

HOUSES

INSIDE THE YEAR'S BEST HOMES

**For the sake
of simplicity**
p.32

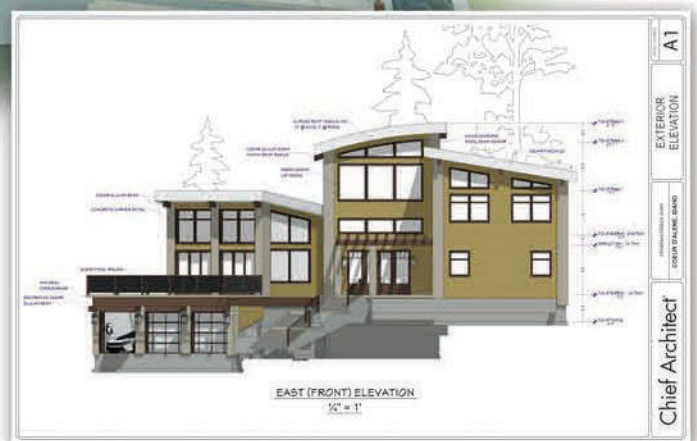
2017 AWARDS ISSUE:

- Rethinking walls
- The future of building
- Making 1,200 sq. ft. work
- Mastering traditional details

SUMMER 2017 NO. 267
FineHomebuilding.com



Download a Free
Trial Version



Smarter Design Software

Kitchen, Bath & Interior Design

3D Design, Floor Plans & Elevations

Home Design & Remodeling

Custom & Manufacturer Catalogs

Construction Drawings

CAD Tools & Section Details

Chief Architect[®]

Home Design Software



800.482.4433 • chiefarchitect.com/FreeTrial

38

A BETTER BACKYARD

FEATURES

- BEST NEW HOME**
- 32 **For the Sake of Simplicity**
Putting the insulation outside of the walls opened up new possibilities
BY MATT RISINGER & ERIC RAUSER
- BEST REMODEL**
- 38 **Colonial Transformation**
Improved flow, natural light, and a connection to the outdoors modernize this creekside home
BY ANATOLE BURKIN
- BEST SMALL HOME**
- 44 **A LEED House on a Small Lot**
An architect designs a right-sized home for hard-playing homeowners
BY JAMES TUER

ON THE COVER: The winner of our Best New Home Award has a unique design that exposes the structure and lets every framing detail shine. Read about it on pp. 32-37. Photo by Casey Dunn.

- BEST TRADITIONAL HOME**
- 50 **Federal Farmhouse**
An architect uses energy-efficiency guidelines to craft a net-zero home
BY R. ANDREW GARTHWAITE
- BEST ENERGY-SMART HOME**
- 56 **Net-Positive in New England**
This new home blends the nostalgia of a traditional farmhouse with the needs of a 21st-century family
BY ROB WOTZAK
- EDITOR'S CHOICE**
- 62 **A Study in Design/Build**
This new home for a Navajo family blends traditional values with modern details and materials
BY BRIAN PONTOLILLO
- 70 **Why Don't We Build Better Houses?**
We don't build enough healthy, comfortable, durable homes ... but not because it's too expensive
BY KEVIN IRETON

76

GET YOUR PLANS APPROVED

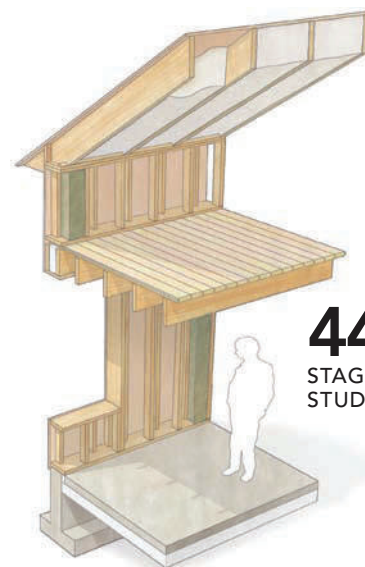
62

THE NEXT CLASS OF DESIGNERS

76 Surviving a Design Review

Whether you're in a historic district or an upscale development, the secrets of success are the same
BY ASA CHRISTIANA

- 82 **PROHOMETM SPECIAL SECTION**
The completed house is durable, efficient, and attractive with a flexible floor plan on each level
BY SEAN GROOM



44

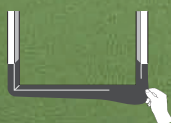
STAGGERED-STUD WALLS



STRETCH IT. STICK IT.

Seal tough jobs in a flash.

No matter how tough the flashing job, it's no match for ZIP System™ stretch tape. A single-piece installation easily stretches to cover sills, curves and corners for superior moisture protection. This high-performance acrylic tape even installs over mismatched surfaces, and it's easy to reposition and reapply, helping you get a tight seal every time.



WINDOW
SILLS



WALL
PENETRATION



CURVED
WINDOWS



STRETCHES IN
ALL DIRECTIONS



ZIPSystemStretchTape.com

© 2017 Huber Engineered Woods LLC. ZIP System, the accompanying ZIP System logo and design are trademarks of Huber Engineered Woods LLC. Huber is a trademark of J.M. Huber Corporation. Huber Engineered Woods products are covered by various patents. See ZIPSystem.com/patents for details. This product's Environmental Product Declaration (EPD) has been certified by UL Environment. HUB 16674 REV 11/16

**FOR THE ULTIMATE SEAL,
TRY ZIP SYSTEM® SHEATHING.**

IN EVERY ISSUE

8 **FINEHOMEBUILDING.COM**

10 **CONTRIBUTORS**

12 **EDITOR'S NOTE**

18 **COMMENTARY**

Drawing is easy,
building is hard

23 **SPEC**

Wood-fired ceramic
stove, Casement
windows, Textured
wallpaper, Concealed
security camera, Pat-
terned floor tile, Pro-
vocative metal plant-
ers, Multifaceted fire
pit, Sliding shade,
Pliable hardware

88 **THROUGH THE LENS**

Inspiration in
the images

95 **READERS' CHOICE**

Your three favorite
houses of the year

102 **DRAWING BOARD**

Built-in banquettes

106 **KEEP CRAFT ALIVE**

Steve Baczek,
Architect



23
DISCOVER
GREAT
PRODUCTS



88
FEATURED
DESIGN
PHOTOS



**Tablet
editions free
to subscribers**

Our new digital
editions include
all of the maga-
zine's content,
plus searchability and a
host of interactive extras.
Download the app at
[FineHomebuilding.com/
apps](http://FineHomebuilding.com/apps). Access is free with
your print subscription or
FineHomebuilding.com
online membership.



95
READERS'
FAVORITE
HOUSES



SOME DOORS ARE JUST AN OPENING

Ours Define the Home

Marvin Scenic Doors give you the power to deliver remarkable results. Our products perform with unmatched energy efficiency whatever the size, and our exclusive hardware pairs seamlessly with modern aesthetics. Combined with Marvin windows, each build has unrivaled harmony, so that every grand entrance leaves its mark.

LEARN MORE ABOUT MARVIN SCENIC DOORS AT MARVINWINDOWS.COM/SCENIC

MARVIN 
Windows and Doors
Built around you.®

© 2016 Marvin® Windows and Doors. All rights reserved. ® Registered trademark of Marvin Windows and Doors.

Make more of basement remodels

Inspiration and practical tips for finishing basements the right way



High tide meets high design

This home offers a serene living space filled with extraordinary views.



Special guest: Steve Baczek

Join us for podcast ep. 43 as we discuss window selection, finding a good contractor, and eliminating gutters.

FREE eLetter

Want *Fine Homebuilding* content delivered every week? Sign up for our free eLetters at FineHomebuilding.com/newsletter.

Follow us on

- [FineHomebuildingMagazine](#)
- [@finehomebuilding](#)
- [fhubmagazine](#)
- [@fhubmagazine](#)
- [finehomebuilding](#)

Help revive the trades

Show your support for the building trades by purchasing #KeepCraftAlive t-shirts. All profits go to a SkillsUSA scholarship. Visit keepcraftalive.org.

#Keep CraftAlive

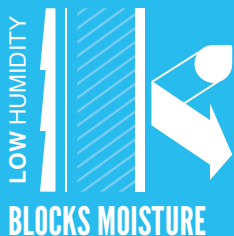


Shop our online store

Visit tauntonstore.com/homebuilding for more great products.

POLY IS PAST ITS PRIME

MEMBRAIN™
Continuous Air Barrier & Smart Vapor Retarder



BUILDING SCIENCE HAS COME A LONG WAY SINCE POLY WAS INTRODUCED AS A VAPOR RETARDER.

Now we know better. We understand the importance of managing moisture so it doesn't get trapped in wall cavities where it can breed mold. And we know that traditional poly can make the problem worse, not better.

MemBrain™, CertainTeed's Continuous Air Barrier and Smart Vapor Retarder, is the solution of today – and the future. Its permeability intelligently adapts to humidity levels to help prevent mold. It knows when to block moisture from getting into walls and when to open up and allow moisture to escape, keeping walls dry year-round.

MEMBRAIN. IT LOOKS LIKE POLY, IT INSTALLS LIKE POLY, BUT IT'S MUCH, MUCH SMARTER.

➔ **WATCH HOW IT WORKS AT [CERTAINTEED.COM/MEMBRAIN](https://www.certainteed.com/membrain)**

Now available at [Homedepot.com](https://www.homedepot.com) and [Amazon.com](https://www.amazon.com)



CertainTeed
SAINT-GOBAIN

contributors

THE VOICES OF EXPERIENCE

MATT RISINGER is the CEO and chief builder of Risinger & Co. in Austin, Texas, specializing in architect-driven projects, craftsmanship, and building science. Matt is a nationally recognized expert in building science for hot/humid climates. **ERIC RAUSER** grew up in California and earned a Bachelor of Architecture from California Polytechnic State University. After relocating to Austin in 2004, Eric started working with Matt as a project manager. Partnering with local architects, Risinger & Co. has had twelve projects on the AIA Austin Homes Tour and won three AIA Austin Design Awards. Together Matt and Eric designed and built this year's Best New Home (pp. 32-37).

MARK LARSON, AIA, cofounded Minneapolis architecture firm Rehkamp Larson Architects with his wife Jean in 2000. He received a master's degree in architecture from the University of Minnesota and is a registered architect in Minnesota, Wisconsin, and Oregon.

KARI NELSON, AIA, also earned her master's degree in architecture from the University of Minnesota and has been with Rehkamp Larson Architects since 2011. Mark and Kari worked together on an extensive remodel that earned this year's Best Remodel Award (pp. 38-43).

JAMES TUER is an award-winning residential, commercial, and landscape architect who lives, works, and plays on Bowen Island, British Columbia. In 2014, he was named Eco-designer of the Year for Western Canada. That same year, he was given *Fine Homebuilding's* Best New Home Award. This year, he did it again, taking our Best Small Home Award for a 1,200-sq.-ft. home on an infill lot in the outdoor adventure mecca of Squamish, B.C. (pp. 44-49). James is a frequent visitor to the University of British Columbia's Schools of Architecture and Landscape Architecture, where he has taught and often acts as a guest lecturer or critic for the school's young and ambitious students.



RISINGER



RAUSER



LARSON



NELSON



TUER



HOROWITZ



DOUGHTY



GARTHWAITE



DESIGN BUILD BLUFF

STEPHANIE HOROWITZ is managing director of ZeroEnergy Design (ZED), a green architecture and mechanical design firm based in Boston, Mass. She is a founding board member of Passive House Massachusetts, a registered architect, a Certified Passive House Consultant, and a member of the AIA's Committee on the Environment Advisory Group. After a number of years living in Europe, Colorado, Maine, and Chicago, **MARK DOUGHTY** settled with his family in Lincoln, Mass., where they paddle, hike, ski, and explore the nearby streets of Boston. During the day, Mark focuses his energy as president of Thoughtforms Builders. Stephanie and the team at ZED worked closely together with Mark to design and build his new home. The partnership earned our Best Energy-Smart Home Award (pp. 56-61).

R. ANDREW GARTHWAITE, AIA, is a partner at Haynes & Garthwaite Architects in Norwich, Vt. After receiving a Master of Architecture from Yale University and working in London, he returned to the Upper Connecticut River Valley where he grew up. Together with Byron Haynes, Andrew has designed a variety of projects that focus on adapting traditional New England architecture to suit contemporary needs and environmental concerns. Andrew is winner of this year's Best Traditional Home Award (pp. 50-55).

Founded in 2004 by architect Hank Louis, **DESIGN BUILD BLUFF** is a graduate architecture program at the University of Utah. Each school year, under the guidance of program director Jose Galarza and technical leads Atsushi and Hiroko Yamamoto, students design and build a new home for residents of the Navajo Nation. This year's Editor's Choice Award is given to Design Build Bluff for their 2015 Badger Springs House (pp. 62-67). You'll find a list of the 2015 students who built the house on p. 65 and other examples of Design Build Bluff's work on p. 67. All are worthy of an award.



CROWNPOINT
CABINETRY

Complimentary design service

No cost job-specific client samples

No charge blanket-wrapped job site delivery

www.crown-point.com

800-999-4994

Handcrafted in New Hampshire

Available direct, nationwide

Industry leading on-time delivery

You are building better houses

Just before sitting down to write this note, I overheard *Fine Homebuilding* editor Justin Fink say to our art directors, "This is the most important story we've ever published." Coming from a guy steeped in how-to, who values the importance of each nail driven, this comment caught my attention. I knew right away that he was talking about our editor at large Kevin Ireton's article, "Why Don't We Build Better Houses?" (pp. 70-75).

When we asked Kevin to answer this question, we had some expectations of what he'd find: cost and risk, lack of knowledge and information, the skills gap. Kevin did find all this—but he also found more fundamental problems that come from the way we value homes. We being appraisers, lenders, and, of course, homebuyers.

We've created a shortsighted market where buyers need to pack as much resale value as possible into their initial costs because that's all appraisers will tally and all lenders will underwrite. More insulation, more efficient heating and cooling equipment, and solar panels have no value in the market. Sustainability, resiliency, and human health fall by the wayside.

Kevin's article isn't all bad news; as you'll see, the solutions to these complex issues are simpler than they appear. There is other good news in this issue, too: You are building better houses.

Of the six award-winning homes featured here, two are producing more energy than they consume and another is averaging zero energy. One is testing and pushing the boundaries of modern building science, while another is bridging the gap between cultures. And yet another has made perhaps one of the greatest impacts we can make by updating an outdated home to last another 100 years.

I agree with Justin: Kevin's article is important. The building industry at large is doing a poor job by not providing quality houses, and we need to understand why for things to improve. But it's also important to recognize that all of the architects and builders whose work is featured here are building better homes. And if you read *FHB*, you probably are too. Every day at the drafting table or on the job site, you are proving that you know exactly what to design and precisely how to build it. So, when the housing market wakes up, you'll be ready. For this, you all deserve an award.

—BRIAN PONTOLILLO, design editor



PRACTICAL BUILDING SCIENCE



REBORN BY REMODEL



SMALL AND SUSTAINABLE



TRADITIONAL AND DURABLE



MAKING SURPLUS ENERGY



SOCIALLY CONSCIOUS

ZIPWALL®

DUST BARRIER SYSTEM

800-718-2255

Do it right.

Start every job with ZipWall®.

- Sets up in just a few minutes – brings in business for years
- No ladders, no tape, no damage

See how easy it is at zipwall.com.



Save Your Siding

Cor-A-Vent's Siding Vent System:
Your Rainscreen Ventilation Solution

Trapped moisture can destroy your siding and housewrap before you notice a problem. Cor-A-Vent's Rainscreen Siding Vent System solves that problem before it ever becomes one. Find out how by downloading the Rainscreen Siding Ventilation Guide today at www.cor-a-vent.com

COR-A-VENT™

COR-A-VENT, Inc. • P.O. Box 428 • Mishawaka, IN 46546-0428
Phone: (800) 837-8368 • Fax: (800) 645-6162
info@cor-a-vent.com • www.cor-a-vent.com

OFFICIAL 2016 SPONSOR

FineHomebuilding
PROHOME
Elevating the Standard of Building



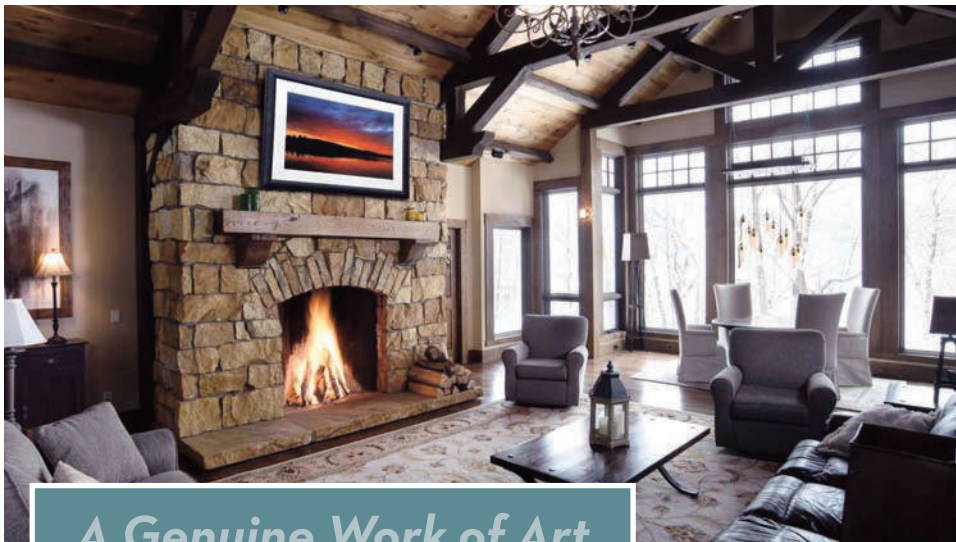
Pop!
goes the ceiling

Artisan Collection fans from Haiku® transform the home's most overlooked space – the ceiling – into the 5th Wall™.

12 hand-painted, original designs | Hand-balanced aluminum airfoils | Motion sensing technology

855-781-0369 | HaikuHome.com/FHB17

 **HAIKU**



A Genuine Work of Art

Like a masterpiece created in your own home, a Rumford Fireplace will add a unique element of resplendent beauty. At Superior Clay, we are proven leaders in the fireplace industry, sharing generations of wisdom to create structural clay fireplace components that promise optimal performance, safety, and style for an inviting home and lifetime of treasured memories.


SUPERIOR
CLAY CORP

740.922.4122 | 800.848.6166 | PO Box 352 Uhrichsville, Ohio 44683
www.superiorclay.com

FineHomebuilding®

Editorial Director Rob Yagid

Editor	Justin Fink
Executive Art Director	Robert Goodfellow
Design Editor	Brian Pontolilo
Web Producer	Mike Alterio
Video Director	Colin Russell
Senior Editors	Andy Engel Martin Holladay
Associate Editor	Patrick McCombe
Social Media Editor	Matt Higgins
Copy/Production Editor	Samantha Streger
Deputy Art Director	Rodney Diaz
Administrative Assistant	Maureen Friedman
Manager, Video Studio	Jeff Roos
Editors at Large	Kevin Ireton Charles Miller
Editorial Adviser	Mike Guertin
Contributing Editors	Rick Arnold Sean Groom Gary M. Katz Joseph Lstiburek
Contributing Writer	Scott Gibson
Contributing Photographers	Lincoln Barbour Ken Gutmaker Susan Teare Brian Vanden Brink

Executive Editor, Books Peter Chapman

Fine Homebuilding: (ISSN: 1096-360X) is published bimonthly, with a special 7th issue in the spring and a special 8th issue in the fall, by The Taunton Press, Inc., Newtown, CT 06470-5506. Telephone: 203-426-8171. Periodicals postage paid at Newtown, CT 06470 and at additional mailing offices. GST paid registration #123210981.

Subscription Rates: U.S., \$37.95 for one year, \$65.95 for two years, \$93.95 for three years. Canada, \$40.95 for one year, \$71.95 for two years, \$102.95 for three years (GST included, payable in U.S. funds). Outside the U.S./Canada: \$55 for one year, \$98 for two years, \$141 for three years (payable in U.S. funds). Single copy U.S., \$7.99. Single copy Canada, \$8.99.

Postmaster: Send all UAA to CFS. (See DMM 707.4.12.5)

Non-postal and Military Facilities: Send address corrections to Fine Homebuilding, PO Box 37610, Boone, IA 50037-0610

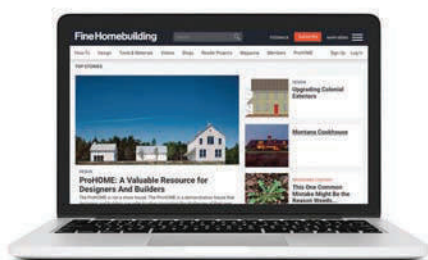
Canada Post: Return undeliverable Canadian addresses to Fine Homebuilding c/o Worldwide Mailers, Inc., 2835 Kew Drive, Windsor, ON N8T 3B7, or email to mnfa@taunton.com.

Printed in the USA



FineHomebuilding.com

**We've
Renovated
Our
Website!**



**Come See
What's New**



Stop by FineHomebuilding.com today!

Add FineHomebuilding to your tool set

Become a member and get instant access to thousands of videos, how-tos, tool reviews, and design features

Start your **FREE** trial at Finehomebuilding.com/2join

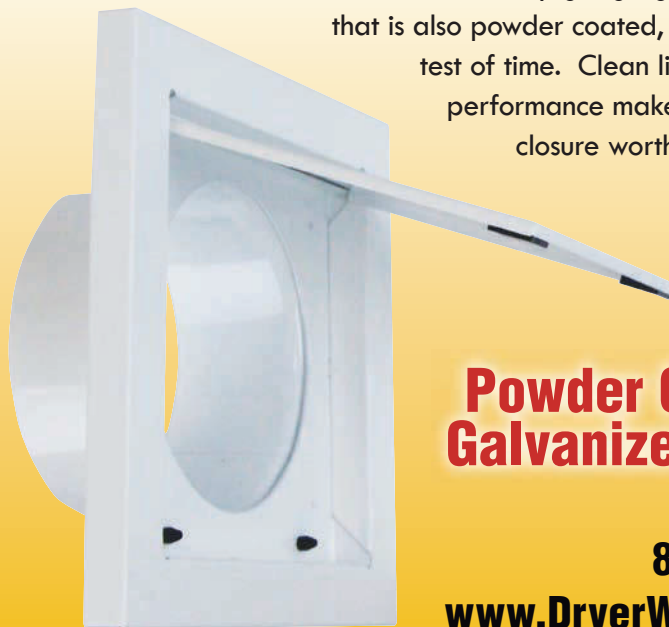
NEW: High Performance - Low Profile



Vent Performance that Enhances Aesthetics

The people who brought you the Dryerbox[®] are taking that quality commitment outdoors. Today, exterior terminations get the attention they deserve as components that actually enhance aesthetics.

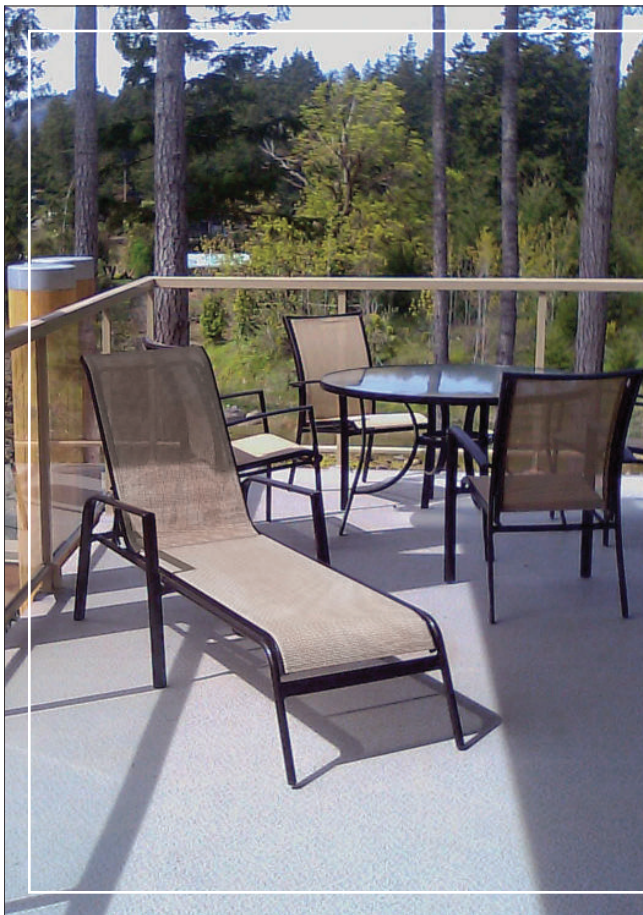
Built in the USA of heavy gauge galvanized steel that is also powder coated, they stand the test of time. Clean lines and superior performance make this new vent closure worth a closer look.



**Powder Coated
Galvanized Steel**

888-443-7937

www.DryerWallVent.com



It's what your great outdoors deserves.

DeckRite is the beautiful, durable, low maintenance vinyl covering designed for applications on decks, patios, balconies, breezeways or exterior walkways. It is slip resistant, mildew resistant, waterproof and engineered for long-term performance.



DeckRite
Exterior Floor Covering

3912 E. Progress
North Little Rock, AR 72114
888-450-DECK (3325)
www.deckrite.com

FineHomebuilding

Publisher	Renee Jordan 800-309-8953 rjordan@taunton.com
Advertising Sales Director	Noelle Kennedy 203-304-3530 nkennedy@taunton.com
Senior Account Manager/ Integrated Media Northeast	Kelly Ames Smith 203-304-3840 ksmith@taunton.com
Senior Account Manager/ Integrated Media Midwest/Northwest	Kevin Draz 708-386-1450 kdraz@taunton.com
Director of Digital Advertising Operations	John Maher jmaher@taunton.com
Advertising Sales Assistant	Diana Edwards

Brand Marketing Director Cara Zenga

Marketing Manager Matthew Ulland

Single Copy Sales  MEDIAWORKS 360

Member
BPA Worldwide



The Taunton Press
Inspiration for hands-on living®

Independent publishers since 1975
Founders, Paul & Jan Roman

President & CEO	Dan McCarthy
CFO	Mark Fernberg
CTO	Brian Magnotta
SVP, Consumer Marketing	Paula Backer
VP, Controller	Robert Caldaroni
VP, Human Resources	Carol Marotti
VP, Fulfillment	Patricia Williamson

SVP, Home & Construction	Renee Jordan
SVP, Fine Cooking	John Boland

Publishers of magazines, books, videos, and online
Fine Woodworking • Fine Homebuilding
Threads • Fine Gardening • Fine Cooking
taunton.com

FOCUS ON YOUR ART.

WE'LL TAKE CARE OF THE REST!

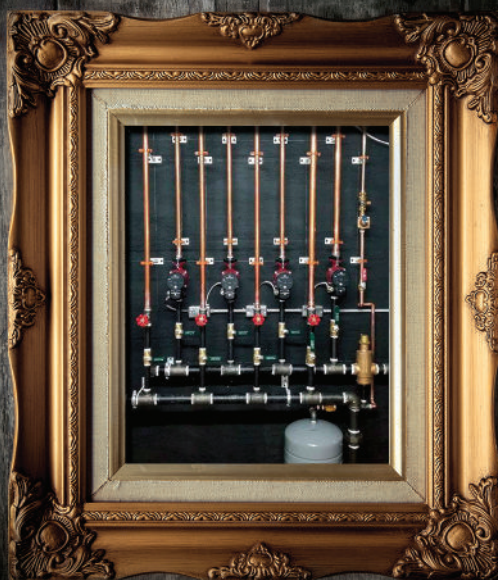
Plumbing, Heating & HVAC Supplies

- Fast Shipping
- Huge Inventory
- Low Prices



**SEND US THE WORK
YOU'RE MOST PROUD OF!**

Post your photos with
#SupplyHouseArt to be featured.



Installation by
Jason F from CT

 **SupplyHouse.com**

888.757.4774

Fine Homebuilding

To contact us:

Fine Homebuilding
63 South Main Street
PO Box 5506
Newtown, CT 06470-5506

Send an email:

fh@taunton.com

Visit:

finehomebuilding.com

To submit an article proposal:

Write to *Fine Homebuilding* at the address above or
Call: 800-309-8919
Fax: 203-426-3434
Email: fh@taunton.com

To subscribe or place an order:

Visit finehomebuilding.com/fhorder
or call: 888-304-6044
9am-9pm ET Mon-Fri; 9am-7pm ET Sat

To find out about *Fine Homebuilding* products:

Visit finehomebuilding.com/products

To get help with online member services:

Visit finehomebuilding.com/customerservice

To find answers to frequently asked questions:

Visit finehomebuilding.com/FAQs

To contact *Fine Homebuilding* customer service:

Email us at customerservice@finehomebuilding.com

To speak directly to a customer service professional:

Call: 888-304-6044
9am-9pm ET Mon-Fri; 9am-7pm ET Sat

To sell *Fine Homebuilding* in your store:

Call us toll-free at 866-452-5179, or
email us at tradecs@taunton.com

To advertise in *Fine Homebuilding*:

Call 800-309-8953, or
email us at fhads@taunton.com

Mailing list:

We make a portion of our mailing list available to reputable firms. If you would prefer that we not include your name, please visit:
finehomebuilding.com/privacy
or call: 888-304-6044
9am-9pm ET Mon-Fri; 9am-7pm ET Sat

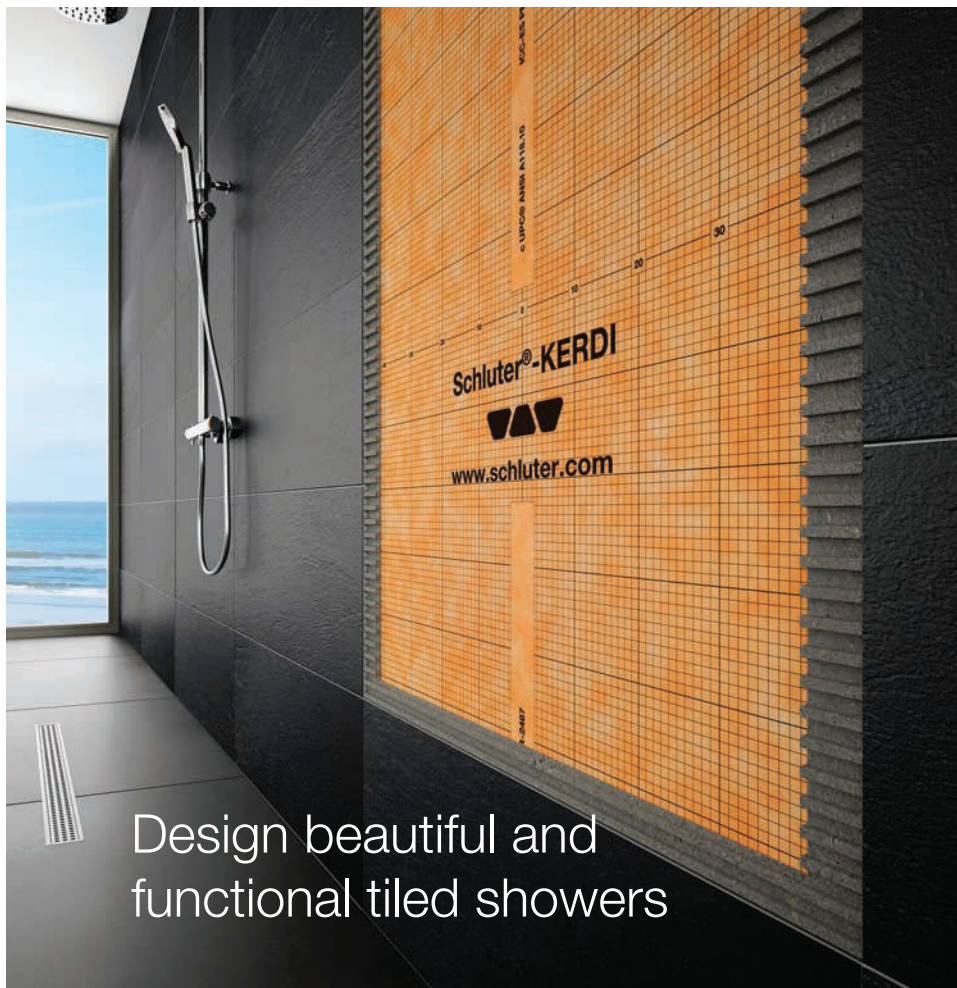
For employment information:

Visit careers.taunton.com

The Taunton guarantee:

If at any time you're not completely satisfied with *Fine Homebuilding*, you can cancel your subscription and receive a full and immediate refund of the entire subscription price. No questions asked.

