plant? The most familiar are low-growing, creeping perennials that spread densely. Most of these have horizontal stems, either above or below the soil, that spread in all directions, sending down roots and sending up shoots as they go, like the familiar periwinkle and pachysandra. But taller clumping perennials, including hostas and some ferns, also fulfill this role. These plants expand in size more slowly by getting just a little wider each year. Consider working in flowering perennials that spread to a dense,



hefty stand, too, such as lady's mantle, epimediums, and coral bells.

Of course, groundcover plants are generally grown for their foliage and bloom for only a short window each season. So it's most important to consider the texture of groundcovers' foliage and the color and sheen of their leaves when putting them together, like the fuzzy silver leaves of lamb's ears and the rounded, shiny deep-green leaves of European wild ginger. If flowering is also important to you, consider combining groundcovers that have different bloom

times so that as one fades, another takes its place in the spotlight.

Keep in mind that groundcovers that spread tend to be more aggressive than the clumping kind, and may outcompete them over time. A pairing of two spreaders might need some refereeing—by yanking out a section or two each season—if one starts outpacing the other. You'll also want to check the database at invasive.org to see if a plant is invasive in your area before planting.

Up ahead: some great groundcover combos to get you started.

BOB O'CONNOR

SUN SEEKERS

Most full-sun plants need at least 6 hours of direct sun a day, preferably strong afternoon light



1 | Creeping phlox (*Phlox subulata* cvs.) grows up to 6 inches high and 24 inches wide in zones 3–8.

2 | Hens and chicks (*Sempervivum tectorum* cvs.) grows up to 6 inches high and 12 inches wide in zones 4–8.

WHY THEY PAIR WELL These creeping heat and sun lovers are tough and beautiful; they look great in rocky crevices. This particular phlox blooms brilliant pink in early spring; when the flowers are done, they leave behind a dense, clean mat of feathery medium-green foliage that's a great contrast to the fleshy, red-tinged rosettes of the succulent hens and chicks.



1 | Sea holly (*Eryngium x zabelii*) is a clump-forming perennial or biennial; it grows up to 24 inches high and 24 inches wide in zones 5–8.

2 | Lamb's ears (*Stachys byzantina*) is a creeping perennial; it grows up to 18 inches high and 24 inches wide in zones 4–8.

WHY THEY PAIR WELL Both of these plants love baking sun and well-drained soil. Silvery, fuzzy-leaved lamb's ears is a moderate spreader, so it won't overwhelm the spiky-looking sea holly over time. The contrast in textures is dramatic, but the plants' cool colors are soothing on a hot summer day.



1 | Woolly thyme (*Thymus pseudolanuginosus*) grows up to 3 inches high and 18 inches wide in zones 5–8.

2 | 'Dragon's Blood' sedum (*Sedum spurium* 'Dragon's Blood') grows up to 6 inches high and 24 inches wide in zones 4–9.

WHY THEY PAIR WELL These creeping low growers are perfect at the edge of a bed near a sunbaked walkway. The thyme blooms in late spring to early summer with a frosting of pink flowers; the sedum blooms deep red later in the season. The sedum's frilled green-to-burgundy foliage offers an interesting counterpoint to the thyme's tiny, velvety green leaves.



1 | Cranesbill (*Geranium x cantabrigiense*) is a creeping perennial that grows up to 12 inches high and 24 inches wide in zones 5–8.

2 | Catmint (*Nepeta x faassenii*) has small, fuzzy gray-green leaves; it grows in clumps up to 24 inches high and 36 inches wide in zones 4–8.

3 | Lady's mantle (*Alchemilla mollis*) is a clumping perennial with broad scalloped leaves; it grows up to 24 inches high and 30 inches wide in zones 4–7.

WHY THEY PAIR WELL There's a spectacular moment in early summer when all three bloom at once, shown here; each then blooms sporadically throughout the season. Adaptable by nature, all three tolerate both sun and partial shade. When not in bloom, their foliage offers a perfect mix of mounded textures.

MADE FOR THE SHADE

Partial- or full-shade plants prefer no more than 3 to 6 hours of sun, preferably weak morning light



1 | Common periwinkle (*Vinca minor*) grows 4–8 inches high and indefinitely wide in zones 4–9.

2 | 'Catlin's Giant' bugleweed (*Ajuga reptans* 'Catlin's Giant') grows up to 6 inches high and indefinitely wide in zones 3–9.

WHY THEY PAIR WELL This combo will grow in your most challenging spot. Both like partial to full shade, thrive in any soil, and will cover a slope where grass won't grow. These strong spreaders will compete for space, especially with a bit of sun, though more light equals more blue flowers. Take care not to grow vinca, which is invasive in parts of the eastern United States, where it risks running into open woodland.



1 | Hosta (*Hosta* cvs.) comes in a large range of sizes and shades of green and thrives in zones 3–8.

2 | Bunchberry (*Cornus canadensis*) grows up to 9 inches high and indefinitely wide in zones 2–7.

WHY THEY PAIR WELL Both prefer full shade and moist, well-drained soil. The native, low- and slow-growing bunchberry, actually a creeping dogwood, forms an attractive carpet under virtually any hosta, which grows in clumps. The plants' leaves are similarly shaped and grooved for textural harmony, with the dogwood's white flowers adding a bright note in late spring.



1 | 'Big Blue' lilyturf (*Liriope muscari* 'Big Blue') grows up to 12 inches high and 18 inches wide in zones 6–10.

2 | Autumn fern (*Dryopteris erythrosora*) slowly grows up to 2 feet high and wide in zones 6–9.

WHY THEY PAIR WELL Both thrive in partial to full shade and moist, fertile, well-drained soil. Lilyturf is a yard staple for its clean, grassy texture and long-lasting spikes of blue or purple flowers in late summer to fall. Adding a splash of a contrasting color, like this stand of bright-green autumn fern, sets off its color even more.



1 | Lady's mantle (*Alchemilla mollis*) grows up to 24 inches high and 30 inches wide in zones 4–7.

2 | Sweet woodruff (*Galium odoratum*) grows 6–12 inches tall and indefinitely wide in zones 5–8.

WHY THEY PAIR WELL Both thrive in partial shade and rich, moist, well-drained soil but can also tolerate indirect sun. A creeping perennial, sweet woodruff produces delicate whorls of emerald-green foliage that are topped with tiny, starry white flowers in spring. They offer a wonderful complement to the larger, pale-green, scalloped round leaves of lady's mantle, a clumping perennial that produces tiny chartreuse flowers in summer, after the sweet woodruff's flowers have faded away.

COMMON PERIWINKLE: GAP PHOTOS; HOSTA: JOHN GLOVER/GAP PHOTOS; LILYTURF: JOANNA KOSSAK/GAP PHOTOS; LADY'S MANTLE: HEATHER EDWARDS/GAP PHOTOS; (OPPOSITE PAGE) VARIEGATED SOLOMON'S SEAL: ELKE BORKOWSKI/GAP PHOTOS; COMMON SOLOMON'S SEAL: LYNN KEDDIE/GAP PHOTOS; NAWADA: BOB O'CONNOR



1 | Variegated Solomon's seal (*Polygonatum odoratum* 'Variegatum') grows up to 36 inches high and indefinitely wide in zones 4–8.

2, 3 | Lungworts (*Pulmonaria* cvs.) grow up to 18 inches high and 24 inches wide in zones 3–8.

4 | European wild ginger (*Asarum europaeum*) grows up to 6 inches high and 18 inches wide in zones 4–8.

5 | Japanese painted fern (*Athyrium niponicum* var. *pictum* 'Metallicum') slowly grows 8–12 inches high and indefinitely wide in zones 5–8.

WHY THEY PAIR WELL These classic shade perennials offer a range of hues, from bright chartreuse to glossy deep, dark greens, interesting variegation, and a variety of leaf shapes and forms that play off one another beautifully.



1 | Common Solomon's seal (*Polygonatum x hybridum*) grows up to 3 feet high and indefinitely wide in zones 6–9.

2, 3, 4 | Barrenworts (*Epimedium x versicolor* cvs.) grow up to 12 inches high and 18 inches wide in zones 5–9.

WHY THEY PAIR WELL Epimediums are spreading woodland perennials that produce delicate, spidery spring flowers in a variety of colors; their dense, cascading foliage ranges from pale green to burgundy, with lots of variation in between, and is evergreen except during the harshest winters. Backing them up with the arching stems and dangling white spring flowers of Solomon's seal, another spreader, gives them an added boost of interest.

PLANTING TIPS



>> PLAN YOUR SPACING

There are three factors to consider when spacing groundcovers in preparation for planting: the plant's ultimate size, its growth rate, and your patience. For instance, European wild ginger spreads 18 inches wide but isn't a particularly fast grower. So if you want quicker coverage, you may want to plant it every 12 inches. Bugleweed, on the other hand, is an aggressive spreader; spacing these plants farther apart is just fine, and saves you money. In such cases, Jenn says, "Don't go for immediate gratification. Space them out and let them fill in."

>> PREPARE THE SOIL

No matter how far apart you plant groundcovers, prepare the ground carefully first to give them a good start. Turn over the soil and remove any weeds and roots before smoothing it out and laying out the plants in a grid until the spacing is right; then plant and water well.

>> GIVE THEM A GOOD START

Newly planted groundcovers will need a bit of coddling to become the low-maintenance workhorses that they will ultimately be. Water regularly and fertilize occasionally to help them to establish strong root systems, and weed in between them meticulously. Before long, they will crowd out those weeds. 🌱



Putting in a Pergola

This versatile open-air structure can define an outdoor room, provide light shade, and add privacy while enhancing the look of your home. Here's what to consider when adding one

BY JOSH GARSKOF



WHETHER ATTACHED to the house or freestanding, covered in vines or clean and modern, a pergola is an architectural feature that provides a welcome sense of enclosure outdoors, carving out an inviting retreat that allows in fresh air, gentle breezes, and dappled sunlight. "A pergola creates a sense of place and sets the stage for relaxing and entertaining," says *TOH* landscape contractor Jenn Nawada.

In its most basic form, a pergola consists of posts topped by beams and rafters, with room-sized proportions and a ceiling height of 8 to 12 feet. Set on a deck or patio and connected to the house, it can define a convenient area for alfresco dining or shield an outdoor kitchen from the elements. Anchored in the yard, it can frame a fire-pit seating area, shelter poolside lounge chairs, create a garden destination, or serve as a passageway from one garden room to another.

Whether it's a DIY project or a custom installation, there's a wide variety of materials, styles, and extras to choose from. Here's how to plan a pergola project.

COURTESY WALPOLE OUTDOORS

MATERIAL CONSIDERATIONS

A pergola will integrate seamlessly into your home if it echoes the architecture of your house. Just pick the look and level of maintenance that's right for you

WOOD

READILY AVAILABLE at home centers and lumberyards, wood can be used to create a wide range of styles, from rustic to modern, and it's easy to repair. Available species depend on your location and include low-cost pressure-treated pine; durable cedar, redwood, and Douglas fir; and handsome tropical hardwoods such as mahogany and ipe, which can also be wrapped around pressure-treated lumber. Skip painting wood, as it will eventually peel and become a maintenance headache, especially if you grow vines on your pergola. Solid stain is a better choice but will fade and require recoating every few years. To help protect uncoated wood from moisture and UV damage, apply a clear protectant like Penofin's Ultra Premium Red Label Penetrating Oil Finish (penofin.com), made from Brazilian rosewood oil, at least every couple of years.

Cost: \$ (pressure-treated pine) to \$\$\$ (tropical hardwood)

VINYL

HOLLOW TUBULAR VINYL is available in the form of ready-to-assemble pergola kits and offered semi-custom by some fence companies, landscape contractors, and online pergola suppliers. It is low-cost and never needs painting or staining, and the only maintenance it requires is washing, at least once a year. But its distinct glossy finish means it can't quite replicate the look of wood. And if it gets damaged, it can't be repaired; it will need to be replaced with a matching piece, which may be hard to source. For that reason, it's a good idea to purchase extra parts, such as rafters.

Cost: \$

CELLULAR PVC AND COMPOSITES

THESE TWO MAN-MADE products offer the low-maintenance benefits of vinyl but with a matte look that's more like wood. Cellular PVC (polyvinyl chloride) is vinyl that has been whipped up with air. Composites combine wood fibers with plastic resins. Both are extruded to form solid members that can be cut and shaped like wood. They aren't as strong as wood, however, so some products are reinforced with a core of aluminum tubing. Cellular PVC comes in white only; composites are available in a range of through-color options. Unfortunately, both can be difficult to source in large dimensions for beams and posts, unless you're buying a kit.

Cost: \$\$\$

METAL

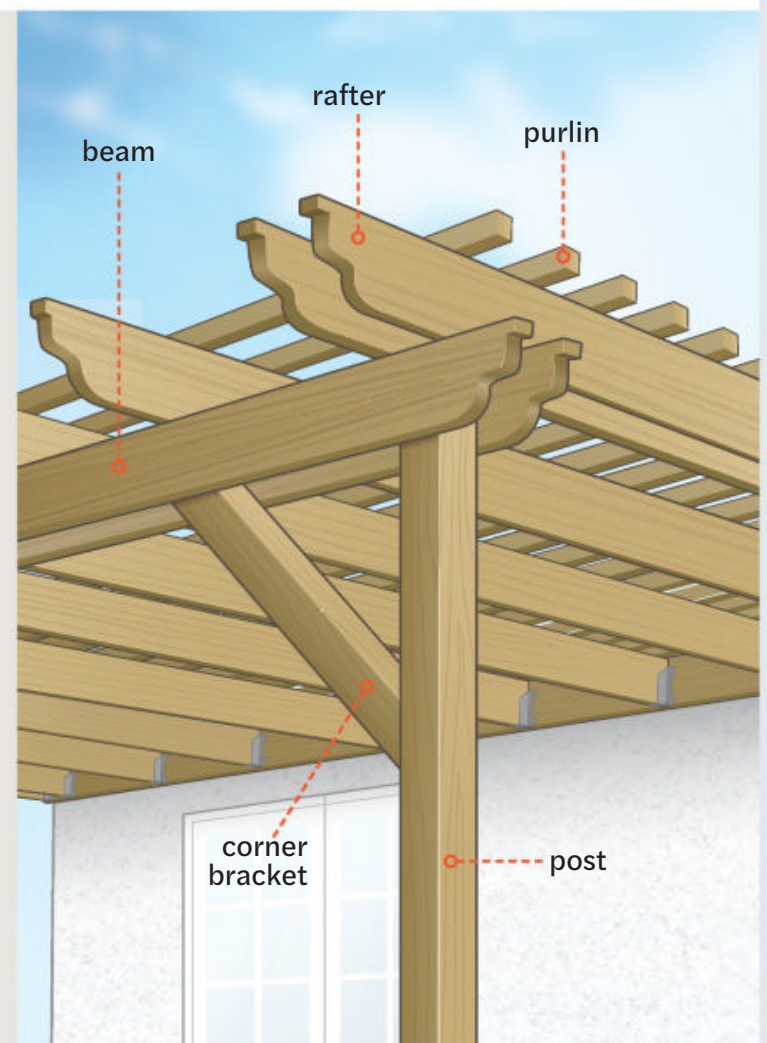
METAL PERGOLAS are available as ready-to-assemble kits, or they can be custom fabricated in a metal shop. Low-maintenance aluminum and steel pergolas have a modern look, will never rot, and require virtually no maintenance. Typically powder coated, aluminum comes in a wide range of colors. Steel can be powder coated or galvanized, or made from an alloy that requires no protective coating—either stainless or Corten steel (a.k.a. weathering steel). Corten steel develops a layer of rust as it's exposed to the elements, which actually adds to its durability and offers a striking rustic appearance, though it can leave stains along its drip lines as it oxidizes. Steel posts and beams are often combined with wood rafters for an industrial look.

Cost: \$\$\$

ANATOMY OF A PERGOLA

A pergola is defined by its simple, functional form, which is made up of the following parts.

- **Post**—typically 6×6 or 8×8
- **Beam**—paired 2×10s may be attached on either side of the post (shown); single 4×10s, 6×10s, or 8×12s may be used for a timber-frame look
- **Rafter**—the same size or slightly smaller than the beams
- **Purlin**—optional, generally smaller than the rafters and closely spaced to add shade
- **Corner bracket**—optional; runs diagonally between a post and a beam to add extra support



WAYS TO ANCHOR IT

A PERGOLA'S POSTS need to support the weight of the structure—including vines or statement lighting hanging from the top—while also withstanding wind shears and frost heaves that can lift them out of the ground. That's why just attaching a pergola to an existing concrete patio with metal brackets isn't the best approach. "A concrete slab or paver patio isn't designed to handle vertical loads and will likely crack," says David Doyle, principal at Summit Outdoor Living in Fort Collins, CO. Here are the best ways to fasten the posts to terra firma.

DIY-friendly

CONCRETE AND CRUSHED STONE

>>>>>

THE CLASSIC technique for setting posts—and also the simplest and most affordable—is a hole filled with concrete. The posts should go below the frost line in your area, to account for the ground shifting as it freezes. To help mitigate post rot, lay down and tamp a 4-inch bed of coarse aggregate at the bottom of the hole. Crushed stone is typical, but it has sharp edges that interlock when compacted, so *TOH* general contractor Tom Silva recommends pea stone instead—it won't lock together and will drain better as a result. If you'd rather avoid the mess of mixing concrete and the wait for it to cure, fence-post foam is another option. "It's a two-part product: You break the seal between the two sides of the package, shake it up, and dump it into the hole," says Tom. It expands and locks the post in place in seconds—so fast that you need to have the post braced, plumb, and level already.

Good in high-water-table areas

CONCRETE FOOTINGS

>>>>>

THESE KEEP posts out of the ground and away from damaging groundwater. There are cardboard tubes designed for pouring them, but tapered plastic forms are better choices—their smooth surfaces reduce adfreeze, a process that causes frozen soil to adhere to and press against the sides of a post, potentially loosening it, says Dr. Alan Lutenecker, an engineering professor emeritus at the University of Massachusetts Amherst. Place your form in the stone-filled hole, backfill around it, fill it with concrete, and top it with a post bracket set into the wet concrete. The footings can end at ground level or come up a few feet and get surrounded with brick or stone.

SHOWN: *Bigfoot Systems Pier Footing*; lowes.com



A time-saver, but more expensive

PRECAST CONCRETE PIERS

>>>>>

AN ALTERNATIVE to mixing concrete, precast piers are constructed as one piece or in stackable concrete sections that lock together with a threaded rod that runs through their centers. The bases are set in holes filled with tamped stone, and the pergola posts attach to metal plates on the tops of the piers. While the materials cost for precast piers may be three times that of poured footings, they are a significant time-saver. SHOWN: *3 Stack EZ-Tube*; ez-crete.com



No digging required

GROUND SCREWS

>>>>>

MADE FROM a pipe about 3 to 4½ inches across and 5 feet long, this galvanized fastener threads into the ground like a self-tapping wood screw. It provides a tight hold without any disturbance to the yard. You'll need an experienced contractor to install the screws using a hydraulic low-speed, high-torque motor designed for the job, which takes no more than a minute per screw. "Ground screws will outperform any of the concrete or foam options, and they are removable if you want to take the pergola with you when you move," says Lutenecker. "But they're not a good choice in cold climates, because the screw can be dislodged by adfreeze if not sunk sufficiently deep."

