

# JLC

The Journal of Light Construction



Efficient Windows:  
What's Next?

Steel Deck Framing

Insurance Work Primer

# Don't just wrap it....



# SEAL It.



Seal It with enV: GRACE **VYCOR enV-S**

## Introducing Vycor enV<sup>®</sup>-S

Recently, there is nothing predictable about the weather. Even in the harshest conditions, customers expect energy efficient homes that perform flawlessly. Inadequate air and moisture protection may cause an increase in a home's energy bills and potentially lead to mold growth, poor indoor air quality and costly remediation.

Grace's innovative Vycor enV<sup>®</sup>-S is a fully-adhered breathable weather resistive barrier sheet, superior to traditional mechanically-attached housewraps. Vycor enV<sup>®</sup>-S offers excellent protection against water and air infiltration. It preserves the home's thermal performance and structural integrity, improves its longevity, and reduces energy consumption.

Grace Vycor enV<sup>®</sup>-S is a component of Grace's Weather Protection Systems.

For more information visit  
[www.graceresidential.com](http://www.graceresidential.com)

Go to <http://jlc.hotims.com> for more info

# GRACE

# DESIGNED TO MAKE A LONG DAY AT WORK FEEL LIGHT IN YOUR HANDS



FC350B  
30° Paper Tape  
Framing Nailer



FR350B  
21° Plastic Collated  
Framing Nailer

Porter Cable framing nailers tout a staggering power-to-weight ratio. Delivering over 930 inch-pounds of impact energy at 100 psi, they easily drive 3-1/2" framing nails into engineered lumber with power to spare. Weighing only 7.3 pounds, their magnesium body design helps to make light work of a heavy workday. The tools also offer a low nail lockout, reversible rafter hook, and tool-free depth of drive adjustment to help achieve that perfect balance of contractor-friendly features.

*Learn more about Porter Cable Framing nailers by visiting [www.portercable.com](http://www.portercable.com) or locating a distributor near you.*

[www.PorterCable.com](http://www.PorterCable.com)

© 2013 Porter Cable, Inc.

**PORTER  CABLE®**

Go to <http://jlc.hotims.com> for more info

Multiple choice  
has never been  
**THIS EASY.**



Select colors available.



When it comes to making eco-conscious decisions for your business, Ford knows the answer is not a simple, one-size-fits-all. With that in mind, we offer an alternative-fuel option for every commercial vehicle we sell, so we can easily find the solution that makes the most sense for you and your business. Find out about all your alternative-fuel options at [ford.com/commercial-trucks](http://ford.com/commercial-trucks).

**COMMERCIAL**  
**TRUCK**



Go to <http://jlc.hotims.com> for more info

EXPERIENCE  
**BehrPro**<sup>SM</sup>



Competitive  
 Pricing Through  
 The Home  
 Depot®



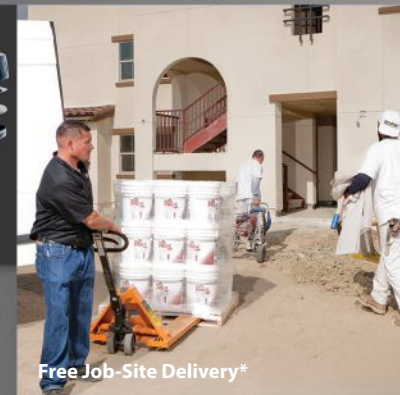
Color Services



Dedicated Pro Service Reps



Products that Perform



Free Job-Site Delivery\*

**A completely new and better experience created for you.**

**BehrPro**<sup>SM</sup> is committed to fulfilling the needs of professionals just like you. And now, we're launching **a brand new magazine created just for you**—filled with interesting and informative articles that will help you be more successful in your business. Don't miss the first issue! To sign up for your **FREE subscription** or to learn more about other special offers, scan this code, visit **behr.com/prtjlc** or call 877-776-3961.



Factory  
 Tinting

Quality and  
 Value Preferred  
 by Pros

National  
 Reach



facebook.com/behrpro  
 twitter.com/behrpro



\* Where available

Go to <http://jlc.hotims.com> for more info

# Contents

April 2013 • Vol. 31 • No. 7



## Features

### 31 Straight Answers About Efficient Windows

Four independent experts weigh in on low-E coatings, orientation-specific glazing, window-selection tools, and more.

by JLC staff

### 41 Framing Decks With Steel

Light-gauge steel framing requires fewer footings and stays straight and flat.

by Greg DiBernardo

### 51 Getting Into Insurance Work

Is insurance restoration a good fit for your remodeling business?

by Paul Bianchina

### 65 Dressing Up a Roll-Up Door

Wooden “skins” add a classy touch to an insulated steel overhead door.

by Gary Katz

**ON THE COVER:** Dan Armstrong and Richard Perry of EcoCor Design/Build install an Intus triple-glazed window for a Passive House under construction in Surry, Maine. See the story on page 31. Photo by Ted Cushman.

**THE JOURNAL OF LIGHT CONSTRUCTION** (ISSN 1056-828X), Volume 31, Number 7, is published monthly by Hanley Wood, LLC, 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. Copyright 2013 by Hanley Wood, LLC. All rights reserved. Canada Post Registration #40612608/G.S.T. number: R-120931738. Canadian return address: Pitney Bowes Inc., PO Box 25542, London, ON N6C 6B2. Periodicals postage paid at Washington, DC, and at additional mailing offices. **POSTMASTER:** Send address changes to *The Journal of Light Construction*, PO Box 5853, Harlan, IA 51593-1353.



# Contents



21



73



81

## Departments

### 15 From the JLC Forums

Removing grout haze

### 17 Q&A

Patching plaster; three-coat stucco over foam

### 21 On the Job

Polishing a concrete slab

### 27 Business

A punch list that won't knock you out

### 73 Products

PVC deck rail; musical showerhead; stock closet system; compact generator; exotic reclaimed flooring; foundation panels; fluorescent replacement bulb; more

### 81 Toolbox

DeWalt DWE357 reciprocating saw;  
PSS1 sharpening system

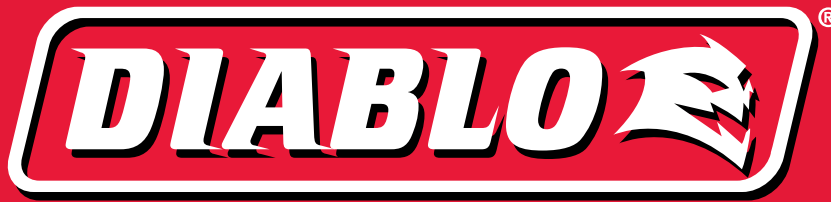
### 87 Toolbits

Framing square; radar scanner; safety equipment for roofers; cordless hammer drill

### 88 Backfill

Roadside attraction

### 86 Advertising Index



# PROVEN PERFORMANCE ...NOW IN RECIP BLADES



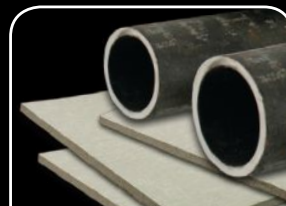
**DIABLO OFFERS A COMPLETE RANGE OF RECIPROCATING BLADES FOR MAXIMUM PERFORMANCE IN ALL MATERIALS.**



**NAIL EMBEDDED WOOD**



**STAINLESS STEEL**



**FIBER CEMENT & CAST IRON**



**METAL**



[www.facebook.com/diablotools](http://www.facebook.com/diablotools)



[www.DiabloTools.com](http://www.DiabloTools.com) Tel: 1.800.334.4107



[www.youtube.com/diablotools](http://www.youtube.com/diablotools)

Diablo powered by Freud America, Inc. | Red Reciprocating saw blades are a registered trademark of Freud America, Inc.

Go to <http://jlc.hotims.com> for more info

# GOOF PROOF SHOWER Installation System

Install Your Shower – Fast, Easy & Right

STEP 1	STEP 2	STEP 3	
			
<p><b>PrePitch™</b> is a unique tool that creates the proper sub floor slope needed underneath the pan liner to manipulate the water towards the weep holes that are an integral part of shower floor drains.</p>	<p><b>Kirb-Perfect™</b> is a stay-in plastic form designed to eliminate the possibility of any nails puncturing the liner on the top or inside walls of shower curbs.</p>	<p><b>Quick-Pitch™</b> is a stay-in place screeding guide system that guarantees a properly pitched shower floor every time regardless of size and shape.</p>	

**Innovations  
for Contractors, Builders  
and the Do-It-Yourselfer**

Go to <http://jlc.hotims.com> for more info



[jlonline.com](http://jlonline.com)

**Editorial Director** Sal Alfano, [salfano@hanleywood.com](mailto:salfano@hanleywood.com)  
**Art Director** Barbara Nevins, [bnevins@hanleywood.com](mailto:bnevins@hanleywood.com)  
**Managing Editor** Amy Doherty, [adoherty@hanleywood.com](mailto:adoherty@hanleywood.com)  
**Illustrator** Tim Healey, [thealey@hanleywood.com](mailto:thealey@hanleywood.com)  
**Senior Editor** Jon Vara, [jvara@hanleywood.com](mailto:jvara@hanleywood.com)  
**Senior Editor** Andrew Wormer, [awormer@hanleywood.com](mailto:awormer@hanleywood.com)  
**Assistant Managing Editor** Laurie Elden, [lelden@hanleywood.com](mailto:lelden@hanleywood.com)  
**Contributing Editors** Michael Byrne, Ted Cushman, Paul Fiset, Bruce Greenlaw, Carl Hagstrom, Dave Holbrook, Tom O'Brien, Joe Stoddard, Charles Wardell

**Senior Web Developer** Braddock Bull, [bbull@hanleywood.com](mailto:bbull@hanleywood.com)

**Production Director** Theresa A. Emerson

**Digital Ad Manager** Annie Clark

**Ad Traffic Manager** Katina Billado

**Production Assistant** Bernadette Parker

**Group Director, Audience Marketing & Circulation** Paul Ruess

**Audience Marketing Manager** Amy Barcomb

**Customer Service Manager** Lois Landa

**Circulation Promotions Designer** Chara Anderson

**Reader Service Manager** Ann P. Russell

**Operations Manager** Pam Brown

**Group President, Residential Remodeling** Rick Strachan

**General Manager Online, Residential Remodeling** Kim Heneghan

**Director, Digital Media, Residential Remodeling** Mark Taussig

**Group Publishing Support Manager** Helene Slavin

## HANLEY WOOD MEDIA

**President, Content** Bob Benz

**Senior V.P., Audience Operations** Sarah Welcome

**V.P., Financial Planning & Analysis** Ron Kraft

## Published by Hanley Wood, LLC

**Chief Executive Officer** Peter Goldstone

**Vice Chairman** Frank Anton

**Chief Financial Officer** Matthew Flynn

**President, Digital** Andrew Reid

**President, Metrostudy** Christopher Veator

**Executive V.P., Corporate Sales** Paul Tourbat

**Executive V.P., Executive Programs** Warren Nesbitt

**Executive V.P., Strategic Marketing Services** Tom Rousseau

**Senior V.P., Strategic Marketing Services & Consumer Media** Jennifer Pearce

**V.P., Corporate Controller** Keith Rosenbloom

**V.P., General Counsel** Mike Bender

**V.P., Marketing** Sheila Harris

## JLC LIVE RESIDENTIAL CONSTRUCTION SHOW

**President, Exhibitions** Rick McConnell

**Director** Jayne Dalton

**Associate Conference Manager** Julie Clifford

**Construction Events Manager** Don Dunkley

**Operations Manager** Rana Cham-Schultz

**Marketing and Operations Coordinator** Nicole Rohmer

**Marketing Manager** Kathy Raissifar

**Marketing Coordinator** Katie Lewis

**Account Manager, Sponsorships** Kelly Gutermuth

**Account Executives** Sean Greeley, Bob Martin

**Online Sponsorships** Rigo Retana

**Registration Manager** Vila Snider

**Editorial & Advertising Offices:** *The Journal of Light Construction*, 186 Allen Brook Lane, Williston, VT 05495, 802/879-3335, Fax: 802/879-9384.

JLC will occasionally write about companies in which its parent organization, Hanley Wood, LLC, has an investment interest. When it does, the magazine will fully disclose that relationship. Reproduction in whole or in part is prohibited without written authorization. Opinions expressed are those of the authors or persons quoted and not necessarily those of JLC.



**Easy**

**Lightline®** door canopy kits are simple to assemble and effortless to maintain. They come in a variety of eye-catching styles with stainless steel support arms, acrylic visor panes, and integrated rain gutters. And the patented Click-Lock feature makes installations a breeze.

**Free catalog,  
1-800-888-2418  
or visit [www.feeney5.com](http://www.feeney5.com)**

**LIGHTLINE®**  
feeney makes it easy

Go to <http://jlc.hotims.com> for more info



**My name is Jory Brigham and I count on Festool for my biggest challenges.**

“I’ve been surrounded by woodworking since I was a kid. I turned making furniture into a livelihood because it was the only thing I absolutely loved doing. Building furniture is part of who I am, and it’s crucial that I feel confident every piece was done to the best of my ability. Having the best tool for the job gives me the opportunity to focus on other things with my business, the things I don’t control. The efficiency and reliability Festool provides is something that I’ve grown to depend on. My success depends on the quality of furniture I build, and I can’t take chances with the tools I use.”

**FESTOOL®**

Tools for the toughest demands

Visit [www.tracksaw.com](http://www.tracksaw.com) to learn how Jory uses the new **TS 55 REQ** to tackle his toughest demands.



Go to <http://jlc.hotims.com> for more info



# JLC

The Journal of Light Construction

## INFORMATION DIRECTORY

### CONTACT INFORMATION

[jlconline.com](http://jlconline.com); 802/879-3335

### JLC

186 Allen Brook Lane  
Williston, VT 05495

### 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 [jlconline@hanleywood.com](mailto:jlconline@hanleywood.com). Keep copies of all original materials.

### SUBSCRIPTION SERVICES

For help with your *JLC* subscription, contact us:  
Online: [jlconline.com/cs](http://jlconline.com/cs)  
Email: [jlconline@cdsfulfillment.com](mailto:jlconline@cdsfulfillment.com)  
Phone: 877/277-2721  
Mail: *JLC*, PO Box 5853, Harlan IA 51593-1353  
You can subscribe online at: [jlconline.com/getjlc](http://jlconline.com/getjlc).  
Subscription rates for qualified readers:  
1 year/ \$39.95; 2 years/\$64.95. Canada, International: add \$15/ year for surface delivery. Sales tax required on subscriptions mailed to DC (5.75%), GA (4%), VT (6%).

### JLC ARCHIVE/BACK ISSUES

*JLC* subscribers have free access to every issue of *JLC* since 1986. Enable your free access at [jlconline.com/register](http://jlconline.com/register). You can also purchase a USB flash drive of all issues since 1986 at [jlconline.com](http://jlconline.com). Copies of individual back issues can be purchased for \$4.95 each, plus \$5 shipping per order. Call 877/277-2721 for availability.

### ARTICLE REPRINTS

For custom reprints of *JLC* articles, call Nick Iademarco at Wright's Media, 877/652-5295, ext. 102; [niademarco@wrightsmedia.com](mailto:niademarco@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 [meda.com/jlupdate](http://meda.com/jlupdate).

### JLC LIVE

For information about the *JLC LIVE* Residential Construction Show, visit [jclive.com](http://jclive.com), or call 800/261-7769. For exhibitor and sponsorship information, call Kelly Gutermuth at 972/536-6473.

**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 877/277-2721.



## What dust?

Husqvarna's K 3000 Vac delivers outstanding dust collection. When the vac attachment is connected, an almost dustless environment is created.

This technology enables dust to be contained when water isn't available or cannot be used in indoor or outdoor settings. Reducing dust creates a better working environment for the operator and surrounding area. It shortens clean-up time, making the cutting process more efficient.



### HUSQVARNA CONSTRUCTION PRODUCTS

17400 West 119th Street • Olathe, KS 66061 • T 800-288-5040 • F 800-825-0028 • [www.husqvarnacp.com](http://www.husqvarnacp.com)  
Copyright © 2013 Husqvarna AB (publ.) All rights reserved. Husqvarna is a registered trademark of Husqvarna AB (publ.).

Go to <http://jlc.hotims.com> for more info

## Do more with corner beads

# NEW!



### TRIM-TEX 2013 Catalog

- New Tips & Diagrams
- Expanded Photo Gallery
- New Products for 2013
  - Backing Angle
  - Deflection Bead
  - New Chamfer Bead

### TRIM-TEX Drywall Solutions



Available on the App Store  
For iPad Only

1-800-874-2333  
[www.trim-tex.com](http://www.trim-tex.com)



Request a catalog!

Go to <http://jlc.hotims.com> for more info

THE BOLD LOOK  
OF **KOHLER**®



Cimarron® 1.28gpf Toilets with  
AquaPiston™ Technology



# **FERGUSON**®

## COUNT ON US

1,350 locations. All 50 states. 300 showrooms. 17,000 associates.  
**60 years in business.**

With Ferguson, you get so much more than building supplies. You get a long and distinguished history of dependable service, a coast-to-coast network of resources, and the benefit of dedicated professionals who deliver so much more than what goes onto the truck.



**FAUCETS | FIXTURES  
APPLIANCES | LIGHTING**

[FERGUSON.COM](http://FERGUSON.COM)

 **FERGUSON**®  
**PROPlus+**™

**SCORE POINTS ONLINE.**

Earn points you can redeem for great stuff like merchandise, tickets, and even trips!

**GET STARTED AT [FERGUSON.COM/PROPLUS](http://FERGUSON.COM/PROPLUS) TODAY!**



*Nobody expects more from us than we do*™

© 2013 Ferguson Enterprises, Inc. All rights reserved.

Go to <http://jlc.hotims.com> for more info



Flooring Solutions  
Designed for  
**TRADE • DESIGN  
COMMERCIAL**



Bellwood  
Santos Mahogany

**Partner with Lumber  
Liquidators ProSales  
and you'll enjoy:**

- The lowest mill-direct prices
- Volume discounts
- The best selection with over 340 quality floors
- 90+ million square feet in stock & hundreds of stores
- Sample program with racks & displays
- Commercial line of credit

HARDWOOD FLOORS FOR LESS!

**LUMBER  
LIQUIDATORS**

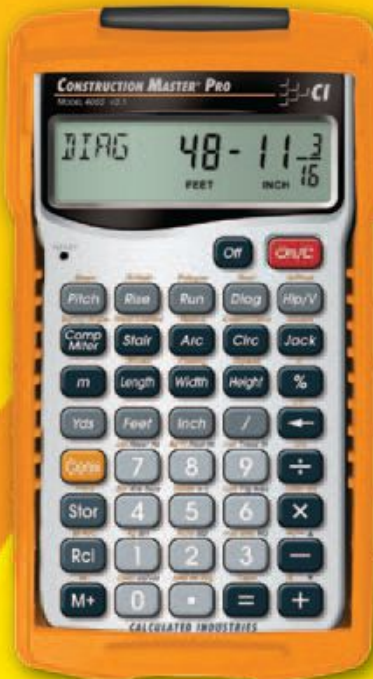
**ProSales**

**1-800-274-2360**

[lumberliquidators.com/prosales](http://lumberliquidators.com/prosales)

Go to <http://jlc.hotims.com> for more info

**Now more  
than ever,  
you need  
this tool!**



Model 4065 - Shown with Armadillo Case (now included)

From start to finish, our tools  
help you save time, reduce costs  
and win more bids.

**CONSTRUCTION MASTER® PRO**

- Work in and convert between building dimensions
- Complete Roof, Rafter and Framing solutions
- Automatic Stair layouts: Treads, Risers, Stringers

**ASK ABOUT**

**NEW LOWER  
PRICING**

Learn how this product can work for you:  
[www.calculated.com](http://www.calculated.com)

See DEMOS on



**CALCULATED  
INDUSTRIES**



For a dealer near you call 1-800-854-8075

**JLC**  
The Journal of Light  
Construction

**SALES OFFICES**

**HEADQUARTERS**

**Rick Strachan** Group President,  
Residential Remodeling  
(202) 736-3332 Fax: (202) 785-1974  
[rstrachan@hanleywood.com](mailto:rstrachan@hanleywood.com)

**Kim Heneghan** General Manager Online,  
Residential Remodeling  
(202) 380-3831 Fax: (202) 785-1974  
[kheneghan@hanleywood.com](mailto:kheneghan@hanleywood.com)

**Mark Taussig** Director of Digital Media,  
Residential Remodeling  
(202) 736-3406 Fax: (202) 785-1974  
[mtaussig@hanleywood.com](mailto:mtaussig@hanleywood.com)

**Helene Slavin** Group Publishing Support Manager  
(202) 736-3428 Fax: (202) 785-1974  
[hslavin@hanleywood.com](mailto:hslavin@hanleywood.com)

**NORTHEAST/MID-ATLANTIC**

**Jamie Volpe** Senior Strategic Sales Manager  
(203) 397-1231 Fax: (203) 397-1168  
[jvolpe@hanleywood.com](mailto:jvolpe@hanleywood.com)  
(Including CT, DC, DE, GA, MA, MD, ME, NC,  
NH, NJ, NY, PA, RI, SC, VA, VT, WV)

**MIDWEST/SOUTH CENTRAL/SOUTHEAST**

**Kay Ross-Baker** Strategic Sales Manager  
(773) 824-2576 Fax: (773) 824-2401  
[krossbaker@hanleywood.com](mailto:krossbaker@hanleywood.com)  
(Including AR, FL, IA, IL, IN, KS, LA, MN,  
MO, MS, ND, NE, OK, SD, TX, WI)

**MIDWEST**

**Mark Taussig** Director of Digital Media  
(202) 736-3406 Fax: (202) 785-1974  
[mtaussig@hanleywood.com](mailto:mtaussig@hanleywood.com)  
(Including AL, KY, MI, OH, TN)

**WEST COAST**

**Carol Weinman** Senior Strategic Sales Manager  
(831) 373-6125 Fax: (831) 373-6069  
[cweinman@hanleywood.com](mailto:cweinman@hanleywood.com)  
(Including AK, AZ, CA, CO, HI, ID, MT, NM, NV,  
OR, UT, WA, WY)

**NEW ENGLAND/MID-ATLANTIC  
REGIONAL EDITIONS**

**Larry Rice** Account Manager  
(802) 324-0913 Fax: (802) 879-9384  
[lrice@hanleywood.com](mailto:lrice@hanleywood.com)

**CANADA**

**D. John Magner** York Media Services  
(416) 598-0101 Fax: (416) 598-9191  
[jmagner@yorkmedia.net](mailto:jmagner@yorkmedia.net)

**UNITED KINGDOM/EUROPE**

**Stuart Smith** Regional Sales Manager  
+44 (0)20 8464 5577 Fax: +44 (0)20 8464 5588

**CLASSIFIED ADVERTISING**

**Maura Jacob** Account Manager  
(678) 451-8627 [mjacob@hanleywood.com](mailto:mjacob@hanleywood.com)

**Elle Fergusson** Account Manager  
(202) 729-3526 [efergusson@hanleywood.com](mailto:efergusson@hanleywood.com)

# Breakthrough!

VOC Compliance



Advantage, Pro.



It's here. The breakthrough professional contractors, builders and remodelers have hoped for.

It's **PROvantage**. The industry's first complete line of construction adhesives that meet the most rigorous performance standards and the most stringent VOC regulations.