Copyright 2017 by The Taunton Press, Inc. No reproduction without permission of The Taunton Press, Inc.



Design beautiful and functional tiled showers



Schluter®-Shower System

Complete waterproofing system for tiled showers

Build your own custom bathroom design with building panels that are ready to tile, or opt for prefabricated, easy to install shower substrates that will create the bathroom of your dreams.

Incorporate beautiful linear floor drains in your décor to create an open concept, barrier-free bathroom.

With Schluter®-Systems components, no matter how you build your bathroom, you have moisture management included. So before you tile, make sure it's orange first.



www.schluter.com | 800-472-4588



Drawing is easy, building is hard

BY KEITH MOSKOW,
ROBERT LINN, AND
WILLIAM MORGAN

Each architect has a slightly different introduction to the trades. For example, one of the three of us grew up with an intimate knowledge of tools and construction provided by a father who was a builder, while another had never so much as built a tree-house floor (his father was a professor of art). While a building background is not necessarily superior to a design background, we have found that the act of building something provides a designer with valuable insight that can't be learned in a classroom. Architects learn about materials and tools in a theoretical setting, but a real-world relationship with building materials and processes does, in fact, make architects better able to understand and visualize the construction of a structure, and therefore makes them better at their job.

In 2009, we designed and built a family retreat space for ourselves. The project was a departure from our normal process, which is to design on paper and then turn the drawings over to a builder to be realized. Instead, we schlepped the materials to the site, hoisted walls and beams, and nailed everything together ourselves. In doing so, we came closer to understanding what both craftsmen and contractors have already learned—or perhaps instinctively know—about construction: Drawing is easy, but building is hard. Not only is the act of building physically demanding, but an architect's designs can require complex building techniques that may not be within the builder's skill set. We realized that the process of construction should be considered by an architect at least as highly as the finished product. This was the genesis of Studio North.

Design/build boot camp

Studio North, a workshop that we began in 2011, provides an introduction to the world of building for would-be architects. The



2014 students build the Consumable Sugar Shack





intensive program, in which young women and men conceptualize, design, and build an entire structure in less than a week, is unique in some ways, though many agree that the hands-on experience of building is invaluable for designers. The Yale School of Architecture, Auburn University's Rural Studio in Alabama, and the University of Utah's Design Build Bluff (winner of this year's Editor's Choice Award, p. 62) all offer construction experience to graduate architecture students. But Studio North differs as a voluntary experience for undergraduate students who are contemplating a career in architecture—many of whom have never held a hammer, never poured a concrete foundation or framed a wooden building, and never experienced the joy of a trip to a lumberyard.

We know that the students who join us each summer for what is essentially a design/build boot camp are not likely to become builders. Our intention is to give these aspiring architects a taste of construction, bridging the gap between the visualization of an idea and the physical completion of a structure. Designers create better architecture if they understand firsthand how buildings are made, and this is the goal of Studio North.

The idea that the building process is an integral part of theoretical design should be a no-brainer; no one would publish a cookbook without first testing the recipes, for example. When you mix and pour cement into a form, or shape a board to act as a functional piece of a building, you learn the nuances of concrete, wood, and other materials. Understanding these materials is important—it allows an architect to design a building that can be constructed more efficiently and less expensively without sacrificing superior design.

When we initiated the first Studio North workshop in 2011, students came to Vermont from as close as Dartmouth College and as far away as North Dakota State University. This course was not a leisurely summer activity. We deliberately chose a week in June for its long days of sunlight, and we worked twelve hours per day. It was total immersion. We began by throwing around ideas and sketching, putting pencil to paper to express concepts. But physical labor began immediately after lunch on that first day, as we poured concrete for a foundation and built a wooden platform by day's end.

From mind to hand

Over the years, Studio North students have designed and built a variety of structures from a standard kit of parts: stock lumber, translucent fiberglass panels, galvanized steel connectors, and timbers harvested on site. While the shapes and final uses of all the



Studio North structures are different, each involved building foundations, floors, walls, and roofs—basic structures that had to offer stability and protection from the elements. The projects, beginning with the Chicken Chapel in 2011 up to 2016's Viewing Structure, were envisioned as something that could be completed within the six days—nothing so large or difficult that it would overwhelm inexperienced builders, but something complicated and challenging enough that there would be a real sense of achievement. Of course, we know that our students will not become building experts in such a limited time, but we make sure they get a taste of the different components that go into such an accomplishment.

Our students' success is not only based on completing a movable, habitable, or utilitarian piece of equipment or a practical agricultural structure; the final product has to be a recognizable, thoughtful, and creative work of architecture as well. Even so, we believe a



"We offer students much more than blisters, wounded thumbnails, and sore backs."



significant portion of design is informed by the process of building. Sitting at a drawing board with a pencil or using a tablet for computer-aided design is the first step of creation, but it is still abstract and theoretical. With hands-on knowledge, an architect might consider the difficulty of building certain aspects of a structure, and make more efficient, cost-effective, and client-friendly designs. So with each day, our students do less and less drawing, and a lot more building.

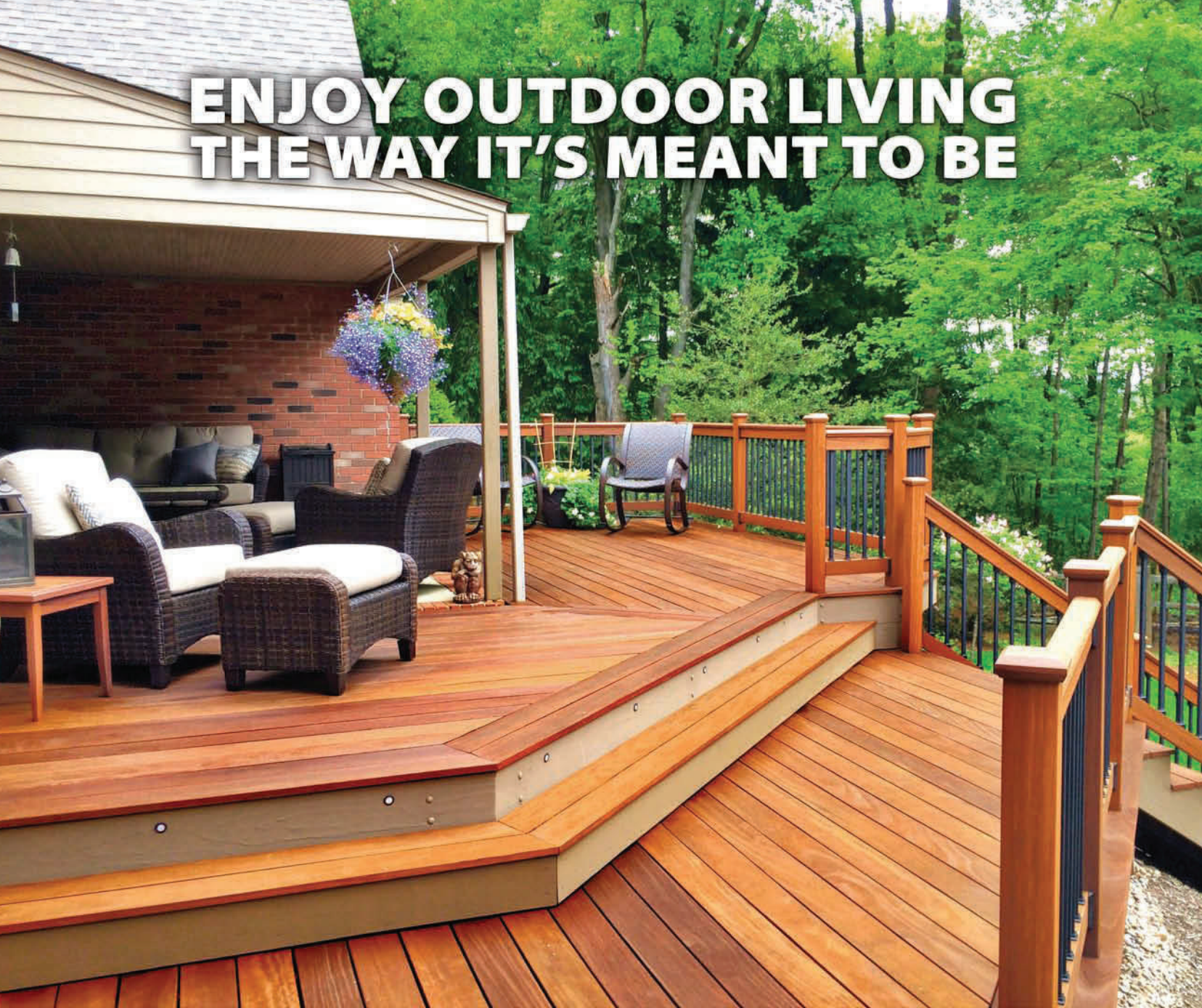
Each year, students with little or no experience with even the basics of lumber and tools learn to turn milled trees into a building. Or, in the case of the Birch Pavilion, they learned the challenges of working with unpeeled logs. While framing the superstructure of the Wilderness Huts or shaping the wooden walls of last year's Viewing Structure, students graduated from simple hammering and nailing to more sophisticated techniques for shaping, bending, and joining. With this hands-on knowledge, they can go on to design buildings that are structurally strong with unique but buildable architectural features.

The neophyte architects emerge as builders. And because the Studio North structures were built for specific and varied purposes, these builders can see their ideas not only realized, but also put to work. Rhode Island Red chickens moved into the Chicken Chapel upon completion, and the Rolling Pig Pen was tried out by a Tamworth sow. The Birch Pavilion's aim was contemplative, so its handsome lines and classical proportions echo temples throughout history. The curbed walls of the Viewing Structure channel the eye through the "lens" to a framed portion of the sky and the landscape. Having not only the experience of building, but the understanding of the building's purpose, is another step toward bridging the gap between architectural theory and practice.

Studio North can be seen then as an enrichment course in the art of architecture. We believe that our program and others like it offer students much more than blisters, wounded thumbnails, and sore backs. An appreciation for what it really takes to build a structure will serve them well throughout their careers. Regardless of whether they continue on to a formal architecture program, our Studio North alumni have gained both practical construction knowledge and an understanding of their limits and their abilities. And the students' approach to design is now informed with knowledge of how the builders that they will collaborate with will turn their ideas into reality.

Keith Moskow, FAIA, Robert Linn, AIA, and William Morgan are frequent collaborators at Boston-based Moskow Linn Architects (moskowlinn.com). Photos courtesy of the authors.

ENJOY OUTDOOR LIVING THE WAY IT'S MEANT TO BE



Cumaru (Brazilian Teak) Hardwood Decking

- Robust performance for every season
- Low-maintenance decking solution
- Proven rot, decay, & mold resistance
- 3 times as hard as traditional Teak Decking
- 50+ year lifespan without harsh chemicals
- Natural beauty truly worthy of your home



Need a Quick Outdoor Living Space Makeover?

Cumaru Decking is also available in easy-to-install Deck Tiles.

► Find out more about Deck Tiles: AdvantageLumber.com/decking-tiles



ADVANTAGELUMBER.COM
Manufacturers of Sustainable Hardwood Decking

Shop Online 24/7/365
Phone: 1-877-232-3915

The FOOTING TUBE

The ULTIMATE Concrete Pier Form!!!

See Our
Technical Specifications
to assist in a more
accurate calculation of
loads to fit your project

Shift Happens!!

Be Sure Your
Project Doesn't!!!

Information, reports,
and retailers near you,
on our website!

See Our
DIY Videos

www.foottube.com

Do It Once!! Do It Right!!



From the makers of **Better-Bench®** and **Recess-It®**

LEDGELINE™



LEDGELINE™

The easy to install, ready to tile shelf! Just mark it, mount it, drill it, and tile it!

INVISABOLT™



INVISABOLT™

The floating bench mounting system!



Also consider Recess-It® tile ready
niche systems for your next project!

(800)382-9653
www.innoviscorp.com



All Innovis Corporation products are proudly made
in the USA

Also try our Better-Bench® corner seats or
our Adjustable Better-Bench® seat!



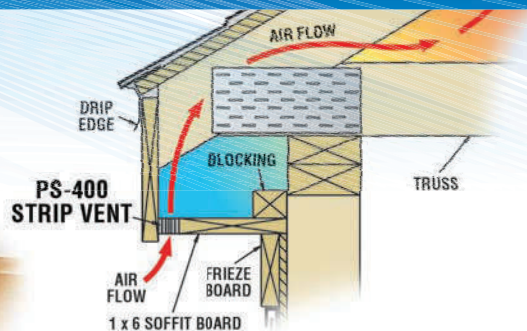
A Breath of Fresh Air from COR-A-VENT®

Available in black,
white or tan

Stainless Steel
(Type 304) staple option
for use in marine or other
corrosive environments

OFFICIAL 2016 SPONSOR

FineHomebuilding
PRO HOME
Elevating the Standard of Building



Why use COR-A-VENT soffit vents?

- Superior airflow – 10" NFVA per lineal foot*
- Fit in narrow spaces where other vents can't
- Crush resistant – install with a power nail gun
- Easy to hide for concealed installation
- Self-cleaning – won't clog with dirt or debris
- Available in black, white or tan

*Net Free Vent Area per lineal foot

COR-A-VENT
INCORPORATED

P.O. Box 428 • Mishawaka, IN 46546-0428 / Phone: (800) 837-8368 / Fax: (800) 645-6162
See and download application details from our website - www.cor-a-vent.com / Email - info@cor-a-vent.com



WOOD-FIRED CONVECTION

People have appreciated the warmth, efficiency, and beauty of ceramic stoves for hundreds of years, but La Castellamonte and Adriano Design have brought this classic home heater into the 21st century with their Stack series of wood stoves. The makers wrapped a slender steel firebox and heat exchanger in a modular ceramic shell to create a high-performance stove with timeless good looks. The intriguing grid of holes cast into the ceramic isn't just for aesthetic reasons; it's an essential part of the convection system that makes this compact stove so effective and energy efficient.

- 17 different color and finish options
- Ceramic or wooden base
- 22,000 Btu heat output
- 113-cm high: \$9,870
- 137-cm high: \$10,790

stackstoves.com

SPEC

GREAT FINDS INSPIRED BY OUR BEST HOUSES

BY ROB WOTZAK



CONTEMPORARY CASEMENT

Less is more with this innovative casement window, introduced this year along with several other unique doors and windows in Marvin's Contemporary Studio collection. Flush frames with simple square profiles blend perfectly with modern interior and exterior surfaces, and slender sashes leave room for more expansive panes of glass. A new matte black hardware option further accentuates the window's details.

- Crank-out, push-out, or fixed sashes
- Sashes can rotate 180° to easily clean both sides
- Prices upon request

marvin.com



OUTDOOR CHAIR IS AN INSTANT CLASSIC

With its striking colors and minimalist silhouette, the Coco dining chair will be a focal point in any outdoor space.

With just the right amount of gentle curves and soft corners, this angular chair is easy on the eyes and the body.

While the influence of midcentury classic furniture is apparent in its design, the Coco chair has the chops to become an icon itself someday. And because it's made of durable aluminum and teak, it's bound to be around long enough to see that happen.

- Anthracite, olive green, lemon, or white
- Coco chair: \$612; Coco armchair: \$697

oasiq.us

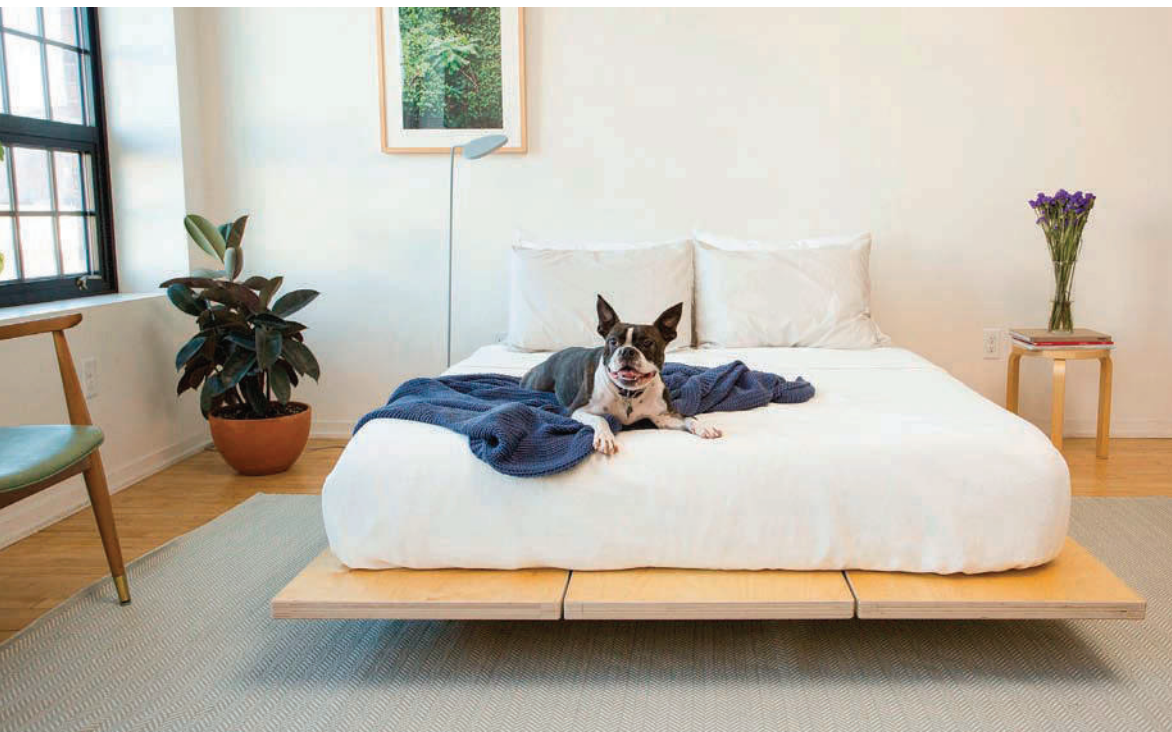
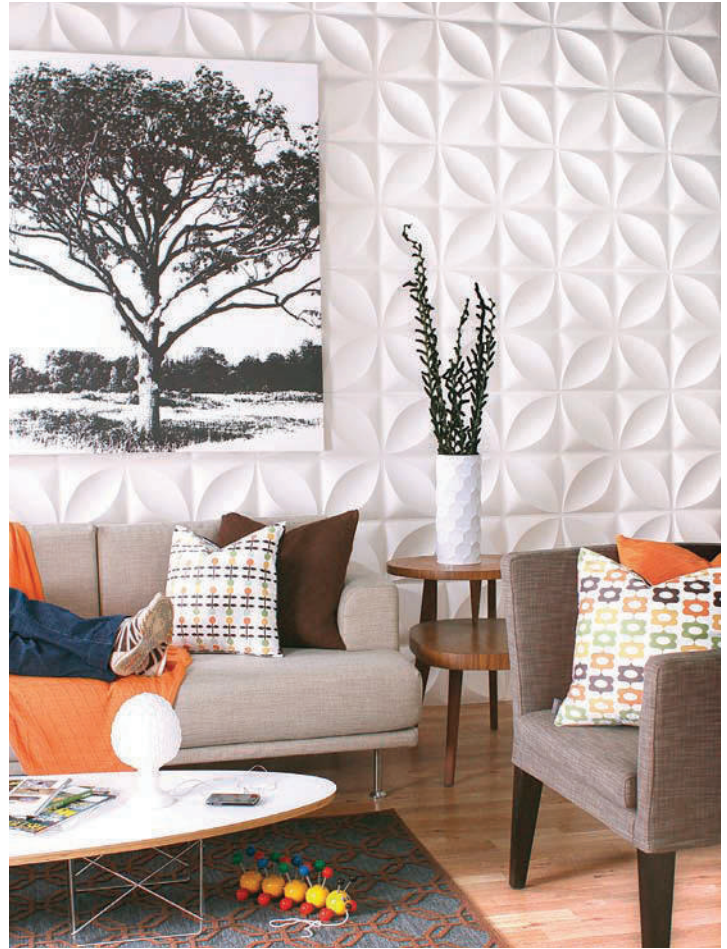


ADD DIMENSION TO ANY ROOM

Inhabit's Wall Flats are like textured wallpaper on steroids. Made from Bagasse, a fibrous byproduct of sugarcane processing, and available in several deeply faceted organic and geometric patterns, these unusual 3D panels are in a category all their own. The permanent versions go up similarly to tile, but with clay-based wallpaper paste, and they require some extra finishing and painting to get the seamless look that makes them so unique. If you aren't ready to commit, there's also a hanging version which is as easy to install as a set of curtains.

- Made from 100% recycled materials with no chemicals or VOCs
- Sold in boxes of 10 to 12 panels, depending on size
- \$2.66 to \$2.75 per sq. ft.

inhabitoliving.com



A MOBILE, MODULAR BED

More than just another elegant piece of modern furniture, the Floyd Platform Bed is one of several offerings from a company that is reinventing the way people buy and move furniture. Flat-packed and shipped right to your doorstep, the bed is simply a set of sleek, powder-coated steel legs and birch plywood panels that cinch together with ratchet straps, forming a sturdy base for any mattress—and one that can be disassembled and carried away in minutes whenever you need. Floyd is proud to source all of the parts for their furniture from regional manufacturers not far from their Detroit headquarters.

- Legs in black or white
- Ships free in the contiguous lower 48 states
- Twin: \$489; queen: \$589; king: \$699

floyddetroit.com

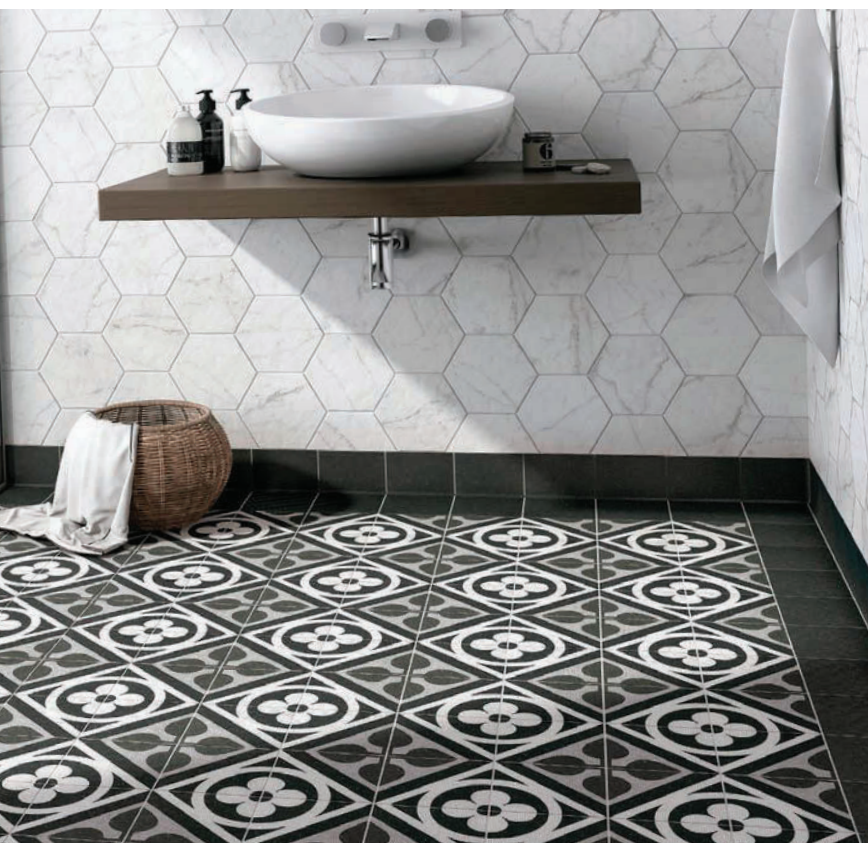
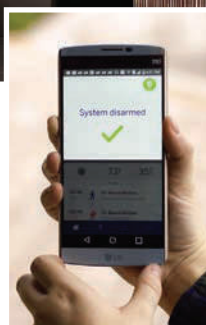
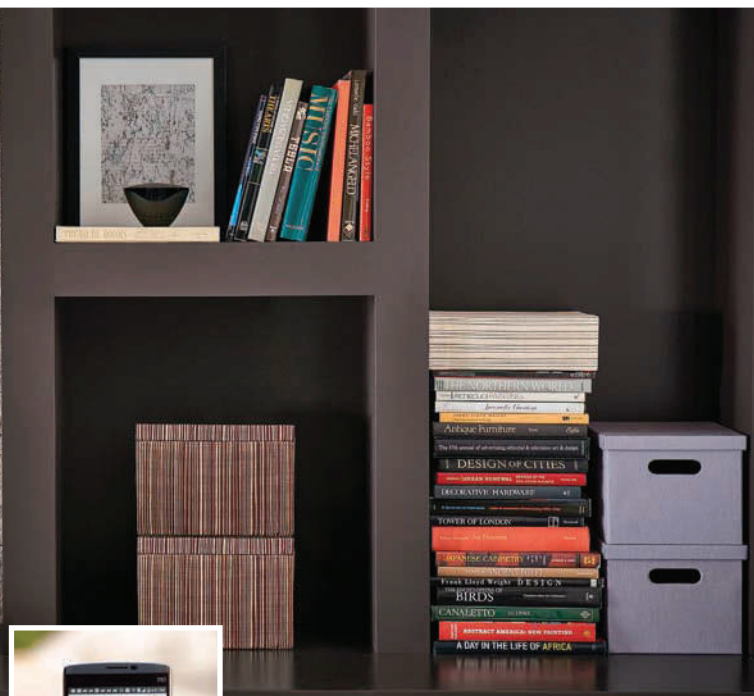
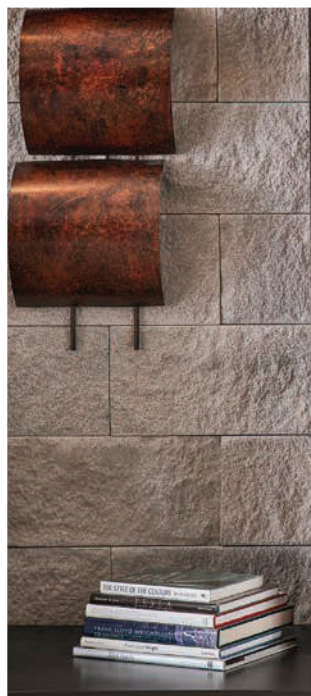


ARTFULLY DISGUISED SECURITY CAMERA

LG and ADT have recently teamed up to introduce a plug-and-play security system. The LG Smart Security Wireless Camera has a sculptural tapered case that conceals the HD video camera and wifi hub, allowing it to hide discreetly in plain sight. With a distortion-free wide-angle lens, digital zoom, and infrared night vision, the motion-sensing camera can send a livestream to your smartphone or upload video to an optional cloud backup system for you to watch later. Add ADT's Canopy Intrusion Detection service with 24/7 monitoring for more peace of mind.

- Doubles as a smart-home hub for controlling lights, HVAC, and other devices
- LG Smart Security Wireless Camera: \$199.99
- ADT Canopy Intrusion Detection monitoring service: \$19.99/month; cloud-based Secure Video Storage: \$9.99/month

lg.com



NEW FLOOR TILES WITH OLD-WORLD FLAIR

Made in Spain of durable ceramic, these patterns from SomerTile come in a plethora of styles that conjure up images of vintage cafes, classic hotels, and markets in old cities throughout Europe. All of the tiles have a muted sheen, and many of the styles have intentional scuffs, scrapes, and scored grout lines to mimic a century or more of wear and tear. Some of the collections contain many different complementary designs that can be mixed and matched to create rich patterns and make even the smallest spaces feel grand.

- Suitable for high-traffic floors
- Many of the patterns designed by interior architect Francisco Segarra
- \$7 to \$12 per sq. ft.

sometile.com





PROVOCATIVE METAL PLANTERS

Clean lines and bold edges are common threads throughout this eye-catching collection of modern planting containers. From the slender, curvy Pendero to the stout, boxy Bordo, Pot Inc. fabricates metal containers for contemporary gardens in all shapes and sizes. It all started nearly a decade ago when designer Todd Holloway found it difficult to locate high-quality modern pots for his clients' gardens. He tried making his own containers out of a few common materials, and eventually settled on powder-coated aluminum for its refined toughness and has been going strong ever since.