SHOWN: *American Ground Screw Model 3*; american-groundscrew.com



DIY OPTIONS



This prefab pergola kit comes prestained. From there you can customize it any way you like.



LEFT: This ready-to-assemble pergola is made of cedar, but ones made of composite lumber, metal, and vinyl are also available online. Don't want to do the heavy lifting? The 12×12 Sahara Pergola shown costs \$2,499 delivered and installed (leisuretimeproducts.com).

ABOVE: Homeowner Chris Carter installs a finishing touch: string lights.

→ **If you don't need a custom size or look**, buying a pergola as a kit will greatly simplify the job. Everything is precut and predrilled, and the hardware is provided—all you do is assemble the parts. What's more, the kits come in a range of materials that would otherwise be difficult to source for a DIY pergola, including aluminum, steel, composite, and vinyl. Brands like Toja Grid and Backyard Discovery are available at home centers and typically range from 8-by-8 feet to 16-by-12 feet, and from about \$1,000 to \$8,000, depending on the size and materials used. Customizable kits can be purchased from a fence company or specialty supplier; Walpole Outdoors, for example, offers cellular PVC kits in custom sizes starting around \$8,400 (walpoleoutdoors.com).

→ **For help building your own pergola**, check out Simpson Strong-Tie's Pergola Planner (strongtie.com), an online tool that allows you to design a wood pergola and see a 3D rendering of it in your yard. The company sells beefy plates, straps, and hangers that simplify the construction process; they come in contemporary or Mission styles and lend an industrial look to the pergola. OZCO Building Products (ozcobp.com) also makes burly-looking metal pergola brackets.

GETTING ATTACHED

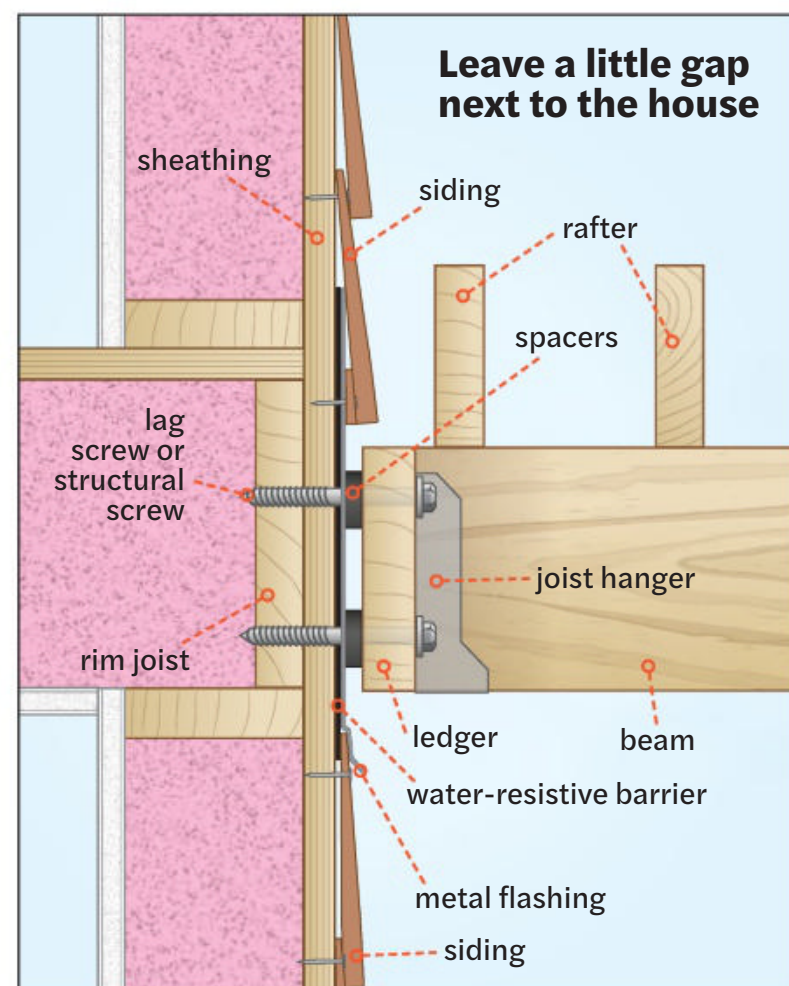
AFFIXING A PERGOLA to the house integrates it into the architecture and allows for optimal indoor-outdoor flow. Code requires that an attached pergola be fastened to the second-floor rim joist, the framing member that sits on top of the wall and holds the floor joists. It may not be possible to attach a pergola if your yard is sloped or if the house has just one story.

An attached pergola hangs from a ledger board that is secured to the rim joist with lag screws or structural screws. To ensure that the ledger doesn't allow water to reach the sheathing and foster rot, the siding is removed from the area (it will be patched back later), and a water-resistive barrier (WRB)

is applied over the exposed sheathing. This barrier membrane, which seals around the screws to prevent water from reaching the house framing, is then covered with metal flashing, to protect the WRB from the sun.

Tom often installs his ledgers with spacers—black plastic washers that sit between the ledger and rim joist. They create a 1/2-to-5/8-inch gap for water to drain through and air to circulate.

The WRB and metal flashing also cover the area just below the ledger. When replacing the siding under the pergola, make sure its top edges overlap the membrane, and are overlapped by the flashing.



TIPS FOR ADDING GREENERY

COVERING YOUR PERGOLA with plants and flowers lowers the temperature underneath—not just because of the increased shade but because plants cool the air as moisture evaporates from their foliage. Here's Jenn's advice for growing success:

- **Offer support.** Set up a wire grid or wood lattice to give twining vines, such as wisteria, grapevine, and bougainvillea, something to grow on.
- **Consider a plant wall.** To filter unwanted views, increase the sense of enclosure, or just add a lush touch, create a green screen. Install sturdy wood lattice or stainless steel cable railing between wood posts; then plant vines along the bottom, and weave them up and through as they grow.
- **Keep clinging vines in check.** Aggressive growers that adhere via suckers (like Virginia creeper and creeping fig) or with aerial roots (such as climbing hydrangea, euonymus, and trumpet vine) can damage woodwork—and the house, if they grow onto it. “These fast-growing vines achieve coverage quickly, but they don't stop growing after they cover the pergola,” says Jenn. “Regular maintenance pruning is essential.”

A slat wall with “windows” has an airy look that doesn't compromise privacy.

NICE-TO-HAVE UPGRADES

Consider these add-ons to boost the comfort and function of your pergola retreat

PRIVACY MEASURES

To shield prying eyes and screen unwanted sight lines...

TO BLOCK the view from the street or neighboring yards, screen unsightly views, and create privacy, add a vertical component to the pergola. This can be as simple as fabric curtains, an airy wood lattice, a slatted wall, or a wire grid engulfed with climbing vines.

LIGHTS, FANS, AND MORE

To add electricity...

SOLAR-POWERED lighting systems and ceiling fans are low-voltage and therefore DIY-friendly, but they don't offer nearly the oomph—or unlimited run time—of hardwired fixtures. For a full range of lighting, fans, heating, sound systems, and outlets, call in a licensed electrician. The wiring should be encased in

galvanized conduit—and can come out through the ledger on an attached pergola or up from the ground behind a post. From there the conduit can sit out of view on top of the rafters, with fixture wiring drilled down through—or all the wiring can be hidden inside dadoed grooves in timbers covered with wood panels.

MOVABLE SHADES

To have shade when you need it, and more sun when you want it...

USING LARGER rafters or more of them, adding purlins, or growing dense vines on top will increase shade underneath your pergola, but to truly block midday sun, you'll want fabric shades. These can be fixed triangular shade sails or fabric rectangles stretched from post to post; another option is retractable shades that

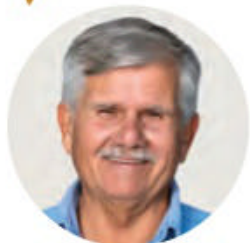
sit under the rafters or are custom-made to fit inside each rafter bay and can be adjusted manually, or are motorized and operated by remote control. For sun coming in under the pergola roof, which can be a problem early and late in the day, try roll-up wood shades, curtains, or awnings.

CLIMATE CONTROL

If a ceiling fan isn't sufficient...

A PATIO MISTING system connected to your yard's irrigation—and your household power supply—can send out aerosolized water droplets from the pergola top. The mist is so fine that it evaporates before it hits the ground or the people under the pergola, and can lower the air temperature by up to 30°F. The effect is diminished, however, on very humid days. 🏡

TOH PRO TIP



“I like to add diagonal brackets between pergola posts and beams to reinforce the corners and effectively shorten the beams' span, since the load is only between the braces, not all the way to the posts. That way a beam that runs 12 feet between posts might only have an 8-foot span to support.” **TOM SILVA** *General Contractor*



With fresh sage cuttings in one hand, Nicole Burke checks out a passionflower vine on the arched trellis in a client's garden.

Grow Your Own

Kitchen garden from scratch

A handy, productive home vegetable patch is more popular than ever. Planned and built right, it can even enhance the look of your home. Here's how one pro delivers on all counts—and you can, too

BY SAL VAGLICA

In the pursuit of a bumper crop of vegetables, too often an edible garden's aesthetics fall by the wayside. For Nicole Burke, founder of Rooted Garden, a company that designs, installs, and maintains edible gardens in and around Houston, the backbone of the modern kitchen garden is a series of raised beds, fitted with trellises and gravel pathways, which add to both its beauty and utility. Inspired by the classic French potager, which weaves edibles with ornamentals in a design that complements the house, she wants her gardens to invite walking over for a better look. After all, the more inviting the garden, the likelier you are to spend time harvesting and maintaining it.

Burke is on a mission to make gardening easier and more appealing, so more people will get growing. To that end, she also teaches online courses (gardenary.com) and recently distilled what she's learned from nearly seven years of working with

homeowners—and building more than 300 gardens—in a book, *Kitchen Garden Revival*. “I realized there is this stigma around growing food,” she says of the step-by-step plan she lays out for creating an edible garden that's as attractive as it is bountiful. “While all the other aspects of the landscape were pretty, many homeowners didn't think food gardens were, so I set out to undo that and make it the most beautiful part of the landscape.”

The self-taught Burke's accessible style comes in part from having learned from some of the same rookie mistakes she's seen clients make—from filling beds with poor soil, which only leads to lots of time spent troubleshooting later, to not leveling garden beds beforehand, then watching a rainstorm wash just-planted seeds to the lowest corners.

Up ahead: key ingredients in Burke's recipe for gardening success and lessons learned from her years in the trenches.

STEP ONE

Find the sun

From a convenient spot near the house to water access, a garden has a handful of site requirements; chief among them is sunlight. When Burke steps onto a property, she finds south on her smartphone compass (or the *Sun Seeker* app), then identifies structures between that spot and the sun’s path. The best site is one with few interruptions—trees, a house, a shed, even shrubs—between it and the southern sky.

Hours of sunlight required each day

- **Leafy greens** | 3 to 6 hours
- **Most herbs** | 5+ hours
- **Beans, peas, root crops** | 6 hours
- **Peppers** | 6+ hours
- **Tomatoes** | 8+ hours

STEP TWO

Determine the size

Understanding how much sun your garden site receives would likely lead you to wonder how big to make your vegetable patch. To determine the square footage, Burke usually asks homeowners how many people live in the house and plan to tend the garden, and if they like salads. Her rule of thumb is to harvest a salad’s worth of vegetables about every 30 to 45 days from each square foot of the garden. If space allows, she likes to start

most gardeners out with roughly 200 square feet of growing space, or six raised beds that are 4 by 8 feet each. Assume you’ll spend about 90 seconds to maintain each square foot of growing space per week, so those 200 square feet mean roughly 5 hours of weekly upkeep during the growing season. For quick gratification, herb plants can be harvested immediately, and greens and radishes 25 to 30 days after planting.

GROWING SPACE	WEEKLY MAINTENANCE	DAILY FOOD HARVEST DURING THE GROWING SEASON
25 square feet	About 40 minutes	About 2 servings of greens or 1–2 servings of vegetables or fruit per day (30–40 days after putting in starter plants)
50 square feet	About 75 minutes	3 servings of greens or 2–4 servings of vegetables or fruit
75 square feet	About 2 hours	4 servings of greens or 3–5 servings of vegetables or fruit
100 square feet	About 2½ hours	6 servings of greens or 4–8 servings of vegetables or fruit
200 square feet	About 5 hours	12 servings of greens or 8–16 servings of vegetables or fruit

STEP THREE

Plot your plan

Sketching a garden on paper is a great first step; then Burke encourages homeowners to take the plan outside. Marking the size and location of the beds can help you make design tweaks before ordering bulk materials.

Using spray paint, wood stakes, twine, and a measuring tape, mark out the proposed perimeter and each of the beds.

- 1. Drive the stakes.** With a mallet or hammer, sink a wood stake into each corner to represent the garden floor. Connect these stakes with spray paint or twine. Then step inside this boundary and measure off the perimeter to establish the first corner of the first raised bed with another stake.
- 2. Mark the beds.** Measure off the bed’s first corner to find the second. Drive another stake, and repeat the process for the two other corners of the bed.
- 3. Connect corners with twine.** Use twine to represent the footprint of each raised garden bed.
- 4. Stake and repeat.** With the first bed established, repeat the process for any remaining beds the same way—measure off the boundary line to establish the first corner. Pay particular attention to the space between the beds; try to keep pathways at least 3 feet wide for a wheelbarrow, and to ensure you have access to each side of the bed and can reach into the center.



Once you’ve determined how big a garden you need and can reasonably maintain, it’s time for the design to leap off the page. Here, Burke plans out her own home garden, a six-bed layout that sits along the sunny side of her house.

STEP FOUR

Pick your type

Just as what's grown in a raised bed changes from yard to yard, so does the ideal garden shape. Having design flexibility means that almost any yard can host an edible garden. Here are just three of the types Burke turns to when evaluating a yard



Border garden

Named because the beds border existing lines on the property—along a back or side fence, next to a driveway, as a perimeter to preserve a lawn, or anchoring a gravel patio (as shown). The design is usually fitted with up to four raised beds that are at least 2 feet front to back. With one or two inaccessible sides, border gardens work as a corner L-shape or sitting parallel to each other in a narrow side yard.



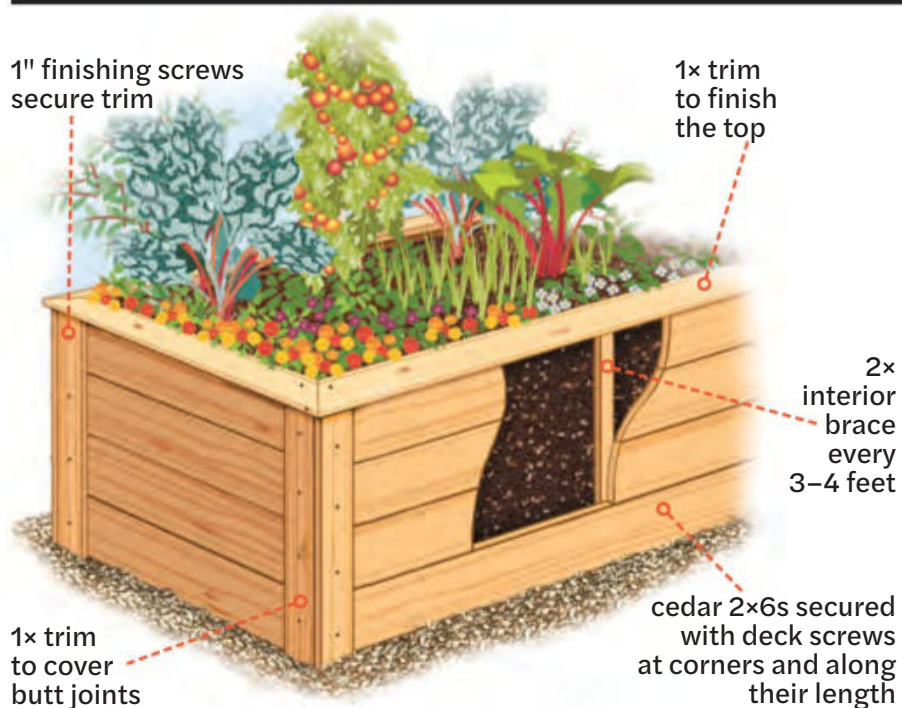
Four-garden classic

Aesthetically, a grid of raised beds organizes the garden and allows space for carrots and potatoes, which Burke likes to plant alone. She suggests this style for square garden areas that are at least 15 feet wide and within the yard's main lawn. With an even number of beds separated by pathways, it creates a natural entry point to top with an arched trellis that acts as a front door into a garden room.



Formal potager

Where space allows—usually 20 by 20 feet or larger—a formal potager is a big-budget splurge. Beyond the raised beds, which are often L-shaped to frame a central axis, a potager typically has a center bench, a fountain, an obelisk, or another ornamental focal point. The beds themselves tend to incorporate more flowering plants or trellises to support espaliered fruit trees, which reinforce a sense of enclosure.



STEP FIVE

Beds above the rest

While it costs more to build and fill raised beds with amended soil, it saves time since you can garden right away. "With a raised bed you don't have to wait years to have great soil," Burke says. She's found that beds longer than 15 feet require lots of bracing; her sweet spot is between 6 and 8 feet long—which coincides with the typical length lumber is sold in. She keeps the width to about 4½ feet when the bed is accessible on all sides, and 5 feet when a trellis runs down the center. While leafy greens and herbs can get by with a scant 6-inch-tall bed, Burke generally prefers at least 1 to 2 feet of soil to garden in.

STEP SIX

Make order out of chaos

When it comes to building a garden, accurate measurements and an installation plan are invaluable (a close third is having friends with strong backs). Here's how Burke streamlines the process on installation day

Plan to install the garden after all the components are on-site and the garden boxes built. Determine if having supplies delivered is worth the cost—it usually is.

1. Clear the area. Following the twine border, dig a perimeter trench deep enough to hold the edging material, keeping about 3 inches of it above grade to contain the gravel. Then clear the interior.

2. Begin irrigation. Dig trenches and bury lines that will tie your garden spigot or irrigation system to the garden beds' drip system.

3. Rake and level. Use a steel rake to smooth and level the garden floor. A diluted solution of 30 percent white vinegar helps suppress any weeds left behind.

4. Lay the weed barrier. Cover the entire garden space with weed fabric, cardboard, or rosin paper. Burke prefers using rosin paper.

5. Install your border edging.

Take the time to measure and make sure the lines are straight and square to other structures, like the house, a patio, or a garage.

6. Add pathway stones. With the border installed, place any large walkway stones on the weed fabric, using the string lines as guides.

7. Fill the floor. Remove string lines and start dumping in gravel (Burke is partial to pea stone) to a depth of 3 inches, raking it level. Adjust pathway stones so that the gravel is just below their tops as well as the top of the edging.

8. Add the boxes. Refer to your paper plan for the location of the garden beds, measuring off larger fixed elements, like the house or the border. Then drop in the garden boxes, squaring them up and leveling them by adding or removing gravel. Place trellises before filling up boxes with soil.



