January 2018 $4.95

JLC

THE JOURNAL OF LIGHT CONSTRUCTION

Rough-In Wiring

The Business of Work Scopes

Site-Built Stairs

jlconline.com

hw

JOIN THE REVOLUTION FOR A CHANCE TO WIN.*

ZIP System® sheathing and tape is a revolutionary building enclosure unlike any other system you've used. Learn how you can streamline air and water management and eliminate the need for housewrap and felt with one easy-to-use system. Stop by booth #W2883 for your chance to win* and learn how ZIP System sheathing and tape is changing the industry forever.

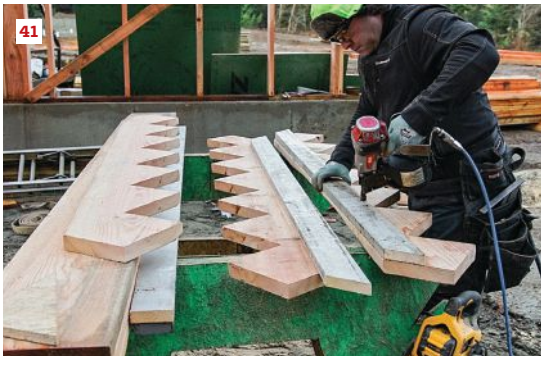
Visit booth #W2883 and see if your giveaway bag contains a winning ticket* good for one free 20-foot roll of ZIP System™ stretch tape.

ZIPsystem™
SHEATHING & TAPE

*NO PURCHASE NECESSARY. Open only to legal residents of the U.S. who are at least 18 (19+ in AL and NE) and who are registered attendees of the January 2018 International Builders' Show in Orlando, FL (the "Show"). To enter, be one of the first 10,000 persons to visit booth W2883 at the Show between 9:00 a.m. ET and 4:55 p.m. ET on 1/9/2018, 1/10/2018, or 1/11/2018 and get your Show ID badge swiped by a booth representative for a chance to win a 20-foot roll of ZIP System™ Stretch Tape. Entries must be received by 4:55 p.m. ET on 1/11/2018 to be eligible. Void where prohibited or restricted by law. See Official Rules at ZIPSystemStretchTape.com for complete details, odds and prize conditions. Sponsored by: Huber Engineered Woods LLC, One Resource Square, 10925 David Taylor Drive, Suite 300, Charlotte, NC 28262.

JLCONLINE.COM

Contents



On the cover: Ben Giles sorts and prepares a group of neutral conductors as he roughs in a switch box for the master bedroom at a house in southern Rhode Island. See the story on page 27. Photo by Roe Osborn.

FEATURES

DEPARTMENTS

THE JOURNAL OF LIGHT CONSTRUCTION (ISSN 1056-828X), Volume 36, Number 4, is published monthly by Hanley Wood, One Thomas Circle, NW, Suite 600, Washington, DC 20005. Annual subscription rate for qualified readers in the construction trades: $39.95; nonqualified annual subscription rate: $59.95. Publisher reserves the right to determine recipient qualification. Canada Post Registration #40612608/G.S.T. number: R-120931738. Canadian return address: IMEX, PO Box 25542, London, ON N6C 6B2. Periodicals postage paid at Washington, DC, and at additional mailing offices. POSTMASTER: Send address changes to JLC, Box 3530 Northbrook IL 60065-3530.

BPA WORLDWIDE BUSINESS

JLC

JLCONLINE.COM

V.P., Editorial Director John McManus, jmcmanus@hanleywood.com
Editor in Chief, JLC Group Clayton DeKorne, cdekorne@hanleywood.com
Chief Design Director Aubrey Altmann, aaltmann@hanleywood.com
Managing Editor Laurie Elden, lelden@hanleywood.com
Art Director Tina Tabibi, ttabibi@hanleywood.com
Senior Editors
Ted Cushman, tcushman@hanleywood.com;
Chris Ermides, cermides@hanleywood.com;
Tim Healey, thealey@hanleywood.com;
Roe Osborn, rosborn@hanleywood.com
Interactive Designer Alexander Cortez, acortez@hanleywood.com
Products Editor Lauren Shanesy, lshanesy@hanleywood.com
Intern Kathleen Brown
Contributing Editors David Frane, Dave Holbrook, Tom Meehan, Mark Parlee, Emanuel Silva, Gary Striegler, Tim Uhler, Charles Wardell, Andy Wormer

Senior Web Developer Braddock Bull, bbull@hanleywood.com

Production Manager Marni Coccaro
Digital Ad Manager Annie Clark
Ad Production Coordinator Bernadette Couture

Group Director, Audience Marketing & Circulation Christina Lustan
Circulation Promotions Designer Chara Anderson

President, Contractor Group Rick Strachan

HANLEY WOOD MEDIA

President Dave Colford
Executive V.P., eCommerce & Digital Jennifer Pearce
Executive V.P., Operations Sarah Welcome
V.P., Digital Strategy and Operations Bridget Forbes
V.P., Client Operations Mari Skelnik
Senior Director/Print Production Cathy Underwood

PUBLISHED BY HANLEY WOOD

Chief Executive Officer Peter Goldstone
Vice Chairman Emeritus Frank Anton
Chief Financial Officer Matthew Flynn
Chief Revenue Officer/President, Media Dave Colford
President, Marketing Jeanne Milbrath
Chief Data Officer/President, Metrostudy Andrew Reid
Senior V.P., Marketing Sheila Harris
V.P., Corporate Accounts Ryan Flom
V.P., Finance Ron Kraft
V.P., Corporate Controller Keith Rosenbloom

Editorial & Advertising Offices:
The Journal of Light Construction,
Hanley Wood LLC
One Thomas Circle NW, Suite 600
Washington, DC 20005
202.452.0800

INFORMATION DIRECTORY

CONTACT INFORMATION

jlconline.com; 202.452.0800
JLC
Hanley Wood LLC
One Thomas Circle NW, Suite 600
Washington, DC 20005

EDITORIAL

We welcome letters and article submissions from our readers. Contact us by mail at the address above, **Attn:** Editorial Dept., or via email at jlc-editorial@hanleywood.com. Keep copies of all original materials.

SUBSCRIPTION SERVICES

For help with your **JLC** subscription, contact us:
Online: jlconline.com/cs
Email: jlc@omeda.com
Phone: 888.269.8410
Mail: JLC, PO Box 3530, Northbrook IL 60065-3530
You can subscribe online at: jlconline.com/subscribe
Subscription rates for qualified readers: 1 year/ $39.95; 2 years/$64.95. Canada, International: add $15/ year for surface delivery. Sales tax will be added to total due if required by your state law.

JLC BACK ISSUES

JLC subscribers have free access to every issue of **JLC** since 1986. Enable your free access at jlconline.com/register. Copies of individual back issues can be purchased for $4.95 each, plus $5 shipping per order.
Call 888.269.8410 for availability.

ARTICLE REPRINTS

For custom reprints of **JLC** articles, call Wright's Media, 877.652.5295; hanleywood@wrightsmedia.com

JLC UPDATE EMAIL NEWSLETTER

JLC Update, our email newsletter, is free to **JLC** readers. Each issue contains industry news and the latest tips on building materials, techniques, tools, and technology. Subscribe online at jlcupdate.jlconline.com

For list rentals: The Information Refinery, Brian Clotworthy, 800.529.9020, brian@inforefinery.com

Privacy of mailing list: We rent our subscriber list to reputable companies. If you do not wish to receive promotional materials from other companies, please call us, toll-free, at 888.269.8410.

TIE-MASTER™

The best Structural Framing Fastener

GRABBER CONSTRUCTION PRODUCTS

"The Professional's Choice"™

www.grabberman.com

Legendary Performance Turns 50

WHAT A RIDE IT'S BEEN

grabberman.com/grabber50

Mechanical **Galvanized** Exterior Corrosion Protection

GRABBER CONSTRUCTION PRODUCTS 50 YEARS 1967 2017 THE PROFESSIONAL'S CHOICE

- **Grabber Tie-Master meets specifications in shear and pullout values for ICC-ESR 3531.**
- **Draw-Tite™ Shank**
  Pulls both wood members together for a secure fastening job

ICC ES

ICC EVALUATION SERVICE
ESR 3531

Star 40 Drive

Performance Data:
Allowable fastener strength for shear ((1,046 lbf)(37,275 psi))
Allowable fastener strength for tension ((1,492 lbf)(53,180 psi))

— ledgers — trusses — laminated beams — under deck connections — angles and brackets — dimensional lumber — structural framing —

JLC

SALES OFFICES

HEADQUARTERS

Rick Strachan President, Contractor Group
202.736.3332
rstrachan@hanleywood.com

Dan Colunio Vice President, Sales, Remodeling & Distribution Groups
617.304.7297
dcolunio@hanleywood.com

NORTHEAST/MID-ATLANTIC

Paul Pettersen Strategic Account Director
(Including CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VA, VT, WV)
516.252.8020
ppettersen@hanleywood.com

MIDWEST/ SOUTHEAST

Clare O'Dower Strategic Account Manager
(Including AL, FL, GA, IL, KY, MI, NC, OH, SC, TN)
202.372.5665
codower@hanleywood.com

MIDWEST/SOUTH CENTRAL

Kay Ross-Baker Strategic Account Manager
(Including AR, IA, IL, IN, KS, LA, MN, MO, MS, ND, NE, OK, SD, TX, WI)
773.824.2576
krossbaker@hanleywood.com

WEST COAST

Carol Weinman Senior Strategic Account Director
(Including AZ, CA, CO, ID, MT, NM, NV, OR, UT, WA, WY)
831.373.6125
cweinman@hanleywood.com

NEW ENGLAND REGIONAL EDITION

Phil Guerra Account Manager
516.586.4797
pguerra@hanleywood.com

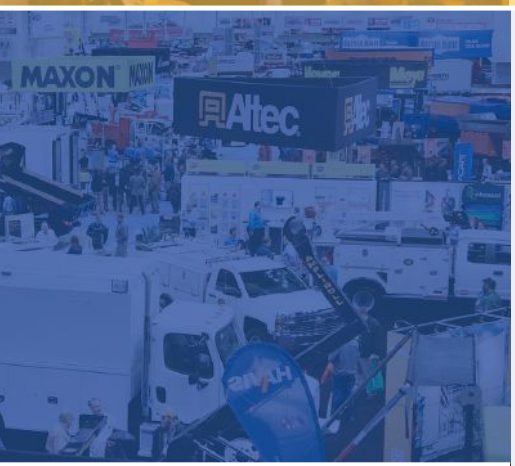
CANADA

John Magner York Media Services
416.598.0101
jmagner@yorkmedia.net

CLASSIFIED ADVERTISING

Maura Jacob Account Manager
678.451.8627
mjacob@hanleywood.com

IT'S CALLED THE WORK TRUCK SHOW FOR A REASON



Why attend North America's largest work truck event?

Experience the latest information for fleets on:

- Mitigating risk
- Staying relevant
- Improving fleet productivity and efficiency
- Leveraging your equipment supply chain and peers

Visit **worktruckshow.com/fleets** for information on registration, educational sessions, exhibit hall and more.

THE WORK TRUCK SHOW®

GreenTruck SUMMIT
The Future of Clean Commercial Vehicles

FLEET | TECHNICAL CONGRESS

March 6–9, 2018
Indiana Convention Center
Indianapolis, IN

Sessions begin: March 6
Exhibit hall open: March 7–9

Brought to you by NTEA
THE ASSOCIATION FOR THE WORK TRUCK INDUSTRY

#worktrucks18 | info@ntea.com | 800-441-6832

Chief Architect®

Smarter Design Software

Design by Michael Rust – Architect LLC
Rendered in Chief Architect.
See more of this model online.

Download a Free Trial Version

Residential Design

Remodeling & Cost Estimating

Kitchen, Bath, & Interior Design

3D Design, Floor Plans, Elevations

Construction Drawings

CAD Tools & Section Details

Mac Windows

208.292.3400 • chiefarchitect.com/FreeTrial

BY JOHN SPIER

Working With Sheet Stock

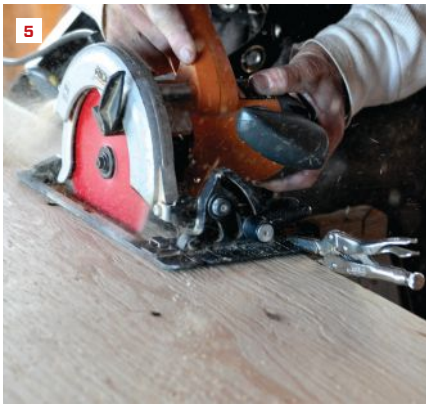
As carpenters, we are almost always building something that is floored, walled, or roofed with plywood, OSB, or some other form of sheet stock. For the most part, it comes in big stacks of 4x8 sheets, and we spend a lot of time cutting it into the sizes and shapes we need. Over decades of building houses, I've learned quite a few methods that make the tasks of measuring and cutting sheet goods go smoothly and efficiently.

There are specialized tools, such as panel saws and track saws, for cutting sheet goods, and the precision and accuracy that these tools provide are required in some applications. But for the purposes of this article, I'll focus on the routine cutting we do with circular saws, although I do keep an old table saw on framing jobs for some rips and for repetitive cuts.

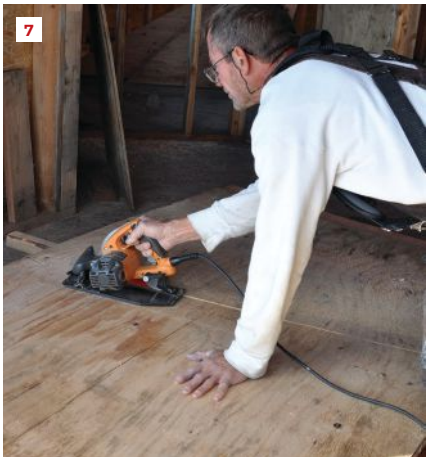
John Spier owns Spier Construction, a building and remodeling company on Block Island, R.I.