- Custom designs, colors, and alternative metals available on request
- Optional drain plugs for indoor use
- Contact Pot Inc. for pricing and custom designs

potinc.ca

MULTIFACETED FIRE PIT

Unlike most outdoor fireplaces, the Plodes Geometric Fire Pit doesn't have to sit quietly in the corner of your patio when you're not in the mood for a fire. Be sure to order yours with the optional cedar top, and the low, rectangular steel firepit doubles as a practical and beautiful outdoor coffee table. There's also an available steel grill top that can be used for cooking over the hot coals after your roaring fire has settled down, but it's even nice enough to use as a table top when there's no fire in the pit.

- Carbon steel, Corten steel, or stainless steel
- 30-in. and 40-in. widths
- \$1,125 to \$3,387 (depending on material choice, size, and accessories)

plodes.com



SINUOUS SLIDING SHADE

You could build a roof over your patio or deck to escape the hot summer sun, but what if you also want to sit out and gaze at the cosmos on a clear night? That's where Infinity Canopy comes in. This canopy system combines marine-grade metal and fabric components to create a horizontal sunshade that easily slides open or closed with the pull of a cord. As long as there are sturdy structures for fastening the cables, Infinity Canopy can cover nearly any outdoor space with movable protection from the sun.

- Phifertex vinyl-coated polyester mesh or Sunbrella acrylic canvas
- Standard widths in 5-ft. increments; custom widths available
- Cost depends on canopy size and fabric type; use estimating tool on website for approximate price

infinitycanopy.com



MORE TO THIS LIGHT THAN MEETS THE EYE

Don't be fooled by the understated design of Konzept's Gravy wall sconce—it's one useful little LED lamp. Its versatility stems from a rotating hinge, which allows you to swivel the round LED medallion into virtually any position. Tilt it out to light up the whole room. Turn it downward and it becomes a task light. Fold it flat against the wall for subtle ambient lighting. An integrated touch-sensitive dimmer adds to the light's adaptability.

- 5.5w LED
- 15 different finishes in paint, felt, and wood veneer
- Plug-in model: \$180; hardwired model: \$225

konzept.com



PLEASEINGLY PLIABLE HARDWARE

Soften up the look and feel of any cabinet with these delicately shaped Spinneybeck leather pulls. They're available in seven standard styles and 26 colors, so choosing the appropriate pulls might be tougher than installing them on your doors and drawers. Once you do, though, the heavyweight, vegetable-tanned belting leather should withstand years of everyday use.

- Die-cut from smooth-grain leather with a water-resistant finish
- Includes 1¼-in. stainless steel mounting screws
- \$15 to \$25 each

spinneybeck.com

2018

SOFTPLAN
ARCHITECTURAL DESIGN SOFTWARE

SoftPlan 2018 coming soon

OFFICIAL 2016 SPONSOR

FineHomebuilding

PRO HOME™

Elevating the Standard of Building




remodel

SoftPlan remodel
kitchens | baths | additions | \$985

free trial: www.softplan.com or 1-800-248-0164

ATLANTIS®

RAIL SYSTEMS



800-541-6829
www.atlantisrail.com

FlexJamb



FlexCorner



Easily protect door jambs, casing, and corners with FlexJamb and FlexCorner — flexible, economical, and made from recycled paperboard.



Protective Products
International Inc.

Surface Protection Solutions

Learn More Now

ProtectiveProducts.com

1.800.789.6633

You've made our house a home.

Fine Homebuilding editors and the ProHOME 2016 build team would like to thank our sponsors and our audience for their support for our first ProHome build. Your shared vision, your quality products, and your belief in our ability to build a high-performance home made this all possible.

Check out the build at FineHomebuilding.com/prohome

THANK YOU TO OUR 2016 SPONSORS



Fine Homebuilding®

Attention Retailers

If you would like to carry *Fine Homebuilding* in your store, just write or call 1-866-452-5179, and find out how easy it is to set up an account directly with us—no hassles, no risk, attractive terms.

Taunton Trade Co., Inc.

P.O. Box 5563, 63 S. Main St., Newtown, CT 06470-5563

Rolling Library Ladders



Since 1905 Putnam Rolling Ladder Company has been manufacturing rolling ladders. Each ladder is custom made to your specifications. Models available in several hardwoods: oak, ash, birch, maple, cherry, mahogany, walnut and teak. Minwax stains are available.

Hardware comes oil-rubbed bronze, brass-plated, chrome-plated, black, antique brass, satin nickel or in brushed chrome.

Putnam—Since 1905

(212) 226-5147 • Fax (212) 941-1836

32 Howard Street, NYC, NY 10013

www.putnamrollingladder.com

Fine Homebuilding®

Shop Our Online Store

FineHomebuilding.com/ShopNow

YOUR DESTINATION FOR
TRUSTED BUILDING KNOW-HOW

NEW!
CONTRACTOR APPROVED

FLEXIBLE CORNER TRIM
NO PAPER
FOR A SUPERIOR FINISH

MUD LOCK TECHNOLOGY
FOR MAXIMUM STRENGTH

Micro-hooks increase surface area and key into compound for maximum bond.

TRIM-TEX
DRYWALL PRODUCTS

www.Trim-Tex.com
1-800-874-2333

Facebook, YouTube, Twitter, Instagram icons

Give the Dryer Some Space

Room to Breathe



Unprotected Exhaust is a Fire Hazard

Standard Installation Model 480 | 22 Gauge Aluminized Steel—Shown Painted

New Dryerbox® Model DB-480

Larger receiving area handles stand-alone AND pedestal dryers.

the dryerbox®

Today, you can place the dryer flush to the wall without crushing exhaust hose or otherwise restricting airflow. Install the Dryerbox for safer, roomier and more efficient homes.

888-443-7937

www.Dryerbox.com



For the Sake of **SIMPLICITY**



2017 HOUSES AWARD

BEST NEW HOME

Our 2017 Best New Home Award goes to Matt Risinger and Eric Rauser of Risinger & Co. A skillful execution of building-science principles and the quest for a simple, long-lasting home allow a unique detail to shine: the framing.



Putting the insulation outside of the walls
opened up new design possibilities
for this low-maintenance Texas home

BY MATT RISINGER AND ERIC RAUSER

When Greg Heidel told us that he wanted to “simplify the systems” of his life, he was speaking our language. Greg is a single guy who had recently purchased an empty lot in East Austin, Texas, an up-and-coming neighborhood. He wanted to build a new house that supported his lifestyle. Greg spends his time volunteering and saving money to donate to causes that are important to him, so he didn’t want a house that would be expensive to heat and cool or one that would require a lot of time and money to maintain. We don’t design many homes—we’re building-science geeks, and we typically add our knowledge to other architects’ designs. But Greg offered us the opportunity to both

design and build his house, weaving proven building science into the plan from the get-go. We had the perfect approach in mind.

Outsulation is universally smart

Since we first read Joe Lstiburek’s 2007 article, “The Perfect Wall,” which describes an utterly simple yet radically unconventional building envelope, we’ve wanted to put it into practice in one of our projects. In the article, Joe outlines a wall assembly in which four control layers—one each for rain, air, vapor, and temperature—are installed outside the framing. Using this approach, the control layers protect the structure from water, vapor, and temperature swings, creating a

THE PERFECT WALL IN PRACTICE



The perfect wall concept specifies four control layers, which building scientist Joe Lstiburek puts in this order of importance: rain, air, vapor, thermal. Here is how Matt and Eric built this house and executed each of these controls along the way. The house is built on a **PIER-AND-BEAM FOUNDATION** over a vented crawlspace. The first-floor deck and inside of the rim joists are insulated from below with 1 in. of closed-cell spray foam, which acts as all the necessary controls for this location.

more durable building. Though it is certainly still an option to put more insulation on the inside of a perfect wall, one of the main differences between this approach and the way most walls are built is that the primary thermal layer is on the outside. This assembly works in any climate; typically the only necessary adjustment is the thickness of the insulation. Another significant difference is that the purpose of the siding (and perhaps the way we should think of all siding) is only to protect the control layers from UV radiation.

The perfect wall is also the perfect roof and the perfect floor. Only slight tweaks are made when changing planes. Integrating the control layers as they transition from the slab to the walls and the walls to the roof is important. The layers must be continuous.

Nicknamed “the 500-year wall” because it is possibly the most durable way to build a house, the perfect wall approach met Greg’s desire for low maintenance. And once we’d decided that the insulation would be installed outside of the structure, we were able to explore a unique design possibility that this approach offers.

There is no drywall to be found in this house. Everywhere you look, you see structure. Yet designing the home wasn’t as simple as just leaving the structure exposed. There was a lot to consider and research before we even presented this idea to Greg.

First, we talked to the lumberyard. They agreed to allow us to cull the most attractive lumber for this house and we agreed to send what we didn’t take from the stacks to other projects where the lumber would be more conventionally hidden in the walls and ceilings. Then we talked to the framers, who were immediately excited that their



Before being sheathed with OSB for shear strength, the walls are covered with **SHIPLAPPED PINE**, which will be exposed to the interior.



A **PEEL-AND-STICK MEMBRANE** from Carlisle acts as the air, rain, and vapor controls. Installed before the insulation, the membrane is protected from the sun and temperature fluctuations.



Staggered layers of **RIGID INSULATION** (2-in. polyisocyanurate on the walls and 3-in. polyisocyanurate on the roof) act as the thermal barrier.

work would be visible. They helped us find solutions to many of the aesthetic challenges. For example, we didn't want a lot of toenailing, which often splits and splinters lumber. Above the window headers, where the cripples are commonly toenailed, the framers used a sill plate so the cripples could be through-nailed before being put into place. They also found ways to avoid the need for metal framing connectors and were extra precise with their nailing patterns.

Wanting the house to have a traditional quality, we didn't use any modern framing materials except for a couple of glulam beams where we needed long spans. The framers even used old-school crossbracing between the floor joists, and we sheathed the house first with shiplapped pine, to be seen as the interior finish, followed by a layer of OSB to create a shear wall.

You might ask how we passed inspection without the fire protection that drywall offers. It turns out that even the building inspector liked the idea that the wall cavities would be exposed. Because the cavities

are not continuous between floors, the inspector saw the open walls as advantageous for fighting a fire, should one occur.

Repair and remodel with ease

If this house is going to last 500 years, Greg will likely not be the only homeowner, so it had better be easy to remodel. We found surprising opportunities for future remodeling while figuring out how to hide the electrical and plumbing runs.

All of the exposed wiring is metallic-sheathed cable and the outlets and switches are surface-mounted in metal boxes. This makes it easy to move and add outlets and switches. Most of the plumbing is hidden in closets or in the second-floor storage space behind the knee wall, which means that it is all easily accessible.

Both the plumber and electrician were helpful, creative, and neat with their work. In one particular case, the plumber took the time to bore a hole through the plates for a vent pipe that typically would



The walls and roof have a **VENTED RAINSCREEN** assembly, providing $\frac{3}{4}$ in. of air space behind the siding and roofing, which protects the control layers from damaging UV light.

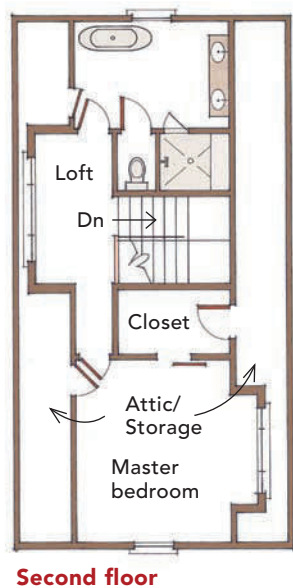
The reflective **METAL SIDING**, air gap, and foil-faced insulation also act as a radiant barrier to minimize radiant heat gain in the hot Texas climate.

SCHOOLHOUSE SIMPLE

The home's footprint was restricted by two things: protected old-growth pecan trees and the homeowner's goal of simplicity. Modeled after traditional Texas schoolhouses, the home is essentially a rectangle with only a small bump-out in the back for a little extra kitchen and mudroom space. The first floor is open, mostly public space with the option of a second bedroom. Upstairs is a master suite.

Keeping it honest.

Even the stairs, built-ins, and bookshelves are built with framing material. The steel balustrade and handrail was custom designed and fabricated by Risinger's crew using off-the-shelf components from a metal supply yard.



SPECS

- Bedrooms:** 2
- Bathrooms:** 2
- Size:** 1,450 sq. ft.
- Completed:** 2014
- Location:** Austin, Texas
- Architect:** Eric Rauser, AIA, rauserdesign.com
- Builder:** Risinger & Co., risingerhomes.com

North

0 2 4 8 ft.



A beam and a bump-out. The kitchen is nestled into a nook, defined by one of only two engineered beams in the house. In the roof behind the beam are skylights that bring sunlight to the work surfaces. The cabinetry is from Ikea.

have been notched into the front edge. This subtle difference, which left just a fraction of an inch of the face of the plate intact, made a big difference in appearance.

After living in the house for some time, Greg decided that he wanted to move the tub filler, which took us only a couple of hours since the supply lines are accessible without removing any finished surface. The only carpentry was to bore a new hole and repair the old hole in the bathroom's paneling. We assume that the kitchen, which is tucked into a bump-out, can be completely remodeled in just a day or two.

Separate systems

Our mechanical designer, Kristof Irwin, says that houses are like boats: the more leaks you have, the bigger bilge pump you need. This house has few leaks, so it didn't need a very big mechanical system. In fact, we used separate systems for heating and cooling, ventilation, and humidification.

The house has a single minisplit compressor with three interior units. To counter the stack effect, we installed a return register in the second-floor bathroom with a fan that sends warmer air back down to the first-floor utility room. An ERV replaces indoor air with fresh air from outside. Lastly, we installed a dehumidifier under the stairs, because in our humid climate it's important to be able to control temperature and relative humidity separately.

Because of their simplicity and accessibility, the mechanicals, like the plumbing and electrical systems, will be easy to update over time and as technology advances. That is one of the three keys to longevity that we applied to this project while using the most advanced building science available: Make it durable by protecting the structure, make it adaptable so it doesn't get torn apart or torn down, and keep it simple so it is easy to upgrade as we learn more about buildings and develop more efficient mechanical systems. □

Industrial candor.

The black-and-white bath is as revealing as the rest of the house with utilitarian porcelain light fixtures, wall-mounted faucets, exposed P-traps, standard pipe fittings fashioned into vanity legs and towel racks, and a Durcon epoxy-resin countertop meant for science labs.





AFTER

Colonial

Transformation



BEFORE

BEST REMODEL

Our 2017 Best Remodel Award goes to Mark Larson and Kari Nelson of Rehkamp Larson Architects. The Minneapolis team skillfully turned a ubiquitous and outdated colonial home into something fresh and timeless with updated finishes, inviting spaces, better flow, and a stronger connection to the beautiful backyard that had long been disengaged from the interior.





Improved flow, more natural light, and a connection to the outdoors modernize a creekside Minnesota home

BY ANATOLE BURKIN

All too often, older homes have weathered multiple renovations, leaving them clunky in appearance and congested in flow. These were the issues facing Dave and Kara Walter, the owners of a dated colonial home in Edina, Minnesota. The house was fragmented—too many doorways and multiple level changes impeded flow. Plus, there were missed opportunities. For example, the house’s design pinched the gorgeous views of its creekside setting.

Architects Mark Larson and Kari Nelson of Rehkamp Larson Architects were hired to address the shortcomings. The homeowners wanted to smooth over the rough edges, open up the transitions between living spaces, add extra room to accommodate their three children, and better integrate the home with its surroundings. “Our goal was to put together a thoughtful design to make the most of the bones and form of the existing house and reconnect it to the beautiful site,” said Larson. The planned improvements would offer more daylight, better views of the creek, additional space where needed for circulation and function, and an overall refresh.

Better connections, inside and out

Larson knew it was most important to reduce the sense of disconnection between rooms, levels, and outdoor space caused by narrow doorways and multiple levels added in previous remodels. This turned out to be an extensive refresh. On the exterior, Larson and Nelson replaced all the windows and siding, reworked the outdoor patio in the front yard, and added a new terrace on the back of the house. Inside, they gutted and reorganized about 80% of the home, making use of existing square footage and adding as needed.

The most significant floor-plan change was establishing the kitchen as the center of the house. This was done by expanding it toward the creek; opening it to the living room, family room, and front hall; and connecting it to the deck.

The architects added about 130 sq. ft. to the kitchen and dining room, providing space for a proper island and the ability to rotate the dining table for better views and improved circulation. The lower level gained about 350 sq. ft. of room.

The architects modified level changes in the house in many locations and in different ways depending on the situation. On the main floor, they reduced level changes between the living room, family room, and kitchen by raising the floor of the family room. On the upper level, they relocated the stairs to the master bedroom around the corner, providing a better sense of privacy from the hallway. They also eliminated the



step down into the side bedroom, making this room feel more connected to the upper hall. They added steps to the exterior, easing circulation and more directly connecting the house, deck, and patio to the backyard.

To improve flow, Larson and Nelson made openings throughout the house wider and/or taller and in some cases added new openings where there had previously been none. They widened, raised, and then trimmed the opening between the front hall and the living room to feel native to the original house. They also widened family-room doorways connecting to the kitchen and living room and added a new opening and stair between the kitchen and the living room. In one case, they removed a wall between the kitchen and the front hall entirely.

Natural lighting received a lot of attention too. The team added windows on all three levels of the house, providing additional daylight and improved views of the site, especially in the living room and master bedroom.

The builder's challenges

Expanding interior spaces in an existing home usually requires new bearing walls, and this project was no exception. Nathan Christenson of Dovetail Renovation was hired to bring the drawings to life.

"The biggest structural challenge was supporting the second level above the kitchen while we replaced the bearing wall beneath with a large steel beam," said Christenson.

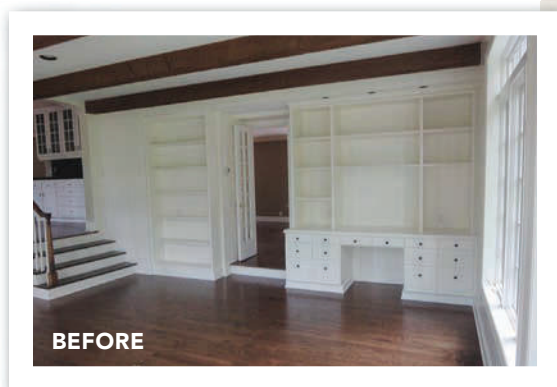
The site presented logistical challenges as well. Extending the kitchen and dining room



SAME ROOMS

BETTER FLOW

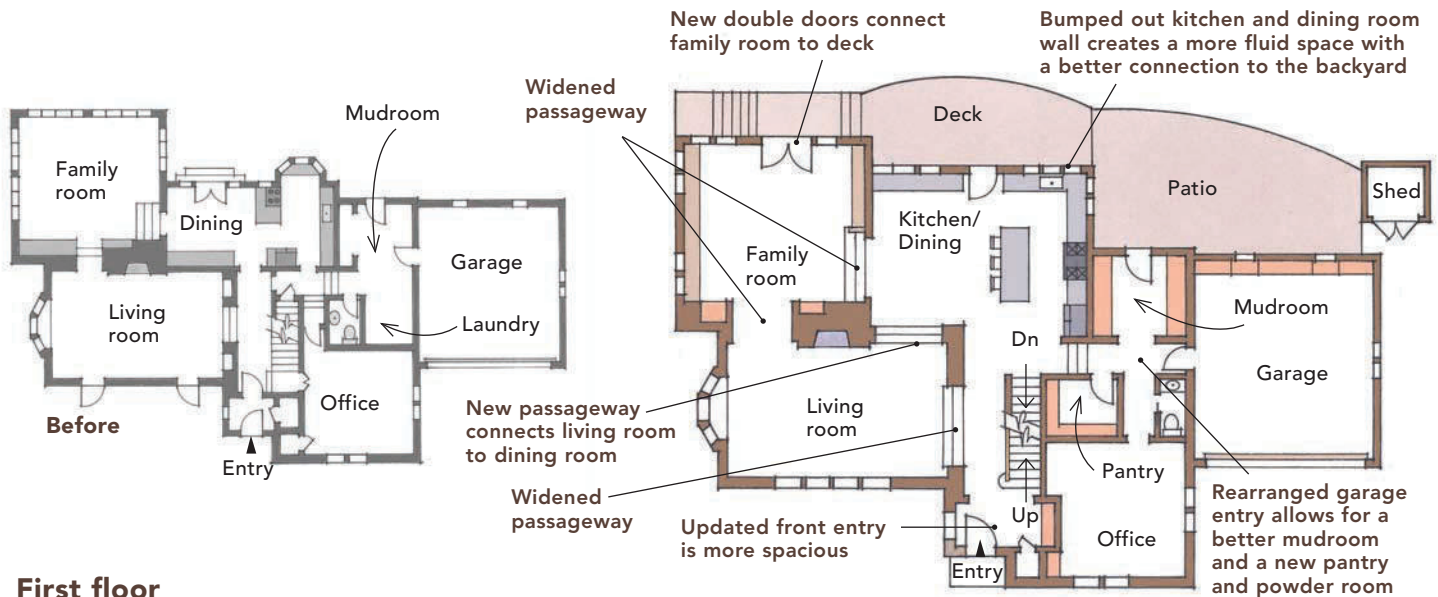
The enhanced connection between the family room and dining room shows how widened passageways eliminate congestion and improve sightlines. The raised family-room floor minimizes the height of the transition and the wide and deep stair treads also smooth the impact of the change in level. This was the theme throughout the remodel: Small renovations and additions improve flow, views, privacy, and function.



BEFORE

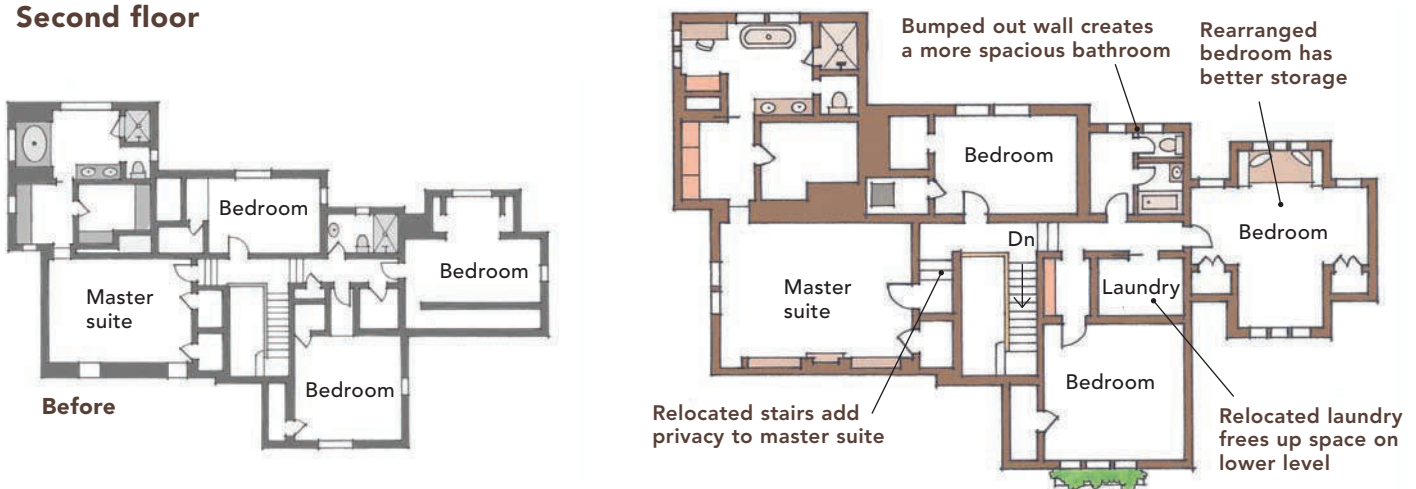
Natural light abounds. An enlarged paneled passageway between the family room and living room allows natural light to flow freely between the spaces where new and larger windows were added. The new built-ins are updated in style, but still in keeping with the existing character of the home.





First floor

Second floor



Note: New lower level not shown.

0 4 8 16 ft. North

SPECS

Bedrooms: 5

Bathrooms: 3½

Size before remodel: 3,700 sq. ft.

Size of remodeled space: 4,800 sq. ft.

Completed: 2015

Location: Edina, Minn.

Architect: Mark Larson, AIA, and Kari Nelson, AIA, Rehkamp Larson Architects, rehkamplarson.com

Builder: Dovetail Renovation, dovetailrenovation.com

Interior design: Martha Dayton Design, marthadaytondesign.com

Landscape design: DIG Garden Design, diggardendesign.com



Kitchen transition. Bumping out the kitchen's exterior wall gave extra space to improve the function and flow of the kitchen. Its transitional style blends traditional and modern elements, while the large corner windows enhance the views.

toward the creek required Christenson's team to do some extensive excavation on the back side of the house. The space they had to work in was extremely tight. The path to the backyard was just big enough to drive a small excavator through.

"We had to back ourselves out from digging the basement game room in order to keep our excavator from falling into the creek," said Christenson.

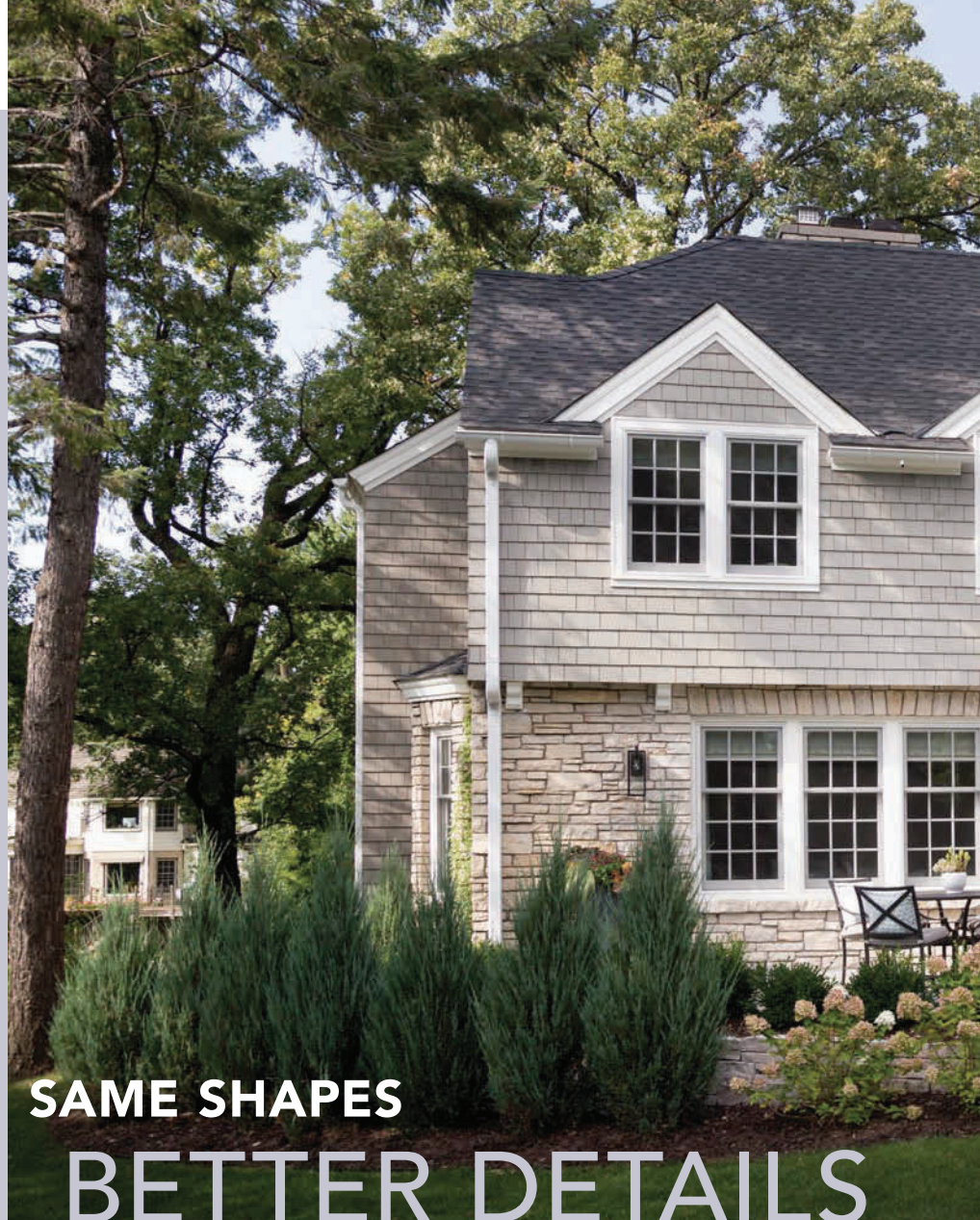
Modern touches in a classic home

Martha Dayton was charged with completing the transition from an improved house to an inviting home. The Minneapolis interior designer and her co-designer, Kelly Perry, kept the style of the house true to the original character and updated the finishes while remaining sensitive to the age of the home. The house is now elegant and rich with texture while still being a space where three young children can feel comfortable. Dayton and Perry designed spaces for the kids specifically and spaces for the family as a whole, which was extremely important to the owners. They used mostly cool colors balanced by the warmth of the wood floors and the textures in the fabrics.

The dining room is an example of the designers' practical yet elegant approach to decorating. It has a table that works for everyday use with stylish wishbone chairs and a spectacular Ochre light fixture that gives the room its personality. According to Dayton, the living room is the most formal space of the house while still being quite casual. The blend of textures makes the room elegant yet livable. The colors and patterns are subtle, but there's plenty there for the eye to take in. "It's well-appointed but also quite curated at the same time," she said.

In the end, the effort and teamwork proved satisfying for everyone involved in the remodel. The house was skillfully transformed through architectural and interior design from a dated colonial to a visually clean, contemporary form. The many levels within the house were minimized and sometimes removed to establish a continuous feeling from room to room. Even though there are still multiple levels throughout the house, they define the rooms in a more satisfying way than the original floor plan. □

Anatole Burkin is a freelance writer in Santa Rosa, Calif. Photos by Steve Henke, unless otherwise noted.



When a house's size and shape is already determined, remodeling is often about adjusting the massing to have better scale and proportions. In this case, the architects modified the size of windows and trim, added or changed roof lines, and updated materials to improve the design. They made some effective changes to the landscape, too. These design strategies transformed this bland and outdated colonial into a fresh, charming home.