STEP SEVEN

Get some support

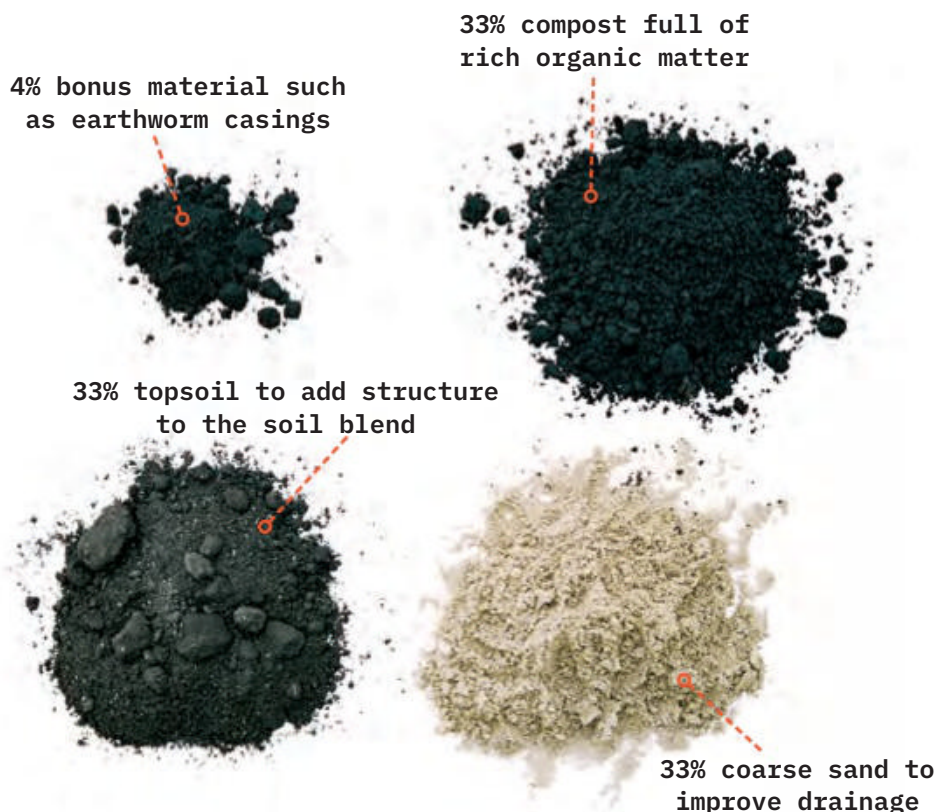
Trellises lend a hand to vining plants, adding height and visual interest. Burke plans one per 16 square feet of bed, placed in the middle or up against a wall of the bed. To install them, she adds about 1 foot of soil mix, then positions each trellis, pinning it to the gravel base when possible, before filling up the boxes. She favors metal for its durability. Flat-panel styles suit beds inaccessible on one side (as shown), pyramid-shaped obelisks look good in a square bed or in a row down a large rectangular one, and arches gracefully connect paired beds or quadrant layouts.

STEP EIGHT

Recipe for soil success

Burke developed this sandy loam to provide a fast-draining, fluffy mix that is easy to put together just about anywhere in the country. To determine how much soil to order, multiply the length, width, and depth of the beds in inches. Add the sums together, and divide by 27 to get the volume in cubic yards. Order 1/3 of the overall amount in sharp sand, in compost, and in topsoil. She recommends adding another 4 percent in the form of "bonus material," like worm castings, composted chicken manure, bonemeal, feather meal, or fish emulsion. This "103 percent" formula is her cheeky reminder of the four elements that help create a solid soil blend. She encourages gardeners to ask questions at the nursery, including how local the topsoil and compost are—with the idea that local materials will most closely resemble your native soil—and to consult a local nursery or university extension office on what to plant.

Burke admits gardening this way isn't cheap, or particularly easy at first. But, she says, "it's important for gardens to showcase the beauty of fresh food, and raised beds and trellises make it welcoming to the gardener who might otherwise be a bit intimidated. Any resources allocated to making a garden more welcoming is money well spent." 🏡



WHAT IS AVAXHOME?

AVAXHOME-

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fresh magazines, hot games,
recent software, latest music releases.

Unlimited satisfaction one low price

Cheap constant access to piping hot media

Protect your downloadings from Big brother

Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages

Brand new content

One site

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Standing stronger

A young couple rebuild their longtime family home, a circa 1864 Dutch Colonial, with future generations in mind

BY TED CUSHMAN | PHOTOGRAPHY BY ANTHONY TIEULI

When Evan and Whitney Williamson's house in Saratoga Springs, New York, was built, Abraham Lincoln was in the White House, and Ulysses S. Grant was slugging it out with Robert E. Lee in a struggle to shape the nation's destiny. There were no telephones, automobiles, or refrigerators. Electric lighting was rare. Most homes in town lacked indoor plumbing.

Over the century and a half since then, six generations of Evan's family have lived in the house, making a series of changes to it along the way. The first kitchen was added in the late 1800s; around 1914, the house was widened and became a duplex, with a series of additions that introduced new bedrooms, another kitchen, and multiple narrow staircases.

Now Evan and his wife, Whitney, have taken possession of the property, with plans to raise a family there. But before that happens, the rambling, 4,361-square-foot Dutch Colonial and its awkward, chopped-up floor plan are getting

BELOW LEFT: When the work is complete, Evan Williamson and his wife, Whitney, will move into the revitalized house to raise a family, and his mother, Susan, will continue to live in her in-law apartment. "We count ourselves very fortunate and thankful that my mom will be so close," he says.

BELOW RIGHT: The house's facade prior to the renovation.

some much-needed attention. "In the past, someone would build a space to meet a particular need without stepping back and thinking about the building as a whole," says architect Matt Hurff, who has been enlisted to bring the house into the 21st century as a comfortable multigenerational home. As the ambitious renovation plans are being brought to life by builder Matt Whitbeck and his crew, *This Old House* is documenting the project as part of its 43rd television season.

Key to Hurff's design is not only creating more open space inside but also connecting the house to its lot. "They have a really nice backyard, but over the years, poorly thought-out rear additions created separation between the indoors and outdoors," he says. Since work began last May, those additions have been demolished—the entire back of the house was torn off—to create a clean slate for Hurff's new layout. When it is complete, the renovated house will have a large, open living-dining-kitchen area with tall windows looking out onto the yard. Eight steep, narrow staircases will be replaced with a single central one.



HOMEOWNERS, HOUSE BEFORE: MEG REINHARDT



ABOVE: Over the course of two days, about two dozen attic trusses were delivered via flatbed truck and craned into place, where Whitbeck's crew secured them with nails and blocking. To ready the house, the entire second-story system of ceiling joists had to be demolished.

LEFT: The last of the main trusses being craned into place. Small triangular-shaped pieces will piggyback on top to complete the gambrel roof's ridge and improved proportions.



WATCH Follow the progress at the Saratoga project at thisoldhouse.com/Saratoga-legacy-restored



Upstairs, four awkward bedrooms and a small bath will make way for a main bedroom and an en suite bath with views of the backyard, plus two secondary bedrooms and a full bath along the side and front of the house. The finished third floor will serve as a study and sitting area. On the right side of the house is a two-story apartment with a separate entrance where Evan's mother, Susan, has lived for nearly two decades; its layout will stay more or less the same, although Susan's kitchen will be reconfigured into a galley and upgraded.

Demolition uncovered structural problems and safety issues that, along with weather delays, have turned what was supposed to be a nine-month project into what looks to be a yearlong one. The house was out of level, and removing the additions revealed weak, crumbling mortar in their rubblestone foundations, which had to be taken

ABOVE LEFT: Richard Trethewey starts work on the house's sprinkler system, required by code since the multigenerational home will have third-floor living space.

ABOVE RIGHT: Tom Silva and *TOH* host Kevin O'Connor check a ledger they installed for level as they begin framing the mudroom floor.

out. Some parts of the old foundation didn't reach below the frost line: "They didn't dig down deep enough, because they were doing it all by hand," says *TOH* general contractor Tom Silva. "Back then people didn't realize that you get a lot of heaving from the ground freezing and thawing, and that loosens everything up over time."

To support the new addition, which will hold the kitchen, mudroom, and second-floor main bedroom, the team turned to a modern solution: insulating concrete forms (ICFs). "They're fantastic," Tom says of the stackable polystyrene foam block forms. "They're steel reinforced as part of the engineering, and Matt poured a nice wide steel-reinforced footing for the walls to sit on."

Inside the house, the crew discovered haphazard framing as they opened up walls to allow for running new wiring—the existing

Reducing the risk of radon

The work that was done to shore up the house's foundation created an opportunity for some advance planning: Before pouring the basement floor, builder Matt Whitbeck and his crew placed four runs of perforated pipe in the subslab gravel, all tied into a sealed sump-pump basin. Two pipes will lead out of the basin: one to a drain field in the backyard, and one up through the roof. The backyard system is there to receive any groundwater that rises up under the slab; the pipe through the roof is there to exhaust any radon that might be present in the future.

About one in five homes in Saratoga County has hazardous levels of radon, an invisible, odorless gas that's formed when uranium undergoes radioactive decay in the earth. Uranium is ubiquitous in the earth's mineral

makeup, so radon can be found seeping out of the ground nearly everywhere—especially during construction, which disturbs the soil. Radon is implicated in lung cancer, and if it's trapped in a house, it can build up to dangerous levels. That's why the Environmental Protection Agency (EPA) recommends that all homeowners test for radon at least every two years, as well as after a renovation. The system Whitbeck installed as a preventive measure relies on passive convection to move any radon up the vent stack: Radon, being lighter than air, should rise because of its buoyancy. Retrofitting the system later "would probably be at least \$3,000 to \$4,000," Whitbeck says, so it makes sense to add it at this stage of construction, when the cost is only a few hundred dollars—a small price to pay for peace of mind.



armored cable wiring dated to the 1930s—and adding insulation. “A lot of the original work was done by novices,” says Tom. “We saw the old Yankee tradition of saving and reusing as much as possible. But there was a lot of patching and mingling things together without the right kind of joinery.” For example, in the early 1900s, when the building was widened into a duplex, the existing rafters were saved to frame the new roof. But the rafters were turned 90 degrees, and because the home was wider, the roof pitch had to be lowered. The result: A squashed-down gambrel and less-than-7-foot ceilings on the third floor that required ducking through the doorways.

The awkward proportions of what he called the “squatty” gambrel roof bothered Tom from the moment he set foot on the job site: “It just didn’t look right; the proportions were wrong.” Fortunately, it became apparent early on that removing the old roof and rebuilding it would ultimately save time and money. So Whitbeck and his crew reframed it entirely using attic trusses, gambrel-shaped wood roof structures fabricated off-site, mostly out of 2×4s connected by steel plates. Unlike conventional roof trusses, which have diagonal braces that fill up the area under the roofline, attic trusses are configured to leave room for living space. The reportioned gambrel now rises from 8 feet on the sides to 13 feet at the peak.

On the second floor, Hurff’s plans called for steel I-beams to be installed in the flooring system in order to carry the load above while allowing for the open-concept living and dining space below. But all that steel created a plumbing challenge: Underneath Evan and Whitney’s new bathroom,

ABOVE LEFT: Builder Matt Whitbeck and Tom with a steel header packed with wood to allow for hanging floor joists. It will go over a foundation opening behind Tom where the stairs enter the new part of the basement.

ABOVE RIGHT: The house’s updated facade, with new sheathing and windows in place, as well as the rebuilt third floor.



“My ancestors did what they could with the house, when they could. This is what I’m able to do now.”

—EVAN WILLIAMSON, homeowner

there wasn’t enough space to run the new drain lines. “Usually the toilet is the most difficult drain line to run, and once you locate that, you can run everything into that line,” says *TOH* plumbing and heating expert Richard Trethewey. “But in this house, the biggest obstacle was finding a way to maneuver around all the steel.” Local plumber Joel Schaperjahn suggested an elegant solution: concealing the pipes inside a coffered ceiling in the open kitchen/living space below.

While Schaperjahn solved the plumbing puzzle, Richard turned his attention to the new state-of-the-art electric heat pump system. Unlike earlier heat pumps, which cycle on and off, this version runs continuously. “It’s inverter-driven, so the compressor changes its speed to give you the perfect, precise cooling or heating temperature,” says Richard. One compressor and condenser outside can serve 4, 8, or 12 indoor air handlers mounted inside on walls, hidden in ceilings, or placed in a basement or closet and connected to ducts.

In the coming weeks, rough electrical will be finished, insulation will be added, and drywall will be hung; work will also start on the exterior clapboard siding and trim. Although the budget and timeline have both grown, Evan has stayed upbeat, because he sees this project as an investment in his family’s legacy. “The point of doing all of this is to leave a safe house for future generations,” he says. The couple’s deep respect for their family and the history of the house has been one of the most rewarding parts of the job for Whitbeck. “It’s fun to have clients who have a dream and a vision,” he says. “It’s not just that they need a place to live. This is really bigger than that.”

Building with a sense of place

Work is underway on our newest Idea House, a contemporary, energy-efficient home that reflects its Rocky Mountain setting

BY ROB WOTZAK

On a craggy hillside covered with granite boulders and dense stands of pine trees, with views of majestic Mount Evans in the distance, the foundation is poured and ready to support the three-story, 4,500-square-foot solar-powered home that will take shape there. Dramatic gable and shed rooflines will crown tall windows sited to take in the views and flood the interior with natural light. Exterior feature walls of wood and stone in an earthy palette of browns and grays reflect the rugged mountain environment, but there's nothing lodge-like about the house's contemporary lines. The goal of this build, located in the greater Denver area, is to combine clean, modern design with state-of-the-art technology and advanced building science in a comfortable, energy-efficient home that reflects its natural surroundings.

Leading the project—which will be featured on *Idea House: Mountain Modern*, a new television show from the producers of *This Old House* that airs on The Roku Channel this summer—is the husband-and-wife team of builder Jared Phifer and interior designer Amber Phifer, owners of Revolve Design-Build. Controlling the construction process from the initial design phase through completion allows them to forge a tight bond with their clients, they say, and results in a seamless process. “When we just did home building and remodeling, we already worked closely with our clients on every detail,” says Jared. “But once we brought in our own design staff and took control of the entire process, we realized that for us, this is the only way to build.”

An early rendering shows the gym, sited to take in views of Mount Evans. As the design progressed, this space became one of two home offices.



INSET: This spring, *TOH* host Kevin O'Connor visited Revolve Design-Build's Jared and Amber Phifer, touring several of their projects in various stages of completion.

After an initial consultation with the company's design team, homeowners James Korzekwa and Kyle Grunwald knew right away that they would choose Revolve to create their dream house. It helped that Jared and Amber already had a portfolio of open-plan homes in the popular mountain-modern style that resonates with James and Kyle. Soon after moving to Colorado from Austin, Texas, two years ago, the two software engineers found themselves searching for a building lot. They found the perfect candidate in the foothills town of Morrison, Colorado.

James and Kyle already had strong notions about what they wanted, including a big deck

PORTRAIT: VANCE JACOBS



Three levels of outdoor living offer open-air entertaining spaces and a private deck off the primary suite.

overlooking the mountains, inviting spaces to host family gatherings, and a dog door that opens into a mudroom, with a dog-wash station and a cozy area for their beloved vizslas to hang out. “But the most important thing,” Kyle says, “was making sure that we had the space we needed to not feel claustrophobic, because we work from home and will essentially spend all of our time in the house.” Working with Revolve architectural designer Kristina Johnson and making site visits to several of the firm’s other projects helped the couple identify details they liked so the team could refine their design drawings.

The resulting high-gabled home grows taller as it extends out over the steeply sloped property. A wall of stone veneer around the front door accents the main entry, while alternating planes of vertical wood planking, floor-to-ceiling windows, and painted clapboards draw the eye up and out to the views of the surrounding

ABOVE: A rendering of the new Idea House shows the mix of painted clapboards, vertical ash siding, and stone veneer that will tie the building to the mountain landscape; clean lines, contemporary windows, and decks with powder-coated steel railings announce its modern style.

mountains. To give Kyle and James the strong indoor-outdoor connection they wanted, the house offers three levels of outdoor living: a concrete patio off the basement rec room and two decks covered with low-maintenance composite boards and featuring horizontal powder-coated steel railings, creating multiple spaces for grilling, entertaining guests, or just relaxing with the dogs. Amber and the design team have carved out spaces for a hot tub, a dining area, a fire pit, and even an outdoor projector. “With all the glorious mountains as the backdrop, it’s going to be an epic place to watch a movie,” Amber says.

While the exterior materials definitely have a modern look, because this region is prone to wildfires, they are as much about safety as aesthetics. The fiber-cement clapboards are noncombustible, and the thermally modified ash that runs vertically is more durable and fire resistant than untreated wood siding options. “It’s



CLOCKWISE FROM TOP LEFT: The house's foundation takes shape; checking for square in preparation for framing; finished walls await sill plates; builder Jared Phifer (left) and project manager Jesse Pentagulio (center) welcome head framer Al Lopez to the job site.

hard to find natural materials that bring in a lot of warmth but don't deteriorate quickly in our harsh climate, so this modified ash is a perfect fit," says Jared. Enameled metal roofing on the lower wings of the house rounds out the collection of long-lasting and firesafe finishes.

A number of construction details and systems will make this house extremely comfortable and energy efficient, including triple-pane windows, a high-performance electric HVAC system, and a unique aerosol-applied air barrier. Project manager Jesse Pentagulio says, "This air-sealing process typically gets our houses to double or triple the airtightness of a code-compliant new home." A mechanical heat-recovery ventilation system will ensure that the house has a steady supply of fresh air while also minimizing heating costs. An array of photovoltaic shingles will blend into the main roof and provide up to 5.94 kilowatts of electricity when the sun is shining.

Inside is where the design team really delivered on James and Kyle's list of must-haves. Since the couple work from home, two private offices are essential, but they're getting special hobby spaces as well. Kyle makes his own wine and beer, so there's a dedicated brewing room on the ground floor, a bar with a row of beer taps at one end of the adjacent rec room, and a small wine cellar in an alcove formed by a jog in the basement wall. James's hobby space is a woodshop on the far side of the two-car garage, where he plans to build



“These folks build smart—from designing for passive solar heat gain, to using advanced building materials and energy-saving systems, to harnessing solar for electricity, even offering app-controlled monitoring so homeowners can stay on top of it all.”

—KEVIN O'CONNOR,
TOH host

custom furniture for the house, which will hold three bedrooms and three full and two half baths.

With Kyle's passion for cooking and their shared enthusiasm for hosting, a central open living area with a spacious kitchen was important to them both, but they had different ideas about the aesthetics. "We really put a lot of time and intentionality into fulfilling James's desire for a farmhouse kitchen and Kyle's dream of having a more modern kitchen," says Amber. The resulting mix of dark walnut on the island and sleek gray perimeter cabinets offers a cohesive design they can both appreciate.

As tech enthusiasts, James and Kyle asked for a host of smart-home controls in the house. Jared says he would have suggested many of the same features even if the homeowners weren't totally into tech: "Having everything dialed in so you can program and check your thermostats, lighting zones, and appliances is necessary in this day and age to make homes more user-friendly," he says.