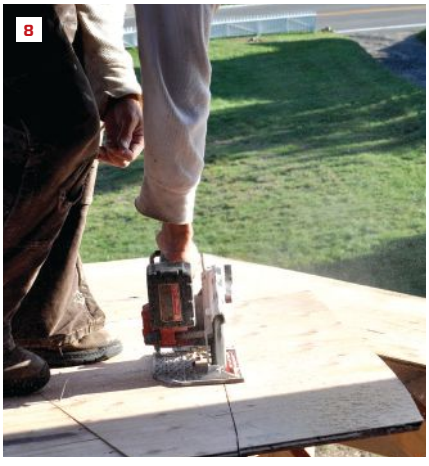
The fastest way to mark sheet goods for cutting is by using a measuring tape with a pencil on the hook end. Move both hands at the same speed for a straight line **(1)**. A T-square makes a good straightedge, but with bumpy edges on the sheets, don't trust it to be square **(2)**. A factory edge from a rip makes a good straightedge for an angled cut **(3)**. To mark a narrow rip, slide a layout square along the edge while holding a pencil at the measurement **(4)**.

Photos 1–4 by Liz Bazazi; Photos 5–10 by Kate Ryan



To make a narrow rip without marking a line, clamp locking pliers to the saw table to act as a rip guide **(5)**. Tongue-and-groove edges can make it difficult to make efficient use of angled cut-offs, as when you're working on roofs. Alternating tongue up and tongue down lets you use the same angled cut on adjacent roof planes **(6)**. To avoid confusion while cutting T&G pieces, orient the cutting station to match the direction of the piece as it will be installed.





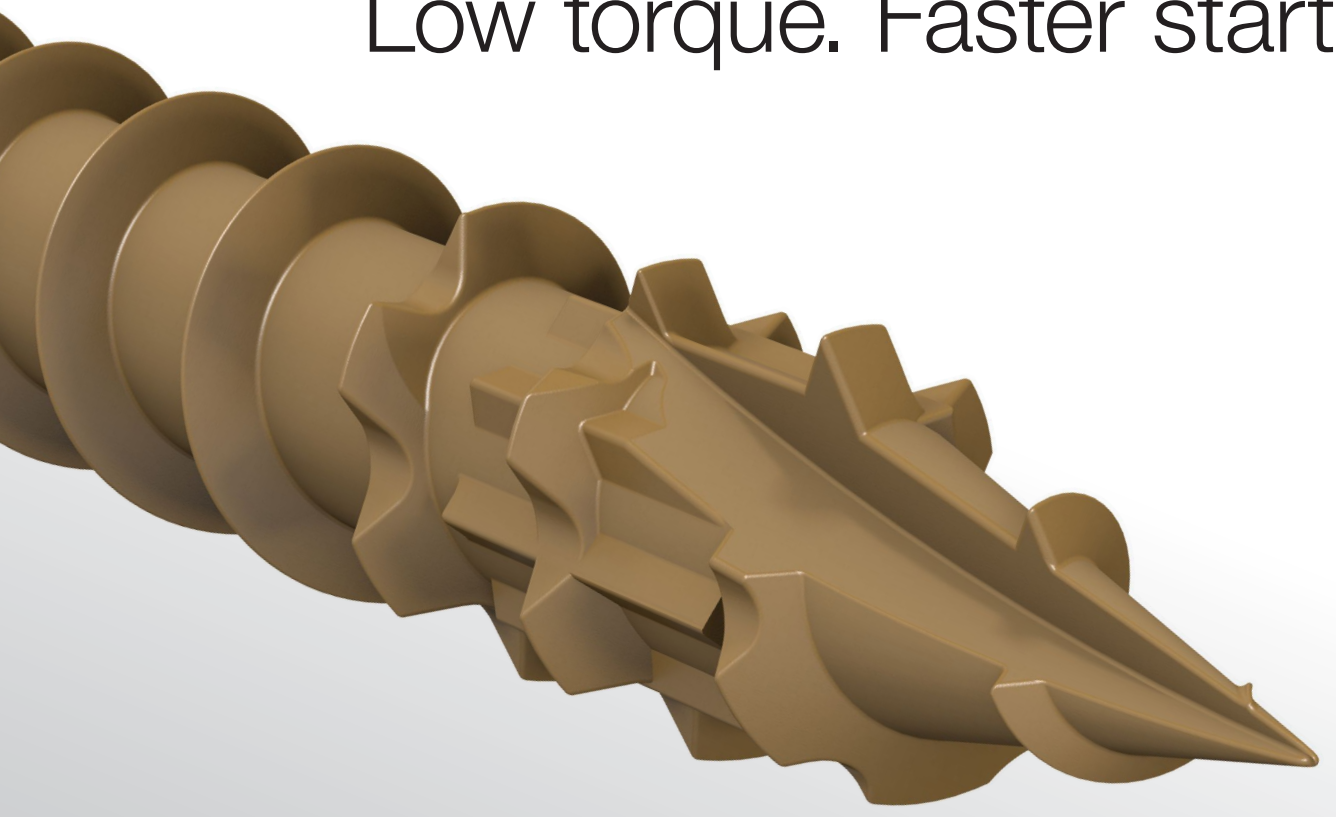
To avoid having to handle sheets multiple times, try to place stacks of sheet goods as close as possible to where they will be used. Then make cuts right on the pile. After marking a cut line, slip a short length of 2-by under the sheet a couple of inches from the line. Then you can make your cut without damaging the sheets below **(7)**. Often, a scrap can be used to finish a course of sheathing, such as the angled cut at a hip rafter. Instead of measuring and marking the piece you need, just tack the scrap to the framing, snap a line, and cut it in place **(8)**.

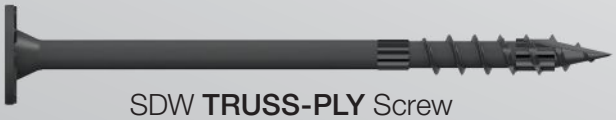
The best cutting station for sheet goods consists of two sturdy sawhorses made of 2-bys with a pair of sacrificial studs between them **(9)**. Avoid using lighter sawhorses that can slide, tip, or collapse when you drop a sheet on top. The 2-bys should last an entire job if you keep the blade depth set properly and don't flip them over and cut through them from the other side. The blade depth should always be set no more than 1/4 inch past the depth of the material that you are cutting **(10)**.

For a more detailed discussion of working with sheet stock, go to **www.jlconline.com/training-the-trades/working-with-sheet-stock**.

The New SawTooth™ Point

Low torque. Faster starts.





SDW **TRUSS-PLY** Screw

SDWH **TIMBER-HEX** Screw

SDW **EWP-PLY** Screw

SDWS **TIMBER** Screw

SDWS **LOG** Screw

SDWS **FRAMING** Screw

Make your jobs go smoother with industry-leading structural screws featuring our patented SawTooth™ point. Innovations such as serrated threads and vertical knurls reduce torque and eliminate predrilling, making your drives quicker and easier.

To learn more about our code-listed Strong-Drive® fastener line, visit **go.strongtie.com/strongdrive** or call (800) 999-5099.

SIMPSON Strong-Tie®

DRAINS 2 TIMES FASTER THAN ANY OTHER WRAPS.

Visit us at:

NAHB IBS™

Booth W6187,
January 9, 2018.
Orlando, FL.

- ✓ Drains stucco exceptionally well
- ✓ Meets or exceeds all siding manufacturers' requirements
- ✓ May be installed omni-directionally
- ✓ Save time, save money
- Drains and dries as efficiently as 3/8" rainscreen with no furring strips to install

TamlynWrap®
Drainable Wrap

Visit our website at
www.tamlynwrap.com or
call us at 800-334-1676.

How should you detail the edge of a tile floor where it meets a carpet?

A Tom Meehan, co-author of *Working With Tile* (Taunton Press, 2011) and a second-generation tile installer from Harwich, Mass., responds: When I have a choice, I always opt to install tile before carpeting, for a number of reasons. First, I can install the tile on a straight line that is easy to bring the carpet up to. And because setting tile can be a messy job with mortar, water, and grout, tiling first keeps the mess away from the carpet. It's much easier to sweep carpet crumbs off tile than it is to clean mortar out of the pile of a carpet.

TILING BEFORE CARPET

When the tile is to butt into carpet, I begin by drawing a straight line where I want the transition. I try to be mindful of exactly how and where the transition line between the carpet and the tile will be located. In the project shown in the photos below, the hallway carpet was to tuck under existing baseboard on either side of a tiled entry. So I drew the guideline for the tile at the edge of the wall rather than at the edge of baseboard **(1)**, using a straightedge and a waterproof black marker to make the line.

When setting the tile, I comb the mortar straight back from the line, and then set the tiles with their outermost edges against a straightedge, in this case a 6-foot level **(2)**. I make sure to scrape up any excess mortar or grout that oozes beyond the line. When the grout cures, the carpet layer can then position the tacking strip exactly where it needs to be to make an even transition between the two floors.

Tile before carpet. First establish the transition line between the carpet and the tile and draw a line **(1)**. Spread mortar for the tile, pulling it away from the line. Then install the tile using a straightedge to keep the edge of the tiles in a perfectly straight line **(2)**. Keep the edge of the tile free of excess mortar and grout.

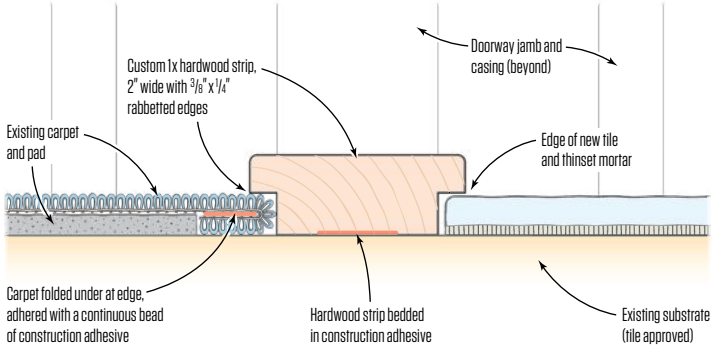
Photos by Roe Osborn; illustration by Tim Healey

TILING TO EXISTING CARPET

If I need to tile up to carpet that has already been installed—at a doorway, for instance—I install the tile carefully to within about an inch of the carpet. Again, I'm careful not to get any mortar or grout on the carpet. To bridge the transition between the carpet and the tile, I fashion a T-shaped wooden strip that bridges the edge of the carpet and the edge of the tile (see illustration, right). I make the strip from 1-by oak that I rip to 2 inches wide. I rabbet the edges about 3/8 inch deep on each side, leaving 1/4-inch-wide wings on the top. I round over the top edges and give the strip a couple of quick coats of poly.

To install the strip, I first remove the tackless strip, if it is in the way, and I fold the carpet flap from the threshold under itself, leaving a gap of about 1 1/2 inches between the tile and the carpet. Before folding the carpet, I apply a bead of construction adhesive to the underside of the flap so that the carpet will adhere to itself. After making the fold, I sharpen the crease by going over it with a hammer. Then it's just a matter of applying construction adhesive to the strip and pressing it into place, overlapping the edges of both the tile and the carpet. I usually put weight on the strip to hold it in place while the adhesive cures—overnight, if possible.

Custom Transition Strip Where Tile Meets Carpet



Tile-to-carpet transition. When tiling to an existing carpeted floor, install the tile to within about an inch of the carpet. Fold the flap of carpet under itself, using construction adhesive to keep the flap from unfolding. Then install a wooden transition strip to bridge between the two floors. Screws with plugged holes can be used to secure the strip, but the author has had success using just construction adhesive.

A Better Way to Flash

Safeguard new or renovated residential window and door installations from unwanted air, moisture and mold with Professional Grade Flashing products.

PolyWall BUILDING SOLUTIONS MOISTURE AND AIR STOP HERE

www.Poly-Wall.com
Contact Dan Thomas: (317) 610-1617

Blue Barrier™ Flash 'N Wrap™ 2400

- Easy application in wet conditions
- Tenacious adhesion, no gaps
- Eco-friendly, low VOC's
- No primers / No mixing
- Very Durable

WindowSeal® Flashing Tapes

- AAMA-711 Verified
- Comes in various widths
- Self-adhering, self-sealing
- Flash door & window frames
- Easy to remove film release liner

Also Available:

- Butyl Flash *(can be applied as low as 15°F and as hot as 110°F)*
- Aluma Flash (UV exposure 365 days)

THE EASY WAY TO BOOST PRODUCTIVITY.

Adrian Steel's Drop Down and Grip Lock Ladder Racks are designed with ergonomics and user safety in mind. Whether you're upfitting a single van or an entire fleet, Adrian Steel has just what you need. Increased efficiency starts now.

NEW FROM
ADRIAN STEEL
Cargo Management Solutions for Commercial Vehicles

AdrianSteel.com

Flashing Tape on Sheathing

BY STEVE BACZEK

Whenever I'm asked what material is the best to use for a particular job, my answer is always the same: "The one that's installed properly." With building assemblies becoming more and more complex, industry technologies—adhesives, sealants, tapes, and weather resistive barriers—seem to be improving every day. And the choices out there all have something good to offer—*if* they are installed properly.

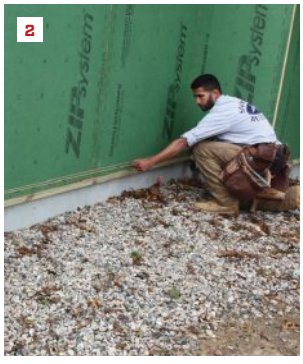
On a recent project, we chose to use Zip System R-Sheathing for the walls for a combination of the weather resistive barrier, air barrier, and exterior insulation. One of the keys to this material functioning successfully is the proper installation of the flashing tape that seals the joints between the sheets.

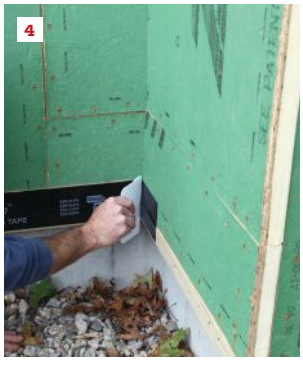
Trust the tape. Flashing tape comes in many different materials and configurations with many different properties, but installation for all of them is similar. There's a correct sequence of steps to follow, including preparing the surface, applying the pieces of tape in the right order, and applying proper pressure after the tape is positioned. These tasks are not difficult, but they are important, ensuring that the tape will function correctly.

Truth be told, tape scares me—it's not that I think the tape won't work, but rather I worry that it won't be installed properly. To ease my fears, I always reinforce my expectations with the builders I work with by specifying the details of the tape installation on all my drawings as an extra reminder.

Prep the surface. One of the most important steps, but maybe the one most overlooked, in installing flashing tape is wiping the surface clean and making sure that it is completely dry. Jobsites can be dirty places, with sawdust and soil dust on just about every exterior surface, even though it's not always visible. So the crew begins by wiping down every seam with a rag **(1)**.