Playing with proportions. New, larger windows rebalance the street-facing elevation, which seemed to lack proportion before the remodel. Doubling up the dormer windows demanded larger dormer roofs, which minimize the mass of the main roof. Extending the gable roof makes the larger triple-window arrangement feel natural and offers shelter at the front door where a hefty bracket grounds the overhang.



Scale and siding. The entire building was re-sided with cedar shakes. The smaller exposure of the siding makes the large home seem more in scale with its surroundings. Roofs added to the entries also break up the tall elevation while upgraded and additional windows capture light and views. The retaining wall and multilevel deck form a smoother connection to the backyard and provide an opportunity for an indoor space below that will be used as a playroom for the kids.

A LEED House on

An architect designs a right-sized, certified Platinum home on a challenging building lot in British Columbia

BY JAMES TUER

There is truth to the saying that architects are only as good as their clients. The best clients challenge you. They are inspired and informed. Their projects have limitations, yet they're not willing to settle for anything less than a house that truly reflects their lifestyle and their values. Lauren and Kevin were these kinds of clients. They came to me with a clear vision: to build a house that would lead the way in sustainable design and construction in the rock-climbing mecca of Squamish, British Columbia. Lauren and Kevin wanted to demonstrate that it is possible to build a healthy, efficient, and comfortable family home that isn't any larger than necessary, and to do it without sacrificing functionality.

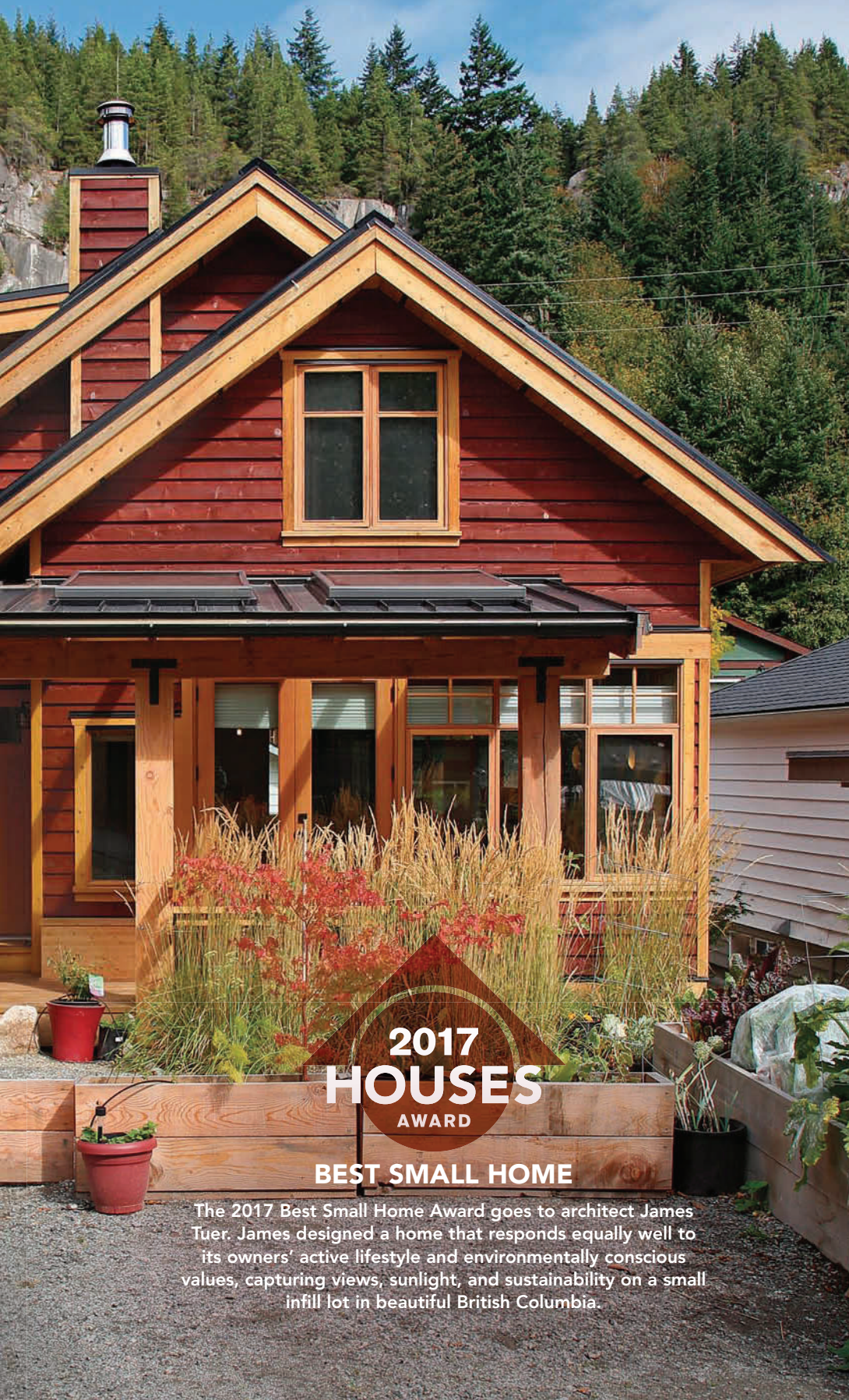
From our first meeting, Lauren and Kevin had a list of must-haves for their project. Their list included a bedroom and full bath on the first floor, two additional bedrooms, space for a home office, storage for their climbing gear, a sociable front porch, and a generous garden to grow their own food. Lauren and Kevin were well-versed in the small house movement, so they knew that with good design, their must-haves were all possible. Healthy indoor air quality was also non-negotiable. They specifically did not want any materials that would off-gas or contaminate their house with allergens or pollutants. Perhaps surprisingly, renewable energy wasn't on the list (this is a relatively low-tech home).

When we met, Lauren and Kevin had already purchased a 33-ft. by 120-ft. lot with a grassy laneway in the back and a wonderful view of Penny Lane, one of Squamish's choice rock-climbing routes. It was an infill lot between two existing homes with a bus stop directly in front (both would offer us points toward LEED cer-

A twist on tradition. Like the front porch on so many homes, this outdoor space is meant to be inviting, charming, and cozy, but not at the expense of daylighting and warming the house. For this reason, the porch roof was kept back from the corner windows and has two large skylights that allow light to reach the living room inside.



a Small Lot



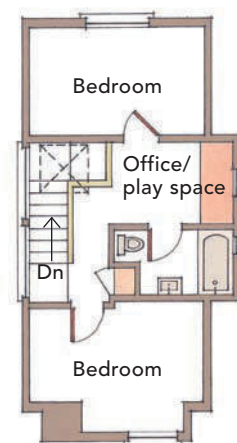
**2017
HOUSES
AWARD**

BEST SMALL HOME

The 2017 Best Small Home Award goes to architect James Tuer. James designed a home that responds equally well to its owners' active lifestyle and environmentally conscious values, capturing views, sunlight, and sustainability on a small infill lot in beautiful British Columbia.

THE POTENTIAL FOR SINGLE-FLOOR LIVING

There are a few key principles to making a small home work. One is to keep the spaces as open as possible, and another is to extend the indoor spaces to the outdoors. This home has an open living area on the first floor, with the living room connected to the front porch and the kitchen connected to the back deck. With a bedroom, full bath, and laundry also on the first floor, the home is designed for the possibility of single-floor living. Upstairs are two additional bedrooms and another full bath, plus open spaces to be used as a play space or home office.



Second floor



First floor

0 2 4 8 ft.



A HEALTHY ENTRANCE

The entry vestibule, with its floor mat and shoe rack, is an important part of a strategy for healthy indoor air quality by offering a place to leave contaminants at the door. Beyond the barn-style sliding door is a utility closet where the adventurous homeowners store their climbing, biking, and other outdoor gear. A single step down signals the entry into the living room, where the home's radiant heating system warms the stained concrete floors and the wood stove offers supplemental heating and ambience. At the beam separating the living and dining rooms, the ceiling finish changes to drywall, defining the space. Here, the bookcase stairway takes center stage.



tification, something we would later decide to pursue). Though Squamish frowns on small lots and theirs was 2 ft. short of the minimum width, we were able to apply for a hardship and managed to get a variance as the existing lot had sat vacant for years, waiting for the right people to recognize its value. Not only did we successfully manage to build a 1,200-sq.-ft. house on the site, the landscape plan includes container and in-ground gardens where Lauren and Kevin can grow their food (more LEED points).

The search for light and views

A big part of designing a house for an infill lot is creating privacy without completely turning away from sunlight and while still connecting to the outdoors. This was particularly important here, in one of the most



scenic cities in Canada. In just about every direction there is either a stunning rock face or a distant mountain peak. Though this house is quite traditional at a glance, there are some subtle nontraditional details that make it work with its surroundings.

Though Lauren and Kevin wanted a quintessential front porch, the house faces south, so the front is where it would get the most sunlight to the interior and have the most solar heating potential. We decided to cut the porch roof short of the full width of the house and invite light into the living room with a large corner window. We also put skylights in the porch roof to light the porch itself and to let in more sun to reach and warm the concrete floors inside.

Inside the front door, where the stair would typically be located in a house like this, we

put a utility closet. The closet is used to store rock-climbing gear, mountain bikes, and outerwear. The utility closet also serves a second purpose as a space for some of the home's mechanical equipment.

In turn, we located the stair off the kitchen and it became the focal point of the interior. The L-shaped Douglas-fir stair has a sculptural quality with its extra-stout treads, newels, balusters, and built-in shelves beneath the stringers. But these bookshelves are more than decorative—they provide needed storage. Lit from above by a skylight and dormer windows, the stair landing provides a warm perch for sitting and viewing activity in the kitchen from above.

Though the kitchen wall directly faces a neighbor's house, we incorporated long, horizontal windows along the kitchen counter to illuminate the work surface with natural light while still maintaining privacy.

Upstairs, the second-floor hallway wraps around the stair and includes a central nook that can be used for a home office or a play area for kids. On both the east- and west-facing roofs, dormers provide light and mountain views as well as headroom in the bath. Under the gables on the south- and east-facing walls are the two additional bedrooms. At the eaves, attic space is used for mechanicals and more storage.

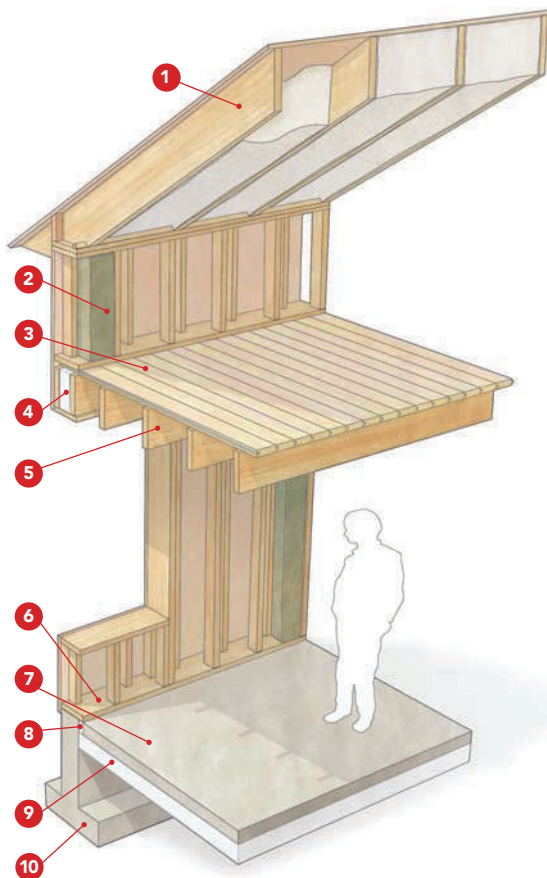
Going for Gold, achieving Platinum

From our first meeting, Lauren and Kevin set the bar high with a demanding program for this project. When builder Ray Dierolf joined the team and saw what we were hoping to achieve, he suggested that we consider pursuing LEED certification. We all agreed that it would be nice to have the house recognized and the homeowners liked the idea that the program would help us consider everything that could make the house more efficient, healthy, and sustainable. We decided to go for it, setting the LEED for Homes Gold rating as our goal. In the end, we exceeded our expectations and achieved a Platinum rating for the finished project.

Much of the criteria for LEED certification includes things that I would do on any project, but the guidelines sharpened our focus on energy-efficient construction and healthy materials. We chose to frame the house with staggered-stud walls: 2x10 plates with alternating 2x4 studs, every other stud either set to the inside or outside face of the plates to mitigate thermal bridging. We also insulated

TWO WALLS SHARE A PLATE

Staggered-stud walls are a less common cousin of double-stud walls—both create space for continuous insulation that prevents heat loss through the studs (thermal bridging). Instead of building two separate walls with the studs aligned, however, here the 2x4 studs are staggered every 8 in. on the 2x10 plates, either to the inside or outside face of the plates. In this way, much of the wall has a full 9¼ in. of mineral-wool insulation and even at the studs there is 5¾ in. of continuous insulation and no thermal bridge.



1 2x12 rafters insulated with closed-cell spray foam (unvented roof assembly; approx R-41)

2 Mineral-wool batt insulation (approx. R-37)

3 Tongue-and-groove Douglas-fir floor and finished ceiling

4 Insulated header

5 Exposed Douglas-fir floor framing

6 2x10 top and bottom plates

7 Finished concrete slab with tubing for radiant heat

8 2 in. of EPS rigid insulation creates a thermal break between the slab and stem wall (approx. R-8)

9 6 in. of EPS rigid insulation (approx. R-24)

10 Frost-depth footing

Simple and private. The kitchen is arranged in a simple work triangle. Between the upper and lower fir cabinets, counter-height windows light the work surface during the day while maintaining privacy from the nearby neighbors. Undercabinet lighting can be switched on when needed. A tall and thin Euro-style fridge makes sense in the small home.



the wall cavities with mineral-wool batts—a natural alternative to fiberglass insulation.

Once we had determined to build the house on a slab, we decided to use radiant heat and planned the mechanicals around this in-floor delivery system. There are three components to the house's simple mechanical system: an air-to-water heat pump, an on-demand electric water heater, and a heat-recovery ventilator (HRV). The heat pump also preheats the water heater supply. The HRV completely exchanges the home's air every four hours, preheating the incoming air to reduce energy loss. These and other energy-efficiency measures landed us in the "Exceptional Energy Performance" category as we calculated LEED points.

We used daylighting strategies to reduce the electric loads while the sun is up and LED light fixtures throughout the house for the times of day when sunlight isn't available. The house is outfitted with water-efficient plumbing fixtures, though gaining points in this category meant verifying that Canadian

fixtures, rated in liters per minute, met LEED's gallon-per-minute requirements.

Not only did the building site offer LEED points for being an existing infill lot near public transport, but we gained points for not being in a flood plain, wetland, or environmentally sensitive area, and for being close to community resources. We earned points for a landscape plan that includes food production, drought-tolerant plantings, and permeable surfaces. We also gained points based on third-party verification of the home's durability and ventilation strategies. Other efforts to keep indoor air quality healthy—some as simple as designing a place to leave shoes at the door—also led to our Platinum rating.

But the real secret to sustainability is realizing that great things come in small packages. At 1,200 sq. ft., there is simply less home to consume resources and energy.

The talk of the town

I have a friend who has been working and living in and around Squamish since the '50s.

He says, "If you want to do something different, do something well." That was our mantra for this project. In fact, the most unique aspect of this house is how simple and traditional it looks from the outside.

Located less than a few miles away is a subdivision filled with dozens of sleek, new modern homes, yet somehow our simple and honest home has been the talk of the town and has been visited by hundreds of people during a few home tours we've been honored to be involved in.

It's always worth reflecting on completed work, but when looking back on this project, it's hard to say what we might have done differently. If I were to change anything during the process, it would be to spend more time encouraging the local planners to really rethink the suburban design standards and encourage more small homes. But I'll let the house itself speak to that issue. □

James Tuer, AIA, MAIBC, LEEDap, is an architect on Bowen Island, B.C.

SPECS

Bedrooms: 3

Bathrooms: 3

Size: 1,200 sq. ft.

Completed: 2014

Location: Squamish, B.C.

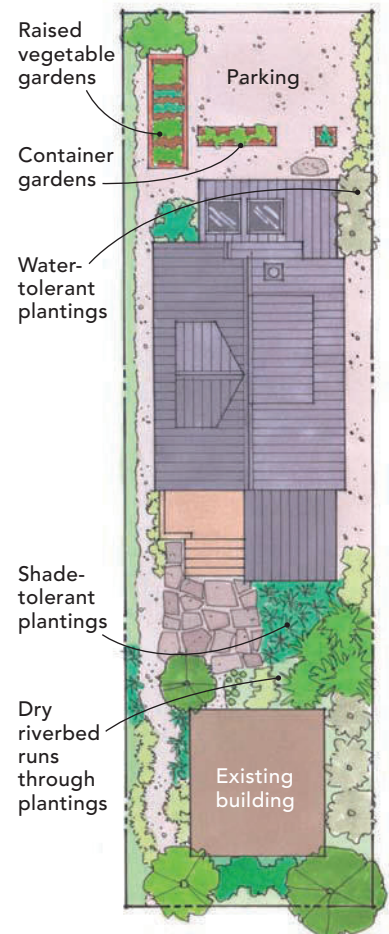
Cost: \$312 per sq. ft.

Architect: James Tuer, JWT Architecture, jwtarchitecture.com

Builder: Ray Dierolf, Westerncraft Contracting, westerncraftcontracting.ca

PURPOSEFULLY PLANNED PROPERTY

At 33 ft. by 120 ft., not only is the property small, but the back of the lot also has an existing building that the homeowners wanted to keep. This pushed the house to the front setback, leaving just enough space for raised vegetable beds and parking in the front yard and a small patio and gardens in the back. Drainage is directed into a dry riverbed that traverses the backyard, which is packed with shade-tolerant native plantings. Where the site has sun, the architect chose water-smart perennials and ornamental grasses. The native and drought-tolerant plants, permeable surfaces, and dedicated places for food production earned points towards the LEED Platinum certification.





Federal Farmhouse

A Vermont architect uses the state's energy-efficiency guidelines to craft a new zero-energy home steeped in traditional character

BY R. ANDREW GARTHWAITE

Doug and Joan called my firm in late January 2014 to explain that they had purchased property with a beautiful view and a 1950s ranch that was in terrible condition. A young professional couple who enjoys outdoor activities, they planned to remove the existing house and build a new family home. They had several goals that influenced our design work as well as the construction process. At the top of the list was a traditional exterior—a Federal-style farmhouse that would fit comfortably into its country-road setting. They also sought a compact footprint and energy-efficient performance, and they knew they wanted as few petroleum products as possible used in the con-

struction and functioning of the house. They wanted a house that would be straightforward to maintain, with an open plan for the main living space.

It seems to me that for the last several years, high-performance homes have been developing an identifiable style that leans toward the clean lines and minimal details of modern architecture. With this project, we were able to redefine what's possible when it comes to the appearance of a superefficient home. Specifically, we showed that a home built with today's best practices that meets perhaps the most important level of energy performance—net-zero energy consumption—can have authentic, period-appropriate character.



BEST TRADITIONAL HOME

Our 2017 award for Best Traditional Home goes to R. Andrew Garthwaite of Haynes & Garthwaite Architects. This Federal-style home is architecturally on point in Vermont's historic landscape and generates more energy than it needs, allowing the homeowners to share the surplus with family living nearby.

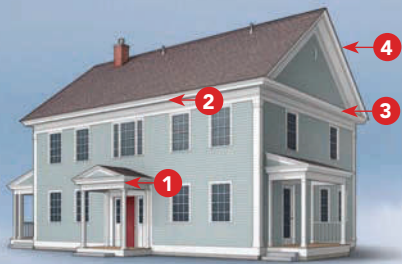


The site that Doug and Joan bought could not have been a better place for a sustainable, energy-efficient house. Not only is it environmentally and economically advantageous to build on an already developed site, but the excavator even found someone to repurpose the existing house as a hunting camp.

With beautiful views to the south and east and the road to the north, we were able to set the house along an east-west axis so the south-facing roof would receive maximum solar collection but the photovoltaic panels would be hidden from almost every public view. In this way, the street-facing elevation is all traditional Vermont farmhouse. Fortunately, many of the hallmarks of traditional architecture com-

plement sustainable and energy-efficient design. The simple shapes lend themselves to effective air-sealing and insulation details.

As long as a project's efficiency goals and the necessary details are included from the beginning, they will survive the processes of design, budgeting, and construction. In other words, sustainability and efficiency cannot be add-ons or upgrades; they must be integrated from the start. And of course, modern building materials make both style and efficiency much easier to achieve. For example, double-hung windows are the tradition in Vermont, but triple-glazed double-hung units are still somewhat scarce and expensive. We installed triple-pane casement units from Kohltech—

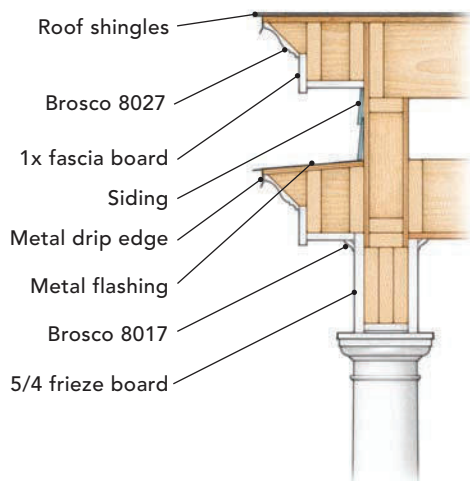


TRADITIONAL IN DETAIL

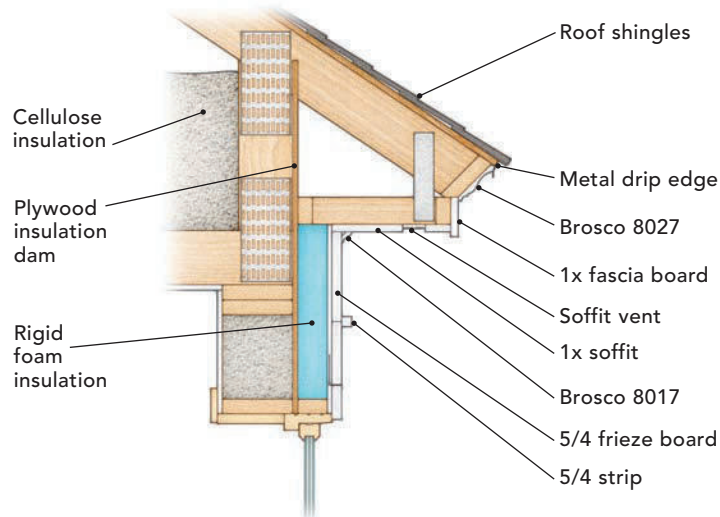
The Federal-style trim around the rooflines is a hallmark of the Vermont farmhouse vernacular. Executed with a combination of common building materials and stock moldings from Brosco, these details are more attainable than ever.



1 FRONT-PORCH ROOF TRIM



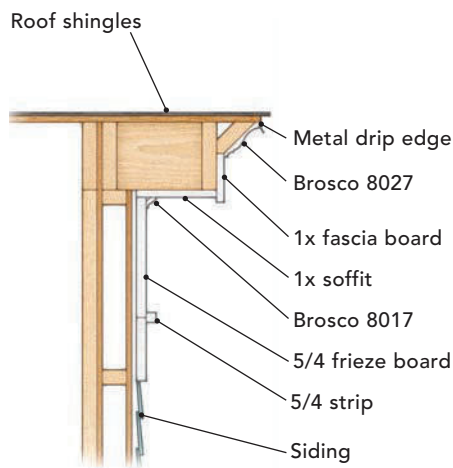
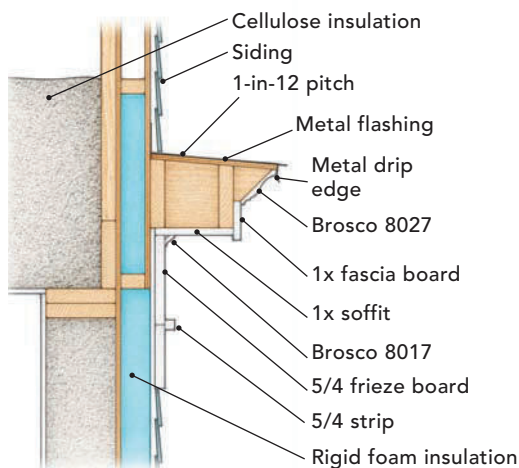
2 EAVE TRIM





3 GABLE EAVE EXTENSION

4 RAKE TRIM



which in general perform better than double-hung windows anyway—with a meeting rail that simulates the look of double-hung windows.

We also employed a broad definition of the term *sustainable*. The locally harvested lumber, trim, and wood-flooring materials; the Vermont slate tile; and the granite counters were selected not only for their character and connection to the site, but to support the local economy as well. We also considered the energy used in the construction and functioning of the house, the comfort and health of the occupants, the house's resilience to storms, and the need to create a durable home.

Help from the state

We are fortunate in Vermont to have a state-mandated organization that helps designers, builders, and homeowners achieve sustainable energy solutions. Efficiency Vermont has done extensive research to learn which sustainable design strategies and systems work best in our climate. Its High Performance Homes program sets minimum insulation and maximum air-leakage levels, as well as requirements for a number of other key components.

The Efficiency Vermont staff reviewed our schematic design and specifications and confirmed that we were on track to achieve net zero. They also provided advice throughout the process on systems and construction details. Projects that meet the High Performance Home designation are entitled to rebates. In our estimation, however, the rebates are not large enough to be a great factor when making decisions.

To heat and cool the house, we used two highly efficient electric air-source minisplit heat pumps from Mitsubishi that are rated to operate in temperatures as low as -13°F. In a radical shift from normal approaches to heating and cooling, there is no heat in the bedrooms and bathrooms. With high levels of insulation and triple-glazed windows, the interior surfaces stay warm enough to keep the radiant surface temperatures comfortable. Even on the coldest winter nights, the two small electric-resistance heaters that we installed to supplement the minisplit

IN SEARCH OF THE VIEW

The house's open living space is not the only break from tradition. The look of double-hung windows is implied with a faux meeting rail in these large casement windows. The deep window wells are the result of 3 in. of insulation on the outside of the walls. Still, the light fixtures and the Shaker-style cabinetry, wood flooring, and simple baseboard and casings add historic character.



heat pumps rarely come on. In the end, the house is powered entirely by electricity, with a heat-pump water heater, electrical appliances, and all-LED lighting.

Through Efficiency Vermont, we found Build Equinox, the company that developed the CERV—Conditioning Energy Recovery Ventilator. This refinement of the ERV provides fresh air from outside, circulates air within the house to maintain even temperature and humidity levels, monitors indoor air for key pollutants, and even has a small heater to temper the incoming fresh air.

Energy to spare

Although Karl Johnston had not yet built a net-zero-energy home, his reputation as a careful and thoughtful builder led us to choose him for this project. The owners also engaged Brent Mellen of Building Energy,

a local insulation and energy-efficiency consulting company.

Achieving the air-barrier continuity over the transitions in materials and construction types was one of our significant challenges, and Brent was a big help in identifying practical strategies. For example, the underslab vapor barrier was lapped onto and taped to the foundation wall. Then at the top of the wall, a piece of poly sheeting was taped to the inside of the foundation, lapped over the top of the foundation, and taped to the plywood sheathing after the walls had been built. Thus, complete air-barrier continuity was achieved from below the slab to the top of the wall, with the second-floor ceiling providing the final link.

The weakest part of our air-sealing system is the woodstove. The owners loved the woodstove at their previous house, and it was

important to them to include one. We were able to provide sealed combustion air to the firebox and decent air-sealing of the flue. In the end, the new house is so comfortable even in the depths of winter that Doug and Joan use the woodstove infrequently.

There were three blower-door tests. The first—a preinsulation test—was the most critical. We met our goal of less than 1 ACH50 at this early stage, and the two subsequent tests confirmed that we maintained our target as construction progressed.

In many ways, this house has functioned better than we all expected. It is warm, quiet, comfortable, and easy to operate. When the 9kw solar array was installed on the south-facing roof, the electric production resulted in an annual net surplus. Doug and Joan have been able to assign the excess power to family members living nearby. One les-

SPECS

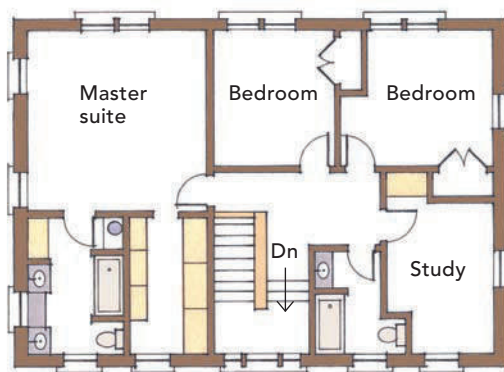
Bedrooms: 3 **Bathrooms:** 3 **Size:** 2,240 sq. ft. **Completed:** 2014 **Location:** Connecticut River Valley of Vermont **Builder:** K.D. Johnston, Inc.
Architect: R. Andrew Garthwaite, AIA, hgarchitects.com **Energy consultant:** Brent Mellen, Building Energy, buildingenergyvt.com



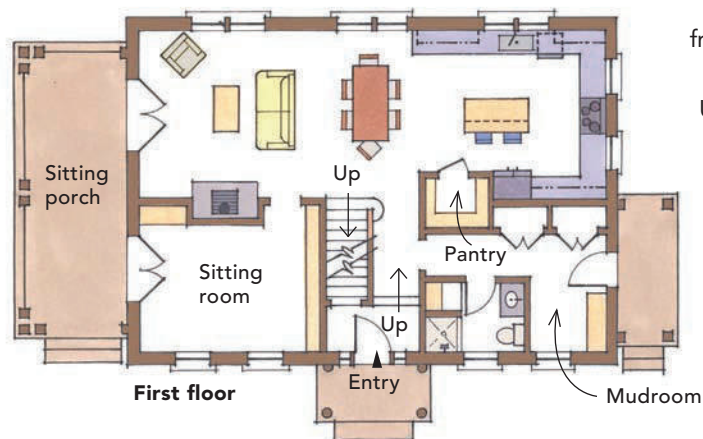
son we learned is that during our cold winter's climate, it is best to turn the heat-pump water heater to standard electric-resistance heating; otherwise, it cools the basement.