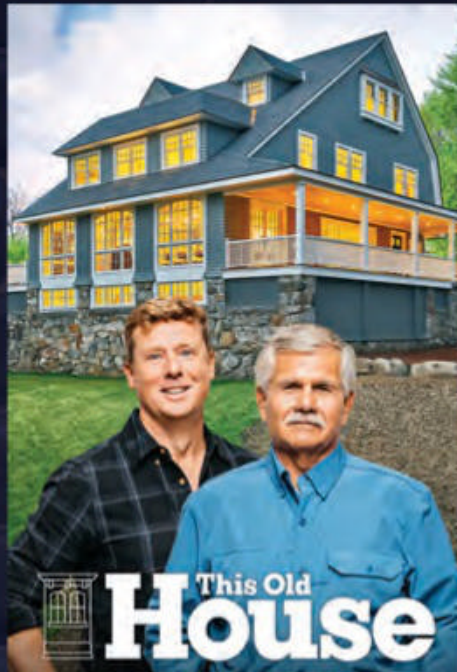
In another future-proofing move, the main floor will have an accessible guest suite for Kyle's dad, who uses a wheelchair. Revolve went the extra mile there, too, making sure doorways and flooring transitions on the entire first floor are wheelchair-friendly, so the home will be safe and comfortable to live in for years to come.

As smoothly as the design and planning process went, the project has had its share of setbacks. Demanding site conditions, inclement weather, and supply-chain delays repeatedly threatened the timeline, but the dedicated crew have continually stepped up. "It all comes down to good planning and communication, and just being proactive to problem-solve," says Jared.

For the Revolve team, each project has its own unique challenges—and rewards. With the crew set to start framing and better weather ahead, the house will quickly begin to take shape. Amber is excited to see how the kitchen comes together, while Jared looks forward to the house's indoor-outdoor connection becoming a reality. "This is our first house with a triple-decker outdoor space," he says. "That's going to be something really cool to experience." 🏡

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Skill: Hard
Cost: About \$140
Time: 5-6 hours (2 people)



HOME FOR HONEYBEES

ABOVE: Tom and Kevin show off the Langstroth-style beehive they built out of pine and plywood.

INSET: Bees swarm over a hive's embossed foundation sheet, where they store their honey.

[Build It]

Classic wood beehive

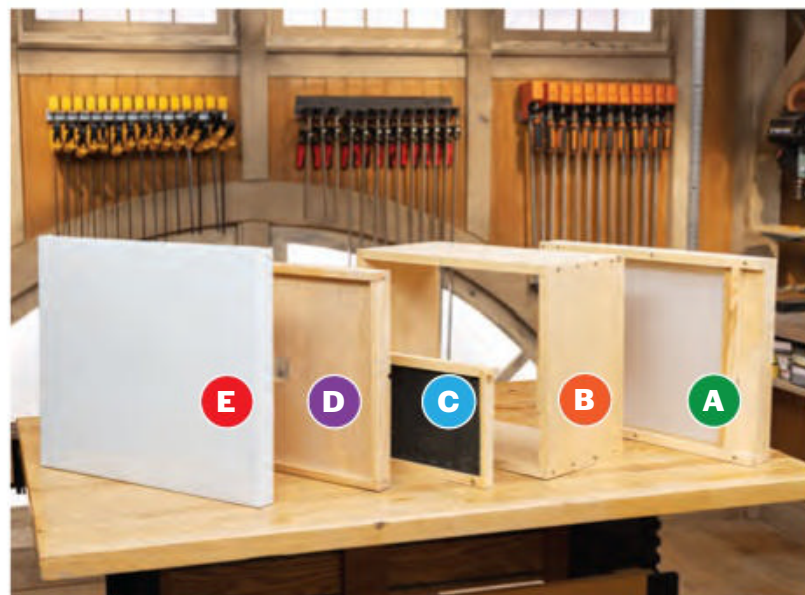
TOH general contractor Tom Silva and TOH host Kevin O'Connor craft a bee-friendly backyard feature from basic building materials



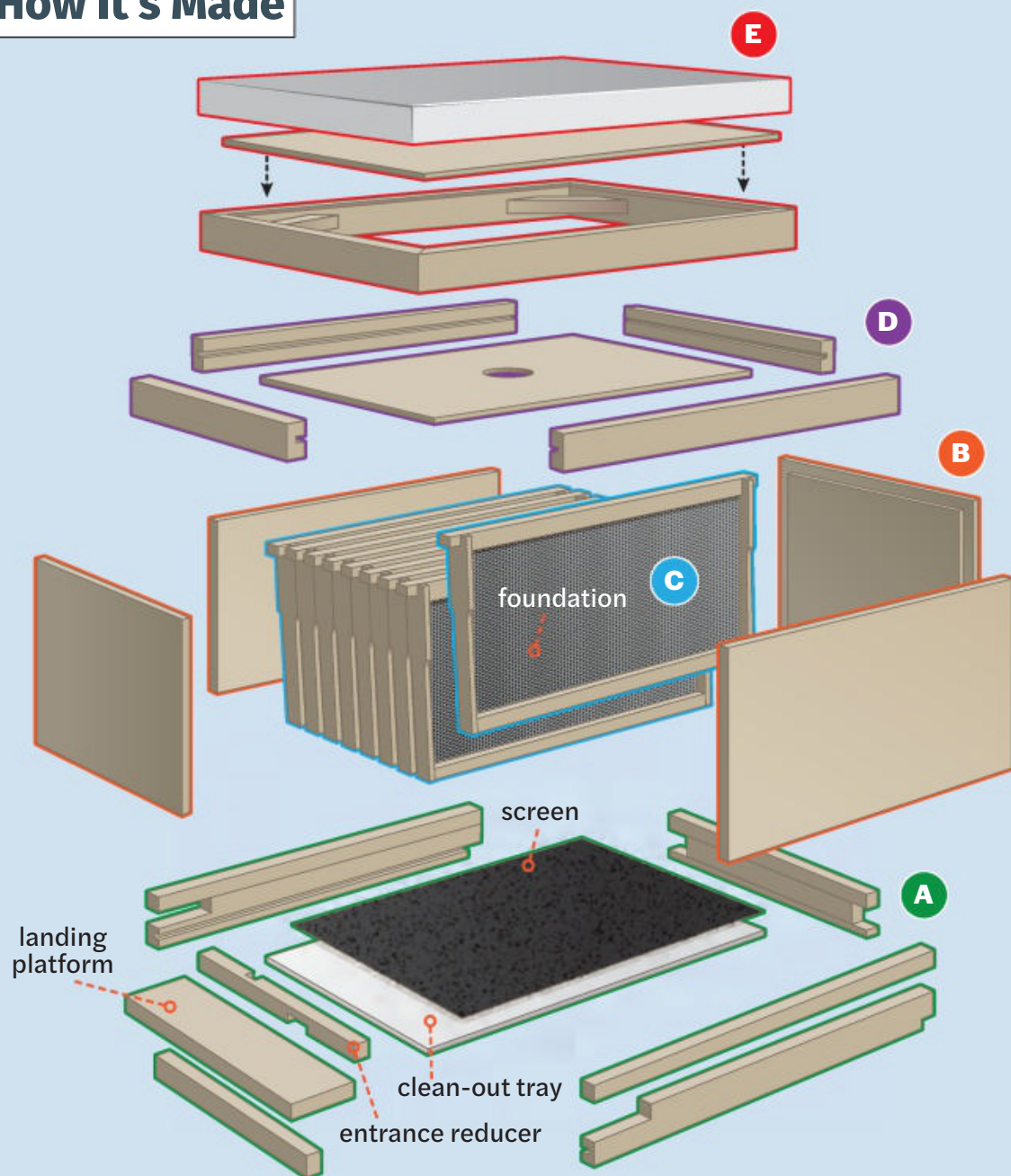
When Tom saw how much satisfaction—and honey—his neighbors were getting from their backyard beehives, he decided to take up the challenge of building one for himself, from scratch. After some research, Tom settled on a Langstroth hive, a style popular with beekeepers for over 170 years. When Kevin commented that it looked complicated, Tom admitted, “It is, a little,” then suggested they get to work.

This type of beehive is made up of five parts: the base (A); the hive body (B); the frames (C), where bees make their honeycombs (this hive has 10); an inner cover with a ventilation hole (D); and an aluminum-clad outer cover (E)—the hive’s weatherproof cap. This modular design allows you to use the same base and cap when stacking the bodies on top of one another.

While Tom has no plans to become a beekeeper, building this hive made him appreciate how well the design is tailored to bees’ needs: “It’s pretty cool.”



How It's Made



Finished dimensions
18½"W × 22"L × 14⅝"H

MATERIALS

- ❑ four 8-foot 1×4s
- ❑ one 1-foot 2×10
- ❑ ¼-inch plywood, 2 by 4 feet
- ❑ wood glue
- ❑ 18-gauge finish nails, 1¼ inches
- ❑ 1½-inch #6 wood screws
- ❑ assorted narrow-crown staples, ½ inch to 1¼ inches long
- ❑ 30-gauge aluminum sheet
- ❑ metal window screen
- ❑ corrugated plastic sheet
- ❑ 10 embossed foundation sheets for the bees to store honey

TOOLS

- ❑ table saw
- ❑ miter saw
- ❑ framing square
- ❑ utility knife
- ❑ jigsaw
- ❑ cordless drill
- ❑ #6 countersink bit
- ❑ 18-gauge finish nailer
- ❑ narrow-crown staple gun
- ❑ bar clamps
- ❑ jointer
- ❑ hole saw
- ❑ tin snips



WATCH See Tom and Kevin build this project at thisoldhouse.com/bee-hive

STEP-BY-STEP

1] Cut all pieces to size. Following the cut list at thisoldhouse.com, rip all parts to width on a table saw and cut them to length on a miter saw. Plane a 9 $\frac{3}{8}$ -inch piece of 2×10 to a 1 $\frac{3}{8}$ -inch thickness. Use a framing square and a utility knife to score and snap the aluminum sheet to size.

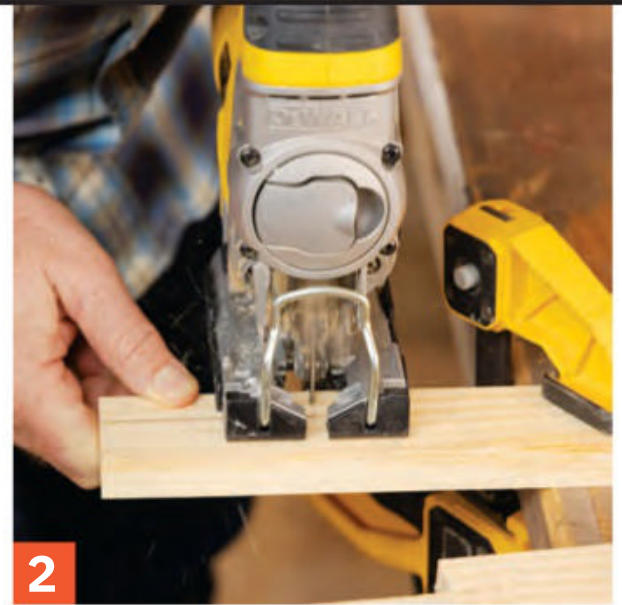
2] Make the base sides and entrance reducer. Following the schematic drawings at thisoldhouse.com, notch one end of each base piece using a jigsaw. Then, on the table saw, rip a $\frac{1}{4}$ -inch groove on the inside of the pieces for the plastic panel. Use the table saw and its miter gauge to crosscut two dados on adjacent sides of the entrance reducer, making one dado 1 inch long and the other 2 inches long. The different widths allow a wider entrance hole in summer and a narrower one in winter to moderate the hive's temperature.

3] Assemble the base frame. Glue and nail together the three base strips, checking for square as you go. Drill pilot holes through each corner with the countersink bit, then drive in screws.

4] Install the screen and top base strip. Staple the screen to the base frame, and trim it flush with the frame's sides. Next, using three screws, glue and fasten the top base strip to the base frame's back and sides, as shown. Leave the entrance reducer loose. Slide the corrugated plastic sheet into the base grooves.

5] Rabbet the hive body panels. Set the table saw's blade and fence for a $\frac{3}{4}$ -inch-by- $\frac{3}{4}$ -inch rabbet cut. Carefully run both ends and one side of the front and back panels through the saw vertically. Then lay each board flat and cut again to complete the rabbets. Use a push stick to keep the waste piece from kicking back.

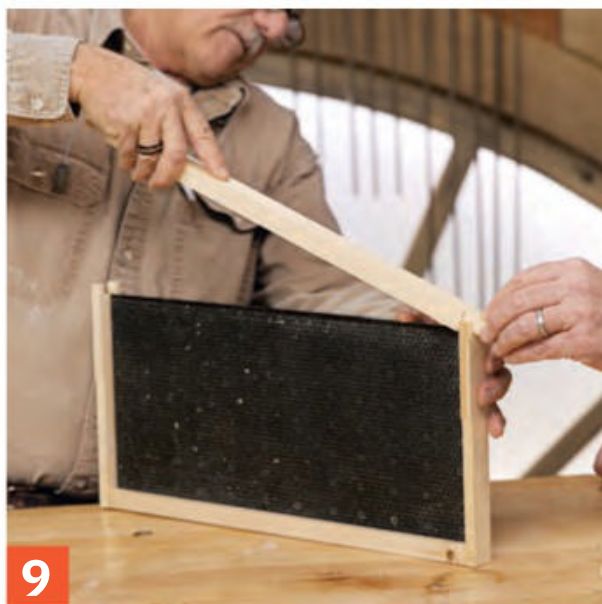
6] Assemble the hive body. Apply glue at the corners, and tack each joint with the finish nailer. Clamp the joints tight and square, then countersink and drive four screws into each corner. ➔



TIP

USE A SLED FOR SAFETY

A scrap-wood "sled," like the one at left, allows Tom to safely cut vertical pieces when making tenons and dados. It consists of a sacrificial backer (A) attached to a 1× (B) that sits on top of the saw fence. That 1× is affixed to another 1× that hooks onto the other side of the fence. This hook keeps the sled aligned as the fixture slides past the blade.



TIP

ONE BOX MAY NOT BE ENOUGH

A single hive body the size of this project can comfortably house about 60,000 bees. But if the site has lots of pollen for them to collect, then stacking another box with additional frames gives them room to expand their hive (instead of leaving it), and to store enough honey to survive the long winter months.

STEP-BY-STEP (CONTINUED)

7] Make the honeycomb frames. Cut the pieces from a 10-inch-wide-by-1 $\frac{3}{8}$ -inch-thick board. (See online schematic.) Mill a $\frac{7}{16}$ -inch-deep-by- $\frac{7}{8}$ -inch-wide dado in the center of the board's long edge. Rip it into 20 $\frac{5}{16}$ -inch-thick strips on the table saw. Using the sled, cut $\frac{15}{16}$ -inch tenons in the ends of each top piece of the same width and thickness as the dados above. Rip a $\frac{1}{8}$ -inch-wide-by- $\frac{1}{4}$ -inch-deep groove down the center of each top and bottom frame piece.

8] Mill gaps into the frame edges. When assembled, the lower edges of the frame sides have $\frac{5}{32}$ -inch gaps for bees to sneak through. Tom made the gaps with a jointer and a stop block clamped 5 $\frac{1}{2}$ inches past the cutterhead. (A coping saw also works.)

9] Assemble the frames. Glue and staple the bottom frame between the two sidepieces. Slide a honeycomb foundation sheet into the groove in the bottom piece. Slip the top frame piece into the side dados, then glue and staple the top joints. Do the same for all 10 frames.

10] Build the inner cover. Rip a $\frac{3}{8}$ -inch-deep-by- $\frac{1}{4}$ -inch-wide groove in the center of the cover's four frame pieces. Cut them to length, and, with the grooves all facing inward, butt, glue, and nail together three sides. Slide a $\frac{1}{4}$ -inch plywood panel into the groove, and attach the fourth side. Cut a 2 $\frac{1}{2}$ -inch hole in the top with a hole saw.

11] Assemble the outer cover. Cut $\frac{1}{4}$ -inch-by- $\frac{1}{4}$ -inch rabbets on the top inner edge of each sidepiece. Glue and staple together the mitered corners; glue and staple another $\frac{1}{4}$ -inch panel to the rabbet. Flip the cover over; glue and nail the mitered braces to each inside corner.

12] Cap it. Cut the metal with tin snips, then score it 1 $\frac{1}{2}$ inches in from the edge all the way around. Bend the edges up; tuck in the corner tabs. Place the cap over the outer cover, and staple at the corners. ■



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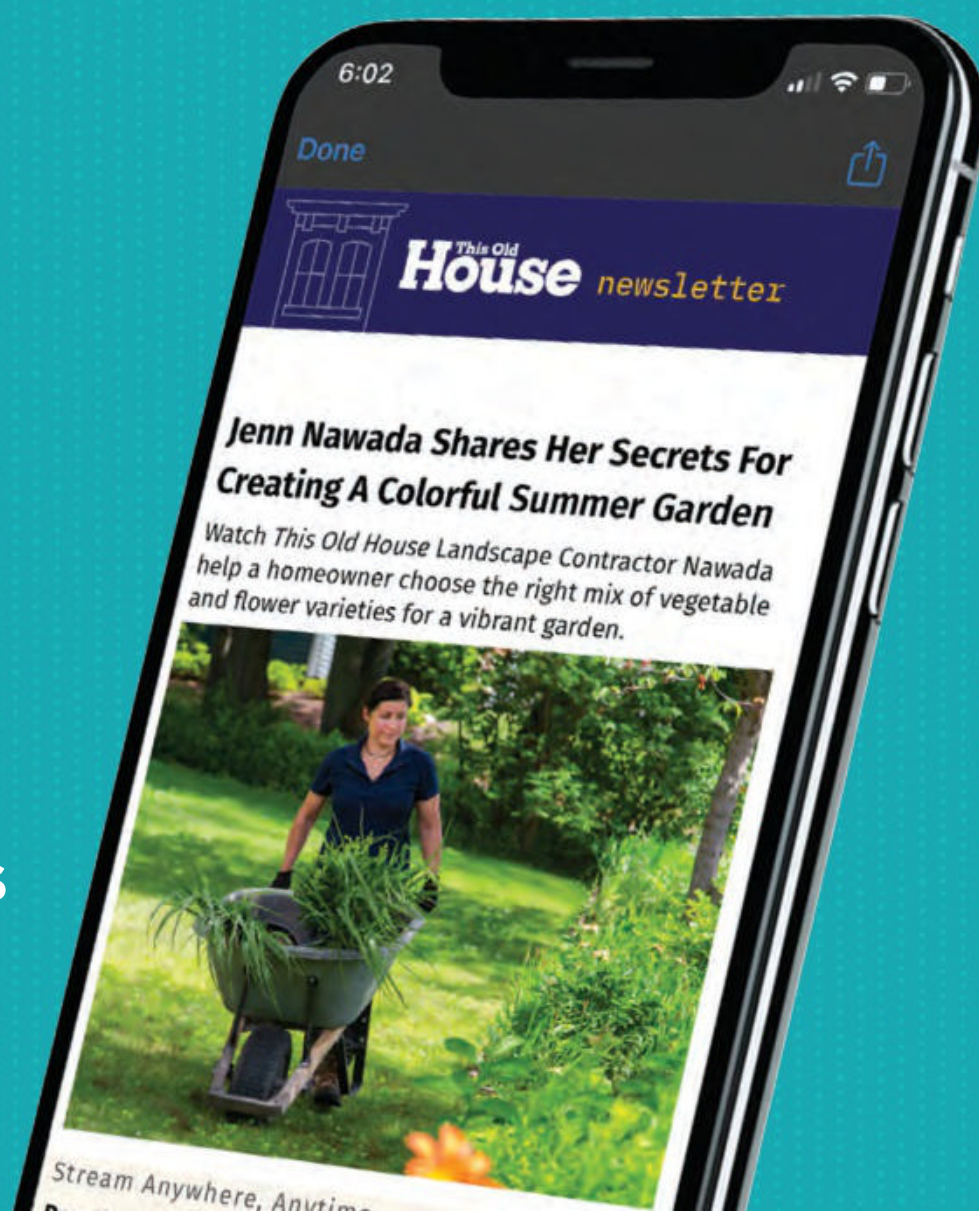
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[Tool Lab]

Cordless
finish nailers

TOH carpenter Nathan Gilbert has the lowdown on how to choose and use these time-saving tools

BY CHRIS ERMIDES

Whether you're installing crown molding, baseboards, stair treads, or window trim, a finish nailer will improve the quality and speed of your work. Not only do these tools shoot nails faster than anyone can hammer, but they also propel the nails at such a high velocity that they sink in before the wood has a chance to move. Once you start using a finish nailer, there's no going back to a hammer.