Advanced solvent technology  
VOC compliant in all states  
Performance without compromise™  
Best-in-category value



titebond.com/PROvantage  
800.347.4583

Go to <http://jlc.hotims.com> for more info

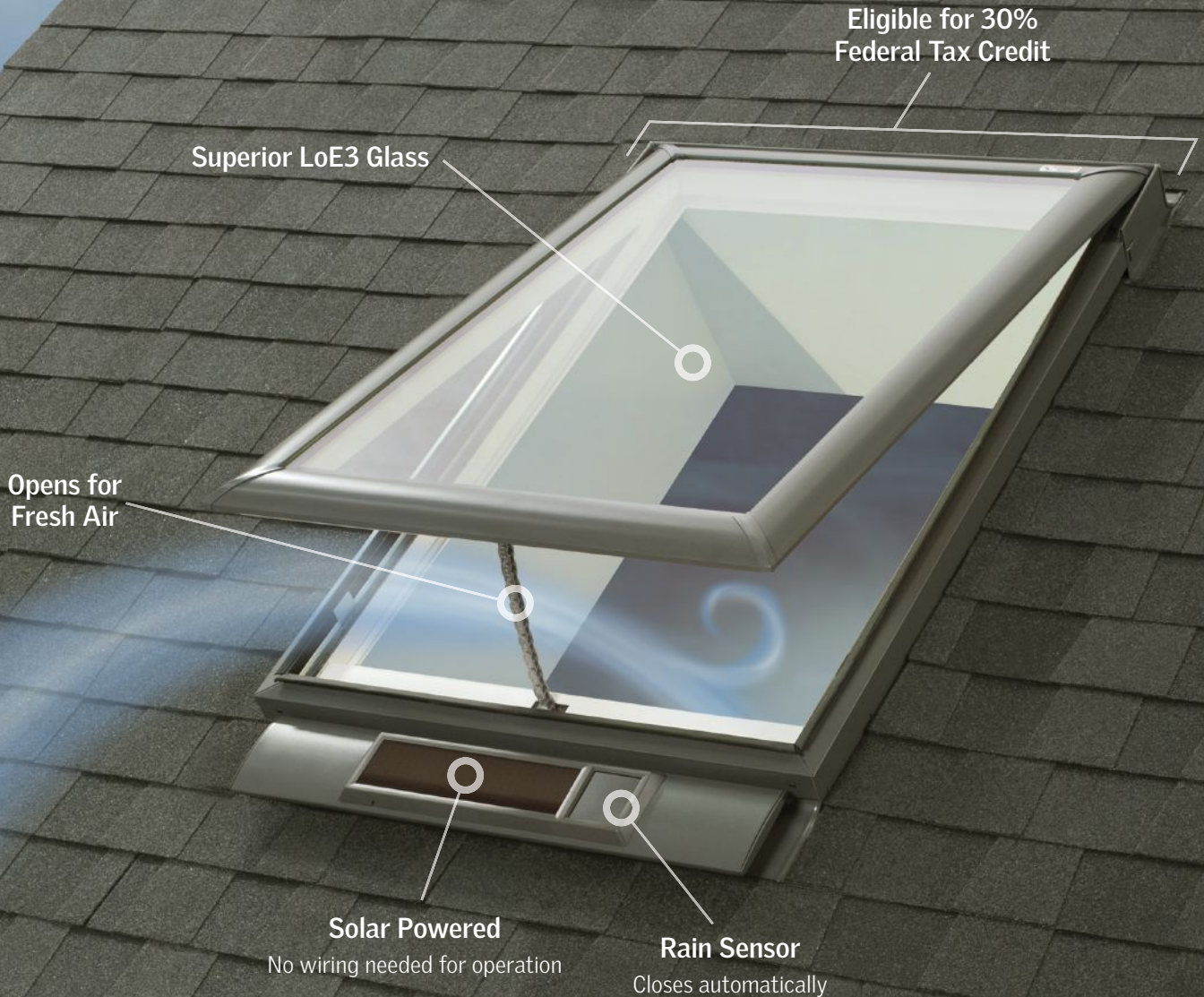


4-Pack  
exclusively available at



©2011 Loew's Companies, Inc. All rights reserved. Lowe's, the gable design and Never Stop Improving are trademarks of L.L.C.

# INTRODUCING THE NO LEAK SOLAR POWERED "FRESH AIR" SKYLIGHT.



Eligible for 30%  
Federal Tax Credit

Superior LoE3 Glass

Opens for  
Fresh Air

Solar Powered

No wiring needed for operation

Rain Sensor

Closes automatically



The No Leak Solar Powered "Fresh Air" Skylight is the most revolutionary skylight on the market. It's easy to operate. It's easy to install. And with the tax credit opportunity, it's easy to sell. Plus, it still has the No Leak Promise – a 10-year installation warranty. For information go to [veluxusa.com/taxcredits](http://veluxusa.com/taxcredits).

Go to <http://jlc.hotims.com> for more info

**VELUX**<sup>®</sup>  
Skylights

# From the JLC Forums

## Removing Grout Haze

*Stubborn latex grout haze on textured accent tiles led to this March 2012 thread in the Ceramic Tile Expert Forum on JLC Online.*

We installed about 800 sq. ft. of a wood plank-looking porcelain tile. The installation is very nice and looks great, but with so much floor to cover, when we were wiping after grout we did not get it 100% clean ... Thinking the rest would buff out we left it, but with the "grain" in the tile and some heavier areas, we now have to clean the residue off ... What do you guys use for a grout haze remover and what's the best process? — *customwoodworking*

If it's a real large area, I would try a couple experiments first. Take some real stiff scrub pads (the ones for tile, not just any pads) and rub a spot real well. Use dry, no acid. If it works, go rent a floor machine with a 12" disc of similar material and you're in business. — *Dgbldr, Michigan*

Can you supply the brand of grout? Haze from regular cementitious grouts should not be too difficult to remove, but latex types can be a problem, especially if the haze has remained on the tile surface for several days.

Floor machines are often used on very large commercial tile installations, but they are usually employed a day or two after the grout has been installed. Machine cleaning may create its own residue that will need to be removed with a wet/dry vac.

Before resorting to acids or scrubbing pads, I suggest that you contact the grout manufacturer to see if the company makes a cleaner specifically for the grout you used. If you cannot get help from the manufacturer, get back to us. If the manufacturer's advice is helpful, please post the cure so other forum members can benefit. — *mbyrne, ceramic-tile forum moderator*

The grout is "custom blended" for The Tile Shop, a retail store we are seeing a lot of in these parts. My client went in and chose everything, and they just sell, sell, sell.

Anyway, the grout did have a latex additive, which I suspected was part of the problem. Upon talking to a sales rep at the store, he sold us a haze remover that contains citric acid and can be diluted. We mixed up a bucket — about 8 oz. of remover to 3 gallons water — liberally doused a manageable area, and let it sit for five minutes (tended to fizz a bit), then scrubbed it down with a stiff brush on a pole. Wiped clean, let dry, and voila: really clean. There may be a very small spot in one or two areas, but we will scrub it full strength upon final punch. Not horrible work and faster with two guys (800 sq. ft. in about four hours). — *customwoodworking*

Thanks, customwoodworking. Many grout manufacturers have a haze cleaner specially formulated for their grouts. — *mbyrne, moderator*

Visit the Forums at [jlonline.com](http://jlonline.com)

# YOU COULD SAVE YOUR CUSTOMERS \$850\*

on average by installing the  
No Leak Solar Powered  
"Fresh Air" Skylight.

Eligible for  
**30%**  
Federal Tax  
Credit

### Top 3 reasons this product is revolutionary:

Solar powered so no wiring is needed  
to open it up and let fresh air in.

Your customers get the No Leak Promise  
— a 10-year installation warranty.

Easy to sell, and your customers  
may save money when they qualify  
for the 30% tax credit.

\*For information go to [veluxusa.com/taxcredits](http://veluxusa.com/taxcredits).



# VELUX®

Skylights



**ZIP IT TIGHT**

**ZIPsystem™**  
FLASHING TAPE

**ZIPsystem™**  
FLASHING TAPE

**ZIP. THE FASTEST WAY TO THE PERFECT TIGHT HOUSE.**

Discover ZIP System® Sheathing and Tape. It's a one-of-a-kind structural roof and wall system with a built-in energy-efficient barrier that keeps moisture out and reduces air leakage, while still allowing panels to properly dry. Plus, it goes up in just two easy steps: 1. Install the panels, 2. Tape the seams. Fewer steps results in 40% faster installation when compared to traditional housewrap and felt. To save builders' time and homeowners' money, visit [ZIPSystem.com/JLC1](http://ZIPSystem.com/JLC1).

**ZIPsystem®**  
ROOF & WALL SHEATHING

FROM THE CREATORS OF **AdvanTech**



©Huber Engineered Woods LLC. ZIP System, the accompanying ZIP System logo and design and AdvanTech are trademarks of Huber Engineered Woods LLC. Huber is a registered trademark of J.M. Huber Corporation. Huber Engineered Woods products are covered by various patents. See [zipsystem.com/patents](http://zipsystem.com/patents) for details. HUB 1204-048 12/12

Go to <http://jlc.hotims.com> for more info

## Q&A

### Q. Patching Plaster

*The punch list for a remodeling job that I am doing on an 1880s house includes a few small plaster repairs. The damaged areas are small — about the size of a hand — and they are not in a prominent area, so I feel confident that I can tackle them myself without calling in a specialty subcontractor. What's the easiest way to patch small holes in plaster?*

**A.** *Contributing editor Tom O'Brien, a carpenter in New Milford, Conn., responds:* First, make sure the surrounding plaster is firmly attached to the lath. If the plaster surface is sound but gives under pressure, I use plaster washers from Charles St. Supply Co. ([charlesstsupply.com](http://charlesstsupply.com)) to anchor it firmly to the lath and the studs.

An alternative is to drill 1/4-inch holes through the plaster (but not the lath), inject construction adhesive into the holes, and then apply pressure to the entire area with a braced piece of plywood (such as a concrete form) until the adhesive has cured.

Drywall makes a good plaster-patching material, but since plaster thickness is never consistent, it's always good to have some scraps of 1/4-inch and 3/8-inch on hand; 1/2-inch drywall might be too thick. Once I've removed the damaged

plaster and stabilized the surrounding area, I cut the drywall patch to size and screw it to the wood lath. Then I tape the patch with fiberglass mesh tape, and mud the repaired area with a setting-type joint compound, such as Durabond 45 ([usg.com](http://usg.com)). After the setting compound has hardened, I feather out the repair with one or two thin coats of lightweight joint compound.

For very small holes with good lath backing, you could skip the drywall patch and just use setting compound, or mix up a batch of hardware-store-variety plaster. If you do use actual plaster, keep in mind that you won't be able to sand it afterward, so you'll need some basic trowel skills. If there are cracks, I use an old 5-in-1 tool or a bottle-opener to flare them out, and then mist them with water before spreading the setting compound.

### Q. Three-Coat Stucco Over Foam

*My clients like the look and durability of a traditional cement-based three-coat stucco finish, but they want it installed over a continuous layer of rigid foam. Can I simply install a double layer of Grade-D 60-minute paper over the foam before nailing up the lath, or are there other steps I should take?*

**A.** *Barry Jenkins of Southern Stucco in Knoxville, Tenn., responds:* Normally a designer would specify EIFS cladding when both exterior insulation and a stucco-like finish are desired. The mixture of EIFS and traditional stucco you describe is possible, but it's not a conventional installation with standard details. Here is the approach my company —

which installs both stucco and EIFS — would use if we were to tackle a project like this.

- Install the rigid foam over plywood sheathing (not OSB) that has been properly nailed to the studs, with 1/8-inch gaps between the panel edges so the sheets can expand without compressing each other. This will help prevent the sheathing from

# ZIP IT TIGHT



## ZIP System™ Flashing Tape



Superior  
Air Barrier



Superior  
Moisture  
Protection

ZIP System™ Flashing Tape is made of an advanced acrylic adhesive, proven to deliver a superior airtight and watertight seal that withstands many years of harsh weather. Plus it installs quickly by hand or by using the ZIP System™ Tape Gun, maximizing jobsite efficiency.

Learn more and see application demos by visiting [www.ZIPsystem.com/tape/JLC4](http://www.ZIPsystem.com/tape/JLC4)

**ZIPsystem™**  
FLASHING TAPE

© Huber Engineered Woods LLC. HUB 3115 03/13

“There’s a reason pros choose ProWood®.  
Well, actually, three reasons.”

Jason Cameron

Licensed Contractor and Host of DIY Network’s  
*Desperate Landscapes* and *Man Caves*.



ProWood® Treated Lumber Products

# NOTHING ELSE MAKES THE CUT.

## 1 PRO-GRADE LUMBER

When you choose ProWood® from Universal Forest Products, you get superior lumber and products preferred by more building professionals and DIYers than any other brand. ProWood Professional Grade lumber offers exceptional protection and will stand up to everything time and nature can dish out.

## 2 PRO-GRADE SELECTION

Whatever building pros and DIYers need in pressure-treated lumber, ProWood Professional Grade delivers. From Dura Color, with lasting color infused deep into the wood, to kiln-dried KDAT and termite-stopping treated products, all are made to the most demanding standards. Ours.

## 3 PRO-GRADE SUPPORT

You can count on us for on-time delivery of your orders. And for unmatched technical support – for you and your customers. We offer generous advertising and marketing support to bring customers to your door too, including teaming up with licensed contractor and DIY Network TV host Jason Cameron.



Universal Forest Products

©2013 Universal Forest Products, Inc. All rights reserved.

Go to <http://jlc.hotims.com> for more info

Experience the professional grade difference.

Contact your ProWood representative or  
visit us at [ProWoodLumber.com](http://ProWoodLumber.com)

**pro'wood**<sup>®</sup>  
PROFESSIONAL GRADE™

## Q&A

developing joint lines that could telegraph through the foam and crack the stucco.

- With EIFS claddings, the IRC now requires a fluid-applied weather-resistive barrier (WRB) over the sheathing prior to installation of the rigid foam, an approach I would recommend with this system. A liquid WRB (StoGuard is a good example; stocorp.com) also provides a terrific air barrier, and can actually be extended down over the above-grade part of the foundation if the sheathing is flush with the foundation wall.

- I recommend XPS foam, and would glue it to the sheathing with a trowel-applied adhesive like Sto BTS plus, orienting the U-notched trowel so that the grooves are vertical and continuous from top to bottom to enhance drainage. Since fastener deflection is a critical concern whenever a heavy exterior cladding is attached over continuous foam insulation, I wouldn't use rigid foam that is more than an inch thick. If the lath fasteners are numerous and penetrate at least  $\frac{3}{4}$  inch into the studs (rather than into just the sheathing), the lath assembly should be strong enough to support the stucco.

- Despite the presence of the liquid-applied WRB, some local codes may still require a double layer of building paper underneath the stucco. If not, I would use only a single layer of Grade-D 60-minute paper, which should satisfy your code official. The paper (along with the liquid-applied WRB under the foam) provides a secondary belt-and-suspenders drain plane. Even more important, it acts as a bond break that allows the stucco to behave monolithically, independent of the underlying foam and sheathing. We've found that cement-based scratch coats applied directly to foam tend to bubble, creating lots of craters and voids in the scratch coat.

- When installing the metal lath (I recommend using galvanized 2.5-pound self-furring diamond mesh lath), you may find that the rigid foam complicates the application of the accessory beads. I can't

make any specific recommendations without seeing actual details, but I can tell you that when the available profiles don't work, we have a metal shop fabricate exactly what we need. By the way, don't forget the screed. Standard stucco screed

won't be deep enough to accommodate both the foam and the stucco, but vinyl screeds typically used with EIFS should work fine.

- Once you start applying the scratch coat, you're just doing conventional stucco.



**PROWOOD DURA COLOR™**

# COLOR THAT LASTS.

With Dura Color, colorant is driven deep into the wood fibers during the pressure-treating process, so you get color-treated wood that stays good looking longer. And, with guaranteed protection against termites and rot built in, it's more than just the color that's made to last. ProWood Dura Color from Universal Forest Products offers everything you need for your backyard — from fencing to decking, railing to timbers and everything in between.

**“Treated lumber never looked so good.”**

Jason Cameron

Experience the professional grade difference.  
Contact your ProWood representative or visit us at [ProWoodLumber.com](http://ProWoodLumber.com)

**pro'wood**  
PROFESSIONAL GRADE™

Go to <http://jlc.hotims.com> for more info

# MORE TIME WORKING, LESS TIME SHOPPING

## FREE IN-STORE PICKUP WHEN YOU BUY ONLINE

You've got work to do, and you don't have extra time to spend shopping. That's why The Home Depot® has exactly what you need, ready and waiting for you at the store closest to your job site. You can see that store's inventory on your mobile device or PC at [homedepot.com](http://homedepot.com) and choose "pick up in store" when you're ready to get started. We'll have everything ready for pickup in two hours or less. Saving time and getting you exactly what you need. **That's the power of The Home Depot.**

[homedepot.com/pro](http://homedepot.com/pro)

Go to <http://jlc.hotims.com> for more info



# PRO

More saving. More doing.®

# On the Job

## Polishing a Concrete Slab

by John Starr

**W**hen I built my super-insulated home in 1984, my plan was to have a walkout basement with a finished concrete slab that would absorb the sunlight from four south-facing windows and act as a thermal mass. I placed a 4-inch slab over a 3-inch layer of sand and 6 inches of XPS insulation, and used an integral red dye in the concrete. In addition, I used a wax-sealing product made by the dye manufacturer that was supposed to match the slab's color and allow the concrete surface to be buffed to a high shine.

I'm not sure what went wrong, but when we tried to buff the wax sealer, it completely lifted off the slab, exposing a soft chalky surface. Repeated scrubbing didn't solve

the problem, and I ended up covering the floor with carpet and putting the kids' bedrooms down there. Over the years, laundry turned pink by the kids' clothing served as a constant reminder of this dusty yet structurally sound mess beneath the carpet.

Twenty-five years or so later, the kids were gone, and my wife and I wanted to refurbish this lower level. Thinking once again about my original idea for a finished slab, I bought a hand-held Metabo wet polisher — a right-angle grinder that feeds water onto the surface — a diamond grinding wheel, and a series of diamond honing and polishing discs, and went to work on a 2-foot-square section of the floor. A couple of hours of work yielded a hard, smooth, brick-red finish with multicolored exposed aggregate that you could see your reflection in (1). But the prospect of doing 1,200 square feet at 2 square feet per hour with a hard-to-control hand-held grinder led to one thought: Find a bigger machine.

Another wrinkle was that I was running a radiant heating loop (supplied by existing rooftop solar collectors) around the basement's perimeter. This entailed cutting 1¼-inch-deep grooves in the existing slab to accept the radiant piping, which we later grouted flush with the floor (2).

**Grinding, honing, polishing.** I found a rental store nearby that had the equipment I needed. I rented an Edco Contrx Model 2DP dual-disc polisher (3) that came with



# On the Job | Polishing a Concrete Slab

4

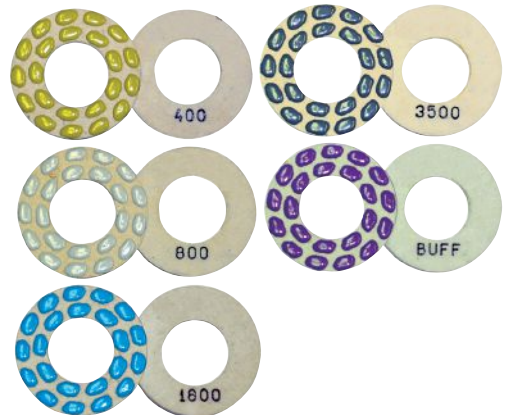
Grinding



Honing



Polishing



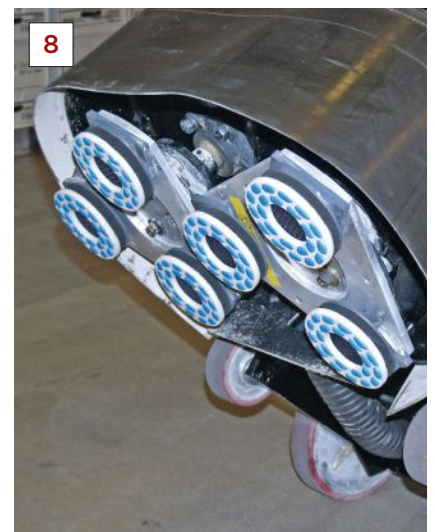
a system of diamond grinding “dots” and honing and polishing pads (4), all of which were designed to work dry. I also rented an Edco TMC-7 Turbo Edge Grinder (5) with a similar — but larger — system of pads, and an Edco Vortex VAC-200 vacuum (6).

grinding dots. I made a second pass with 120-grit grinding pads.

The finishing process has three steps: grinding, honing, and polishing. Each uses progressively finer grits and creates progressively more sheen and reflectivity. Instead of first grinding with 30-grit diamond dots, I started with 70-grit dots, hoping to save time. But if I were to do it again, I would start with the beefier 30-grit

grinding dots. I began with 50-grit pads (7) and worked my way up to 200-grit. The final polishing step uses pads that look like they have colored jellybeans glued to them (8). These include four progressively finer grits (400, 800, 1,800, and 3,500) and finally a buffing pad. After making a pass with the 400-grit, I started to see some real improvement. Also, I wasn’t generating much dust anymore, so I stopped using the vacuum.

*Crack filler and densifier.* Older con-





## **DOES ANYONE NEED HALF AN AIRPLANE?**

We knew our blades could cut a 727 in half, but we didn't know if we could do it with just one. In our corner we had the LENOX T2™ Demolition recip blade. It's engineered to deliver the longest-lasting, fastest-cutting performance in the industry. Normally we'd be quite confident with a blade like that, but in the other corner was one very big plane. The result? As you can see, the blade took a beating. But it did a whole lot better than the 727.

*Don't believe us? Go to **oneblade.com** to see the making-of video and get a trial blade so you can take the UpBlade™ Challenge yourself.*

**UPBLADE** WITH  
**LENOX** 

Customer Support: 800-628-8810 | Technical Support: 800-642-0010 | [lenoxtools.com](http://lenoxtools.com)  
301 Chestnut Street, East Longmeadow, MA 01028-0504 USA  
© 03/2013 LENOX, Newell Rubbermaid

ONE 727  
ONE BLADE

LENOX GOLD Demolition Reciprocating Saw Blade Model: 106G

## On the Job | Polishing a Concrete Slab

crete usually has some hairline shrinkage cracks, so to help mask these imperfections, I used Certishine Fusion, a liquid filler made by Vexcon. I applied it immediately after finishing with the 70-grit grinding, using a Hudson Sprayer. Then I went back over the wet floor with the 70-grit grinding dots. The Fusion combined with concrete dust to form a slurry that filled cracks and small imperfections. This process was messy and the slurry sets up pretty quickly (in about an hour), so I kept an eye on the walls and cleaned up splashes right away.

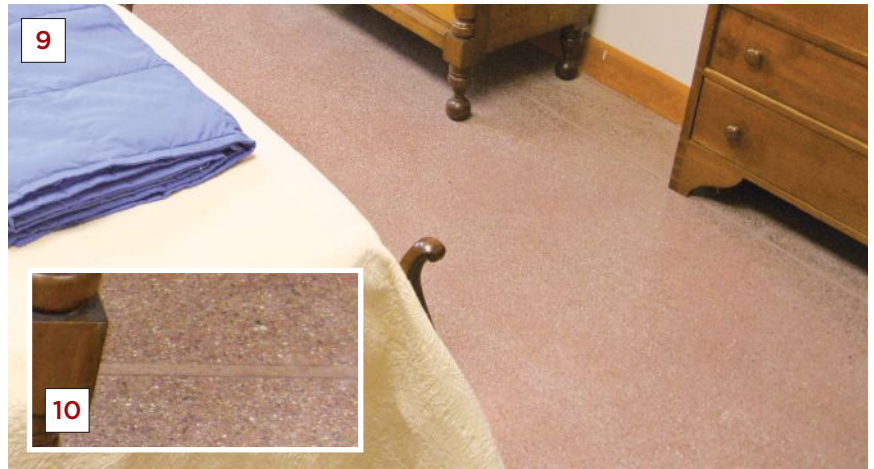
I also applied a concrete densifier called Certishine Clear, also made by Vexcon. It hardens the concrete surface, making it more resistant to staining. I applied it with a mop after honing with the 200-grit, then waited for it to be fully absorbed (about 45 minutes).

**Finishing up.** After I made a final polishing pass with the buff pad, the floor looked great. It had a nice reflection with no fuzzy edges — think polished granite (9). Even the grouted lines blended in somewhat (10).

On the advice of several people who have experience with commercial concrete floors, I've since applied a sealer and high-gloss finish that took away the crispness of the shine. I tried to buff the finish up with a standard slow-speed floor buffer, but that didn't improve its luster. Frankly, I'm unsure if sealing and waxing is needed or not, but I was afraid that if I didn't seal this floor, something might stain it and never come out. I have too much invested now to take that chance.