Doug and Joan moved into the house in mid-November, just in time for the harshest winter we've had in many years. Shortly after they moved in, a severe overnight windstorm swept through the valley. Winds in excess of 60 mph blew shingles off the garage roof, but the house was so quiet that Doug and Joan didn't even realize that there had been a storm until the next morning. Every time the temperature hit a new low, I would email them to see how the house was doing. Every time, they replied that the house was warm and working as they had hoped. And with all the south-facing windows, sunny days are particularly pleasant, they said. □

R. Andrew Garthwaite, AIA, is principal at Haynes & Garthwaite Architects in Norwich, Vt. Photos by GBH Photography (gbhphotography.com).



Second floor



First floor

0 4 8 16 ft.

North
▼

The entries, stair, mudroom, and sitting room are located on the north side of the house to buffer the living spaces from the road. The kitchen, dining, and living area runs along the south side of the house, and the sitting porch faces east across the valley.

All of these spaces have views that span from the adjacent field to distant mountains. Upstairs is an efficient arrangement of a master suite, two additional bedrooms, and a shared bath with a study to boot.

Net-Positive in

This new home blends the nostalgia of a traditional Massachusetts



When their family outgrew the cozy 1850s home they had meticulously renovated, Mark and Pilar Doughty were faced with the choice of buying and renovating a roomier historic house or building a new home. They felt that energy efficiency, comfort, and environmental responsibility were essential requirements, and after a few years of house hunting and number crunching it became clear that building a new custom home would be the smartest way to get everything their family needed and wanted.

Renovating and living in an old New England farmhouse prepared the Doughtys for planning their ideal home, but it was still a daunting task. Fortunately, as president of Thoughtforms, a cutting-edge custom home builder in the Boston area, Mark had experience managing the construction of many energy-efficient homes—but he had never been involved with a build this modest, nor one this personal. To make their dream home a reality, the Doughtys enlisted the help of like-minded architecture firm ZeroEnergy Design (ZED). Mark had met the design team at ZED years ago, but hadn't found an

New England

farmhouse with the needs of a 21st-century family

BY ROB WOTZAK



BEST ENERGY- SMART HOME

Our 2017 Best Energy-Smart Home Award goes to Mark Doughty of Thoughtforms and Stephanie Horowitz and the team at ZeroEnergy Designs for an update on the farmhouse style that meets the needs of a modern family and produces enough energy to warrant a monthly check from the electric company or to power an electric car.

opportunity to work with them until now. "We were impressed with their passion, their integrated architecture and engineering, and their commitment to sustainable design," Mark remembers. ZED managing director Stephanie Horowitz felt that Mark and Pilar were ideal clients because they brought with them an extensive knowledge of houses, but were honest about the limits of their own expertise.

The design team used an iterative approach to create a plan that matched the way the Doughtys wanted to live in their home. Stephanie noted that it's common for ZED to alternate between try-

ing to tease out what a client is looking for and offering concepts they've had success with in past projects. Everyone spent a great deal of time discussing details such as how the family expected to move through the house and how they and their guests would interact within the various spaces. The resulting plan is a hybrid, reminiscent of the antique homes Mark and Pilar are so fond of, but with features added or omitted to better match their contemporary way of life.

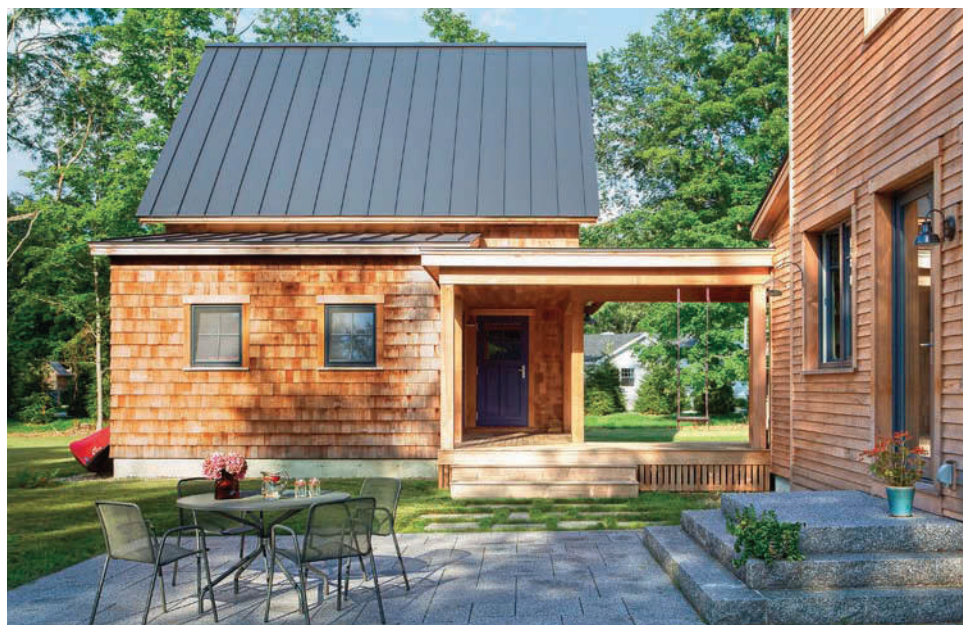
The Doughtys opted to make the mudroom their main entry, forgoing the formal front door common to nearly every old New



Outdoor connection. The detached garage encourages the homeowners to spend more time appreciating their natural surroundings. The breezeway serves multiple purposes: protecting the entrance from the elements, easing passage between the front yard and backyard, and providing a cozy spot for a porch swing. There is no front door; instead, the homeowners opted to have all exterior doors lead to their private outdoor spaces.

England home. Without the expense of the additional porch and door, Mark and Pilar felt comfortable splurging for a Belgian bluestone mudroom floor, which appealed to them for its durability, its rugged good looks, and its ability to hide dirt tracked in on the kids' sneakers. The rest of the main floors are rustic white oak, complete with knots and country charm.

The mudroom opens into the bright main floor, leading to a compact office alcove on the right, the kitchen and dining area on the left, and straight into the living room through the center of the house. Activities in the living room can overflow into a multi-purpose away room on the far side of the house—but slide a pair of pocket doors closed and the away room, along with its



adjacent full bathroom, becomes a private guest suite.

Even though it's nestled into one corner of the first floor, the kitchen and its accompanying dining area is the heart of the home. It's also one of the brightest and cheeriest rooms, with a row of extra-large corner windows making it feel almost as though you're sitting outside. Shaker-style cherry cabinets add warmth to the room and are a nod to the

nearly identical cabinets the Doughtys loved in their previous home.

The compact, interconnected first-floor plan allows the Doughtys and their children to be together and interact even when engaging in different activities. "The design has fully supported our daily routines and the values that we have around family, togetherness, and space," Pilar asserts. The second-floor plan is much more traditional. The

A GO-TO ASSEMBLY

For the team at ZeroEnergy Designs, this building assembly is a proven performer.

SPECS AT A GLANCE

PERFORMANCE

Energy use intensity:
-6.3 kBtu per sq. ft.
annually (net positive)

Air Leakage:
0.27 ACH50

SYSTEMS

Renewable energy:
13.8kw solar electric
system

**Air barrier under
slab:** 10-mil poly

**Air barrier at wall
and roof sheathing:**
Solitex Mento 1000
membrane taped with
Tescon Vana

Windows: Makrowin
MW88 wood triple-
pane tilt-turn windows
(U-0.15; SHGC 0.32)

Heating and cooling:
Mitsubishi
MXZ-8B48NA air-
source heat pump

Ventilation: Zehnder
ComfoAir 550 ERV

Hot Water: Stiebel
Eltron Accelera 300
heat-pump water
heater

R-69 roof construction

To achieve the high R-value of this roof, the assembly includes polyiso insulation above the roof deck and cellulose insulation in the rafter cavities. The metal standing-seam roofing is fastened to an additional 1/2-in. layer of plywood sheathing installed above the exterior rigid foam. Inside, the ceiling plasterboard is installed over 1x3 strapping and finished with no-VOC primer and paint.

R-44 wall construction

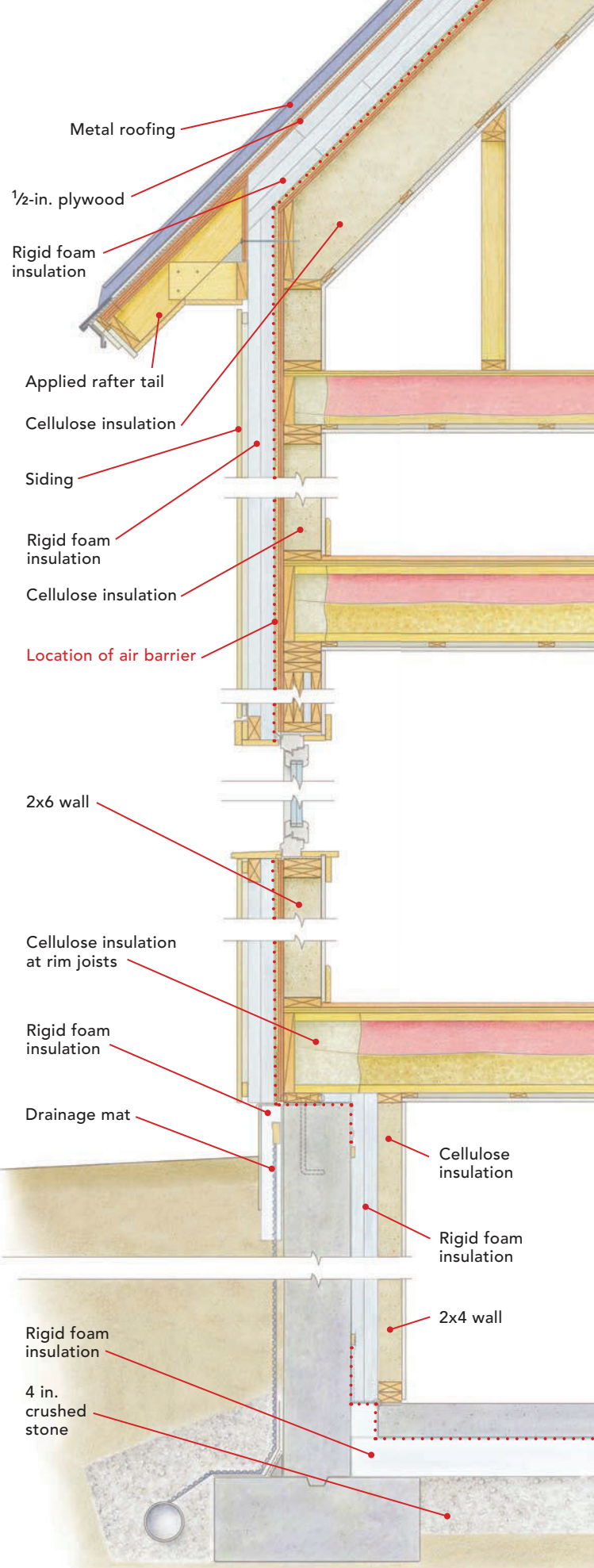
This wall assembly has 4 in. of foil-faced polyiso rigid insulation with staggered and taped seams outside. The exterior foam adds R-value and is used to minimize thermal bridging. The siding is fastened to 3/4-in. furring strips, creating a space for drainage and airflow. The interior walls are also finished with no-VOC primer and paint.

R-36 foundation wall construction

To keep the basement dry, the concrete wall has liquid-applied waterproofing and a drainage mat. The basement is insulated inside with 4 in. of foil-faced polyiso rigid insulation sealed to concrete and unfaced batt insulation in the wall cavities. The 5/8-in. moisture-resistant plasterboard is finished with no-VOC primer and paint.

R-26 slab construction

Air movement and vapor are controlled under the slab with 10-mil poly that wraps up at the slab edge and is tapped to the foundation wall. The slab is insulated with 6-in. EPS rigid insulation that wraps up the slab edge to break the thermal bridge.



THREE FLOORS, USED WELL

One of the homeowners' favorite features is the natural light that fills the entire house. The brightly lit kitchen is more than just the heart of the home—it's large triple-pane windows soak up heat on sunny winter days and let cool breezes blow through in warmer months. There is a small space between the stair and the wall to allow light to fill the first floor (photo far right).



two kids' rooms share a bathroom and all of the rooms—including the master suite—are modest in size by today's standards.

Head up one more flight of stairs and you'll find one of the family's favorite living spaces. Because of its openness and simplicity, the Doughtys find that they use the finished attic for any number of activities that don't have dedicated places elsewhere in the house. Pilar acknowledges the obvious use of the attic as a playroom, as a craft room, and as an extra sleeping space for guests, but she also says the attic hosts uncommon activities such as breakdancing and practicing Reiki.

Outside, there's a mix of traditional and uncommon ideas as well. The house and garage are both simple two-story structures with steep gable roofs and unfinished wood siding—details that are common to the New England vernacular. The barn-like detached garage, with its open breezeway leading to the house, evokes regional country homes from a time before automo-

biles and heated garages. But the Doughtys' primary reason for keeping the garage separate from the house is to encourage themselves to appreciate their natural surroundings every day.

There are two prominent exterior features that clearly diverge from the traditional aesthetic so prevalent throughout the house. The most apparent is the tidy array of solar panels that almost completely covers the front half of the roof. The second unusual feature is the bump-out, which flanks the right corner of the house. Though it does look similar to an enclosed porch, its large windows, its front-and-center location, and the bold asymmetry it adds to the façade are distinctly modern elements that ZED introduced to bring the entrance down in scale and to allow for more generous windows in the dining area.

Because of ZED's commitment to energy efficiency, their team always comes to the table with a list of performance specifications as non-negotiable items. Details like size,

layout, and finish materials can be adjusted, but not envelope details or HVAC systems.

Jordan Goldman, ZED engineering principal, pointed out that Thoughtforms typically builds much larger homes, so Mark and Pilar had purchasing connections not usually available for such a modest project. This, paired with ZED's capabilities for cost analysis and performance modeling, led to impressive energy efficiency.

ZED penned a time-tested building envelope that Jordan is comfortable calling a ZED standard assembly. It starts with conventional 2x6 framing. Dense-pack cellulose on the inside and two layers of 2-in. rigid foam on the outside make it superinsulated. The roof is similarly insulated, but with three layers of 2-in. foam and enough cellulose to fill the rafter bays. A meticulously sealed weather barrier helped the house become among the most airtight in the country, with a final air-leakage level of 0.27 ACH50.

Overall, the house performs better than anticipated, largely due to the Doughtys'

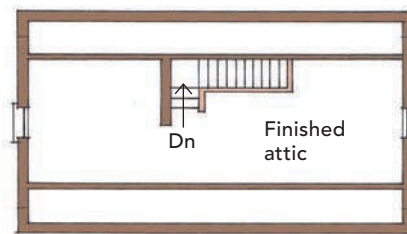


conscientious efforts to conserve energy. The 13.8kw photovoltaic array produces 50% more power than the family currently uses, which will allow enough capacity to charge an electric car in the future. In the meantime, Mark and Pilar are happy to collect a check from their utility company for the surplus energy.

The benefits are equally about comfort. "In our old 1850s house," Pilar recalls, "we were constantly pulling shades up and down to regulate cooling in the summer and wearing knit caps in the winter to stay warm without breaking the bank." The new house is always the right temperature.

And Mark pointed out one more pleasant surprise that's made him proud: During New England's historic Snowmageddon of 2015, there wasn't a single icicle hanging from the eaves. □

Rob Wotzak is a carpenter, blacksmith, artist, and freelance writer in New Milford, Conn. Photos by Chuck Choi.



Third floor



Second floor



First floor

SPECS

Bedrooms: 4

Bathrooms: 3

Size: 2,900 sq. ft.

Completed: 2014

Location: Lincoln, Mass.

Architect: Stephanie Horowitz,
ZeroEnergy Design, zeroenergy.com

Builder: Thoughtforms,
thoughtforms-corp.com

A Study in



2017 HOUSES AWARD

EDITOR'S CHOICE

The 2017 Editor's Choice Award goes to Design Build Bluff—the graduate architecture program at the University of Utah—for their Badger Springs house, a striking modern home that is sensitive to the traditions of its Navajo owners and the desert landscape. Designed and built by students on a shoestring budget, this home, like all Design Build Bluff projects, is the result of ingenuity and passion, and is as much a study in culture and social responsibility as it is a lesson in keen design.

Design/Build

BY BRIAN PONTOLILO

This new home for a Navajo family blends traditional values with modern details and materials

If you love to design and build homes, and if you'd like to make a positive impact on the world, then this article may make you want to give up your career and go back to school for a graduate degree in architecture at the University of Utah, where each year the students design and build a custom home for a family of the Navajo Nation. The result of the intensive two-semester course is an inspired new home that is sensitive to the lifestyle of the modern Navajo people and the desert climate of the Four Corners region. And with each year and each house, a class of graduate students is more prepared than most for a successful career in architecture.

Architect Hank Louis, inspired by Samuel Mockbee's Rural Studio at Auburn University, recognized the Navajo Nation as a client-of-need and in 2000 launched a similar hands-on architecture program for graduate students at the state university in Salt Lake City. In 2004, the program moved south to a small campus in Bluff, Utah, where Hank and a team of students completed their first project on Navajo land—Rosie Joe, a unique off-the-grid home with a butterfly roof supported by an ingenious metal exoskeleton (photo p. 67).

Since 2004, Design Build Bluff students have finished 16 more homes as well as a handful of non-residential design/build projects. The 730-sq.-ft. Badger Springs

SPECS

Bedrooms: 0

Bathrooms: 1

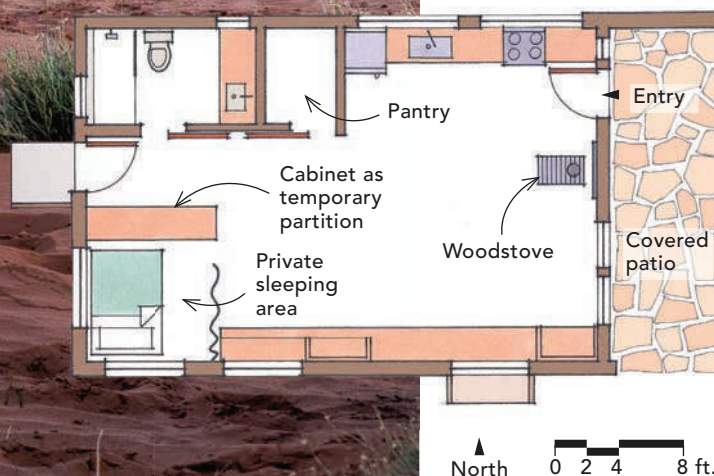
Size: 730 sq. ft.

Completed: 2015

Location: Mexican Water, Navajo Nation

Architect: Design Build Bluff

Builder: Design Build Bluff



HOGAN MEETS MODERN

Though far from round, this plan is arranged similarly to a traditional Navajo hogan. The open plan has only a temporary partition for a private sleeping area and only the bath and pantry have doors. Keeping with tradition, the entry faces east and the wood stove is positioned as the heart of the gathering space.



EARTH, WIND, AND FIRE

The exterior details—including the patio roof overhang and wall extension and the jamb extension on the south-facing picture windows—are designed to protect the living areas inside and outside the house from the harsh desert sun and wind. Exterior finishes include natural plaster made with clay harvested on site, shiplapped white cedar used as siding and for the deep soffit above the patio, and corrugated steel that has been left to acquire a rusted patina over time.



house featured here was completed in 2015. It has an open and adaptable plan ideally suited to the family that lives there. While the home has an edgy, modern aesthetic and many of the hallmarks of a small city loft, program director Jose Galarza, who inherited Design Build Bluff from Hank in 2013, explains that in many ways it is true to how the Navajo have lived for centuries in traditional structures known as hogans.

In keeping with tradition

Though there are a variety of different hogan types—one for women, one for men, one for shade, and one for ceremony, for example—they share similar traits. They are typically built from logs and clay, and are mostly round and domed. They have east-facing entries and a central fireplace. And even the hogans meant for daily life are typically one large open room where families and friends gather and sleep in the same adaptable space.

“If I were to ask you to draw a caricature of a traditional house, you’d draw a square with a triangle on top of it,” says Jose. “Well, that’s not traditional to the Navajo. They’d draw something round.” And yet the modern, rectilinear Badger Springs footprint allowed the students to overlay the hogan’s “cosmological blueprint,” as Jose calls it—a floor plan that is as much about Navajo spirituality and community as it is about domestic life.

The modern Badger Springs house embodies many of these cultural principles. The entry faces east, there’s a wood stove in the main gathering area, and there’s barely a bedroom—just a temporarily partitioned space for the homeowners’ daughter Janice. Mary and Gary sleep traditionally—on the floor of the main living space.

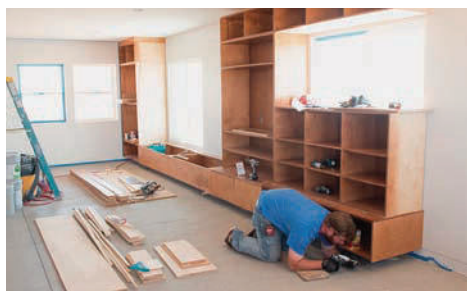
Tradition isn’t the only reason that keeping the custom of an open floor plan was important. Mary works with victims of domestic violence and regularly hosts gatherings of various sizes. An open space is easily adaptable to the family’s shifting day-to-day and future needs.

Like the Navajo’s traditional summer hogans that are designed to be well-shaded and cool, the windows in this house are carefully located to keep the home from overheating under the intense desert sun and were installed to be protected from the often penetrating southwest winds. The one large south-facing window is sheltered by a jamb extension that projects far beyond the plane of the siding. The patio is similarly protected



CLASS IS IN SESSION

The Badger Springs house was designed and built by the graduate architecture students at the University of Utah's Design Build Bluff program. With little to no prior construction experience, the students poured the footings and slab, framed the staggered-stud wall, and installed mechanicals and finishes with the help of technical advisors Atsushi and Hiroko Yamamoto and a few local contractors who volunteered their time. Grid Alternatives assisted with the solar install. The 2015 crew of students included Nathan Blair, Danny Carmen, Kirk Chadwick, Barton Done, Tommy Hancock, Josh Riffe, Spencer Swalberg, Megan Wayment, Jeremy White, Hangfei Zhang, and Shuo Zhao.



by a cantilevered roof and the extension of an exterior wall.

It's about people

Glance at the advisory team at Design Build Bluff and the program's mission comes into focus. Supporting Jose's leadership and the continued mentorship of Hank Louis are the

chair and dean of the architecture schools at the University of Utah, Mimi Locher and Keith Diaz Moore. The program also has two cultural advisors, Cececilia Tso and Anthony Shirley, and a community-engaged learning assistant, J. Abubo.

Design Build Bluff is not only about building homes for people in need and coaxing

aspiring designers to get their hands dirty for the sake of a few valuable lessons in construction. It's about understanding architecture at the intersection of cultures, and learning how to work together toward solutions that respect the way different people live.

Jose and his team work with elders in the Navajo Nation each year to identify a client

for the project. They attend Navajo chapter meetings to understand the needs and desires of potential homeowners and use questionnaires to identify and prioritize the program for each project. This intake is done at the start of the fall semester and design work continues until the school's winter break. When the students return, they head imme-

diately south to Bluff where technical advisors Atsushi and Hiroko Yamamoto are waiting for them, ready to break ground.

Atsushi is a Design Build Bluff graduate who joined the staff after completing the program. Hiroko is an architect trained in Japan who spent many years as a project manager for one of Tokyo's largest construction com-

panies. As her interest in building with natural materials grew, she joined Atsushi in Bluff. The natural plaster finish found on the Badger Springs house is the result of her passion for natural materials. The clay used for the plaster was collected on site.

Each spring, with the help of fabrication consultants Mark Haslam and Adam Kilmer and a few local contractors who volunteer their time, Atsushi and Hiroko lead the student team through the build, including all aspects of construction and project management. This includes managing the cash build budget of \$25,000.

If that sum seems small for this home, consider that the true material costs are about \$55,000 when the value of in-kind donations and salvaged materials is included (the program currently has about 50 corporate sponsors listed on their website). If that number still seems low, consider that the value of the students' time is not included. But no matter how you look at the costs, this house is first and foremost an example of what can be done when ingenuity and passion collide.

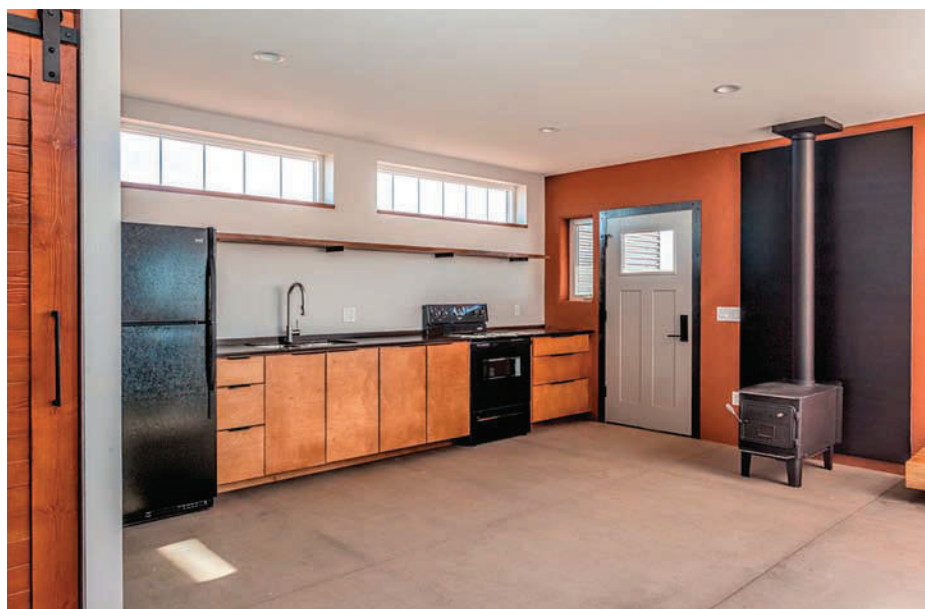
"We spent the semester researching how to do things that none of us had done before," said Tommy Hancock, a former student who hopes to launch his own design/build firm. "Fortunately, there was always someone to bounce ideas off ... an electrician, a plumber ... and Atsushi has done this enough to know where we were going to need help."

Making materials count

Like most Design Build Bluff homes, the Badger Springs house is built on a concrete slab that serves as the finished floor. The wall framing is a staggered-stud assembly insulated with cellulose. With the help of the program's structural engineering consultant, Kyle Mullikin, the students designed and built the cantilevered flat roof to shade the porch and collect rain water. An EPDM membrane for the roof was one of the most significant single expenditures of the project.

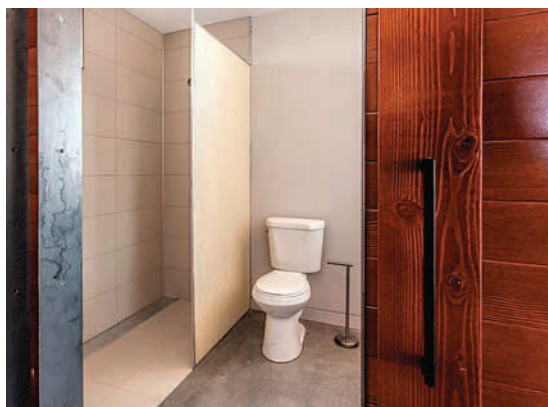
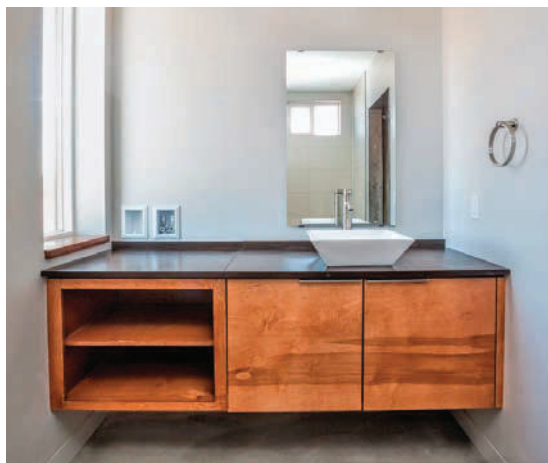
Most of the siding is corrugated steel that will develop a rusted patina. Shiplapped white cedar is used as an accent on the south- and north-facing walls and on the underside of the cantilevered roof. All of the windows were donated or salvaged and the protruding jamb extension around the south-facing picture window is made from salvaged aluminum (and XPS foam) donated by 3Form.

Inside the house, the students fit the southern wall with full-height Baltic birch



OPEN AND INGENIOUS

The students used materials wisely to make an impact on the way the home looks and functions. The slab is scored and polished to be the finished floor. The kitchen cabinetry is made with birch plywood and a single open shelf is installed under the kitchen's high transom windows. In the bathroom, the barrier-free shower is integrated into the slab. The students fabricated a custom linear drain from donated salvaged aluminum.



DESIGN BUILD BLUFF THROUGH THE YEARS



2009
White Horse



2004
Rosie Joe



2012
Little Water



2014
Sol Rose



2016
Cedar Hall

plywood built-in shelves and long sitting benches with storage beneath. The kitchen cabinets are made from the same plywood and have donated PaperStone counters.

There is a feature wall at the bathroom and pantry with horizontal wall paneling and barn-style sliding panel doors made from old-growth Douglas fir salvaged from baseball bleachers. The slab-on-grade construction and open space make the Badger Springs house accessible, and this is carried through in the barrier-free bath. The pantry includes a place for storage, one of the keys to making the open space work.

Navajo people build their homes on leased sites. Being granted a land lease, however,

does not guarantee that utilities will be available at the particular site, and getting electricity or water hooked up can take a while. Mary and Gary were fortunate to be granted a lease near a highway where utilities are available. However, GRID Alternatives installed a PV system on the house, so the homeowners are typically only responsible for the minimal electrical service fee. The house relies on passive-cooling strategies with a little help from a donated Haiku ceiling fan. The wood stove provides any necessary heating.

Without discounting the significance of living in a great house, Jose is quick to point out that by building one home per year, Design

Build Bluff isn't making too much of an impact on the Navajo Nation. At the same time, the dedication of Jose, Atsushi, Hiroko, and the staff of advisors to the program and to each client, each house, and each class of students is clear in the work they do and the passion with which they speak of it. And, of course, Jose is being modest. While the full impact of a program like Design Build Bluff is unknowable, learning to listen, teach, and reach across borders and cultures is likely to have an impact greater than any house anyone will ever build. □

Brian Pontolilo is design editor. Photos courtesy of Design Build Bluff.