Until recently, nailers had to be tethered to a compressor hose (or fitted with a gas canister), which powered the piston that drove in the nails. Now, thanks to better batteries, the latest cordless nailers have the power and firing rate to match their compressor-dependent predecessors. And while they're not as light or nimble as pneumatic nailers, the grab-and-go portability of cordless models more than makes up for it. For more details, read on.



HE'S GOT NAILERS COVERED

TOH carpenter Nathan Gilbert displays some of the many types of nailers that shoot nails without needing a compressor.

WHAT
TO
LOOK
FOR



What to look for
in a finish nailer

COMMON FEATURES

- A | Cushioned nose tip
Protects work surfaces from dents
- B | Jam latch
Opens to release jammed nails
- C | Nail magazine
- D | Trigger
- E | Firing selection
Shoot either on contact (bump) or when trigger is pulled (sequential)
- F | Belt hook
Adjustable for right- or left-side carrying
- G | Lithium-ion battery

ON OTHER SIDE:

- H | Depth-drive adjustment
Dial in nailing power on the fly
- I | LED
Helpful when working in closets

WORTHWHILE UPGRADES

- Low-nail lockout
Prevents dry firing
- Battery-charge indicator

SHOWN:
Milwaukee Tool M18 FUEL
18-Gauge Brad Nailer Kit
(MODEL 2746-21CT)

WEIGHT: 7.2 pounds
NAIL LENGTHS: 5/8 to 2 1/8 inches
BATTERY: 18 volt, 2 amp-hour,
lithium-ion
MAGAZINE CAPACITY: 110 nails
NAILS PER CHARGE: 1,500
PRICE: \$399; milwaukeetool.com

GILBERT: BOB O'CONNOR

GUIDE TO CORDLESS FINISH NAILERS

15-Gauge Finish Nailer

BEST FOR: Heavy trim up to 5/4 inch thick

NATHAN SAYS: “The powerful pistons in these nailers can sink 2½-inch nails into hardwood; use them to securely install baseboards, large crown molding, and door and window casings. Their nails’ relatively large heads and shank size ensure that joints will stay tight. Its near twin, in both size and price, is the 16-gauge finish nailer, which comes with either a straight or angled magazine (the latter comes in handy when working in tight spaces); 15-gauge nailers have angled magazines only.”



Metabo HPT Angled Finish Nailer Kit (NT1865DMAS)

WEIGHT: 7.5 pounds

NAIL LENGTHS:
1¼ to 2½ inches

BATTERY: 18 volt, 3 amp-hour, lithium-ion

MAGAZINE CAPACITY: 100 nails

NAILS PER CHARGE: 1,100

PRICE: \$329; amazon.com

18-Gauge Brad Nailer

BEST FOR: Wide range of trim thicknesses, ¼ inch to 1 inch

NATHAN SAYS: “These nailers hit the sweet spot between the big 15- and 16-gauge nailers and featherweight pin nailers. This is the size to use for fastening quarter round, baseboard cap, wainscot, small crown, chair rails, and most other trim. Their nails don’t leave a large hole; one swipe of filler hides them for good. They’re only available with straight magazines, however.”



DeWalt 20V Max XR Brad Nailer Kit (DCN680D1)

WEIGHT: 6.3 pounds

NAIL LENGTHS:
5/8 to 2½ inches

BATTERY: 20 volt, 2 amp-hour lithium-ion

MAGAZINE CAPACITY: 110 nails

NAILS PER CHARGE: 850

PRICE: \$319; homedepot.com

23-Gauge Pin Nailer

BEST FOR: ½-inch trim or thinner that will be glued

NATHAN SAYS: “This type of nailer can shoot a wire nail just 0.023 inch wide into solid wood; these nails leave behind holes so tiny that you can hide them under a coat of paint. They’re good for attaching molding returns, or thin trim on cabinets, bookcases, or small projects. Because pin nails don’t have heads, their holding power is limited; use them to keep freshly glued pieces in place while the adhesive sets. They’re no match for some dense hardwoods.”



Ryobi ONE+ AirStrike Pin Nailer Kit (P318)

WEIGHT: 5.5 pounds

NAIL LENGTHS:
½ to 1¾ inches

BATTERY: 18 volt, 2 amp-hour, lithium-ion

MAGAZINE CAPACITY: 120 nails

NAILS PER CHARGE: 3,500

PRICE: \$208; homedepot.com



WATCH See Nathan demonstrate how to use finish nailers at thisoldhouse.com/cordless-nailers

TECHNIQUE BASICS

SAFE NAILING

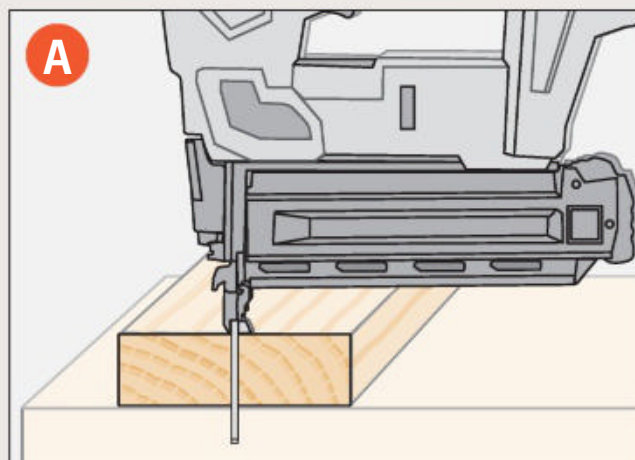
Nailers fire with such speed and power, they need to be treated with respect. Make sure to follow these basic safety precautions every time you pick one up:

- > **Remove the battery when you adjust the tool or fix a jam.** This prevents accidental firings.
- > **Keep hands away from the area being nailed,** or anywhere a nail could exit unexpectedly.
- > **Hold the nailer perpendicular to the work.** Nails can ricochet off the wood if you angle the nailer or attempt to toenail with it.
- > **Before pulling the trigger, place the nailer's nose firmly against the surface.** That way, the nail is more likely to sink to the proper depth, with the nailhead just below the wood surface.

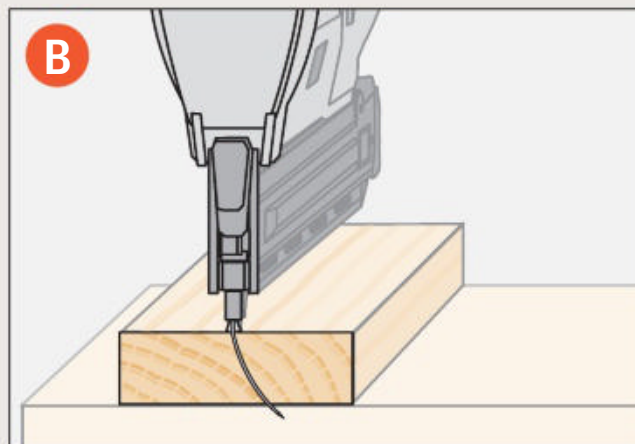
HOW TO KEEP NAILS FROM BLOWING OUT

To ensure that a finish nail goes straight through the wood and doesn't exit out one side, align the nailer's magazine perpendicular to the direction of the wood grain (**A**).

Why this technique works: Finish nails come glued together in long strips, much like staples, with their sharp chisel tips all in a line. If the edge of that tip is parallel with the direction of the wood grain, the nail can be deflected (**B**). But if the tip's edge runs across the grain, the nail is more likely to take a straight path as it cuts through the wood fibers.



Lower risk of blowout



Higher risk of blowout



Before you begin, make sure...

- ✓ The battery is fully charged.
- ✓ The magazine is filled with nails of the correct length.
- ✓ You're wearing safety glasses and hearing protection (as shown above).

What size nail?

Finish nails should be long enough to penetrate the framing by at least $\frac{3}{4}$ inch; 1 inch is preferable. For example, if you're fastening $\frac{3}{4}$ -inch-thick baseboard over $\frac{1}{2}$ -inch drywall, select nails that are 2 or 2 $\frac{1}{2}$ inches long. Longer nails do have more holding power, but they are more likely to nick wires or pipes inside a wall, or to run off course. (See "How to Keep Nails from Blowing Out," left.)

A nail's gauge has similar trade-offs. The larger the gauge, the bigger the head and the thicker the shaft. (See size comparison below.) Nails with a larger gauge have greater holding strength and are less likely to bend than ones with a smaller gauge. However, larger heads and thicker shafts increase the chance of splitting wood, and they leave behind bigger holes, which take more filler to hide. ■

Finish nailheads (actual size)



What's New

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

BY SAL VAGLICA

1. Neat and easy garage storage

Ryobi Link Modular Storage System

More versatile and even simpler to install than pegboard, this wall-storage system starts with 33-inch-long polymer rails that screw into studs. The rails hold any of 15 different organizers and support 75 pounds per linear foot. \$30 for two rails, accessories from \$9 to \$65 each; ryobitools.com

2. DIY-friendly bath-fan upgrade

WhisperFit DC Fan

This vent fan's hinged support bracket slips easily into the ceiling, then expands to full size. Set the speed to 50 or 80 cubic feet per minute (cfm) for a powder room, 110 cfm for a full bath; all three settings are ultraquiet. From \$217; fitdxfan.com

3. Washable matte wall color

Behr Ultra Scuff Defense Interior Extra Durable Flat Paint

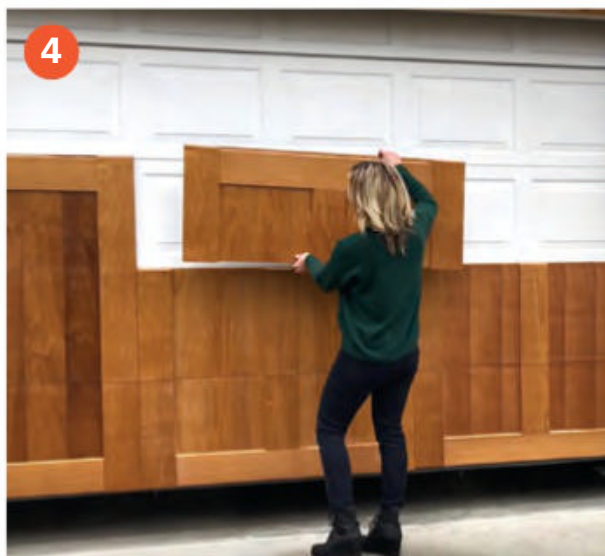
Most velvety matte paints don't hold up well to being cleaned,

but this affordable formula has the scuff and scrub resistance of a gloss, so you can apply it in high-traffic areas like hallways. \$38 per gallon; behr.com

4. Makeover for garage doors

GarageSkins

Upgrade the look and performance of steel garage doors with these wood-veneer-and-foam-core panels, held in place with rare-earth magnets. A door-spring adjustment may be required; the skins add up to 60 pounds to a two-car garage door. From \$749; garageskins.com



With antimicrobial ingredients that protect against mold and mildew, this flat paint is suitable for use in bathrooms, too.



TOH PRO TIP



TOM SILVA
General Contractor

"Using the cutoff wheels on rotary tools is a handy way to trim bolts in hard-to-reach areas where reciprocating saw blades won't fit."

FAN: COURTESY PANASONIC



6

5. Higher speeds, longer run times
Dremel 8260 Cordless Brushless Smart Rotary Tool

This rotary tool delivers 20 percent faster cutting speeds than its cordless predecessor—up to 30,000 rpm—and its 12-volt battery lasts twice as long. The secret? A brushless motor that efficiently manages the extra power. \$169; homedepot.com

6. Compact washer
DeWalt 2100 MAX psi Electric Jobsite Pressure Washer

This 24-pound, 2,100-psi sprayer is designed so all its parts fit neatly on a rolling 23-inch frame. The cord wraps underneath, the hose nestles under the top handle, and the wand and spray tips pack away inside. Its wheels and telescoping handle make it as easy to move around as a

carry-on. Uses only 1.2 gallons of water per minute. \$249; homedepot.com

7. Frustration-free trimming
POWER+ Powerload String Trimmer with Line IQ

This string trimmer's 56-volt battery has the power to whack wide swaths of grass down to size, and the ability to sense and automatically feed out more line when needed; no more bumping the head on the ground. \$330; egopowerplus.com

8. Save time while adding molding
Trim Buddy

When installing door and window trim, this little tool punches above its weight. Use it to set ¼-inch reveals, strike scribe lines, and mark 45° miters. \$20; thetrimbuddy.com

9. Eco-friendly soil builders
BeyondPeat

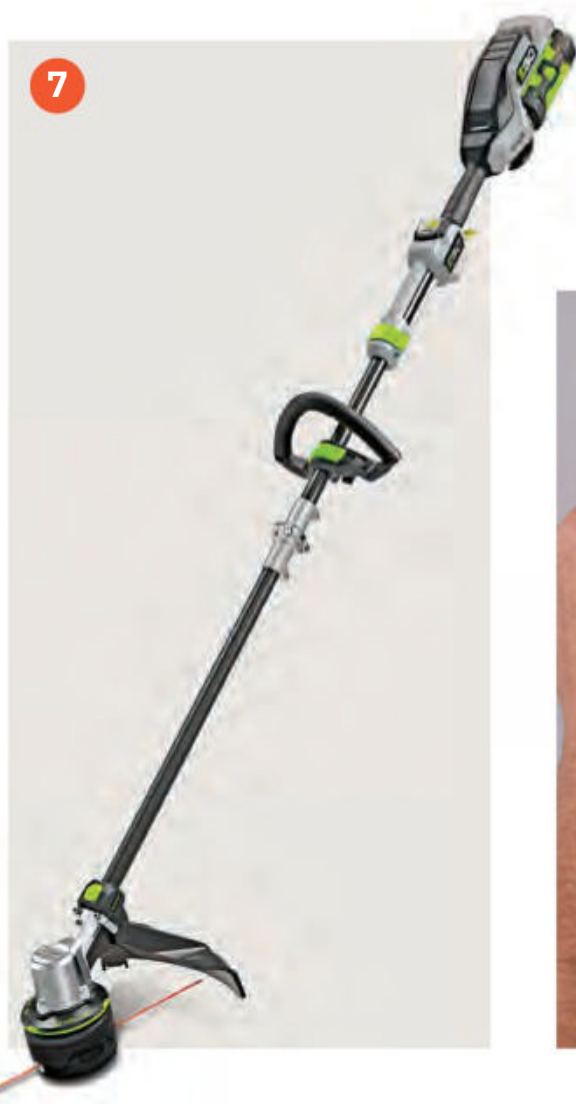
Most peat moss used in the United States is dug out of Canadian bogs, a mining process that destroys wetlands known for capturing tons of carbon. Here's a better alternative: peat-free soil mixes made of Bio-Fiber, a product extracted from dried dairy-cow manure. Mixed with organic fertilizer and compost, it holds up to seven times its weight in water and provides up to 25 percent more air space for roots than natural peat. From \$4 per cubic foot; beyondpeat.com

TOH PRO TIP



JENN NAWADA
Landscape Contractor

"For new garden beds, I like to incorporate a 1-to-1 blend of compost with topsoil, adjusting it to suit the plant's pH preference."

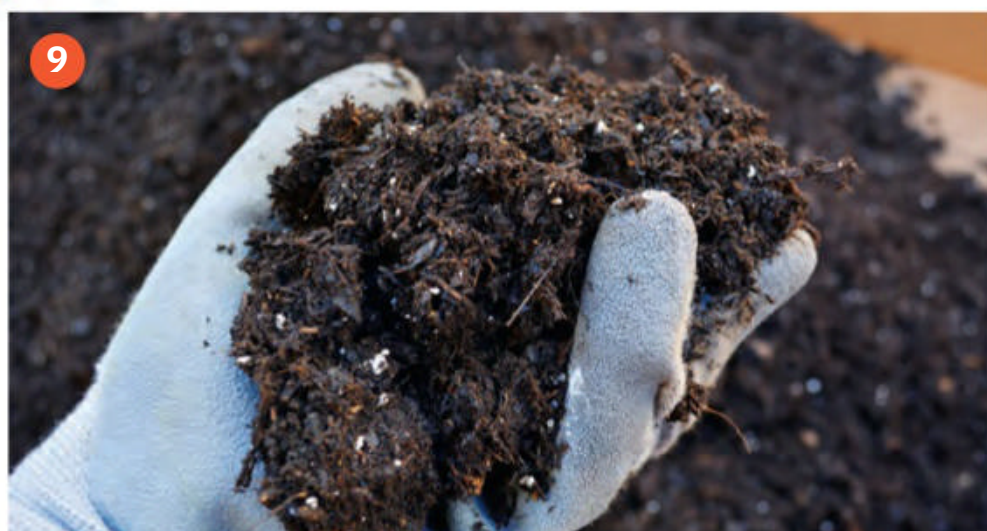


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A carbon-fiber shaft and lithium-ion battery keep this tool's weight down to just 12½ pounds.



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[Easy DIY]

Lounge chair

TOH DIY expert **Jenn Largesse** shows how to build a weatherproof lounge chair from composite deck boards

Recently, my husband and I realized our dream of putting in a swimming pool, which we surrounded with a composite deck. And since we ended up with lengths of leftover decking, I saw an opportunity to put them to use by building a pair of lounge chairs.

The design I came up with has backrests that fold down flat, angled legs for a modern look, and a long, slatted seat so we can put up our feet while watching the kids. The composite material does make the chairs quite heavy, but with corrosion-resistant fasteners and polyurethane glue holding the parts together, I'm happy to report that the chairs are strong and nearly maintenance-free. To make them perfect for relaxing, you'll just need long cushions to cover the seat and the backrest.

Positioned beside the pool, our lounge chairs provide ideal vantage points for judging our kids' cannonball competitions. Here's how to build a set of your own.