All told, I have about \$2 per square foot in expenses for machine rental, diamond products, and chemicals. I put 111 man-hours into the floor, which comes to about 10 square feet per man-hour. If I were doing it again, I think I could increase my efficiency 10% without much trouble.

*John Starr is a custom builder in Littleton, N.H.*



### Lessons Learned

**1. Completely seal off the working area.** If you've ever sanded a hardwood floor, you have some idea of what you're in for — but concrete dust is much worse.

**2. Wear proper hearing and respiratory protection.** This is a noisy process, exceeding 90 dB, and it's very dusty in the early stages, even with the vacuum running.

**3. Lighten the load during initial grinding.** When I first started, I kept tripping the 30-amp breaker. Substituting a 40-amp breaker didn't solve the problem. My assumption was that the 70-grit pads were digging into the slab surface and stalling the machine. After I took off four removable 40-pound weights that came with the polisher to provide down force, the machine worked fine.

**4. Recalibrate chattering grinding pads by restarting the machine.** The diamond dots have a complicated mounting arrangement, and sometimes the machine would seriously vibrate when I started it. Switching it off and on again usually solved the problem.

**5. Never skip a step.** Follow the manufacturer's recommended sequence for progressively finer grits. As with sanding, each step takes out the marks left by the previous step.

**6. Keep the polisher moving.** This is tricky early on, when you have to keep track of the power cord and vacuum hose. Your speed will pick up significantly when you no longer have to deal with the vacuum hose as you work.

**7. Work the floor in two directions.** Do it once east-west and once north-south. This will help flatten the floor (though not perfectly) and get rid of swirl marks.

**8. Respect the edger.** Keep it moving and be sure to make enough passes to get rid of the previous grits' marks. It helps if the room you're working in isn't chopped up into many little rooms that create lots of perimeter edges.

**9. Rent a second vacuum if you plan to use the edger and floor machine at the same time.** We used a good shop vac for the edger, with so-so results.

**10. Don't wait to clean the machine.** According to the directions, coating the bottom of the machine (before use) with a non-oil base form release agent makes it easier to clean off the Fusion slurry. Cleaning with a hose was pretty time-consuming when the slurry was still wet — I don't know what you'd do if it hardened up, with or without a release agent.

**UNPRODUCTIVE.**



**UNPLUGGED.**



Our hole saws were already the best in the industry. But we are always looking to improve. We learned from our users that the problem wasn't the cutting—it was removing the plug. That's why we developed the **LENOX SPEED SLOT®** hole saw. In addition to cutting wood twice as fast and lasting twice as long cutting through metal\*, it also has our revolutionary **LENOX SPEED SLOT®**—making plug removal easy.

**UPBLADE** WITH  
**LENOX** 

Customer Support: 800-628-8810 | Technical Support: 800-642-0010 | lenoxtools.com  
301 Chestnut Street, East Longmeadow, MA 01028-0504 USA  
© 03/2013 LENOX, Newell Rubbermaid

\*compared to the previous generation

**GET  
UNPLUGGED.**

See the video and  
try it yourself.



[lenoxunplugged.com](http://lenoxunplugged.com)

# LIGHT IN WEIGHT. HEAVY ON PERFORMANCE.



## Introducing THE NEW 4 LBS LIGHTER MAG77LT™ WORM DRIVE SKILSAW®.

The legendary power and performance that is the SKILSAW is now 4 lbs. lighter, making it the lightest worm drive saw on the market. Cut after cut, day after day, the new MAG77LT SKILSAW makes your job easier. **THE LEGEND. REBORN™.**

Go to <http://jlc.hotims.com> for more info

[skiltools.com](http://skiltools.com)

**SKILSAW®**

## A Punch List That Won't Knock You Out

by Dennis Dixon

**T**he final few days of a job can be the most difficult. You want to wrap things up and move on to the next project, and the homeowners are anxious to have the place to themselves. Often all that's between you and final payment is the punch list. I've learned from long experience that the best way to keep this last phase from derailing the job is to have a set of procedures in place and make sure the homeowners understand how they work.

I put what I call "close out, completion, and final payment procedures" into all of my agreements for new construction, remodeling, and commercial-tenant improvements. Since I believe an informed customer is a happy customer, I try to cover all the bases and use this section of the contract to reinforce good communication and set expectations. As a result, the homeowners understand the rules, and I get a road map on how to perform.

While I can't recommend specific language to include in your punch-list procedures — that's a job for your attorney — your contracts should address the concepts listed below.

### Punch-List Preparation

I explain to homeowners that during the last few weeks of the project, I will begin to prepare a list of items that are incomplete or require adjustments, repairs, or touch-up. I also explain that I will present this list to them during a final inspection walk-through. While I make it clear that the homeowners are welcome to communicate their own list of items and concerns at any time during the project, the goal here is to make sure they understand that they can't add to the list after the walk-through. (I'll get to warranty items a little later.) Otherwise, I might show up at the site to find sticky notes sprouting like mushrooms.

**Final payment.** Most homeowners want to withhold the entire final payment until the punch list is completed. But punch-list work is usually small stuff that seldom adds up to anything even close to the amount of a final payment. So I itemize the list and put a price on everything, and the homeowner can withhold the total of those itemized prices or \$500, whichever is greater. The goal is to encourage communication and avoid a situation in which something like the late delivery of a special-order light fixture worth a few hundred dollars threatens to hold up a final payment of thou-

sands of dollars. It might be a good idea to tie the payment to the final inspection by a third party, like a building inspector or a lender. If the home is deemed fit to be occupied and the bank releases the needed funds, then it's difficult for the homeowner to argue for withholding the entire amount.

**Timely completion.** I specify that we will complete all punch-list items as soon as reasonably possible, but no later than 30 days from the final inspection by the appropriate building authority. In practice, we try to finish everything up before the final inspection, or at worst within 10 days of it. If something gets in the way of that happening (like a late special-order light fixture), we negotiate that part of the deal, and put the outcome in writing.

**Homeowner responsibility.** Some punch-list work may require moving, protecting, or even storing the homeowners' personal property — everything from artwork, clothing, and furniture to pets, rugs, and vehicles. We prefer that the homeowners handle this themselves, though they must agree to cooperate with us on timing. If we handle it, we state that we will not be held responsible for their personal property.

### Damages After Inspection

Sometimes items are damaged after the walk-through. Maybe one of the movers pokes a hole in the screen door or fuzzes up the paint on a door molding while trying to jockey a rug into a bedroom. Though we usually perform these small repairs without making a fuss, our contract says that we do so at our discretion. This gives us control.

Speaking of control, sometimes things happen despite our best efforts. For example, once we installed an AC compressor just outside the back of a house, and the next morning we found that it had been stolen. Another time, the homeowner's children displaced freshly laid tile by walking on it too soon. Things like this (a neighborhood dog leaving paw prints in a freshly poured concrete sidewalk, a gust of wind smearing fresh paint) are unfortunate but not our responsibility. Again, we are pretty generous about taking care of these kinds of problems, but our contract states that we are not obligated to make the repairs.

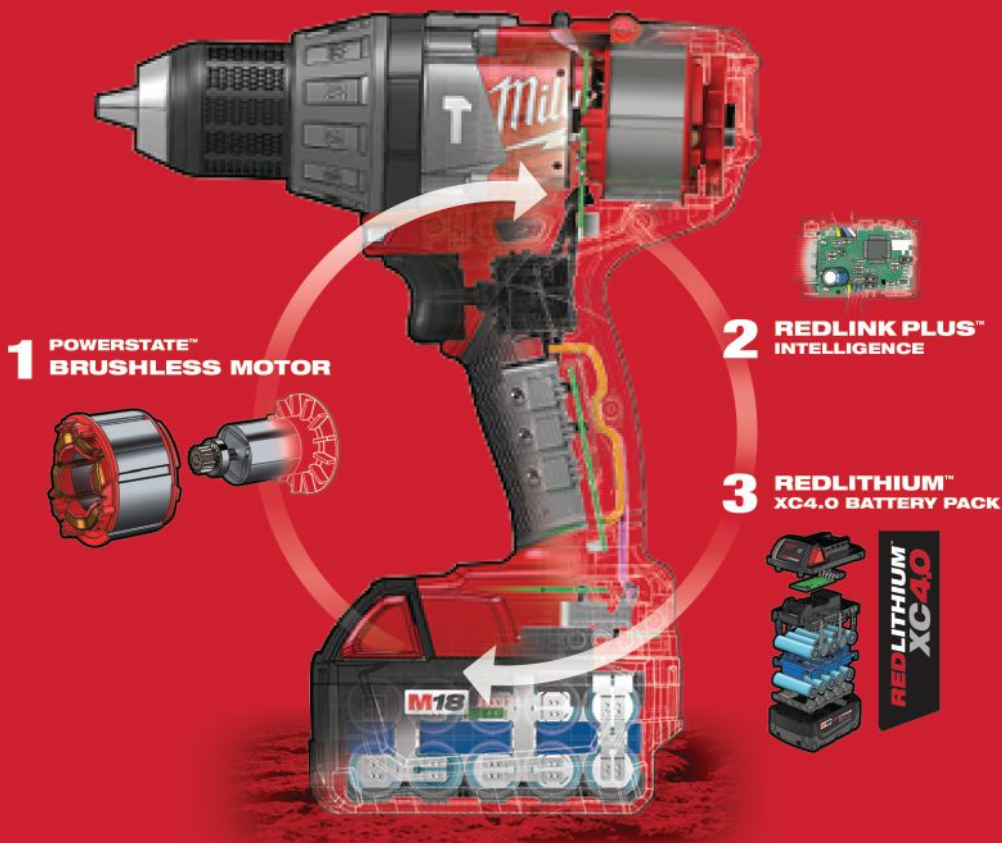
**Utility service.** Our punch-list procedures exclude us from liability for damage caused by an outage or surge from

**NEW**

*Milwaukee*

# M18 FUEL™

**DRIVEN TO OUTPERFORM.™**



**1 POWERSTATE™  
BRUSHLESS MOTOR**

**2 REDLINK PLUS™  
INTELLIGENCE**

**3 REDLITHIUM™  
XC4.0 BATTERY PACK**

UP TO  
**10X**  
LONGER  
MOTOR LIFE

UP TO  
**25%**  
MORE  
POWER

UP TO  
**50%**  
MORE  
RUN-TIME

M18 FUEL™ is engineered for the most demanding tradesmen in the world. M18 FUEL™ delivers unrivaled performance in a compact structure and features three Milwaukee®-exclusive innovations - the POWERSTATE™ Brushless Motor, REDLITHIUM™ Battery Pack and REDLINK PLUS™ Intelligence Hardware and Software - that deliver unmatched power, run-time and durability. Simply put, M18 FUEL™ is best-in-class, full-circle technology that drives, protects and powers your cordless power tools beyond the rest.

Go to <http://jlc.hotims.com> for more info



[m.milwaukeetool.com/m/fo](http://m.milwaukeetool.com/m/fo)



**M18**  
SYSTEM

FUEL™

FUEL™

FUEL™

## Business | A Punch List That Won't Knock You Out

a utility serving the property. We added this in response to a problem we had one super-cold winter. One night the demand for natural gas was so high the pressure dropped in the entire neighborhood and shut down the gas appliances, including our clients' furnace. The pipes froze and we got the phone call. We responded and eventually the insurance companies worked it out, but we decided to address it in our contract to avoid similar problems in the future.

**Limitations.** A related issue has to do with finishes, textures, and overall appearances. For example, Ponderosa pine — a very messy tree — is common in Flagstaff where we do most of our work. Pine cones and sap often fall on decks and porches and can discolor the finish. Our contract explains that we are not obligated to repair, repaint, or replace materials that may be affected in this way.

**Product performance.** I once had a homeowner claim that the porch heaters we installed should be replaced because they generated too much heat. Another customer complained that the dishwasher made too much noise. While we are sympathetic to these complaints and try to help, we are not responsible for creating or resolving them.

### Warranty Items

We spell out warranty coverage in a separate section of the contract, but it's worth mentioning briefly here. Because it's easy to confuse a punch-list item with a warranty item, we specify what is covered by warranty. That way, if the air conditioner stops working, it won't hold up our final payment. We'll fix it, but not as part of the punch list. Our suppliers and subcontractors cooperate with us on this, and if we can, we try to be part of the solution. But we also make it clear that while a manufacturer warranty may cover parts, we have the right to charge for the labor required to make the repair.

This distinction can get tricky. We once had a homeowner complain that the burn-

ers on an expensive commercial gas range had discolored after just a few weeks of use. We worked with the manufacturer to replace the burners, but we explained that the discoloration was a normal part of everyday use and thus fell outside of both our warranty program and the manufacturer's. It's important to anticipate how you

will handle strange, Murphy's-law-type circumstances that impact your work — without taking responsibility for problems you didn't cause and shouldn't have to fix.

*Dennis Dixon is a licensed general contractor in Flagstaff, Ariz., and a frequent contributor to JLC.*



Built for protection.

Conventional Sunglasses	3M™ TEKK Protection™ Safety Eyewear
 <p>Pre-impact</p>	 <p>Pre-impact</p>
 <p>Point of impact</p>	 <p>Point of impact</p>
 <p>Lens shatters</p>	 <p>Lens remains intact</p>

*Designed for durability and reliability.*

High-Velocity Impact Test  
1/4-inch steel ball traveling 102 mph or 150 ft./sec.  
Tested on 3M™ TEKK Protection™ Classics Series Safety Eyewear and conventional sunglasses.  
<http://bit.ly/EyewearImpact>



Unlike conventional sunglasses, 3M™ TEKK Protection™ Safety Eyewear is tested using the highest standards to bring you the best in premium, high-quality eye protection. We offer reliable safety products designed to let you stay focused on your job.

3M, TEKK Protection, and Fuel are trademarks of 3M. Manufactured by 3M Company under license from The Holmes Group. Holmes Workwear, Make It Right and all indicia are trademarks of The Holmes Group used under license. © 2013, 3M. All rights reserved.

Go to <http://jlc.hotims.com> for more info

# Delivering strength and performance where it's needed most.



AdvanTech® Flooring is specifically engineered to outperform OSB and plywood panels. Featuring industry-leading strength and fastener holding power, AdvanTech panels deliver the quiet, solid feel of a quality-built home. And thanks to superior resin technology, AdvanTech panels resist the damaging effects of moisture such as edge swell, cupping and delamination so you can spend less time on costly rework and sanding. Voted #1 in quality for 12 straight years, AdvanTech Flooring performs where you need it most.



**300 DAY  
NO SANDING  
GUARANTEE**

Visit [AdvanTechPerforms.com/JLC3](http://AdvanTechPerforms.com/JLC3) to learn why AdvanTech Flooring is the Flat Out Best™ for a quiet, stiff floor. **1.800.933.9220**

Go to <http://jlc.hotims.com> for more info



ENGINEERED  
WOODS

# Straight Answers About Efficient Windows

by JLC staff



Four independent experts weigh in on low-E coatings, orientation-specific glazing, window-selection tools, and more

## The Participants

**John Carmody** : Director of the Center for Sustainable Building Research at the University of Minnesota in Minneapolis

**Ross DePaola** : National Fenestration Rating Council-accredited simulator at WESTLab in Madison, Wis.

**Chris Mathis** : Code expert and building performance consultant in Asheville, N.C.

**Stephen Selkowitz** : Program head of the Building Technologies Department at the Lawrence Berkeley National Laboratory in Berkeley, Calif.



Which is most thermally efficient for window frames — wood, vinyl, or fiberglass?



**DePaola** It's really about how the window is built, not the material. Vinyl is a budget material that's not as strong as fiberglass, so the frame material is thicker and usually has more internal webs for strength. If you compare a hollow vinyl frame to hollow fiberglass, those webs might cut heat loss a little by reduc-

ing convection. But the webs in the vinyl frame make it harder to fill with foam. Wood is a good insulator, but it's going to vary with the species. If you want to compare thermal performance, look at the NFRC label — the frame material is more an aesthetic issue.

**Carmody** I don't take sides on that. There's not a huge energy distinction between those three until you get into the foam-filled fiberglass "super windows" or the wood-framed triple-glazed win-

dows from Europe, both of which are very expensive. It's more a matter of what people feel — their perception of what looks right, the perceived durability, and other things that are hard to measure.



Since blower-door tests have become common, builders have learned that air leakage through the building envelope can be a bigger driver of comfort problems and wasted energy than insulation levels. On a smaller scale, how big a problem is air leakage through window seals and weatherstripping?



**DePaola** Some types of windows leak more air than others. Double-hungs and sliders are leakier than casements, and casements are leakier than fixed windows. But overall, windows aren't a big source of air leaks. Lots of new homes with vinyl double-hungs qualify under the Energy Star air-infiltration

requirement. It's thermal bypasses, like attic openings and chimney chases, that are the real problem. Builders are getting better at installation, but air leaks around windows are likely to be bigger than leaks through the windows themselves.



There's not enough space to include a comprehensive window installation guide here, but what about some general recommendations on preventing air and water leaks?



**Mathis** Once you leave the factory, you leave the world where things are controlled by the window industry and enter a world where things are controlled by lawyers. That gap between the window and the wall is something manufacturers have no control over, but it's the source of most of the callbacks and problems they get called in to fix.

There are literally thousands of little mom-and-pop window shops in the U.S. If you take the big guys together

— the Andersens, the Pellas, and a few others — they've got maybe 30% of the market. A lot of the small manufacturers make excellent products. But the big players spend more money on testing, and they usually have really good installation advice, especially companies that have their own replacement crews. In the end, though, the builder has to understand the building science and figure out the installation for himself.

**Carmody** Installation is a messy area, and there's a disconnect between the guy in the field and the window manufacturer. But compared to 10 years ago, there are a lot of good information resources out there. For example, the Building Science

Corporation [[buildingscience.com/index\\_html](http://buildingscience.com/index_html)] has some good directions based on their long involvement with the DOE's Building America program. The information is out there, but you have to go find it.

## U-Factor and R-Value: What's the Difference?

A material's U-factor and R-value are both measurements of its insulation value, and put a number to how easily heat energy will pass through it by conduction. For windows, the accepted measurement is the U-factor (often — though incorrectly — called the U-value). Because a window's U-factor is a direct measure of conduction, the lower the number, the lower the rate of heat loss, and vice-versa. A single-glazed window with no storm typically has a U-factor of 1.1 or so, while a good-quality double-glazed low-E window will have a U-factor of 0.35 or less. The most efficient triple-glazed windows with insulated frames can have U-factors as low as 0.15.

R-value — the familiar measure of the insulating value of walls, floors, and ceilings — is essentially just a different method of expressing the U-factor of a material or assembly. The conversion is simple: Take the reciprocal of a U-factor, and you have its R-value. A U-factor of 0.33, for example, can be expressed fractionally as 33/100; the reciprocal value, 100/33, reduces to an R-value of 3. A super-efficient window with a U-factor of 0.15, or 15/100, has an R-value of 100/15, or about 6.7.

Why the two parallel methods of saying the same thing? Engineers and materials scientists use U-factors

when calculating heat flows, as does the NFRC labeling system. (The U-factor listed on the window sticker averages out heat loss over the entire area of the window, including the frame. For an efficient modern window, the value measured through the center of the glazing — a number sometimes also mentioned by manufacturers — will typically be lower than that of the window as a whole.)

From a mass-market standpoint, though, there are two basic problems with using U-factors: First, the number goes down as the effectiveness of insulation increases, which can seem counterintuitive to consumers. Second, the units involved are small, so going from a U-factor of 0.10 to 0.02 may not seem very significant. Express the same thing in terms of R-value — as a change from R-10 to R-50 — and you get people's attention. Now we're talking!

As a result, it's becoming increasingly common for manufacturers of efficient windows to refer to them as "high-R" windows in their advertising. Provided that the numbers are accurate, that probably does make things easier for most consumers, so there's no reason to criticize the practice. "Everyone knows what R-values are," says Steve Selkowitz. "But mention 'U-factor' and all you get is a blank look."



Is there a useful distinction to be made between the low-E coatings used in the north, which are designed to prevent heat from radiating outward through the glazing, and those used in the south, which prevent solar radiation from overheating the interior?



**Carmody** The original low-E coatings that came along in the 1980s were designed to keep heat indoors. The only way to reduce solar heating at that time was with tinted glass, but no one really liked the resulting gray or green or blue windows. In the second wave, we figured out how to use low-E coatings to block radiant heat gain without losing too much visible light. In the '90s, people used to talk about what they called "northern low-E" and "southern low-E" glazing.

But it's not that simple anymore. In a place like Minne-

sota, where there are big heating loads, a northern-type window seems like an obvious choice. But it gets hot here in the summer, so if you also have air conditioning, as a lot of people do, switching to low-solar-gain glazing works to your advantage for part of the year. Depending on the situation, you might end up saving more in air conditioning costs than you give up in wintertime heat loss. If you don't have air conditioning, low-gain windows might make you more comfortable in the summer even if they don't save any money.

**DePaola** The original hard-coat low-E windows were coated on the inside surface of the glazing. Sputtered coatings came later and made it possible to put on enough metal to reject heat from outdoors. But sputtered coatings are softer, so the first low-gain windows had the coating on the outer surface of the inner layer of glass, where it would be protected by the

outer glass [see illustration, next page]. In really hot areas, that caused some seal failures because the reflected heat built up between the inner and outer glass, like in a greenhouse. Now most low-gain windows are coated on surface 2 — the inside of the outer glass — so the heat is absorbed by the outer layer and reradiated. Glazing that's optimized for heating climates usually has the coating on surface 3.



How does all that fit in with the “tuned glazing” approach promoted by some energy-conscious builders, where you might use high-gain windows to collect heat on a southern exposure, with low-gain windows on the east and west to control low-angle sun?



**Mathis** You can design glazing based on orientation, but it’s not for everyone. Production builders won’t do it, because they’re going to use the same plan on different lots with different orientations. With a custom home, it can make sense. You usually don’t want to put a lot of glass facing west because the sun comes in low and you can’t shade it with an overhang, but maybe that’s where you have a great view of the mountains. Low-gain glazing can face that way without overheating.

One thing to keep in mind is that different types of glazing admit different amounts of light. That could be a problem if you have two areas of different glass at a corner. If

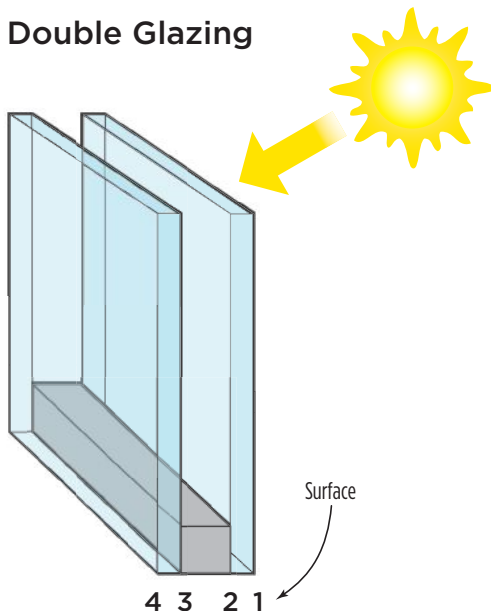
you can see both panes at the same time, you’re going to see a noticeable difference.

But when it comes to putting high-gain glazing on the south to increase solar gain — which is what most people mean when they talk about tuned glazing — there’s a real risk of overheating. Before you go with high-gain windows on the south, you want to be sure you’ve done your heat-load calculations and double-checked them. Make sure you’ve figured your overhangs correctly, sealed your ductwork, and fine-tuned everything else. For every one instance where someone benefits from high-gain glass, there are many, many more who will be less comfortable or have higher cooling costs.