Wiping the surface should also remove any dampness from the sheathing. The crews I work with are strictly instructed to never install flashing tape if the surface is at all damp. Most often, wiping the dust off the surface also takes away any dampness, but on a foggy morning or if rain is imminent, the smart move might be waiting for drier conditions before applying the tape.





The first step when installing tape on sheathing is wiping the surface clean of dirt and dust **(1)**. A snapped line guides the placement of the tape **(2)**. One crew member unrolls and stretches the tape while another presses it into place and removes air bubbles with a plastic spreader **(3)**. The spreader helps push the tape into an inside corner **(4)**. After going over the tape with a roller to apply final pressure, a crew member hammer-tacks the bottom edge to the pressure-treated ledger to help the tape stay adhered **(5)**.

Photos by Roe Osborn

Start at the bottom. With the 1 1/2-inch-thick Zip R-Sheathing, I don't like to leave the bottom of the panel exposed. The panel insulation is dry and warm, and creatures such as insects and rodents can burrow into it quite easily. The solution here was to install a treated 2x2 ledger that we bedded in acoustical caulk and attached to the bottom sill plate. We then set the panels on top of the 2x2 to close off the bottom edge.

The ledgers would go a long way toward keeping the critters out, but we needed to seal the bottom joint between the panels and the ledger to maintain the integrity of the WRB. To avoid a reverse lap, that bottom joint had to be done first. After wiping the surface, the crew snapped lines on the sheathing to guide the placement of the tape for the proper overlap **(2)**.

While one person can install flashing tape without help, this crew always works in pairs, with one crew member unrolling the tape and holding it out straight while another sets the tape in its proper position, applying initial pressure to adhere the tape **(3)** (more about the pressure later in the article). The person unrolling the tape can also add tension by stretching the tape, something that manufacturers recommend to enhance the tape's performance.

The crew installs the tape along their snapped lines. At inside corners, the crew uses a plastic spreader to push the tape into the corner **(4)**. To make the tape easier to work with, the crew cuts it with 4 to 6 inches extending onto the adjacent wall. When that length is adhered properly, a new length overlaps the previous length from the corner. Treated wood is a poor surface for tape to adhere to, so the crew hammer-tacked the bottom of the tape to the ledger to help it stay put **(5)**.

Applying pressure. Next, the crew turns its attention to the vertical joints. As before, the crew first wipes all the joints clean to ensure they are clean and dry **(6)**. Zip Sheathing has guidelines printed along the edges to position the tape. Starting from the top, one crew member unrolls the tape, keeping it on the lines while the other crew member applies initial pressure **(7)**.

Like most tape, flashing tape uses pressure-sensitive adhesive to make it stick to surfaces. Adhering the tape is usually a two-step process. First, pressure is applied to position the tape; this is usually done with a hand. The OSB surface of the Zip panels is textured, and this initial pressure is enough to make the tape stick to the high points of the texture. Hand pressure keeps the tape on the lines, but it's light enough that the tape can be unstuck and repositioned if absolutely necessary.

The second pressure pushes the tape into the irregularities of the sheathing surface. The engineers I've spoken with call this step "wetting"; the tape's adhesive actually flows to make contact with the entire

Vertical joints are first wiped down **(6)**. Then one of the crew unrolls, aligns, and stretches the tape while another adheres it and works out any air bubbles with a plastic spreader **(7)**. Roller pressure completes the adhesion process **(8)**, forcing the tape into the texture of the sheathing surface **(9)**.

At outside corners, a snapped line keeps the tape at 1-inch minimum coverage **(10)**. After applying tape to the first side, a crew member rolls it **(11)**. Starting in the middle and working up and down, the crew then wraps the tape to the other side **(12)**, stretching the tape while adhering it.

Ends of horizontal seams should be covered by a vertical seam **(13)**. For inside corners, the crew cuts manageable lengths of tape and folds them in half lengthwise. Starting at the bottom, one of the crew holds the folded tape in place while the other presses the fold into the corner **(14)**. The second piece goes in similarly, overlapping the piece below **(15)**. When the tape is stuck on both sides, a roller applies the final pressure to adhere the tape to the sheathing.

topography of the sheathing surface. This pressure marries the tape and the surface of the panel into a strong, irreversible, and long-term bond.

How much pressure is enough? The recommended method for applying this pressure is with a roller. But most rollers are tough to carry easily in your tool belt, and applying proper pressure at the top of a two-story ladder can be tough to do safely. Instead, our crews often use plastic spreaders, which also work fine providing you apply enough pressure.

These spreaders are also great for working out any air trapped under the tape, and the edge is handy for tucking the tape into inside corners. While it's possible to develop enough pressure with one of these spreaders to properly adhere the tape, I always recommend finishing the installation with a roller whenever possible **(8)**. One indication that enough pressure has been used is that the texture of the sheathing telegraphs through the tape **(9)**. Recently, Huber came out with a new roller, with a raised "Z." When proper pressure has been applied, the roller leaves an embossed Z on the tape, taking the guesswork out of rolling the tape.

Corners—both inside and outside—can be the most challenging part of any tape installation and are where a tandem crew is most valuable. On outside corners, the crew begins by snapping a line 1 inch from the corner, which is the minimum coverage allowed by the manufacturer **(10)**. The crew aligns the tape with the snapped line and adheres that side first **(11)**. Then starting in the middle of the joint, they carefully wrap the tape around the corner and adhere it to the adjacent side. One of the crew stretches the tape out tight while a second person uses the spreader to adhere the tape, working out any air bubbles at the same time **(12)**.

Before taping the inside corner, the crew had to tape a horizontal joint where the sheathing had been pieced in. The tape for horizontal joints like this one should end inside the tape line of a vertical joint, where it will be completely captured **(13)**.

Shorter lengths of tape work best for inside corners. After cutting a length of tape, the crew folds it in half lengthwise. Then, working from bottom to top to lap the tape correctly, one of the crew keeps the tape folded and pulled tight, while the other adheres the tape, pushing it into the corner with the plastic spreader **(14)**. When the tape is adhered to one wall, the crew uses the spreader to stick the adjacent side in place **(15)**. Then they cut and install successive strips the same way, overlapping the strip below by a few inches.

Steven Baczek, of Reading, Mass., is an architect specializing in energy-efficient design and certified passive homes. stevenbaczekarchitect.com

A Finish Carpenter's Set of Box Beams

BY MARK LUZIO

For all of the trim jobs and cabinet installations I do on site, I need a good on-site "shop"—a place, usually in a living room or garage, where I can set up my tools, a cutting station, and an assembly area. The heart of that setup is a set of box beams that I use as my workbench, as a stand for most of my power tools, and for creating a dead-flat assembly platform **(1)**.

I learned how to make these box beams (sometimes called "strongbacks") 35 years ago when I shared a co-op workspace with a young Swiss cabinetmaker, who proved to me how versatile a pair of well-made box beams can be for any shop. The important features of these are that they don't flex and that they're dead-straight so I always have an accurate straightedge. This straight reference is a key to quality trim carpentry and assembly in any house, but especially in the old 19th- and even 18th-century homes in and around New York City and Boston where I typically work. Because the box beams are easy to transport and move around, they are great for on-site work, and I use them all the time in my full-size shop, as well.

MAKING A SET OF BOX BEAMS

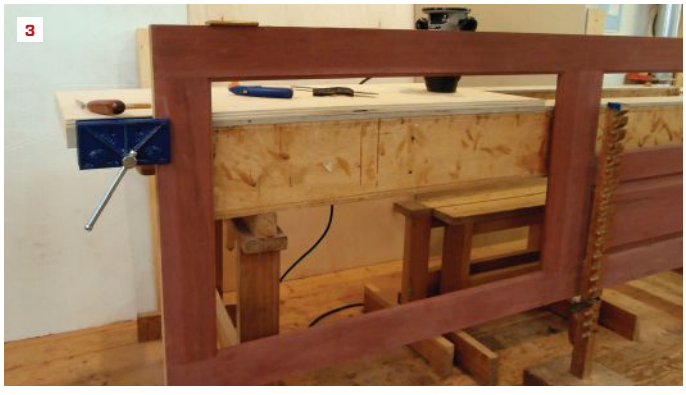
Each box beam measures 5 inches wide by 8 inches tall and 8 feet long. All the rips for two beams (one set) come from one sheet of 3/4-inch, shop-grade plywood (see "Making Box Beams," page 20). Making the top 6 inches wide makes a slightly better work surface, but requires one extra rip from another sheet of plywood. I cap the top with 1/2-inch Homasote to make a finish height of 8 1/2 inches. It is important to make any additional beam sets the exact same height for large build platforms, like the one I used for routing a 60-inch radius with a trammel router jig (see "Curved Paneling for a Circular Room," Aug/16). The 6 1/2-inch rips for the sides of the beams must be straight, parallel, and perfectly matched.

Each beam has five interior squaring blocks that are cut from scrap material. Thickness is not so important for these, but they must be cut precisely to ensure the beams run straight and square. A few biscuit joints help with assembly of the beams and add strength. Glue and screw the beams together, clamping them tight.

To support the beams, I make pairs of trestle-type sawhorses **(2)** out of vertical grain fir (I select clear, 36-inch lengths out of 2x10 rafter stock from my local


1

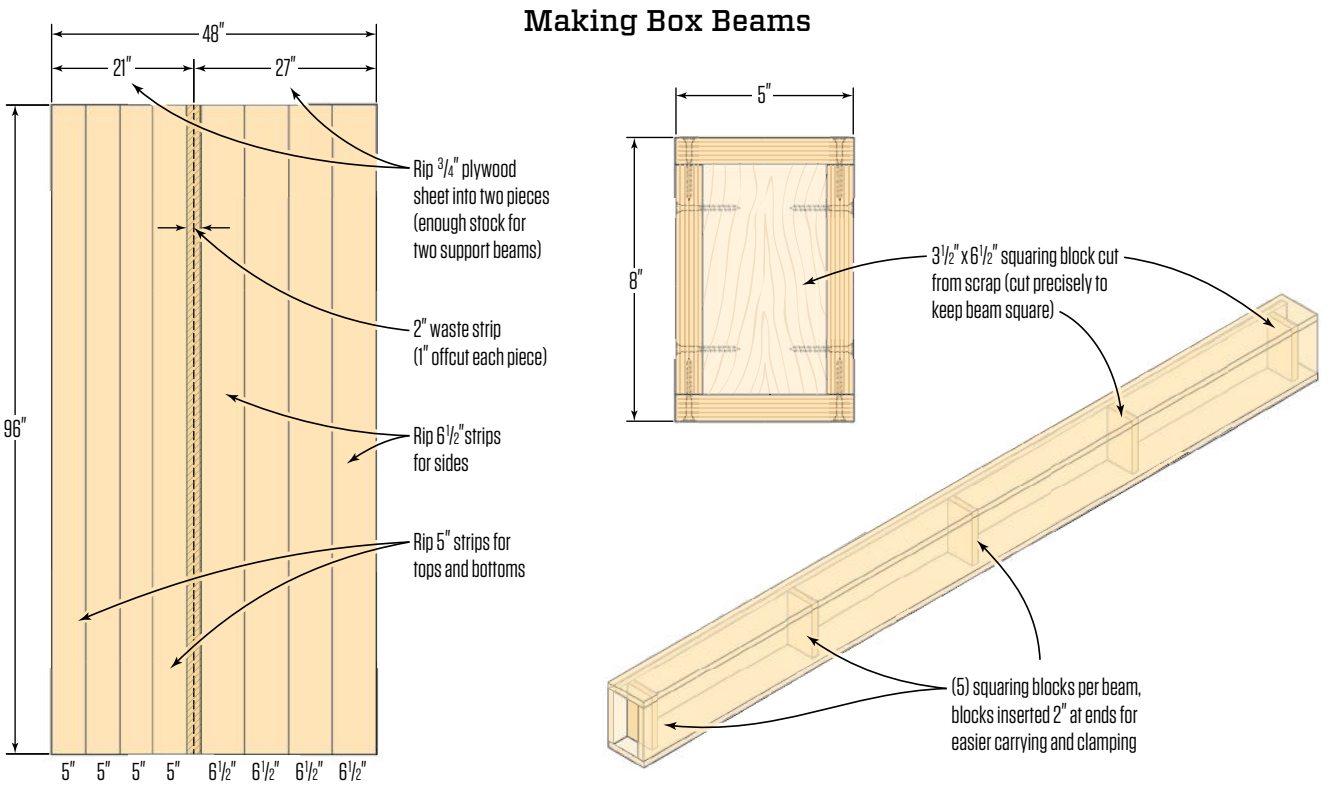

2


3

4

Photos: Mark Luzio


Hello COURAGE



The top and sides for one set of box beams (two box beams) can be cut from a single sheet of 3/4-inch plywood. To ensure you can make a dead-flat surface with two beams, the 6 1/2-inch rips must be exactly the same. Also, cut the five squaring blocks for each beam precisely square and identical; these control how straight and square the beams go together.

lumberyard). The horses measure 28 inches high with a 2x2 straightedge on the top bar that can be removed and re-milled as it wears out.

USING BOX BEAMS

Large fixed tables are wasted space in any shop. If I need a large table for layout, I clear space and drop a sheet of plywood on the beams. A workbench is made by screwing a half sheet of plywood to the beams. All Domino work and all sanding happens on the beams. I cut 1-inch-wide strips of Homasote and screw them to the beams as stop cleats for holding pieces for sanding. This can be done hundreds of times with no damage to the beams.

I also lay out and biscuit all my kitchen and built-in storage boxes on the beams. Basic cabinets can be glued up and clamped together on the beams. A set of two perfectly matched beams is essential for clamping up a door that is flat and has no twist. If I need a tail vise (which I use for holding doors when planing the edges and mortising hinges), I double the plywood thickness on one end and overhang it 8 inches to accept the vise **(3)**. Two beams and a few bar clamps make an excellent press for gluing up thick stock from thinner boards (for example, sometimes my door stock is 1 1/2-inch-thick stock made from 3/4-inch boards).

The beams work great as power-tool stands, as well. I set up my miter saw on them and form up a couple of (or more) T-supports from scrap to pick up long stock. I also set up my portable 13-inch planer on box beams, which make a rock-solid platform on which to thickness long boards **(4)**. I have a 24-by-36-inch piece of MDF drilled for one of my routers that I screw to a pair of beams to create a router table.