REMOVE THE GROOVES Jenn uses a table saw to slice off some of the deck boards' grooved edges: She saved the offcuts to make the rails and backrest supports for the chair.



Skill: Moderate
Cost: About \$175
Time: 5 hours



GETTING STARTED

Composite decking material holds up great outdoors, but it has different characteristics than wood does. Here's what you need to know when working with it: **1)** To prevent composite faces from mushrooming around screwheads, drill a pilot hole for every screw. **2)** Cut edges can be sharp, so round them over with a router or sandpaper. **3)** If a cut exposes a composite's core that doesn't match its face, wipe the cut with a wood stain. **4)** Composite decking expands and contracts with temperature changes. Leave 1/8-inch gaps at the ends of the slats.

TOOLS

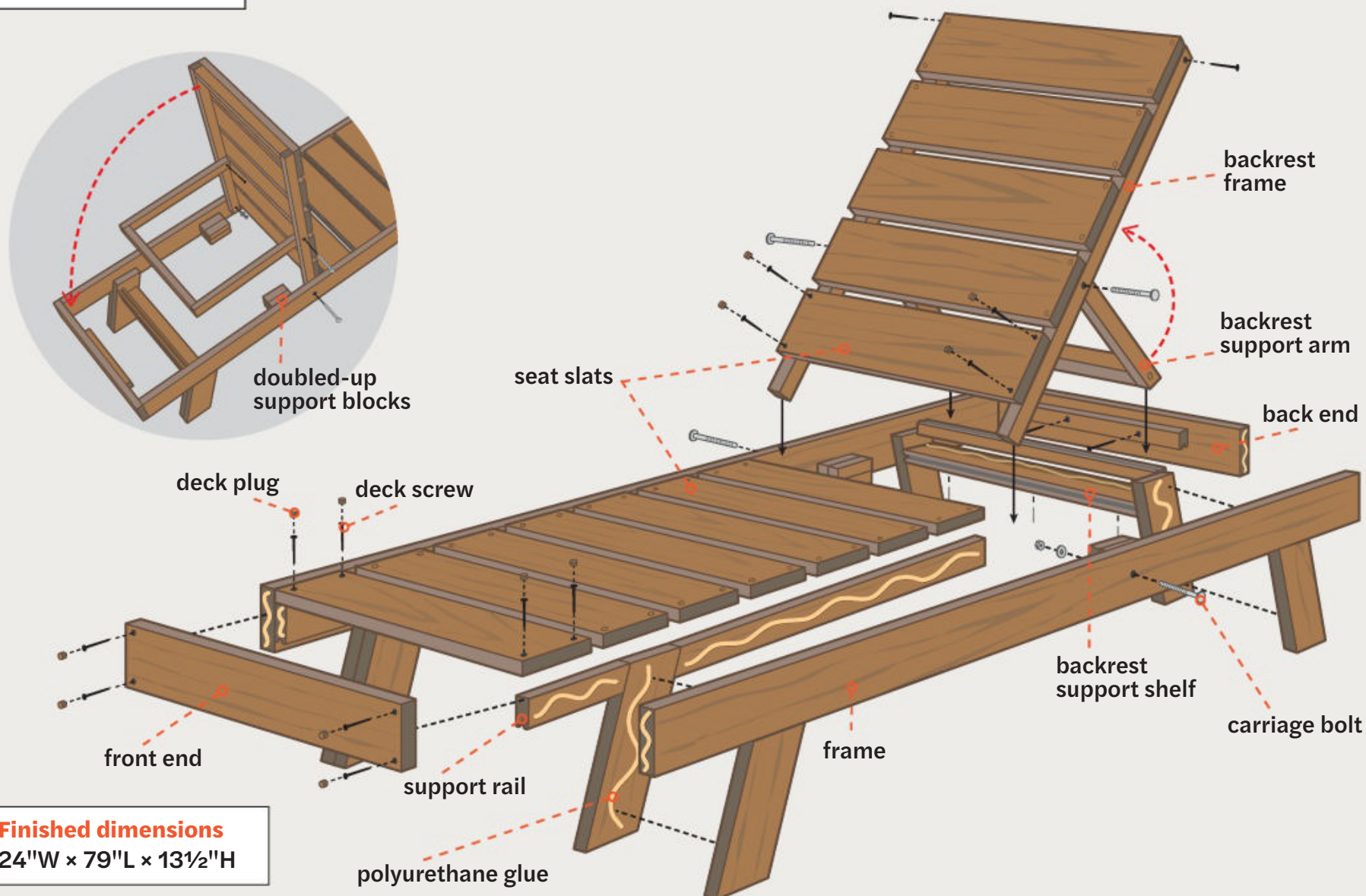
- ❑ table saw
- ❑ miter saw
- ❑ clamps
- ❑ drill/driver
- ❑ 1/8-inch bit for pilot holes
- ❑ 1/4-inch bit for deck plugs
- ❑ 3/8-inch bit
- ❑ 100-grit sandpaper
- ❑ hammer
- ❑ adjustable wrench

MATERIALS

- ❑ four 1×6×12 composite deck boards
- ❑ polyurethane glue
- ❑ 1 5/8-inch trim-head deck screws
- ❑ 3-inch trim-head deck screws
- ❑ two 3/8-by-2 1/2-inch stainless steel carriage bolts, washers, and locking nuts
- ❑ 3/8-inch deck plugs

TIP Many kits are available for drilling and plugging screw holes in composite decking, but I found it much easier to just counter-bore the pilot holes with a 1/4-inch bit before popping in plugs.

How It's Made



WATCH See Jenn build this project at thisoldhouse.com/house-one/composite-chair

STEP-BY-STEP

1] Assemble the legs. Following the cut list at thisoldhouse.com, cut the decking to size using a table saw, then a miter saw. Apply polyurethane glue to the unfinished composite faces of one short and one long leg piece. Align their bottom edges, and clamp them until the glue cures. Drill four pilot holes through the long leg and into the shorter one; make a counterbore with a 1/4-inch bit, then secure with 1 5/8-inch screws. Conceal each hole with a plug. Do the same for the remaining legs.

2] Attach the front legs. Position the shoulders of the front legs against the bottom edges of the frame sides, 9 1/8 inches from the frame's front end. Glue, clamp, and fasten them with 1 5/8-inch screws. Butt the seat-support rails on either side of each leg, grooved sides down. Using the same screws, glue, clamp, and fasten the rails to the frames' sides and ends, 1 inch below its top edges.

3] Attach the back legs. To allow the backrest to lie flat on the back legs, trim their shoulders by the thickness of the backrest support. Then glue and screw each leg 11 inches from the frame's ends.

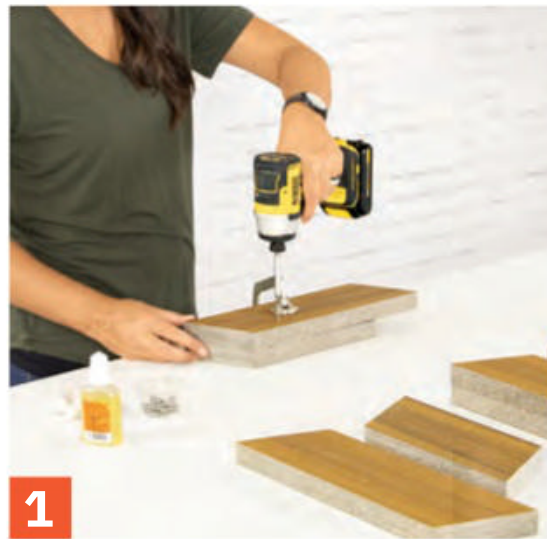
4] Prep the supports. Position the backrest supports 1 inch from the installed seat-support rails. Drill a 3/8-inch hole through the parts 1 inch from the end of the backrest rail.

5] Assemble the frame. Set the sides and ends of the chair frame on their flat edges, perpendicular to each other. Drill two pilot holes through each end board and into the sides. Fasten the pieces with glue and 3-inch screws; conceal the screws with plugs. Glue and screw the support-rail pieces to the inside of each frame end.

6] Attach the backrest support arms. Hammer a carriage bolt through the outside of each frame piece and each backrest support arm. Embed the bolt heads in the composite. Add washers, then tighten a locking nut onto each bolt with a wrench.

7] Secure the seat slats. Set the first slat against the frame's front end, then glue and screw it and six other slats to the fixed rails. Affix the slats' ends with glue and two screws, leaving a 1-inch gap between them. Assemble a U-shaped frame for the backrest. Set it on the back legs, then glue and screw the remaining slats to the frame.

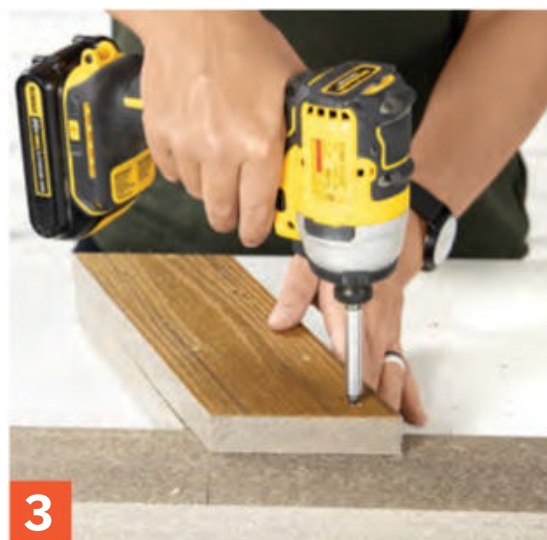
8] Support the backrest. Screw together two 5-inch-wide boards to make an L-shaped shelf to elevate the backrest; fasten the shelf between the back legs. Make a U-shaped arm with glue, 3-inch screws, and three lengths of stock; bolt it to the frame. Now screw doubled-up blocks to the inside of the frame to cradle the backrest when lying flat. ■



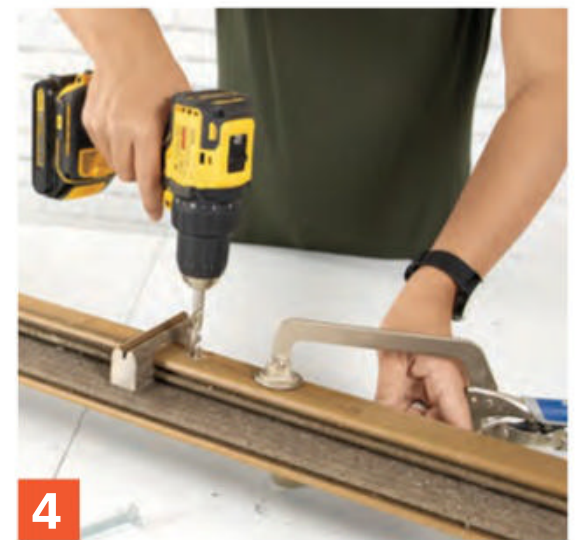
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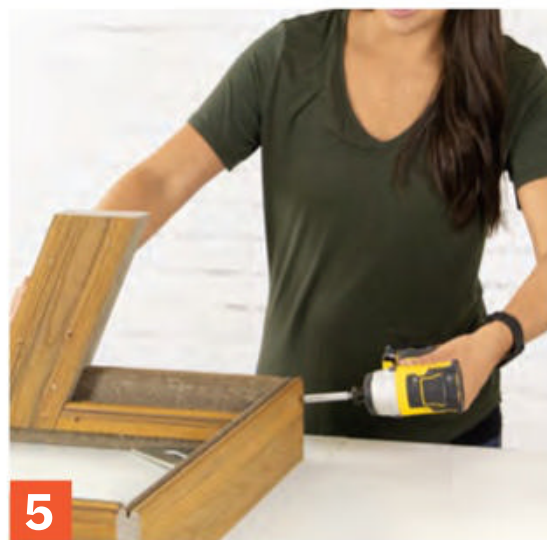
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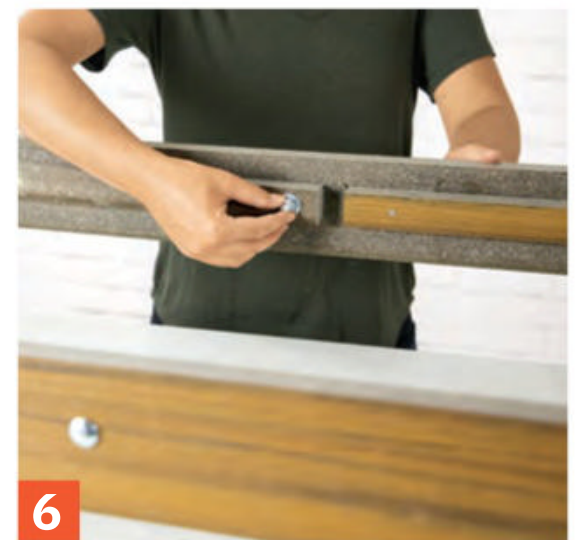
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Upkeep

Maintenance tasks to pay attention to
this season **BY CHARLES BICKFORD**

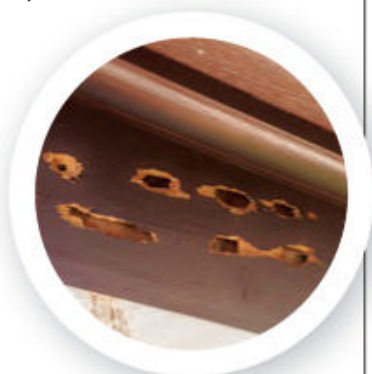
LUBRICATE AND CLEAN METAL STORMS

Whenever you clean aluminum storm windows, give their metal frames extra attention—especially if they’re old and oxidized—to ensure they slide freely. Remove the storms, and vacuum the tracks and around the sill. Then lightly coat the tracks and spring-loaded locking tabs with a silicone lubricant spray such as B’laster (blasterproducts.com). Clean and dry the glass as usual, then pop the storms back in.



HALT CARPENTER BEES

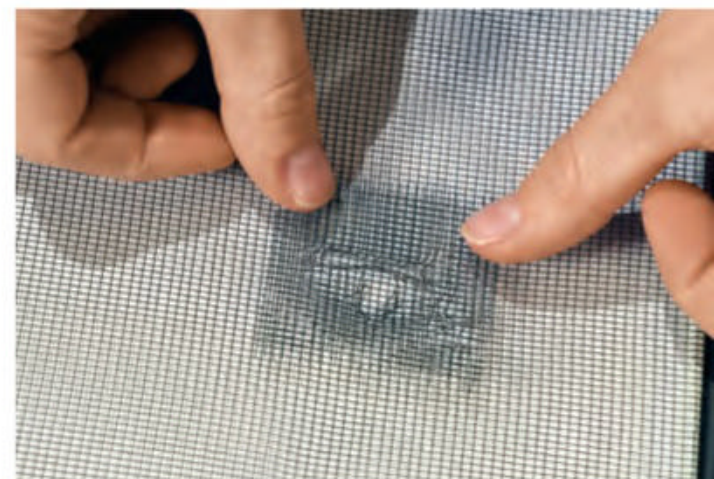
These damaging insects may resemble bumblebees, but they bore into wood to lay their eggs in ½-inch-diameter tunnels. Wood decks, siding, window trim, and fascia boards are among their favorite nesting spots. The tunnels (right) can let in water and, in extreme infestations, weaken the wood. See signs of damage? Spray the wood with citrus or almond oil to repel the bees. Treat active tunnels with pyrethrum, a natural insecticide, then slather wood filler into the holes.



Get rid of whitish streaks on masonry

White or gray stains on brick or stone walls and walkways are efflorescence, waterborne salts that leach out of wet masonry and are left behind once the water evaporates. Treat the deposits with a 1-to-4 solution of white vinegar and water. Wait for a warm, dry day to spray the solution on the stains, then scour them away with a stiff-bristled brush. Rinse with fresh water.

To prevent efflorescence from coming back, coat masonry surfaces with a penetrating sealer that contains siloxane or silane.



KEEP BUGS AT BAY

Holes in your screens? Here’s how to patch them yourself

▪ For **metal screening**, remove the strands from opposite sides of a square patch, about ¼ inch in from the edges. Bend the freed wire ends 90° and place the patch over the hole, inserting the wires through the undamaged mesh. Secure the patch by folding the wire ends over on the screen’s opposite side, as shown above.



▪ For **fiberglass screens**, use a heat-activated adhesive patch, such as ScreenMend (screen-mend.com). Place it on the screen with the strands lined up, and take aim with a blow-dryer set on high. In about 30 seconds, the adhesive melts and sets the patch.

Seal leaking gutters

When compromised gutters send water next to the foundation, it can enter the basement, cause a mortared foundation to deteriorate, or even trigger soil to expand and crack poured foundation walls.

It's easy to stop gutter leaks: Wait for dry weather, clean the gutter's interior at the drip points, and then plug them from the inside with caulk or tape.

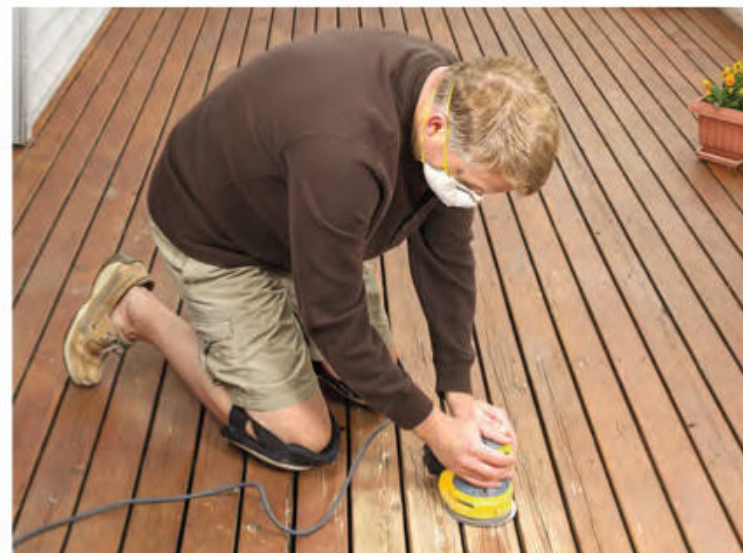
Butyl rubber caulk is a good choice; it adheres well in hot or cold weather and creates a watertight seal that flexes as the metal expands and contracts. (Avoid silicone caulks; they're not repairable.) Or use a supersticky UV-resistant membrane like Gorilla Waterproof Patch & Seal Tape (gorillatough.com). It bonds instantly; there's no wait for it to cure.



SPOT-FINISH WORN WOOD DECKING

It's inevitable that a wood deck's finish will wear away in high-traffic areas, but you don't have to refinish the entire surface to protect the wood from sun and water—just give it a touch-up.

First, see if the spot will accept a new finish by dribbling some water on it. If the wood absorbs it within a minute, it's ready. When the wood is dry, use a random-orbit sander to take only the worn boards down to bright wood, as shown. On boards that have both worn and unworn wood, sand worn areas as above, but at the border between the sanded and intact finish, give the intact finish a light scuff sanding an inch or two past this



boundary. Sweep and wipe away any sanding dust to leave a clean surface.

Using a brush that's the same width as the deck board, apply a coat of fresh finish to each of the sanded boards. Lap finish onto the scuffed boards to make the scuffing disappear, but keep finish off unscuffed decking. Allow it to dry and add another coat, if needed.