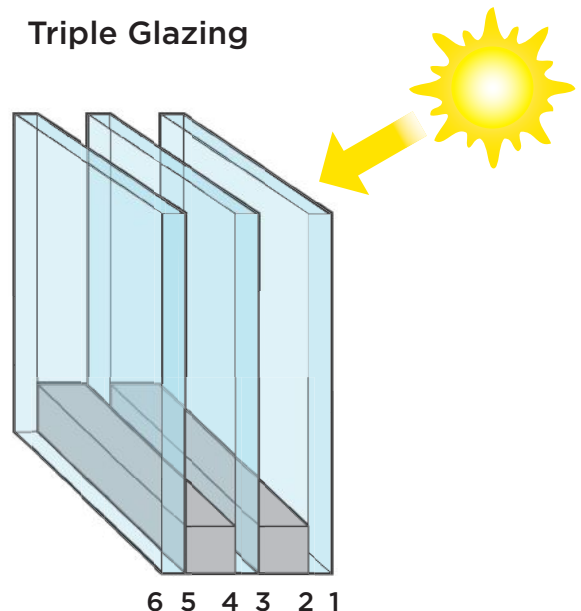
**DePaola** I’m often asked why it’s so hard to find well-insulated high-solar-gain glass. The answer is that manufacturers worry about consumers complaining about overheating. They don’t want to stock it, so they don’t get many orders.

But I will say that the Canadian market has looked slightly larger in the eyes of manufacturers than it did during the building boom. The Canadian version of Energy Star rewards high-gain windows, so U.S. manufacturers may start looking at that also.

### Double Glazing



### Triple Glazing



The placement of low-E coatings on multi-glazed windows may vary with the climate zone. Glass surfaces are identified by number, beginning with outermost or “weather” surface. It is always designated as #1, the inner surface of the outer pane is surface #2, and so on. In glazing with suspended films rather than internal glass, the film surfaces are numbered the same way.



Double-glazed windows are still driving the market in the U.S., but triple glazing has been gaining popularity with some energy-conscious northern builders. Is it eventually going to take over everywhere?



**Selkowitz** Most of Northern Europe has already gone to triples — that’s the norm. If you can get the window U-factors down to the 0.2-to-0.1 range, you’re already at net zero as far as the windows go. You lose some heat on a cold winter night, but you’ll make it up with solar gain during the day, even with a north-facing window that doesn’t get any direct solar gain.

Under extreme conditions, triple glazing can also make sense in a cooling climate. Say you’re in a place like Phoenix, where the temperature outside your window might reach 120°F. Depending on where you set your air conditioner, you could easily have a temperature difference of 50° between indoors and out. That’s close to the difference you’d find on a cold winter night in a heating climate.

**Mathis** Triples are useful in most of Canada and parts of the northernmost U.S. In some ways, our thinking is still stuck in the energy crisis of the 1970s. The oil embargo was a huge problem in New England, where everyone heated with oil. That’s why you see a lot of triple-glazed windows there now.

the Germans and the Canadians as a model for efficient windows, but that’s not the situation faced in most of the U.S. Triple glazing makes the most sense where heating costs are much higher than air conditioning costs. Gas is cheap now and likely to get cheaper, but a lot of utilities are pretty much tapped out, especially in the south, so cooling costs are likely to increase a lot faster than heating costs in the coming years.

But in most of America, the issue is cooling. Seven of the 10 fastest growing states are in the south. People look to

**Carmody** One point I’d make is that the U-factors of the best gas-filled double-glazed windows have come down to 0.28 or less, which is more or less where triple glazing used to be. That’s a significant change — just a few years ago, a typ-

ical value for a good double-glazed window would have been 0.35 or so. The cost-effectiveness of going to triple isn’t always there unless you’re in a situation where you’re trying to squeeze every last Btu out of the building envelope.



What are the pros and cons of full triple glazing compared with double glazing with a suspended plastic film between the inner and outer panes of glass?



**DePaola** You can put a low-E coating on both sides of a suspended film with clear glass on both sides, so you get low-E in both directions without overheating the space between the inner and outer glazing. The other big advantage to the suspended film is that it reduces weight and thickness. One

reason triple-glazed windows are so expensive is that you need a thicker, stronger frame and heavier hardware. You might also need balancers to compensate for the weight, and that makes the window cost even more. If a manufacturer started cranking out suspended-film glazing units in volume, the market might eventually go to those.

**Selkowitz** Most European windows use full triple glazing, but there’s no intrinsic reason why double glass with film can’t be just as reliable. Look at laminated glass — that’s a glass/polymer combination that has been around for a long time and is completely free of problems. Southwall Technologies [the only U.S. manufacturer of suspended films] used to

sell the film to third parties and let them make their own glazing units, but they now have their own plant in the Chicago area.

Most films are not double-coated, but one of the advantages to film is that you can stockpile rolls of different materials and have them ready to go. That’s a lot simpler than trying to inventory large amounts of glass.



The NFRC rating system has obviously been very useful in providing basic information about window performance, but what other tools are out there for builders who want to go into more depth when selecting windows?



**Carmody** : Before the NFRC rating system was adopted 20 years ago, manufacturers could make any claims they wanted, but now windows have to be labeled and their performance is verified [see sample labels, facing page]. Assuming you know what your local code requires, the NFRC label lets you determine which windows meet it. It's a very effective system. The next layer up from that would be to select an Energy Star window.

Ideally, windows would have labels that spelled out their expected energy cost, like you see on a washing machine or a refrigerator. That's not practical because orientation, climate, and fuel costs vary so much. You can factor in all of those things with an energy modeling program like REM/Rate, but that's a lot of work, and it's more than most builders are going to want to do.

A more basic option that might take five or 10 minutes is to use the Efficient Windows Collaborative's window selection tool [see screen shots, below]. It lets you enter your location, information about the glazing you plan to use —

double or triple, gas-filled or not, high, medium, or low solar gain — and select a window frame type. When you've done that, it will give you an estimated heating or cooling cost for a typical 2,250-square-foot house with a fixed number of windows. The number is going to be rough because it doesn't account for solar orientation or the actual house size, but we're just about to launch an improved version of the software that allows the user to enter more of those kinds of specifics. Once you have the energy cost estimate, you can continue to a list of manufacturers and specific products that match your window selection.

If you want to spend a little more time — maybe half an hour or so — you can use a program called RESFEN [windows.lbl.gov/software/resfen/resfen.html]. It was developed by the Lawrence Berkeley National Laboratory, and it lets you get much more specific in terms of size, orientation, shading, and the actual construction of the house. You also get more outputs, including peak heating and cooling demand. It's still not as powerful as REM/Rate, but you don't need any special training to use it.

Window Types	Properties	Annual Energy Use	Manufacturer Information	ENERGY STAR® Qualified
Window 28 Triple-glazed, Medium-solar-gain Low-E Glass, Argon/Krypton Gas Non-metal Frame, Thermally Improved	U = 0.20 SHGC = 0.36-0.40 VT = 0.41-0.50	\$0 \$300 \$600 \$900 \$1200	Products	yes
Window 29 Triple-glazed, Low-Solar-Gain Low-E Glass, Argon/Krypton Gas Non-metal Frame, Thermally Improved	U = 0.20 SHGC = 0.25 VT = 0.40	\$0 \$300 \$600 \$900 \$1200	Products	yes
Window 23 Triple-glazed, Medium-solar-gain Low-E Glass, Argon/Krypton Gas Non-metal Frame	U = 0.21-0.23 SHGC = 0.38-0.40 VT = 0.41-0.50	\$0 \$300 \$600 \$900 \$1200	Products	yes
Window 24 Triple-glazed, Low-Solar-Gain Low-E Glass, Argon/Krypton Gas Non-metal Frame	U = 0.21-0.25 SHGC = 0.25 VT = 0.40	\$0 \$300 \$600 \$900 \$1200	Products	yes

The Efficient Windows Collaborative's window selection tool (efficientwindows.org/selection.cfm) is an easy-to-use guide for builders looking for information about the energy costs of available window options. On the landing page (left), the user specifies a city and chooses between new and existing construction. The site then provides projected annual energy costs at that location for a broad range of window types, from single-glazed clear glass in a metal frame to triple-glazed gas-filled units in thermally improved frames (right). Users can make additional selections to bring up lists of manufacturers that offer given types of windows, or to find specific products available from individual manufacturers.

 <b>World's Best Window Co.</b> Millennium 2000+ <small>Vinyl-Clad Wood Frame          Double Glazing • Dynamic Glazing • Argon Fill • Low E</small> Product Type: <b>Vertical Slider</b>	
<b>ENERGY PERFORMANCE RATINGS</b> U-Factor (U.S./I-P)      Solar Heat Gain Coefficient <b>0.30</b> <b>0.40</b> <b>0.10</b> <b>0.50</b>	
<b>ADDITIONAL PERFORMANCE RATINGS</b> Visible Transmittance      Air Leakage (U.S./I-P) <b>0.03</b> <b>0.65</b> <b>0.2</b>	
<small>Manufacturer disclaimer: These ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not warrant any product performance and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org</small>	

**U-Factor** is a measure of heat transfer expressed in units of Btu/hr/ft<sup>2</sup>/°F. The U-factor multiplied by the interior-exterior temperature difference and by fenestration product area yields the total heat transfer due to conduction and long-wave infrared radiation.

**Visible Transmittance (VT)** measures how much light comes through a window. VT falls between 0 and 1; a higher value means more light is transmitted.

**Dynamic glazing** products display two ratings that correspond to shades/blinds that are open or closed, or to electronic tinting that is on or off.

**Solar Heat Gain Coefficient (SHGC)** is the ratio of solar heat gain entering the space through the fenestration product to incident solar radiation. It's expressed as a value between 0 and 1.

**Air Leakage (AL)** indicates how much air passes through seams and gaps in a window or door assembly. A low AL (typically under 0.3 cfm/ft<sup>2</sup>) indicates better performance.

 <b>World's Best Window Co.</b> Millennium 2000+ <small>Vinyl-Clad Wood Frame          Double Glazing • Argon Fill • Low E</small> Product Type: <b>Vertical Slider</b>	
<b>ENERGY PERFORMANCE RATINGS</b> U-Factor (U.S./I-P)      Solar Heat Gain Coefficient <b>0.35</b> <b>0.32</b>	
<b>ADDITIONAL PERFORMANCE RATINGS</b> Visible Transmittance      Air Leakage (U.S./I-P) <b>0.51</b> <b>0.2</b>	
<small>Manufacturer disclaimer: These ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not warrant any product performance and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information. www.nfrc.org</small>	

Practically all residential windows sold in the U.S. are performance-tested under procedures established by the National Fenestration Rating Council, and carry individual labels documenting the test results. These labels provide mandatory values for U-factor, solar heat-gain coefficient (SHGC), and visible transmittance. Manufacturers can also report values for air leakage and condensation resistance, but since few of them do, many NFRC labels contain one or more blank cells. Windows that use dynamic glazing — which makes it possible to adjust light levels with integral blinds or electronic tinting — carry a modified label (above left) that lists the maximum and minimum U-factor, SHGC, and visible transmittance values.



What about the relationship between Energy Star, the codes, and the glass and window manufacturers? Can window performance keep getting ratcheted up indefinitely?



**Selkowitz** : That's been the great debate for the last year or two. Energy Star used to be 10% of the market, and now it's 70%. When the window and door criteria were revised in 2010, building codes in a good part of the country were already ahead of Energy Star. That put them in the absurd position of putting a premium label on windows that were worse than code.

The draft version for the 2014 version of Energy Star calls for U-factors of 0.27 in the north, down from 0.30. The numbers aren't final yet, but that's about as low as you can go without adding a suspended film or going to full triple glazing. The problem for Energy Star is that its products are required to be cost-effective. "Cost-effective" is in the eye of the beholder, but because the market isn't demanding triples, it would be hard for them to go there.



What kinds of new technologies can we expect to see in the next decade or so? Are there any real game-changers out there?



**Selkowitz** : There are three main areas of research right now. One is vacuum glazing, which works like a thermos bottle — you have two sealed layers of glass separated by a vacuum to reduce conductive heat transfer [see "Vacuum-Insulated Glass Takes On Triple Glazing," *JLC Report*, 10/10]. A Japanese company is already using that technology successfully outside the U.S.

glass was expensive and hard to find; now it's mass-produced for flat-screen TVs. We're also researching ways to bring down the cost of krypton, which is a more efficient gas fill than argon. Thin glass and krypton together could give you U-factors as low as 0.12 to 0.1 — that's R-8 to R-10 — with about the bulk and weight of double glazing today.

A second approach has to do with ways to produce triple glazing that's thinner, lighter, and more cost-effective than what we have now. We're looking at ways to suspend a very thin, lightweight sheet of glass between conventional inner and outer panes without an extra set of spacers. We actually considered this years ago, but the thin

The third area is "dynamic glazing," using self-regulating electronic tinting or thermal blinds that open or close to keep heat in or out, depending on the conditions. We're working with a major window manufacturer on that now. The key to making that work is going to be giving the window enough onboard smarts and sensors to make the right adjustments on its own without a lot of user input.



Gary Katz at JLC LIVE

**THANKS FOR ATTENDING JLC LIVE!**

**SAVE THE DATE FOR 2014**

Exhibit Hall: March 21-22, 2014 // Conference: March 20-22, 2014  
Rhode Island Convention Center // Providence, Rhode Island USA  
Toll-Free: 800-261-7769 // [www.JLCLIVE.com](http://www.JLCLIVE.com)



22 Gauge Aluminized Steel

## New Model DB-480

**Bigger. Better. More Versatile.**

NEW

**BIG**

**the dryerbox<sup>®</sup>**

Today, you can protect exhaust hose and install on the bottom plate every time.



Unprotected Exhaust Hose is a Fire Hazard

Give the dryer some space.<sup>™</sup>

Select the NEW Model DB-480 for a standard installation that handles stand-alone *and* pedestal dryers whether venting up or down.

Just like the original models, DB-480 is built tough right here in the USA.

Only bigger.



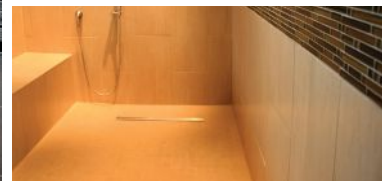
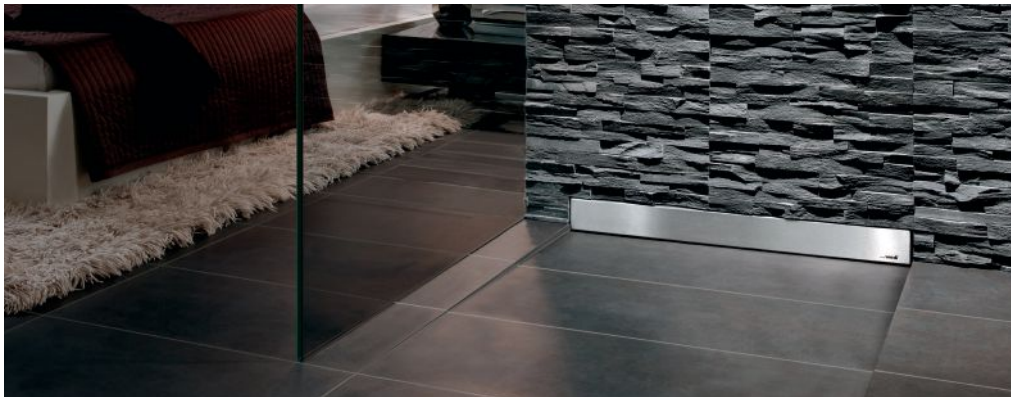
Pedestal or Stand-alone

**888-443-7937**

**www.Dryerbox.com**

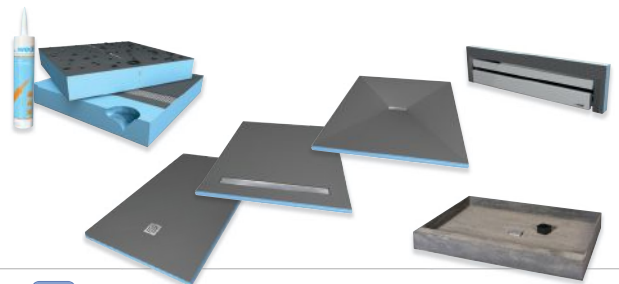
Go to <http://jlc.hotims.com> for more info

**wedi<sup>®</sup>**



## wedi<sup>®</sup> Fundo Shower Systems –

Pre-sloped shower floors with linear drainage, wall drainage or point drainage. Installed with wedi Building Panels, Curbs and Accessories. 100% waterproof, customizable and directly tileable.



You can also find wedi products & specs on [arcat.com](http://arcat.com).

Join Us on Facebook.com



877-933-WEDI (9334) [www.wedicorp.com](http://www.wedicorp.com)

Go to <http://jlc.hotims.com> for more info

BUILDERS EVERYWHERE

# UNITE

✦ JOIN THE FASTENING ✦

# REVOLUTION



Sub-Flooring / Sheathing / Decking

**Ready. Load. Fire. Go.** With PneuScrew pneumatic fasteners, you quickly shoot them in. Or easily screw them out. They cut installation time by up to 70% without sacrificing any holding power. So join the fastening revolution and take hold of your next construction project. Find out more plus request a *free* sample at [PneuScrew.com](http://PneuScrew.com).

## PneuScrew///

Drive them in. Screw them out.™

Go to <http://jlc.hotims.com> for more info

Available At

**LOWE'S**



# Framing Decks With Steel

Light-gauge steel framing requires fewer footings and stays straight and flat

---

by Greg DiBernardo

For years, the quality and stability of the pressure-treated lumber I used in my decks seemed to be getting progressively worse. More than once, I saw adjacent southern pine 2x10s — which had been planed to a string line during construction — end up being nearly 1/2 inch out of plane six months later. That's the reason I became interested in light-gauge

steel (LGS) framing for the decks I build.

LGS is pretty common in the commercial world. Still, the main roadblock I had when I converted to steel a couple of years ago wasn't learning how to build with it, but finding a source for materials. When I called commercial drywall and steel-stud yards — the kind of business that typically supplies light-gauge steel — and told the

salespeople I wanted to build a deck with LGS, I was twice blown off as a kook before I finally found someone I could work with. The “aha” moment came when I explained I had everything figured out and just needed the supplier to place the order and deliver it to the site. Your local supplier may well be like mine — familiar with LGS for interior floor and wall systems, but

### Steel Framing Terms

In deck building, two steel shapes are used: joists (or studs) and track. Track is sized slightly larger so that joists fit inside it, and it's used like a rim joist or ledger at the ends of joists.

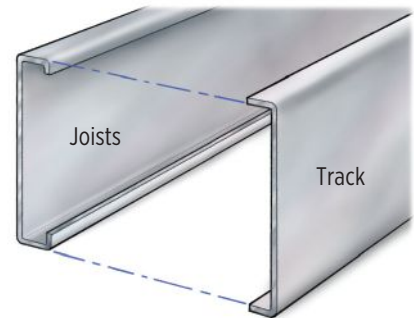
The strength of a steel member varies depending on its web depth, flange width, and gauge (or thickness). These characteristics are described with what at first appears to be a confusing nomenclature. It's actually pretty easy to understand, though. Here, for instance, is what the label "800S162-54" denotes:

800 = web depth in  $\frac{1}{100}$ -inch increments; in this case, 8.00 inches  
S = the shape of the member; "S" indicates a stud (or a joist), track is designated with a "T"

162 = flange depth in  $\frac{1}{100}$ -inch increments; 1.62 (actually 1.625) — or  $1\frac{5}{8}$  — inches

54 = mil thickness; 54 mils = 16 gauge, 43 mils = 18 gauge

Once you have this information down, using steel-joist span tables as found in the IRC or in the Steel Stud Manufacturers Association *Product Technical Guide* (ssma.com) isn't much different from using span tables for wood joists.



Joists (or studs) have flanges whose edges turn inward, whereas track's flanges are straight. Track is sized so that the joists fit between its flanges.

CHUCK LOCKHART

unable to offer a residential deck builder any hand-holding. To this day my supplier is just my order-taker.

### Precision Framing

The name of the game with LGS is precision. Every joist is cold-rolled (a galvanized steel sheet is pulled through a die that gives the joist its shape) perfectly straight and to the exact dimension you specify. No more crowning wet, heavy, treated lumber, measuring joist depths, or planing after installation to flatten the deck framing.

Because the end joists are always straight, whether they're 8 feet long or 22 feet long, squaring a steel frame is child's play. The rim (or band) joists are easy to install dead plumb, which makes installing the railing posts that much easier, too. All the corners will be exactly 90 degrees, 45 degrees, or whatever you want them to be.

Even better, I'm not handcuffed by the span limitations of wood joists (see **Figure 1**). To stretch the span of wood joists,

you might reduce the spacing from 16 to 12 inches on-center, jump up to 2x12 framing, or double some members, but there's only so much that wood allows you to do. On the other hand, to increase a span with LGS, I can change the gauge of the steel, widen the flanges, or change the web depth to suit the design requirements of the project.

For instance, for a rectangular deck 24 feet deep, 16 feet wide, and 11 inches off the ground, I would use 24-foot-long-by-8-inch-deep 16-gauge (54 mil) joists with a 2-inch-wide flange, and space them 16 inches on-center. The 8-inch joists would allow for air circulation below the deck. The joists would hang from a single flush beam 24 feet from the house bearing on two footings or, in my case, helical piers. Designing that same deck with wood would require at least one, if not two, mid-span flush beams, a plethora of joist hangers, and four times as many footings.

Another huge perk of LGS is that I can

order nearly every piece cut to the precise length needed. Not having to cut material on site saves substantial time. My supplier labels every piece of steel with its cut dimension, so assembling a deck frame amounts to pulling material off the pile and installing it in one movement (**Figure 2**). The only time my crews cut materials on a job is when creating angles or clipped corners, because in those cases it's easier to run the joists a little long and cut them to length after installation. Using mostly pre-cut framing materials results in essentially zero framing waste, very little clean-up, and reduced debris-removal costs.

Compared with wood, steel framing is lightweight, so it's also far less tiring to work with. For example, a 20-foot-long, 10-inch-deep, 16-gauge steel joist weighs a little over 40 pounds. A similarly sized piece of wet southern pine — which won't span anywhere near as far as the steel — weighs around 100 pounds (**Figure 3, page 44**).

## Galvanization

Light-gauge steel framing for decks is typically galvanized to the G90 standard (0.9 ounce of zinc coating per square foot of steel sheet). Deck builders occasionally wonder why G90 is okay for framing, while G185 (1.85 ounces of zinc per square foot) is required for framing hardware. It's because framing hardware is expected to be in contact with ACQ preservatives, which contain copper that may accelerate corrosion. Unless you're decking with treated lumber — not likely

with steel framing — that's not an issue. Back in the days of CCA preservatives, the galvanization standard for framing hardware was G60.

According to information published by the American Galvanizers Association ([galvanizeit.org](http://galvanizeit.org)), the zinc on G90 steel should last more than 30 years in rural environments, about 20 years in suburban use, and 15 years or so in marine environments before surface rust starts to form.

Steel is so light my crews can prebuild small structures like intermediate stair landings on the ground and simply lift them onto the support posts. Steel can also be ordered in long lengths; given its light weight, it's not uncommon to see a 28- or 30-foot girder being placed by only two people. An entire 500-square-foot deck frame can be shifted, racked, and squared effortlessly.

### What to Watch Out For

In most cases, steel framing costs more than wood framing. However, I end up using less material and fewer footings for a steel-framed deck than for a similar wood-framed deck, so depending on the design, the overall cost often ends up about the same.

The labor cost to build a steel frame can be either more or less than a wood frame, depending on several factors. For simple designs where pre-cut LGS is available, steel is usually faster because there's no cutting on the job site. Once the ledger is installed, the deck goes up like an Erector Set. The only tools needed are a cordless drill and an impact driver — no compressor, no air hoses, no saws. But complex designs with borders, seam boards, and a lot of angles usually take longer to frame with steel than with wood. This is because such designs tend to require more screws, and



**Figure 1.** One big advantage steel framing has over wood is that its greater spans allow the use of fewer footings.



**Figure 2.** The author buys steel framing members pre-cut to the exact length needed.

## Framing Decks With Steel



**Figure 3.** Although steel can span considerably longer distances than wood, it's only about one-third the weight.



**Figure 4.** Complex framing can take longer with steel than with wood. For decks like the one pictured here, the steel has to be cut to length on site. Plus, complicated designs have a lot of screwed connections, which take longer than gun-nailed wood connections.



**Figure 5.** Some steel framing systems require the use of framing hardware to make connections.

screwing steel together takes longer than gun-nailing wood (**Figure 4**).

Some LGS framing — such as the Elevations steel framing system — requires on-site cutting and more framing hardware (like framing angles) and screws (**Figure 5**). Still, Elevations is a good system to use in certain special cases or if you're new to steel framing (see “Working With Trex Elevations,” facing page), though I prefer off-the-shelf LGS framing, mostly because it costs less.