FineHomebuilding®

2018 HOUSES AWARDS

Call

Would you like to see your project in HOUSES?

We're always on the lookout for homes that showcase craftsmanship, energy efficiency, and smart design. From cozy cottages to urban lofts, from seaside getaways to starter homes on a budget, we want to hear about your project. This issue is not limited to new homes; we're also eager to see remodels that breathe new life into tired old houses.

Go to FineHomebuilding.com/houses to submit a project for next year's HOUSES issue and become eligible to win one of our HOUSES awards. Submissions also may be emailed to fh@taunton.com or mailed to our offices at: HOUSES, Fine Homebuilding, 63 S. Main St., P.O. Box 5506, Newtown, CT 06470-5506.

Entries deadline:
July 14, 2017



The Taunton Press
Inspiration for hands-on living®

© 2017 The Taunton Press



BEST NEW HOME

For our Best New Home, we look for the project that successfully meets its design challenges with a superior level of craftsmanship and detail appropriate to its architectural style.



BEST REMODEL

Our Best Remodel Award goes to the project that successfully identifies problems with an existing house and solves them with practical design solutions and construction techniques.



BEST SMALL HOME

Our award category targeting homes under 2,000 sq. ft. focuses on the functionality of living spaces, material choices, exterior details, budgets, and construction techniques.



for Entries



BEST ENERGY-SMART HOME

Here we look for a project that incorporates a climate- and site-specific approach to energy efficiency and respects the lifestyle needs and budget constraints of the homeowners.



BEST TRADITIONAL HOME

This award goes to the new home or remodel that best exemplifies a traditional architectural style. The best project will be contextually appropriate and executed with authentic detail.



EDITOR'S CHOICE

The Editor's Choice Award always stirs debate in our office. Designed to recognize innovation, aesthetics, or ingenuity (or a combination of all three), this award always offers a surprise.



Why Don't We Build BETTER Houses?



Although we know how to build healthy, comfortable, durable homes, mostly we don't... but not because it's too expensive

BY KEVIN IRETON

According to Harvard's Joint Center for Housing Studies, there will be around a million-and-a-half housing units built in the United States this year (*unit* includes apartments, condos, and single-family houses). Most of these units will be built to the standard of the applicable building codes. That sounds like a good thing, but remember that the code is a minimum standard, so a house that simply meets code requirements is the worst house you can legally build.

Our building codes, especially those related to energy use, are subject to the vagaries of politics and special interests. They take years to propose and years to adopt, and even then enforcement is spotty. At the time of this writing, only nine states have adopted the latest model energy codes (the 2015 International Energy Conservation Code), a majority of states (31) haven't even adopted the 2012

model energy codes, and 10 states either have no statewide code or their code predates the 2006 IECC.

Meanwhile, a lot of work has been done in the past 20 years to improve the way we build houses. Thanks to the EPA's Energy Star program and the U.S. Department of Energy's Building America program, many of the country's building scientists have developed better roof and wall assemblies, moisture-control strategies, and insulation approaches that greatly improve the efficiency of a house.

Other programs, such as LEED, Passive House, and the Living Building Challenge, set the bar even higher, inspiring architects and builders around the country to run complex energy models, measure with blower doors, study thermal images, and then build each new house better than the last. At the same time, manufacturers have also hired building scientists to do their own research and



develop better products, such as waterproof sheathings, flashing tapes, and air-source heat pumps that work in colder climates.

Increased energy efficiency was the chief driver behind most of this work, but improvements to health, comfort, and durability have resulted, too. Hence, we know how to build houses that go beyond the code requirements for airtightness and insulation; houses that have a good supply of fresh air; houses that are detailed to not get wet, but are designed to dry out if they do; houses with triple-pane windows; houses that are oriented to take advantage of sunshine and breezes; houses with energy requirements so low they can be supplied with photovoltaic panels on the roof.

Not only are such houses healthier and more comfortable to live in, they are also significantly less expensive than a house built to

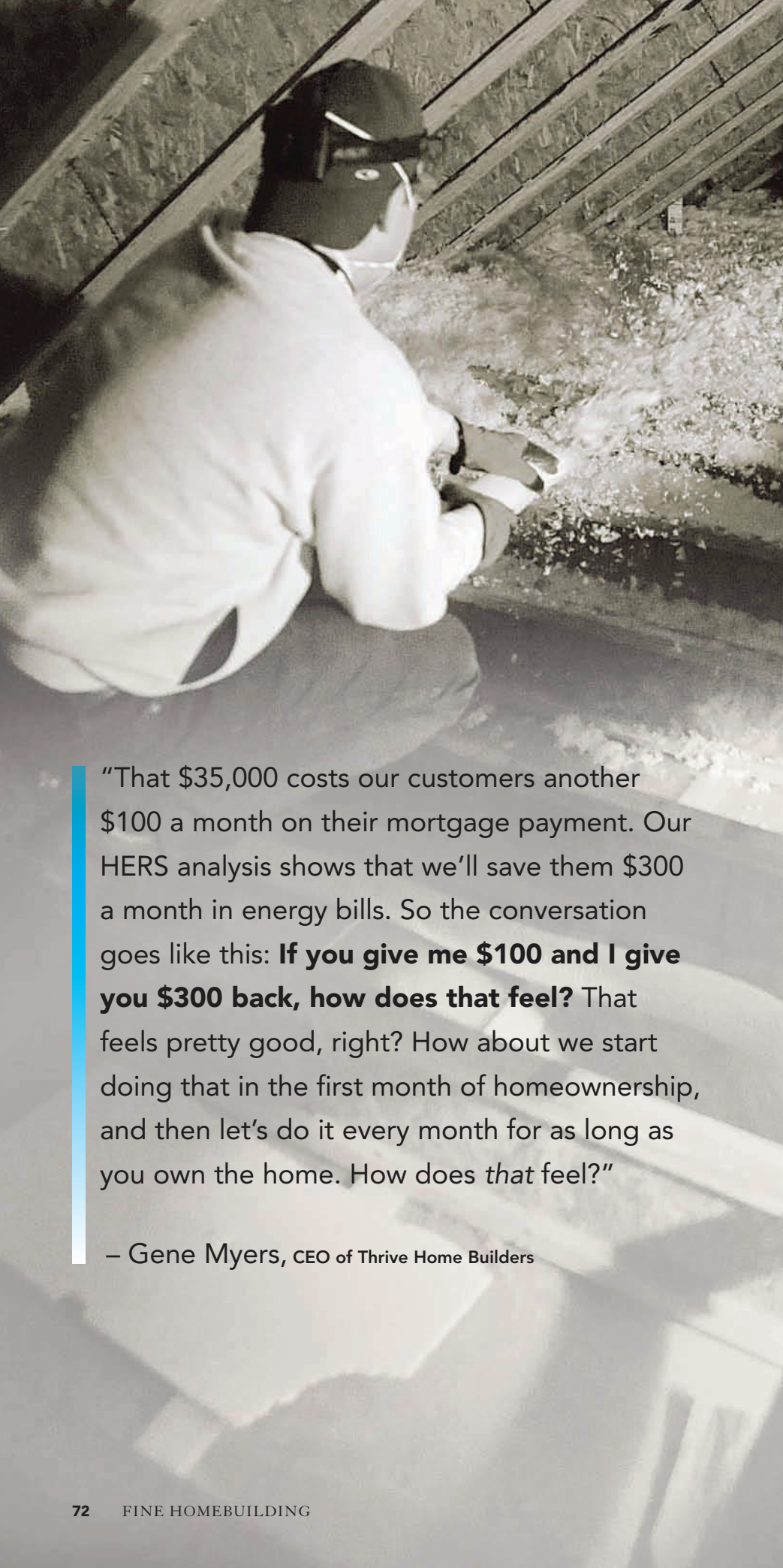
code. At least, they're less expensive once you factor in the operating costs.

So, we know *how* to build better houses—but we're not doing it. Not yet. Not in significant numbers.

Housing is a big industry

Unlike automakers, our nation's homebuilders can't be called to Washington, D.C. and assembled in a room. There are 50,000 to 70,000 of them (the exact number is hard to know). Apart from the building code, there is no formal way of communicating with builders. How can they be told that there's a better way to build a house, let alone be compelled to do it?

Government programs, such as Energy Star for Homes, are good, but voluntary. In 2015, Energy Star's share of the housing market



"That \$35,000 costs our customers another \$100 a month on their mortgage payment. Our HERS analysis shows that we'll save them \$300 a month in energy bills. So the conversation goes like this: **If you give me \$100 and I give you \$300 back, how does that feel?** That feels pretty good, right? How about we start doing that in the first month of homeownership, and then let's do it every month for as long as you own the home. How does *that* feel?"

— Gene Myers, CEO of Thrive Home Builders

was less than 10%, and it took 20 years to get that far. Only eight states have continuing education requirements for contractor licenses. There's no single magazine, website, tradeshow, or conference that reaches all home builders.

In other industries, companies scramble to roll out innovations ahead of their competitors. But according to studies conducted by the NAHB Research Center, it takes up to 25 years for the housing industry to adopt new technologies.

Builders resist change for good reason. When you build a house, you take responsibility for what will likely be the single most expensive purchase of a person's lifetime. You need confidence in the materials you choose and the ways you assemble them. The surest source of that confidence is your own experience and that of others in the industry. You trust what has worked in the past. It's a fundamentally sound approach, and not at all conducive to innovation.

If builders gamble on a new product or a new construction process that fails, it could ruin their reputations and put them out of business. They are especially wary of new products because there have been some infamous failures, such as early housewraps that disintegrated when in contact with cedar siding, hardboard siding that turned into shredded wheat, synthetic stucco that trapped water, and polybutylene pipes that leaked it. A healthy skepticism makes a certain amount of sense.

According to Sam Rashkin, father of the Energy Star Certified Homes program and currently chief architect of the building technologies office at the U.S. Department of Energy, the problem is a flawed business model. "If I look at virtually every other industry in the country, there'll be anywhere from four to a dozen major manufacturers, and they have resources to invest in research and innovation and to go to scale with applying it. In contrast, housing has about 50,000 providers, and each one has to figure out the product by themselves. ... It's an enormous challenge that blocks a lot of change."

For each house, a builder choreographs the work of a dozen or more contractors, handles the delivery of thousands of materials and products, coordinates with the building department, endures the weather, suffers

"The greatest misconception our industry faces is the perception that to build a higher-performance house, or to net zero, is off-the-charts expensive."

— Mark LaLiberte, principal partner at Construction Instruction, Inc.

the shrinking supply of skilled labor, and pays the rising cost of worker's comp. Any sane builders will do whatever they can to simplify the process. That means limiting themselves to readily available materials with a proven track record and construction techniques they already know.

A better house is too risky

Over the past 20 years, we've thrown around various terms for the better houses I'm talking about here. We've called them *green* and *sustainable*. Now the phrase *high-performance* seems to be gaining ground. I like it. It suggests that houses really are machines for living and invokes the critical question of how they perform over time.

Among other things, high-performance building focuses on air-sealing and increased levels of insulation. Some builders balk at this, because it leads to a higher risk of trapped moisture, rot, and mold.

In an article on the DOE's website, Eric Werling, program coordinator for Building America, explains the problem this way: "If done wrong, extra insulation and vapor barriers in the wrong place can cause all sorts of nasty moisture problems. This is why it's so hard for builders to try innovative envelope solutions. This fear of doing it wrong."

Rather than accept the challenge of getting the critical details right, it's easier for many builders to dismiss high-performance building with the familiar assertion that we're "building them too tight" and "houses need to breathe." But this is just another way of saying that ventilation is important. And if ventilation is important, then we ought to control it carefully, rather than rely on random leaks in unknown areas.

A better house is too expensive

"No one will pay for it." That's what building-science educator Mark LaLiberte hears all the time. LaLiberte preaches the gospel of high performance to builders all over the country, and says, "The greatest misconcep-

tion our industry faces is the perception that to build a higher-performance house, or to net zero, is off-the-charts expensive."

The most common way to consider the cost of building a high-performance house is to think about the additional direct costs that a builder pays for labor and materials to improve a home's performance, costs that are passed on to the buyer. Whether it's adding 2 in. of rigid foam to the outside of the sheathing, which complicates the installation and flashing of doors and windows, or buying and installing a heat-recovery ventilator, these costs are real. But the answer to how much more this costs than building a house strictly to the code requirements is complicated.

Some builders are selling high-performance and even net-zero homes for little additional cost. Carter Scott of Transformations, Inc. in Townsend, Massachusetts is one example (I wrote about Carter in *FHB* #235). It's a matter of tradeoffs—add insulation and improve the building envelope in exchange for simpler finishes and a smaller HVAC system.

A 2016 study conducted by the EPA compared the cost of houses built according to the 2009 ICC codes with Energy Star-certified homes (version 3). The houses were 2,400 sq. ft. and spread over 7 climate zones. The additional cost of the Energy Star homes ranged from \$1,463 to \$2,117. (The corresponding monthly energy savings ranged from \$23 to \$86.)

The learning curve is also a factor in high-performance building. When a builder first tries some of these techniques—rainscreen siding or insulation over the sheathing—he will undoubtedly slow the process and add cost. But with experience comes efficiency, which is why production builders have an advantage here over custom builders. Economies of scale allow production builders to reduce the costs of high-performance building more easily. Unfortunately, that doesn't mean they're doing it.

"Some of the production builders are going to fight tooth and nail to build the cheap-

est square footage they can," I was told by C.R. Herro. "Those builders are going to tell you the buyer doesn't care." Herro is the vice president of environmental affairs for Meritage Homes, one of the 20 biggest home builders in the country. He said that when the recession hit, Meritage experienced "the pain of being seen as a commodity," and hired him specifically to help them differentiate themselves by building high-performance homes. "We kind of drank the KoolAid in terms of *better* is a smart business strategy."

First costs versus operating costs

When I began writing this article, everyone said I should talk to Gene Myers. "He's the poster child for better houses," one person claimed. So I called Myers and asked, "Does it cost more to build a better house?"

"Yes," he said, without hesitation.

"How much more?"

"Thirty-five thousand dollars."

Myers's company, Thrive Home Builders, has three-bedroom, 2,000-sq.-ft. homes for sale in the Stapleton redevelopment area outside of Denver. They're highly efficient, with HERS scores in the low 40s. Myers calls them his *standard* houses, but most experts would consider these to be better houses. At \$480,000, they're priced competitively for Denver. In the same development, Thrive offers similarly sized homes, arrayed with photovoltaic panels to achieve net-zero energy. For Myers, *better* means net zero, and those houses cost \$35,000 more than his standard house.

But Myers explains to his customers that a better house is only more expensive when you look at the initial cost. Considering operating costs changes the equation dramatically.

"That \$35,000 costs our customers another \$100 a month on their mortgage payment. Our HERS analysis shows that we'll save them \$300 a month in energy bills. So the conversation goes like this: If you give me \$100 and I give you \$300 back, how does that feel? That feels pretty good, right? How

about we start doing that in the first month of homeownership, and then let's do it every month for as long as you own the home."

A net savings of \$200 a month over the 30-year life of a mortgage is a lot. That much money, Myers notes, could be life changing.

But aside from the housing industry's fixation on lowest initial cost, there's another problem with that additional \$35,000 that Myers' customers have to pay: Most banks won't loan it to them.

Banks and appraisers don't value high performance

Perhaps the most confounding roadblock to building better houses is that most banks, lending institutions, and real-estate appraisers assign no value to extra insulation or photovoltaic panels on the roof. Zero. None.

Myers is lucky to work with some forward-thinking banks in Denver, but in most of the country, anyone considering an extra \$35,000 for a net-zero home would have to come up with that money as part of a down payment. That's because the appraised value of the house won't reflect the additional \$35,000.

Sandy Adomatis has been a real-estate appraiser for 35 years. She lectures on how

to value high-performance houses and has written a book on the topic called *Residential Green Valuation Tools*. She says most appraisers don't have the specialized knowledge to understand high-performance features or renewable energy. The basic education required for an appraiser's license does not cover it. So appraisers would have to volunteer extra time and money to pursue that training, for a type of house they rarely see.

Adomatis also points out that appraisers depend on a sales comparison approach to value a property. A house is assigned value based on the sales price of comparable houses (comps) in the same area. Today, it's pretty hard in most places to find a comp for a high-performance or net-zero house. Adomatis says that some of the appraisers she teaches "come in with an attitude that if you don't have a comp, you can't give it value." She thinks this is crazy, especially since it seems to apply to PV panels but not three-car garages.

Even if an appraiser assigns a higher value to a house based on a low HERS score or PV panels on the roof, the appraisal may still be rejected or the loan amount reduced. "We have underwriters reviewing our appraisals," Adomatis says, "and they have no clue what a high-performance house is and really don't want to be bothered."

As the number of high-performance and net-zero houses slowly increases, this situation will improve. In the meantime, Adomatis offers two bits of advice. The first is to make sure that banks and appraisers know in advance when they're dealing with a high-performance house. Provide documentation whenever possible, especially if there's a HERS rating. The other tip is to insist on an appraiser who understands high-performance building. According to Adomatis, "lenders are required by their industry guidelines to hire a competent appraiser with requisite knowledge in that property type." Most builders don't know they have this right.

But even with an accurate appraisal, mortgage loan calculations have to show that a buyer can afford the monthly cost of owning a home. Those calculations are based on four factors, known in the industry as PITI—principal, interest, taxes, and insurance. According to Steve Baden, executive director of RESNET, "There's a factor that's more expensive than insurance, more expensive than taxes, and that's energy costs. And that's just totally missed in the whole transaction process, which means it's not rational."

When I asked C.R. Herro what he would change to make the way easier for better houses, he said the answer was "so damn easy it's scary ... the mortgage needs to recognize total operating costs and the differences in operating costs when they underwrite the loan. ... There's no benefit given [to] a home that consumes 1/3 less energy. ... That one thing changes the world."

In 2013, Senators Isakson (R-Ga.) and Bennet (D-Colo.) introduced legislation to correct this problem. It's called the Sensible Accounting to Value Energy (SAVE) Act. And I honestly don't know which is a greater indication of our troubles—that an act of Congress should be required for a bank to see value in a high-performance house, or that after four years the legislation still hasn't passed.

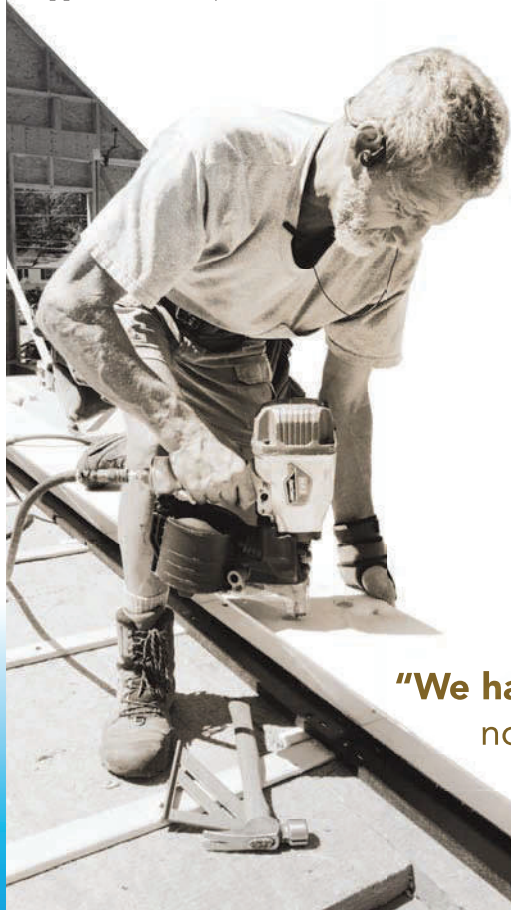
Buyers care more about location, size, and granite counters

The simplest answer to why we don't build better houses comes from Herro: "Because consumers haven't asked us to," he says. "Buyers are currently unsophisticated, and they make decisions that hurt them. ... Efficient homes, with solar, that achieve zero energy are actually the best, most cost-effective homes that any buyer can buy. And the only thing preventing us moving there is buyer awareness. If consumers demanded it, the whole industry would flip overnight."

But Herro is sympathetic toward homebuyers. He points out that people don't buy

"We have underwriters reviewing our appraisals, and they have no clue what a high-performance house is and really don't want to be bothered."

— Sandy Adomatis, SRA, Adomatis Appraisal Service



"It's so damn easy it's scary ... the mortgage needs to recognize total operating costs and the differences in operating costs. ... That one thing changes the world."

- C.R. Herro, VP of environmental affairs for Meritage Homes

homes very often, and when they do, it's an intimidating, stressful process, usually triggered by other stressful events—marriage, new job, baby on the way. People quickly default to the familiar: location, square footage, design.

According to Rashkin, it's not that buyers don't value high-performance features, we're just not selling them correctly. "Being in a home where you manage surface temperatures is transformative," he says. "The same thing with health. If I'm able to throw away my kid's inhaler living in one house, and it's still the same old problem every day with inhalers in another house, that's a transformative experience."

In his book *Retooling the U.S. Housing Industry*, Rashkin argues that the current approach to selling houses evolved in the last century when developers, builders, and realtors were first trying to convince buyers to move to the suburbs. "The most effective path toward this goal was to ratchet up the emotion-driven process so buyers would accept longer commutes and the growing pains of newly developed communities. The easy emotion to tap was to increase house size and feature new design trends." Today he says, "The housing industry is ill-prepared to sell quality and performance benefits that you cannot see."

Houses reflect the people (and companies) who build them

In the end, three things determine what kinds of houses get built. The first two are regulations (mostly building codes, but also banking) and the market (we build what sells). The third is the builder.

Houses are a reflection of the people and the companies who build them: the standards of workmanship that builders hold themselves to; their financial goals; their commitment to improving their skills, education, and quality; their concern for social and environmental issues; and their eth-

ics in general. For the big publicly traded companies, the equation is complicated by pressure to serve the short-term interests of shareholders.

When I asked Myers why he builds high-performance houses, he said it was complicated, but that it starts "fundamentally in your values. You decide it's the right thing to do and therefore you do it. There's still a little bit of a crusader, a little bit of idealism, packed away under my 65 years of hard knocks and scars, and I just believe we should leave the world a better place. But what you learn very quickly in business," he adds, "is that unless your customers share that, you don't get to do it very often."

Myers's company built 200 houses last year, so he found at least that many customers who shared his vision. And while he doesn't claim to be doing better than his competitors, Myers admits to driving a nice car and to putting his kids through college.

Are we near a tipping point?

"American homeowners have come to accept poor performance as the norm," Rashkin says. "But this will change once a critical mass of new home buyers experience the substantial advantages of high-performance homes and realize they come at lower ownership costs."

We may be near a tipping point. I'm not sure you can tell about such things until they actually tip. The number of houses being rated with a HERS score has been growing steadily. Last year it was over 200,000 houses, nearly 20% of new houses built in 2016. And the average score of those houses is going down, which means the houses are getting better (the lower the score on the HERS index, the more efficient the house). People don't generally hire a HERS rater unless they're trying to build a better house and want to see how well they succeeded.

When you build a new house, you lock in features that are unlikely to change for



50 to 100 years and that are difficult and expensive to add later. You have a chance to air-seal, add insulation, and do other things that optimize the building enclosure. With a few fundamental moves, you can reduce the energy load of the house so that it's basically *zero ready*, just waiting on PV panels (which are easy enough to add later). Sure, this work will likely add some cost to the house, but far less than many fear. And you know that doing this additional work will result in a house that's more comfortable to live in and dramatically less expensive to operate. So the question facing most builders today is this: When are we going to start building better houses?

"As builders, we have the power, we have the technology, we have the tools, we have the gifts," Myers says. "And to me, if you have that and you fail to use it for the benefit of your customers, shame on you, because that's what we're here for. It just almost seems unethical to build any other way." □

Editor at large Kevin Ireton is a writer and carpenter in New Milford, Conn.

Surviving a Design Review

Whether you're in a historic district or an upscale development, the secrets of success are the same

BY ASA CHRISTIANA

When you buy into a neighborhood, you buy the neighborhood, and every resident has a stake in its quality of life. This means your rooster might make enemies, and your son's car probably shouldn't hit the cul de sac like it's an aircraft carrier. The presentation of the houses and landscape matters too, especially in developments where homeowners pay a premium for a certain look and feel, or in historic districts where residents, visitors, and businesses are counting on the character of the area.

In some of these developments and districts—whether you are building from the ground up, putting on an addition, or just changing a paint color—you will run into a design review board. Also called architectural review boards, or ARBs, these committees exist to enforce guidelines that go well beyond building codes and deed restrictions. Usually the focus is on appearance and style, but the directives often cover materials as well.

Whether you are the homeowner, architect, or builder, if you're not aware a review board exists or you don't find out exactly what it requires, you could waste thousands of dollars on architectural renderings and construction plans only to have to go back to the drawing board, with the review committee potentially feeling less than excited about seeing you for round two.

Here's the good news: While review boards and design directives vary widely, experienced designers will tell you that the path to success doesn't. If you treat the process with respect, you'll almost always find a satisfying compromise for all the stakeholders who call your neighborhood home.

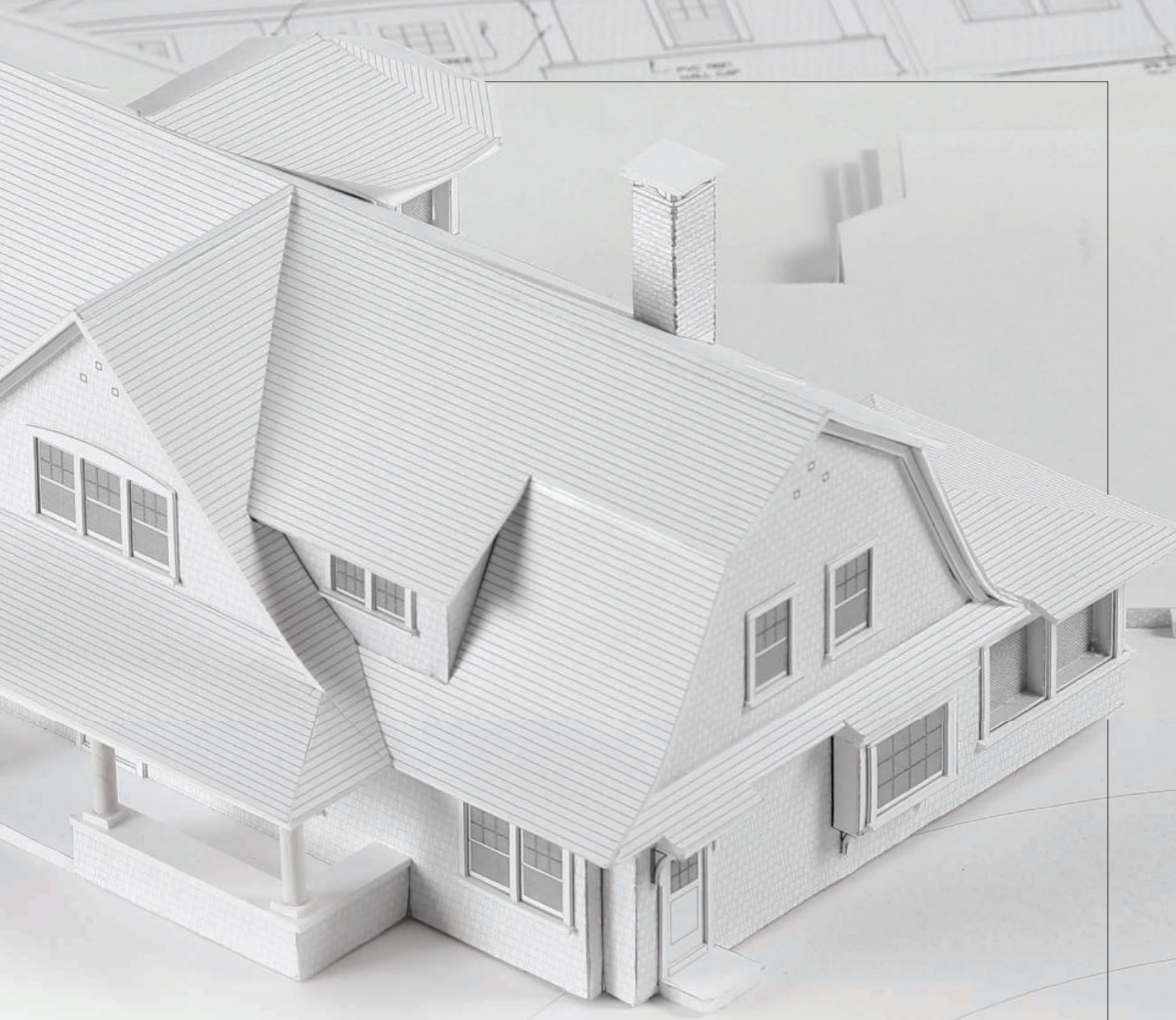
Rules and boards vary

Residential architect Steve Baczek has extensive experience working in both historic districts and design-controlled developments around Boston and in the Southwest United States. According to Baczek, the guidelines for new developments vary in complexity, but they are strictly enforced by an ARB because the builder or remodeler can control so many of the variables. "The historic districts understand that we are dealing with existing conditions that we don't have a lot of control over," Baczek says. "On the other hand, ARBs set stringent

MODELED FOR APPROVAL

Connecticut architect Hope Proctor says it's important to help the review board visualize the style, scale, and siting of the proposed project.

Proctor was hired to design a new home in a historic district in Old Saybrook, Connecticut, that consists of mainly Shingle-style summer cottages dating as far back as the early 1800s. To maintain the integrity and characteristics of the architecture of the area, any structure built or renovated must receive approval from the Historic District Commission. The Commission considers many factors, including exterior windows, doors, light fixtures, and the location of utilities; exterior building materials; historic significance and architectural style; proportion, massing, and scale (including height and roof forms); and the siting of the home. Proctor was required to submit an application



for a Certificate of Appropriateness along with a proposed site plan, rendered exterior elevations, a scale model, and a narrative description of the proposed project.

Proctor also brought photographs of other homes in the neighborhood that used similar materials or details to show precedent. She provided material samples and documentation on materials being proposed that may not have been used previously in the neighborhood but would still fit in with the style. Lastly, and probably most importantly, she included several 3D computer images of the proposed house from various views, with the adjacent homes shaded in for context. She even overlaid the 3D footprint of one of the neighboring homes onto her design to show that the size and massing of the house would be appropriate (drawing right).



rules and the builder knows before buying the lot that he has to conform to them.”