I always set up a pair of beams and horses on any big jobsite, and most of the time, other carpenters on the project ask if they can use them to help with some task or to make some cut. I tell them it's fine, and when they're done, I make them a quick drawing on a piece of scrap lumber so they can make a set of their own.

Mark Luzio owns Post Pattern Woodworking, based in Brooklyn, Conn.

Hello ROCKWOOL

The world is changing. And so are we.

As ROXUL, our products have always contributed to the energy efficiency of spaces. And this will continue. But with the world's energy consumption expected to rise 50% by 2050, is this enough? We don't think so. United under one global name, we can address this trend with more sustainable solutions. It's a bold leap forward we're ready to make.

We are the leader in stone wool insulation.

We are ROCKWOOL.

For more about what this change means for you, visit rockwool.com/hello

ROXUL is now ROCKWOOL™

STABILA®

NEW LAR 350

Dual-Slope Rotary Laser

The World's First Motion Control Laser

Extremely Durable & Versatile:

- Horizontal / vertical dual slope function
- 90° layout
- Long range capabilities 2,600 ft.
- Drop tested to take a 6' fall and not lose accuracy
- IP65 impervious to mud & water

Made In Germany

www.stabila.com

BY MELANIE HODGDON

How *Not* to Discuss Markup With Your Customers

A client of mine, let's call him Jim, recently was put on the spot by a customer for whom Jim had offered a contract price for a sizable project. I should mention that, after my assistance in analyzing his company's historical profitability, Jim has made a commitment to increasing his prices. This job was the first he'd priced since changing his pricing strategy, and he was feeling somewhat insecure about defending the result. Confusing the situation further, the customer had initially worked with a designer who had provided some tentative budget figures. The customer was clinging to those original price suggestions, even though he'd made significant changes to the original plan.

The customer demanded to know Jim's markup. When you're confronted with a similar demand, bear in mind the following as you prepare your response.

COMPARING APPLES AND ORANGES

Markup is irrelevant, because the estimated costs that you "mark up" will vary depending on how you've set up your financials. That means that even if you charge the same price as a competitor, your markup can be vastly different. Let's look at how two different contractors may organize their cost categories (refer to the charts on page 24).

Contractor A has included his labor burdens under Costs of Goods Sold. Therefore, when he estimates what the job will cost, his labor costs will be fully burdened, making the estimated costs high. Because he classifies his production labor burdens in Costs of Goods Sold, his overhead is low.

Contractor B includes only production employee wages in Costs of Goods Sold and includes all burdens in overhead. Therefore, when he estimates what the job will cost, his labor costs are partially burdened, making the estimated costs lower. Because he classifies his production labor burdens as part of overhead, his overhead is higher.

Both contractors charge exactly the same amount for the job, but because of the organization of their costs in their financials, they will apply very different markups to their estimated costs in order to arrive at the same sales figure. In addition, they both are aiming at the same net margin figure (about 8%).

So when uninformed customers compare Contractor A's markup (36.2%) with Contractor B's markup (69.92%), they think it's obvious that Contractor B is charging much more, even though the sales figures are the same. And this is exactly why bandying about markup figures when talking with customers is pointless.

> "Markup is irrelevant, because the estimated costs that you 'mark up' will vary depending on how you've set up your financials."

The better question to ask your customers is whether or not they feel that a net profit of 8% (or 10%, or whatever your target net is) as a reward for the risk of being in business to produce and support a quality result for them is reasonable. Their answer may also be used as a qualifier: If they balk at that, that's an excellent signal that you should walk away.

Melanie Hodgdon, president of Business Systems Management, provides management consulting and coaching for contractors.

Contractor A	
Job Sales Price	$130,000.00
Labor Costs	
Wages	$25,000
Payroll Taxes	$4,625
Workers' Comp	$3,750
Liability Insurance	$550
Paid Time Off	$1,500
Health Insurance	$4,500
Retirement	$750
Vehicle Costs	$2,500
Communication Costs	$900
Material Costs	$20,000
Sub Costs	$30,000
Other Direct Costs	$1,500
Total Estimated Costs	**$95,575**
Gross Profit	$34,425
Gross Margin	26.48%
Markup	**36.02%**
Overhead Costs	$24,000
Total Overhead	$24,000
Net Profit	$10,425
Net Margin	8.02%

Contractor B	
Job Sales Price	$130,000.00
Labor Costs	
Wages	$25,000
Material Costs	$20,000
Sub Costs	$30,000
Other Direct Costs	$1,500
Total Estimated Costs	**$76,500**
Gross Profit	$53,500
Gross Margin	41.15%
Markup	**69.93%**
Overhead Costs	$24,000
Payroll Taxes	$4,625
Workers' Comp	$3,750
Liability Insurance	$550
Paid Time Off	$1,500
Health Insurance	$4,500
Retirement	$750
Vehicle Costs	$2,500
Communication Costs	$900
Total Overhead	$43,075
Net Profit	$10,425
Net Margin	8.02%

How you mark up for labor, subcontractors, and materials is not the point a customer should be obsessing over, as these examples show. Contractor A has included his labor burdens in Costs of Goods Sold, so his estimate reflects labor costs that are fully burdened, making the estimated costs high. Because he classifies his production labor burdens in Cost of Goods Sold, his overhead is low. Contractor B, on the other hand, includes only production employee wages in Costs of Goods Sold, and includes all burdens in overhead. Therefore, when he estimates what the job will cost, his labor costs are only partially burdened, making the estimated costs lower. But because he classifies his production labor burdens as part of overhead, his overhead is higher.

Visit us at
IBS 2018
BOOTH #W2883

SQUEAK-FREE™ GUARANTEE

OUR WORD IS OUR BOND.

With a unique foam-to-gel formula, NEW AdvanTech™ subfloor adhesive delivers a powerful panel-to-joist connection with a fast, easy application — even on wet or frozen wood[1]. And when you combine it with the moisture resistance, strength and fastener-holding power of AdvanTech® subfloor panels, you get a subfloor assembly backed by the industry's only Squeak-Free Guarantee[2]. And that's what makes AdvanTech® products the FLAT OUT BEST™ choice for a quiet, stiff floor.

AdvanTech™
SUBFLOOR ADHESIVE

See it in action at AdvanTechSFA.com.

[1] Exceeds ASTM D3498. [2] Limitations and restrictions apply. Guarantee for panel-to-joist connection on an AdvanTech™ Subfloor Assembly. Additional limitations and restrictions apply. See SqueakFreeGuarantee.com for details.

PLS 3 | PLS 3 Green Beam | PLS 180 | PLS 180 Green Beam

Come visit us at booth #S731

ENTER TO WIN a Yeti Flip 8

BUY PLS laser levels at the booth

The PROFESSIONAL STANDARD of laser levels.

Designed by contractors for contractors.

See us at NAHB International Builders' Show®
Jan 9-11th in Orlando, Florida

PLS
A Fluke Company

3 YEAR Best-in-Class

@PacificLaserSystems
@PacificLaserSystems
www.plslaser.com

Rough-In Wiring

Keep everything neat and orderly to eliminate confusion later

BY BEN GILES

Flipping a light switch and plugging something into a receptacle are things we do every day without a second thought. Most of us can't recall a time when electricity was not an integral part of our lives. But few people realize how much work goes into making sure that everything behind those devices—inside the walls—is installed properly to deliver electricity for our needs. In the industry, that part of wiring is called "roughing in."

AN ORGANIZED AND CONSISTENT APPROACH

Earning a living by wiring houses, as with every job done by a professional contractor, requires doing the job as efficiently and safely as possible. The rough-in methods that I describe in this article have been learned and honed over decades of experience.

One prerequisite for a successful rough-in is keeping all the work neat, organized, and consistent. Most of the homes that we wire are custom-built for clients who expect meticulous work—regardless of whether the work is visible. That level of neatness reflects on the general contractor as well as on my company as the electrical contractor.

More importantly, my organized approach to roughing in makes it easy to trace or follow any circuit. When we finish roughing in a house, I'm confident that any member of our crew can ascertain at

Photos by Roe Osborn

Getting started. Before running cable, the author marks the switch locations and notes what each switch will control **(1)**. A circle with two vertical lines indicates a receptacle location **(2)**. The crew installs receptacle boxes using a laser level to keep the boxes at a consistent height **(3)**. Small plastic nubs on the side of the box align it at the proper depth for the drywall **(4)**.

a glance what any circuit is meant to supply or control, as well as the path that the wires followed to get there. With dozens of circuits and many thousands of feet of wire in each of the homes we work on, keeping everything organized to an almost obsessive level means that in the end everything will work as it should without a lot of time-consuming troubleshooting.

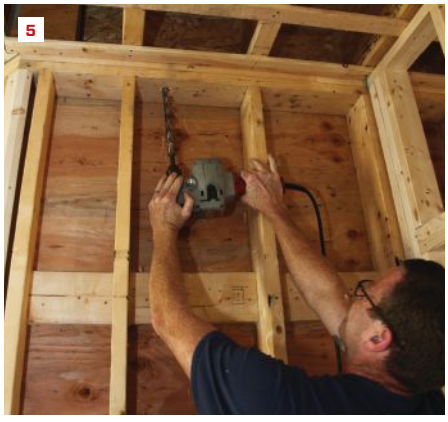
Consistency in our work as a group means that any crew member following another to wire a switch or receptacle will always know exactly what every conductor in a box is meant for. This consistent approach lets the crew work at the most efficient speed to complete the project.

GENTLE WIRING

Wiring a house—especially at rough-in—means pulling, stapling, twisting, and cutting the wires. In spite of that, the task of the electrician is to do all of those things in a way that creates minimal stress on the conductors—the actual metal that will be carrying the electricity. So I try to convey the mindset of "gentle wiring" to my crew.

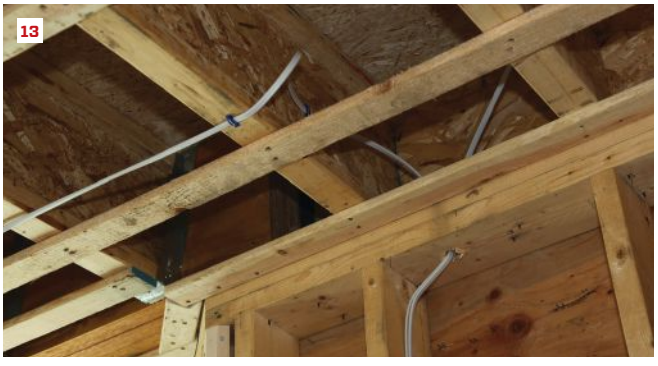
The conductors in the cable that we use for most domestic wiring are made of copper, which is soft and malleable. While the flexibility of the material lets us easily fish the cable just about any place we want it, the soft, metal conductors are also subject to metal fatigue from continuous stress, such as sharp or repeated bends. Metal fatigue can result in scored or broken conductors, which in turn can cause short circuits, heat buildup, and in the worst cases, fire. Installing a safe electrical system is a huge responsibility that guides our work at rough-in and at every stage of wiring a house.

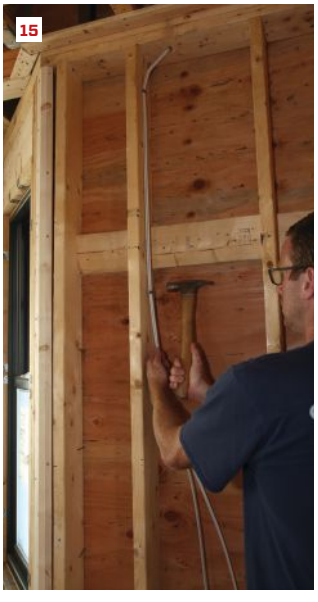
Ben Giles owns South Shore Electrical Contractors, in Wakefield, R.I.

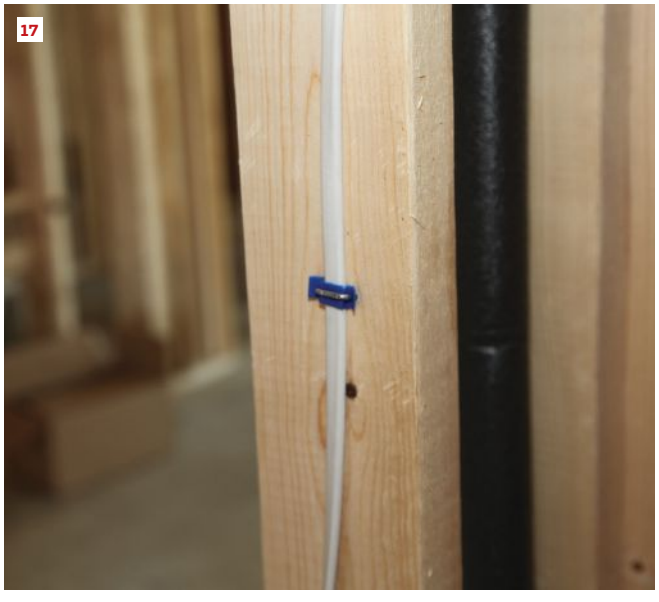


Drilling and fishing. The author drills a 3/4-inch-diameter hole (big enough for a maximum of two cables) through the plates and into a joist bay **(5)**. A spooler keeps the cable straight and flat as it comes off the roll **(6)**. The author feeds a length of cable through a joist bay **(7)** and then loops it as he feeds it into the drilled hole, to keep the cable flat and without a twist **(8)**.

Stapling 101. To staple a run of cable to the side of a joist, the author hooks the cable with one finger and flattens the cable against the joist with the side of his hand **(9)**. While holding the cable flat, he drives a cable staple about three-quarters of the way in **(10)**. Then he reaches over and pulls the cable tight while he finishes driving the staple into the joist **(11)**.