You might expect your building department to balk at the use of an unfamiliar material, but the fact is that the IRC devotes more pages to steel floor framing than it does to wood floor framing, and much of that information translates directly to deck building. Also, the Steel Stud Manufacturers Association ([ssma.com](http://ssma.com)) publishes span tables, explanations, and details that you can provide to the building department with the permit application; I include the SSMA documentation, as well as several pages from the American Galvanization Association regarding the level of galvanization on the steel. The idea is to give code officials so much information they not only understand but have confidence in a steel-frame deck.

Even so, some building departments may insist on an engineer's stamp before issuing a permit. Engineering fees vary, so it pays to call around. Try to find someone knowledgeable about LGS construction. He or she will probably consider any deck project cut-and-dry compared with a commercial structure, and may charge less than engineers who are outside their comfort zone.

### Working With Steel

If you have ever framed a wall with steel studs and track, you will feel right at home framing a steel deck. Simply put, it's like framing a wall on the horizontal plane. The track used for the ledger and rim is like the track that serves as plates in a steel-stud wall. Its inside dimension

## Working With Trex Elevations

The Elevations steel framing system (trex.com) may be a good option if you are a new steel framer, because of the support and documentation provided by Trex. It's also a complete framing system, which simplifies logistics.

There are a couple of key differences between this product and the LGS I generally use. Elevations joists and tracks come only in predetermined lengths, much like lumber, and you have to cut all material on site. Because the Elevations ledger — unlike the Trade Ready ledger I use — is just a piece of track, you have to lay out the joist locations and install an L70 framing angle in each, with eight screws per joist — four to connect the L70 to the track and four to connect the joist to the L70. (I have been told that Trex plans to change this in the future.)

Elevations is painted brown at the factory. Some clients are willing to pay extra to have brown framing, some don't care about the color, and others like the metal look of generic LGS because it's so innovative and they can brag to their guests about it. One of my company's current projects uses both — it's a four-level deck where the upper two decks, whose framing is visible, are fabricated from Elevations and the lower two are framed with generic LGS. But whatever route you take, it's wise to let your clients know what the finished product will look like.

is a little wider than the joists, which just slide into the ledger track on one end and the rim track on the other end (Figure 6). Unlike most steel-stud walls, however, everything in a steel-frame deck is structural, so the steel members are significantly thicker and stiffer.

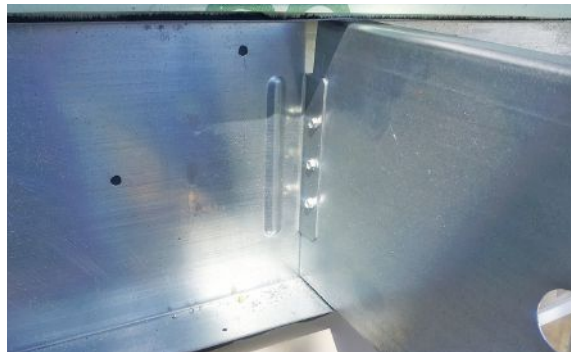
To cut LGS framing, you can either equip your existing circular saw with a steel blade (the Steel Demon, for instance; 800/334-4107, freudtools.com) or upgrade to a dedicated steel-cutting saw like the Milwaukee 6370-20 (800/729-3878, milwaukee.com). My crews built about 10 steel-frame decks using circular saws and they worked pretty well, but upgrading to a dedicated steel-cutting saw was well worth the investment (Figure 7, next page). The new saw captures most of the hot steel filings that otherwise land on the user, and it cuts faster.

In addition to cutting, you end up drilling a fair number of holes in steel framing. You'll want to purchase high-quality drill bits (Figure 8, next page), and you'll need cold galvanizing spray paint (rustoleum.com) for coating drilled holes or end cuts. You probably have all the other tools required, such as impact drivers and drills.

### Buy High-Quality Screws

All the connections in a steel-frame deck are made using self-tapping screws — typically #10x<sup>3</sup>/<sub>4</sub> inch with a <sup>5</sup>/<sub>16</sub>-inch hex head (Figure 9, next page). Sourcing hot-dip galvanized or exterior-rated screws of this size and type can be tricky. For me, it was one of the most frustrating parts of building with LGS, and involved a lot of trial and error.

The first decent screws I found were Buildex Tek Select screws (800/596-7747, starbornindustries.com). They are distributed for use with Trex Elevations and are readily available online (I buy them through DecksDirect.com). They work adequately with Elevations framing members, which are typically 18-gauge steel. However, I normally use thicker, 16-gauge



**Figure 6.** Ledger and rim track is available with tabs punched on standard framing layouts (above). The joists are screwed to these tabs (left).

## Framing Decks With Steel



**Figure 7.** A specialized steel-cutting saw makes quick work of cuts and does a good job containing the hot chips of steel from the cuts.



**Figure 8.** Step drills work great on steel and allow one bit to drill holes of several sizes.



**Figure 9.** Specialty hot-dipped galvanized self-drilling screws are used to connect steel framing members.



**Figure 10.** Screws for attaching steel ledgers are shorter than those used with wood.

framing members and prefer HWH 3 KS 12-14x $\frac{3}{4}$ -inch screws (800/879-8000, [us.hilti.com](http://us.hilti.com)) because they have sharper self-drilling tips and install faster. The Hilti screws are slightly more expensive, but it's money well-spent. You will find that some screws in a box, regardless of the brand, just won't drill — they spin and spin until the tip burns off. I've found this to be less of a problem with the Hilti screws than with other brands.

### Framing Details

A steel ledger, or track, installs much like a wood ledger does, and flashing a steel ledger is no different from flashing a wood one. The bolts or screws you are accustomed to using with wood ledgers won't work, though, because the steel is only about  $\frac{1}{16}$  inch thick. You'll need to use shorter fasteners.

My crews use  $\frac{5}{16}$ x2 $\frac{3}{4}$ -inch RSS screws (800/263-0463, [grkfasteners.com](http://grkfasteners.com)) to attach steel ledgers (**Figure 10**). Quarter-inch lag screws may also be used, according to the Trex Elevations design manual. For hollow- or solid-masonry connections, my crews use application-specific Hilti chemical anchoring systems. In any case, you should consult a structural engineer to determine the proper screw and fastening pattern for your load application.

Installing steel joists into a ledger track is easier than installing wood joists with a wood ledger. I order Trade Ready Rims (800/543-7140, [clarkdietrich.com](http://clarkdietrich.com)) for ledger tracks. They come punched and drilled and have bent tabs for attaching the joists at either 12-inch or 16-inch on-center joist spacing. Installing the joists is fast and precise because no measuring is required. Five screws are used per connection — a single screw through each of the top and bottom track legs into the joist flanges, and three through the tab into the joist.

LGS beams or girders are typically single or double (**Figure 11**). A single LGS

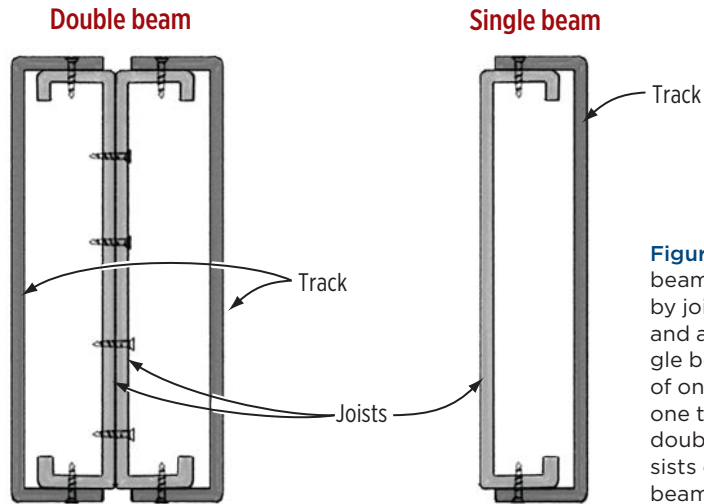
beam is simply a joist with a track nested around it and screwed to it. But because it comprises two pieces of steel, its span is surprisingly long compared with what wood beams can handle. A double steel beam is similar, the only difference being that two joists are fastened web-to-web prior to track being installed on each joist. Screws are driven through the top and bottom flanges, typically at 12-inch intervals. LGS beams are capable of supporting enormous loads over long spans, so intelligent beam design can reduce the number of footings required.

### Support Posts, Railing Posts, and Stringers

While you can frame a deck with no wood whatsoever, I've found that doing so is neither cost-effective nor desirable (Figure 12). I still use 4x4 or 6x6 southern pine MCA-treated lumber for support posts under beams because it's far easier to wrap wood substrates with trim than it is to wrap steel. It's also much simpler to make footing-to-post and post-to-girder connections with wood posts (Figure 13, next page). The hardware is the same as you'd use framing with wood.

My crews typically use composite-railing kits whose post sleeves cover 4x4 wood structural posts. The posts might cost \$3.50 each, whereas a tubular steel post would cost 10 to 15 times that (Figure 14, next page). To stiffen the framing and provide a flat surface where a post will be bolted in place, a 6-inch-long piece of track is screwed to the inside of the joist before the post is mounted.

We cut stair stringers out of southern pine simply for aesthetic purposes (Figure 15, next page). While you can fabricate stairs from steel, it requires closed stringers on both sides, which would prove difficult to wrap using matching composite materials, though they could be painted. I'm not sure I could sell the additional cost of labor, time, and materials to my clients when wood stringers do the job.



**Figure 11.** LGS beams are made by joining a joist and a track. A single beam consists of one joist and one track, while a double beam consists of two single-beam assemblies.



**Figure 12.** Support columns and railing posts made from wood (left) are simpler and cheaper than ones of steel. Once everything is wrapped with finish materials, it's impossible to tell what the underlying material is (below).



## Framing Decks With Steel

**Figure 13.** Wood support posts attach to LGS beams with hardware similar to that used with wood framing.



**Figure 14.** Wood posts are bolted to the steel framing. A short piece of track between the joist and post stiffens the joist and provides a rigid mounting surface.



**Figure 15.** Stair stringers are typically made of wood, which is economical and easy to wrap with finish materials.


## Fastening Deck Boards and Trim

My crews have used hidden fasteners on all of our decks for years, but until a couple of years ago, there were no decking fasteners designed specifically for steel framing. Now there are several. Every synthetic board I install is pregrooved from the factory, and we have been using the Invisi-Fast clip system (866/766-9427, invisifast.com) with excellent results. A single self-tapping screw goes through the T-shaped clip and into the steel joist. M&M makes dedicated clips for Trex and TimberTech products as well as a generic clip that works with any decking brand (such as Fiberon or Latitudes) that has a centered, 90-degree shouldered groove. Trex offers its branded Universal clip with a self-drilling steel-framing screw, similar to the Invisi-Fast clip.

Alternatively, you can use a steel-frame-compatible Cortex screw-and-plug system (800/518-3569, fastenmaster.com) with nongrooved boards. Currently, Fasten-Master stocks metal screw-and-plug kits for Trex decking only. However, if you contact the company directly, it will custom-package its steel-frame-compatible screws with any plugs it makes.

Starborn's self-drilling colored-head screw, the Deckfast Metal, is designed to drill through the deck board and the steel frame. The screws work as advertised, and we use them wherever a face-screw is necessary and for all our fascia attachments. Unfortunately, Starborn does not offer a white screw. When we install white PVC trim and fascia, we use sandstone-colored screws and dot the heads with white appliance epoxy paint as a work-around. If I were more industrious, I would stick a few hundred in a piece of rigid insulation and spray-paint all of them white in one fell swoop.

*Greg DiBernardo owns Bergen Decks in Waldwick, N.J. This article first appeared in Professional Deck Builder magazine.*

A black Simpson Strong-Tie Quik Drive auto-feed screw driving system is shown in the process of installing a subfloor. The device is positioned vertically on a wooden subfloor, with a yellow strip of material being fed into it. The strip is being pushed down by the device, which is driving a series of screws into the subfloor. The screws are arranged in a curved line, following the path of the strip. The background is a blurred interior space with warm lighting.

## The original “No Glue” fastening solution for subfloors

Save time and reduce cost by installing subfloors without glue using the code-listed Quik Drive® WSNTL subfloor screw. Compared to pneumatic nails that can loosen over time, WSNTL screws pull the subfloor and joist tightly together, eliminating gaps that cause floors to squeak and costly callbacks.

WSNTL screws are available in a variety of lengths for subfloor, sheathing, sill plate and stair thread applications using the Simpson Strong-Tie® Quik Drive® auto-feed screw driving system. Learn more by calling (800) 999-5099 or at [www.strongtie.com/subfloor](http://www.strongtie.com/subfloor).

**SIMPSON**  
**Strong-Tie**®

# Go ahead, walk all over us.



## PLANTATION™ Porch Flooring

KOMA® Plantation™ Porch Flooring is typically less expensive than hard woods and competitive PVC offerings.\* Because of our unique Celuka extrusion process, we'll help you deliver the hardest, most

durable, and longest-lasting surface on the market. Your customers will enjoy walking all over a porch that's easy-to-maintain, and that won't rot, split, or swell – even in the harshest of conditions.

Pre-sanded and ready to install in popular gray or cedar, KOMA Plantation™ Porch Flooring is also paintable. Call **1-800-330-2239** or visit **[komacelukachallenge.com](http://komacelukachallenge.com)** to take our Challenge! You'll receive a prize. And you'll be able to purchase KOMA Celuka for the price of free foam – so low you'll feel like you're walking all over us.

### KOMA CELUKA AT FREE FOAM PRICE



# KOMA®

## BUILDING PRODUCTS

Go to <http://jlc.hotims.com> for more info

**The Hard Choice**

**Take the CELUKA  
CHALLENGE and WIN  
at Atlantic Builders  
Convention, Booth #615  
and IDEAS LBM Show  
Booth #105.**



\*KOMA Plantation™ Porch Flooring is typically 5-10% less costly than mahogany hardwoods; and up to 25% less expensive than other PVC products. March 2013.

# Getting Into Insurance Work

Is insurance restoration a good fit for your remodeling business?



by Paul Bianchina

**W**ith all the destruction caused by Hurricane Sandy and other recent natural disasters, you may be considering a move into insurance restoration. As a retired general contractor who specialized in insurance restoration for over 20 years and co-owned one of the largest restoration companies in Oregon, I can tell you that this work is easily one of the most fascinating and potentially lucrative fields within the construction industry. Do it right and you'll find an abundance of challenging, year-round work — plus you'll be helping people and communities in ways you might not have thought possible.

But it can be a tough industry to break into. Restoration companies need good cash flow, as well as owners and employees who are willing to put in long hours and stormy nights away from home. Your clients experience a lot of stress, anger, and grief, which can be emotionally taxing. And if you don't like paperwork, you might want to think twice before making the plunge.

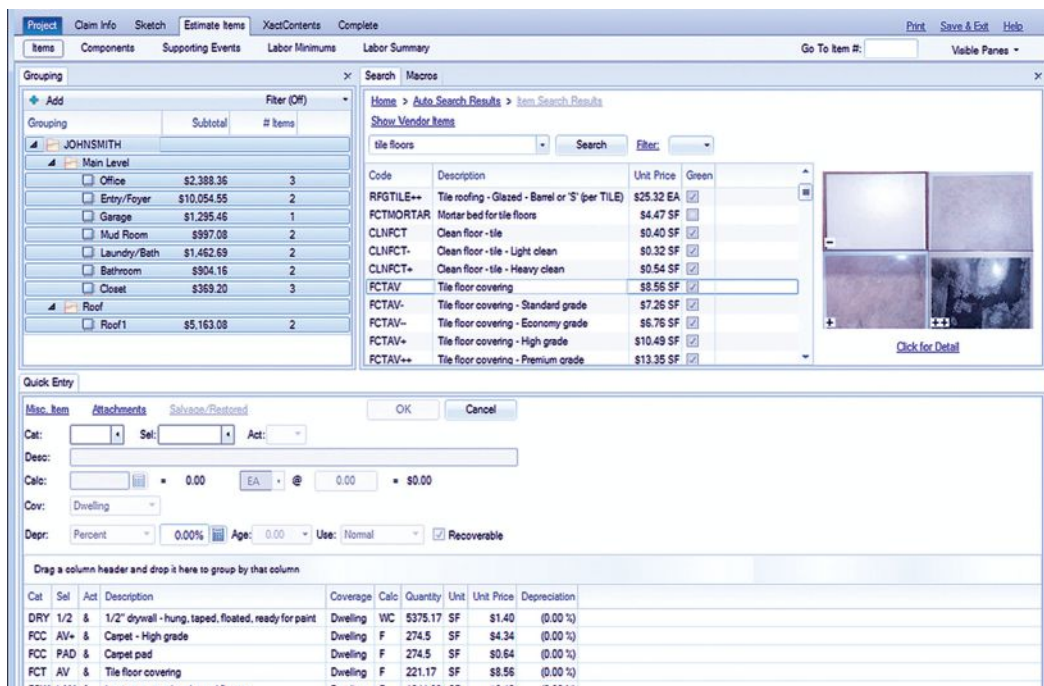
## Insurance Restoration vs. Remodeling

I was a remodeler long before I started doing insurance restoration work, and quickly learned that while there are some

similarities between the two fields, there are a lot of differences too. When you're remodeling, your clients have waited months for their new kitchen or addition. They've planned for it and can't wait to get started. But with insurance restoration, it's just the opposite. Your clients' lives and homes have been thrown into sudden turmoil by unexpected damage, and even though you're there to help, you're also an intruder whom they'd just as soon have gone as quickly as possible.

Another big difference is that remodeling is a two-party relationship — just you and your client. In insurance restoration, there's a somewhat ominous third party

## Getting Into Insurance Work



An Xactimate estimating screen includes categories for thousands of types and grades of materials, with examples and unit costs (upper right), along with a data entry screen (lower half). Dimensions are calculated and imported automatically from a drawing created in the attached Sketch program. The program also maintains a running room-by-room total (upper left).

that can act as both your advocate and your nemesis: the insurance company.

### Understanding the Insurance World

When a loss occurs, the property owner's insurance agent initiates a claim. Then the insurance adjuster (also called a claims representative) enters the picture to represent the insurance company's interests. The adjuster has three basic jobs: determine if the loss is covered

under the terms of the policy; establish a dollar value for the loss; and coordinate all the paperwork while seeing the project through to completion.

For a loss to be covered, it must be "sudden and accidental." For instance, if an ice-maker line breaks and ruins a kitchen floor, that's a sudden and accidental occurrence. But if that line has been dripping for six months — regardless of whether the homeowner knew about it — the repairs most likely won't be covered.

If the loss is covered, the adjuster, restoration contractor, and property owner meet and determine the "scope of loss" (in other words, what's damaged and what needs to be repaired or replaced). This is a key element of insurance restoration: You can only bid what's been damaged.

For example, say there is a room with a water-damaged wall, and the rest of the walls also sorely need painting. In a normal remodeling job, you would bid to paint the entire room. In restoration work, the adjuster will only pay to have the water-damaged wall painted, so that's all you can bid. You can bid the other three walls later as a separate estimate. This means more paperwork, but adjusters don't want any overlap.


**Preparing the estimate.** Typically, you'll need to prepare your estimates in a format that's approved by your client's insurance company. This gives the company more control over costs and makes it easier for the adjuster to compare estimates.

Insurance companies don't like per-hour or per-day rates, because they're simply too vague. Instead, restoration estimating is done by unit costs — so much per

## Xactimate Estimating Software

Xactimate (xactware.com) is the estimating software used by most insurance companies for writing restoration estimates. It includes a CAD program that allows you to draw the rooms affected by the loss, and from that drawing transition directly into accurate unit costs for each of the various materials within the room. There's a definite learning curve to Xactimate, but once you're up and running on it, the speed and accuracy of your estimates will definitely improve. And with some insurance companies, its use may not be optional.

The program can't be purchased, only leased. Current cost is \$250 per month or \$1,500 per year (per user). If you'd like to try it out, Xactware offers a free 30-day trial.



**YOUR  
REPUTATION  
IS ONLY AS  
GOOD AS  
YOUR LAST  
PAINT JOB.**

**Use KILZ® primer so you can move on to your next job with peace of mind.**

KILZ® primer has been helping pros lay the groundwork for successful paint jobs for decades. Our products don't always get the credit for a job well done, but you know that a precoat of KILZ primer handles the dirty work with ease, so the topcoat goes on smoother and the colors look truer. KILZ primer... because your reputation is too important to trust anything else.



[www.kilz.com](http://www.kilz.com)



Go to <http://jlc.hotims.com> for more info

## Getting Into Insurance Work

square foot, per linear foot, and so on. Lots of books and software programs are available for unit-cost estimating, but the most widely accepted program in the insurance industry is Xactimate (see “Xactimate Estimating Software,” page 52).

After you’ve submitted the completed estimate to both the adjuster and the property owner, the adjuster reviews it to make sure it’s in line with the previously agreed scope and to verify that your pricing is in line with industry standards. Adjusters will also compare estimates against those of other contractors bidding the same loss, and possibly against estimates they’ve written themselves for comparison. Once the adjuster has an accurate value for the loss, work can begin.

**Documentation.** Each insurance company has different paperwork requirements, and the parameters are constantly changing. Be ready to document and track everything from the moment you walk onto the site. Our company prepared a separate binder for each job. We also took digital photos — lots of them — to document everything we did. For liability reasons, we also documented everything the homeowner had already done, plus any pre-existing damage or other unusual conditions. Once tear-out began, we used storage bins to keep small samples of building materials — trim, tile, flooring, paint samples, and the like — both to help with matching and to establish comparable values if revisions to the estimate were required. To maintain accurate records, we communicated by email with our clients and the insurance company whenever possible. When we spoke by phone or in person, we documented these communications with client file notes. Specific changes were executed on signed change-order forms.

Everything we accumulated on a job was labeled with the client’s name or job number, then stored for the duration of the job plus one year. After a year, it’s probably okay to discard bulky samples,

### Cat Teams

During a major natural disaster like Hurricane Sandy, insurance companies will send in catastrophe (“cat”) teams of adjusters and support personnel mobilized from all over the country to quickly inspect and process large numbers of claims. With cat losses, some of the bidding requirements and paperwork are typically relaxed, due to the need to mitigate further damage and get repairs going quickly. As such, this can represent a great opportunity for contractors hoping to meet adjusters and break into the restoration field. Widespread natural disasters can also overwhelm established local restoration contractors, potentially offering another opportunity for new contractors. Remodelers who are new to insurance work should contact local contractors who already have relationships with insurance companies to see if they can either work as a sub to them, or pick up some of their overflow. If you want the local adjusters to remember you in a positive light when the crisis is over, be sure to do quality work, don’t cut corners, and don’t jack up your prices during the emergency.

### Franchising

One way to transition into insurance restoration is to purchase a franchise — ServiceMaster and Servpro are two of the better-known ones. Many insurance companies now have ongoing relationships with some of the big franchises to handle their emergency drying work. In some markets — especially big cities — insurance work can be tough to break into, so owning a franchise and stepping into a pre-established service agreement could be a big leg up on the competition. As a franchisee, you’ll receive access to the equipment and training needed to get up and running relatively quickly. You’ll also get the benefit of the company’s name recognition and national advertising campaigns.

On the downside, franchises can be expensive. Initial franchise fees will usually be somewhere in the \$45,000 to \$65,000 range, and the purchase of an equipment and products package and other startup costs will typically add about another \$60,000 or more (though some franchisors offer financing programs, as well as discounts for minorities, women, and veterans). Markets may be limited, and there are ongoing fees as well, so part of your profits will go back to the franchisor. You’ll also have to deal with yet another layer of paperwork, and follow all the company’s rules and regulations.

though paperwork should go into long-term storage for at least seven years, or whatever your attorney recommends.

### Who’s Your Client?

If the adjuster has approved your estimate and the insurance company is paying for the repairs, the insurance company must be your client, right? Wrong! Don’t ever forget that the property owner is still your

client. The insurance company is the funding source, just like a bank is the funding source for a major remodeling project.

That means that you’ll still need to have a valid contract in place with the property owner, along with signed change orders for any additional work. You also need to comply with any state requirements for preliminary lien notices or other paperwork.