In Mesa del Sol, outside Albuquerque, New Mexico, where Baczek guided a number of designs past the ARB, the design directives filled three binders, covering houses, landscaping, and streets and paths, with rules ranging from the minimum number of trees in the front yard to the five distinct allowable styles of houses. Baczek was required to submit complete building plans, elevations, and 3D models for approval. In the historic districts around Boston, Baczek reports, the guidelines are extensive but not as stringent.

“If I’m designing a remodel or addition for a house built in the 1850s, of course they [the ARB] want it to look like it was [part of the original design],” he says. “But there is room for compromise. For example, I know that windows are usually dear to their heart. So they might be willing to allow something else in the design that isn’t original, like a molding detail or a shingle color, in exchange for windows that look original. Or they might allow larger windows as long as they are refined, historic-looking models.”

In a historic district, boards are often municipal, staffed by volunteers. The best are representative of the stakeholders, with a balance between building and design professionals, business owners, and residents. Near Boston, Baczek says, there is a requirement that at least one committee member be a registered architect and another a registered landscape architect.

However, there are no guarantees. In some historic neighborhoods, like the old seaside colony of Fenwick, part of Old Saybrook, Connecticut, the design review board is made up entirely of residents, so the process is a bit more subjective. Architect Hope Proctor has worked hard to build trust on the board, arguing that it’s in the neighborhood’s interest to welcome new designers. If the homes begin to look too similar, Proctor observes, a charming borough like Fenwick starts looking “less historic and more like a new development.”

Still, Proctor appreciates the role the boards and guidelines play. In fact, she serves on a committee to develop a design review in nearby Essex, a nautical landmark with rows of original 1700s and 1800s shipbuilder’s and captain’s houses and a charming main street that draws thousands of visitors each year. As the rules stand, someone could build a vinyl-sided ranch downtown. “There is nothing to stop them but setbacks and height requirements,” Proctor says. “It could change the whole character of the town.”

For new communities, the design review is usually run by the developer until most of the initial building is complete. Then there is a provision for a homeowners association (HOA) to take over. If you’re lucky, the developer or HOA will hire an architectural firm to set the rules and do the review. Other times, the architectural review board is all residents, just as it is in some historic districts.

Know what’s required

The key to a good experience with a design review committee is respect. That starts with knowing the limitations on a property or structure before you buy it or consider remodeling it. “It’s your duty as a professional to ask: Are there boards or concerns related to this property?” Baczek says. An initial questionnaire he sends to each client mentions everything from historic districts to aquifers.

Whether you are working in a golf course community or Manhattan co-op, the information you need is almost always published and available. New York City architect Ananth Sampathkumar agrees. “My



A MATRIX FOR COMPROMISE

Massachusetts architect Steve Baczek approaches design review with an attitude of give-and-take and uses documents to make it easy for the board to understand the scope of the work.

Hoping for a smooth review process, Baczek prepared to compromise when presenting this 1720s Cape Cod remodel to the Wayland Historic District Commission. The work included removing previous additions and building a new addition maintaining the modest Greek Revival style.

Because the streets have changed since the house was first built, the home’s main entry is now on the side of the house. Baczek agreed to keep the entry location and the board agreed to allow him to build a new entry vestibule. Baczek agreed not only to maintain the exterior style, but also to precisely replicate the details, and the Commission



approved his request to use PVC trim for a low-maintenance exterior. Baczek agreed to keep the 6-over-6 window style and the Commission compromised by allowing him to install modern energy-efficient units.

Baczek credits part of his success with the Commission to his "exterior aesthetic matrix," which was among the first pages in his proposal (photo right). The matrix gave the commission a way to view the complete scope of the work at a glance. One member commented that Baczek's was the best proposal he had ever seen. Baczek did have to propose an addendum when his client requested a stone wall for the front yard, but a simple project narrative and a new front elevation was all the Commission needed to approve the change.

Exterior Aesthetic Matrix

Category	Existing Conditions	Proposed Work / Remarks
Year Built	1720	n/a
House Type	Cape Cod	Maintain Cape Cod Type
House Style	Modest Greek Revival	Maintain Modest Greek Revival Style
Number of Stories	1 1/2	Maintain 1 1/2 story aesthetic
House Foundation	Stone Foundation	Cast concrete foundation at new work
Basement Windows	Wood Frame Single Glazed 3 Lite Vertical Cut Dark Grey/Black in color	Wood Frame Insulated Glass Similar 3 Lite Vertical Cut Similar Grey/Black in color
House Structure	Wood Frame	New work to be 2x6 wood frame / maintain existing at remodeled portion
Siding	Wood Lap Siding 4 1/2" TTW Wood Shingle Siding 5" TTW	New wood lap siding 4" TTW (Location per elevations) New wood shingle siding 5" TTW (Location per elevations)
Exterior Finish Color	White in color	Maintain White Color
Exterior Trim Color	White in color	Maintain White Color
Windows	Double Hung Wood sash and frame Single Glazed 6 over 6 Lite Cut White in color Mulin Bar width 3/4"	Marvin Wood Double Hung Wood Sash and Frame Double Glazed Low-E with Simulated Divided Lites 6 over 6 Lite Cut White in color Mulin Bar Width 5/8" (see window section details)
Gutter / Fascia	No Existing Gutters 1x Fascia ~ 6" Roof Overhang Unvented Soffit Assembly	New Wood Gutters at roof eave locations / metal downspouts Maintain Fascia profile - exception at locations of new gutters Maintain existing roof overhang Maintain unvented soffit assembly
Roof	Asphalt Shingle Unvented Ridge	Maintain Asphalt Shingle material Maintain Unvented Ridge

main tip is due diligence,” he says. “The information is there, so do your homework.”

An online investigation will tell you how extensive the guidelines are, precisely what they require, and what materials need to be submitted for approval.

“The number one thing that trips people up is that they don’t understand what the guidelines are after or what they are asking for,” says Richard Taylor, who designs high-end residential homes in Ohio and Arizona. “Read carefully, ask questions, and hire a designer or architect who can translate the guidelines into something achievable.”

In any board’s published directives and guidelines, you’ll also find submission requirements that can range from a photo and rough sketch to complete construction drawings and design models. Typical submissions for new construction, additions, and extensive remodels include photos of the existing property, drawings of the design, and additional info about materials, dimensions, placement, and more.

Have a concept meeting

While reading the rules and guidelines is half the battle, there is an equally critical step that many people miss: an early, informal meeting with the board. “Meet with committee members with the general idea,” says Walter Zeier, who heads the ARB for Muirfield Association, the large HOA at Muirfield Village, a prestigious golf course community in Ohio. “Let them know that you want it to look good and that you want to work with them.”

In a casual meeting, while ideas are still general, it’s easy to gauge what matters most to a board and find solutions. “Come in with a concept,” says Taylor, who has worked on both sides of ARBs. “The main mistake that most people make is going too far with the design before they expose it to review. As soon as you have the essential elements, ask for some form of preliminary concept review.”

For that first meeting, Taylor recommends bringing rough, scaled drawings that describe the basic form of the project—its size, shape, and location—“enough to describe the overall look and feel but not enough that we can’t throw it away and start over again,” he says.

At Muirfield, Zeier says that he and his fellow board members, one builder and one architect, began offering free design consultations for HOA members. “They don’t have to take advantage of the service, but it’s amazing how much money we can save them.” The three board members now do hundreds of consults a year.

Although boards are usually fair and helpful, you don’t have to take no for an answer. “Pick your battles,” says Sampathkumar, who works in New York City where the gatekeepers go by different names but act much like ARBs. In one historic building, the brick had been mixed and matched over time and the clients wanted to homogenize the look. “The Landmarks Preservation Commission said to leave it as is, making it clear we would face opposition if we changed it. So we listened.”

On the other hand, on a gut remodel of a 1920s co-op, Sampathkumar pushed back and won. The client wanted to expand the bathrooms, an expansion of “wet areas” that co-op boards generally resist. “The board said it hadn’t been done before, but my firm found records that another apartment in the building had done similar work just a few years back.” As tough as a design review can be, this experience illustrates the key takeaways: Do your research, know what you’re up against, and when it matters most, don’t give up. □

Asa Christiana is a freelance writer in Portland, Ore.



A STRATEGY OF ALTERNATIVES

Ohio architect Richard Taylor likes to give the review committee options, including them in the design decisions for an outcome that makes everyone happy.

Located in Dublin, Ohio, Muirfield Village is a planned community that revolves around two golf courses, the vision and work of golf legend Jack Nicklaus. Muirfield’s Design Control Committee is authorized by the Muirfield Village Declaration to review and pass judgement on all exterior design for both new homes and remodels.

Taylor recently brought this remodel in front of the committee. The family needed more garage space, so Taylor reoriented the entry to the garage and added a new garage bay. It wasn’t a big addition, but because there wasn’t enough room on site to add a third side-loading



garage, the obstacle was getting the front-loading garage approved.

Taylor created two very similar sketches with alternate versions of the project to show the design review committee. Essentially, he showed version B as a smaller, less massive version of the addition, in case the committee was concerned with the size.

In the end, they weren't, and the committee ended up approving version A, but with the posts from version B instead of the brackets shown in version A. The idea was that the big posts and metal roof would play down the appearance of the doors.

Taylor's strategy of offering multiple options with somewhat interchangeable parts, along with presenting the limitations of the site and a commitment to enhancing the architecture of the house, was enough for the committee to approve the project.

PROHOME

Elevating the Standard of Building

The completed house is durable, efficient, and attractive with a flexible floor plan on each level

BY SEAN GROOM

Last spring, when designer Michael Maines, builder Mike Guertin, and *Fine Homebuilding* editorial director, Rob Yagid, sat down to sketch out ideas for the first ProHOME, they laid out basic goals: The house had to be modestly sized, energy smart, healthy, flexible, and durable. These targets guided the design process and the construction methods and products Maines used.

Our coverage has followed the build from breaking ground through framing to installing mechanicals, insulation, and drywall. Now, with the interior finishes and fixtures installed, the end result is a gracious, comfortable house that more than meets its energy performance objectives. In this wrap-up coverage of the 2016 ProHOME, we'll show how Maines and interior designer Pamela Unwin-Barkley organized the floor plan and chose interior and exterior finishes to create a modern farmhouse that fits an established neighborhood, has a timeless appeal, and will adapt to the lifestyle changes of its future homeowners.

Verified performance. Guertin and a team of students depressurized the house with a blower door to find and seal leaks. The extremely tight result—0.4 ACH50—and well-insulated shell are evident in the even temperatures across the house in this FLIR image. The net-zero-ready house has a HERS rating of 43 without PV.





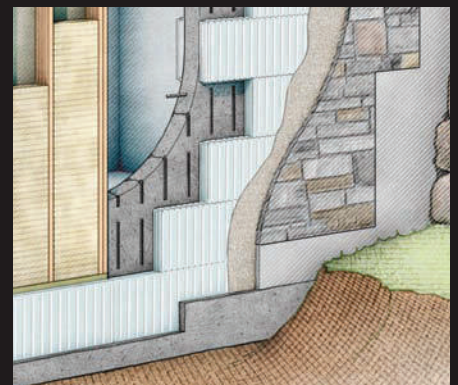
The Assembly at a Glance



Roof: 22 in. of blown-in fiberglass insulation in the attic provides R-60. CertainTeed's MemBrain, run across the bottom of the ceiling joists and sealed to the top plates, creates a continuous air barrier.



Walls: Zip panels with taped joints act as the primary air barrier. Taped R-21 CertainTeed SmartBatts act as a secondary air barrier. Exterior Roxul Comfortboard 80 prevents thermal bridging and reduces the chance of condensation on the interior.



Foundation: Amvic Silverboard subslab insulation and the Amvic 3.3 ICFs insulate the basement to R-15 and R-30, respectively. Concrete is an effective air barrier and ProtectoWrap's Triple Guard Energy Sill Sealer air-seals the transition between the foundation and framing.



Accents set the style

Deck rail

From a distance, the Feeney Cable Rail system disappears from view, and up close the horizontal cables reinforce the lines of the lap siding. The fascia-mount metal guardrail posts are clean and minimalist. Under-rail LED lights discreetly light the deck without interrupting the clean lines of the railing.

Stone base

A mix of three colors of Cultured Stone veneer mixed with small infill rocks from the site cover the foundation. The suggestion of a rubble foundation emphasizes the traditional farmhouse style. The dark siding above the stone on the walk-out level indicates it's a different type of space than the upper levels.

Trim

4-in.-wide casing with thick sills at window openings and 6-in.-wide corner boards create shadow lines and reinforce the traditional look of the clapboards. Omitting trim on the wall sections with dark nickel-gap siding and butting the siding to the windows and mitering the corners creates cleaner lines and focuses attention on the bigger siding reveals.



Timeless farmhouse style

The style of the traditional farmhouse was Maines' design inspiration for the ProHOME. The low eaves, achieved by tucking the second-floor bathrooms and laundry room into dormers on the front of the house, reduce its perceived height, bringing the home to scale with its neighbors. At the rear of the house, the saltbox-style roofline grants the three second-floor bedrooms full-height ceilings, taking advantage of the southern exposure and bringing sun deep into the rooms. The simple white clapboard siding fits the look of the neighborhood, but the shed dormer and the front entry—cladded with Boral 8-in.-wide nickel-gap siding painted a rich espresso with Sherwin Williams' Black Fox—is the first clue that this home is a modern take on the traditional farmhouse vernacular.

Wherever this siding is used, corner boards and casing are eliminated; the siding is butted to the windows and doors and outside corners are mitered. These crisp, modern details continue with the Feeney Cable Rail system on the nearly 400-sq.-ft. deck, which divides the modern treatment of the walkout from the traditional lap siding above. The 2-over-2 windows that Maines chose are appropriate to a classic 19th-century farmhouse, and by using them throughout the house he weaves the traditional and modern treatments into a unified contemporary aesthetic.

A floor plan for today and for tomorrow

The most important aspect of the ProHOME is its ability to adapt over time as its occupants' lives change. Maines' floor plan provides options to accommodate a growing family, multigenerational living, empty nesters, and those who wish to age in place. For now, this means that with the partially finished basement and the bonus room over the garage, the house has a phenomenal amount of storage space. However, the framing, electrical, and plumbing rough-ins in the basement are ready for a self-contained apartment with a kitchen, full bath, bedroom, and large, open living area. Four tall windows on the south wall flood the basement's great room with natural light. If the basement is set up as an apartment, Guertin will install a separate permeable-paver driveway from the street to the lower level that will provide single-level access and privacy

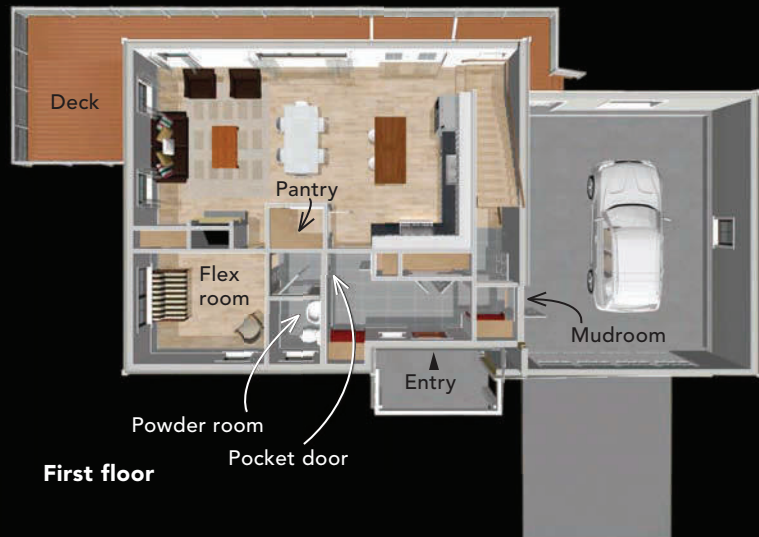
Flexibility in the floor plan

Double duty describes the ProHOME's first-floor open plan. The borders between the kitchen, dining, and living areas are fluid, with the intention that when any one of these spaces is in use, it can borrow additional room from the adjoining area. This allows the space to feel and function larger than its 425 sq. ft.

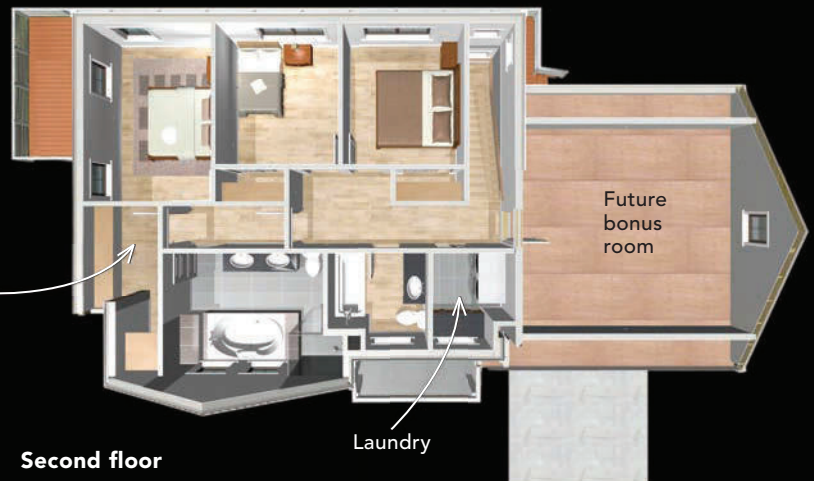
Storage can't be an afterthought in a smaller house. In this house's current configuration, there's plenty of storage space in the above-garage bonus area and in the basement. But if those areas are converted into living space, Maines has included other convenient storage for daily items throughout the plan including the pantry in the kitchen, two closets off the front entry, a closet in the flex room, and a large walk-in closet in the master suite. Finally, the garage, which can be thought of as an oversize one-car garage, has plenty of additional room.



Clutter cutter. Garages tend to become dumping grounds for tools, toys, and seasonal items. Gladiator's storage system of cabinets, shelving, and wall storage provides organized storage and dedicated work space.



First floor



Second floor

SPECS

Bedrooms: 3

Bathrooms: 2½

Size: 2,533 sq. ft.

Completed: 2017

Location: East Greenwich, R.I.

Designer: Michael Maines, michaelmaines.com

Builder: Mike Guertin

to the in-law apartment. By finishing the underside of the deck and including an integral water-collection and gutter system, he has already created a covered entry and dry patio space.

The flex room, though, is the most intriguing space in the house. The configuration of pocket doors around the first-floor flex room and half bathroom may seem like overkill at first glance, but they serve two purposes. First, the doors into the flex room itself allow the room to be closed for privacy if, for

example, someone is working from home. Plus, the second hallway pocket door allows the room to function as a small guest suite with a bedroom and half bath. Second, if the occupants ever decide on one-level living, the pocket door between the bathroom and the entry can be replaced with a wall and the half bath expanded into the panty to create a full bathroom, converting the flex room into a first-floor master suite.

If additional space is needed on the second floor, the garage attic, which is insulated and

drywalled, could provide about 284 sq. ft. of living space after adding 42-in. knee walls.

Farm table at the center of the kitchen

When interior designer Pam Unwin-Barkley begins thinking of the space in a project, she considers both a client's needs and their things. "In effect," she relates, "I'm telling a story about who they are and how they live."

With this property, there is no specific client, so as she and Guertin discussed the



Gather here. Illuminated by Kichler fixtures, the large, multipurpose island with seating for three anchors the kitchen. Cosmopolitan White Caesarstone counters were chosen for their durability and natural warmth.

interior design, they focused on the modern aspect of Maines' contemporary design. By using clean lines and a minimalist style, her goal was a timeless aesthetic that would weather changing design trends.

She chose a minimal trim package with drywall returns for the windows rather than casing. The door casings and baseboards have simple, flat profiles. The color palette of the Sherwin Williams paint used on the walls—light grays, soft blues, and pale greens with touches of cream and yellow—work

together to create a light and airy interior. At the center of the first floor, a deep-gray tone (Sherwin Williams' Let it Rain) on the four pantry walls is a focal point, surrounded by related, softer tones on the perimeter, like the bluish Mountain Air in the kitchen.

Just as the farmhouse theme drove the exterior design, it also guided Maines in the kitchen where he interpreted the classic farmhouse table as a modern island.

The kitchen island gives the room an L-shape that allows circulation during par-

ties and room for two to work around each other. It also serves as a boundary, delineating the cooking space and separating it from the adjoining dining and living spaces. It is intentionally placed close to the front door and the garage entrance as a landing spot for groceries entering the house. And, to ensure there's plenty of storage in the kitchen, Maines incorporated a pantry near the stove end of the island.

The Shaker-style pine kitchen cabinets echo the three-panel, Shaker-style doors

ProHOME SPONSORS

The following manufacturers supported the design of the interior of the ProHOME. Visit FineHomebuilding.com/prohome for a complete list of project partners and for more information on the products and materials used in the ProHOME.





Modern master. The crisp blue walls and clean lines and white surround of the soaking tub create a bright, airy, and welcoming master bath.

throughout the home, and the natural pine coordinates with the 5¼-in.-wide carbonized bamboo flooring.

A bit of luxury in the hardest-working spaces

The second floor of the ProHOME is a hard-working space. The bedrooms are only as large as they need to be, which allows a lot of amenities to be packed into the compact plan. In addition to two bedrooms, their associated full bath, and a laundry room, Maines also worked in a full master suite.

The bathrooms are an especially important design element in the house. Because they are used daily, the spaces shape the occupants' experience in the home.

In the full bathrooms, Unwin-Barkley chose 8x6 and 12x24 gray tiles for the floors with matching grout to play down the grid pattern. In the interest of comfortable winter mornings, Guertin installed ProtectoWrap's Peel and Heat Complete electric radiant heat mats before tiling the floors.

The master bath includes both a shower and a soaking tub for a bit of luxury. The shower has white, 2-in.-square mosaic floor tiles and stacked 3x9 horizontal tiles in a bond pattern that helps draw the eye horizontally around the room. The soaking tub is centered between the windows, both for the outdoor connection and to bring natural light into the room, which is

reflected around the space by the vanity mirrors on the opposite wall. The tub deck, as well as the vanity top and shower curb, are Caesarstone's Fresh Concrete, a light-colored surface with hardly any lines or veins. Without any grout lines or visible seams, the durable, solid-surface tops are easy to clean. Guertin took advantage of the area beneath the tub surround to add storage by building 12-in.-deep drawers into the front of the surround.

The other full bath has the same design sensibility, tweaked slightly for the space. Because the room is smaller, the 4x12 tile in the combination tub/shower runs vertically in order to draw the eye upward instead of horizontally, creating the perception of more space. These tiles have a raised curvilinear pattern that adds texture and interest and also emphasizes the vertical lines.

The choice of bathroom fixtures was driven by both performance and aesthetics. They had to be WaterSense qualified, which means third-party certified to be 20% more water efficient than the average fixture in their category while still performing as well or better than those less-efficient products. Aesthetically, the fixtures had to have clean, modern lines.

Both upstairs bathrooms have American Standard Town Square toilets with their Right Height design, which makes it easier to sit and stand from the toilet. The 1.28 gal.



ELEVATING THE STANDARD

American Standard plumbing products

The ProHOME plumbing fixtures needed to be efficient and attractive. American Standard's Berwick and Serin series products in the upstairs bathrooms offered the WaterSense efficiency and the clean, modern design features the designer needed. Designer DXV products add a luxurious touch to the more public first-floor powder room and the kitchen.

flush is water efficient, while the concealed trapway offers visually clean lines.

Building a conversation, one house at a time

The goal of the ProHOME has been to create a resource, in both the magazine and online, for designers and builders interested in good design and building high-performance houses. By showing and discussing the materials, methods, and proportions used in the house and the reasons for each decision, we hope to stimulate discussion about best practices and good craftsmanship, resulting in more homes built to the ProHOME standard. In a small way, we hope this effect has already started with the high-school students from the Warwick Area Career and Technical Center who worked alongside Mike and Bruce Guertin throughout the build.

The mission will continue with the 2017 ProHOME. Look out for the introduction to the new build in our next issue. □

Sean Groom is contributing editor.
Photos by Nat Rea, except where noted.

THROUGH THE LENS

DESIGN IDEAS FROM OUR PHOTOGRAPHERS



Inspiration in the images

In FineHomebuilding.com's "Through the Lens" blog, our contributing photographers—Lincoln Barbour, Ken Gutmaker, Susan Teare, and Brian Vanden Brink—share photographs they've taken of beautiful, well-designed homes along with their

observations about each project or shoot. We've selected eight of our favorite interiors and exteriors to display in this gallery, with a quote from each photographer describing what he or she found most inspiring about the featured projects.



“ One of the nice aspects of a dusk shot is seeing the totality of a building in one photograph—all of the shapes, spaces, and planes harmonize into one image. ”

—Ken Gutmaker

Location South Burlington, Vt.

Construction Conner & Buck Builders, connerandbuck.com

Schematic Design Mitra Designs Studio Collaborative, mitradesigns.com

Photographer Susan Teare



Location Los Altos, Calif.

Architect and builder Moderna Homes, modernahomes.com

Photographer Ken Gutmaker





Location Portland, Ore.

Interior design Holly Freres, JHL Design, jhldesign.com

Photographer Lincoln Barbour

Location Chatham, Mass.

Design and construction Polhemus Savery DaSilva
Architects Builders, psdab.com

Photographer Brian Vanden Brink

“ There’s just something about a home library that appeals to me. Maybe it’s the idea of a room dedicated just to books and study, or perhaps it’s the aesthetic of the books themselves. ”

—Brian Vanden Brink

THROUGH THE LENS

CONTINUED



Location Stowe, Vt.
Design Cushman Design Group,
chusmandesign.com
Builder Donald P. Blake Jr. Inc.,
stowebuilder.com
Photographer Susan Teare

“ This house sits on a steep slope facing west with breathtaking views of the Green Mountains of Vermont. In the soft early morning light, the timing was just right to show how inviting the entry is to people when they drive up to the house. ”

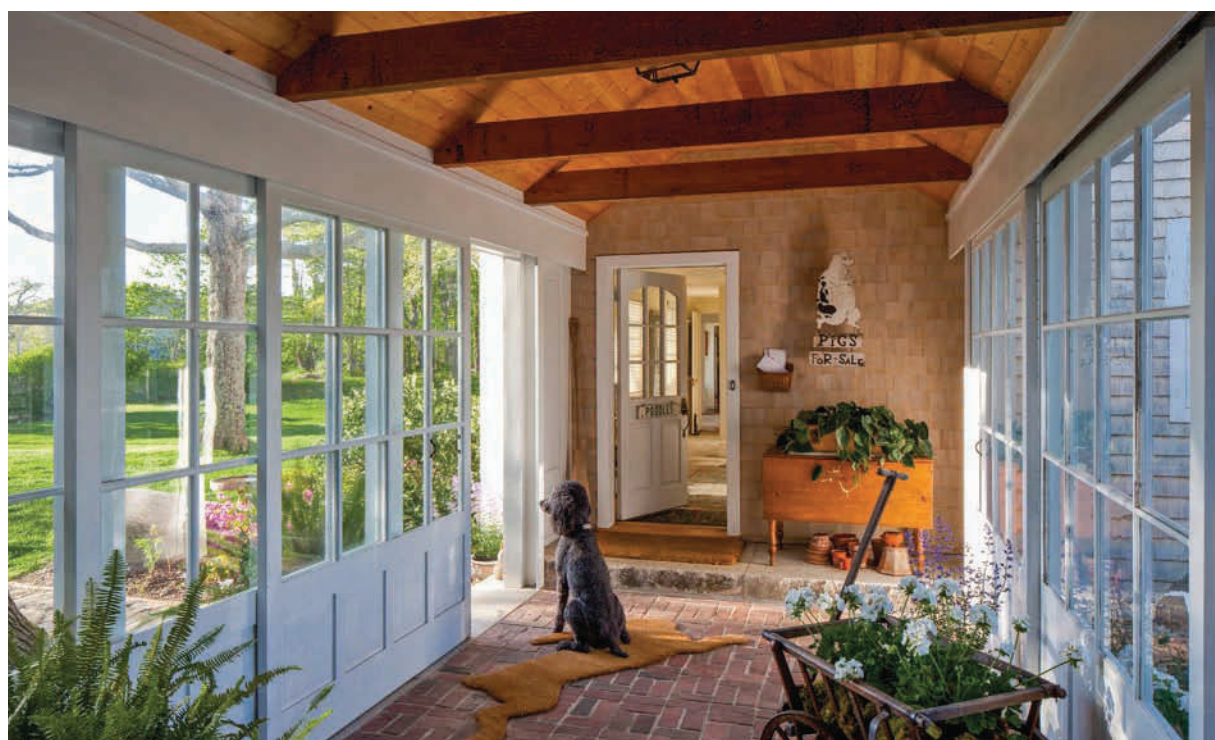
—Susan Teare

Location Midcoast
Maine

Design Scholz and
Barclay Architecture,
scholzandbarclay.com

Builder B.A. Lane
Construction

Photographer
Brian Vanden Brink



Location Grant, Minn.

Architect Rehkamp Larson Architects,
rehkamplarson.com

Builder Hagstrom Builder, hagstrombuilder.com

Interior Design Baker Court Interiors,
bakercourtinteriors.com

Photographer Ken Gutmaker



Location Lake
Oswego, Ore.

**Interior
Design** Taryn
Emerson Interiors,
tarynemerson.com

Photographer
Lincoln Barbour

“ To me, this home embodies relaxed elegance. Its warm, neutral color palette invokes a calming vibe. The openness of the rooms also makes for great flow. Though not a very large space, the vaulted ceilings give the impression of a much grander home. ”

—Lincoln Barbour



#KeepCraftAlive

A SKILLED LABOR SHORTAGE IS THREATENING THE AMERICAN ECONOMY.

Though construction is among the fastest-growing industries, professionals face challenges in hiring capable employees across all building disciplines. At *Fine Homebuilding*, we're building toward a solution. We're helping to close the skills gap by bringing awareness and funding to trade education and training opportunities. And as we've done for more than 35 years, we're celebrating craftsmanship in all its forms as a valuable and honorable lifelong pursuit.

FineHomebuilding

Join the movement and help close the skills gap at KeepCraftAlive.org

readers' choice

BY MAUREEN FRIEDMAN

In addition to the six award-winning projects selected by the *Fine Homebuilding* editors, we also asked our readers to select their favorite homes. The 10 projects nominated for consideration are below and the following pages feature the first, second, and third place winners. For more on each project, visit FineHomebuilding.com/houses.