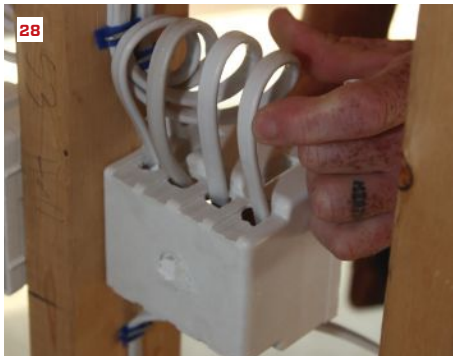




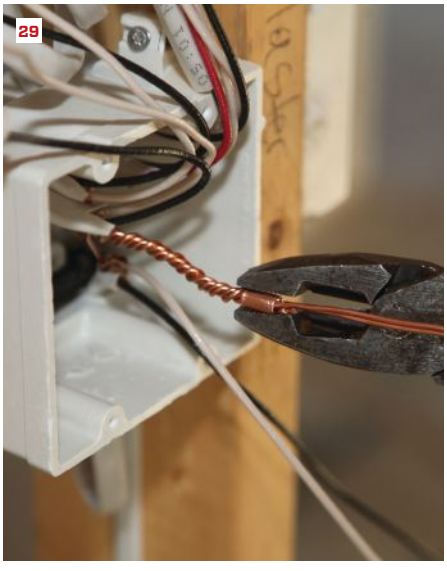
Changing direction. Strapped ceilings allow cable to run perpendicular to the joists if the cable is kept a minimum of 2 inches from the strapping **(12)**. When changing the cable's direction—from perpendicular to the joists to parallel, or from a horizontal to a vertical run—the author makes a wide loop to keep the cable flat and relaxed **(13)**. In a stud bay, he drives the first staple about 6 inches down from the plate **(14)**. Working down the stud, he drives staples every few feet, pulling the cables tight as he moves along **(15)**. A staple just above the electrical box holds the cables before they are fed into the box **(16)**. Drive staples to a uniform depth with the plastic crown protector even, and without dimpling or distorting the outer jacket of the cable **(17)**.

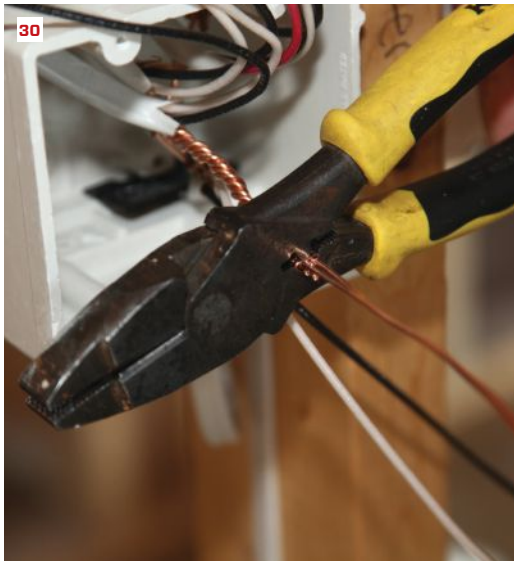
Receptacle box. The author's finger gauges where to strip off the outer jacket **(18)**. A utility knife slits the jacket **(19)**. (He adds an inch for slitting the second cable.) Looping cable into the box **(20)** provides extra cable in case of damage during drywalling.

Prep the conductors. Next, the author twists the ground conductors together **(21)**. He cuts back one of the conductors, leaving the other to be attached to the receptacle **(22)**. He slips a copper barrel sleeve onto the twisted wires and crimps the sleeve with pliers **(23)**. After cutting all the conductors to the same length (6 to 8 inches out from the box), the author gently folds the conductors and pushes them into the box **(24)**.

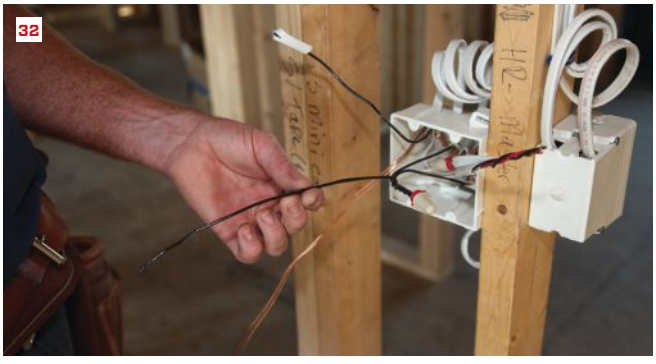


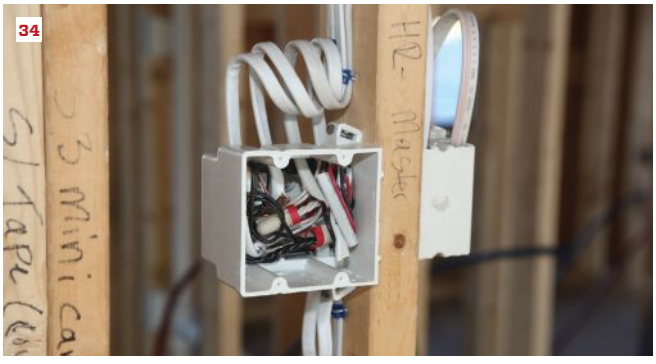
Switch boxes. This switch box has five cables for controlling two switches. A bent end identifies the supply cable **(25)**. As cables are run to the box for the various lighting circuits, each is labeled **(26)**. Then as each jacket is stripped and the cable is looped into the box, the jacket label is re-attached to the conductor **(27)**—in this case, the supply conductor of a 3-way switch that controls mini cans. The fourth cable is looped into the top of the box **(28)**, and an additional cable enters from below.





Ground connection. After twisting the ground wires together from all five cables, the author cuts back all but two of the conductors—one for each of the switches. A crimp sleeve large enough for the entire bundle then slips over the twisted wires **(29)**. A special crimping jaw on the pliers collapses and tightens the sleeve to secure the grounds together **(30)**.





The rest of the box. Conductors are sorted and grouped by type and use and cut 6 to 8 inches long. The author groups the neutral (white) conductors for each switch separately, strips the ends, and twists them together, securing them with a wire nut **(31)**. A pigtail twisted with the supply conductors will feed one of the switches **(32)**. Stripping back the insulation on the supply conductor identifies it for installing the switches **(33)**. The conductors are pushed into the box as far as possible **(34)**.

Finishing up. To finish the rough-in work, a crew member fills every penetration between floors with fire-resistant expanding foam to insulate against air movement and to help impede the potential spread of fire in the stud bays **(35)**. If the cable is within 1¼ inches of the stud surface, metal plates are required to prevent damage from errant drywall screws. Here, the angled hole to route a cable around a corner is too near the surface, so metal plates protect the cable on both sides of the corner **(36)**.

Work Scopes, Designs, and Contracts

A detailed scope of work makes for a stronger contract and a smoother job

BY KYLE DIAMOND

I am a second-generation builder and remodeler, and the co-owner of the family business my father, Dale, started. Over the past few years, I've been working to take our company to a new level by developing systems for the business. I've created forms, job descriptions, policies, and standard operating procedures that help to organize and focus everyone's activity in the company, including my own.

One reason for all this effort has been to change my own role in the company. I've hired two lead carpenters to take over most of my day-to-day job-supervision duties, and an office manager to take over some of my management duties, so that I could focus on strategy, networking, marketing, and sales. I presented an overview of this company transition in *JLC* last year (see "Getting Out of the Field," May/17).

In this story, I look at one business system in particular: the routine process we use to arrive at a project-development agreement, or a work-scope agreement, with our company's clients. The idea is simple. In return for a small fee based on a total roughly projected, or "ballpark," contract price, I create a scope of work that breaks out the cost of each phase of the project in precise detail. I present this information in a structure that follows the critical path of the project—that is, following the job progression, or build order, from start to finish.

Photos by Tim Healey

There are two versions of this process (see flowcharts at right and on the facing page). I use our standard "Work Scope Agreement" for simpler jobs that I can easily design in-house or for jobs that don't need any significant design work (for instance, a bath makeover that consists of simply updating existing fixtures). Our slightly more complicated "Project Development Agreement" is for more-extensive jobs that require professional design by an architect or interior designer; in those cases, once the client signs the agreement, I'll bring in the design professional and manage that person's involvement. In exchange for the project-development fee, I'll hand the client a stamped set of plans along with the detailed scope of work.

In one sense, these two agreements are just standard forms. But there's much more to this method than just having a paper form. These agreements, and the detailed scope of work that goes along with them, play a key role in the jobs we do. They help structure our whole interaction with the client, from the first phone call to the final walk-through.

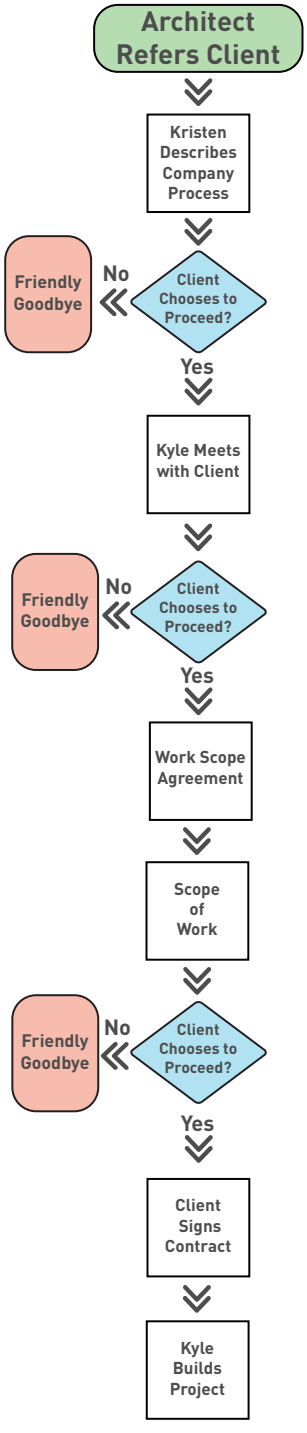
SCOPE OF WORK VERSUS PROJECT DEVELOPMENT

Whichever path we choose—the project-development agreement or the simple work-scope agreement—that document precedes the actual contract we sign to do the job.

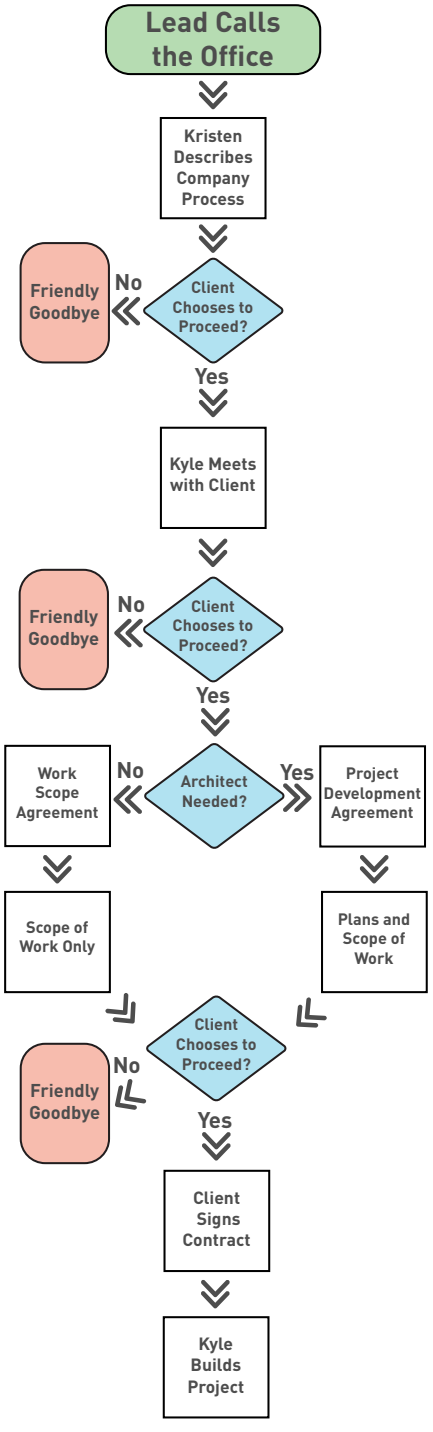
In the case of the work-scope agreement, the clients pay me a fee of 2% of the anticipated project cost to create an item-by-item description of the project from start to finish, with dollar costs presented in lump sum. In the case of a project-development agreement, our initial fee is higher—in the range of 7% to 9%—because it includes the cost of an architect's work to draw complete plans the cost of my time to create the scope of work.

The clients pay that cost in advance. Then when we're done, we hand our product to the clients. They get the drawings (if any) and the scope of work. At that point, they can choose to have us go ahead and do the construction (in which case we'll sign a contract for the job, at the price called out in the scope of work), or they can choose to bring the drawings and the work scope to some other contractor.

Asking our clients to commit to this process in advance screens out clients who aren't a good fit with our company, or who aren't serious about building, or who are just shopping on price. When a client does elect to have us build the job (as they usually do), having a detailed work scope makes the whole job easier to manage; it clarifies our communication with the client, it makes design and production more efficient, and it helps us stay on schedule.



When an architect refers a client, the author's company applies the same process as for any other lead, creating a scope of work before entering into a contract.



For most job leads, the author assesses the complexity of the proposed project before offering the client either a work-scope agreement or a project-development agreement.

Crafting a complete scope of work is good discipline for everyone. It eliminates the "mutual mystification" that plagues many negotiations in life, when neither party tells the other side its true intentions or capabilities. It establishes a basis for trust and accountability. It forces the clients to make up their minds about what they want us to build, and it forces us to be clear and precise about what we're going to charge for each aspect of the job, before the work starts. So we all have to come to grips with the important decisions and with a full awareness of the dollars required—all in advance of either signing the contract or building the job.

FROM LEAD TO CONTRACT

We start focusing our potential clients on a work-scope agreement as soon as a lead comes into the office. Kristen Detheridge, our office manager, handles most incoming calls. In her first conversation with the caller, she works from a script that prompts her to explain our process. This script reads: "We take the time and effort to create an accurate, clear scope of work for our clients. It shows what is included, what is not included, as well as selection of materials and finishes based on your preferences and budget ... We will come to your property to evaluate your project and to see if we are a good fit for each other. We will give you a ballpark number and schedule an appointment to draft up a work-scope agreement (WSA) for you. The WSA service is approximately 2% of the overall projected budget. If you go with us, we will credit back half the cost of your WSA to your contract price. Is this something you would like to explore with us?"

If the answer is "No," Kristen thanks the caller for their time, wishes them the best, and says goodbye.

But if the answer is "Yes," Kristen sets up an appointment for me to meet with the client at the property. At that first meeting, I learn enough about the clients' expectations and budget to arrive at a ballpark number for the project cost—either on the spot, or after a few hours of research. If the clients sign the WSA (and pay my fee in advance, based on 2% of the ballpark cost), I go back to my office and create the scope of work for the job. If not, we shake hands and part on friendly terms.