**Protect yourself.** Insurance companies



myMarvin  
REMODELERS *Gallery*

Everything you need to go from rough opening to bragging rights.

Whether it's remodeling or replacement, Marvin has the broadest range of products and energy efficiency solutions for any job. All backed by four generations of craftsmanship, innovation and local retailer support. And now it's your opportunity to showcase a job well done. Submit before and after photos of your proudest projects and be featured in the myMarvin Remodelers Gallery.

Show off your remodeling project at [pros.myMarvin.com/Gallery](http://pros.myMarvin.com/Gallery)

**MARVIN**   
Windows and Doors

Built around you.®

©2013 Marvin Windows and Doors. All rights reserved. ®Registered trademark of Marvin Windows and Doors. 1-800-268-7644

Go to <http://jlc.hotims.com> for more info

## Getting Into Insurance Work



The equipment needed for structural drying — including air movers (top and bottom, left) and water testing meters (below) — typically represents a contractor's biggest capital expenditure when entering the restoration field.



issue payments directly to the property owner, and I've had clients spend that money on car repairs and vacations instead of using it to pay me. One client took the money, then filed for bankruptcy, leaving us at the end of a long line of creditors. Just because an insurance company is involved doesn't mean that your money is guaranteed.

One way to protect yourself is to ask the



One of the most common insurance restoration scenarios is drying out wet carpeting, pads, and subfloors.

insurance company to have your company placed on the draft, a common procedure particularly on larger losses. This prevents the homeowner from cashing the draft unless you sign off on it as well.

**Deductible.** This is a portion of the loss paid by the property owner, and may be a set dollar amount or a percentage of the building's insured value. In either case, it falls to the contractor to collect the deductible, and you don't want to wait until the end of the job to do it. Instead, collect it before work begins by writing it into your contract: "Deductible amount of \$\_\_ to be paid prior to commencement of work." If you don't want to use the word "deductible," call it a "down payment."

Some states and insurance companies impose restrictions on how deductibles and down payments can be collected, so you'll need to rely on your attorney for the specific wording.

### Restorative Drying

Emergency calls are common, and typically chaotic — such as the time we arrived at the house of a woman who had put some

clothes in a sink, got distracted by her kids, and left for work with the sink stopped up and the faucet still running. In fact, the calls my company received most often were for structural drying after a building became wet. This process is known as "restorative drying" in the industry, because insurance companies increasingly expect to see building materials salvaged, not just torn out.

Proper drying requires the right equipment, plus specialized training such as the IICRC's three-day Water Damage Restoration Technician course (see "Training and Certification," page 58). The class covers the basics of how water affects a structure and what equipment and techniques are needed for drying various materials.

**Equipment.** A typical emergency water job begins with testing to find the extent of the water's movement. Our testing equipment included a thermo-hygrometer to measure temperature and humidity levels (\$100 to \$500) and various types of moisture meters to determine how wet different materials are (\$450 to \$600).

We also owned a number of air movers



Discover the power of Deckorators® Deck Visualizer and get this look or customize a whole new design.

Leading the way.

Bronze CXT Railing, Matte Black Estate Aluminum Balusters, White CXT Post Sleeves and Post Caps

## TRENDSETTING WITH MIX AND MATCH DESIGN

When it comes to building a deck, or updating an existing one, options abound. Deckorators code-approved CXT Railing System allows for many different baluster options without the risk of voiding the 20-year limited warranty. This enables you to mix and match materials (composite, aluminum and glass), colors and decorative accessories for a look that truly reflects your style. [Decorators.com](http://Decorators.com)

**Decorators®**  
Inspiration for  
Outdoor Living™

Go to <http://jlc.hotims.com> for more info



While a major fire can be a devastating loss for a family, it also presents a rewarding opportunity for an insurance restoration contractor, who should be prepared to do both structural repair work and specialized deodorization.

(\$150 to \$550), which are used to evaporate the moisture and get it airborne. A small wet job will require three or four air movers, while larger jobs can require 10 or more for the initial drying. Large restoration companies will often own 25 to 30 air movers or more.

Dehumidifiers (\$1,300 to \$3,600) are used to remove the moisture from the building. A minimum of one dehumidifier is required per job, more on larger jobs. A contractor getting started in insurance restoration should expect an initial investment of at least \$10,000 in equipment and training, in addition to any franchise fees.

### Water and Storm Damage

Water damage — from frozen pipes, broken appliance lines, overflowing plumbing fixtures, wind-driven rain, and other sources — accounts for most insurance restoration work. Storm damage from hail, wind, lightning, and other related natural occurrences is a close second.

Water and storm losses vary tremendously in size. One of the single largest

residential losses our company handled was a vacant home up for sale. A frozen third-floor pipe broke and ran for three days before a real-estate agent discovered it, causing almost \$200,000 worth of damage.

**Flooding.** It's important to realize that not all water damage is covered after a massive storm like Sandy or Katrina. "Ground water" — in a broad sense, water that came in contact with the ground before entering the house, including floods and tidal actions — is typically not covered unless the property owner has flood insurance. But if wind blew off the roofing and rain poured inside, both the shingle damage and the resulting water damage are typically covered.

**Snow.** Damage that results from the weight of snow and ice is typically covered, but damage caused by melted snow and ice (ground water) is not.

**Mold.** When water sits in contact with building materials, mold often grows — but mold is no longer a covered loss. So even though insurance will cover the cost of repairing water-damaged drywall, it

## Training and Certification

The Institute of Inspection, Cleaning and Restoration Certification (IICRC) is one of the independent certification bodies that sets and maintains standards for technical proficiency and ethical behavior in the restoration industry. All of the major insurance companies recognize IICRC certifications, and IICRC-approved courses in everything from restorative drying to fire and smoke restoration are taught all over the country. For more information and complete course descriptions, visit [iicrc.org](http://iicrc.org) and click on the Education & Certification tab at the top of the page.

The Restoration Industry Association (RIA) is the restoration industry's oldest and largest professional trade association. For more information and descriptions of its course offerings, visit [restorationindustry.org](http://restorationindustry.org) and click on the Certification tab at the top of the page.

won't cover the added costs of dealing with the mold spores that may be released into the air while handling that wet drywall.

In this situation, a contractor would typically give the homeowners a separate estimate for mold remediation. Depending on the severity of the mold, the homeowners then have the option of paying the contractor separately to do the remediation, hiring out the remediation on their own, or doing the remediation themselves. Lots of gray areas here, and lots of legal liability. We've walked away from jobs where the homeowner wasn't willing to have heavy mold infestations properly remediated, due to the liability.



SHIFT\_

NISSAN  
**NV<sup>®</sup> CARGO**

- 7 million door-cycle tests
- 800,000 miles road-tested
- Body-on-frame tough

## BRANDON SAID GREAT THINGS ABOUT HIS NV CARGO. WE SHOULD KNOW, WE WERE HIDING IN THE BUSHES.

We used hidden cameras to find out what Brandon Bastardo really thinks about his Nissan NV Cargo. He talked about rear doors that open 243° and custom shelving designed just for locksmiths, with no drilling required. He described an interior that has room for his e-printer and a passenger seat that folds into a desk. "They put the engine outside, so there's no hump inside. So much more space." We'll make room for Brandon's opinion any day. See more real opinions from tradespeople at [CandidCargo.com](http://CandidCargo.com).

**Nissan. Innovation that excites.™**



**NISSAN** Commercial Vehicles

Always wear your seat belt, and please don't drink and drive. ©2013 Nissan North America, Inc.

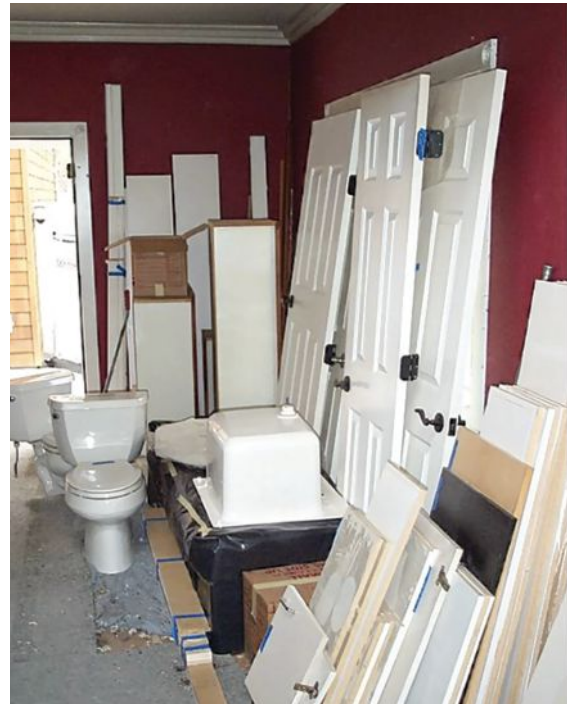
NV Cargo High Roof NV Passenger NV200 Compact Cargo

## Getting Into Insurance Work



◀ Storm damage — from hail, wind, lightning, and other weather events — is the second largest category of insurance restoration work (after water damage). The side of this house was pocked and dented by hail.

▶ These salvageable materials from a water job have been dried and labeled and are awaiting transport back to the author's warehouse for final cleaning and storage.



### Fire Damage

From an emotional standpoint, no other type of loss — no matter how extensive — had the same effect on our clients as a fire. A burnt home can be virtually unrecognizable — a black, twisted, foul-smelling heap.

Fire-related insurance work can be broken down into two categories: repairing structural damage, and deodorization. The science and technology behind fire repair has made significant strides in recent years. As a result, adjusters have become increasingly used to working with skilled restoration contractors, and they don't want to pay to replace any items that can be cleaned and deodorized.

At a minimum, contractors working on fire restoration should receive the IICRC's Fire & Smoke Restoration Technician certification (or the equivalent). This training is also helpful for understanding the deodorizing chemicals and equipment used in fire restoration.

Smoke deodorization can be very tricky. One of our most difficult "fire" jobs resulted from a neglected pot roast that

slowly burned to a crisp on a stove. While there were no actual flames or sooty smoke, the home's interior was coated with a sticky yellow film and permeated with the nauseating odor of burnt meat. We were able to remove the film and odor from all the home's nooks and crannies, but it took a tremendous amount of effort.

### Impact Damage

Insurance policies cover just about any type of damage caused by something hitting a building, from trees to drunk drivers. To me these are the most interesting and challenging types of losses, because they often involve structural issues that require the assistance of a structural engineer. For example, we once were involved in the repair of a house that had been partly knocked off its foundation after a runaway construction crane rolled into it.

### Contents Cleaning and Storage

In virtually every job, there are wet or smoky contents that need to be moved, cleaned, or stored. This is an aspect of

restoration that a lot of contractors don't give much thought to, but it can be very lucrative if you have the proper training, equipment, and warehouse space. You'll also need proper insurance — including coverage for handling, transporting, and storing materials (usually treated as three separate activities by insurance companies) — and strong organizational skills. Since you'll be dealing with your clients' personal belongings, you'll also need patience.

At first, our company handled just structural repairs and drying and subcontracted the contents handling to a specialized company. That allowed us to be a full-service contractor while avoiding some of the initial startup and liability costs of owning our own facility. Eventually, however, we built a dedicated warehouse and content processing facility, and brought everything in-house.

*Paul Bianchina was a co-owner of Spectrum Building & Restoration in Bend, Ore., and is the author of Insurance Restoration Contracting: Startup to Success.*

# thefacts

- **Gutter Saws will not grab or twist gutter material.**  
High speed steel teeth set at 10 per inch (25.4 mm) plus shallow cup and short pilot drill projection ensure control.
- **Hole slug will not hang up in saw cup.**  
A tapered compression spring collar on the combination Arbor / Pilot Drill Bit automatically ejects the metal slug.
- **Drop and downspout fit snug and flush. Operation produces clean cut edge and distortion free hole.**  
Malco Gutter Saws have the capacity for cutting a variety of gutter including K-Style aluminum and Half-Round gutter made of zinc coated aluminum (ZincAlum), galvanized aluminum (GalvAlum), painted steel and copper.
- **5 sizes available including true metric.**  
60 mm (2.375 in.), 70 mm (2.75 in.), 78 mm (3 in.), 90 mm (3.5 in.) and 100 mm (4 in.)

**Half-Round Gutter?**

**Round Outlets?**

**Malco has Gutter Saws!**



**Malco**<sup>®</sup>

Go to <http://jlc.hotims.com> for more info

Malco Products, Inc. | Annandale, Minnesota U.S.A. | [www.malcotools.com](http://www.malcotools.com) | ©2013

May 9–10, 2013

Ritz Carlton  
Pentagon City  
Washington, DC



# BUSINESS ON THE MOVE

## HOW TO THRIVE IN A GROWTH MARKET

For years, the operative word has been down. Slim down, slow down, stay down and weather the economic storm. But things are looking up.

There is consensus around a forecast for strong growth in the remodeling industry for the next decade. That means picking up, ramping up, and keeping up. That raises questions about how to add the manpower and services you need to manage the influx of business without repeating the mistakes of the past. And it means keeping up with new technology and new ways of interacting with the marketplace.

Growth is inevitable. But it shouldn't be accidental. The speakers at the **2013 Remodeling Leadership Conference** will help you prepare for and manage that growth with presentations on a wide spectrum of issues. Conference attendees will learn to:

- Manage their brand in an increasingly competitive market
- Put web analytics to work to improve their effectiveness online
- Identify the most profitable projects and the people who buy them
- Close more sales faster and at higher margins
- Hire the right people for the right job at the right time

### 2013 Sponsors



GUILD QUALITY



PLY GEM

VELUX

WELLBORN

## THURSDAY, MAY 9

1:00–2:15 PM

### Differentiate or Die

Sam Geist, Geist and Associates, Entrepreneur, Marketer, Facilitator

Transitional times negate the “business as usual” approach, and offer a unique opportunity to adopt a bold plan, to take a firm stand to differentiate yourself and your organization from the competition. But the biggest issue in business today is a failure to execute. It’s easy to talk about what makes our company special, but talk doesn’t get things done. In this session, Sam presents options to create effective differentiation, and demonstrates a step-by-step approach that will help attendees to successfully move strategy to action.

2:30–3:30 PM

### Big Data and the Future of Remodeling

Jonathan Smoke, Chief Economist, Hanley Wood

Is the roller coaster ride finally over? In this session, Hanley Wood’s Chief Economist, Jonathan Smoke, reaches into his big bowl of data to assess the short- and long-term outlook for housing and remodeling. Attendees will learn what the numbers can tell us about the nature of remodeling demand and how to leverage data to maximize business success.

3:45–4:45 PM

### Growing Profits While Reducing Risk

Douglas R. Delp, President, The Delp Group

Remodelers worry about liability for the structures they build, but few pay enough attention to their risks as business owners and employers. Doug Delp specializes in helping small companies with human resource issues they can’t handle themselves. In this session, he explores a variety of critical vulnerabilities, including employment liability and workers comp insurance, subcontracted vs. W2 employee labor, hiring practices, overtime policies, health insurance and employee benefits, and more. Attendees will learn how to avoid the mistakes of the past and how to protect their hard-won profits from Murphy’s Law.

5:30–6:30 PM

Welcome Reception

6:30–9:00 PM

Networking Buffet

## FRIDAY, MAY 10

8:00–9:00 AM

### Marketing on the Move

Andrew Davis, Tippingpoint Labs

The digital revolution has made it possible to scale our interactions with current customers in ways we couldn’t imagine a decade ago. In this presentation, one of the brightest minds in media and marketing will show you how to turn your everyday business activities into marketing and customer service content—content that makes your clients happier and drives new business more efficiently. You’ll learn how to leverage social media, and new mobile technology to become a mobile marketing machine.

9:15–10:15 AM

### Debunking the Biggest Lies About SEO and Social Media

April Wilson, Director of Marketing, Hanley Wood Exhibitions

How do you know if those SEO experts you’re paying are really doing their job? Does social media ever actually drive business? In 10 years working with top brands and business owners on digital marketing, April has learned that most companies neglect of SEO and Social Media. This session will explain what SEO is, how it works, and why and how to use it. And you’ll learn where to participate in social media, how to measure it, and which channels best support SEO.

10:30–11:30 AM

### Social Media Success Stories

Panel of remodelers (TBD)

Does social media really work for remodelers? This session brings together three remodelers who have been using a variety of social media long enough to be able to report on why it works, why it doesn’t, how they monitor results, and how their strategy has evolved. Panelists will make brief presentations and answers questions from the audience.

11:30 AM–1:00 PM

Lunch

1:00–3:00 PM

### Workshop: High-Profit Selling

Mark Hunter, “The Sales Hunter”

In this two-hour extended session, Mark will drill down on four mission critical areas that attendees will be able to implement immediately:

- Closing faster: strategies to combat homeowner indecision
- Maximizing margin: how to “upsell” in a way homeowners will thank you for
- Qualifying prospects: avoid wasting time with people who are only posing as customers
- Leveraging price: use your experience, finished product, and success history to create competitive differentiating value

3:15–4:15 PM

### Thinking Big and Living Large

Al Walker, Al Walker and Associates

After sitting in a meeting room all day long, you’re tired of thinking. It’s time to laugh with Al Walker, as he pokes a lot of fun at himself and at life. This presentation is perfect for business people who want to think big, live large, and laugh all the way to the bank.

6:30–9:30 pm

### Big50 Reception and Dinner

Join your colleagues as REMODELING honors the 2013 Big50 winners with a reception and awards dinner. The gala is a great networking opportunity for attendees—join us and salute the industry’s best.

Register Today! [remodelingconf.com](http://remodelingconf.com)



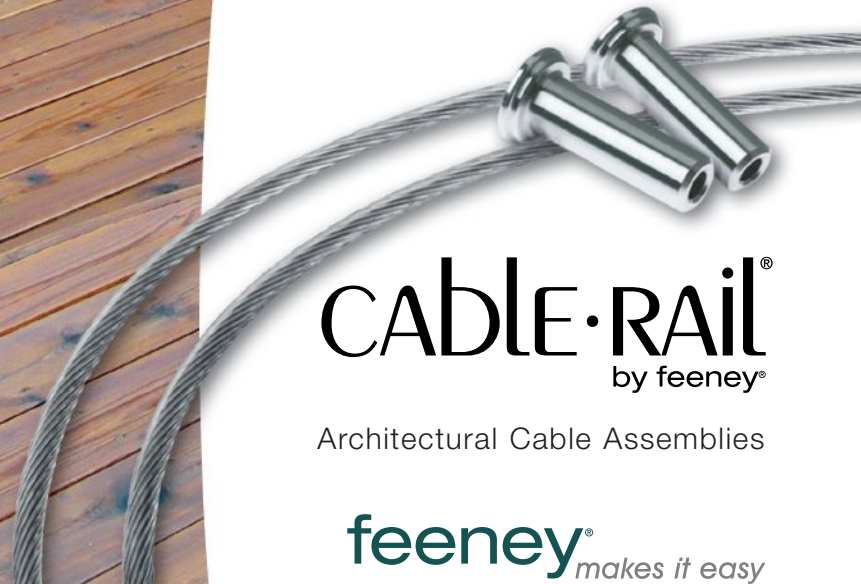
# Easy

Easy to install and to maintain.  
Easy on the eyes and the environment.

Our **CableRail by Feeney** stainless steel cables are virtually invisible allowing the beauty of your railing designs and the surrounding views to take center stage. They're simple to order and effortless to maintain, and with our special automatic-locking **Quick-Connect®** fittings, they're easier than ever to install. They also contain over 70% recycled materials for a friendlier eco-footprint.

Learn about our entire line of garden and architectural products, and see why Feeney has been the easy choice among design and building professionals for over 65 years.

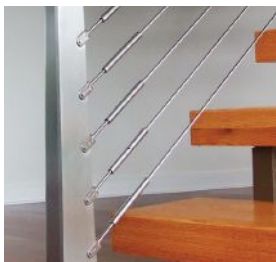
Free catalog, call 1-800-888-2418 or visit [www.feeney5.com](http://www.feeney5.com)



## CABLE·RAIL<sup>®</sup> by feeney<sup>®</sup>

Architectural Cable Assemblies

**feeney<sup>®</sup>** *makes it easy*



**CABLE·RAIL** by Feeney  
Stainless Cables & Fittings



**DESIGN·RAIL** by Feeney  
Aluminum Railings



**LIGHTLINE**  
Door Canopies



**TRELLIS** Collection by Feeney  
Cable & Rod Trellises



**STA-LOK**  
Stainless Rod Assemblies

Go to <http://jlc.hotims.com> for more info



# Dressing Up a Roll-Up Door

Wooden “skins” add a classy touch to an insulated steel overhead door

by Gary Katz

I designed my new shop to look like an old horse barn, so that it would blend in with the rural area of southern Oregon where I now live. Since it’s colder here than where I used to live in California, I made sure the building was well-insulated, and even indulged in radiant slab floors to keep my toes warm. The shop also needed a 12-foot-wide by 9-foot-tall overhead door, but I couldn’t find an insulated one that was made of wood. The only roll-up unit

I could find with a decent R-value was made from steel and looked like something you’d see on a commercial building.

So I decided to build decorative carriage doors myself and apply them to an insulated steel roll-up door. My plan was to make four frame-and-panel style carriage doors using the same “Windswept” siding and trim material ([tetonwest.com](http://tetonwest.com)) I’d used for the shop. I’d glue and screw the doors to the steel roll-up panels, then

cut through them along each of the roll-up panels with a track-mounted saw.

## Sizing the Carriage Doors

Before purchasing the door, I sketched out my design and met with the door-company staff to discuss my plans. We determined that modifications would have to be made to the mounting hardware to accommodate a 3¼-inch-thick door (standard track allows for a 2-inch-thick door). When they



## Carriage Door Layout

delivered the roll-up panels, we reviewed the design again to make sure the installation would go smoothly after the carriage doors were applied.

To get started, I set the steel roll-up door on a heavy-duty set of sawhorses, aligning the five panels carefully and separating them from each other with pairs of 8d box nails. This would help ensure that the saw kerfs made when I cut through the wood carriage doors would close up tightly when the installed overhead door was in the closed position. Then I locked the steel door in place with blocks screwed to the horses so that the panels wouldn't move.

At 147 inches wide, the steel door panels were 3 inches wider than the inside dimension of the door jambs, which would help

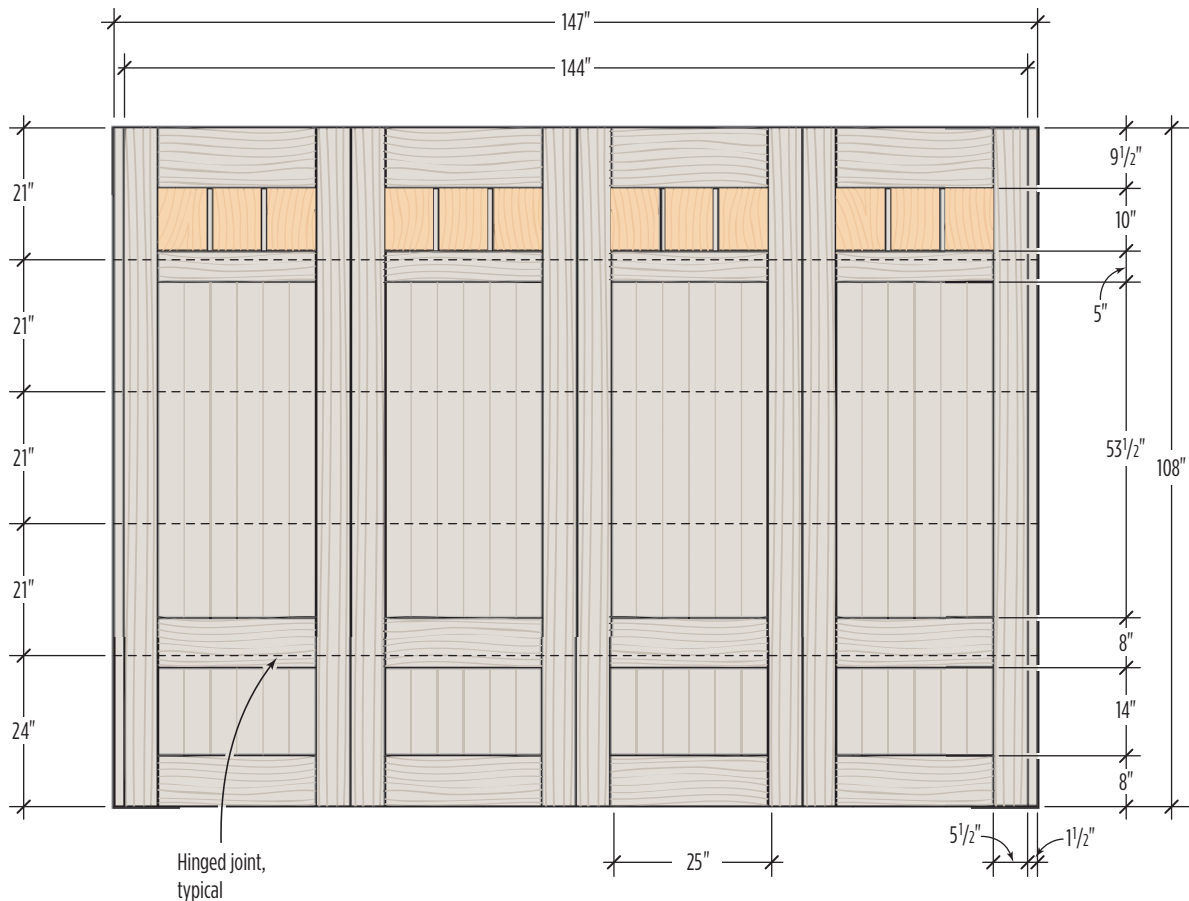


Figure 1. After locking the roll-up door's steel panels in place on saw horses, the author laid out the stiles and rails for the four identical carriage doors (photo, top), using his sketch (above) for reference. The dotted lines indicate where the author will cut through the assembled doors after they have been fastened to the steel panels.

them fit properly in their tracks. But I sized the carriage doors to fit the 144-inch-wide opening, so that the exposure on their door stiles would remain the same when the door was in the closed position, even on the two outer flanking doors (see Figure 1).