GET CEILING FANS READY FOR WARM WEATHER

The low operating cost of these fans makes them ideal for keeping cool in the summer. But before putting them to use, get on a stepladder and wipe away all the dust that accumulated on the blades and fan body during the winter. Also vacuum dust from inside the fan motor. Tighten the blade's mounting screws, and make sure the blades rotate smoothly without wobbling. (If they do wobble, you can fix that with a blade-balancing kit, sold at home centers.) Finally, toggle the switch on the fan body or the wall switch so the fan rotates counterclockwise, pushing air down for a summer breeze. ■

ask▶ This Old House

Painting exterior wood railings

I have cedar front-porch railings that I built years ago. The paint is gone in many areas or is peeling away. What is the best way to prep weathered cedar and repaint it white?

—BRAD STUBBS, LEE'S SUMMIT, MO

TOH painter Mauro Henrique:

Cedar resists rot and insect damage, so it will be worth your while to get your railing back into shape. Paint is a good choice for your railings; it will hold up to sun and weather exposure better than other types of exterior coatings.

To start, lay down a drop cloth to collect paint scrapings and protect the porch and stairs from paint drips. Then use a paint scraper to remove all the loose and peeling paint. Next, go over the railing with an orbital sander and 180-grit sandpaper. The parts of the railing you can't reach with the sander can be sanded by hand, using 120- or 180-grit sandpaper. For any paint still bonded to the wood after scraping, feather the edges of painted areas, so they're even with bare wood surfaces. When you're done sanding, suck up all the dust with a shop vacuum, and mask off the base of the posts and any balusters that rest on the stair treads (see Tip).

The next step is to apply an oil-based exterior primer. I like to use a miniroller to quickly coat the wood, followed by a 2½-inch brush to smooth



TIP



When tape is a good idea

While Mauro usually relies on his brush skills to keep paint off adjoining surfaces, he always masks off around post bases with painter's tape to create a clean line.

PRIME FIRST When starting fresh, or on wood that's been sanded clean of paint, Mauro brushes on a coat of oil-based primer, which penetrates the wood to provide a good base for acrylic top coats to adhere to.

out the roller's texture. Use your brush to fill in any areas the roller can't reach. When the primer dries, go back and fill cracks in the wood with a two-part exterior wood filler, such as Bondo Wood Filler (3m.com). Apply it with a flexible putty knife and scrape off the excess. When the filler is dry, give it a light sanding with 180-grit sandpaper, taking care not to sand through the primer coat; just smooth the filler and make it flush with the surface. Wipe away the dust with a tack cloth or a rag dampened in denatured alcohol.

Finish the job by applying two coats of a 100 percent acrylic exterior paint, using the roll-then-brush technique. Your railing should look like new again.

SARAH CHASSE (2)



How to plug a hole in a brick wall

The front wall of our house has some bricks that are falling apart. We have replacement bricks on hand but no clue as to how to replace them without damaging the intact ones.

—ROBIN DOLBOW, SHOREVIEW, MN

TOH mason Mark McCullough:

This kind of repair is fairly straightforward, but I would recommend that you rent a shrouded grinder to cut into the old mortar, and a tool-triggered vacuum that works with the grinder to collect the dust it generates. The work will go faster, and you'll be better protected against breathing in the silica in the mortar.

Plug the grinder into the vacuum, and attach the vacuum hose to the grinder's dust port. Now when you pull the trigger on the grinder, the vacuum will turn on automatically.

Line up the grinder blade with one of the horizontal bed joints near the damaged bricks, and plunge it as deep as you can into the mortar. As you cut, keep in mind where those cuts will replicate the wall's existing brick pattern, and take care not to let the blade nick the brick.

Cutting into the vertical head joints requires even more care because the blade is wide enough to cut into the bricks above and below. Just make sure *not* to plunge the blade in so deeply that it damages a brick you want to save.

After the mortar joints are cut, use a hammer and a cold chisel to break the bricks free and

TIP



Brick jointer

Masons use this simple tool to pack fresh mortar into joints and give them a final smoothing that makes them more weather resistant. It comes in different widths and profiles to match the existing mortar.

BRICKS AND MORTAR Mark slips a replacement brick into a spot where he has already applied a bed of mortar (left). When all the new bricks are in place, he packs and smooths each joint with his jointer tool (above).

remove the cut mortar from the repair area. When the brick surfaces are exposed, sweep the repair area clean, first with a dry Tampico-bristle brush, then a damp one.

Gather your replacement bricks, and mix up some brick mortar to an oatmeal-like consistency. Trowel a generous amount of mortar onto the bricks that will hold your first repair course. Furrow the mortar for this bed joint with the tip of your trowel, so that it's about twice as thick as the finished joints. Load mortar onto the head joint at the end of your first replacement brick, then push it into place. Tap the brick down and sideways with the end of your trowel handle, and remove the excess mortar. Switch to a smaller pointing trowel when the opening gets too small for your full-size trowel.

With all the new bricks in the wall, use a narrow, flat pointing tool to push mortar deep into each joint. When all your joints are filled, switch to a jointer tool that matches the width and profile of your existing mortar joints, and do your final packing and smoothing of all the new joints (see Tip). To finish, give the repaired area a final brushing with the dry Tampico brush to remove any excess bits of mortar.



DIY Smarts



OVERHEAD WORK Stymied by a drain flange that won't budge, Richard cuts off the drain's shoe assembly with a recip saw (left). With a new flange threaded into place from above, he completes the job by attaching it to a PVC drain pipe (right).

Tub-drain replacement

Occasionally, our bathtub drain leaks into the basement. Can I fix it myself?

—BRIAN GENGLER, HAMILTON, NJ

TOH plumbing and heating expert Richard Trethewey:

If your tub is leaking during a bath and not during a shower, there's a good chance that the seal between the drain flange and the tub has failed—a common occurrence in older tubs.

In theory, fixing the leak is simple: You remove the strainer cover or drain plug, unscrew the drain flange, and replace the seal. But if the flange threads have rusted and can't be unscrewed, then more drastic measures are called for; you'll need to call in a pro to cut out and replace the drain assembly, as I did above. Fortunately, you have a basement, which will make it easier to access the underside of the tub, if that proves necessary.

First, see if you can loosen the flange yourself. Place an open-end wrench in the drain, straddling the cross pins right below the opening. Grab the shank of the wrench with a larger wrench or locking pliers, and turn counterclockwise. If all goes well, the flange will come loose. Remove it and thoroughly clean around the opening where it used to be.

Give the threads of the new flange a spritz with WD-40 to ensure smooth reassembly, then wrap a rolled length of plumber's putty under its lip. Reinstall the flange, carefully threading it by hand, clockwise, into the shoe assembly that connects to the tub's drain overflow. Once the threads are engaged, use the open-end wrench, assisted by the locking pliers, to tighten the joint firmly. Remove the excess putty that squeezes out around the flange. The tub should now be leak-free and ready to use.

BROUGHT TO YOU BY



How to stop bagworm damage

I have an eight-year-old Japanese maple that was attacked by bagworms. There is still some growth, but 90 percent of the limbs are dead and the trunk is damaged. Can the tree be saved, or should I remove it? —CHRIS LOESCHE, FREEBURG, IL

TOH landscape contractor Jenn Nawada:



I would try to save a tree or shrub that's 50 percent damaged or less; 90 percent is too far gone to recover.

Bagworm damage can be controlled if you kill the worms soon after they come out of their cocoons in May and June, before they begin munching the buds on trees and shrubs.

I recommend using an environmentally friendly insecticide that contains *Bacillus thuringiensis* (Bt). Unlike general-purpose insecticides, which can kill beneficial insects like honeybees, a Bt-based treatment stops bagworm larvae from feeding, so they die after a few days. Follow the manufacturer's directions for diluting and applying the insecticide. You can't just target the actual larvae; it's necessary to coat the foliage they eat.

One treatment won't be enough. Infested plants will require multiple applications, so that you expose new larvae emerging from their cocoons to fresh insecticide.

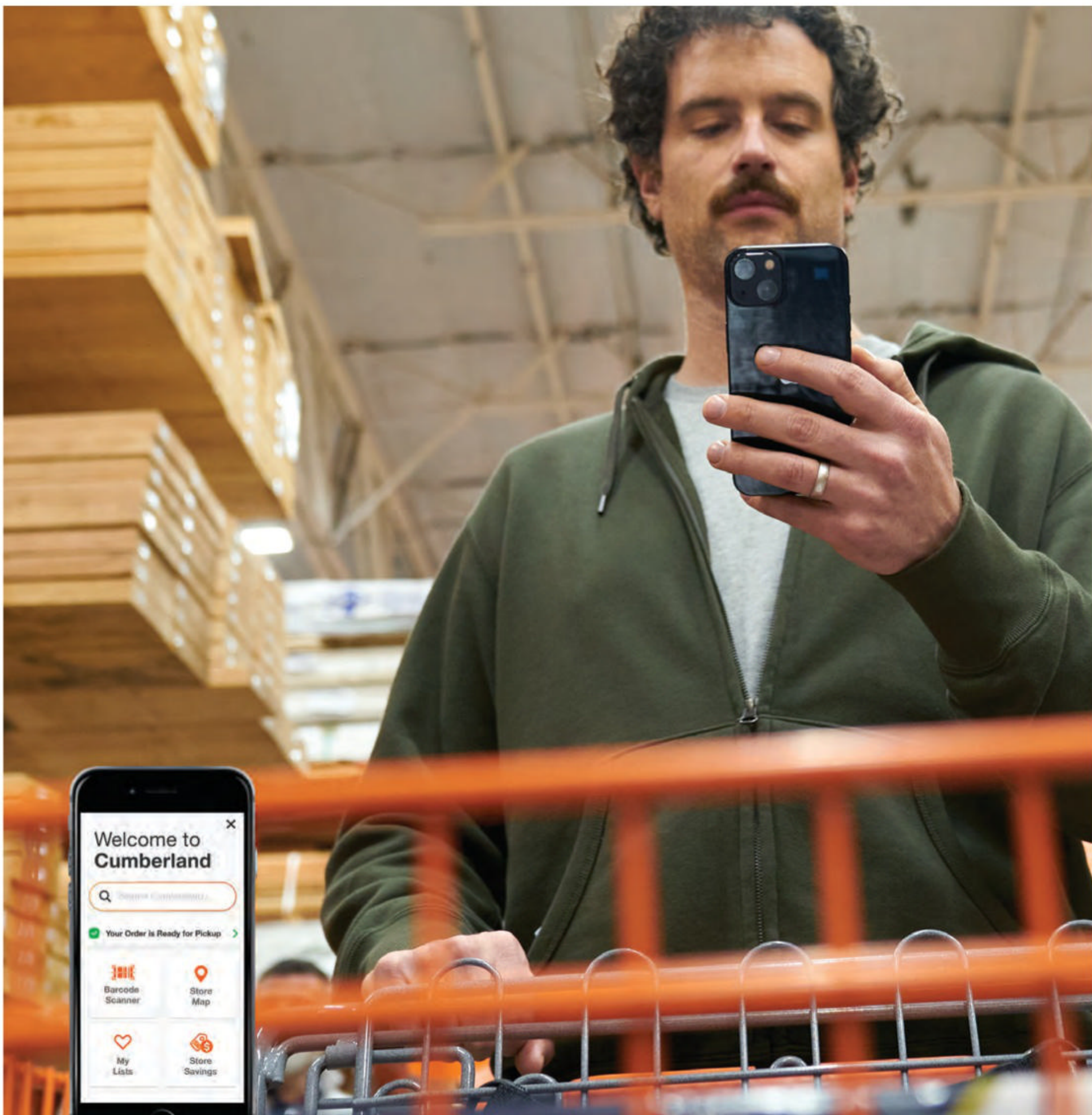


HUNGRY BUGS
When they emerge from their cocoon (left), bagworm larvae can devour the buds of more than 100 types of trees.

TRETHEWEY: MEG REINHARDT (2); BAGWORM: ALAMY



WATCH See how Richard tackles a bathtub-drain replacement at thisoldhouse.com/tub-drain



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BONUS HOW-TO



DIFFICULTY:

Easy, with
a helper's
assistance

COST: \$130

TIME: 2 hours
to build and
hang each box

Adding window boxes

We would like to add flower boxes to our house. How do we do that so we don't end up with leaks behind the siding? —NAOMI BENSON, PLYMOUTH, MN

TOH carpenter Nathan Gilbert:

Nothing dresses up the outside of a house quite as nicely as a flower box or two filled with a mix of seasonal plants.

I think boxes look best when they match the span of the windows' sills. Making one that size is simple: You just glue and screw together a five-sided box, as shown at right. For this one, I used $\frac{3}{4}$ -inch-thick boards made of cellular PVC—which won't rot and doesn't need painting—and dressed them up with strips of PVC molding (find various profiles at archiexpo.com). A two-part PVC adhesive (pvctrimwelder.com) bonds all the pieces together; a nozzle mixes the two parts as you dispense the adhesive. Then I drilled a series of holes through the bottom so water can drain out.

A flower box filled with wet soil and plants is quite heavy, so I made sure to anchor it to the stud walls of this clapboard-sided house using washer-head structural screws, sealed with exterior caulk. (This mounting method works with any solid siding material—brick, fiber cement, stucco, etc.—but it's not suitable for vinyl siding.)

Once the boxes were in place, *TOH* landscape contractor Jenn Nawada took over the task of filling them with plants. She first lined the bottom of each box with landscape fabric to allow water to drain out, but not soil. Then she added a layer of lightweight volcanic rocks to keep the roots at the bottom from becoming waterlogged. The plants themselves are nestled in a lightweight, quick-draining potting-soil mix.

Jenn filled the box with a mix of perennials and annuals suited to this house's shady eastern exposure. To get the most visual impact, she planted them tightly together, with taller plants toward the back and trailing ones along the front and sides. (Teasing some soil from the roots beforehand helps to fit in the plants.) And she was careful to keep the box's soil level about 1 inch below its top edges so water won't spill out.



WATCH See Nathan build and hang this window box at thisoldhouse.com/flower-box

STEP-BY-STEP

1] Build the box. On a table saw, cut the pieces to width, using the plans at thisoldhouse.com. Use a miter saw to cut 45° miters in the sidepieces. Apply a two-part PVC adhesive to the miters using a mixing nozzle; fasten them with stainless 1¼-inch pneumatic brads and 2½-inch stainless screws. Fit the bottom piece inside the box, flush with its lower edge; fasten it with the same nails and screws.

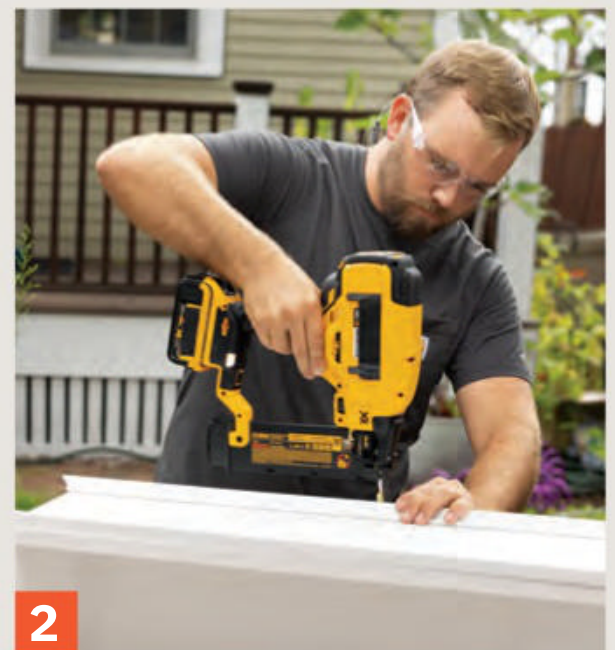
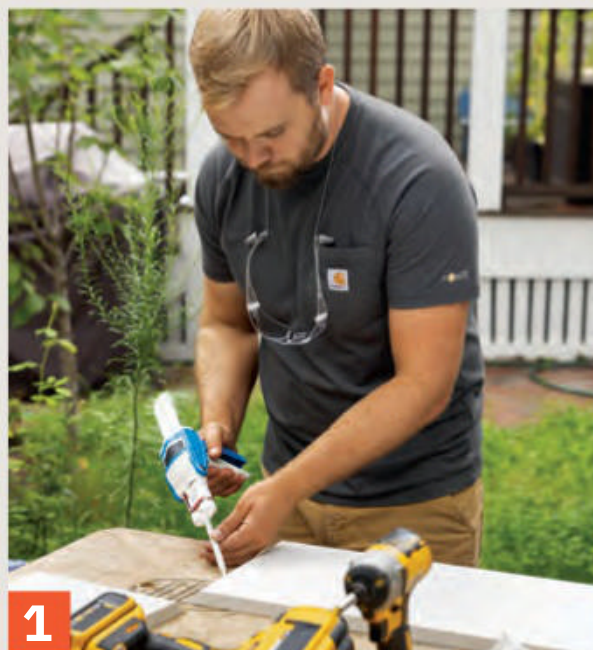
2] Add the trim. Miter-cut the trim pieces to length. Apply the PVC adhesive along the top and bottom edges of the box's face. Bed two base-cap and band-mold pieces in the adhesive, and nail them to the box with brads. Glue mitered returns to the box's ends, align the mitered ends, and nail them to the box. Glue and nail the three mitered lip pieces to the top edge of the box. Fill any open joints with adhesive.

3] Drill drainage holes. To give water a way to drain out of the box, drill weep holes every 6 to 8 inches in the bottom of the box using a ½-inch spade bit.

4] Mount the box. Find the nailheads in the wood siding, which indicate the stud locations. Transfer the locations to the back of the box, and then drill a ⅜-inch through-hole at each mark, 4 inches from the box's top edge. Recruit a helper to hold the box in position against the underside of the sill and flush with the window's right and left sides. Mark the siding through each hole in the back of the box, then take the box down and drill a ⅜-inch pilot hole at each mark; fill holes with exterior caulk. Now put the box back in position and use a right-angle drill attachment to drive a 4-inch structural screw into each stud. (See Tip, at right.)

5] Add soil. With the box mounted, line its bottom with landscape fabric. Cover that with volcanic rocks, then potting soil.

6] Add plants. Tease some soil out of the roots and set the plants close together in the potting soil, with their roots at the same level as the soil in the box, about 1 inch below its top edge.



DRIVE SCREWS INTO TIGHT SPACES

TIP

When a drill and bit are too large to fit into a narrow spot, this flexible-shaft drill attachment has a geared, right-angle head that lets you reach in and use hex-shank bits to drive otherwise inaccessible screws. This one also works with impact drivers (DeWalt Modular Right-Angle Attachment Set, \$37; homedepot.com).



Door-trim upgrade

I replaced my entry door and exterior trim a couple of years ago, but the trim has come loose and looks terrible. And I'm pretty sure that the sill should be supporting it from below in some way, but I can't locate good information on tackling this project. Can you help?

—CHARLES DAVID, CHANDLER, AZ

TOH carpenter Nathan Gilbert:



Replacing the trim around your entry door is a good opportunity to upgrade its look and improve its curb appeal. But before we deal with the trim, make sure the

sill—or threshold, to be more accurate—of your door has solid support beneath it. The aluminum threshold used on many exterior doors can flex if it's not properly supported. For this project, I bypassed the threshold entirely and fastened the new trim directly to the house's sheathing.