There's another possibility too, of course. Sometimes, as I discuss the job with the clients, I realize that they actually can't get what they have in mind without spending more money than they are intending to spend. In that case, I explain the reality to them, wish them the best, and go on my way—saving everyone a lot of grief.

If I see that the job is going to require an architect—either because we need stamped drawings to pull

a permit or because the work is too complicated for me to design without professional help—then I offer the clients a project-development agreement, which includes professional design services. If they agree, I call in an architect or interior designer, and the design process becomes a collaboration among the clients, the architect, and myself.

Typically, the architect will come up with three or four different concept sketches, which I will often present to the client to consider. On more complicated projects, where the interaction between design decisions and pricing is crucial, the architect and I will meet with the client together to present the choices. It may take several conversations to settle on the general approach, or they may just pick one and say "go with it."

Once the clients choose, the architect will then produce a full set of drawings. Concurrently, I'll produce the scope of work for the job. As with our basic work-scope agreement, this work occurs only after the clients have signed the agreement and paid the fee in advance (or, for larger jobs, in several installments).

THE DESIGNER'S ROLE

Ten or 15 years ago, our company got almost all our work from architects. In those days, it was usually the architect who had the primary relationship with the client. Architects would meet a client, learn all about their dreams, turn their dreams into drawings, and put the projects out for bid to three or four contractors, including us.

Sometimes we got the job, and sometimes we didn't. We definitely wasted a lot of time working up bids for projects we weren't selected to build. All too often (and I'm sure we've all seen this), everybody wasted their time, including the architect, the client, and all the other bidders on the job—because when the dust settled, all the bids were roughly the same, and all of them were for much more money than the customer was willing to spend. In those cases, the architect at least would get paid—but who wants to design things that never get built?

Our process avoids all that wasted time, because I make sure that the customer's budget is enough to build their dream before anyone commits. And I think I'm in a better position to play that role than just about any architect. I'm the one who has been ordering and paying for materials and labor for my whole working life, which puts us in the best position to predict the job cost.

I also believe that, even when the client has more than enough money to spend, our process is more efficient than a designer-driven interaction. For the customer, finding an architect, meeting with them, waiting for them to complete their drawings, waiting for contractors to bid, choosing a contractor, and then finally starting the job can take so long that some customers are already tired of the whole thing before the work even starts. Our way of doing things gets results quicker, and it's better for everyone involved.

Architects aren't a big source of jobs for us any more. These days, our marketing program generates leads from a variety of sources. Most of our work comes from referrals by satisfied clients. Repeat business is the second-biggest source of leads. Networking with people in the community—real-estate brokers, construction-related business colleagues, and so forth—is also a good source of referrals.

The internet—our website, our Houzz page, our Facebook page, and the like—brings in a few leads, although the quality of those leads is inconsistent.

And architects still bring us job leads, too; but like internet leads, architect referrals now make up only a small percentage of the total. Architect referrals, however, are good leads. We know the customer wants to build something. Commonly, the architect has already met the clients and drawn up some plans. The clients may be ready to pull a permit. Even so, we handle that lead the same way we would handle any other client: Kristen answers the phone, describes our process, tells the clients about the work-scope agreement, and offers to set up a meeting with me. If they say they're interested, I meet with them and ask the same questions I would ask of any client. I need to find out whether their budget will cover what's in their blueprints, and I need to be clear with them about things that will affect the project cost. Occasionally, a set of plans is too ambitious for the client's budget; I've had to give clients the bad news that in reality, their budget can't cover the cost of what their architect has drawn.

> "Given a choice, I would prefer to be the one taking the first call from the client."

If the client's budget does match the scale of the project, however, the scope of work is still a crucial piece of the puzzle. After years of fitting people's desires to their budgets, I've become aware that product selection is a huge factor in project cost. But architects don't tend to explore that topic in depth with clients. Many architects have a style they like, and they tend to draw that style. For instance, they may specify clear cedar siding even though the customer may want paint. Some clients care a lot more about interior details than exterior details; some clients care about both. But to find out, you have to ask. And managing product and material choices is an important factor in making sure you can hit the bottom-line budget number. All those decisions are made explicit in my scope of work.

Given a choice, I would prefer to be the one taking the first call from the client and be the one bringing the architect into the process, rather than the other way around. It's simply more efficient for everyone to have the plans drawn up *after* the clients have come to grips with their budget and their choices, rather than before. The plans by themselves can't serve as the basis for a good contract, unless they're much more detailed than most drawings I usually see. And when I discuss the options with the clients, their choices often change—which means that we need to mark up the plans for the benefit of my construction crew. This can cause

A detailed scope of work helps the author focus both the architect's creative process **(1)** and the construction process on site **(2)**, reducing wasted time and effort.

complications and delays on site when construction starts. Bottom line: It serves everyone's best interest for me to work all those details out with the client, either in collaboration with the architect, or in advance of the architect's work.

HANDING OFF THE JOB

The scope of work becomes the basis for the contract—the specifications in it are the product we promise, and the costs that are called out in it make up the contract price. At this point, I can pass the job along to my production team. Kristen can handle ordering and purchasing materials for the job in a timely way, working from a rough schedule I create. My lead carpenters, Ryan Labrenz and James Curtis, can build our jobs from the plans, without much input from me. I may have to step into either the jobsite or the office situations occasionally, but because all the important decisions are already made and agreed on, I don't have to continually manage the job.

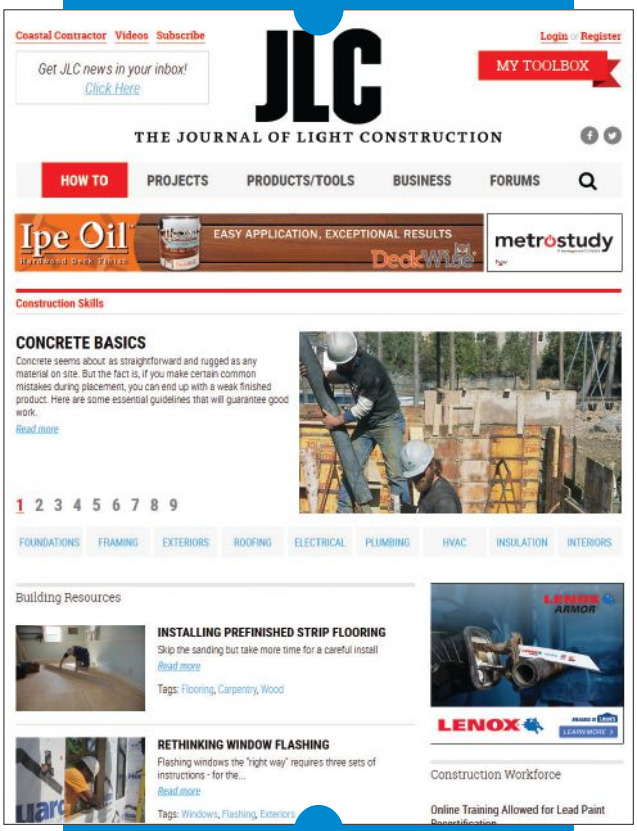
There's one more major advantage to structuring things this way: It draws a clear boundary for change orders. Change orders in the middle of a job can be disruptive, and in my experience, the problem occurs if the client thinks that what you are calling a change was included in the original price. That conversation used to go something like this. Client: "I think that should be included in the price." Me: "Why do you think that?" Client: "Well, because I'm paying you a lot of money."

But if I've already created a detailed scope of work that is part of the contract, I can say: "Well, yes, you are paying me a lot of money. But do you see this item you are requesting anywhere in the scope of work?" And that ends the discussion before it can turn into an emotional argument. Once we understand that this new idea involves a change order, the clients can decide whether they want that change enough to pay for it. And we can handle the change in accordance with our change-order process, which I had already explained to the client before we signed the contract.

I have a lot of reasons for believing that focusing my process around the detailed scope of work is advantageous to everyone involved. And the best evidence for that view might just be the way we get our job leads. As I mentioned, our biggest source of job leads is referrals from satisfied clients; our second biggest source of work is repeat business. Evidently, the way we're doing business keeps our clients happy. To me, that means the process is working; and as long as it keeps working, I'm going to keep doing it that way.

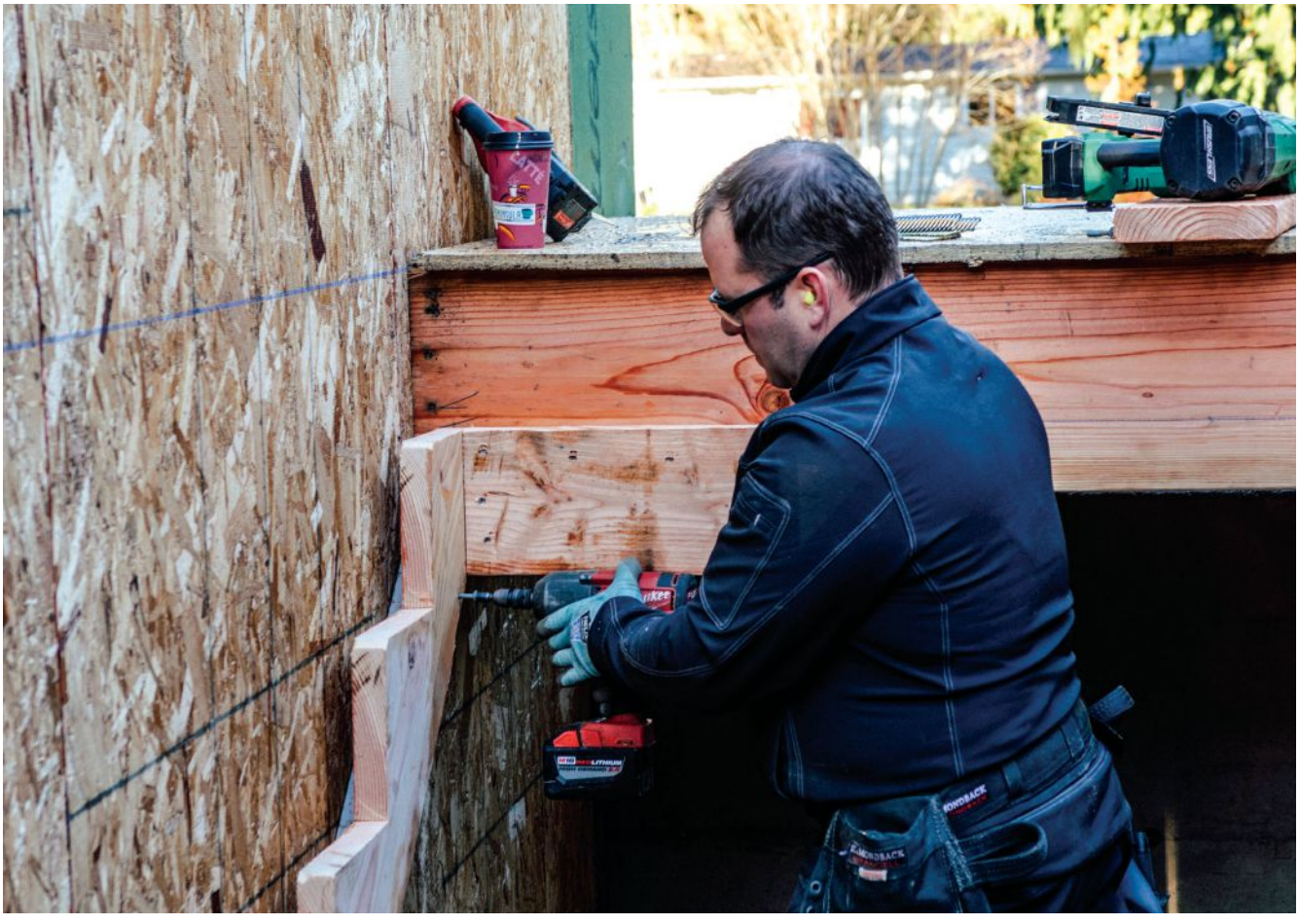
Kyle Diamond co-owns New Dimension Construction in Millbrook, N.Y., with his father, Dale Diamond.

JLC



JLConline.com
offers sound technical advice, practical how-to articles, expert hosted forums, as well as networking opportunities.

hanleywood



Squeak-Free, Site-Built Stairs

You can deliver superb quality and still work efficiently

BY TIM UHLER

Photos by Tim Uhler and Kyle Davis

One of my first jobs in construction was screwing down the floors right before finishes went in. I was taught to especially pay attention to high-traffic areas like stairs. Squeaks can damage a builder's reputation, and one of the most common places for squeaks are stairs.

Over the years, I've tried different methods to speed up stair building without increasing the likelihood of squeaks. We now have a good method for site-built stairs that is easy to follow and doesn't add a lot of expense. In this article, I won't go into too much detail about layout and code, which *JLC* has covered in the past, but will focus instead on the actual construction of squeak-free, durable stairs.

SELECTING MATERIALS

I use #2 or better 2x12 Doug fir for the stringers. I've tried both Louisiana Pacific's 1¼-inch LSL and Weyerhaeuser 1¼-inch Timberstrand LSL stringers, and while I love both products for their consistency, I prefer to use 2x12. The reason is that both LSL products are so dense that when I nail risers, the nail will often curl and blow-out. That has happened often enough that I now stick to a higher-grade 2x12.

I was taught to use 1x8 pine for risers and while that works well, I now frame stairs out of 2x8 Doug fir risers and Norbord SteadiTred 1-inch OSB bullnose 11 ½-inch-deep treads. The reason

Cutting stringers. The most important thing to remember is that all the stringers must be identical. The author lays out the first stringer with a rise and run block **(1)**, then cuts each step with a circular saw **(2)**. He is careful not to overcut, finishing each step with a jigsaw **(3)**. To keep stringers consistent, he uses the first stringer to lay out the second **(4)** … and (not shown) the third.

for the 2x8 risers is that they allow me to nail through the tread into the riser for a good connection without splitting out.

Many people rip down subfloor material for their risers. This doesn't allow fastening from the tread, so I avoid doing this. It also takes more time to rip them down, even using a track saw.