I laid out the carriage doors on the steel panels, subtracting 1½ inches from each side to account for the portion of the steel door that would be hidden by the jambs. Later, when I built the door, I added 1½-inch-wide rippings to the outside stiles on the two outside doors, knowing that the glue lines would be mostly hidden by the door jambs.

The door height was taller than the jambs, too. To maintain at least a 7-inch reveal on the top rails, I made them from 9½-inch-wide stock.

## Panel Assembly

Once I'd determined the dimensions of each carriage door, I made the panels first, so I could glue them up and let them sit in clamps while I cut and assembled the stiles and rails. The siding is all 1-by shiplap, which doesn't make a very strong panel, so I ripped the rabbets off both sides of the panel boards and reinforced the glue joints with Festool Domino tenons (Figure 2). I also could have joined the boards together with dowels or biscuits, but Festool's Domino joinery system is quick and accurate, and well-suited for glue-ups like this.

Because I was installing so many tenons in a lot of boards, I made a story pole marked with the panel joints to speed up the layout and ensure that none of the tenons would land on the cut lines along the roll-up panels. I cut tight mortises for the tenons at each end of the boards, using the index pins on the Domino joiner to register the mortise locations so that the boards would be aligned flush with each other on both ends. To make it easier to assemble the panels, I cut the field mortises loosely, which allowed for some wiggle room.

Since the carriage doors would be



Figure 2. The author glued up the panels from shiplap siding, ripping the edge profile off glue joints and reinforcing them with Festool Domino tenons (left). Squeeze clamps pulled the glue-up tight to the bar clamps and helped keep the panels flat (below).



exposed to weather, I used an acid brush to thoroughly coat all the edges that were to be fastened together with a liberal amount of glue (even though the panels would get most of their strength from the Domino tenons). On this project, I used Titebond II rather than Titebond III wood glue. Titebond III is waterproof while Titebond II is only water-resistant — but I prefer it because it has a longer open time (titebond.com).

## Frames

I ripped 5/4 stock to width for the stiles and rails, and again used Festool Domino joinery during assembly (Figure 3, next page). Since I was building multiple doors, I laid out the parts with the help of a story pole to make sure all the pieces would

fit precisely. This made the parts interchangeable, too, so I could match grain or finishes during assembly. I first marked the mortise locations on the stiles, then transferred those marks to the rails.

To cut the center mortises in the rails, I aligned the layout lines with the center mark on the Domino. To cut the mortises near the edge of the rails, I used the first index pin, placing the mortises 20 mm from the edge of the board. To cut the corresponding mortises in the stiles, I used the 20-mm offset mark on the Domino.

Laying out and cutting the mortises this way doesn't take very long, and the system is so accurate I didn't even take the time to test the joinery with a dry-fit. I glued up the mortises first, using the acid brush to coat the entire cavity. I also made sure



Figure 3. The author used 5/4-inch stock for the frames, and assembled the stiles and rails with Domino tenons (far left). The panels fit into 1/2-inch by 1/2-inch rabbets routed in the frames (left). Muntins at the top of the doors give the upper panes the look of divided lights (below).



Figure 4. The panel edges were profiled with a raised panel cutter mounted on a router table (above). While fastening the panels to the frames, the author used his story pole to avoid placing screws where the doors would be cut (above right). The upper panels were made of Douglas fir, which the author stained before installation (right).





Figure 5. Once the carriage doors were assembled, the author spread construction adhesive on the steel door panels (left), then clamped the carriage doors in place (below). Dozens of 3-inch self-tapping coated screws driven through the backs of the roll-up panels into the stiles and rails of the carriage doors join the wood and steel door sections together.

all the end grain was painted thoroughly with glue, so it wouldn't wick moisture and swell up and potentially rot. Clamping one stile to my workbench made it easy to insert the 12-mm-by-100-mm tenons, assemble the frames, and then smack the stiles and rails together with a mallet.

I left the four frames in bar clamps overnight, then went at each opening with a router and rabbeting bit the next day. I cut a 1/2-inch-deep by 1/2-inch-wide rabbet to accept the panels, squaring up the corners with a sharp chisel.

Next I sealed all the bare wood and installed the muntin bars for the top panels. I re-sawed the muntins so that they'd be flush to the face of the door and flush with the rabbet, then fastened them in place with pocket screws.

### Installing the Panels

With all the routing done in the door frames, I was ready to cut and install the panels. But before starting, I checked the moisture content of the panels and the stiles and rails. Since the panels were fairly dry at about 8% MC, I knew they would expand about 1/8 inch in width once the doors were installed outside and reached about 12% MC. Meanwhile, the stiles and rails were already at 11% MC, so I knew they wouldn't swell much at all. When I cut the panels to size, I measured from the top of each rabbet and subtracted 3/8 inch, adding a little extra for swelling



Figure 6. The author cut through the carriage doors using a track-mounted saw for accuracy (above). The blade was set with a slight 2-degree bevel for drainage (left).



**Figure 7.** The door company used special track-mounting hardware to accommodate the 3<sup>1</sup>/<sub>4</sub>-inch-thick door (above). Each of the five roll-up panels weighs 120 pounds (above right), but the assembled door (right) is easily operated by one person, thanks to the commercial-style coil spring counterweight mechanism.

and wiggle room; after all, 1/2-inch-wide rabbets are pretty forgiving.

Next I ran the panels through a Shaker-style raised-panel bit mounted in my router table, which both rabbeted the outer edges of the 3/4-inch-thick panels and cut a bevel around the inner edge of each rabbet (**Figure 4, page 68**). I made the panels for the upper “lights” exactly the same way, except with Douglas fir, then mounted all the panels into the backs of the carriage doors. The rabbeted panels lay flat and flush with the rabbeted doors.

A few screws is all it took to secure the panels. To make sure I didn’t hit a case-hardened screw while cutting through the carriage doors, I kept my story pole handy while driving those screws. After

flipping the doors over, I cleaned off any glue squeeze-out with a scraper.

### Installing the Carriage Doors

After all the careful layout and woodwork, the rest of the job was pretty easy. For each carriage door, I applied about two tubes of PL Premium Advanced construction adhesive to the front of the steel door panel (**Figure 5, previous page**). Then I set the wooden doors down in the wet adhesive and positioned clamps wherever I could. Once all the doors were in place, I crawled around under the sawhorses (thanking myself for using tall ones) and drove a few hundred 3-inch self-tapping coated screws through the backs of the roll-up panels into the stiles and rails of

the carriage doors. In a few places, where a roll-up panel broke across the 3/4-inch wooden panel, I used shorter screws.

I let the adhesive dry for two days before cutting through the doors (**Figure 6, previous page**). I set the saw at a 2-degree bevel so that the panel edges would shed water. I positioned the guide rail by eye, centering each kerf in the space between the roll-up panels. The rest of the job was even easier. The door company came out and installed the track and door, then adjusted the commercial-style coiled spring until the 600-pound assembly slid weightlessly (**Figure 7**). I don’t even need an opener to operate it.

*Gary Katz is a presenter at JLC Live and a frequent contributor to JLC.*



## Extra Energy When You Need It.

All you power-hungry types are in luck because Honda EB4000, EB5000 and EB6500 Industrial Generators offer exclusive, industry-leading iAVR advanced technology that boosts power when you most need it — to start high-amp load applications.

And with 17 generators in our lineup to choose from, Honda has a model that'll be just right for your needs. Of course, world famous Honda reliability is built into every generator we make, and they're all backed by our Honda 3-Year Warranty\*.

That's just one more powerful reason to put Honda to work for you.



# HONDA

## GENERATORS

[gen.honda.com](http://gen.honda.com)



 [facebook.com/HondaGenerators](https://facebook.com/HondaGenerators)

\*Warranty applies to all Honda GX Series Engines and GX Series-powered Honda Power Equipment, 100cc or larger, purchased or put into rental service since January 1, 2009. Exceptions apply. See full warranty details at [honda.com](http://honda.com). Does not apply to EU1000 models. Please read the owner's manual before operating your Honda Power Equipment and never use in a closed or partly enclosed area where you could be exposed to poisonous carbon monoxide. Connection of a generator to house power requires a transfer device to avoid possible injury to power company personnel. Consult a qualified electrician. ©2013 American Honda Motor Co., Inc.

Go to <http://jlc.hotims.com> for more info



Create a scene.™

 ROYAL



## Give your windows the performance of a lifetime.

With the widest selection in the business, Royal Moulding & Trim products turn every project into a real showstopper. Our distinctive window and door surround systems replicate the beauty of wood and offer an affordable, easy-to-install upgrade for any home. Like all Royal products, our trim and decorative mouldings are made from durable, low maintenance 100% cellular PVC and backed by a lifetime guarantee never to rot.

Shine a spotlight on your homes with Royal Moulding & Trim products. To learn more, visit [royalmouldings.com](http://royalmouldings.com).

 ROYAL Moulding & Trim

Trim • Fascia • Window, Door & Garage Surrounds • Decorative Moulding

800.368.3117

[royalbuildingproducts.com](http://royalbuildingproducts.com)

# Products



## Long-Span PVC Deck Rail

The *Azek Rail* spans a full 10 feet between posts, with stiffness provided by an aluminum retainer (the channel on the underside of the railing that holds the balusters). It's available in Victorian, Colonial, and flat styles, and costs \$25 to \$36 per linear foot. Azek claims that the installed cost of 30 linear feet of rail will be about 14% less than if 6-foot rail sections were used, because you don't need as many posts. You can also get direct-connect metal balusters, which fasten directly to the retainer and the bottom rail without plastic connectors, for \$5 to \$5.50 each.

**Azek**, 877/275-2935, [azek.com](http://azek.com).



## It's Raining Music

The *Moxie Showerhead* produces a combination of water and sound. It consists of 60 angled spray nozzles surrounding a removable, battery-powered speaker. The speaker syncs with any Bluetooth-enabled device — a smart phone or mp3 player, for example — and streams music directly into the shower. It's held in place by a magnet and can be removed without tools. No wiring is involved; an internal lithium battery supplies an average seven hours of play time and is recharged via a USB cord. It costs \$150.

**Kohler**, 800/456-4537, [kohler.com](http://kohler.com).



## Stock Closet System

ClosetMaid's *ShelfTrack Elite* system is easier on the budget than a custom organizer yet still offers the custom wood look. It's built around stock-sized components — 2-foot- and 3-foot-long shelves and 2-foot-long drawer boxes and cube organizers. Shelves have cores of honeycomb fiberboard (rather than particleboard) for lighter weight. All elements have a chocolate wood-grain finish and nickel hardware. Pricing is lower than the company's Master Suite system but higher than wire shelving; the components for the closet shown here, for instance, cost approximately \$1,200.

**ClosetMaid**, 800/874-0008, [closetmaid.com](http://closetmaid.com).



## Repairable Moment Frame

A special moment frame (SMF) lets you create wide wall openings in seismic areas, but if there's a seismic event the frame usually has to be replaced. Simpson's new *Strong Frame SMF* solves this with patented bolt-on "Yield-Link" beam-to-column links. In an earthquake, these links are designed to bear the brunt of inelastic deformation, so the beam and columns stay intact; only the Yield-Link will need replacing, according to Simpson. Strong Frames come in 192 pre-engineered sizes up to 24 feet wide and 20 feet tall. A frame sized for an 8-foot-tall two-car garage opening costs between \$6,500 and \$8,000 and provides 5,500 to 16,500 pounds of shear capacity.

**Simpson Strong-Tie**, 800/999-5099, [strongtie.com/smf](http://strongtie.com/smf).

For more information about these products, go to <http://jlc.hotims.com>.

# Products



## Tight Sill

Door usage and house settling will eventually wear down the sill seal on an entry door, but the *Z-Series Articulating Cap Sill (ZAC)* self-adjusts to stay tight. It's made from a composite material that's naturally springy, so it adjusts over time to maintain a firm seal. The product is paired with a matching sweep that fits on the door bottom. You can call one of Endura's dealers to have it added to a new door, or you can retrofit it to a door that already has a nonarticulating Z-Series sill. Costs range from \$6 to \$12 for a standard 3-foot door.

**Endura**, 800/334-2006, [enduraproducts.com](http://enduraproducts.com).



## Smart Dimmer

Leviton's *Decora SureSlide Dimmer* provides slide-action full-range dimming for incandescent and dimmable LED and CFL lamps. It includes a slide dimmer and an on-off switch in rocker or push-button styles and has a rating of 150W LED/CFL and 600W incandescent. The dimmer can be used as a single-pole or three-way switch, fits into a standard wall box, and is suitable for multi-gang installations. A small selector switch, which is hidden behind the cover plate, lets you choose CFL/LED or incandescent. Several colors are available. It costs \$26.

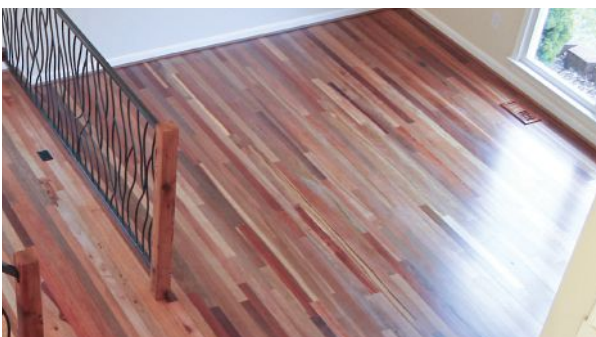
**Leviton**, 800/323-8920, [leviton.com/universal](http://leviton.com/universal).



## Compact Power

The new *GE Home Generator System's* 28-inch-by-24-inch footprint is compact for its class. It's aimed at homeowners with small and medium-sized homes who want enough power to run essential circuits when the grid goes down. An internal power-management system is supposed to take care of the home's power needs automatically during a power outage by electronically controlling electrical loads. The system is powered by a Briggs & Stratton engine and has a galvanneal steel enclosure. An 8-kw unit retails for \$2,200, a 10-kw unit for \$3,000.

**GE Generator Systems**, 888/575-8226, [homestandbygeneratorsystems.com](http://homestandbygeneratorsystems.com).



## Exotic Reclaimed Flooring

Viridian's *Jakarta Blend* is 100% Asian hardwoods reclaimed from international shipping crates in Portland, Ore. The crates are disassembled and the boards are sorted, denailed, kiln-dried, and milled into 2½-inch-wide by 6-foot-long tongue-and-groove flooring. The company also makes engineered flooring with a 4-mm-thick wear layer of reclaimed hardwood and a birch plywood core. Costs range from \$6 to \$7.50 per square foot for the solid wood flooring and \$8 to \$10.50 for the engineered.

**Viridian Wood Products**, 877/909-9663, [viridianwood.com](http://viridianwood.com).

For more information about these products, go to <http://jlc.hotims.com>.

# Experience

a comfort of life in a new scale.

Designed to accent and give your home the wood look, without the wood maintenance. Our High Performance Cellular PVC TRIM and DECK won't splinter or crack, so there's no annual painting or staining.

**Veranda® HP's** advanced technology provides the ultimate protection against the outdoor elements so that it requires less effort and enjoy more out of life!

**VERANDA<sup>®</sup> HP**

High Performance  
**CELLULAR PVC  
DECK & TRIM**

www.VerandaHP.com

877.977.2386



**VERANDA<sup>®</sup> HP DECK**



ACORN DECK

**VERANDA<sup>®</sup> HP TRIM**



SHEET



TRIM



FASCIA



Go to <http://jlc.hotims.com> for more info



Won't rot, crack, splinter or split



Flame Retardant



Mold Resistant



Ultra low Maintenance



Termite Resistant



Moisture Resistant

Made in the U.S.A.



Available at



# Products



## Warmer, Drier Basements

Superior Walls' *XiPlus* foundation panels have an insulation value of R-21 (compared with R-12.5 for the maker's standard Xi panels), thanks to 4 inches of extruded polystyrene insulation and 2½ inches of Dow Thermax. All Superior Walls have a 2½-inch-thick polypropylene-reinforced concrete shell, along with 8-inch-thick steel-reinforced concrete studs and footer and header beams. Everything is monolithically poured with 5,000-psi concrete. The studs have galvanized metal facings for fastening drywall. All panels are custom-fabricated, with costs ranging from \$60 to \$80 per linear foot. Current availability is in the Eastern U.S.

**Superior Walls**, 800/452-9255, [superiorwalls.com](http://superiorwalls.com).

For more information about this product, go to <http://jlc.hotims.com>.

## Five Bits in One

### MULTIPURPOSE™



The Home Depot is a registered trademark of Home Depot, Inc.

Available at



Register at [bethepro.com/mp](http://bethepro.com/mp) for a chance to win **FREE** accessories. Offer expires: April 26, 2013

Specialty bits are great for repetitive drilling in the same materials. But when it's time to drill through multiple materials there's only one bit that doesn't compromise quality—the Bosch Multi-Purpose. It delivers fast, reliable performance in wood, masonry, ceramic tiles, plastic and metal thanks to a diamond-ground tungsten carbide tip and an advanced flute design. **Better Accessories. Better Results.**



**BOSCH**  
Invented for life

Go to <http://jlc.hotims.com> for more info



Latitudes® can get you here.

Nite Young Photography Arcadia Bluffs Golf Club, Hole #14, Arcadia, Michigan

**Latitudes Compass Rewards Program**

Join the **Latitudes Compass Rewards Program** and earn points redeemable for rewards and gifts—like a new set of clubs and a trip to your favorite golf course destination.

Boost your business potential and grow your rewards with the **Latitudes Certified Installer Program**. When Latitudes customers come to us in search of a qualified installer or contractor, we refer them to the very best: You! Qualified sales leads, a preferred listing on LatitudesDeck.com and a free sales kit are just a few of the perks.

**Sign up during our Spring Sign-up Bonus and start earning your rewards today. Visit [LatitudesDeck.com/pro](http://LatitudesDeck.com/pro) or call 800.598.9663. Offer valid April 1 - May 31, 2013.**

Go to <http://jlc.hotims.com> for more info

Latitudes Captiva Walnut

**Spring Sign-up Bonus**

Receive 1,000 bonus points when you enroll in Compass Rewards

Additional 1,000 bonus points when you become a Certified Installer

Then, start earning points including double points on your first purchase



# call for entries

Honoring excellence in design and construction of residential and light commercial remodeling and renovation projects.

## the awards

The REMODELING Design Awards is a prestigious, national competition. Award winners will be featured in the September issue of REMODELING and online at remodelingmag.com. A select number of winners also will be featured in lengthier articles throughout the year. There is no minimum or maximum number of awards in each category. One project will be chosen from among the winners as "Best of the Year."

## who's eligible

Remodeling contractors, architects, builders, developers, planners, kitchen & bath specialists, and other remodeling professionals may enter remodeling projects completed after June 1, 2011.

## why enter

- Gain recognition for your company in REMODELING magazine
- Receive additional coverage online at remodelingmag.com
- Promote your business and get great exposure

## categories

- Whole-House Remodeling
- Additions
- Commercial Remodeling
- Historically Sensitive Renovation
- Kitchen Remodeling
- Bathroom Remodeling
- Design/Build
- Green Remodeling
- Craftsmanship/Detail
- Basement Remodeling
- Exterior Remodeling
- Better Living/Universal Design—New for 2013

## how to enter

**Step 1:** Register and make payment on [remodelingdesignawards.com](http://remodelingdesignawards.com) by May 6, 2013.

**Step 2:** Follow instructions you receive with registration on type of binder to purchase and how to submit photos and information about your project.

**Step 3:** Mail in your completed binder by May 20, 2013.

## questions

**Online:** [remodelingdesignawards.com](http://remodelingdesignawards.com)

**Email:** [sfired@hanleywood.com](mailto:sfired@hanleywood.com)

**Call:** 202.736.3313

**Fax:** 202.785.1974



enter today!  
[remodelingdesignawards.com](http://remodelingdesignawards.com)

## entry deadline & fee

Online Registration Deadline:

**May 6, 2013**

Completed Binder Deadline:

**May 20, 2013**

Entry Fee:

**\$165**

# Products

## Fluorescent Replacement

Larson Electronics' 4-foot LED *T-Series* style bulb replaces the company's T8 and T12 fluorescents. It delivers 2,750 lumens (vs. 2,600 for a typical T8) and comes in 5,600K and 4,300K color temperatures (which are on the cool side of the spectrum). It's available for about \$70.

**Larson Electronics**, 800/369-6671, [larsonelectronics.com](http://larsonelectronics.com).



## Pretty Face

A fascia board can really dress up a wall-mounted door track. Now Johnson Hardware is offering a pre-assembled *Wall Mounted Fascia* to go with its 200 WM Series Sliding Door Track. The 200 WM is an extruded I-beam track that supports doors as heavy as 400 pounds and comes in lengths of up to 16 feet. Cost depends on length, with a 48-inch track and fascia priced at \$175 and \$75, respectively. Fascia can be ordered with a Bronze Anodized or Clear Satin finish.

**Johnson Hardware**, 800/837-5664, [johnsonhardware.com](http://johnsonhardware.com).

For more information about these products, go to <http://jlc.hotims.com>.



## Our no-metal Spacers

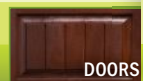
WILL LEAVE THEM FEELING ALL WARM INSIDE.  
**With greatly reduced condensation and consistently clearer views.**

Are you looking for an alternative to the consumer-grade windows sold through home improvement warehouses? Then join the group of professional contractors who have come to demand a certain level of perfection from themselves and their suppliers.

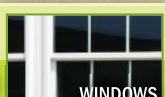
The Professional Way at ProVia means we sweat the small stuff right along with you—caring for details in ways others won't. It's not something new for us; we've been doing it that way for over 35 years. Visit us at [www.proviaproducts.com](http://www.proviaproducts.com).



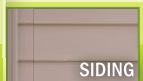
INTEGRA®



DOORS



WINDOWS



SIDING



STONE

[proviaproducts.com](http://proviaproducts.com)

**ProVia**  
THE PROFESSIONAL WAY

Go to <http://jlc.hotims.com> for more info

# NAHB: Fighting for remodelers for more than 50 years

NAHB Remodelers leads the industry in advocating for professional remodelers on

- Pro-small business policies
- Lead paint and OSHA regulations
- Tax and legal issues
- Energy retrofits
- And more



NAHB Remodelers

Learn more: [nahb.org/whynahbr](http://nahb.org/whynahbr)

## DeWalt DWE357 Reciprocating Saw

by Greg Burnet

Someone once told me that if you see a finish carpenter with a recip saw in his hands, he's not making any money. This, I know from my own experience, isn't entirely true. My company does finish work, but because we focus primarily on window and door repairs and replacements, we use a recip saw almost every day, for everything from cutting out rotten components to freeing door jambs. While some carpenters favor big 15-amp, 10-pound recip saws for their raw power and aggressiveness, my crew gravitates toward tools with finesse and maneuverability. That's why I was eager to try out DeWalt's DWE357 reciprocating saw when it was introduced last year.