Straw Bale Sanctuary

Designer

Tate Locke

Photograph

Ben Lehman



Efficient Timber-Frame

Designers

Ben and
Sanfra Weiss

Photograph

Eric Roth



Sturgeon Bay

Architect

KEE Architecture, Inc.

Photograph

courtesy of

KEE Architecture



Amagansett Dunes

Architect

Bates Masi +
Architects

Photograph

courtesy of Bates
Masi + Architects



The Wedge House

Architect

Fernau & Hartman
Architects

Photograph

Richard Barnes
Photography



Stony Creek Cottage

Architect

Campaigne Kestner
Architects

Photograph

Russell Campaigne



Victorian Modern

Architect

Arch11, Inc.

Photograph

courtesy of Arch11



Modern Home in a Rural Hamlet

Architect

Wiedemann
Architects, LLC

Photograph

Anice Hoachlander



A Cottage Reclaimed

Architect

LineSync
Architecture

Photograph

Carolyn Bates and
Gary Hall



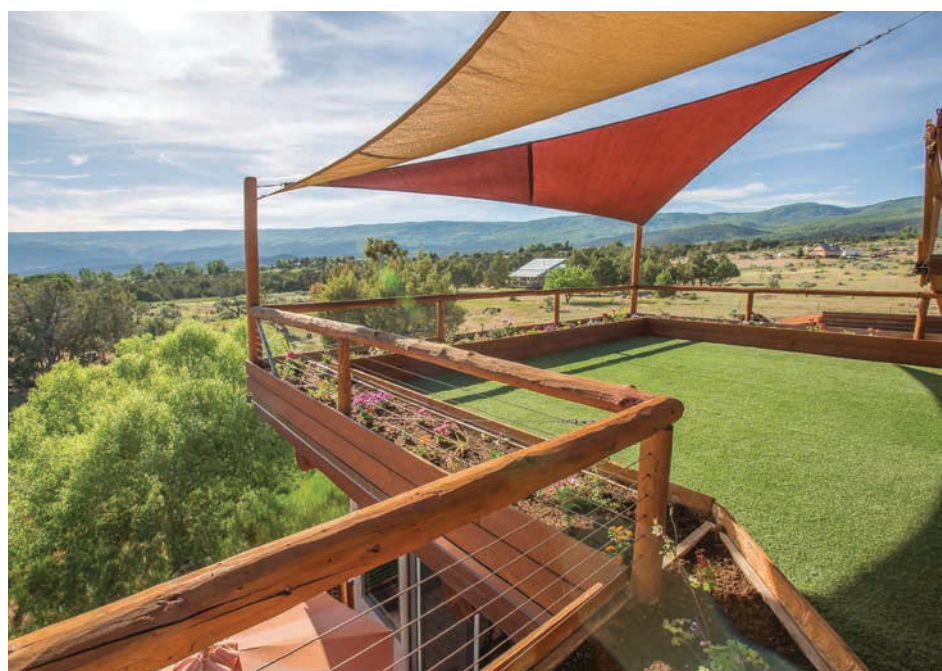
1700s Era Farmhouse

Architect

Period
Architecture, Ltd.

Photograph

Angle Eye
Photography



1 READERS' CHOICE FIRST PLACE

Straw Bale Sanctuary

During the last housing boom, Tate Locke and his father, Bill, forged a successful partnership building a few spec homes in the Colorado Rockies. After many years of designing, building, and renovating homes for others, Locke and his wife, Julie, now owners of Cristee-Meade Building Company, decided it was time to build their own.

Locke opted to create a four-bedroom, four-bath log post-and-beam house with straw-bale walls, playing with the skills he'd garnered as a carpenter. He designed their home based on log spans and a huge Anderson window package he'd purchased from the Denver classifieds years before.

Locke's original design was for a two-story "Not So Big" house, but due to the slab-on-grade construction required for this lot, a walkout basement was added. The young family soon realized the benefits of living on the three distinct levels of the home.

Sunken into the surrounding forest, the lower level is now a professional studio space with a full bath where Julie teaches yoga classes. The main level features a sunny kitchen, a see-through fireplace, and durable stamped concrete flooring with radiant heat. The upper floor is reached via a log staircase with a balustrade made from free-flowing willow branches.

Views from the house's uppermost level extend to the snow-capped mountains near Telluride and western Colorado's magnificent Grand Mesa. The upper level's deck space wraps around the west and south sides of the home and features cheerful synthetic grass, flower beds, and triangular sail shades.

Locke says that working with straw bale is not for the faint of heart and that incorporating it seamlessly with the rest of the unique design elements was challenging. But the result is a tight, energy-efficient house with naturally insulated thick walls finished with American Clay plaster.

Design and construction Tate Locke, Cristee-Meade Building Company, Cedaredge, Colo., cristeemeade.com

Photographs Ben Lehman, lehmanimages.com





2 READERS' CHOICE SECOND PLACE

Stony Creek Cottage

Sited beside a meandering tidal river in Connecticut, this four-bedroom, three-and-a-half-bath home has an air of understated elegance. The ceiling detail and crown molding in the living room continue through to the beautifully detailed front entry. The kitchen features custom cabinetry, black granite countertops, and stainless steel appliances. The mudroom has beadboard wainscoting for durability with ample built-in storage, a mahogany bench, and a stone floor. The living room, dining room, and kitchen are well-connected and positioned to take in the views of the shoreline.

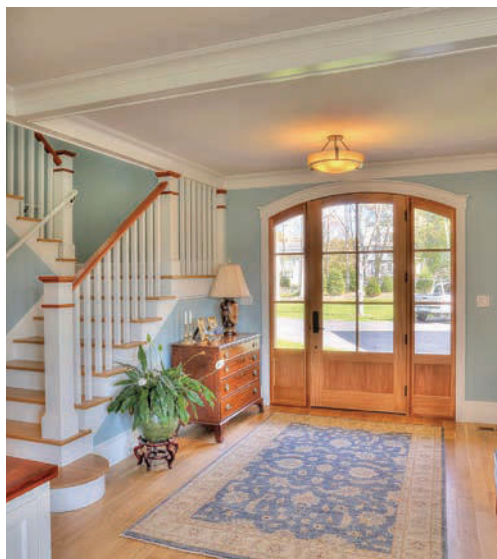
Designed so that years from now the house will function well as the couple's retirement home, the well-appointed master suite is located on the first floor. The front entrance is one step to grade and could be converted to a ramp if necessary.

The low-maintenance exterior of white shingle siding, Ipe decking, and stainless steel cable rail reflects a classic shoreline-cottage style. Exterior rigid foam insulation and high-efficiency windows are part of a tight envelope, and the house has achieved a HERS rating of 45. A geothermal system for heating and cooling is used to meet Energy Star standards.

Architect Russell Campaigne, Mary Jo Kestner, and Meaghan Hartney, Campaigne Kestner Architects, Guilford, Conn., ck-architects.com

Builder Celebration Green Design & Build, Madison, Conn., celebrationgreen.com

Photographs Russell Campaigne, courtesy of Campaigne Kestner Architects





3 READERS' CHOICE THIRD PLACE

Efficient Timber-Frame Living

Ben and Sanfra Weiss spent two years designing their house. Ben, an amateur woodworker, built the timber frames and interior designer Sanfra outfitted their dream home. The design is based around a 20-ft. by 50-ft. timber-frame open plan that houses the kitchen, living room, and offices. A second 24-ft. by 26-ft. timber frame includes the foyer, powder room, laundry, closets, and stairs to the guest quarters above the garage. The master bedroom and bath are also on the first level. The second level includes two bedrooms and baths, plus a guest suite with a living room and kitchenette. With its wraparound deck, stone patio, and three covered porches, the house transitions from inside to outside with style.

Net-zero energy use was achieved by using SIP panels, efficient windows and doors, proper air-sealing, an HRV, solar hot water, a wood boiler with a thermal storage tank, and a ground-mounted solar photovoltaic system. Situating the guest bedrooms above the attached garage allows for minimal heat load when the rooms are vacant.

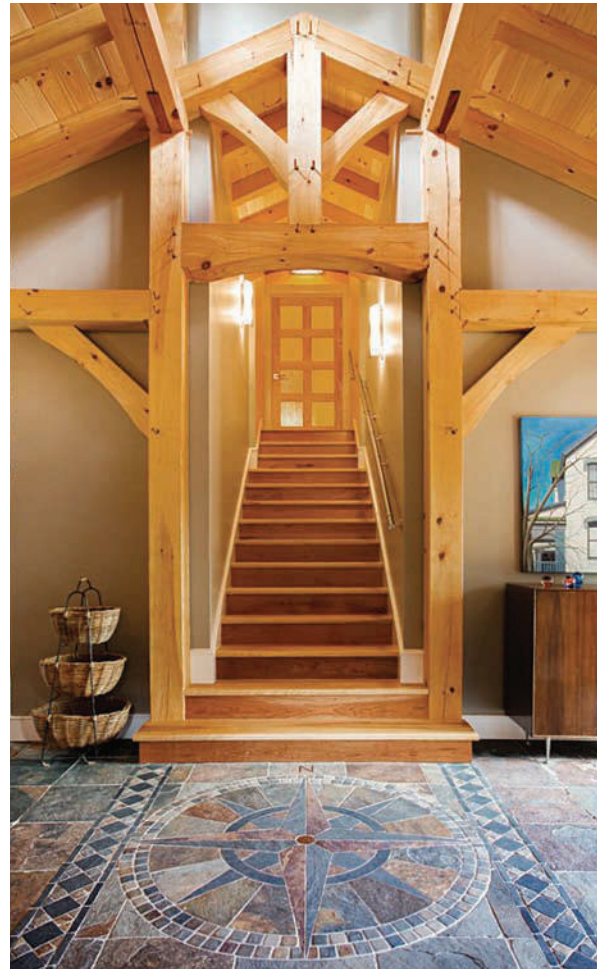
Design Ben and Sanfra Weiss, Dorset Design Build, Dorset, Vt., dorsetdesignbuild.com

Builder Ben Weiss and Big Pine Builders, Inc., Manchester, Vt., bigpinebuilders.com

Kitchen design Wendy Johnson, Designs for Living, Manchester Village, Vt., designsforlivingvt.com

Photographs Eric Roth, ericrothphoto.com





Built-in banquettes

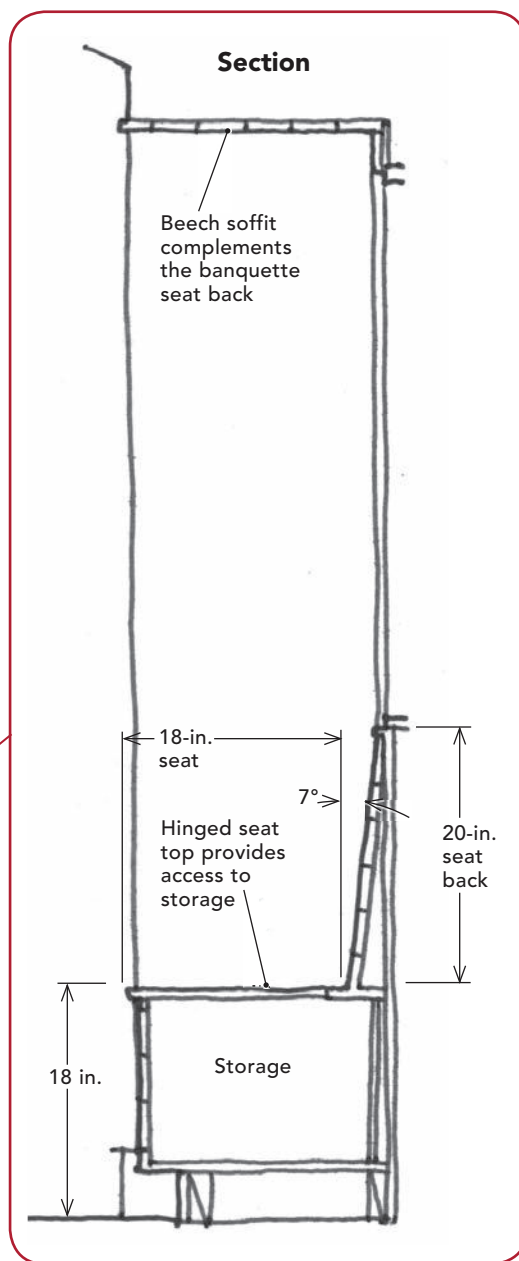
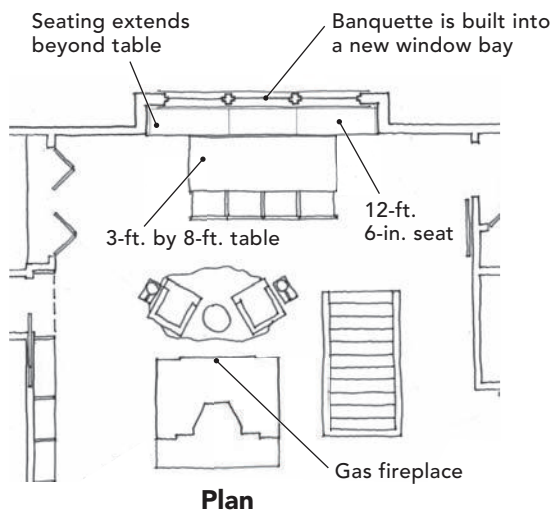
Looking back at three recent projects, I couldn't help but notice something they all had in common: a custom banquette. A banquette is a built-in bench that provides seating for a free-standing table, often with individual chairs on the opposite side. All three houses had small or narrow spaces that we wanted to

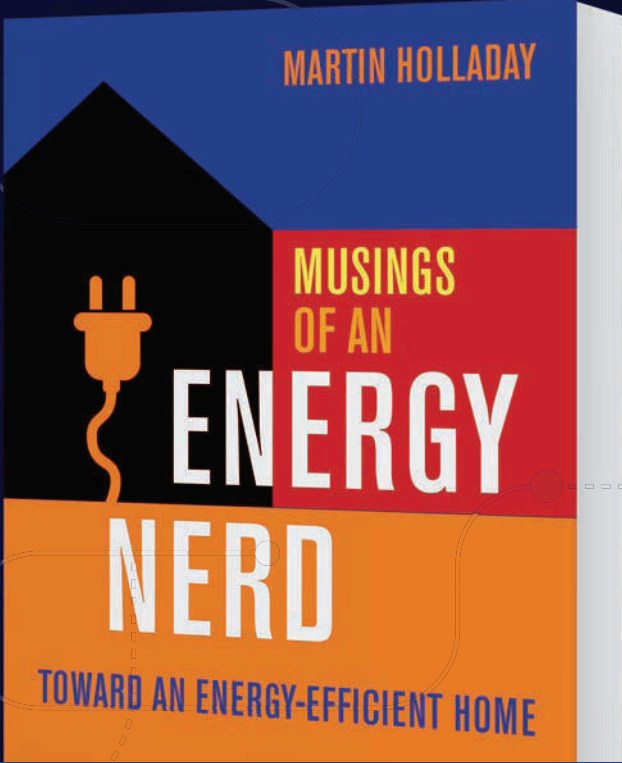
maximize, and a banquette is a great way to efficiently accommodate a table and seating in a space that would otherwise be too cramped for a more conventional dining table and chairs.

If space is especially tight, a banquette can bump out into a window bay, as shown in one example here, in order to provide

A BUMP-OUT AND A LITTLE EXTRA STORAGE

This project is part of a 1960s ranch remodel. We added a new window bay with a built-in banquette to accommodate dining in the living space, which we were reorganizing. Because this house is characterized by horizontal massing, we wanted the bay and banquette to be long enough to both make an impression on the exterior and also to accommodate a sizeable table with bonus bench seating extending beyond the table on both ends. We further emphasized the banquette's horizontal length with significant reveals between the tongue-and-groove boards on the seat back and seat front that run horizontally until they intersect with the vertical stiles that align with the window mullions. The reveals are also a nod to the clean and contemporary aesthetic. A banquette of this length can provide considerable storage in the base, which we chose to access with a hinged seat top. It is made of clear-finished beech and is complemented by a clear-finished beech soffit above. Together, they contrast the mostly white palette of the interior.





The Collection Energy Nerds Have Been Waiting For

Fifty of the most popular postings from Martin Holladay's blog give readers a unique view on living a more energy-efficient life.

"Everyone should be reading Martin Holladay's pieces on GreenBuildingAdvisor.com. He is basically a national treasure."

- David Meiland, Owner of Bailer Hill Construction in Friday Harbor, WA

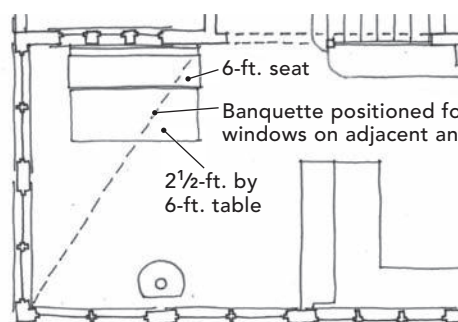
Order today at: Tauntonstore.com/nerd

© 2017 The Taunton Press

INDEX TO ADVERTISERS

ADVERTISER	WEBSITE	PAGE	ADVERTISER	WEBSITE	PAGE
Advantage Lumber	advantagelumber.com/decking-tiles	p. 21	The Footing Tube	www.foottube.com	p. 22
Atlantis Rail Systems	www.atlantisrail.com	p. 29	Haiku Home	haikuhome.com/fhb17	p. 14
Bear Creek Lumber	www.bearcreeklumber.com	p. 105	Innovis Corporation	www.innoviscorp.com	p. 22
Berkshire Products	berkshireproducts.com	p. 105	Marvin Windows & Doors	marvinwindows.com/scenic	p. 7
Cedar Shingles Direct	www.cedarshinglesdirect.com	p. 105	Mid America Components	midamericacomponents.com	p. 107
CertainTeed	certainteed.com/membrain	p. 9	ProHOME by Fine Homebuilding	finehomebuilding.com/prohome	p. 30
Chief Architect	chiefarchitect.com/freetrial	p. 2-3	Protective Products	protectiveproducts.com	p. 29
Coppa Woodworking	www.coppawoodworking.com	p. 105	Putnam Ladder	www.putnamladder.com	p. 31
Cor-A-Vent, Inc.	www.cor-a-vent.com	p. 13	Robinson Residential Design	www.robinsonplans.com	p. 105
Cor-A-Vent, Inc.	www.cor-a-vent.com	p. 22	Schluter	www.schluter.com	p. 17
Crown Point Cabinetry	www.crown-point.com	p. 11	Softplan	www.softplan.com	p. 29
DeckRite	www.deckrite.com	p. 16	Superior Clay Corporation	www.superiorclay.com	p. 14
Dryer Box	www.dryerbox.com	p. 31	SupplyHouse.com	supplyhouse.com	p. 16
Dryer Wall Vent	www.dryerwallvent	p. 15	Trim-Tex	www.trim-tex.com	p. 31
DuraGroove	www.duragroove.com	p. 105	ZIP System	zipsystemstretchtape.com	p. 5
Energy Nerd	tauntonstore.com/nerd	p. 103	ZipWall	zipwall.com	p. 13
Feeney, Inc.	feeneyinc.com/housesview	p. 108			

A COMPACT BANQUETTE BRINGS STYLES TOGETHER

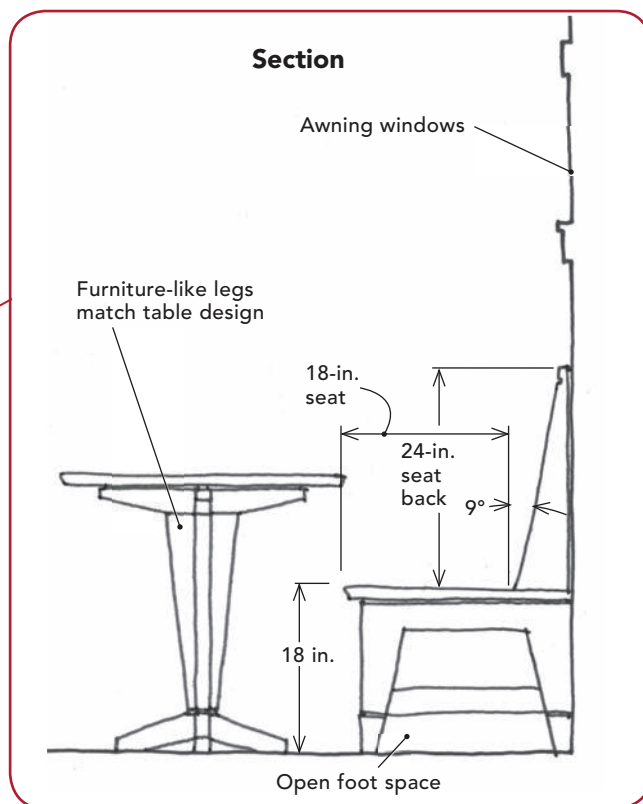


Plan

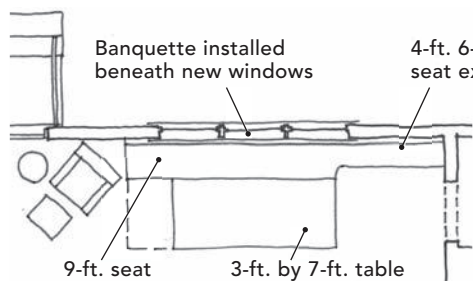
As part of a narrow addition, this banquette conserves space for furniture against the opposite wall. It is sized to match the length of the custom mahogany dinner table, and is easily accessed from both ends. The seat back has painted vertical 1x4s like those in the wainscot set within clear-finished mahogany rails and stiles. The pairing of clear-finished and painted paneling echoes the interior finishes often found on boats, a nod to the boatlike efficiency of this small space. Recessed mahogany panels in the base evoke the nearby Shaker-style kitchen cabinets while the tapered legs mimic the seat back and trestles.



Elevation

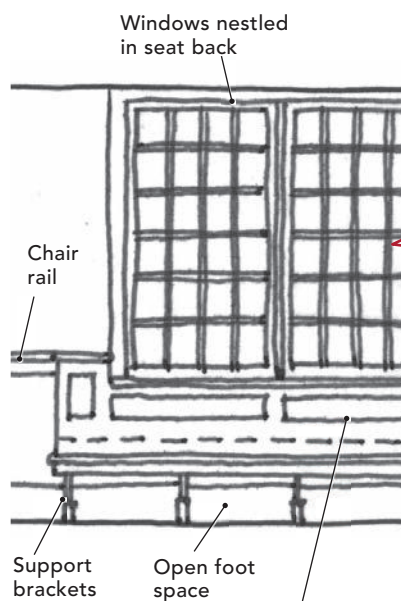


LOTS OF SEATING POTENTIAL NESTLED IN THE WINDOWS

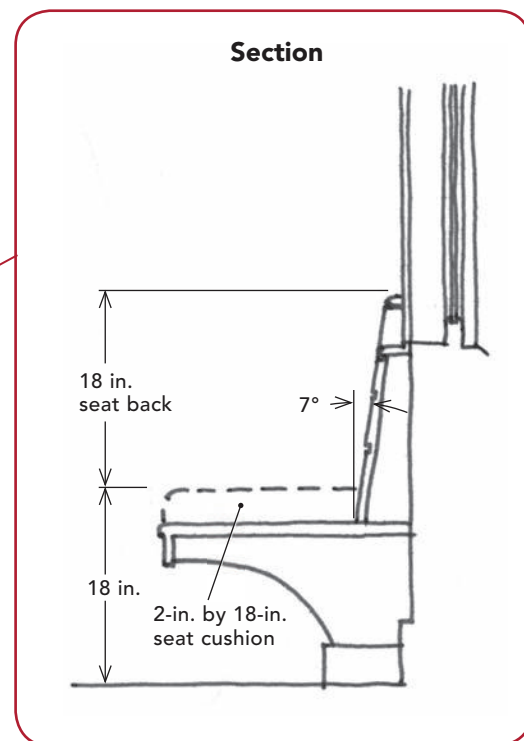


Plan

We found just enough space in this narrow footprint for a banquette backed against an existing window opening. The banquette extends beyond one end of the table for additional full-depth seating. At the opposite end, the seat narrows to accommodate an existing door opening. The banquette's seat back wraps around the windowsills, so the windows appear nestled in the banquette. A chair rail then picks up at the 36-in. mark, which ties the banquette to the room. Furniture-like brackets support the bench and create an openness that lends a spacious feel. The seat back is detailed with reveals that suggest panels while offering a comfortable, flat surface to lean against.



Elevation



adequate circulation behind the chair side of the table. When a window bay isn't an option or a desirable exterior feature, a banquette can still conserve space in a room when integrated along an interior wall.

A banquette also creates an opportunity to add character with a custom built-in. The examples here highlight the aesthetic of the spaces they occupy, whether it be ranch-house contemporary, Craftsman inspired, or a transitional Shaker style. Each displays attention to craft and creates a unique accent feature. Plus, a banquette is cozy and offers diners a choice between bench seating with a boothlike feel or individual chairs to suit their preference.

The banquettes illustrated here share common seat dimensions and a similar seat-back angle: Each has an 18-in. seat depth and a seat-back angle of 7° to 9°. Though one has a seat cushion and two do not, the finished seat height of all three (including the cushion on that particular project) is 18 in. The banquette lengths and seat-back heights vary, as do the table sizes that accompany them, but all have trestle tables. In general, a banquette works best with a trestle table since trestle supports don't interfere with banquette access the way a four-legged table would. These banquettes were also designed with open ends to allow easy access from both sides and to reduce the number of landlocked diners.

If having a middle landlocked diner is a concern, then consider a banquette that only seats two on the bench side, and includes open ends. If you like the flexibility of accommodating a group of diners in different locations or configurations, a banquette may not be for you. A banquette, like any other built-in, requires a commitment to a fixed location. However, since the table isn't fixed in place, it can be removed or relocated if you want to open the space for a large group of standing guests for cocktails or dancing. The built-in bench can remain an asset in the absence of the table. And when it serves as a table, a banquette can offer a clean, uncluttered look that efficiently accommodates seating that can be surprisingly versatile.

Katie Hutchison is an architect based in Warren, R.I., and the author of The New Small House from The Taunton Press (katie-hutchison.com). Drawings by the author.

PRODUCT SHOWCASE



Robinson Residential Design

We offer a wide variety of unique home and cottage plans — Craftsman, Contemporary, Urban & Narrow Lot. Plans available in varying sizes, all featuring innovative home designs.

877-352-6617

www.robinsonplans.com

Factory Finished Barnwood

Factory Finished Barnwood Weathered to Rustic Perfection. Save up to 50% on Factory Finished Barnwood. Starting as low as \$2.99 sq ft.



1.800.641.9663

www.duragroove.com

Bear Creek Lumber



Supplying the finest quality lumber materials since 1977. We offer top of the line Western Red Cedar, Alaskan Yellow Cedar, Douglas Fir, Port Orford Cedar, Hemlock, Pine, Spruce and Ipe.

800-597-7191

www.bearcreeklumber.com

Unique Woods for Unique Homes



(413) 229-7919

BerkshireProducts.com

Cedar Shingles & Cedar Panels

Save Up to 50% on Factory Finished Cedar Shingles and Cedar Panels. Pre-Finished with the Finest Coatings to Provide

Longevity, Long Lasting Beauty, and Instant Curb Appeal. 100s of Finishes Available. Custom Color Matching Available.



1.800.269.0598

www.cedarshinglesdirect.com

Coppa Woodworking, Inc.

Manufacturers of Custom Wood Screen Doors, Storm Doors and Much More!



310-548-4142

www.coppawoodworking.com

BREAKING THE MOLD

of a traditional architect

BY JUSTIN FINK

A high-level understanding of construction, design, and energy efficiency is what makes Architect Steve Baczek a triple threat of modern residential building. After spending much of his career with the reputable Building Science Corp., Baczek struck out on his own. Despite being a one-man operation, he worked on an astounding 65 projects last year, ranging from traditionally styled remodels to ground-up net-zero and Passive House builds. Always lighthearted and boisterous, Steve is the kind of designer that every builder dreams of working with. He counters the typical day-to-day hurdles of working on the cutting edge of residential construction

by providing builders with deeply detailed printed plans and making frequent site visits to give tradesmen walkthroughs of his intended assemblies, where he excels at making even an inexperienced team feel comfortable pushing the envelope of modern building.



STEVE BACZEK,
ARCHITECT



Keep Craft Alive is our campaign celebrating those who have chosen to passionately pursue a career in design, building, and remodeling. Find out more and show your support by visiting KeepCraftAlive.org, and use #KeepCraftAlive to share your passion for the cause.

**YOU'VE HEARD OF INTERIOR
DECORATORS?
WE'RE THE EXTERIOR
VERSION.**

BEFORE OWNERS CREATE A LOOK INSIDE THE HOME, BUILDERS MUST CRAFT A LOOK OUTSIDE. AVAILABLE IN AN INDUSTRY-LEADING ARRAY OF COLORS, SIZES AND ARCHITECTURAL STYLES, MID-AMERICA SIDING ACCESSORIES HELP YOU CREATE STUNNING, LONG-LASTING EXTERIORS. PROVING, ONCE AGAIN, THAT MID-AMERICA KNOWS THE BUSINESS OF SIDING DETAILS, INSIDE AND OUT.

**SHUTTERS + ACCESSORIES
WINDOW + DOOR TRIM
MOUNTING BLOCKS
UTILITY VENTS
GABLE VENTS
ROOFING VENTILATION**



MIDAMERICACOMPONENTS.COM

BEAUTIFUL EXTERIORS

MID AMERICA

Win up to \$5,000

of DesignRail® aluminum railing from Feeney!

Enter the 2017 “Show Us Your View” Photo Contest

Are you planning to install or replace a deck or balcony railing? If so, we're looking for photos that show us the view from where you'd be installing your new railing.

So grab your camera and show us your view for a chance to win!

For contest rules, entry form,
and a free catalog:

- visit feeneyinc.com/HousesView
- or scan the QR code below
- or call 1-800-888-2418

Our DesignRail® by Feeney aluminum railings are built for lasting beauty, structural integrity, low maintenance, and affordability. Made from heavy gauge materials with over 70% recycled content, DesignRail® railings are available in a wide variety of styles with durable powder-coated finishes and integrated low-voltage LED lighting. Infill options include aluminum pickets and glass panels, as well as CableRail by Feeney stainless steel cables; the perfect choice for wide open views!

feeney®
makes it easy