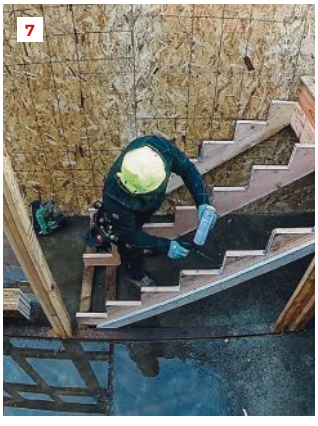
Fasteners. I like to use 2½-by-.131-inch ring-shank coil nails to nail down the treads and 3-by-.131-inch hot-dipped (HD) galvanized nails for the risers. The HD nails hold well for the risers and the larger-shank 8s hold well for the treads.

Glue. One of the "make-it-or-break-it" details in stair building is the glue. This is not an area to try to lower expenses.

I use, and love, PL Premium polyurethane. When it is cold outside, I keep the tubes in a Caulk Warmer (arcticwarmers.com) bag. What makes PL such a great glue is that it sticks extremely well. I have needed to tear up subfloor or tread material before, and the material came apart before the glue joint did. It can cost twice what a standard subfloor adhesive costs but is well worth the extra expense.

Over the last six months or so, we've been using Advantech Subfloor Adhesive. This is a foam-to-gel product that dispenses from a standard foam gun. I became a believer in this glue after an accident. Some spilled on a piece of sheathing, and then a block of wood landed on the glue and stayed there overnight. It wasn't clamped or nailed in any way. When we tried to pull them apart the next morning, the sheathing pulled apart instead of the glue. The result is similar to the PL; Advantech may even be a little more aggressive.

One note on both of these glues: They will stain your skin, so I recommend wearing gloves. Despite my best efforts, though, it seems that some always ends up on my hands.



Wall finish. If the walls are drywall only, a 1-by nailed to the stringer provides space for the drywall to slide in **(5)**. If a finish skirt will be added, the author nails on a 2-by **(6)**. **Risers.** Two-by risers provide nailing for each tread. The author starts by applying adhesive to the stringer edges **(7)**, nails on a riser at the bottom and midspan **(8)**, then nails on the remaining risers **(9)**.

BUILDING PROCESS

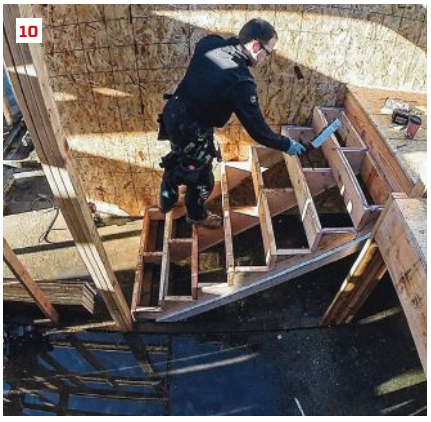
If the stairway has a landing, I build that first, always using 2x12s. A stair landing sees a lot of traffic and it should feel stiff. My preference is to bring the edge of the landing to the heel of the stair stringer, so I will cut one stringer for this, but I wait until the landing is framed and sheathed before cutting the rest of the stringers.

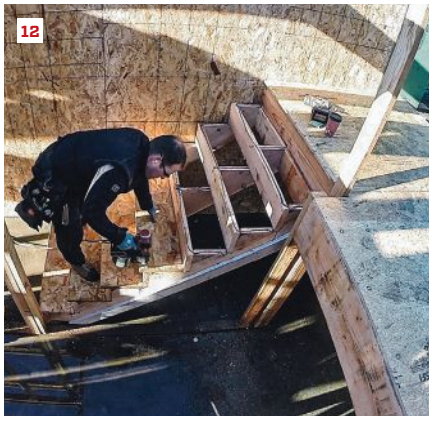
Attachment at the head. Instead of using joist hangers, I like to use full-height pressure blocks between the stringers. They provide more area for glue and for nailing for the top tread and for drywall on the underside. Pressure blocks allow me to use up all my scrap and are faster to install than joist hangers. This method also helps us minimize the number of tools we have out, since we have gotten in the habit of installing hangers with a positive-placement gun.

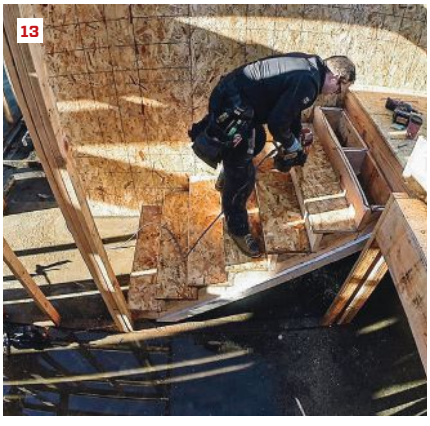
Stringers. If the width of the stairway is 48 inches or less, I cut three stringers. Even at 24 inches on-center, the stringers feel strong because each 2x8 riser, glued and nailed in place, acts like a joist.

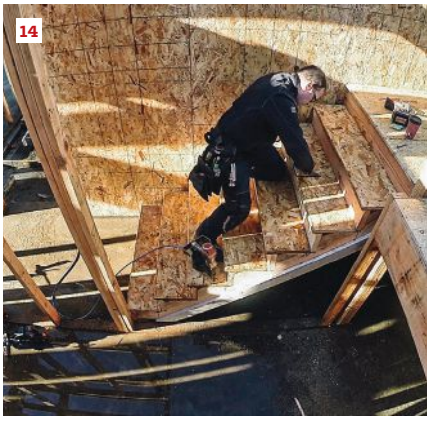
If the stairs have skirting, I nail a 2x4 to the stringer to space it off the wall. This allows the drywall crew to apply their board, and then the finish carpenter to slip a finish skirt between the stringer and the wall framing. If no skirt is planned, a 1-by is sufficient to allow space for drywall to slip beside the stringers.

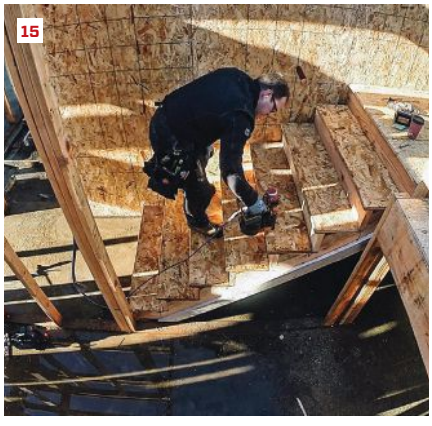
To prevent squeaks, it is important to view a set of stairs as one solid unit. I use the first stringer I cut as a pattern for the other two in that flight. Any discrepancy in size or angle will cause each stringer to act on its own and slowly loosen the parts over time. To keep the stringers as strong as possible, don't over-notch the material. Cut right to the lines and finish the cut with a jigsaw. Cut all treads and risers and have them stacked nearby before assembling the stair.











Treads. For tread stock, the author uses Norbord's SteadiTred OSB for consistency and durability. Here, he begins with a foam-to-gel adhesive on the stringers **(10)**. He also applies adhesive to the edge of the tread that butts the riser above it **(11)** before he nails the tread off to the stringers **(12)**, beginning at the bottom and working his way up **(13)**. The riser-to-tread connection needs to be precise and strong, as it is the most likely place for a stair to squeak. After securing the treads in place, he is careful to mark the overhang **(14)** before he works his way back down the stairs, nailing off each tread to each riser **(15)**.

Assembly. Fasten the stringers to any walls with LedgerLok screws. This will keep them from pulling away from the wall when the wood shrinks, as it inevitably will. I don't notch in a cleat at the bottom of the stringers, because I've bolted them to the walls with LedgerLok structural screws. Pressure-block the stringers at the top to keep them locked in place and to provide nailing for the last tread.

Order of assembly. I first apply glue to all the riser cuts on the stringers. I install the bottom riser, and then install a middle riser to lock in the stringers' spacing before installing the rest. For treads, I first apply glue to all the tread cuts on the stringers and then to the back of all tread material, as shown in the sequence above.

Starting at the bottom of the stair, I nail all the treads to the stringers, working my way up. Then I mark the overhang on the tread and work my way down, nailing the tread to the riser. This spot is where we've most commonly had squeaks over the years; as a result, I stopped using 1-by riser material and began using 2-by. Often, the 1-by would crack over time. The 2-by riser stock allows for a better connection, and because it is stronger, it's less likely to crack.

If I have to rip down the tread material, I use a track saw to make it perfect. The glue on the back of the tread where it meets the riser material provides a tight connection, and when the glue dries, it forms a squeak-free connection.

For a typical 16-riser stairway (common to 9-foot-1-inch ceiling heights in my area) with a landing platform, I can lay out and frame a rough stair in less than three hours, but I always estimate for three.

Tim Uhler is a lead carpenter for Pioneer Builders in Port Orchard, Wash. Follow him on Instagram @awesomeframers.

2017 Index

The 2017 *JLC* Editorial Index contains listings for feature articles, selected departments, product reviews, tool reviews, and letters. References are listed by topic rather than by article title. The following codes are used to help you find information:

*— In-depth coverage
L — Letter to the editor
Q — Question and answer
P — Product information

Most of these articles are available online at jlconline.com.

BY KATHLEEN BROWN

1. Patterned Privacy Windows

A new line of privacy windows from Hy-Lite is designed for a range of home styles. The Hy-Lite Home Designer Collection includes four privacy glass designs; Mission has Craftsman-inspired diamond shapes, Metro is inspired by modern architecture, Prairie offers simple elegance, and Baroque (shown) is inspired by classic tile, the company says. Frame options include white, tan, driftwood, and bronze. A 2-foot-by-2-foot window from Hy-Lite's Home Designer Collection starts at $200. hy-lite.com

2. A True White Appliance Finish

Verona introduced a true-white finish to its 36-inch All-Electric Range Series, which is now available in four finish options: stainless steel, white, matte black, and burgundy. The electric range has a five-element induction cooktop surface, seven cooking modes, and a center dual element that can accommodate large stockpots. A storage compartment is located under the oven, which is customizable with handles, plinth legs, or a rolling rack. Retail price for Verona's 36-inch All-Electric Range is $4,400. veronaappliances.com

3. A High-Yield Drywall Adhesive

Tytan's new Drywall Pro High Yield Adhesive combines the benefits of polyurethane and foam adhesives while helping to prevent screw pops. According to Tytan, a single can eliminates the need for more than twelve 28-ounce cans of caulk adhesive and reduces the number of fasteners required to attach drywall. Tytan's adhesive can be used for drywall, exterior sheathing, or foam board, and it adheres to wood, steel, brick, and concrete, the company says. A 29-ounce can of Tytan Drywall Pro sells for about $18. highyieldadhesive.com

4. A Space-Saving, Under-Counter Refrigerator

The UPR 503 under-counter pull-out refrigerator from Liebherr packs a lot of fridge space into a small footprint when kitchen space is tight. The fridge fits cabinets 34 inches high and is adjustable within 2 inches to fit counter heights and depths. The Energy Star–rated drawer offers self-retraction and soft-close, and features adjustable, scratch-resistant shelves, LED lighting, and touch-screen temperature controls. We found the refrigerator online for $2,140. liebherr.com

5

6

7

8

5. An Elegant, Sloping Sink
Sleek and versatile, the Incline bathroom sink by MTI Baths has a sharply sloped, rectangular basin. Part of MTI's Boutique Collection, the Incline is handcrafted from the company's proprietary SculptureStone material for a durable, molded-stone look. Water runs from the front of the basin to an integrated slotted drain along the back. The 19-by-15-inch bowls are available in white or biscuit matte with an optional gloss finish, in varying lengths, and in single- or double-bowl configurations. Prices start at $1,100. mtibaths.com

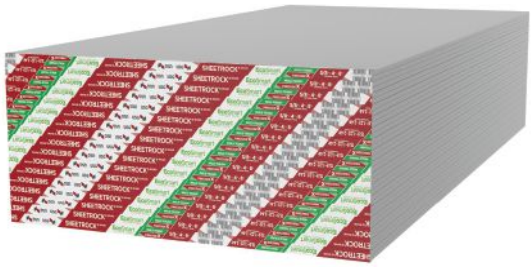
6. A Rain-Resistant, Liquid-Applied Air Barrier
GCP Applied Technologies has launched Perm-A-Barrier VPL50, a permeable, liquid-applied air barrier designed to protect building structures from air and liquid ingress. The roller-applied membrane includes rain-resistant silyl-terminated polyether (STPE) technology, which does not wash off when exposed to light rain, the company says. GCP's Perm-A-Barrier VPL50 forms a seamless barrier that helps minimize energy loss and weather delays, according to the company. Pricing varies. gcpat.com/en/solutions

7. A Multi-Purpose Acrylic Latex Sealant
A high-performance sealant for indoor and outdoor locations, Bosti-Flex Plus from Bostik can be used for windows, door frames, sinks, tubs, shower surrounds, and countertops, as well as for bonding applications with wood trim, ceramic tile, and natural stone. The company says that the multipurpose siliconized acrylic latex sealant is mold- and mildew-resistant, emits zero VOCs, and can be painted with latex or oil-based coatings. Bostik's Bosti-Flex Plus is available in 10.1-ounce cartridges and six color options. Pricing varies. bostik.com/us

8. Time-Saving Collated Screws
PrimeSource Building Products has expanded its collated fastener offerings to include a full line of collated specialty screws under the company's proprietary Pro-Twist brand. Commonly used to install subflooring, collated screws can save time in other applications, such as drywall installation, the company says. The expanded line includes coarse-thread, fine-thread, and self-tapping fasteners, for a range of material uses. Pricing varies by fastener type and piece count. pro-twist.com

9. Lightweight, Mold-Resistant Wallboard

USG Corp. has expanded its wallboard portfolio with its new Sheetrock Ecosmart Panels Mold Tough Firecode X, a lightweight and sustainable gypsum wallboard. USG says the 5/8-inch, Type X wallboard is moisture- and mold-resistant. Engineered with USG's proprietary gypsum core technology, the wallboards can be used as a lightweight replacement for Type C panels in wall, column, floor–ceiling, and roof–ceiling assemblies, according to the company. Pricing varies. usg.com



10. Durable, Cut-Resistant Work Gloves

Milwaukee Tool's new Dipped Gloves are rated at ANSI/ISEA Cut Levels 1, 3, and 5. While each glove type is designed to be puncture-resistant and durable, the Cut Level 5 model is intended for demanding applications such as working with sheet metal, wire stripping, or ducting. According to the company, the dipped gloves perform well in a range of temperatures and are resistant to common jobsite chemicals and solvents. "Smartswipe" technology allows use of touchscreen devices. Pricing ranges from $4 to $14 by cut level. milwaukeetool.com

11. A Smart Home Lighting System

Noon Home's Smart Lighting System is a virtual lighting designer that allows homeowners to customize ambiance by blending existing ambient, task, and accent lighting to create specific "moods." Noon's technology and algorithms read electrical currents and identify bulb types to automatically create three lighting scenes: Relax, Everyday, and Bright. Through the Room Director device or Noon's smartphone app, homeowners can select from these three scenes or customize their own. The Noon Smart Lighting Starter Kit costs $400. noonhome.com

12. Sliding-Glass Barn-Door Hardware

Johnson Hardware introduced 200WG wall-mount sliding-glass-door hardware to support single or converging barn-door arrangements. Complementary to open floor plans, the barn-door hardware subdivides spaces while promoting natural lighting. The hardware can accept 1/2-inch glass door panels up to 400 pounds and 4 feet wide. The extruded aluminum I-beam track is available in 4- to 16-foot lengths. Extruded mounting brackets anchor into wall studs, while ball-bearing hangers carry heavy doors smoothly along the track. The hardware starts at $131 for a 48-inch track and hardware as shown. johnsonhardware.com

Bosch Flexiclick

The GSR12V-140FC Flexiclick system is a compact "pocket" drill/driver similar to the PS22 that Bosch came out with a few years ago. Like the PS22, the Flexiclick runs on a brushless EC (electronically commutated) motor that's powered by a 12V max compact battery. This new drill/driver also has a no-load rpm of 0 to 400 (low, or speed "1") and 0 to 1,300 (high, or speed "2"). The Flexiclick weighs 1.8 pounds (with battery, without attachments).