### Compact Size

The new DeWalt saw doesn't look like most recip saws. In both shape and size, it resembles a drill. The motor sits at an angle relative to the blade, with the handle directly behind it, an arrangement that seems to maximize control and comfort. Also, at just 14½ inches in length, the DWE357 is a good 4½ inches shorter than our conventional recip saws. We found the compact size to be a big advantage in certain situations, allowing us to get into tight spaces that otherwise might have been inaccessible. The saw is unusually light, too, weighing in at around



### DWE357 Specs

**Amps:** 10

**Strokes per minute:** 0-2,800  
(variable speed)

**Weight:** 6.8 pounds

**Length:** 14.5 inches

**Price:** \$115 (includes kit bag, three-year limited warranty, and one-year free service contract)

**DeWalt Industrial Tool Co.**

**800/433-9258**

**dewalt.com**

7 pounds (with the blade). The reduced weight means less fatigue, particularly when you're operating the saw with one hand (try that with a conventional recip saw!) or in an awkward position.

The DWE357 has a unique four-position blade holder that makes it even easier to make cuts in confined areas. Blades can be mounted with their teeth oriented up, down, left, or right, a feature that plumbers, electricians, and other tradespeople who have to make cuts in tight spots may find especially useful. It also has a lever-operated blade clamp, which makes blade changes a snap.

### Cutting Performance

Compact as this tool is, it doesn't lack for power. Like many conventional recip saws, it has a 10-amp motor. But it doesn't have orbital blade action, a mode that allows a saw to make faster cuts in wood. Personally, I miss this feature. Since my crew members often cut metal (for which orbital mode would need to be disengaged anyway) and view this tool as more of a surgical instrument than a heavy demolition device, not having this benefit doesn't matter as much to them.

The blade has a 1⅛-inch stroke and cuts at 2,800 spm



# NARI membership—

*The right tool for your business.*

## **NARI is:**

- *Your* medium for business development.
- *Your* platform for advocacy.
- *Your* principal source for remodeling industry intelligence.
- *Your* place to network with industry peers.
- *Your* leading source of education.

*\* Including the Certified Kitchen and Bath Remodeler program.*

To learn more about membership, visit [NARI.org](http://NARI.org), e-mail [info@nari.org](mailto:info@nari.org) or call (847) 298-9200.

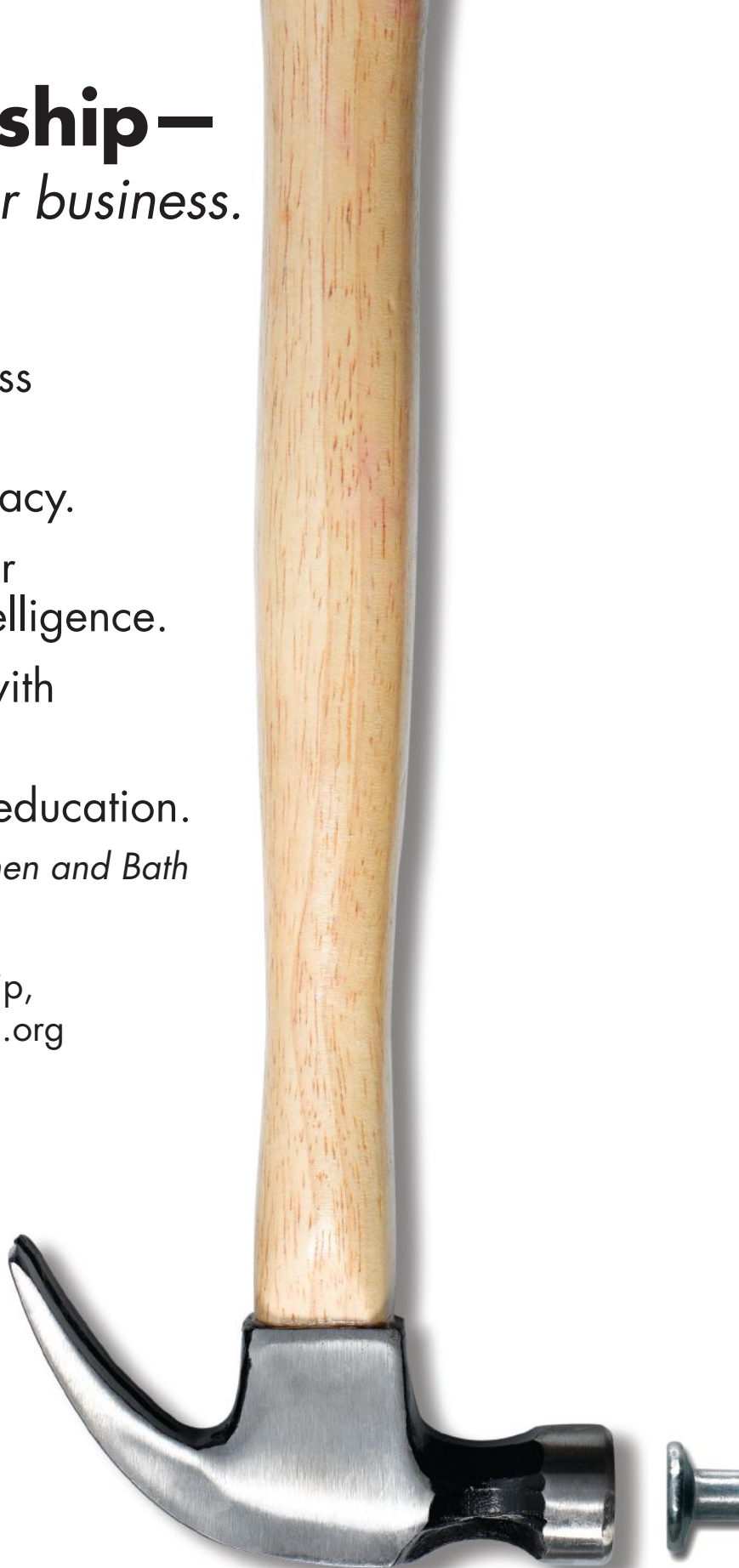
Follow us:



**NARINational**



**NARI\_National**



## Toolbox | DeWalt DWE357 Reciprocating Saw

— a good speed, though not overly aggressive. I found the variable-speed trigger, which lets you adjust the speed anywhere from 0 to the top end, a bit touchy.

Both the handle and the front area around the blade are covered with soft rubber, making the saw easy to grip, even when you're wearing gloves. Vibration was about average compared with our other recip saws. The DWE357's 8-foot power cord exits the tool just under the handle, which keeps it out of the way of most cuts.

Like many power-tool manufacturers, DeWalt provides a soft-sided carrying bag rather than a rigid case with the saw. I'm not a big fan of bags, as they often seem to provide limited room for accessories and are somewhat of a pain to store, so we gave the saw a new home in a hard-sided modular case.



The saw has a blade holder that allows the blade to be oriented in four different directions.

### A Specialty Saw

Although I liked the DWE357, it's not for everyone, mostly because it cuts more slowly than saws with orbital action. However, when it comes to making cuts in tight spots, this tool has little competition. And since it's less tiresome to use

than a traditional recip saw, it's my first choice for cutting tasks where speed isn't the main goal.

*Greg Burnet owns Chicago Window and Door Solutions, in Chicago.*

Water-activated, self-adhesive drywall corner trim.

# HYDROTRIM

*"We switched to Hydrotrim because it's faster, you never have to leave the ground and it takes less mud to fill it which makes it dry faster. Thumbs up for Hydrotrim!"*

*Ben Soetaert, Superintendent-Kansas City  
Performance Contracting, Inc. (PCI)  
Grandview, Missouri*

*Clayton Morris and Dirk Simons, PCI  
Shawnee Mission Hospital Expansion Project*

Professionals Switching to Hydrotrim:

The leader in high-performance  
drywall corner solutions.

STRUCTUS  
BUILDING TECHNOLOGIES



For information visit [www.hydrotrimcorner.com](http://www.hydrotrimcorner.com)  
or call 1-888-662-6281.

Distributed by

**GRABBER**  
CONSTRUCTION PRODUCTS

"The Professional's Choice"  
[www.grabberman.com](http://www.grabberman.com)

Go to <http://jlc.hotims.com> for more info

## PSS1 Sharpening System

by Tom O'Brien

Even the best craftspeople have a gap or two in their skill set. My weakness is sharpening — I've never been able to put a razor-fine edge on my chisels or plane irons. So when the M.Power Precision Sharpening System (PSS1) showed up at my door, I decided to set aside any initial skepticism and give it a try.

**Idiot-proof design.** The system is admirably simple, with nothing to adjust and no small pieces to lose. It consists of two pieces of extruded aluminum — a base to set the tool on and a two-sided sliding carriage that holds a diamond stone. One side of the carriage is angled at 25 degrees, and the other at 30 degrees. This allows the user to hone a primary angle, then flip the carriage around to carve an extra-fine secondary bevel on the tip.

**Operation.** The standard sharpening package includes a 60-micron "Preparation" stone and a 35-micron "Finishing" stone (three other grits are also available). To hone, you place the blade beside one shoulder of the tool recess, slide it forward until it contacts the stone, and move the carriage back and forth. You do this first with the Preparation stone, then with the Finishing stone. There's a replaceable deburring plate on the bottom of the tool recess for smoothing the flat side of the blade.

Unskilled sharpeners (like me) will appreciate how easy it is to steady the blade and move the stone. But there is a learning curve: You have to verify that the blade is squarely positioned in the tool recess, maintain a light touch with both hands, and use short strokes that don't allow the carriage to overlap the edge of the base (to prevent wobbling).

**Honing & sharpening.** I tested the system's capabilities on a variety of cutting tools. Though the PSS1 proved capable of sharpening narrow chisels as well as planes, it was most effective as a honing device. It took me only a few passes to restore the razor-sharp edge to a properly tuned chisel, whereas trying to put a fine edge on a brand-new one-inch chisel was as tedious as blowing up an air mattress by mouth.

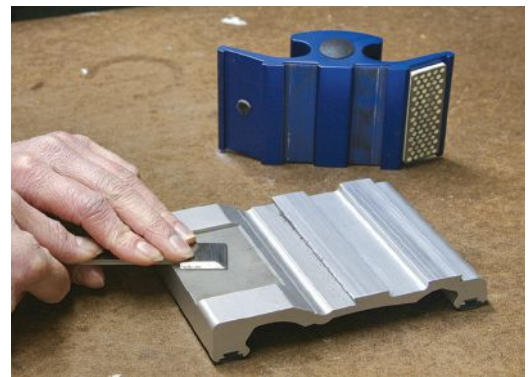
In the shop, this tool might be handy for adding a micro-bevel to a machine-ground blade (or touching it up later). But it would be most useful on the job site, if just for the peace of mind you'd gain by knowing that if you needed to mortise a lockset or shave a molding, you wouldn't have to worry about the blade.

*Contributing editor Tom O'Brien is a carpenter in New Milford, Conn.*

**Price:** \$80; additional stones, \$13 each  
**M.Power Tools Ltd., [m-powertools.com](http://m-powertools.com)**



To sharpen a plane blade or chisel with the PSS1, you simply place it on the base and run a diamond stone housed in the carriage back and forth over it.



The diamond stone in the carriage hones the beveled edges of the cutting tools, and a deburring plate on the base takes the edge off the flat side.



Powerful magnets anchor the interchangeable diamond stones to the wings of the carriage.

## Restore Don't Replace

Equal Replacement Window energy-efficiency.  
Use Speedheater Infrared Paint Remover.  
Strip old paint and hard glazing.  
Add weather stripping.  
**Summer Clearance Sale!**



[www.eco-strip.com](http://www.eco-strip.com)  
703-476-6222

## The Ultimate Door & Window SILL PAN SYSTEM

# ASTROpan™



Patent Pending

**1-800-334-4474**  
[www.astroplastics.com](http://www.astroplastics.com)

## FreeStyle Linear Drains™



The **ONLY** Linear Drain with the added assurance of a Clamping Collar.



### Installer Benefits

- Simple installation
- Fasten drain to the floor
- Tie in the plumbing
- Attach membrane to clamping mechanism

### Owner Benefits

- One-piece PVC or ABS construction with no manufactured seams ensures dependable performance for the life of the original tile installation
- High capacity - up to 36 GPM


**N** 800.878.5788  
[www.noblecompany.com](http://www.noblecompany.com)



FreeStyle Linear Drain being installed with NobleSeal® TS waterproofing sheet membrane.

## XchangeR™ Improves Indoor Air Quality. Cures Damp-Musty Basements.

Great for garages, cabins, storage areas & workshops



2 reversible 90 cfm fans supply air, exhaust or provide a balanced exchange. Built-in dampers, dehumidistat & separate on/off switches for each fan included.

### UnderAire™ Crawl Space Ventilators

Quickly reduces moisture helping to protect both home and occupants



Ventilates excess moisture, the cause of mold, mildew & wood rot. Helps vent radon, treated wood off-gassing and odors that might otherwise migrate into living areas.

**Tjernlund Products, Inc.**  
800-255-4208 • [www.tjernlund.com](http://www.tjernlund.com)

# \$\$\$ Builders

Every new house needs a material takeoff. I built a lucrative business based on that simple fact—you can too.

Start your own business or add value to the one you already have.

The numbers speak for themselves. Visit our website or call me at 877-475-3529.

—Blake Wheeler  
Wheeler Consulting


[www.wheelerconsultinginc.com](http://www.wheelerconsultinginc.com)  
A Business Opportunity

## FOR INFORMATION

on how to be a part of the next

# JLC

special advertising section,  
contact Maura Jacob at  
678-451-8627



**h w**

## ABATRON

[www.abatron.com](http://www.abatron.com)

### Restoration Products That Work As Hard As You Do

- Wood
- Concrete
- Metal
- Adhesives
- Moldmaking
- Coatings



**FREE CATALOG**  
800-445-1754  
[info@abatron.com](mailto:info@abatron.com)

# April Advertising Index

ADVERTISER	PAGE	WEBSITE	PHONE
3M	29	bit.ly/EyewearImpact	
Abatron, Inc.	85	abatron.com	800-445-1754
American Honda Motor Co., Inc.	71	gen.honda.com	
Astro Plastics	85	astroplastics.com	800-334-4474
Behr	4	behr.com/prtjlc	877-776-3961
BOSCH Power Tools and Accessories	76	bethepro.com/mp	
Calculated Industries	12	calculated.com	800-854-8075
Deckorators	57	Deckorators.com	
Diablo	7	DiabloTools.com	800-334-4107
Eco-Strip, LLC	85	eco-strip.com	703-476-6222
FastenMaster	IBC	FastenMaster.com	800-518-3569
Feeney, Inc.	8,64	feeney5.com	800-888-2418
Ferguson Enterprises, Inc.	11	ferguson.com	
FESTOOL USA	9	tracksaw.com	
Ford Motor Company	283	ford.com/commercial-trucks	
Grace Construction Products	IFC	graceresidential.com	
Home Depot, The	20	homedepot.com/pro	
Huber Engineered Woods, AdvanTech	30	AdvanTechPerforms.com/JLC3	800-933-9220
Huber Engineered Woods, ZIP	16	ZIPSystem.com/JLC1	
Huber Engineered Woods, ZIP	17	ZIPSystem.com/tape/JLC4	
Husqvarna Construction Products	10	husqvarnacp.com	800-288-5040
In-O-Vate Technologies, Inc.	39	Dryerbox.com	888-443-7937
Inteplast Group LTD.	75	VerandaHP.com	877-977-2386
JLC LIVE	38	jlclive.com	800-261-7769
Koma Building Products	50	komacelukachallenge.com	800-330-2239
Latitudes Decking & Railing	77	LatitudesDeck.com/pro	800-598-9663
Lenox Tools	23	oneblade.com	800-628-8810
Lenox Tools	25	lenoxunplugged.com/trial	800-628-8810

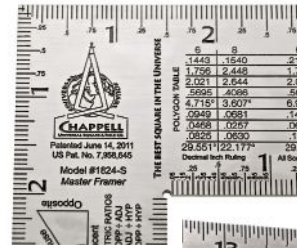
ADVERTISER	PAGE	WEBSITE	PHONE
Lumber Liquidators	12	lumberliquidators.com/prosales	800-274-2360
Malco Products, Inc.	61	malcotools.com	
Mark E Industries	8	markeindustries.com	866-771-9470
Marvin Windows and Doors	55	pros.myMarvin.com/Gallery	800-268-7644
Masterchem Industries, Inc.	53	kiiz.com	
Milwaukee	28	m.milwaukeetool.com/m/fo	
NAHB	80	nahb.org/whynahbr	
NARI	82	nari.org	847-298-9200
Nissan North America, Inc.	59	CandidCargo.com	
Noble Company	85	noblecompany.com	800-878-5788
PneuScrew	40	PneuScrew.com	
Porter Cable	1	PorterCable.com	
ProVia	79	proviaproducts.com	
ProWood	18&19	ProWoodLumber.com	
Remodeling Design Awards	78	remodelingdesignawards.com	202-736-3313
Remodeling Leadership Conference	62&63	remodelingconf.com	
Royal Building Products	72	royalmouldings.com	800-368-3117
Simpson Strong-Tie	49	strongtie.com/subfloor	800-999-5099
SKIL Power Tools	26	skiltools.com	
Stanley Black & Decker, Inc.	OBC	stanleytools.com/powerlock50	
Structus Building Technologies	83	hydrotrimcorner.com	888-662-6281
Titebond	13	titebond.com/PROvantage	800-347-4583
Tjernlund Products, Inc.	85	tjernlund.com	800-255-4208
Trim-Tex Drywall Products	10	trim-tex.com	800-874-2333
Velux-America, Inc.	14&15	veluxusa.com/taxcredits	
wedi Corporation	39	wedicorp.com	877-933-WEDI
Wheeler Consulting	85	wheelerconsultinginc.com	877-475-3529

# Toolbits

## The Ultimate Framer

A standard framing square lets you calculate basic cuts on common, hip, and jack rafters, but the tables on the Chappell *Master Framer* let you calculate cuts for all sorts of complex roof frames. That includes all cuts needed for an unequal pitched roof, as well as for a hexagonal or octagonal roof. The stainless-steel tool comes with a detailed instruction book, and its inventor says an experienced framer can become proficient using it in a couple of hours. An 18-inch-by-24-inch model costs about \$120, and a 12-inch-by-18-inch one costs \$85.

**Chappell Universal Square & Rule Co.**, 207/935-3720, [chappellsquare.com](http://chappellsquare.com).



## X-Ray Vision

DeWalt is adding a *Hand-Held Radar Scanner* to its 12-volt Max lithium-ion system. Using radar sensing technology, the tool detects and identifies wood, ferrous and nonferrous metal, live electric wires, and PVC behind wall surfaces, then displays the detected objects on a screen. It can scan through drywall, plywood, concrete, marble, and ceramic tile at a sensing depth of up to 3 inches. It will be available in May for approximately \$300.

**DeWalt**, 800/433-9258, [dewalt.com](http://dewalt.com).



## Compliance in a Pail

The *Li'L Bucket of Safe-Tie* has everything a worker needs to be OSHA-compliant up on the roof, including a steel anchor, anchor screws, a 50-foot polypropylene lifeline with a built-in shock absorber, and a universal-fit harness with five adjustment points for different body types. The equipment will work on any pitch roof and can handle up to 310 pounds. An impact indicator deploys on the harness if there's a fall, after which the harness must be taken out of service. Cost is around \$100.

**Guardian Fall Protection**, 800/466-6385, [guardianfall.com](http://guardianfall.com).



## Cordless Power

Hilti claims that its *TE 2-A18 Rotary Hammer Drill* delivers the same power as its TE 2 corded model. The tool has a high-efficiency motor, a drop-resistant housing, an LED work light, and a lithium-ion battery, and is comparable in weight to the corded version. Optimum drilling diameter range is  $\frac{3}{16}$  inch to  $\frac{3}{8}$  inch. A compact model is also available. Professionals who buy either drill get unlimited battery replacements for two years. The TE 2-A18 costs about \$500.

**Hilti**, 800/879-8000, [us.hilti.com](http://us.hilti.com).

# Backfill

## Roadside Attraction

Last October, after an out-of-control dump truck heading north on Massachusetts Route 57 careened through a stop sign, failed to make a sharp left turn, and slammed through the front wall of the New Boston Store in Sandisfield, Mass., proprietor Susan Murray knew just what to do. She and her husband, Peter, turned off the power, discarded any food that might have been contaminated in the crash, and called local builder Steve DellaGiustina to temporarily tarp off the damaged area.

Although the invasion was unwelcome, it could not have been called a surprise. The historic structure had been struck by at least a dozen vehicles since the Murrays took over the store in 1977, and many of them ended up partially or wholly inside the building. DellaGiustina and his son Nick had been called on to rebuild another section of the store two years earlier, after a passenger car took out the gas pumps and came through the front window.

According to town historian Ron Bernard, the New Boston Store has been in continuous operation on the same site at least since 1790, and possibly since 1760, making it one of the oldest — perhaps *the* oldest — store in the U.S. Even before the advent of the automobile, it

provided plenty of work for local carpenters. As a result of piecemeal rebuilding during its first century, none of the original structure survives; the oldest existing section dates back to about 1850. Like the mythical heirloom axe that's outlasted two heads and six handles, in other words, it's both the original item and a newer copy.

In this latest incident, the driver escaped without injury but the truck itself was held captive for months. Because its cab and bed had taken over the loads previously carried by the destroyed corner post, it couldn't be removed without bringing down much of the building.

Eventually, though, after the completion of a state-required survey of the damaged area for asbestos and lead paint, the westernmost 15 feet of the building was demolished and the wayward truck was returned to its owner. The DellaGiustinas buttoned up the opening and covered up the exposed section of basement. Although the Murrays have yet to announce their plans for the building, few locals expect it to reopen as a store.

But whatever business takes over the building, carpenters of the future have reason for optimism: There are still a lot of bad drivers out there. — *Jon Vara*



With its uncanny knack for backstopping out-of-control vehicles, the historic New Boston Store has provided repair work for generations of local carpenters. It's located at a sharp bend in the road, tight against a bridge.

The Sandisfield Times

# MEET CODE. LOWER COST.



View a LedgerLOK  
installation video

LedgerLOK is used by professional contractors nationwide to meet code and lower costs for making deck ledger connections.

**Meet Code:** Tested and proven to meet 2012 IRC requirements for deck ledger to rim joist connections.

**Lower Cost:** Requires no predrilling, saving time and labor.

LedgerLOK is part of the FastenMaster LOK Line family of structural wood fastening products. Visit our website to learn more, download technical documentation, watch an installation video or find a dealer near you.

## DECK LEDGER TO RIM JOIST CONNECTION

Fastener	1/2" Lag Screw	LedgerLOK
Code-Compliant	✓	✓
Predrilling	✓	NONE
Installation Time	1 min, 22 sec	7 sec

[www.FastenMaster.com](http://www.FastenMaster.com)

800-518-3569

Go to <http://jlc.hotims.com> for more info

 **LedgerLOK**<sup>®</sup>  
Ledger Board Fastener



**STANLEY**<sup>®</sup>

**POWERLOCK**<sup>®</sup>

*50 Year*  
Anniversary

# 50 YEARS OF HARD WORK WRAPPED IN 25 FEET

Help us celebrate the tape that contractors have used on jobsites for five decades! Collect four Stanley<sup>®</sup> PowerLock<sup>®</sup> Commemorative tapes in 2013 and get a fifth one for free. Each tape tells a different story of a key milestone in the 50 year history of the PowerLock<sup>®</sup> tape—from its invention in 1963 to the iconic image it still is today. To find the PowerLock<sup>®</sup> Anniversary Tapes, go to [stanleytools.com/powerlock50](http://stanleytools.com/powerlock50)