You can find trim options at big-box retailers as well as specialty suppliers like Architectural Depot (architecturaldepot.com). As shown in the drawing at right, the elements of an ornate door-trim package include plinth blocks, fluted pilasters, and head casings. Smaller moldings and spacer blocks are used as transitional elements. You'll also need some wide, flat stock to use as backer boards, to build out your trim beyond the thickness of the siding. To make the door trim look its best, I recommend centering your pilasters on the flat stock, and allowing the head casing to extend 1 or 2 inches beyond the pilasters, with mitered returns on both ends.

All the trim elements mentioned above are available in cellular PVC, which will hold up much better than wood outdoors. It's paintable, too. You'll also need a two-part adhesive designed for gluing PVC, along with stainless steel trim-head screws, a drill bit for driving and counterboring the screws, and PVC plugs to fill the holes left by counterboring. For this job, I used a miter saw, a cordless drill, and a 15-gauge finish nailer fitted with 2-inch stainless steel nails.

Start the job by removing the door's existing trim. On this project, the ends of the vinyl siding were covered by lengths of J-channel, which I left in place. Then, to make sure water won't

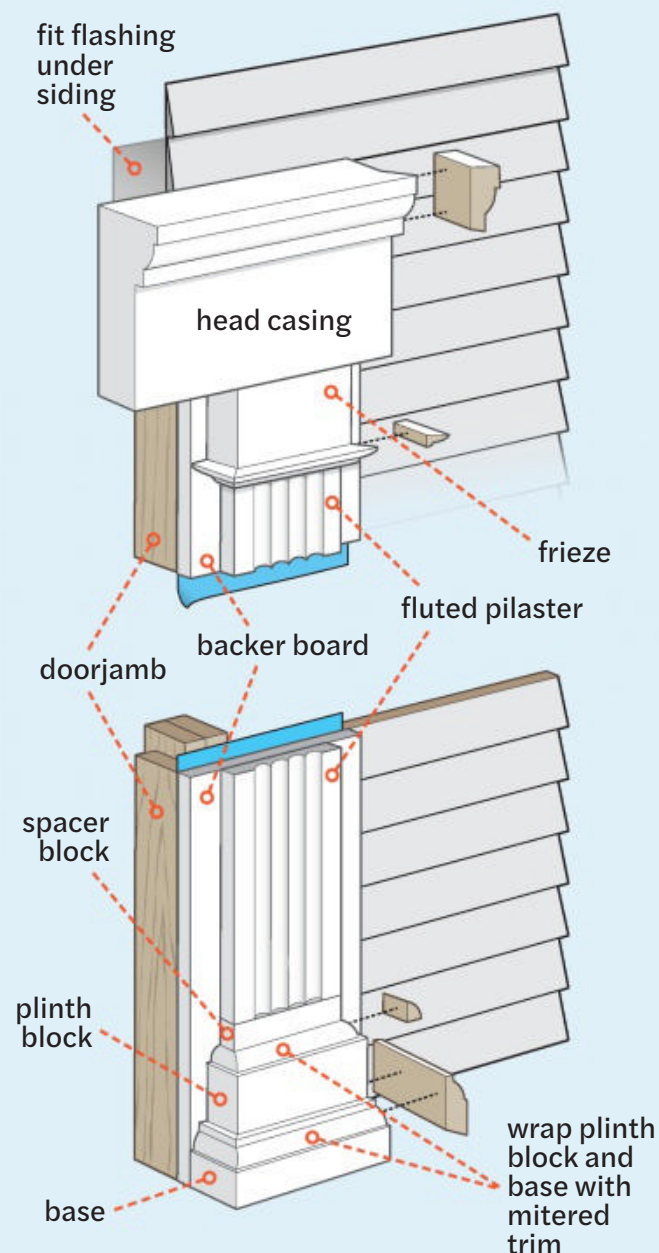
TIP



Peel-and-stick solution

Nathan protected the wood above, below, and alongside the door with self-adhering sheets of Blueskin WP waterproofing membrane (henry.com). After sticking it in place, he made sure to press it firmly against the wood with a hard rubber J-roller.

DECORATIVE TRIM FOR DOORWAYS



reach the sheathing, I covered it with lengths of self-adhering waterproofing membrane (see Tip). Next, I butted the flat stock against the J-molding and secured the stock in place with the finish nails. (If you need to cut back the siding to accommodate the flat stock, a multitool will come in handy.) While the trim nailer does a good job of anchoring material to the sheathing, it's also a good idea to install trim-head screws every 24 inches or so on the flat stock.

Working from the bottom up, install the plinth blocks, followed by small spacer blocks that serve as terminations for the pilasters. Cut the pilasters to length and install them with finish nails and glue. Then cut and glue mitered returns for all the small trim pieces on and around the plinth. Add the capital blocks next, and glue on their mitered

ILLUSTRATION: PETER SUCHESKI



WATCH See Nathan install new trim around an old door at thisoldhouse.com/door-trim-upgrade



CLASSIC TOUCH The new trim surrounding this door is made of solid pieces of PVC, which, unlike wood, won't ever rot or need to be painted. To prevent rust stains, it's held in place with stainless steel nails and screws.

return pieces. Now measure and cut the head casing to length, and glue mitered returns to each end. When installing the head casing, make sure to insert its flashing underneath the siding above to keep water from getting behind it. If the head casing doesn't include integral flashing, glue strips of plastic flashing to its back side. Center the head casing above the door (see Tip, right), then fasten this last piece of trim in place with finish nails and trim-head screws.

To finish up, fill all the screw holes with PVC plugs and all the nail holes with exterior caulk. Then step back and admire your new entry.

DOOR: SARAH CHASSE

TIP



Center the head casing

To make sure the head casing for the new trim was centered above the door, Nathan measured the door's width and made a mark just above it at the halfway point. Then he lined up a mark on the midpoint of the casing with the one on the door. Holding the casing level, he fastened it with a screw bit that cuts counterbores for the plugs he used to hide the screwheads.



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Winning the war on weeds

Weeds are taking over my flower bed. I pull them every week, but at this point the weeds are winning. What more can I do to hold them off?

—GARY DODD, SPARTANBURG, SC

TOH landscape contractor Jenn Nawada:



There's no such thing as a weed-free garden, but there are proven ways to turn the tide in your favor.

As you might expect, you'll need to start by thoroughly weeding your flower bed, sparing only the plants you want to save and pulling out everything else *by their roots*. That's easier to do when the soil is damp and loose, so concentrate on weeding after it rains, or wet the soil deeply with a hose. For deep-rooted weeds that resist being pulled, you'll need a tool to dig them out (see Tip).

After the bed is free of weeds, immediately cover the bare soil in your garden with a layer of aged hardwood mulch; I prefer the ones without dyes. Use a rake with stiff steel tines to spread a mulch layer 1 to 2 inches thick around plants, and 2 to 3 inches thick around shrubs and trees. Keep mulch away from bark at the base of plants, where it can cause rot.

Mulching your garden beds won't just discourage weeds from taking root; it will also protect plants from temperature extremes and help the soil retain moisture, making weeding easier. But you can't depend on mulch alone to keep your beds weed-free. Regular weeding is the price we pay for a well-tended garden.

TIP



Jenn's favorite weeder

A hori-hori is a multipurpose gardening tool—the name means “dig, dig” in Japanese—that works well for getting to the roots of weeds. Its short blade is dished for scooping out soil and has both straight and serrated edges for slicing. This one has a full-tang handle for strength and depth markings for planting bulbs, and it comes with a leather sheath for carrying the tool on your hip (trulygarden.com).

How to find a circuit's first receptacle

The directions for adding arc-fault circuit interrupter (AFCI) outlets say they have to be installed on the first outlet of a circuit branch in order to protect the entire branch from arc faults. How can I determine which is the first outlet?

—JOHN CHIMAHUSKY, OKLAHOMA CITY

TOH master electrician Heath Eastman:



It's true that an AFCI or a ground-fault circuit interrupter (GFCI) can protect the receptacles (a.k.a. outlets) on an electrical circuit only if it's the first receptacle on a circuit. Here's

how to go about finding that crucial receptacle.

STEP 1: Locate the receptacles on the same circuit.

A circuit-breaker finder will come in handy here (kleintools.com). Plug the finder's transmitter into a receptacle close to the service panel. At the service panel, use the finder's receiver to identify the breaker controlling that receptacle. Turn off the breaker. Now plug a lamp into the other receptacles in the vicinity. Each one where the light remains off is on the same circuit.

STEP 2: Find the circuit's first receptacle.

Go back to the receptacle closest to the service panel. (For safety's sake, confirm that the power is off with a circuit tester.) Disconnect the receptacle's wires, and temporarily cap each one with a wire nut. Now return to the service panel and flip on the circuit breaker. If the lamp shows the other receptacles in the circuit have no power, you know that the disconnected receptacle is the first one on the circuit and can be replaced with an AFCI (or GFCI) receptacle.

But if other receptacles do have power, turn the breaker off, reconnect the receptacle, and test another one in the same manner. Methodically repeat this process, making sure to shut off the power every time—and confirm by testing *before* disconnecting any wires—until you identify that all-important first receptacle.

Ask This Old House GO TO: thisoldhouse.com/askTOH OR WRITE TO: Ask This Old House, This Old House magazine, 262 Harbor Drive, Stamford, CT 06902

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.

GOODBYE, WEEDS Ripping these invaders out by their roots is the way to get rid of them, but there are always more ready to take their place.





FROM THE TOH JOB SITE Past Meets Present

(pp. 11–19) **Architect:** Andrew Sidford Architects, Newburyport, MA; asidfordarchitects.com.

Interior designer: Meghan Shadrick Interiors, Arlington, MA; meghanshadrick.com. **Kitchen**

designer: New England Design Works, Boston; ne-dw.com. **Electrical:** Eaton & Eastman Electric, Kingston, NH; eatonandeastmanelectric.com.

Built-ins and finish carpentry: Conor's Custom Carpentry; conorscarpentry.com. **Painting:** Mauro's Painting, Somerville, MA; mauros painting.com. **HVAC installation:** Back Bay Mechanical, Stoughton, MA; backbaymechanical .com. **Tiling:** Ferrante Tile, Woburn, MA;

ferrantetile.com. **Plumbing contractor:** Bilo Plumbing & Heating, Ipswich, MA; biloplumbingandheating.com. **Tree specialists:** Hartney Greymont; hartney.com. **Landscape**

installation: K&R Landscape, Winchester, MA; kandrlandscape.com. **Masonry:** MJM Masonry, Arlington, MA; mjmmasonry.com. **Stencil art,**

tadelakt: Patina Designs; patina-designs.com. **Radiant tubing:** viega.us. **ERV:** renewaire.com.

HVAC: unicosystem.com. **Floating shelves, wall paneling, countertop extension, range-hood surround:** glumber.com. **Cabinet pulls:** armacmartin.com. **Recessed lighting:** lotus

ledlights.com. **Decking:** moistureshield.com. **Bathroom exhaust fans:** panasonic.com/us.

OUTDOOR LIVING Zoned for Relaxation (pp.

20–23) **Landscaping:** Rachael Freitas, UPCOUNTRY Plant + Design; upcountrydesign .com. **Contractor:** Curtis Morgan Construction, Los Angeles; 626-676-8829. **Artificial turf:** greenstarturf.com. **Patio tile:** ziatile.com.

Patio table, benches: cb2.com. **Patio**

chairs: anthropologie.com. **Rattan chairs:** thewickedboheme.com. **Sectional sofa, planters:** westelm.com. **Round cushions:** castleandthings .com.au. **Pillows:** soukiemodern.com,

badiadesign.com. **String lights:** amazon.com. **Pendant shade, play/snack table, stools:** ikea .com.

BEFORE & AFTER: BATH Planning Ahead (pp.

24–26) **Designers:** Catherine and Bryan Williamson; mixdesigncollective.com and beginninginthemiddle.com (their blog). **Allen & Roth double-sink vanity with marble top,**

Bedrosians gray-and-white wall tile, Satori marble parquet floor tile, Jacuzzi brushed-bronze sink faucets, Craftmade sconces, Sumner Street Home Hardware brushed-brass cabinet

knobs, Delta shower fixtures and grab bar in champagne, HGTV Home wall paint in Greek Villa: all from Lowe's; lowes.com. **Striped hand towel and linen curtain:** target.com. **Ceramic jar (on vanity countertop):** mcgeeandco.com.



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PAST MEETS
PRESENT

HOUSE TOUR A New Outlook (pp. 30–37)

Architect: Jill Porter; porter-arch.com.

Contractor: Chris Colomello, Amenia, NY;

ducilloconstruction.com. **Engineer:** Tim Lynch; redhookeng.com. **EXTERIOR > Roof and gutters:**

galvalume.com. **Paint:** White Dove (siding), Hale Navy (front door), Black Panther (window trim); benjaminmoore.com. **Windows:** marvin.com.

Porch lights: rh.com. **KITCHEN > Cabinets:**

plainfancycabinetry.com. **Range and refrigerator:** vikingrange.com. **Pendant fixtures:** rh.com.

Sconces: schoolhouse.com. **Dishwasher:** bosch .us. **Sink:** franke.com. **Faucet:** waterworks.com.

Tile: nemotile.com. **DINING AREA > Pendants:**

rh.com. **Artwork:** k2kozik.com. **LIVING AREA > Woodstove:** stuv.com. **MAIN BEDROOM > Light**

fixture: olampia.com. **Bed:** ethanallen.com. **MAIN**

BATHROOM > Console sink: rh.com. **Medicine**

cabinets: crateandbarrel.com. **Shower and sink**

fixtures: waterworks.com. **Tile:** nemotile.com.

ALL ABOUT Brick Pavers (pp. 39–45) Thanks to

Scott H. Parechian, president, Spaulding Brick Company, Inc.; spauldingbrick.com. Dewey Atkins, Penn Stone, Lancaster, PA; pennstone .com. Chris Meyers, president, Mack Brick

Company, Enfield, CT; mackbrick.com. Doug Rose, Pine Hall Brick; pinehallbrick.com.

RENO PLANNER Putting in a Pergola (pp.

50–55) Thanks to Maria Seoane-Smithburg, landscape architect, Artemisia, Chicago; 312-654-1708. David and Cara Doyle, Summit Outdoor Living, Fort Collins, CO; summitoutdoorliving.com.

GROW YOUR OWN Kitchen Garden from

Scratch (pp. 56–59) Designer/builder/author: Nicole Burke, Houston; gardenary.com.

FROM THE TOH JOB SITE Standing Stronger

(pp. 60–63) **Builder:** Matt Whitbeck, Whitbeck Construction, LLC, Gansevoort, NY; whitbeckconstruction.com.

IDEA HOUSE MOUNTAIN MODERN Building

with a Sense of Place (pp. 64–66) Designer/

builder: Revolve Design-Build, Denver; revolvedb .com. **Solar roofing system:** Timberline Solar, GAF

Energy; gaf.energy. **HVAC:** mitsubishielectric

.com. **Windows:** Tyrol Series, Alpen High Performance Products; thinkalpen.com.

Air-sealing technology: AeroBarrier; aeraseal

.com. **Kitchen appliances:** lg.com. **Home**

beer-brewing system: spikebrewing.com. **Smart**

home technology and electronics: bestbuy.com.

SAVE THIS OLD HOUSE (p. 96) Thanks to Krista

Trout-Edwards, Amy Rose Robinson, and Angela Whitesell, Calhoun County Land Bank Authority, Marshall, MI; calhounlandbank.org. Sunday Troutman, Calhoun County Clerk & Register of Deeds, Marshall, MI; calhouncountymi.gov. Amy Witzke and Michael McCullough, Willard Library, Battle Creek, MI; willardlibrary.org.

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SAVE This Old House

Queen Anne filled with original details

THE HISTORY Built in the 1870s, when the city was a burgeoning manufacturing hub, this Victorian-era house was home to respected local businessman and county sheriff John Carlos

Barber and his wife, Sarah, as well as two more generations of the family. Sold off in 1953, it then changed hands several more times. By 2010, having suffered neglect, the house was listed as abandoned; it sat vacant until 2015,

when the Calhoun County Land Bank Authority acquired it.

WHY SAVE IT? The 3,536-square-foot house is on a corner parcel in Battle Creek's Old Maple Street Historic District, among other grand turn-of-the-century homes. Significant Queen Anne-style features survive, including the turreted tower, elaborate unpainted oak millwork, majolica-tile fireplace surrounds, parquet floors, and stained glass windows. The house sits just north of the city's downtown district and is walking distance from playgrounds and parks on the banks of the Kalamazoo River. Battle Creek is a robust, culturally diverse small city that supports both up-and-coming and long-established businesses.

WHAT IT NEEDS While the roof is new and repairs have been made to the foundation and exterior woodwork, the house requires all new systems, a new kitchen and baths, and lead-paint and asbestos abatement. Some exterior wood details have to be restored, and a south-facing sunroom needs new framing and insulation. The double-door entry survives, but the front porch has been removed and will have to be rebuilt, along with the stained glass windows' frames. Exterior preservation covenants apply, and state tax credits may be available. Primed to retake its place among the neighborhood's gracious homes, this house's needs are many, but so are its potential rewards. —SUZANNE ZENKEL

PRICE \$119,000

LOCATION

Battle Creek, MI

CONTACT

Melissa Kennedy,
Troxel Realty
Company; kennedy@
troxelrealty.com

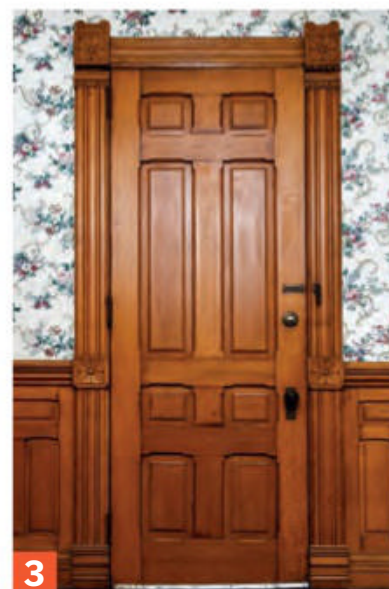


1

1. The five-bedroom, four-bath house bears hallmarks of the Queen Anne style, including an asymmetrical facade, a turreted corner tower, multiple rooflines, a patterned brick chimney, and textured siding. The front entry's original double doors (on the far left) are boarded up; the full-width porch has been removed and must be rebuilt. The daylight-filled third-story attic is unfinished.



2



3

2. The main floor retains extensive oak woodwork, evident in the dining room's window casings and wainscoting.

3. Original eight-panel doors with intact hardware remain in the dining room and elsewhere on the main floor.



4

4. Just inside the front entry, the impressive main staircase still stands, with its elaborate millwork details brightened by a pair of original stained glass windows. The coal-burning fireplace, one of two that survive, has an arts-and-music-themed majolica-tile surround. The foyer's hardwood floor, with its parquet border, is original, as are the Lincrusta wall coverings.



GOT A HOUSE? If you know of an old house for sale that should be saved, write to **This Old House**, 262 Harbor Dr., Stamford, CT 06902 or savethisoldhouse@thisoldhouse.com



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