FEATURES BEYOND ATTACHMENTS

The Flexiclick comes with four attachments, each of which can be added or removed with a simple quarter-turn and "click." The drill/driver itself, without the attachments, can accept a 1/4-inch hex bit. The hex drive is magnetized so smaller bits won't fall out, which is nice because it means you can use it in tight scenarios. From the tip of a Phillip's bit to the back of the drill/driver is a mere 5 1/2 inches.

The drill/driver has 21 clutch settings (including typical "drilling" mode), as well as an LED, which turns on with the trigger. I found the LED to be OK—it was bright enough when inside a cabinet. However, the attachments eclipse the light in most configurations, and various head attachment configurations completely obstruct the light, making it useless. In the image at right, you can see where the light shines from above the trigger (the photo's lighting makes the LED look more all-encompassing than it is).

The tool has an onboard battery "fuel" gauge, as well. The gauge has three lights, counting down the battery's level. When the battery is close to being fully discharged, the last light will blink two times to indicate it's very low. Once the battery is depleted, the tool just stops working. A "fast charger," which Bosch promotes as a 1-hour charger, is included with the kit. I found a warm, well-worked battery placed directly on the charger took about 1 1/2 hours to charge, thanks to internal thermal protection technology within the charger. There's no active cooling technology in these 12V Max "fast chargers," so battery and room temperature largely dictate charge time.

DESIGNED WITH FINISHES IN MIND

This is a nice kit, with loads of functionality for a reasonable price (it lists for $200, but I've seen it online for $170). The drill/driver is nicely balanced and also lightweight. It will stand on the battery solidly without any attachments, or with the 1/4-inch locking bit holder. Add any of the other attachments and it needs to be set down on its side.

There isn't a belt hook, which seems to be by design. The tool fits easily in my Occidental Framer's rig; a belt hook would be a nuisance here, so I didn't miss it. In addition, the drill/driver's typical use would likely be in finish and installation work. Plumbers, electricians, cabinet installers, and carpenters will all appreciate that you can lay it down on any surface without worry of damaging the finish; thick rubber bumpers on the drill/driver's head protect the surface. The head is slightly tapered, too, to keep the collet from coming in contact with anything when it's on its side.

POWERFUL AND VERSATILE

In terms of power, thanks to EC brushless motors and battery technology, "little" drills like this pack some punch. The unit can easily drive 4-inch square-drive screws through three layers of 2-by framing lumber; I even used it to drive 1/4-inch-by-2 1/4-inch Tapcons into concrete (I set about 30 screws on a full battery) in low gear. It handled a 1-inch auger bit in studs, and though it smelled like it was working hard after several holes, it has an internal thermal overload sensor, so I wasn't ever concerned about burning the unit out. There were a couple of instances when I accidentally knocked the speed slide switch between 1 (low) and 2 (high) gears. In that instance, the driver will spin and appear to be stripped. Flipping the switch back and forth a couple of times remedied this.

Where the tool really shines is with smaller jobs: drawer glides, electrical outlets, mounting boxes, pocket hole joinery, door hardware, and the like. The right-angle attachment is one of those things you won't use often, but when you need it, you'll be glad you have it. The same is true for the offset attachment, which is nice with door hardware and hinges. It's got enough power to do most of what you'll need—including drilling holes in various materials—and with two batteries, you'll get through a good amount of work with it.

BY CHRIS ERMIDES

The kit includes a 1/4-inch locking bit holder, keyless 3/8-inch chuck, 1/4-inch offset angle attachment, a right-angle attachment, two 12V Max Lithium-ion batteries, a 12V Max Fast Charger, and a carrying bag. Both the offset bit holder and right-angle attachment can be rotated to 16 positions without removing them from the drill. boschtools.com

Chris Ermides is a senior editor at JLC *and editor of* Tools of the Trade. *Follow him on Instagram @toolmagazine.*

DeWalt XP Tape Measures

Years ago, when I was framing, I used a 30-foot Stanley Fatmax. Once I shifted gears and no longer needed a 30-foot tape every day, I switched to a 16-foot Fatmax. The wider blade and more durable case seemed a nice upgrade to the ubiquitous chrome-colored Stanley Powerlock I'd used for so many years prior, and the Fatmax tapes lasted long enough for me to feel like I got my money's worth. As with most quality hand tools, I grew accustomed to the tool's balance and feel during use. So I had mixed reactions when I learned of DeWalt's new XP tape-measure line at last year's media event.

I started using the tape regularly this past summer and found some things that are worth noting. The belt clip is uniquely designed in that it doesn't close; it's a stiff, U-shaped clip that's always open and perfectly sized to slip on and off a belt, pants pocket, and tool bags easily. I've heard that it will get hung up on some metal clips riveted to tool bags, so if that's where you're used to storing yours, give it a test run first.

Unlike most tape measures that rely on a single spring, the XP tapes have two retracting springs that create serious force when they wind back up. The blade is 1 1/4-inch-wide high-carbon steel. DeWalt claims it has a 13-foot standout; the most I'm able to get is in the low 12-foot range. The first 9 inches of the tape has a heavy-duty thermoplastic coating that not only protects the blade from kinking and breaking but also protects the markings from wear.

The tape also features an oversized hook which, if you're framing, is a nice feature. If you're doing any kind of finish work or take frequent short inside measurements, this isn't the tape for you because the hook does become a nuisance in those situations. The larger hook is attached to the blade by three rivets and is stout enough that it will resist bending.

The blade is housed in a PC/ABS and rubber case that DeWalt claims can withstand a 60-foot drop (onto compacted soil). The 25-foot tape that I've been using isn't lightweight, though it's well-balanced and comfortable in the hand. I've heard intermittent reports of the blade "rolling" as it's extended—the tip begins to turn and the blade rolls over. I haven't had this issue. Still, if you're able to, I suggest running the tape out a few times before you buy it to make sure it doesn't roll. If you're a framer, or are otherwise in need of a heavy-duty tape in either 25-foot ($30) or 35-foot ($40) configurations, the XP is worth considering. dewalt.com —*C.E.*

Big clips and a sturdy case. A large wing-style hook is ideally suited for framing tasks. The belt clip is unique in that it doesn't attach with a screw and is always open, making it easy to clip onto pants, belts, and tool bags.

ZipWall Magnetic Door

BY ROBERT COURTNEY

As a remodeling contractor and custom home builder, we have been using ZipWall barrier systems for about 15 years. Prior to that, we taped plastic up. We like ZipWall because it's much faster to install, more secure, and less invasive (there's no tape sticking to finished surfaces), and it is reusable. If you need to have access through the plastic barrier, you can attach ZipWall's self-adhesive zipper. The zippers are designed to be used two at a time—so you can create a door virtually any width you choose.

Now as brilliant an idea as the zippers are, sometimes you have your hands full when moving in and out of the space, so the zippers can be cumbersome. The zipper system also creates a large void in the barrier if you leave it open for too long, allowing dust to escape. The other caveat is that the self-adhesive zippers stick directly to the plastic, so once you install them, you have use of them only as long as the plastic holds up. For all these reasons, the folks at ZipWall came up with a much-needed improvement by creating a magnetic door that integrates with the plastic barrier.

MAGNETS, NOT ZIPPERS

With the Magnetic Door Dust Barrier kit, the rest of the ZipWall system is used as before, but instead of applying a set of zippers to the plastic, you install a completely reusable magnetic door panel system. The door panel is made of high-tech fabric that is flame retardant and features a clear plastic window, so you can see if anyone is on the other side before you walk through. The panel hangs from a header bar (included) that attaches to two poles (not included) and integrates with the plastic barrier via two-piece magnetic strips.

In lieu of the zipper, the door uses self-closing magnets that are sewn into the fabric. When you need to go in or out, simply push against the center of the door panel where the magnets are. This allows the center of the fabric door to separate. Once you are through, the magnets pull the fabric door closed behind you; no need to set anything down. I was amazed at how easily the magnets centered themselves and closed the door automatically.

Overall, it is a great improvement to an already useful dust-control system. Setup is straightforward, especially if you're already familiar with the ZipWall system. The door panel itself measures 7'-2" x 4'-7", so you can create a sufficiently large opening to walk through, even with larger tools like a table saw or miter saw mounted on a stand. The magnets are strong enough that they won't come undone with changes in air pressure from windows and doors being opened outside or inside the barrier area.

Although I won't label this as a negative, it works best when you have a straight area for access. It won't work well with any kind of curve. And if the need for dust control is frequent, then the retail price of $270 (not including the poles) will be worth it. zipwall.com

Robert Courtney is a custom home builder living in Saratoga Springs, N.Y.

Product Literature / Classifieds

January Advertising Index

BY TED CUSHMAN

'Thank You, Mr. Bee Man!'

Photos by GOTCHA Pest Control

It was bad enough when Hurricane Harvey flooded Karen Knight's Houston home with 6 inches of water. But when the walls were gutted, Knight got another bad surprise: an enormous bee colony between the studs.

Help arrived in the form of Claude Griffin, founder and owner of Gotcha Pest Control, in Richmond, Texas. Griffin, who specializes in bees and lives by the motto, "Hard Work is a Sweet Thing," removed the bees for a minimal fee. It's a routine occurrence for bee-expert Griffin; his company does at least a dozen charity jobs a year, he told *JLC*.

The son of a pest-control contractor, Griffin fell in love with bees when working for his father as a youth and founded Gotcha in 1984. "I don't know why I get off on being in a hot bee suit in the middle of August, but it makes me happy," he told *JLC*. "I feel good." Griffin doesn't destroy the bees; he "rescues" the hives and gives them to local beekeepers. He also harvests the honey, making it available (typically as a gift) under his own "Gotcha" brand. "It's not like honey you get in the store," he said. "This is the kind of honey people struggle to get. And I give it away."

Doing good for others is part of the thrill, said Griffin. His voice falters as he describes the time when a young child who had made her own bee protection suit out of window screens from her family's trailer brought Griffin a drink of water as he labored under the trailer in the heat, saying, "Thank you, Mr. Bee Man!"

"It set me back in my seat for a few days," said Griffin. "She made that suit herself so that she could wait for the school bus without getting stung. Then she risked her own safety to bring me a drink of water. But I pulled 400 pounds of honey out from under that trailer."

Griffin's hard work and personal energy have made him a media celebrity: He has worked with Animal Planet reality TV star and animal-control expert Buck Medley ("Buck the Lone Star Legend"), filming an episode called "Buzz Kill." In 2013, he starred in an episode of the TNT show "72 Hours," braving the hazards of an island off the coast of Australia.

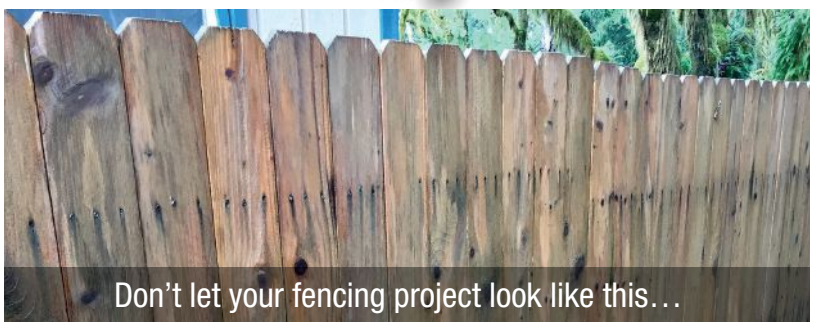
Griffin likes to leverage that media attention to help others. Often, he said, struggling families he helps with a bee problem get attention and help from others in the Houston market. "All these wonderful people here in the news media," he said, "after I tear a house up to get the bees out, they find somebody to fix it."

Ted Cushman is a senior editor at JLC.

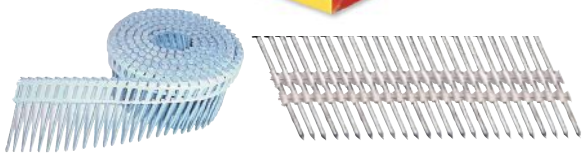
WANNA RELAX?

Call backs on rusty nails can be COSTLY!

MAZE NAILS can save you way more than **15 minutes** of headache by using our top quality hot dipped galvanized nails on your *siding, decking and fencing* projects.



- Maze ***STORMGUARD®*** double hot dipped galvanized nails provide superior corrosion resistance in the field!
- Maze Nails are made from high carbon steel (unlike import nails) preventing breaks, bends and snaps!



MAZE NAILS

Building America one NAIL at a time

Division of W. H. Maze Company

1.800.435.5949 • mazenails.com

NAIL IT *ONCE*. NAIL IT *RIGHT.* ®

MAZE 170th ANNIVERSARY

Helping to build America since 1848

carpentry. unmatched.™

HK & HKC - Miter saw precision, in the size of a sidewinder. Yes, it's that good.

festoolusa.com

FESTOOL®

Tools for the toughest demands